



# **Massachusetts Bay Transportation Authority**

## **Capital Investment Plan Update**

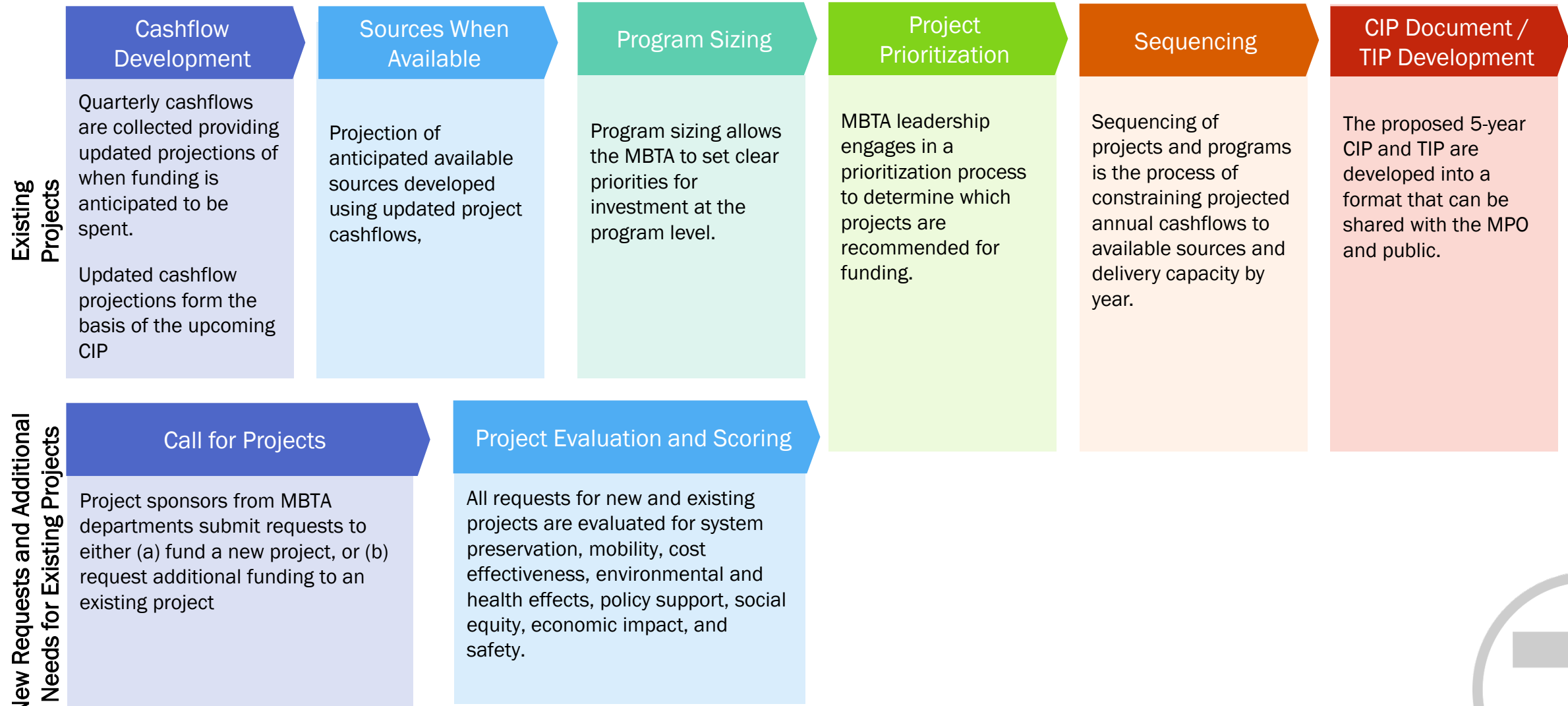
Initial FY23-27 program sizes and public engagement process preview

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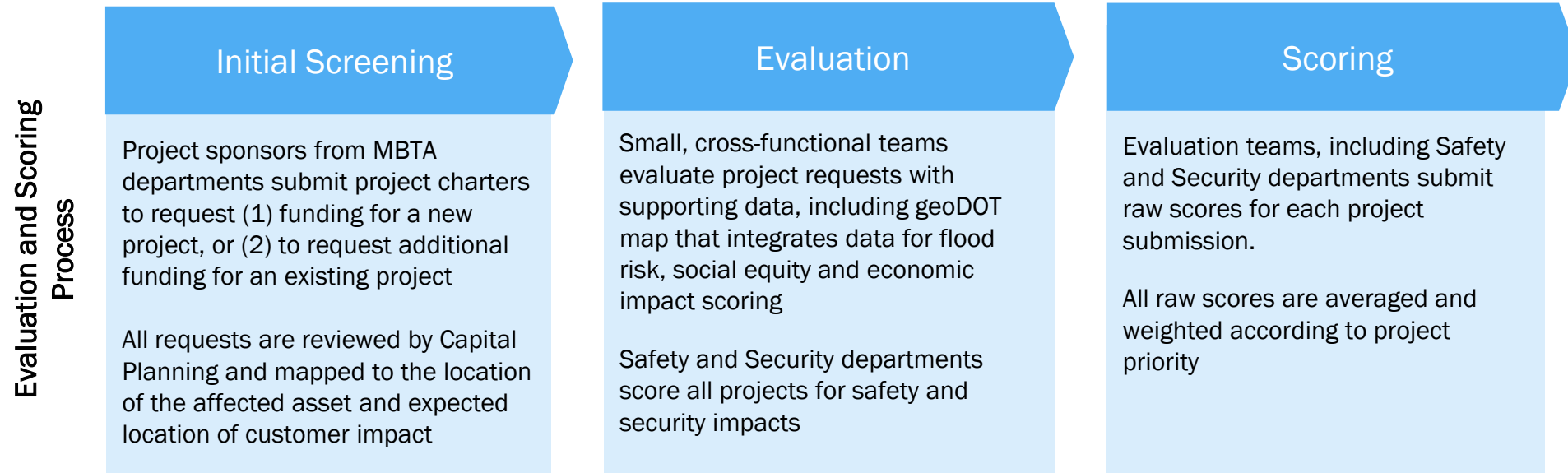
Audit and Finance Subcommittee

February 10, 2022

# CIP Development Process



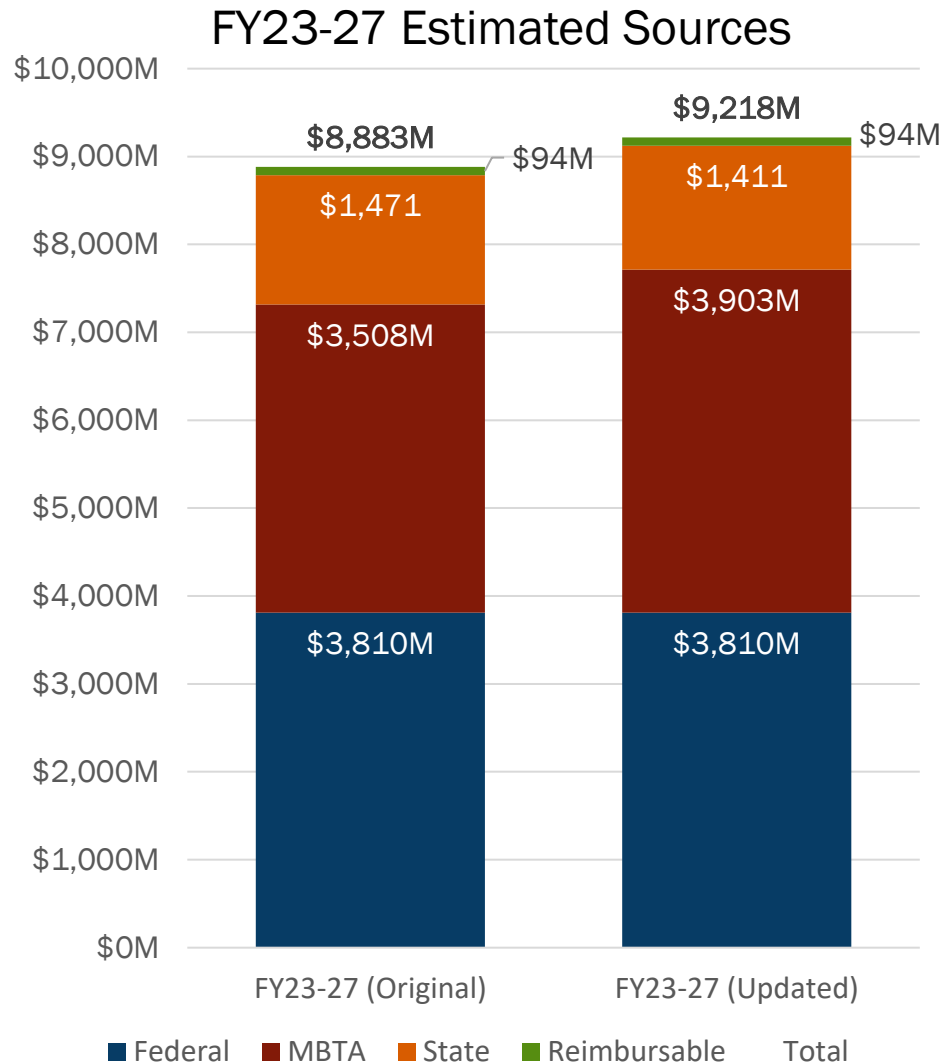
# Project Evaluation and Scoring



- Through the FY23-27 CIP development process, 203 requests were received from 28 MBTA departments.
- A broad cross section of MBTA employees evaluated and scored CIP requests using a new Microsoft PowerApps tool.
- All Technology and Innovation project requests were evaluated and scored by the MBTA's internal IT Governance Committee, which allocates capital funding to technology-related investments.



# FY23-27 CIP Funding Sources | Updated Estimate



- **MBTA Sources:**

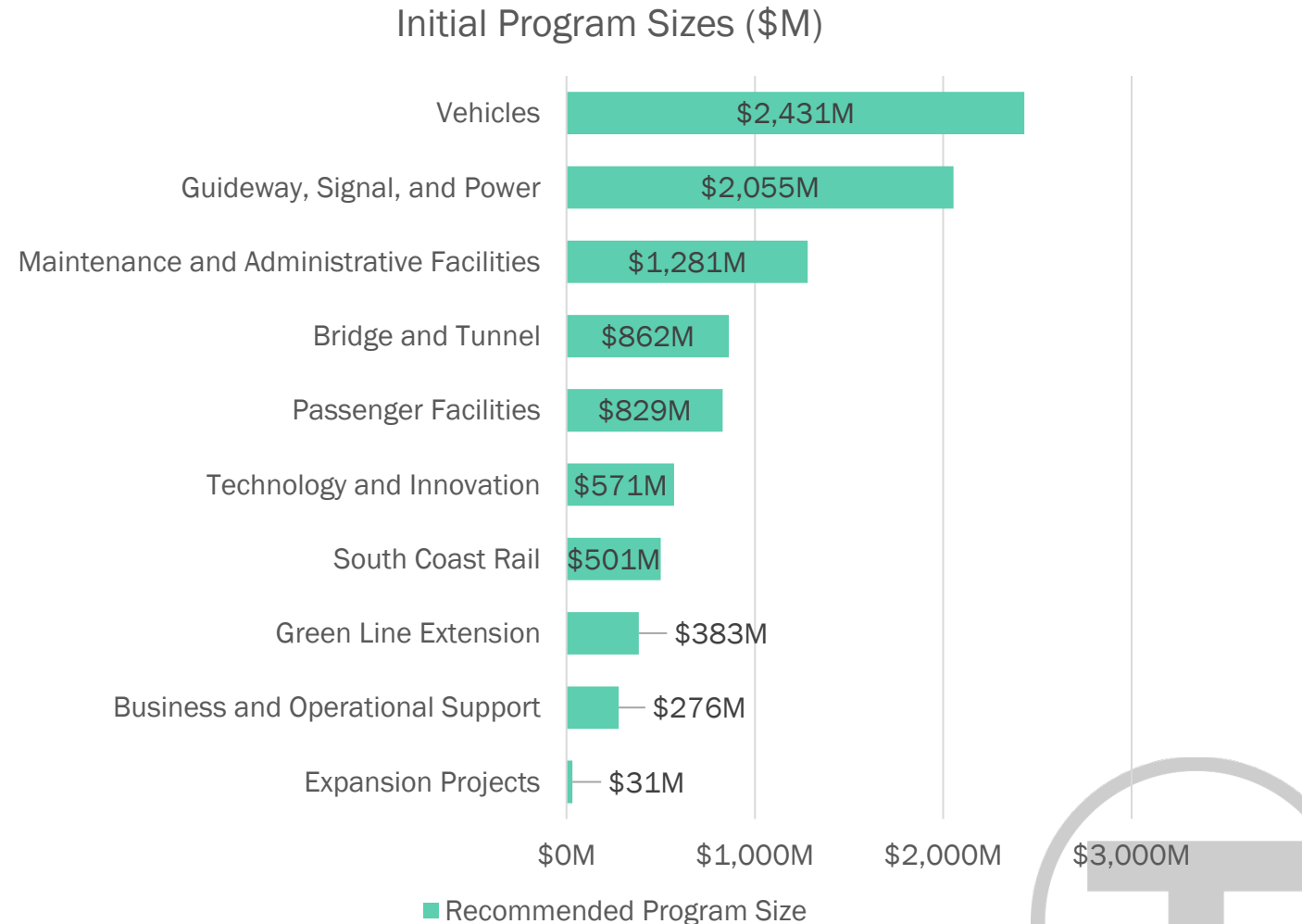
- Sources now include the transfer of \$480M to the capital program to support key investments identified at the January 26<sup>th</sup> MBTA Board meeting. This excludes the \$20M to support Employee Recruitment and Retention Initiatives
- MBTA sources have also been updated to reflect \$60M in state contract assistance from the Commonwealth in FY23.

- **State Sources:**

- Funds have been updated to reflect \$60M from the State, assumed to be state bond cap, for FY24-27

# FY23-27 CIP Program Sizes

- Program sizing allows the MBTA to set clear priorities for investment at the program level
- The following program sizes are proposed based on current estimates of sources available to program
- General recommendation is to keep program sizes level relative to their proportion of prior CIPs and base cashflows
- All Reliability/Modernization programs will see an increase with new funds available to program
- Expansion programs are held to current project budgets
- Potential for future changes based on actual level of Formula funding under the new authorization



# Preview | Existing CIP Projects

\*All project data as of Q2 Cashflow Exercise

Existing Projects in the CIP

486

Executing Departments

28

FY23-27 Projected Spend

\$7,286M

FY23-27 Projected Spend by Investment Priority

Reliability / Modernization

\$6,371.1M

473 projects

Expansion

\$914.7M

13 projects

FY23-27 Projected Spend by Mode

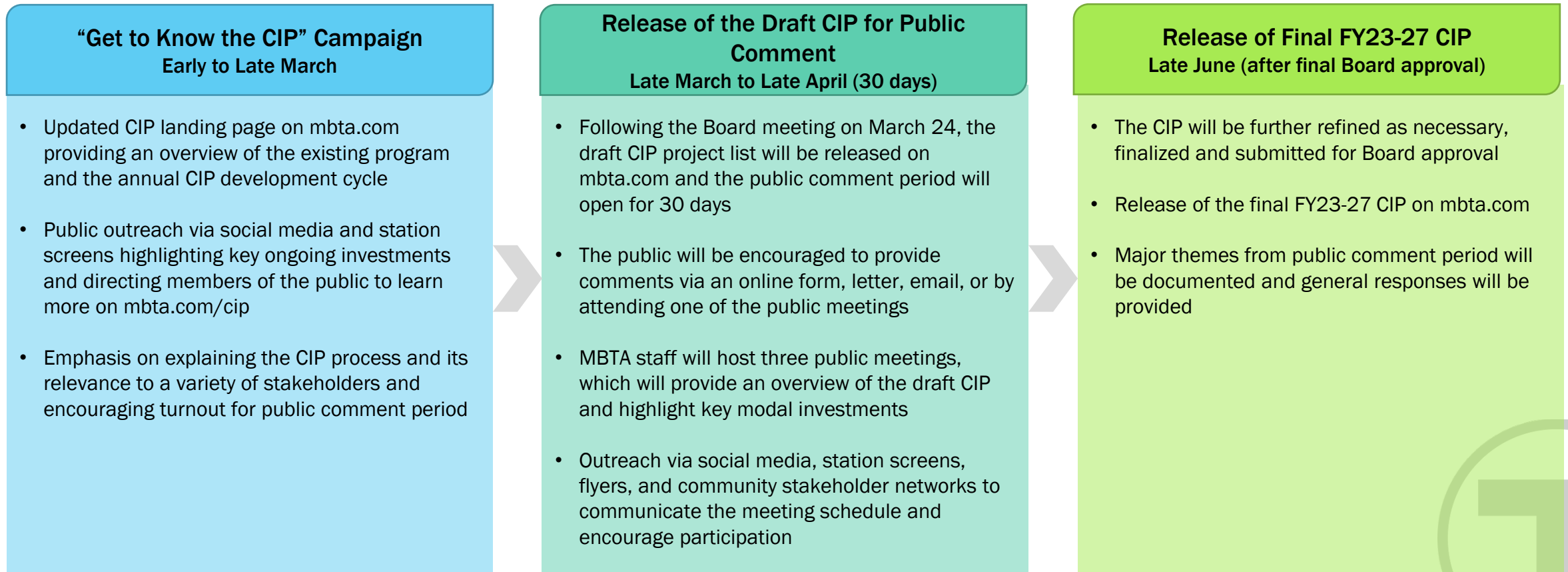


Top 15 Projects, by FY23-27 Projected Spend

CIP ID	Project Name	Program	FY23-27 Projected	Total Auth. Budget
P0362	Red / Orange Line Vehicles	Vehicles	\$583.7M	\$1,073.5M
P0160	South Coast Rail Expansion	South Coast Rail	\$461.5M	\$920.8M
P0265	AFC 2.0	Technology and Innovation	\$420.0M	\$783.4M
P0095	Green Line Extension	Green Line Extension	\$357.7M	\$2,118.6M
P0618	Delivery of 40ft Enhanced Electric Hybrid (EEH) Buses	Vehicles	\$331.8M	\$336.1M
P0369	Green Line Type 10 Light Rail Fleet Replacement	Vehicles	\$310.6M	\$800.0M
P0671a	Bus Facility Modernization - Quincy Bus Facility	Maintenance and Administrative Facilities	\$301.0M	\$371.9M
P0285	Signal Program - Red/Orange Line	Guideway, Signal, and Power	\$214.7M	\$267.6M
P0018	North Station Draw 1 Bridge Replacement	Bridge and Tunnel	\$198.4M	\$218.8M
P0893	Bi-Level Coach Procurement	Vehicles	\$148.2M	\$276.1M
P0512	Cabot Yard Complete Upgrade	Maintenance and Administrative Facilities	\$141.2M	\$171.2M
P0606	ATC Implementation on the MBTA North Side Commuter Rail Lines	Guideway, Signal, and Power	\$115.4M	\$368.8M
P0591	Green Line Central Tunnel Track and Signal Replacement	Guideway, Signal, and Power	\$112.8M	\$120.0M
P0370	Green Line Train Protection	Vehicles	\$109.9M	\$166.9M
P0653	Procurement of Battery Electric 40ft Buses and Related Infrastructure	Vehicles	\$100.3M	\$101.2M
Grand Total			\$3,907.2M	\$8,094.7M

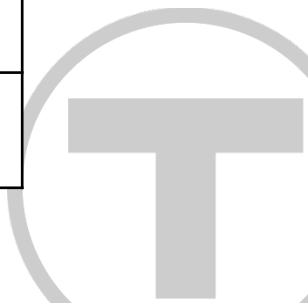
# Public Engagement Process

- Public engagement for the statewide CIP has historically been led by MassDOT. While the MBTA continues to maintain a strong partnership with MassDOT, the FY23-27 cycle will feature a new MBTA-only focused public engagement process.
- Engagement for the FY23-27 CIP will follow the MBTA's Public Engagement Plan and will ensure access and accommodations so all may participate.



# CIP Process | Board Touchpoints

	Proposed MBTA Board Touch Points and Topics
NOVEMBER	Finance and Audit Subcommittee Meeting: Introduction to the CIP, preview upcoming touch points and approach MBTA Full Board: N/A
DECEMBER	Finance and Audit Subcommittee Meeting: N/A MBTA Full Board: N/A
JANUARY	Finance and Audit Subcommittee Meeting (20 <sup>th</sup> ): Asset management performance measures and preliminary source estimates MBTA Full Board (27 <sup>th</sup> ): N/A
FEBRUARY	Finance and Audit Subcommittee Meeting (10 <sup>th</sup> ): Initial FY23-27 program sizes and public engagement process preview MBTA Full Board (24 <sup>th</sup> ): N/A
MARCH	Finance and Audit Subcommittee Meeting (10 <sup>th</sup> ): Present draft FY23-27 CIP and release for public comment MBTA Full Board (24 <sup>th</sup> ): Present the draft FY23-27 CIP and release for public comment
APRIL	Finance and Audit Subcommittee Meeting (14 <sup>th</sup> ): N/A MBTA Full Board (28 <sup>th</sup> ): N/A
MAY	Finance and Audit Subcommittee Meeting (12 <sup>th</sup> ): Present the final FY23-27 CIP and vote for approval MBTA Full Board (26 <sup>th</sup> ): Present the final FY23-27 CIP and vote for approval
JUNE	Finance and Audit Subcommittee Meeting (9 <sup>th</sup> ): N/A MBTA Full Board (23 <sup>rd</sup> ): N/A





# **Appendix – CIP Program Summary Slides**



# FY23-27 CIP Programs

Reliability and Modernization	Bridge and Tunnel	Repairs, reconstructs and replaces MBTA commuter rail and transit <b>bridges and tunnels</b> system-wide to ensure safe and reliable service for commuter rail and heavy rail riders. <b>Culvert and dam</b> projects are also included in this program.
	Maintenance and Administrative Facilities	Rehabilitates and upgrades maintenance and administrative <b>facilities</b> that support MBTA operations.
	Guideway, Signal, and Power	Rehabilitates, replaces and upgrades all <b>guideway, signal, and power</b> assets across the commuter rail, transit, and bus systems to ensure safe and reliable service for riders.
	Passenger Facilities	Rehabilitates and upgrades MBTA <b>stations, stops and parking facilities</b> to improve accessibility, enhance the customer experience, and help make it easier for riders and visitors to navigate the MBTA system.
	Vehicles	Rehabilitates and replaces the MBTA <b>revenue fleet and non-revenue equipment</b> to allow the MBTA to improve service reliability and ensure safety for riders.
	Technology and Innovation	Includes investments in <b>technology</b> to enhance productivity, modernize the system and improve the quality of MBTA services.
	Business and Operational Support	Includes investments in a wide range of MBTA systems including <b>communications, safety and security, and asset management</b> .
Expansion	South Coast Rail	Extension of Commuter Rail service to Fall River and New Bedford on the South Coast of Massachusetts
	Green Line Extension	Extension of the Green Line from Lechmere to Somerville and Medford.
	Expansion Projects	Planning and design for other targeted <b>expansion projects</b> identified as next priorities.

\*All CIP projects will be “tagged” by mode and impact area to better track modal investments and progress toward Authority goals

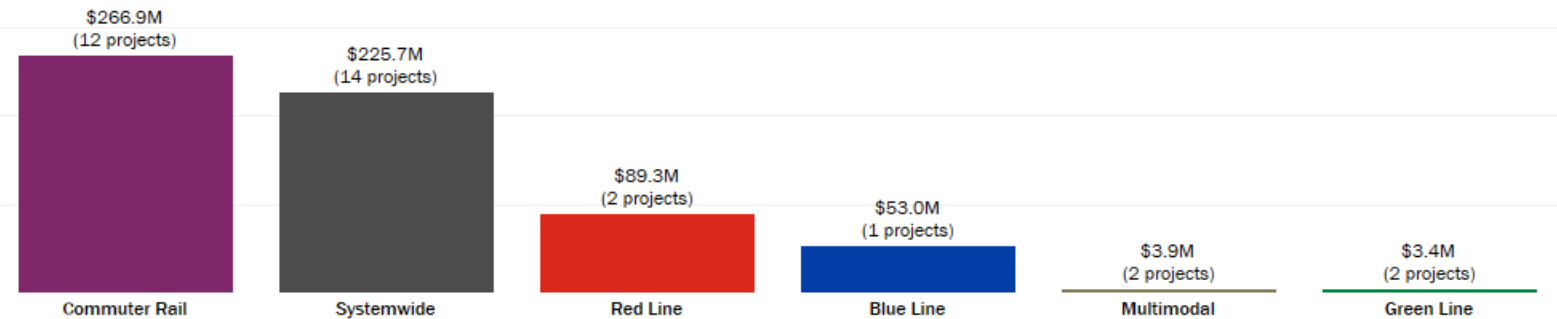
# Bridge and Tunnel

## Program Description

Repairs, reconstructs and replaces MBTA commuter rail and transit bridges and tunnels system-wide to ensure safe and reliable service for commuter rail and heavy rail riders. Culvert and dam projects are also included in this program

There are **33** existing projects in this program.

## FY23-27 Projected Spend by Mode



\*All project data as of Q2 Cashflow Exercise

## Highlighted Projects

CIP ID	Project Name	Primary Mode/Line	Project Description	FY23-27 Projected	Total Auth. Budget
P0018	North Station Draw 1 Bridge Replacement	Commuter Rail	Full replacement of the North Station Draw 1 bridge, including moveable bridge structures, the north approach structure, and Control Tower A. Includes rehabilitation of south approach structure, expansion of bridge capacity from 4 to 6 tracks, and a pedestrian path across the Charles River.	\$198.4M	\$218.8M
P0551	Longfellow Approach	Red Line	Rehabilitation of Longfellow Approach viaduct, Span 1 of the Longfellow Bridge, and station platforms at Charles/MGH. Also includes replacement of track and power systems, upgrades to communications and signal systems, and additional emergency egress and redundant elevators at Charles/MGH.	\$89.3M	\$93.9M
P0627	Inspection and Rating of MBTA Systemwide Bridges	Systemwide	Ongoing program funding in-depth inspection and load rating of MBTA-owned bridges at regular intervals. The inspection condition value ratings and bridge load ratings are used to establish a priority list of bridges for repair, rehabilitation, or replacement under a separate program.	\$42.9M	\$83.4M
P0892	Saugus Drawbridge Replacement	Commuter Rail	Full replacement of the Saugus Drawbrige on the Newburyport/Rockport Line. The new bridge will include a widened approach embankment, a new control house, signal upgrades, and relocation of submerged utilities.	\$2.2M	\$9.7M
P0912	Systemwide Tunnel Flood Mitigation Program	Systemwide	The purpose of this program is to harden the MBTA's tunnel network to exposures from flooding due to storm surge, precipitation, and sea level rise through planning, training, and infrastructure improvements.	\$4.5M	\$5.0M

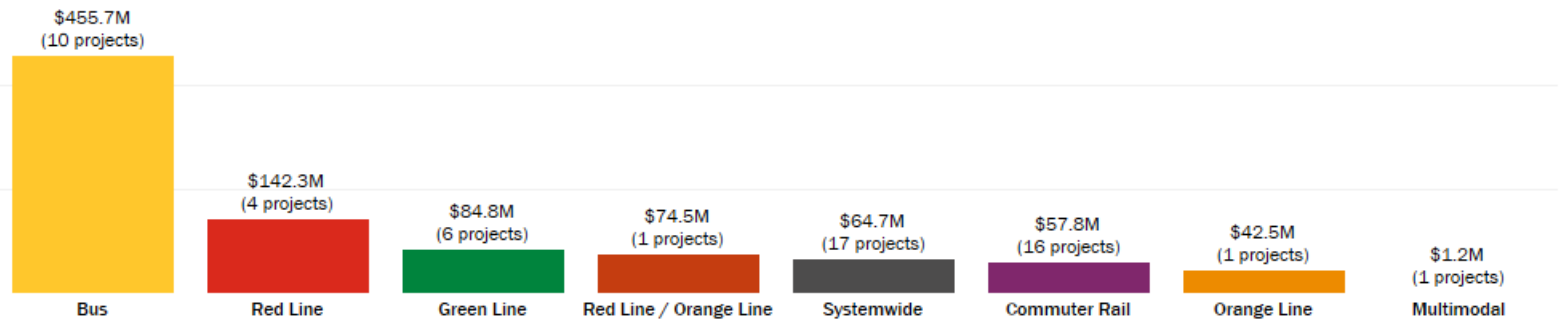
# Maintenance and Administrative Facilities

## Program Description

Rehabilitates and upgrades maintenance and administrative facilities that support MBTA operations

There are **56** existing projects in this program.

## FY23-27 Projected Spend by Mode



\*All project data as of Q2 Cashflow Exercise

## Highlighted Projects

CIP ID	Project Name	Primary Mode/Line	Project Description	FY23-27 Projected	Total Auth. Budget
P0104	Charlestown Bus - Seawall Rehab	Bus	Stabilization of the Mystic River shoreline and replacement of existing seawall to protect the Charlestown Bus Facility from flooding events. This project also includes a collaboration with Massachusetts DCR to build a multi-use public path along the seawall.	\$0.3M	\$43.7M
P0514	Wellington Yard Complete Upgrade	Orange Line	Full rebuild of Wellington Yard including upgrades to track, power, signal, communications, drainage, and other yard elements.	\$42.5M	\$95.4M
P0671a	Bus Facility Modernization - Quincy Bus Facility	Bus	Replacement of the existing Quincy bus maintenance facility with a new facility that will expand capacity and include infrastructure necessary to support the MBTA's first battery-electric bus fleet (BEBs).	\$301.0M	\$371.9M
P0679	Codman Yard Expansion and Improvements	Red Line / Orange Line	Improvements to Codman Yard including in-kind replacement of existing infrastructure and expansion of storage capacity to support new Red Line fleet.	\$74.5M	\$78.7M
P0942	Bus Facility Interim Improvements	Bus	Upgrades to lighting, drainage, paving, locker and break rooms, and other components at bus facilities as part of the MBTA's commitment to Local 264. This project includes replacement of the overhead doors to increase height clearance at Albany Garage.	\$62.7M	\$81.5M

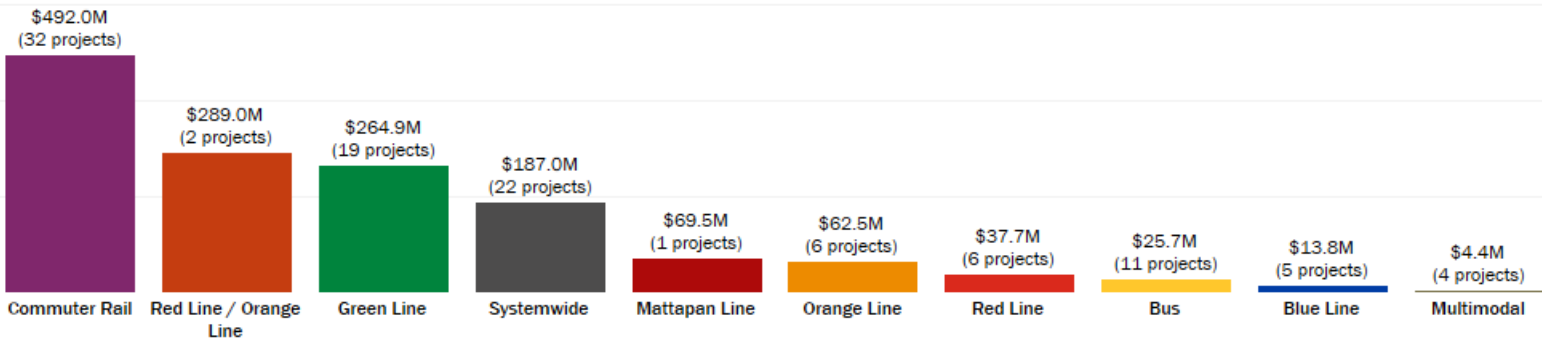
# Guideway, Signal, and Power

## Program Description

Rehabilitates, replaces and upgrades all guideway, signal, and power assets across the commuter rail, transit, and bus systems to ensure safe and reliable service for riders.

There are **108** existing projects in this program.

## FY23-27 Projected Spend by Mode



\*All project data as of Q2 Cashflow Exercise

## Highlighted Projects

CIP ID	Project Name	Primary Mode/Line	Project Description	FY23-27 Projected	Total Auth. Budget
P0285	Signal Program - Red/Orange Line	Red Line / Orange Line	Replacement and upgrade of signal equipment on the Red and Orange Lines. This includes renewal the track circuit modules for both lines using the latest digital audio frequency technology, and replacement of existing wayside equipment on the Orange Line south of Haymarket.	\$214.7M	\$267.6M
P0370	Green Line Train Protection	Green Line	Procurement and installation of on-board and wayside equipment for a train protection system on the Green Line. The system will mitigate red signal violations and train-to-train collisions; reduce the risk of over-speed derailments and unsafe intrusions into work zones; and protect right-of-way workers. It will also determine the allowable train separation based on speed and location, notify the vehicle operator of an impending violation, and, if necessary, intervene with a full service brake application.	\$109.9M	\$166.9M
P0606	ATC Implementation on the MBTA North Side Commuter Rail Lines	Commuter Rail	Design and installation of Automatic Train Control (ATC) systems on all north-side Commuter Rail lines. ATC displays signal indications in the train cab instead using physical signal lights alongside the tracks and is required to fully implement the MBTA's Positive Train Control (PTC) system.	\$115.4M	\$368.8M
P0889	Tower 1 Interlocking Early Action Project	Commuter Rail	Replacement of track, crossovers, communications, signal, and power infrastructure within the interlocking at Tower 1 outside South Station, and replacement of track elements at the COVE interlocking west of Tower 1. This is considered early action work for the larger South Station Expansion (SSX) project.	\$78.2M	\$87.6M
P1005a	Columbus Ave Bus Lane Phase 2	Bus	Local match funding for Phase 2 of the Columbus Avenue center-running bus lane in Boston. This phase of the project extends the bus lane north from Jackson Square to Ruggles station.	\$2.2M	\$3.0M

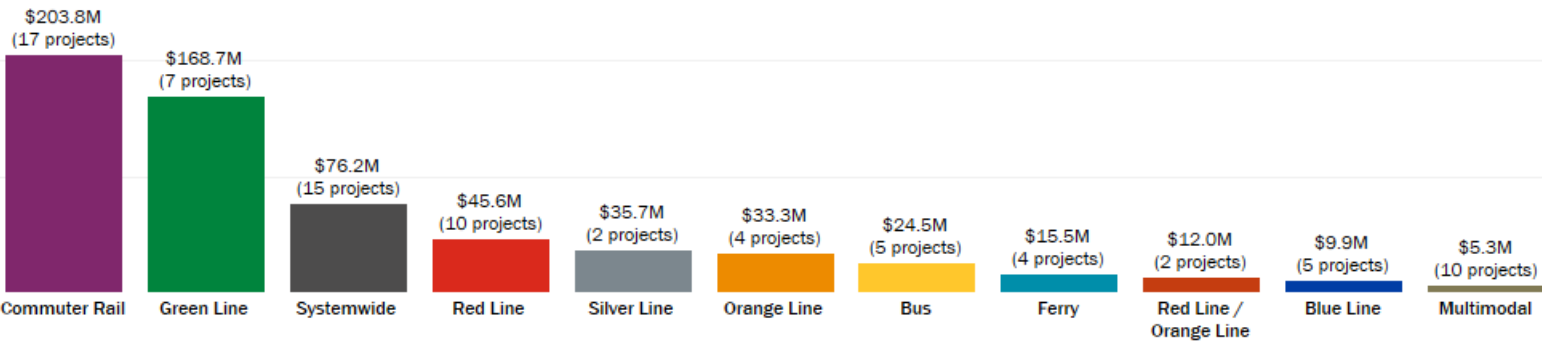
# Passenger Facilities

## Program Description

Rehabilitates and upgrades MBTA stations, stops and parking facilities to improve accessibility, enhance the customer experience, and help make it easier for riders and visitors to navigate the MBTA system.

There are **81** existing projects in this program.

FY23-27 Projected Spend by Mode



\*All project data as of Q2 Cashflow Exercise

## Highlighted Projects

CIP ID	Project Name	Primary Mode/Line	Project Description	FY23-27 Projected	Total Auth. Budget
P0003	Green Line B-Branch Consolidation	Green Line	Consolidation of four Green Line B-Branch stops into two fully accessible, brand-new stations: Babcock Street and Amory Street. The new stations feature accessible boarding, longer platforms to accommodate the future Type 10 fleet, and security upgrades.	\$0.0M	\$29.5M
P0165	Harvard Square Busway Repairs	Bus	Rehabilitation of roadway, lighting, signage, drainage, and catenary systems in the Harvard busway and accessibility upgrades to ensure near level boarding for the 71 and 73 buses.	\$0.0M	\$29.5M
P0179	Winchester Center Station	Commuter Rail	Renovation of Winchester Station on the Lowell Line to improve accessibility and ensure a state of good repair. This project includes new elevators, new high-level platforms, upgraded station infrastructure, new security and safety systems, path of travel improvements, and upgraded customer amenities.	\$52.7M	\$60.9M
P0395	Worcester Union Station Accessibility and Infrastructure Improvements	Commuter Rail	Design and construction of a new 800 ft. fully accessible center island platform, 3 new elevators, stairs, a pedestrian overpass to an expanded parking lot, a pedestrian underpass from the platform to the headhouse, and track realignment work to accommodate new crossover and layover movements.	\$60.7M	\$67.1M
P1007	Systemwide Bike Racks	Systemwide	State of good repair improvements to bike parking locations across the system, as well as upgrades to access technology and Pedal and Park features.	\$0.0M	\$0.3M



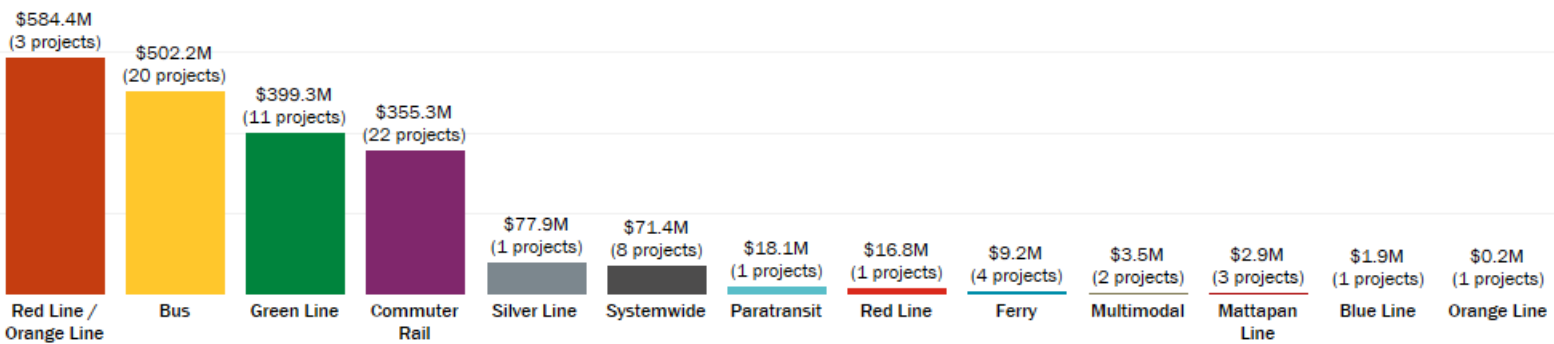
# Vehicles

## Program Description

Rehabilitates and replaces the MBTA revenue fleet and non-revenue equipment to allow the MBTA to improve service reliability and ensure safety for riders.

There are **77** existing projects in this program.

FY23-27 Projected Spend by Mode



\*All project data as of Q2 Cashflow Exercise

## Highlighted Projects

CIP ID	Project Name	Primary Mode/Line	Project Description	FY23-27 Projected	Total Auth. Budget
P0362	Red / Orange Line Vehicle Procurement	Red Line / Orange Line	Procurement of 252 new Red Line vehicles and 152 new Orange Line vehicles to support heavy rail service. The new vehicles include capacity and accessibility enhancements as well as improved onboard diagnostics for operators and maintenance staff.	\$583.7M	\$1,073.5M
P0653	Procurement of Battery Electric 40ft Buses and Related Infrastructure	Bus	Purchase of 40ft battery electric buses (BEBs) to replace aging diesel buses serving routes out of Quincy and electric trolleybuses serving routes out of North Cambridge.	\$100.3M	\$101.2M
P0893	Bi-Level Coach Procurement	Commuter Rail	Procurement of 80 bi-level coaches from Hyundai Rotem to replace existing vehicles due for retirement and support the introduction of South Coast Rail service.	\$148.2M	\$276.1M
P0918	Procurement of Passenger Locomotives - Future Fleet	Commuter Rail	Planning funds to support future procurement of 25 Commuter Rail locomotives to replace the oldest vehicles in the fleet.	\$30.0M	\$30.0M

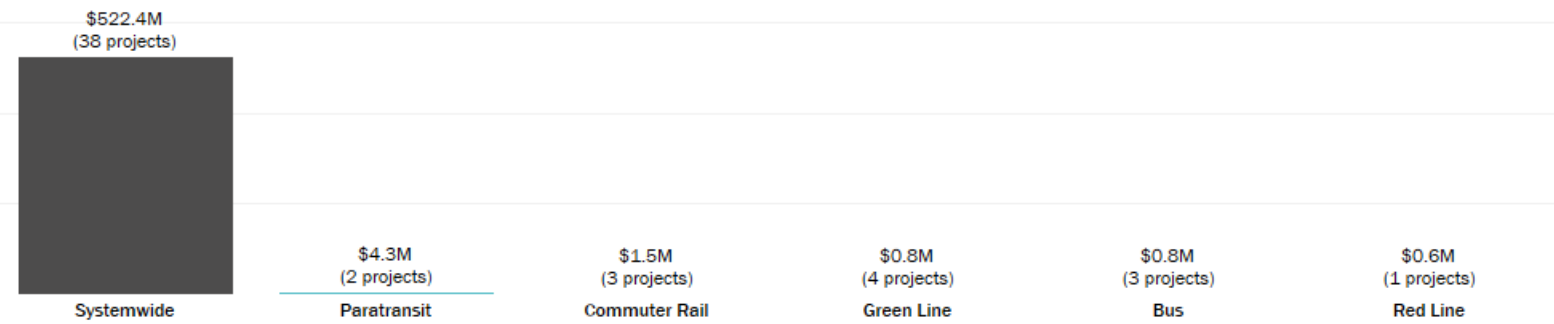
# Technology and Innovation

## Program Description

Includes investments in technology to enhance productivity, modernize the system and improve the quality of MBTA services.

There are **51** existing projects in this program.

## FY23-27 Projected Spend by Mode



\*All project data as of Q2 Cashflow Exercise

## Highlighted Projects

CIP ID	Project Name	Primary Mode/Line	Project Description	FY23-27 Projected	Total Auth. Budget
P0301	System-Wide Radio	Systemwide	Upgrade of the MBTA's existing two-way radio system used by MBTA Transit Police and operations personnel. This project includes mobile radios for heavy rail, light rail, and bus vehicles.	\$62.2M	\$70.2M
P0643	New Paratransit Software Solution	Paratransit	Procurement and implementation of an updated software for reserving and scheduling trips on the RIDE. This software will also process fare transactions, handle complaints, manage vehicle dispatch, and compile reporting data.	\$4.0M	\$9.7M
P0689	Customer Technology Program	Systemwide	Funding to support a flexible capital funding source for small pilot technology projects reviewed and approved by the IT Governance Committee. Past projects include the Skate mobile bus dispatching app, e-ink real time arrival signs at bus stops, and light rail speed monitoring and reporting.	\$1.2M	\$1.2M
P0944	IT Infrastructure SGR	Systemwide	Technology refresh of various IT assets, including storage, servers, data network, and telephone systems to support lifecycle management and maintain assets in a state of good repair.	\$0.0M	\$1.8M
P0972	PA/ESS Critical Upgrades	Systemwide	Full replacement of the hardware and software that makes up the station countdown clock and PA system. LCD Countdown clocks will be replaced with LED screens, which will be capable of providing additional content to riders.	\$3.1M	\$4.0M



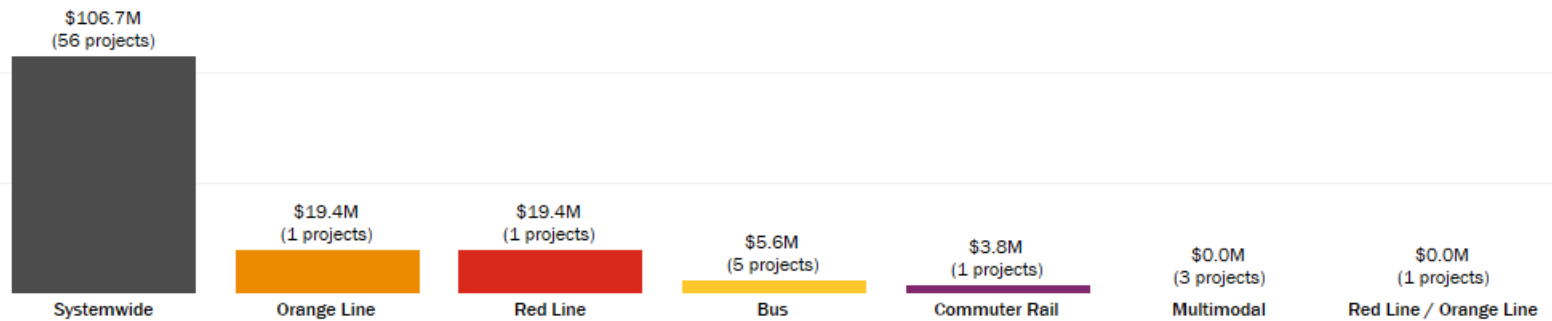
# Business and Operational Support

## Program Description

Includes investments in a wide range of MBTA systems including communications, safety and security, and asset management.

There are **68** existing projects in this program.

## FY23-27 Projected Spend by Mode



\*All project data as of Q2 Cashflow Exercise

## Highlighted Projects

CIP ID	Project Name	Primary Mode/Line	Project Description	FY23-27 Projected	Total Auth. Budget
P0435	Environmental Compliance Management	Systemwide	This project includes remediation and removal of contaminated soils, development of permit applications or compliance plans, and installation of compliance equipment such as small treatment plants in order to address small-scale environmental matters.	\$0.1M	\$1.2M
P0635	MBTA Security Modernization	Systemwide	Funding for a variety of projects that will upgrade and improve the MBTA's current security controls to combat external threats. This may include security operations improvements, data handling and retention improvements, and technology upgrades.	\$0.0M	\$13.1M
P0683	FMIS Upgrade and Business Process Re-design	Systemwide	Upgrade of FMIS, the MBTA's core financial system, to support the streamlining of business processes for day to day finance, accounting, procurement, inventory, and capital project management.	\$15.7M	\$28.8M
P0931	Safety Management System (SMS) Implementation	Systemwide	This project includes costs associated with implementing the MBTA's Safety Management System (SMS), required in accordance with 49 CFR Part 673 and 220 CMR 151.	\$8.2M	\$11.3M

# South Coast Rail

## Program Description

Extension of Commuter Rail service to Fall River and New Bedford on the South Coast of Massachusetts.

There are **2** existing projects in this program.

## FY23-27 Projected Spend by Mode



\*All project data as of Q2 Cashflow Exercise

## Highlighted Projects

CIP ID	Project Name	Primary Mode/Line	Project Description	FY23-27 Projected	Total Auth. Budget
P0160	South Coast Rail Expansion	Commuter Rail	Extension of Commuter Rail service to Fall River, New Bedford, and Taunton in southeastern Massachusetts.	\$461.5M	\$920.8M
P0160a	SCR - Procurement 16 CR Coaches	Commuter Rail	Procurement of additional coaches to support the expansion of Commuter Rail service to the South Coast.	\$39.9M	\$69.0M

# Green Line Extension

## Program Description

Extension of the Green Line north from Lechmere to Somerville and Medford.

There are **2** existing projects in this program.

## FY23-27 Projected Spend by Mode



\*All project data as of Q2 Cashflow Exercise

## Highlighted Projects

CIP ID	Project Name	Primary Mode/Line	Project Description	FY23-27 Projected	Total Auth. Budget
P0095	Green Line Extension	Green Line	Extension of the northern end of the Green Line from Lechmere to Union Square in Somerville and College Avenue in Medford.	\$357.7M	\$2,118.6M
P0095a	Green Line Extension - Vehicles	Green Line	Procurement of 24 Type 9 light rail vehicles to support the Green Line Extension. All vehicles have been received and are in service as of July 2021.	\$24.9M	\$170.0M

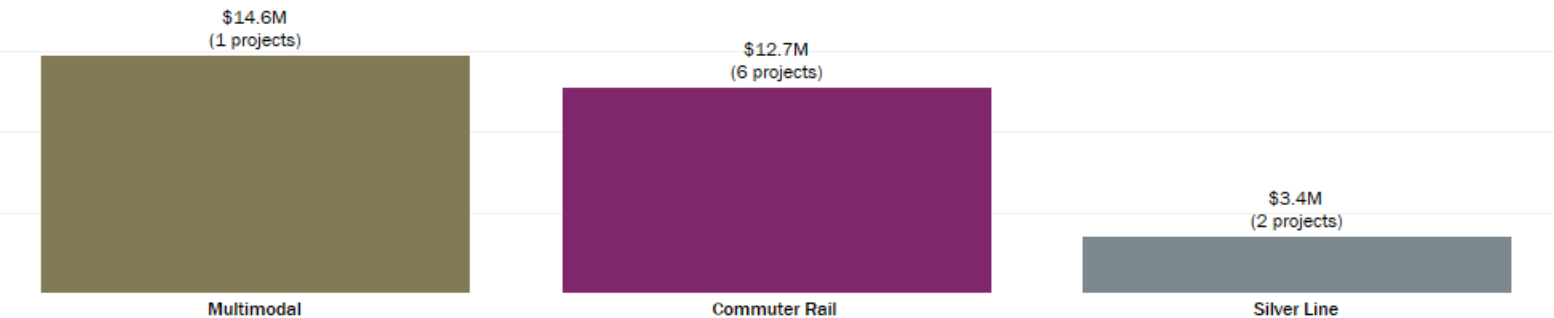
# Expansion Projects

## Program Description

Planning and design for other targeted expansion projects identified as next priorities.

There are **9** existing projects in this program.

## FY23-27 Projected Spend by Mode



\*All project data as of Q2 Cashflow Exercise

## Highlighted Projects

CIP ID	Project Name	Primary Mode/Line	Project Description	FY23-27 Projected	Total Auth. Budget
P0496	Silver Line Gateway - Phase 2	Silver Line	Construction of a new Chelsea Commuter Rail station with two new high-level platforms, canopies, signal upgrades, and grade crossing upgrades to enhance the connection between the Silver Line SL3 and Commuter Rail service.	\$3.4M	\$40.6M
P0866	Red-Blue Connector	Multimodal	Extension of the Blue Line from its current terminus at Bowdoin Station to Charles/MGH station, in order to establish a direct connection between the Blue and Red Lines. This project is currently funded for planning and initial design only.	\$14.6M	\$15.0M
P0934	Rail Transformation Planning Studies	Commuter Rail	This project will fund the conceptual planning of Phase 1 of Rail Transformation, as well as the planning, development, and procurement of the future operating contract(s) to support Rail Transformation.	\$3.8M	\$10.0M