



2019 SUSTAINABILITY BOND PROGRESS REPORT

Massachusetts Bay Transportation Authority
November 2019



Subordinated Sales Tax Bonds 2017 Subseries A-1 (Sustainability Bonds) & Subordinated Sales Tax
Bond Anticipation Notes Series 2017 (Sustainability Notes)

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Introduction

As of April 2019, the Massachusetts Bay Transportation Authority (“MBTA”) spent all proceeds of its first sustainability bond. The bond funded more than 100 projects within the Authority’s capital improvement plan that fulfills a stated MBTA social or environmental priority.

Of the \$99 million in total bond proceeds, the three largest focus areas were pollution prevention (25%); resiliency (20%); and capacity (18.5%). The projects with the highest sustainability bond proceed spend include the Quincy Center Garage Demolition (\$9.8 million); the Overhaul of Neoplan 60 foot Dual-Mode Articulated (DMA) buses (\$8.8 million); the Charlestown Bus Seawall Rehabilitation (\$7.7 million); and the Authority’s next generation fare collection system (\$5.7 million), all of which are highlighted in this report.

The projects were selected by an internal Sustainability Committee, which identified spending priorities based on a framework (see page 5) that categorizes projects into 13 MBTA spending priorities. The framework incorporates guidance from investor groups and the academic community and is consistent with the Sustainability Bond Guidelines (“SBG”) established by the International Capital Market Association. The projects make our transportation system more resilient to climate change, more energy efficient and more accessible. They reduce pollution, enhance safety and improve workplace conditions.

The MBTA became the nation’s first issuer of tax-exempt sustainability bonds with this 2017 issuance, and we received a favorable response from the market. More banks participated in the sustainability bond offering (9) than the traditional bond offering (8). Six of the eight banks that participated in both offerings submitted more aggressive bids on the sustainability bonds than the traditional bonds. The MBTA’s borrowing cost ended up being lower for its sustainability bonds than its traditional bonds, translating into a lifetime interest savings of approximately \$2.60 per \$1,000 issued.

Given the success of the MBTA’s first issue of sustainability bonds, the Authority intends to include a component of its upcoming issue as sustainable. As we continue to identify projects for this sustainability bond, we welcome any feedback.

Sincerely,

Mary Ann O’Hara, CFO
John Markowitz, Acting Treasurer
Christina Marin, Deputy Director of Treasury Services



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 176 cities and towns with a service area of 4.8 million residents. More than 1.3 million passengers rely on the MBTA daily, providing approximately 55% of all work trips to and 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 has a \$2 billion operating budget.



Background - Sustainability Bond

In September 2017, the MBTA issued the first tax-exempt sustainability bond in the United States. The \$99 million issue financed more than 100 projects within the Authority's capital improvement plan with clear environmental and social benefits. Additionally, the Authority issued \$271 million in sustainability bond anticipation notes to finance its Positive Train Control program, a key safety initiative.

The projects range from seawall reconstruction to elevator installation, and adhere to the MBTA's Sustainability Bond Framework, which the MBTA introduced in 2017 to identify projects fulfilling the system's commitment to sustainability. An example of a project that did not meet the criteria is system-wide radio upgrades because it did not meet a predefined environmental or social priority.

The issue was recognized as The Bond Buyer's 2017 Northeast Regional Deal of the Year, and was a finalist for the National Deal of the Year.

The bonds are rated AA by S&P Global and Aa3 by Moody's Investor Services.



Sustainability bond proceeds funded renovations of a major transportation hub – Forest Hills – to improve passenger flow, accessibility and safety. The renovations included accessibility upgrades to lobby restrooms, a new station entrance, a new bus canopy, and a rebuilt commuter rail platform.



The MBTA Sustainability Bond Framework

The MBTA formed an internal Sustainability Committee and drafted a Sustainability Bond Framework ahead of its first issue of sustainability bonds. The Framework incorporates guidance from investor groups and the academic community and is consistent with the Sustainability Bond Guidelines (“SBG”) established by the International Capital Market Association.

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;

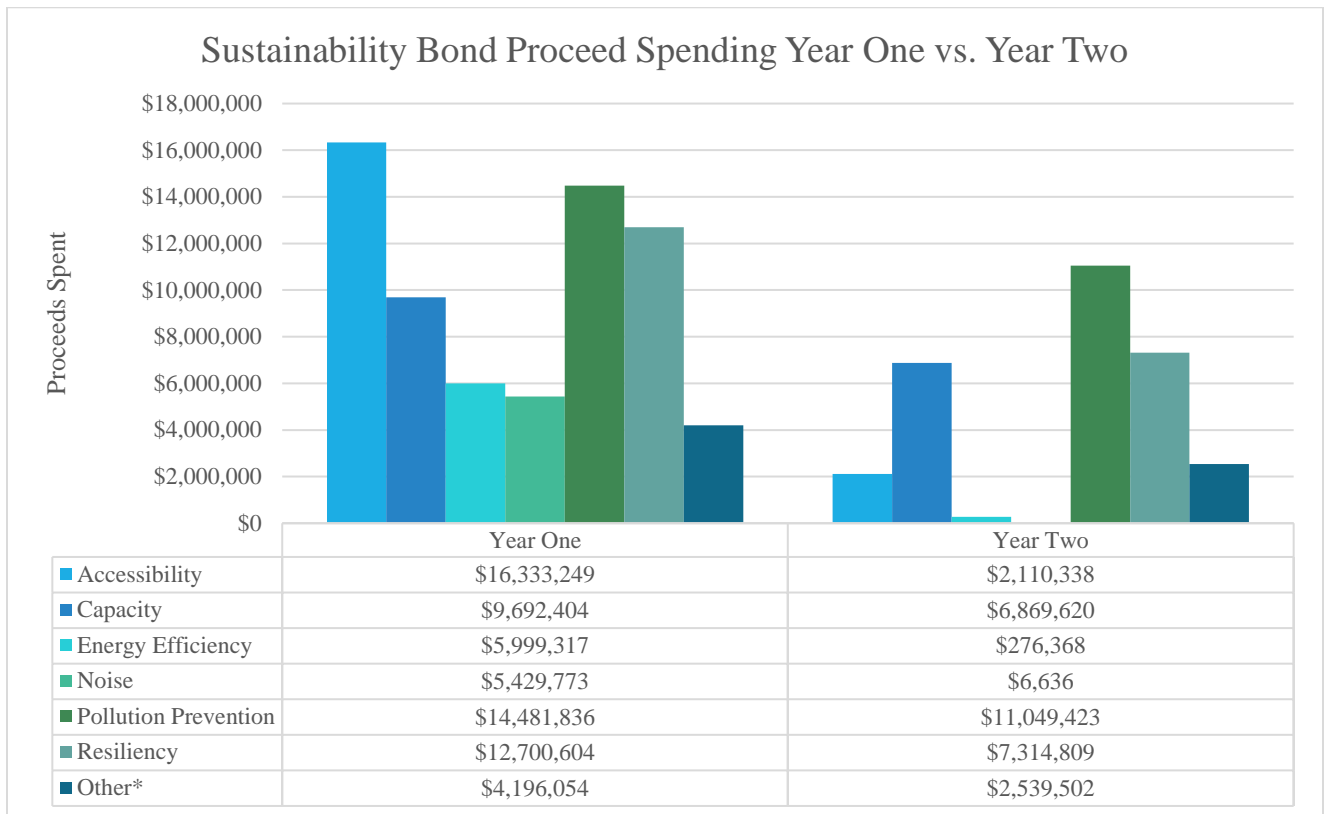
Workplace environment: Maintaining a safe, empowering, and satisfying workplace environment for MBTA and affiliated employees.



Sustainability Bond - Year Two

In its first year (Oct. 2017 – Oct. 2018), the Authority spent \$68.8 million in bond proceeds. Accessibility projects was the largest spend item (\$16.3 million), followed by pollution prevention (\$14.5 million) and resiliency (\$12.7 million).

In the second year (Oct. 2018 – Oct. 2019), the MBTA spent the remaining bond proceeds \$30.2 million. The majority of funds paid for pollution prevention projects (\$11 million), followed by resiliency (\$7.3 million) and capacity projects (\$6.9 million).



Of the \$271 million issued in Sustainability Bond Anticipation Notes for the Positive Train Control project, \$207 million has been spent as of Oct. 1, 2019. The charts above and on the following page do not take into account the BANs.



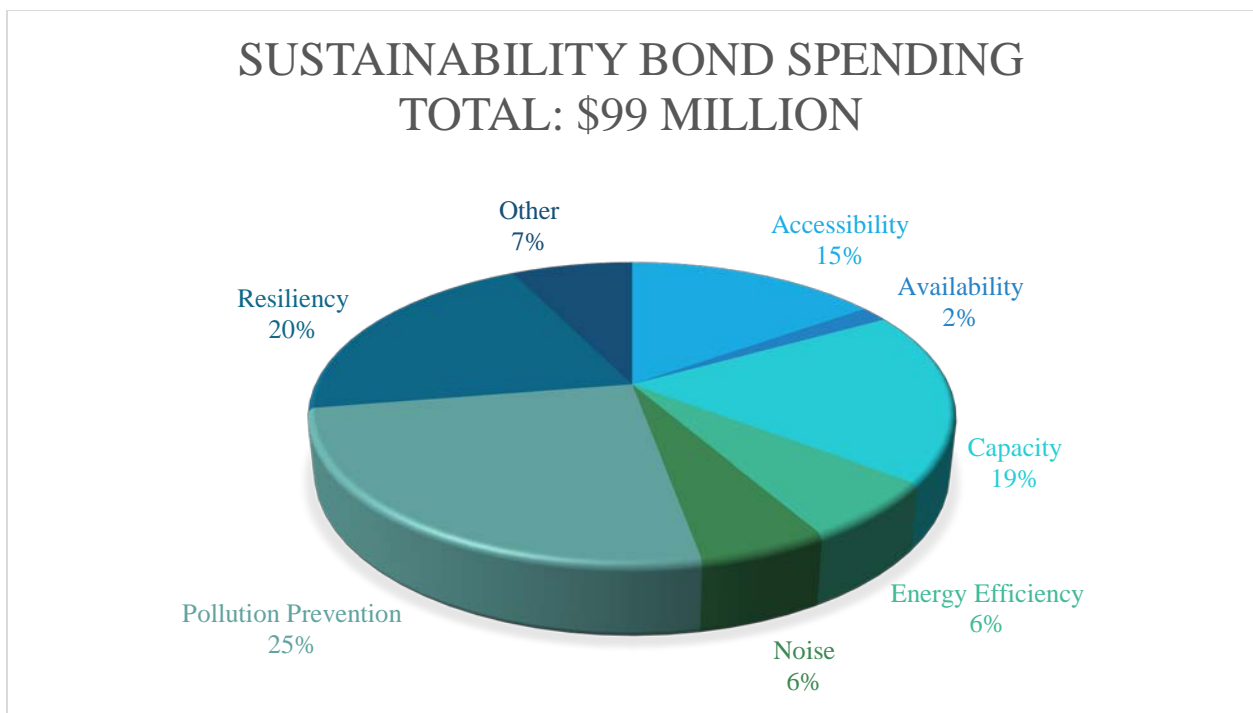
Overall Spending

Pollution prevention projects represent a large portion (25%) of the bond proceeds spent due to several large projects focused on upgrading aged infrastructure. Along with the Quincy Center Garage Demolition (page 9), other large-scale pollution prevention projects include ventilation improvements at Back Bay Station, which serves 18,000 riders a day, and updates to the MBTA's parking lots.

At Back Bay Station, the Authority pressurized two stairwells between the track and concourse levels to prevent exhaust fumes from rising to the concourse and installed jet fans in the tunnel to draw fresh air to the platform. The Authority spent \$4.6 million on parking lot improvements throughout the system. By improving its parking lots, the MBTA made park-and-ride options more attractive, thus reducing vehicle emissions. The MBTA is the owner of the largest number of off-street paid parking spaces in New England with 100 parking lots and 44,000 spaces.

Resiliency projects represent twenty percent (20%) of bond proceed spent as the Authority undertakes projects to protect itself from the effects of climate change. Given the system's proximity to the ocean, many of its key assets are exposed to rising sea levels. Top resiliency projects include the Charlestown Seawall (page 12), bridge repair, and tunnel rehabilitation.

For a more comprehensive list of projects, please refer to page 13.



Project Highlights

Positive Train Control - Safety

Positive Train Control is an initiative designed to ensure safety for riders and employees by reducing the probability of collision and over-speed derailments and accidents. Using GPS-based safety technology, the system works to stop or slow a train that is not being operated safely.

The MBTA has completed installation of PTC equipment on its rail lines and trains and is now in the process of testing the equipment and placing it in service. PTC Training has been completed for 1,088 of 1,277 employees (85%). Currently, PTC is in operation on nine of the MBTA's 15 commuter rail lines (235 of 394 total route miles – 60%). The MBTA is on track to meet the federally-mandated PTC requirements by Dec. 31, 2020 (an extended deadline).

During PTC installation, crews have logged 264,117 safe man hours, i.e. there have been no safety incidents that have caused workers to miss work.

Sustainability Note Proceeds Spent:
\$207 million



As part of a federal mandate passed by Congress in 2008, the MBTA is installing Positive Train Control (PTC) technology across all commuter rail lines.

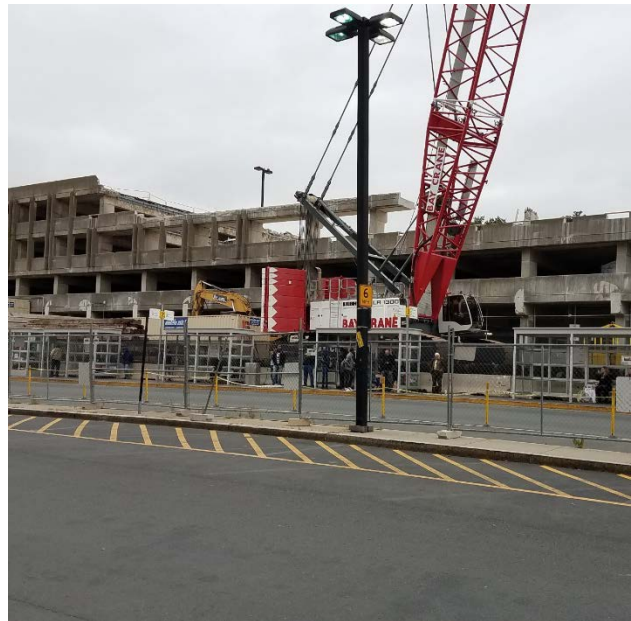


Quincy Center Garage Demolition – Pollution Prevention



The Quincy Center Garage, which was completed in 1971, has not been used since July 2012 due to structural problems. To make room for other development, including new parking, the MBTA demolished the existing structure. All building material was categorized and any lead, asbestos, PCBs or other hazardous waste was disposed of per code and per environmental regulation.

Sustainability Bond Proceeds Spent:
\$9.8 million



The MBTA removed the upper three floors of the garage with approximately two thirds volume of the concrete removed categorized as PCB Bulk Waste product.





The DMA Bus Overhaul Program extended the service life of the aging bus fleet. The engine overhaul and installation of new PA44 generators, combined with various additional bus system enhancements, improved fuel economy and reduced emissions.

Overhaul of Neoplan 60' Dual Mode Articulated (DMA) Buses – Accessibility, Energy Efficiency, Noise

The Authority initiated an overhaul of a fleet of 32 hybrid buses in order to extend the useful life an additional six years. The buses were originally purchased between 2004 and 2006, and were specifically designed to meet unique service demands, operating in trolley bus mode in the zero-emissions Silver Line Transit Way Tunnel, as well as in diesel mode on surface roads to Logan Airport.

The overhaul of axles, suspension components, traction motors, and propulsion equipment greatly reduce vehicle noise. Noise testing was conducted on each vehicle to ensure that it was overhauled in line with Original Equipment Manufacturer standards. We installed a new wheelchair ramp on each bus and new LED lighting to improve visibility and overall passenger experience (removing florescent lighting). Also, we integrated a more appropriately-sized generator into the vehicle with additional upgrades to the engine/propulsion system for improved operation and reduced emissions.

Sustainability Bond Proceeds Spent:
\$8.8 million



Fare Collection - Capacity

The MBTA is building a new fare collection system that will make paying for transit easier and MBTA services faster. The next generation of fare collection technology will build upon the existing system, while introducing significant improvements like acceptance of mobile wallets (e.g., Apple Pay, Google Pay), contactless credit cards, and enhanced Charlie Cards. The system will also enable more reliable service on buses and the Green Line by introducing all-door boarding, all the time. Finally, the new system will allow fare payments at the MBTA to be seamless across all modes: Bus, subway, ferry, and commuter rail will all be integrated, allowing for possibilities like transfers between commuter rail and subway.

This new system represents the Authority's response to concerns heard from riders over the years. The new system will:

- Increase ease of access of Charlie Cards by stocking them in all fare vending machines.
- Expand the number of locations where customers can load fares, outside of subway stations.
- Simplify the application and administration of reduced fare programs, making it easier for customers to join these programs.
- Address accessibility issues and improve access for low-income, minority and other disadvantaged groups.
- Provide fully reconciled, auditable and accurate revenue deposits and reports.



A rider tests out the new fare collection gates at the MBTA model office.

Sustainability Bond Proceeds Spent: \$5.7 million



Charlestown Seawall - Climate Resiliency



An aerial view of the Charlestown seawall, which protects more than \$140 million of MBTA assets at the abutting bus facility.

The Charleston seawall, which protects more than \$140 million of MBTA assets at its bus garage, is approaching 70% completion with finish date anticipated for the spring of 2020. The project rebuilds a dilapidated retaining wall, modernizes drainage, and upgrades utilities; which will ensure that the site remains stable and completely functional, while protecting habitat and water quality along the Mystic River by preventing erosion, and minimizing run-off. Once complete, the MBTA will collaborate with the Department of Conservation and Recreation to extend a bike path over the wall. The seawall was constructed using a new technology called jet-grouting, which has enabled a shorter construction time, lower cost, and a reduced risk of safety incidents during construction.

Sustainability Bond Proceeds Spent: \$7.7 million



Additional Spending Categories¹

Project Name	MBTA Sustainability Priority Satisfied	Total Bond Proceeds Spent
EMERGENCY BRIDGE REPAIR This project funds the design and remediation of selected bridges that are of immediate concern throughout the MBTA.	Safety, Resiliency	\$4,891,160
PARKING This project consists of on-call paving throughout the MBTA system. The MBTA is the owner of the largest number of off-street paid parking spaces in New England with 100 parking lots and 44,000 spaces.	Pollution Prevention	\$4,618,811
NEW FLYER 325 BUS PROCUREMENT Purchase and delivery of 325 compressed natural gas (CNG) and diesel-electric hybrid buses to replace assets beyond their useful life	Capacity, Accessibility, Noise	\$4,491,224
TUNNEL REHAB This project involves performing repair and rehabilitation of tunnel walls and ceiling slab on various tunnel sections.	Resiliency	\$4,110,413
ELEVATOR PROGRAM This program provides funding for the replacement/modernization of elevators and escalators throughout the system, ensuring improved accessibility.	Accessibility	\$3,613,501
RED LINE SIGNAL TROUGH AND WINTER RESILIENCY Controls to maintain efficient and safe train separation, including alternating circuits, audio frequency track circuits, relays, processors, wayside cases and bungalows, train approach lights, switches, trip stops, and heaters.	Capacity, Safety, Resiliency	\$3,560,490
BACK BAY STATION VENTILATION Making air quality improvements at Back Bay station, which serves 18,000 riders a day by pressurizing two stairwells between the track and concourse levels to prevent exhaust fumes from rising to the concourse, and installing jet fans in the tunnel to draw fresh air to the platform.	Pollution Prevention	\$3,086,931
BRAINTREE AND QUINCY ADAMS GARAGE REHABILITATION Rehabilitating parking garages through structural concrete and parking deck repairs and new water protection and drainage systems.	Pollution Prevention	\$2,682,583
RUGGLES STATION UPGRADE This project addresses longstanding commuter rail capacity needs at Ruggles Station by adding an additional platform. This will allow a greater number of inbound trains to stop at the station.	Capacity, Availability, Resiliency	\$2,627,851
SIGNAL PROGRAM - RED/ORANGE LINE Updating signal systems on the red and orange line to improve frequency of trains.	Capacity	\$2,371,136
NORTH SIDE OPERATIONS CONTROL CENTER (NSOCC) Construction of Iron Horse Park Operations Control Center building to provide an updated dispatch facility for Commuter Rail North (CRN) and Pan Am freight and to house the back-up Positive Train Control (PTC) data center.	Resiliency	\$1,879,678

¹ Includes only projects in which more than \$100,000 in bond proceeds were spent in the first year.



Project Name	MBTA Sustainability Priority Satisfied	Total Bond Proceeds Spent
OVERHAUL OF 155 OPTION NEW FLYER BUSES Recondition 155 diesel buses to improve mileage and efficiency.	Energy Efficiency, Accessibility, Noise	\$1,744,165
ORANGE LINE TRACTION POWER UPGRADE This program provides funding for various power projects and other infrastructure work, necessary for the operation of the next generation Orange Line vehicles.	Energy Efficiency	\$1,460,048
MERRIMACK RIVER BRIDGE The bridge, which currently carries Haverhill commuter rail trains, freight trains, and Amtrak trains, is in need of bearing work, steel repairs, and timber deck replacement.	Capacity, Resiliency	\$1,265,198
EAST STREET BRIDGE REPLACEMENT The current bridge design has low clearance, and the roadway beneath has no sidewalks, posing a safety hazard to vehicles and pedestrians passing under it. The project allows for improved vertical clearance of 13 feet, 6 inches and five feet for sidewalks.	Safety, Capacity, Resiliency, Pollution Prevention	\$1,218,395
NEW FLYER 60 BUS PROCURMENT Purchase and delivery of compressed natural gas (CNG) and diesel-electric hybrid buses to replace assets beyond their useful life.	Accessibility, Noise, Capacity	\$1,151,541
FITCHBURG LINE SMALL STARTS Improvements to the Commuter Rail Fitchburg Line, including installing double track, construction of high-level platforms for better accessibility, replacement and updating of grade crossing warning system, construction of new and modified interlocking, transfer of the Waltham Tower to MBTA Control Center, and bridge repair and replacement.	Capacity	\$1,149,803
BEVERLY DRAWBRIDGE REHAB This project funds two Beverly Drawbridge Contracts. The first contract funds concrete pile repair and approach work and the second contract funds the replacement of the bridge superstructure.	Capacity, Resiliency, Pollution Prevention, Natural Environment	\$1,107,303
NATICK CENTER STATION ACCESSIBILITY PROJECT The MBTA's Natick Center Commuter Rail Station ranks in the top 25% of busiest commuter rail stations. This project installed high-level platforms and a new set of crossovers east of the station to improve operational flexibility.	Accessibility	\$1,030,324
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, Natural Environment, Pollution Prevention	\$991,610
ELEVATOR PROGRAM MULTIPLE LOCATION DESIGN The scope of this project is the design of elevator replacements in multiple stations.	Accessibility	\$960,171
BRIDGE BUNDLING CONTRACT This project funds the design-build for six commuter rail bridges.	Capacity, Pollution Prevention	\$914,074
QUINCY HIGHSPEED CATAMARAN This project funds the procurement of a high-speed catamaran for MBTA Harbor Express serving Quincy.	Pollution Prevention, Capacity	\$886,368



Project Name	MBTA Sustainability Priority Satisfied	Total Bond Proceeds Spent
<p>NEWTON HIGHLANDS GREEN LINE STATION ACCESSIBILITY PROJECT This project enhances accessibility to the existing Newton Highlands station on the Green Line D Branch.</p>	Accessibility	\$790,079
<p>CABOT YARD COMPLETE UPGRADE The Cabot Yard and Maintenance Facility Improvements involve the replacement and upgrade of elements of the existing Cabot Yard and Cabot Maintenance Facility to allow for safe operation, proper maintenance, and reliable service for the augmented vehicle fleet. The Cabot Yard and Maintenance Facility Improvements project when complete will enable train cars to move more efficiently through Cabot Yard. Modernization of the maintenance facility will reduce downtime and increase safety.</p>	Safety, Capacity	\$700,230
<p>SYMPHONY STATION IMPROVEMENTS This scope includes the design of four new elevators, along with significant station modifications consisting of raising boarding platforms, new egress points at the platforms, a renovated station lobby, and reconditioning of the currently defunct restrooms.</p>	Accessibility, Capacity	\$657,115
<p>FOREST HILLS IMPROVEMENT PROJECT Finances improvements at the Forest Hills Station to comply with ADA and Massachusetts Architectural Access Board (MAAB) accessibility standards. Work also includes infrastructure and other improvements (e.g., wayfinding signage, installation of tactile platform edges).</p>	Accessibility	\$653,166
<p>ROCKPORT COMMUTER RAIL LAYOVER FACILITY PWR UPGRADE The project includes a new electrical substation, underground electrical transmission duct banks, new power packs (APU's) at the locomotives, trench and lot restoration.</p>	Pollution Prevention	\$633,460
<p>COMMUTER RAIL MISC. EQUIPMENT (WINTER RESILIENCY) Upgrades to commuter rail equipment that improve winter resiliency.</p>	Availability, Safety	\$626,258
<p>LOCOMOTIVE OVERHAUL This project funds the procurement and/or rehabilitation of commuter rail locomotives and coaches, including top-deck and midlife overhaul work and other upgrades to vehicles.</p>	Capacity, Pollution Prevention	\$582,331
<p>FACILITY ROOF REPLACEMENT ON-CALL This project will provide 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.</p>	Safety	\$568,543
<p>OAK GROVE STATION VERTICAL TRANSPORTATION IMPROVEMENTS Upgrades at Oak Grove Station will improve accessibility by adding new elevators and improving existing elevators. The project scope also includes upgrades to sidewalks and electrical equipment.</p>	Accessibility	\$221,246



Project Name	MBTA Sustainability Priority Satisfied	Total Bond Proceeds Spent
CABOT MAINTENANCE FACILITY - PCB REMEDIATION The project funds various improvements to the Cabot Maintenance Facility, including PCB remediation, HVAC improvements, and the design, engineering, and replacement of rail car lifts.	Safety, Pollution Prevention	\$546,813
GREEN LINE #7 CAR MIDLIFE OVERHAUL The scope includes replacing and adjusting the obstruction-sensing system on the car doors, modifying the wheel profile to minimize wear on the track, upgrading and repairing the coupler support rods and spherical bearings, reengineering and upgrading the brake actuators, and replacing vehicle roofs. This project is an expansion of the No. 7 fleet modification program.	Energy Efficiency, Pollution	\$535,838
AUBURNDALE/NEWTON COMMUTER RAIL STATIONS STUDY This project funds the design of accessibility improvements.	Accessibility	\$521,588
NEPONSET RIVER LOWER MILLS BRIDGE The Neponset Lower Mills Bridge carries the Mattapan high speed trolley line over the Neponset River. The proposed work consists of repairing the concrete abutments and the concrete encasement spalling of the superstructure to safely operate the current train service with a design life of 10 to 15 years.	Pollution Prevention	\$498,131
45 HIGH STREET - DATA CENTER UPGRADES This project funds the investigation and re-design of the fire protection and mechanical systems of 45 High Street. This effort is important due to the fragile and unreliable nature of the current fire protection systems within this 10-story facility. The systems are at or near their functional life cycle, so this is a safety critical, code compliance effort first and foremost, and it extends to also having operational benefits.	Energy Efficiency	\$410,181
ACCESSIBILITY IMPROVEMENTS The MBTA makes various accessibility improvements across its system.	Accessibility	\$396,747
TUNNEL REPAIRS (ON CALL) - INCLUDING ORANGE LINE TUNNEL REPAIRS This project will develop plans and specifications for an On-Call tunnel repairs for all mainline tunnels in the MBTA system. This contract also, will develop plans and specifications for repairs necessary for the Orange Line (Chinatown to Haymarket Stations).	Resiliency	\$390,195
DORCHESTER AVENUE BRIDGE The design and construction for rehabilitation or replacement of three bridges along Dorchester Avenue in Boston that span MBTA rail lines. One of the three structures spans the Old Colony Commuter Rail Line that services Kingston, Plymouth, Middleborough, and Lakeville.	Safety, Resiliency	\$324,608
ALEWIFE CROSSING IMPROVEMENTS As part of the Red/Orange Line Infrastructure Improvement Program, this project involves the upgrade of track switches at Alewife Station and associated retrofits to accommodate these new components.	Capacity	\$322,994
LONO BUS PROCUREMENT PROJECT Procurement of Battery Electric 60 ft Articulated Buses for operation on the Silver Line.	Pollution Prevention	\$298,767



Project Name	MBTA Sustainability Priority Satisfied	Total Bond Proceeds Spent
MANSFIELD STATION ACCESSIBILITY This project includes new stairs and ramps, canopies, accessible platforms, guardrails, improved lighting and a paved parking lot.	Accessibility	\$263,278
RED LINE SUBSTATION TRACTION POWER UPGRADES The project involves a complete refurbishment of five traction power substations on the Red Line: Columbia, Tenean, Wollaston, North Quincy, and Quincy Center. In addition, the project replaces two open-faced/elevated DC breakers on the Red Line. This will improve safety for MBTA personnel and service reliability for passengers.	Capacity, Energy Efficiency, Safety	\$248,571
GREEN LINE TRAIN PROTECTION Reduce the risk of red signal violations and train-to-train collisions on the Green Line and prevent overspeed derailments and unsafe intrusions into work zones.	Safety	\$238,863
IRON HORSE OPERATIONS CONTROL CENTER Construction of a new energy efficient building for operations dispatch of the north side commuter rail trains.	Energy Efficiency	\$220,046
SHAWSHEEN WILMINGTON BRIDGE REHABILITATION This project is for the rehabilitation of the Shawsheen River Bridge located on the Wilmington/Billerica border, which carries the Lowell Commuter Rail over the Shawsheen River. The project will make for more reliable commuter rail service, bring the bridge into a state of good repair, and reduce maintenance costs and service impacts.	Capacity, Resiliency, Pollution Prevention, Natural Environment	\$219,439
GOVERNMENT CENTER STATION Modifications for this station include a new headhouse on City Hall Plaza, new raised platforms, a new electrical substation, the installation of a new elevator, LED signage and accessible fare collection equipment, and lighting and other station finishes.	Capacity, Accessibility, Resiliency, Pollution Prevention	\$208,205
RED LINE #2 CAR OVERHAUL Overhaul of 58 Red Line No. 2 cars originally delivered in 1988 to improve reliability and reduce maintenance costs.	Capacity, Resiliency, Accessibility	\$206,156
PROCURE COMMUTER RAIL LOCOMOTIVES (BASE) This project funds the procurement and/or rehabilitation of commuter rail locomotives and coaches, including top-deck and midlife overhaul work and other upgrades to vehicles.	Pollution Prevention	\$205,977
FENWAY PORTAL FLOOD PROTECTION This project involves the construction of flood control measures at the entrance to the Green Line subway tunnel adjacent to Fenway station. Large steel doors installed at the entrance to the Green Line tunnel to protect the subway from potential future flooding.	Resiliency	\$200,074
BUS ROUTE SAFETY AND SERVICE IMPROVEMENTS Improvements at bus stops that have been identified as not accessible to seniors and individuals with disabilities. Retrofits by location may include: bus stop lengthening, new sidewalk landing pads, reconstructed sidewalks, curb ramps and crosswalks, pedestrian crossing signals, signage and pavement markings.	Capacity, Safety, Accessibility	\$188,862



Project Name	MBTA Sustainability Priority Satisfied	Total Bond Proceeds Spent
<p>LOCOMOTIVE RESTORATION TO INCREASE FLEET SIZE This project funds the overhaul of key components of the locomotive and coach fleet. Included in this overhaul program are important safety components such as trucks, brakes, couplers, and gears, in addition to others such as air conditioning systems and toilets. The program encompasses approximately 270 coaches of the coach fleet.</p>	Capacity, Pollution Prevention	\$180,486
<p>HARVARD SQUARE BUSWAY REPAIRS Rehabilitation of roadway, drainage and catenary infrastructure at the Harvard Square Busway.</p>	Pollution Prevention	\$178,428
<p>ALEWIFE GARAGE IMPROVEMENTS The Alewife parking garage project consists of concrete repairs to the parking garage, including precast concrete double tees, concrete columns, and concrete beam; repairs to damaged drain pipes; removing and replacing expansion joints; re-caulking joints; replacing damaged skylight panels; replacing scupper grates and floor plates; and performing an inspection of the existing drainage system.</p>	Capacity	\$169,221
<p>EVERETT BUS - FLOWFILL REPAIRS This project involves filling a large portion of the Everett basement with super air-entrained concrete in one area. This remedy will address the structural foundation issues as well as provide an engineered barrier for the earthen floor areas which have been contaminated with heavy metals.</p>	Pollution Prevention, Natural Resource	\$167,963
<p>PUBLIC SAFETY IMPROVEMENTS TO SYSTEMWIDE RADIO This major project seeks to expand and overhaul the entire existing radio system and to replace the tunnel antenna system. The project deploys an upgraded digital system, taking advantage of 20 channels licensed by the Federal Communications Commission.</p>	Safety	\$138,211
<p>SYSTEMWIDE TRANSFORMER REPLACEMENT, PHASE 2 This project includes the rehabilitation or replacement of traction power substations throughout the system.</p>	Energy Efficiency, Pollution Prevention	\$135,771
<p>SHORELINE AND SAUGUS BRIDGES Full replacements of the 100-year-old Saugus drawbridge on the Newburyport/Rockport line and the Shoreline bridge on the Franklin line.</p>	Capacity, Resiliency, Pollution Prevention, Natural Environment	\$135,258
<p>LOCOMOTIVE/COACH IMPROVEMENTS Overhaul of key components of existing commuter rail revenue vehicles, with production years dating back to 1979.</p>	Capacity	\$122,461
<p>FEASIBILITY STUDY OF REMAINING INACCESSIBLE STATIONS Commissioning a feasibility study for all stations that remain inaccessible.</p>	Accessibility	\$118,059
<p>FERRY SYSTEM IMPROVEMENTS Primarily improvements and repairs needed at docking facilities & water jet overhauls to improve reliability & performance.</p>	Capacity	\$101,774



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