



2021 Sustainability Bond Report

Massachusetts Bay Transportation Authority

November 2021

The MBTA remains committed to sustainability, adopting it as one of its core values in the 2020 Strategic Planning Process. In 2017, the MBTA introduced the Sustainability Bond Framework to identify capital projects which fulfill both environmental and social goals of the system.

This report highlights the sustainable bond issuances by the Massachusetts Bay Transportation Authority in calendar year 2021. These issuances include (1) a **\$56.265 million Sustainability Bond**, primarily used to finance the Lechmere Viaduct Rehabilitation project, which yielded \$68.6 million in project funds and (2) a **\$325 million Bond Anticipation Note** to interim finance Automatic Train Control through the Commuter Rail Safety and Resiliency programs, which yielded \$370 million in project funds.

The Lechmere Viaduct fulfills the safety, equity and capacity pillars of the framework. The project supports one of the largest expansion projects to the MBTA subway in recent years, extending the Green Line seven stops north into Somerville and Medford by rehabilitating a 110-year-old structure that carries Green Line trains across the Charles River. The strengthening and replacement floor system on the historic viaduct will allow for passage of newer, heavier Green Line vehicles and extend the life of the structure another 75 years.

Installation of Automatic Train Control along the north side lines is both a safety and resiliency project for the MBTA, fortifying the system against preventable train accidents and providing safe transport to 43,000 weekly pre-pandemic riders. ATC (Automatic Train Control, or Cab Signals) automatically slows a speeding train due to malfunction or operator error.

<p>VALUES OF THE MBTA</p> <p>Safety: We put safety at the forefront of our work.</p> <p>Service: We endeavor to deliver superior service, connecting people and communities.</p> <p>Equity: We strive to treat all customers and employees fairly and consult diverse voices and perspectives in decision making.</p> <p>Sustainability: We invest resources wisely in solutions for our team, our communities, and our environment.</p>

This report concludes the disclosure on the spend relating to the 2021A-2 Sustainability Bond. However, spending on the Automatic Train Control project (and the 2021 BAN) is ongoing and we expect to issue further disclosure in 2022.

Sincerely,

Mary Ann O’Hara, Chief Financial Officer

Patrick Landers, Treasurer

Christina Marin, Deputy Director of Treasury Services and P3 Finance

SUSTAINABILITY BOND ISSUANCE IN 2021	
<p>\$56.265 Sustainability Bond AA/Stable (S&P) and Aa3/Stable (Moody’s) CUSIP: 575579L96 and 575579L88 Maturity: July 1, 2042</p>	<p>\$325 million Bond Anticipation Note AA/Stable (S&P) and Aa3/Stable (Moody’s) CUSIP: 575579M95 Maturity: May 1, 2025</p>

Massachusetts Bay Transportation Authority (MBTA)

System Overview

The MBTA is the oldest and fifth largest transit system in the country, providing extensive and integrated mass transit services, along with parking facilities for the greater Boston metropolitan region. It serves a total of 176 cities and towns with a service area of 4.8 million residents. Pre-pandemic, more than 1.3 million passengers relied on the MBTA daily, providing approximately 55% of all work trips to/from Boston. In addition to operating on 38 miles of 'heavy' rail routes and 26 miles of 'light' rail routes; the authority owns more than 1,000 buses covering 763 miles. The system is supported by 6,000 employees and a \$2 billion operating budget.



Sustainability Bond Framework

Projects are identified and selected for inclusion by an internal Sustainability Committee based on the MBTA's Sustainability Bond Framework. The MBTA's Sustainability Bond Framework was developed using guidance from the International Capital Market Association, which recently sought alignment with the United Nations Sustainable Development Goals. By referencing the "Green, Social and Sustainability Bonds: A High-Level Mapping to the Sustainable Development Goals", MBTA's Sustainability Bonds aim to further several of the United Nations Sustainable Development Goals. Specifically, the projects funded will aim to address goals 7 (Affordable and Clean Energy), 9 (Industry, Innovation and Infrastructure), 11 (Sustainable Cities and Communities), and 13 (Climate Action).

The Framework evaluates the environmental and social benefits provided by the projects. Environmental considerations include the transition to a low-carbon, climate resilient and sustainable community. Social considerations include access to essential services and affordable infrastructure, critical health and safety improvements, and socioeconomic advancement. The use of proceeds from a sustainability bond should fall into the following categories:

Environment

The Massachusetts Bay Transportation Authority is dedicated to providing safe, reliable, world-class public transportation in an environmentally responsible manner.

Built environment: Respecting, protecting and improving the built environment and enhancing the quality of the travel experience;

Capacity: Reducing emissions from personal vehicle trips by increasing capacity to carry passengers and increasing the attractiveness of public transit by offering more frequent, reliable, and comfortable service;

Carbon, energy and climate resilience: Reducing carbon emissions and preparing for the potential impacts of climate change and extreme weather;

Natural environment: Respecting, protecting and enhancing the natural environment and its contribution to the quality of life;

Noise: Managing and controlling transport-related noise and vibration;

Pollution prevention: Proactively managing activities to minimize and control pollution;

Resource management: Using resources (including water) wisely and minimizing waste.

Social

The MBTA acknowledges that high quality public transportation and transit-oriented development can produce meaningful social benefits.

Affordability: Balancing our customers' means, particularly low-income riders, with the organization's financial constraints;

Accessibility: Operating an inclusive system with facilities designed to accommodate a diverse customer base;

Availability: Ensuring that communities within the service area have reasonable, equitable access to the system;

Equity: Offsetting social and environmental burdens experienced by populations or communities within the service area and/or striving for an even distribution of benefits and burdens across the diverse modes, customer bases, and service area;

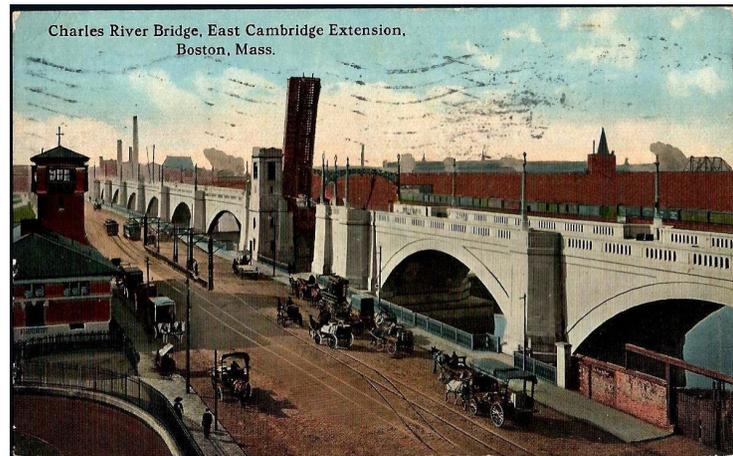
Safety: Protecting the well-being of passengers, operators, and the general public;

Workplace environment: Maintaining a safe, empowering, and satisfying workplace environment for MBTA and affiliated employees.

Lechmere Viaduct Rehabilitation

The Lechmere Viaduct carries Green Line trains from Lechmere Station across the Charles River into downtown Boston. Streetcars first crossed the bridge in June 1912. As of project initiation, the structure no longer met statutory requirements, which limited train speed and the number of trains the viaduct could support at any one time.

Work includes the complete reconstruction of track, signals, and traction power on the viaduct. The viaduct will be strengthened to handle heavier loads and increased train frequency, while also preserving its historic façade. The upgrades will allow more trains to pass over the bridge, ultimately serving a completely new Lechmere Station and the new stations constructed as part of the Green Line Extension.



The MBTA estimates that approximately 10,000 daily pre-pandemic transit trips (0.5% of system ridership) made by existing riders benefit from **safety improvements** (approximately 22% of which are made by riders in low-income households and 30% of which are made by riders of color).

The project also **increases capacity** for the system as up to 366,000 daily pre-pandemic trips made by travelers on all modes (cars, bikes, and pedestrians) could gain rapid transit as an option for completing their trips when GLX opens, approximately 42% of which are made by people in low-income households and 27% of which are made by people of color.

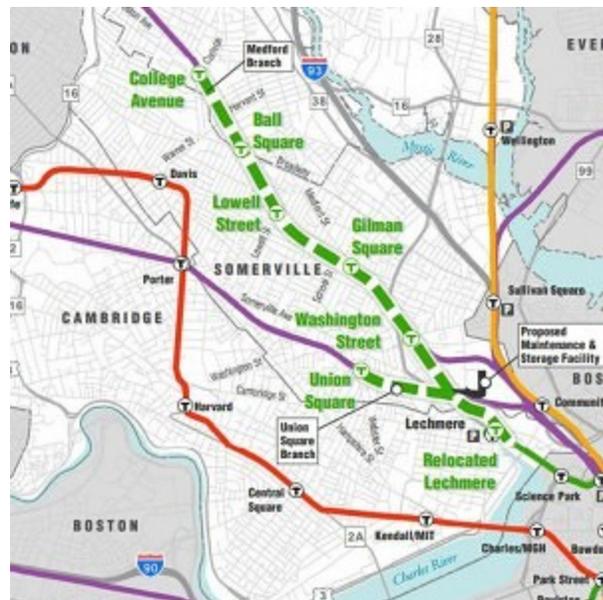
Finally, approximately 205,000 daily pre-pandemic trips made by bicycle and pedestrian travelers near the Lechmere Viaduct may benefit from reduced air pollutants.

Contract awarded: December 2019

Projected completion: December 2021

Budget: \$61.8 million (construction only)

Sustainability Bond Proceeds Used: \$32.6 million



Automatic Train Control

The MBTA has identified the installation of wayside Automatic Train Control (ATC) systems on its 170-mile North Side Commuter Rail Network as a critical need which will provide significant benefits to train traffic management, safety and uniformity of operations across the commuter rail network.

The need to implement ATC is driven in large part to improve the North Side Commuter Rail System performance, gain much needed additional train capacity and implement critical system resilience. Additionally, the Federal Railroad Administration (FRA) has required the MBTA upgrade its train control system on the MBTA North Side to include Automatic Train Control in order to comply with Positive Train Control requirements.

The project improves the safety of the system for 43,000 daily transit trips (pre-pandemic), which is 3% of system ridership and one third of commuter rail ridership.

Projected completion: December 2024

Budget: \$416.75 million

Sustainability Bond Proceeds Used To-Date: \$11 million



Additional Projects Financed

Project Name	MBTA Sustainability Priority Satisfied	Total Bond Proceeds Spent
IRON HORSE OPERATIONS CONTROL CENTER Construction of a new energy efficient building for operations dispatch of the north side commuter rail trains.	Energy Efficiency, Safety	\$8,417,722.12
WELLINGTON YARD COMPLETE UPGRADE Consists of the rehabilitation, modernization, and expansion of the current facility in order to support the new Orange Line augmented vehicle fleet.	Capacity, Resiliency, Pollution Prevention, Equity, Safety	\$8,051,163.86
CABOT YARD COMPLETE UPGRADE Infrastructure upgrades to the Cabot Yard to support a new Red Line fleet, making it easier, safer and faster for crews to work on vehicles.	Capacity, Resiliency, Pollution Prevention, Equity, Safety	\$4,882,354.65
FARE TRANSFORMATION Fare transformation will completely replace fare technology with a contactless systems, allowing the MBTA to operate more efficiently and creating more flexibility in fare structuring.	Accessibility, Equity	\$3,381,923.54
HARVARD BRIGHTENING & STATION IMPROVEMENT ACCESSIBILITY Accessibility upgrades, including sliding automatic doors to the busway; and new energy efficient modern lighting	Accessibility, Energy Efficiency	\$3,118,000.00
BRAINTREE AND QUINCY ADAMS GARAGE REHAB Upgrades at both garages to bring to a state of good repair including new accessible elevator, new stairways throughout the garages, new bicycle storage, new canopies, new emergency power generator and transformer, and installation of a new pedestrian bridge, among other improvements.	Safety, Equity, Accessibility	\$2,269,508.66
POWER SYSTEMS RESILIENCY PROGRAM Addresses urgent needs across the rapid transit power network by procuring and installing back-up power generation in critical locations and replacing or relocating collapsed AC and DC cable duct banks in priority areas.	Resiliency	\$2,179,480.18
CODMAN YARD EXPANSION AND IMPROVEMENT Supports the expansion of the Red Line fleet of new vehicles by providing an increased storage capacity while replacing existing infrastructure for improved reliability.	Capacity	\$1,490,708.07
GLOUCESTER DRAWBRIDGE REPLACEMENT The Gloucester Drawbridge, which carries the Rockport Line over the Annisquam River, is being replaced to improve safety and reliability.	Capacity, Resiliency, Pollution Prevention, Natural Environment	\$1,431,591.52
FACILITY ROOF REPLACEMENT This project provides replacement roofs at various MBTA facilities. Projects will replace roofing in its entirety. Work will also include repairs of the structural decking beneath, protection/walkway pads at perimeter of all rooftop mechanical equipment, and addition of fall protection systems and ladders.	Resiliency	\$699,226.35

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The MBTA Office of Performance Management and Innovation contributed to this report.