



**Massachusetts Bay  
Transportation Authority**

# **FY24-28 Capital Investment Plan**

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Audit and Finance Subcommittee

May 11, 2023

# 5-Year MBTA Capital Investment Plan

## What is the Capital Investment Plan (CIP)?

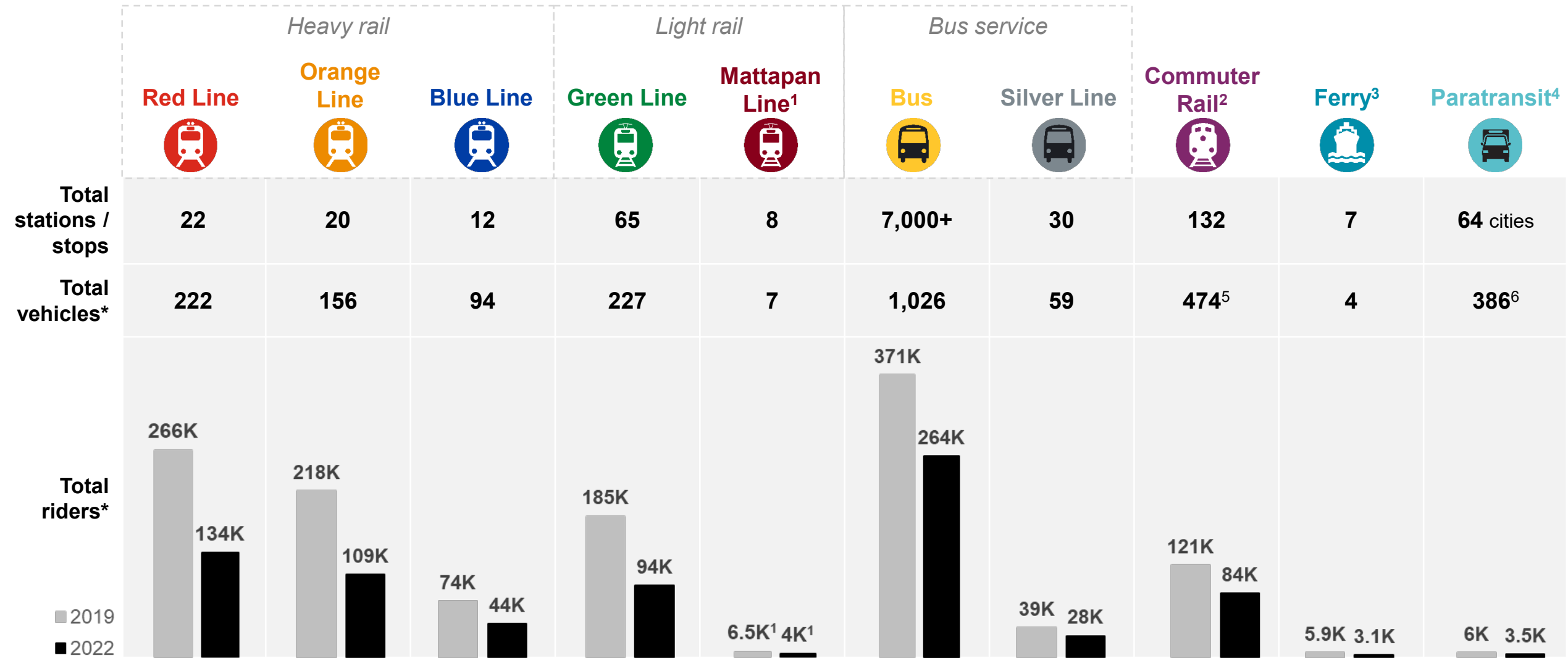
- It is a short-term, financially constrained investment program that includes all our capital expenses over the next five years. It is a rolling plan, updated annually
- It funds the planning, design, construction, maintenance, and acquisition of capital assets across the transit network
- It includes unique, asset-based capital projects to modernize, expand, and increase the reliability of the transit network to support the Authority's priorities and goals

## What is a Capital Project?

- Capital projects are investments or activities related to acquiring, renewing, constructing, improving, or maintaining a capital asset, including project planning and design
- Capital assets are vehicles, facilities, units of equipment, or infrastructure elements with a useful life of more than one year and acquisition cost equal or greater than \$5,000



# The System | MBTA by the Numbers



\*Reflects active vehicle counts as of June 2022 and average weekday trips as of Oct-19 and Oct-22; <sup>1</sup>2019 Mattapan Line ridership estimated as of Fall 2018, with 2022 average weekday trips estimated as 4 to 4.5k daily boardings; <sup>2</sup> Operated by Keolis; <sup>3</sup> Operated by Boston Harbor Cruises; <sup>4</sup> Operated by National Express Transit and Veterans Transportation Services; <sup>5</sup> 81 locomotives and 393 coaches; <sup>6</sup> 151 automobiles and 235 vans

# Recent MBTA Capital Investment Milestones

The MBTA continues to sustain an unprecedented level of investment on the system's safety and reliability, the modernization of our assets, and the strategic expansion of our network.

## FY22 and FY23 Key Project Milestones:



Green Line Extension Medford Branch opened on December 2022

Over **14,000 feet of track** was replaced, **6 units of special trackwork** were upgraded, and **10 pedestrian crossings** were improved on the B, C, D, and E Branches during Summer 2022



Construction of the new Gloucester Drawbridge on the Newburyport/Rockport Line was **successfully completed in December 2022**

New, fully accessible Chelsea Commuter Rail Station **opened in Nov 2021** with direct access to the Silver Line (SL3)



Upgrades to signals (**50% completion on the Red Line**) and traction power substations (**78% completion on the Orange Line**)

Continued improvements, expansion, and upgrades to **Wellington Yard (99% complete)** and **Wellington Maintenance Facility (90% complete)**

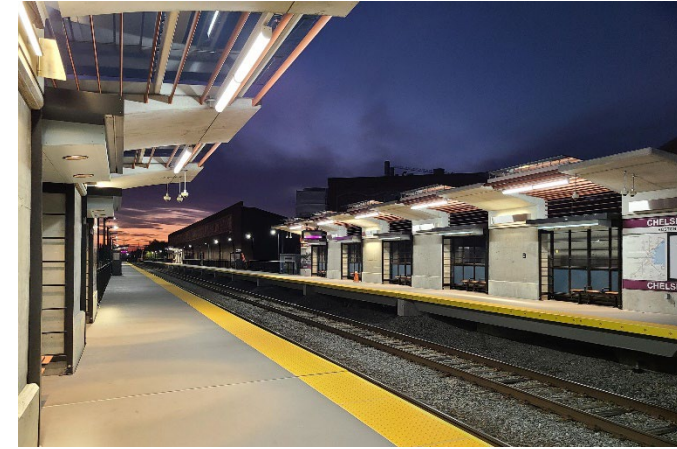


New center-running bus lane on Columbus Avenue in Boston opened in **October 2021 for passenger service**

**Harvard Square Busway Repairs completed**, including new signage, lighting, and accessibility features for riders



A Green Line train on the new Medford/Tufts station



New, fully accessible, Chelsea Commuter Rail Station

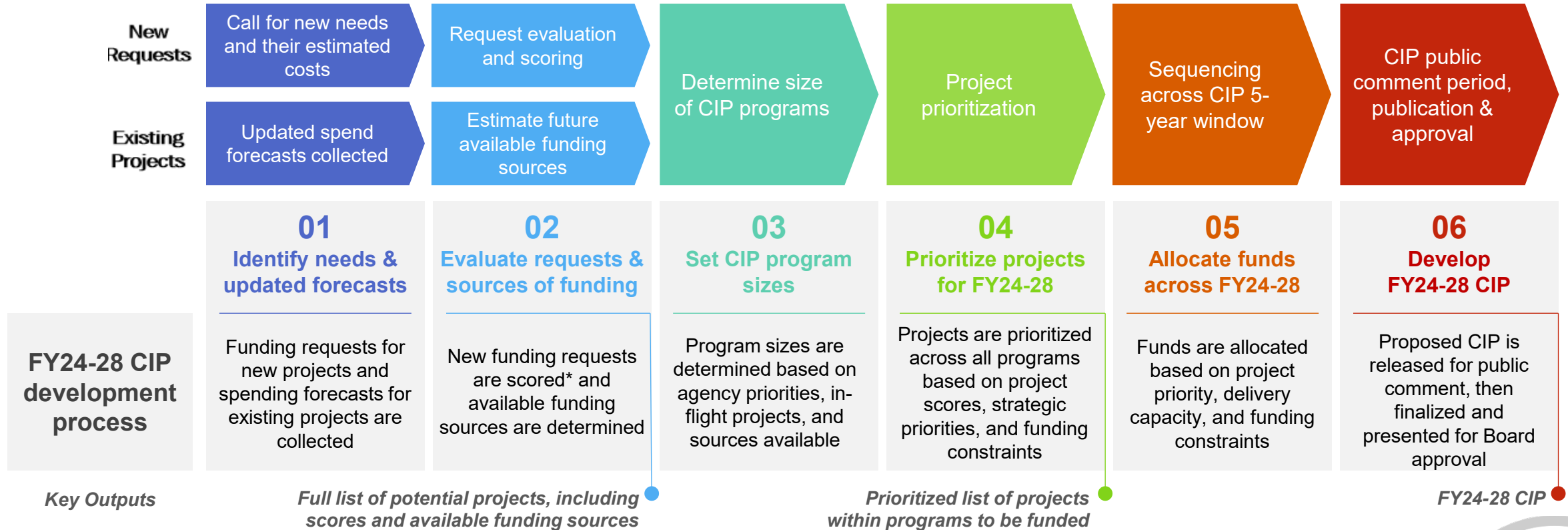


Installing new tracks at Wellington Yard



A route 29 bus at the new Columbus Ave bus lane

# CIP Development | 6 Key Steps



\*Requests were evaluated with an increased emphasis on system safety and security (asset conditions and inputs from Safety and Security departments), in addition to mobility, cost effectiveness, sustainability and resiliency, policy support, social equity and economic impact.



# CIP Investment Programs

Asset class strategies are used to inform program sizing and investment priorities

## Reliability and Modernization Programs (7)

Improve the reliability of the system and modernize existing assets

*Focused on State of Good Repair and continued safety of riders and employees*



### Bridge and Tunnel

Repairs, reconstructs, and replaces Commuter Rail and transit bridges, tunnels, culverts, and dams



### Guideway, Signal, and Power

Rehabilitates, replaces, and upgrades guideway, signal, and power assets across commuter rail, transit, and bus systems



### Maintenance and Administrative Facilities

Rehabilitates and upgrades maintenance and administrative facilities



### Passenger Facilities

Rehabilitates and upgrades stations, stops, and parking facilities to improve accessibility and the customer experience



### Vehicles

Rehabilitates and replaces revenue fleets and non-revenue vehicle equipment for reliable and safe operations



### Business and Operational Support

Investments in asset management, safety and security, communications, and other systems supporting operations



### Technology and Innovation

Investments in technology to enhance productivity, modernize the system, and improve quality of service

## Expansion Programs (3)

Target investments to increase system capacity or multimodal options



### Green Line Extension (GLX)

Extension of Green Line service from Lechmere to Somerville and Medford



### South Coast Rail (SCR)

Extension of Commuter Rail service to Fall River, New Bedford, and Taunton on the South Coast



### Expansion Projects

Planning and design of targeted expansion projects identified as next priorities



# Scoring Criteria and Weights

Scoring has been modified to place an increased emphasis on State of Good Repair, safety, and security, with these topics making up 50% of a project's total weighted score. Aspects related to climate mitigation and adaptation have been consolidated in an updated Sustainability and Resiliency criterion.

	Criteria	Description	Sub-criteria	Scoring Weights by Priority	
				Rel. / Mod.	Expansion
Safety-Related Criteria (50%)	<b>State of Good Repair</b>	The extent to which the project contributes a state of good repair on the transportation system and aligns with asset management goals	<ul style="list-style-type: none"> <li>Asset Condition (6 points)</li> <li>Impact to Other Assets (2 point)</li> <li>Operations Criticality (2 points)</li> </ul>	30%	N/A
	<b>Safety and Security</b>	The extent to which the project addresses documented or identified safety issues and hazards, and security vulnerabilities and risks	<ul style="list-style-type: none"> <li>Impact on System Safety (7 points)</li> <li>Impact on System Security (3 points)</li> </ul>	20%	N/A
	<b>Mobility</b>	The extent to which the project is intended to provide modal options efficiently and effectively for all users through benefits to reliability, accessibility, and other measures of service quality.	<ul style="list-style-type: none"> <li>Impact on Reliability (2 points)</li> <li>Impact on Accessibility (2 points)</li> <li>Impact on Customer Experience (2 points)</li> <li>Impact on Riders (4 points)</li> </ul>	10%	25%
	<b>Cost Effectiveness</b>	The extent to which the project impacts operating costs and revenues and maximizes the return on the public's investment.	<ul style="list-style-type: none"> <li>Impact on Operating Costs (5 points)</li> <li>Impact on Operating Revenues (5 points)</li> </ul>	10%	25%
Climate / Environment Criterion (10%)	<b>Sustainability and Resiliency</b>	The extent to which the project supports climate sustainability and resiliency, meets state goals of improving air quality and reducing greenhouse gases, and results in a reduction of pollution.	<ul style="list-style-type: none"> <li>Flood Risk (3 points)</li> <li>Severe Weather Resiliency (3 points)</li> <li>Air Quality and GHG Reduction (2 points)</li> <li>Reduce Pollution and/or Natural Resource Consumption (2 points)</li> </ul>	10%	10%
	<b>Policy Support</b>	The extent to which the project is aligned with MBTA policy priorities, including Focus 40.	<ul style="list-style-type: none"> <li>Alignment with Focus40 (5 points)</li> <li>Alignment with MBTA Strategic Planning Report (5 points)</li> </ul>	5%	10%
	<b>Social Equity</b>	The extent to which the project equitably distributes social, economic, and health benefits to residents and local businesses.	<ul style="list-style-type: none"> <li>Benefits to EJ and Title VI Communities (7 points)</li> <li>Additional Equity Benefits to Vulnerable Populations (3 points)</li> </ul>	10%	15%
	<b>Economic Impact</b>	The extent to which the project supports economic growth in the Commonwealth.	<ul style="list-style-type: none"> <li>Impact on Connectivity to Employment Centers (3 points)</li> <li>Impact on Corridors At or Near Capacity (3 points)</li> <li>Impact on Communities with Transit-Supportive Land Use (3 points)</li> <li>Impact on Housing Choice Communities (1 point)</li> </ul>	5%	15%

# CIP Funding Sources | Overview



## Federal funding

### FTA Formula funds

- Urbanized Area Program (Section 5307)
- Buses and Bus Facilities (Section 5339)
- State of Good Repair (Section 5337)
- Level of funding established in BIL and distributed to eligible UZAs

### Discretionary funds

- Competitive processes run by federal agencies. Funds included in the CIP after award



## State funding

### Bonds

- General obligation bonds (bond cap) and special obligation/revenue bonds (Rail Enhancement Program) for specific projects such as:
  - South Coast Rail Phase 1, including 16 Commuter Rail coaches
  - Green Line Extension
  - Red Line/Orange Line vehicles and infrastructure improvements
  - Procurement of 64 Bi-Level Commuter Rail Coaches



## MBTA sources

### Bonds

- Taxable, tax-exempt, and sustainability bonds

### Loans

- Build America Bureau (BAB) loans through TIFIA and RRIF

### Operating Budget Transfer

- Funds transferred from MBTA's operating budget to the capital program

### Capital Maintenance Fund (CMF)

- Authority's fund to be used at the discretion of the CFO

*Note - The sum of MBTA bonds and loans is limited by the overall coverage ratio in order to maintain the MBTA's credit rating.*



## Others

### Reimbursable

- Outside funds through partnerships and formal agreements





# Federal Discretionary Grants Strategy

**The MBTA continues to aggressively pursue eligible discretionary funding opportunities in the Bipartisan Infrastructure Law (BIL).**

To accomplish this goal we, (1) proactively identify grant opportunities, (2) identify a pipeline of competitive projects, and (3) develop and submit strong applications.

## **Project Selection for Grant Opportunities**

The MBTA strives to pursue funding for projects that align with the MBTA's stated goals, strategic mission, and the 5-year CIP which is the MBTA's statement of priorities for capital investments:

- The annual CIP development process continues to establish the pool of projects for which the agency may develop a discretionary grant application
- In some cases, awarded funds will allow the MBTA to reallocate previously programmed funds and in other cases, awards may go to unfunded phases of a project or increased project costs
- On a limited basis, the best fit for a grant program may be a project that is "next up" in prioritization (as determined in the CIP process) but has not yet made it into the CIP

## **Notable Grant Awards in FFY22-23**

As of early February 2023, the MBTA has won \$249.4 million in discretionary grant funding in FY22-23, related but not limited to:

### **Bus Electrification**

- \$116M awarded for the purchase of battery-electric buses
- \$5M awarded to support charging infrastructure at the new Quincy Bus Facility

### **System Accessibility and Passenger Facilities**

- \$66.6M awarded for the Symphony Station Accessibility Improvements Project
- \$6.6M awarded for the Hingham Ferry Dock Modifications project

### **System Safety**

- \$6.9M through the DHS/FEMA Transit Security Grant Program
- \$100K awarded for the MBTA's Suicide Trespass Prevention Project
- \$20K awarded for the South Coast Rail Transit Safety Education Project through Operation Lifesaver, Inc.

# FY24-28 CIP | Public Engagement Overview



# FY24-28 CIP | How We Got Here

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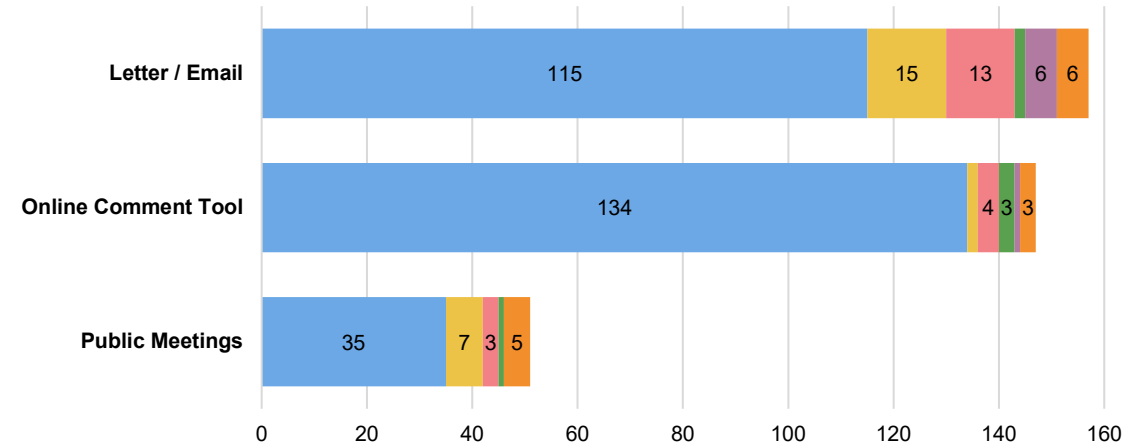
- The FY24-28 CIP development process kicked off on September 12th with a “call for projects” where sponsors from MBTA departments submit requests for funds.
- Over 200 CIP project requests were received and reviewed and scored by 19 cross-functional evaluation teams with 58 evaluators from across the agency.
- A Safety Impact Matrix (SIM) was developed to support project prioritization, in addition to project scoring, to further elevate and identify key projects based on different levels of safety impact.
- Initial CIP Program Sizes were set by MBTA Leadership, and four prioritization meetings were held to review the results of CIP scoring and to determine the prioritization of needs for funding.
- The Proposed FY24-28 CIP was presented to the MBTA Audit & Finance Subcommittee, and the MBTA Board and then released for a 30-day public comment period.



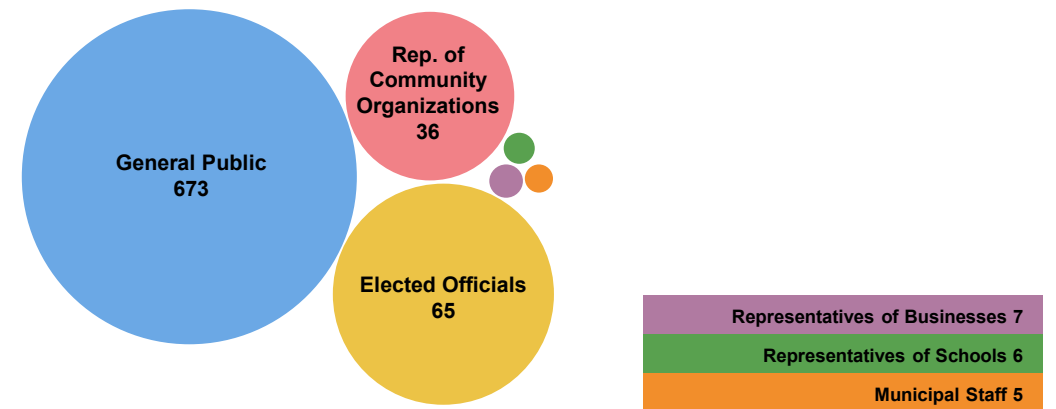
# FY24-28 Proposed CIP Public Engagement | Participation

- The proposed FY24-28 MBTA CIP public comment period took place from **Thursday, March 23 to Monday, April 24, 2023**
  - Staff hosted **1 in-person** and **2 virtual public meetings** to provide an overview of the CIP and invite feedback from attendees
  - Members of the public could also provide comments via an **online comment tool, email, or letter**
  - Staff promoted the public comment period via **social media, mbta.com, in-station advertisements, and community stakeholder networks**
- The MBTA received a total of **355** comments from **792** individuals and saw an average of **24** attendees at our public meetings, with a significant increase in numbers of comments by the general public compared to last year's CIP
- Comments were analyzed as follows:
  - Each unique message received via letter, email, or online comment tool, or that was shared verbally or via chat during a public meeting, is considered a separate **comment**
  - Individual** refers to the person(s) sending or co-signing a comment. Some comments consist of a single letter or message cosigned by more than one individual
  - Each comment is tagged to one or more **mentions** of a particular topic, such as Commuter Rail electrification or Fare Transformation

Number of Comments Received, by Comment Format and Type of Commenter



Number of Individuals Submitting Comments, by Type of Commenter



# FY24-28 Proposed CIP Public Engagement | Key Mentions\*

## Rapid Transit



- Support for CIP funding to **address rapid transit speed restrictions**
- Support for **JFK/UMass** design and requests for construction funding
- Support for **GLT** and requests to continue to improve **accessibility and reliability** on the Green Line
- Requests for **access to the Green Line's East Somerville stop from Inner Belt Road**
- Support for **Red-Blue Connector** design and requests for construction funding
- Requests for **extension of the Orange Line to Roslindale**

## Bus



- Support for **bus electrification** and requests for additional funding to accelerate work
- Requests to increase funding allocated to **bus lanes, transit signal priority, and other transit supportive infrastructure**
- Requests to **fund additional bus accessibility improvements**
- Requests to **increase bus service frequency and service hours**
- Requests for **Silver Line 3 expansion**

## Commuter Rail



- Support for **accessibility improvements** at Commuter Rail stations
- Requests to continue **safety improvements at at-grade crossings** on the Commuter Rail
- Support for **Regional Rail** and requests to **accelerate early action items**
- Requests for full construction funding to fully rehabilitate **South Attleboro, Auburndale, West Newton, and Newtonville** stations
- Support for **Commuter Rail electrification** and requests to **accelerate first phase items**

## Systemwide / Other



- Requests to focus investments on the **system's state of good repair, safety, frequency, and reliability**
- Support and general interest in the **capital program planning process and funding needs**
- Requests for rail or bus service linking **North and South Stations**
- Support for the CIP's policy objectives and requests to **increase focus on accessibility, sustainability, and resiliency**
- Requests for ongoing consideration and evaluation of **Fare Transformation**

\* "Key mentions" are topics that were brought up in at least 5 comments.

# FY24-28 CIP



# FY24-28 CIP | Summary

Total Projects

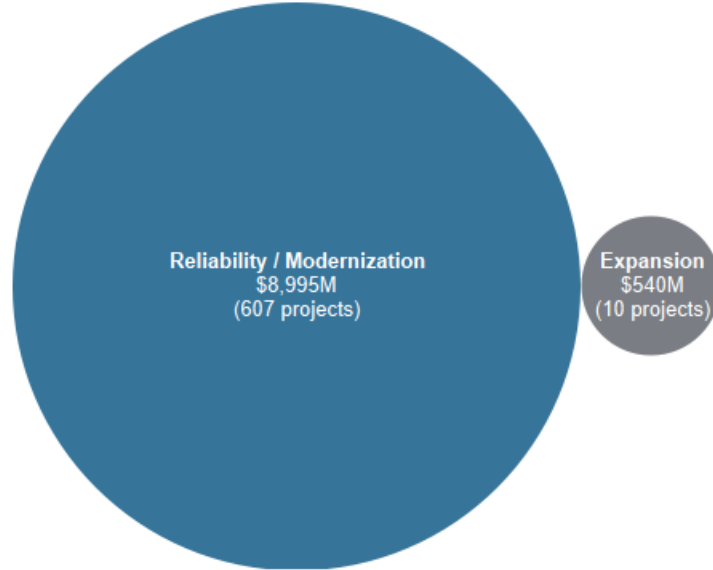
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FY24-28 Programmed Spend

\$9,535.1M

Executing Departments

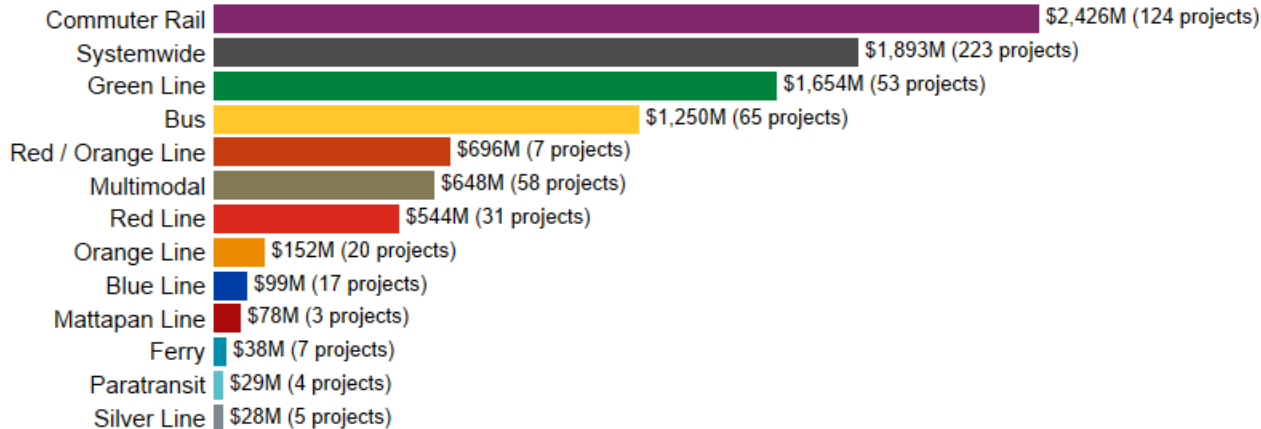
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Top 15 Projects by FY24-28 Programmed Spend

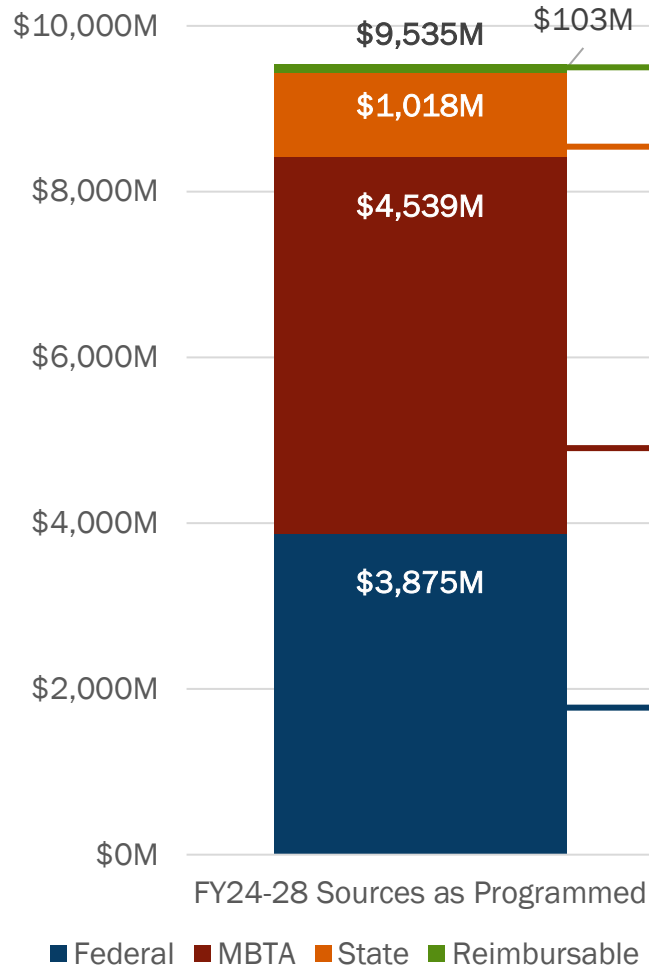
CIP ID	Project Name	Primary Mode	Authorized Budget	FY2024-2028 Total
P0018	North Station Draw 1 Bridge Replacement	Commuter Rail	\$574M	\$352M
P0095	Green Line Extension	Green Line	\$2,119M	\$216M
P0160	South Coast Rail Expansion	Commuter Rail	\$921M	\$271M
P0265	Fare Transformation	Systemwide	\$854M	\$473M
P0285	Signal Program - Red/Orange Line	Red / Orange Line	\$289M	\$153M
P0362	Red / Orange Line Vehicles	Red / Orange Line	\$1,073M	\$390M
P0369	Green Line Type 10 Vehicle Replacement Program	Green Line	\$1,000M	\$427M
P0370	Green Line Train Protection	Green Line	\$213M	\$146M
P0551	Longfellow Approach	Red Line	\$210M	\$202M
P0606	ATC Implementation - North Side Commuter Rail Lines	Commuter Rail	\$467M	\$143M
P0618	Procurement of 40ft Enhanced Electric Hybrid Buses	Bus	\$349M	\$259M
P0671a	Quincy Bus Facility Modernization	Bus	\$476M	\$401M
P0889	Tower 1 Interlocking Early Action Project	Commuter Rail	\$169M	\$140M
P0924	B Branch Accessibility & Capacity Improvements	Green Line	\$221M	\$176M
P1152	Procurement of Hyundai Rotem Bi-Level Coaches - Option	Commuter Rail	\$161M	\$153M
<b>Total</b>			<b>\$9,095M</b>	<b>\$3,900M</b>

FY24-28 Programmed Spend by Primary Mode



# FY24-28 CIP | Programmed Funding Sources

FY24-28 CIP Sources as Programmed



The MBTA's FY24-28 CIP now reflects \$9.5B in programmed sources. This amount reflects changes to project schedules and spend forecasts as collected through the agency's Q3 cashflow exercise, as well as additional funding and new projects added since the release of the draft CIP

**\$103M in Reimbursable funds** through partnerships and agreements

**\$1,018M in State funds**, including Bond Cap and Rail Enhancement Program (REP) special obligation bonds set aside for specific projects; also includes \$116M in funding from MassTRAC to support local match for additional federal funds the MBTA received under the Bipartisan Infrastructure Law (BIL)

**\$4,539M in MBTA funds**, including MBTA-issued bonds, operating budget transfers and existing RRIF/TIFIA loans

**\$3,875M in Federal funds** including federal formula funding levels, received discretionary grant awards, and federal funding for GLX

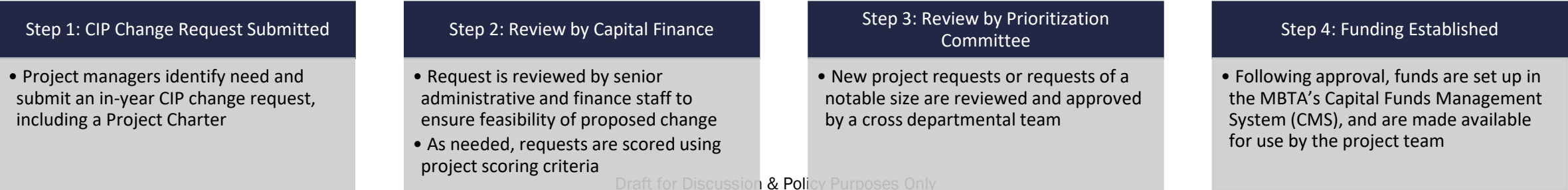




# Changes to the Proposed FY24-28 CIP

- Changes that have been made to the FY24-28 CIP between the publication of the Proposed and the updated document falls into one of two categories: (1) new projects and funding for the FY24-28 CIP, including projects funded by the Boston MPO and (2) new projects or significant project changes incorporated in the FY23-27 CIP through the in-year CIP Change process, including discretionary funding awards and FTA directive-related project changes.
- To ensure flexibility, consistency and transparency the MBTA uses an **In-Year CIP Change Process** to review, approve and track project budget or scope changes between annual CIP development cycles
  - In-year changes include funding requests due to cost increases, urgent investment needs or routine administrative changes
  - Costs are primarily off-set using existing programmed funds, but depending on the need may tap into surplus/contingency funds or utilize Capital Maintenance Fund (CMF) funding managed by the CFO
  - Discretionary grant awards that are received during the fiscal year are typically incorporated into the Capital Investment Plan through the in-year CIP Change process

## In-Year CIP Change Process Details:



# FY24-28 CIP | New Funding

## New Funding Programmed in FY24-28

**\$1,334.2M**

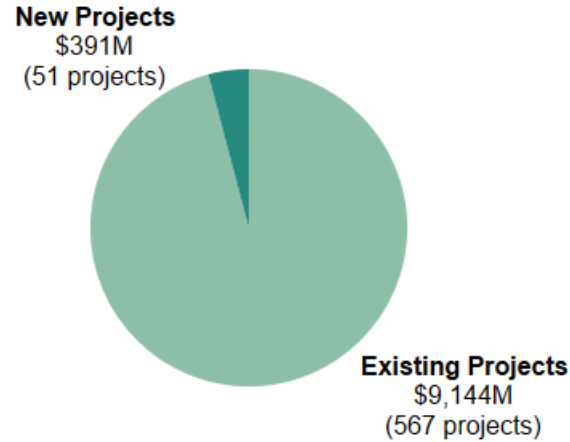
## Total Projects Receiving New Funding

**108**

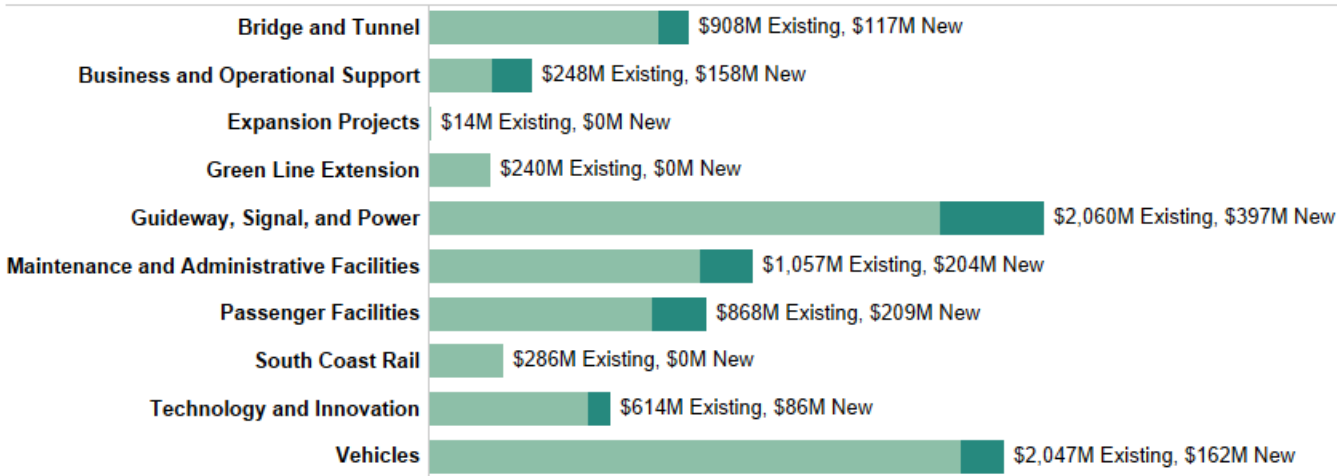
## Total New Projects

**51**

## FY24-28 Programmed Spend by New or Existing



## Existing and New FY24-28 Funding by CIP Program



## Top 25 Safety-Related Projects Receiving New Funding, by FY24-28 Programmed Spend

CIP ID	Project Name	FY2024-2028 New Funding	FY2024-2028 Total	Authorized Budget
P0671a	Quincy Bus Facility Modernization	\$74M	\$401M	\$476M
P0606	ATC Implementation - North Side Commuter Rail Lines	\$50M	\$143M	\$467M
P0911	Hybrid and CNG Bus Overhaul	\$95M	\$121M	\$121M
P0856	Ruggles Station Improvements Phase 2	\$25M	\$120M	\$125M
P0516	On-Call Track III	\$35M	\$101M	\$104M
P1107	Bridge Program Pipeline - Rehabilitation, Repair and Replacement	\$66M	\$85M	\$295M
P0692	PRIIA-NEC Baseline Capital Charges	\$13M	\$57M	\$125M
P1151	Heavy Rail Vehicle Conditional and Reliability Assessment	\$52M	\$53M	\$55M
P1139	Systemwide Asset Management Program Phase 4	\$42M	\$53M	\$54M
P0671c	North Cambridge Bus Facility Retrofit	\$11M	\$42M	\$43M
P0129	Newton Highlands Green Line Station Accessibility Project	\$16M	\$42M	\$48M
P0126	Facility Roof Replacement	\$20M	\$41M	\$72M
P1238	Additional FTA Directive-Related Costs	\$37M	\$37M	\$37M
P0886	Capital Program Support	\$20M	\$28M	\$31M
P0909	Repairs and Rehabilitation of MBTA-Owned Dams	\$17M	\$26M	\$40M
P1216	Everett Building 2 Floor Repairs	\$19M	\$19M	\$19M
P1157	Systemwide Non-Revenue Vehicles Program - Phase 2	\$12M	\$18M	\$18M
P1212	15kV Feeder and Duct Bank Replacement	\$15M	\$15M	\$15M
P1213	SCADA Equipment Update	\$15M	\$15M	\$15M
P1220	Employee Breakroom and Bathroom Upgrades Program	\$15M	\$15M	\$15M
P1225	Systemwide Escalator and Elevator Replacement Program	\$15M	\$15M	\$15M
P1210	PILC-EPR Medium Voltage Cable Replacement Program	\$15M	\$15M	\$15M
P1201	Capital Programs Safety Assurance Support	\$13M	\$13M	\$13M
P1224	Systemwide Trailer Replacement Program	\$10M	\$10M	\$10M
P1202	Rail Transformation Contract Procurement Support	\$10M	\$10M	\$10M
Others		\$367M	\$6,267M	\$14,730M
<b>Grand Total</b>		<b>\$1,077M</b>	<b>\$7,763M</b>	<b>\$16,968M</b>

Existing New

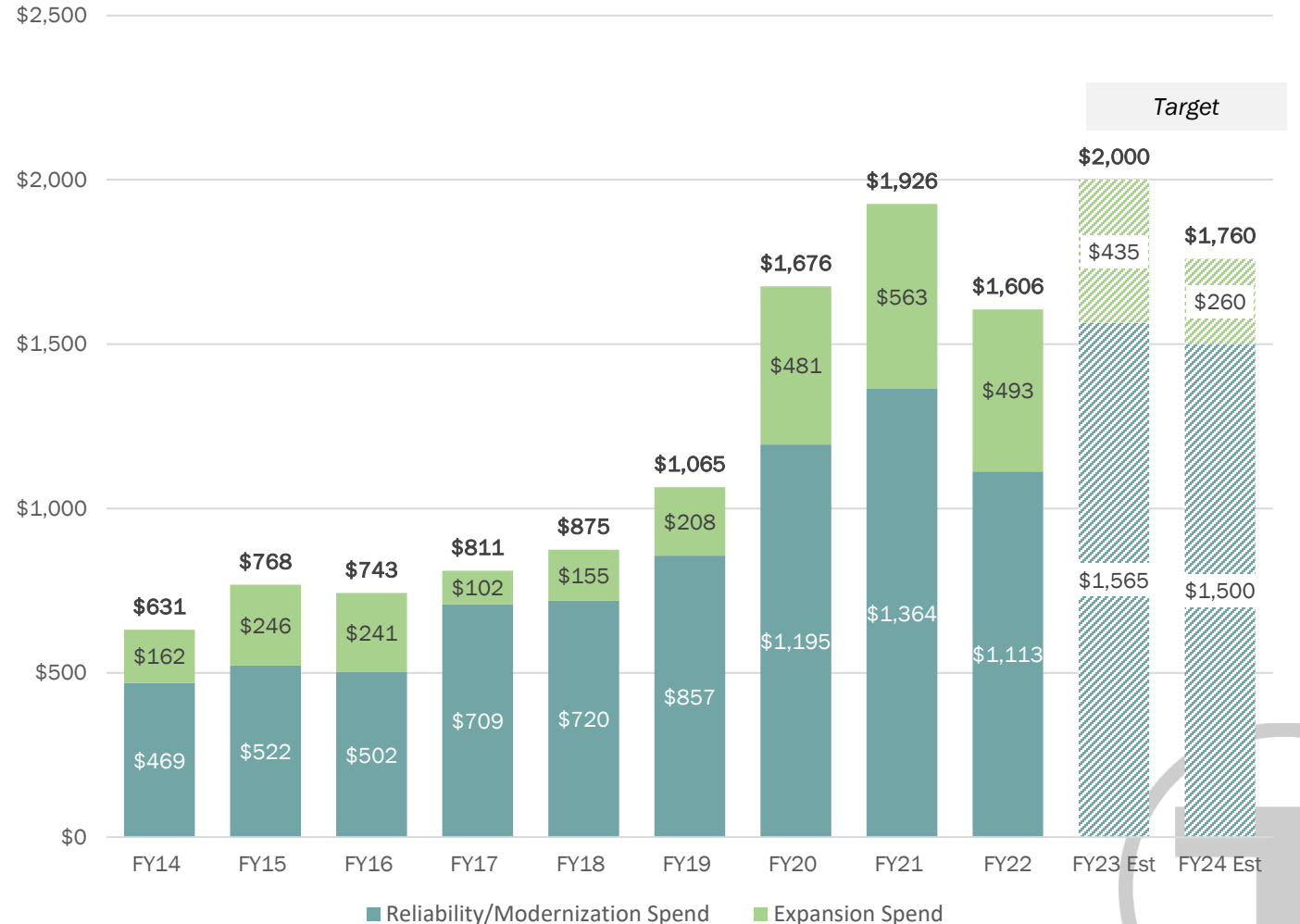
# FY24 Capital Spend Target

The MBTA continues to sustain an unprecedented level of investment focused on the safety and reliability of our system, the modernization of our assets and the strategic expansion of our network.

Average annual capital spend in the period of FY20 to FY22 was nearly twice as high as the preceding three-year period of FY17-FY19.

For FY24 the MBTA has once again set an ambitious spending goal of \$1.76B:

- \$1,500M in Reliability/Modernization
- \$260M in Expansion



# FY24-28 CIP | Policy Objectives



## Prioritizing Safety and Reliability Investments

- Safety and reliability investments are the MBTA's priority and account for roughly \$7.8B or 81% of the programmed investments in the final FY24-28 CIP. These projects are necessary to reduce safety risks, increase system reliability, lower maintenance costs, and improve system performance.



## Building Toward Enhanced and Improved System Accessibility

- System Accessibility account for roughly \$2B or 21% of the programmed investments with significant accessibility benefits in the FY24-28 CIP. These investments are instrumental to ensure access for all when using the MBTA's transit system.



## Promoting System Sustainability and Resiliency (S&R)

- Investments focused on system sustainability and resiliency account for roughly \$3.8B or 39% of the programmed investments in the FY24-28 CIP. These investments promote electrification, resource efficiency, and harden the system against extreme weather events, including flooding and extreme heat.

# Advancing Bus and Rail Electrification



## Bus Electrification

The CIP supports the MBTA's Bus Electrification Strategy that seeks to achieve full bus electrification in 2040. It includes investments aligned with the 2027 goals of the Bus Electrification Strategy that target:

- Modernization of three bus facilities to provide facility capacity to electrify 30% of our fleet
- On-going conversion of bus fleet to zero emissions technology

The CIP includes projects focused on bus facility modernization and procurement of battery-electric buses (BEBs), including but not limited to:

- Quincy Bus Facility Modernization (P0671a)
- Arborway Bus Facility - Design Funding (P0671b)
- North Cambridge Bus Facility Retrofit (P0671c)
- Procurement of 40ft Battery Electric Buses and Related Infrastructure (P0653)



## Commuter Rail Electrification

The CIP supports the MBTA's commitment to the first phase of Regional Rail Transformation as defined by the Fiscal Management and Control Board in 2019:

- To deliver electrified service to the Providence/Stoughton, Fairmount lines, and Environmental Justice Corridor (the Boston North Station to Beverly section of the Rockport line).

The CIP includes projects focused on completing necessary technology and planning studies, funds to support future fleet procurements of battery-electric or electric rolling stock, and “no regrets” capital investments which will provide customer benefits regardless of technology choice, including but not limited to:

- Rail Transformation – Early Action Items (P0940)
- Rail Transformation Planning Studies (P0934)
- Rail Transformation Early Actions – Old Colony Double Track (P1209)
- Future Rolling Stock Fleet (P0918)

# FY24-28 CIP | FTA Directive-Related Projects

- The MBTA continues to implement Corrective Action Plans (CAPs) in response to the Federal Transit Administration's (FTA) Safety Management Inspection (SMI) and subsequent Special Directives.
- The final FY24-28 CIP includes 13 projects related to FTA Special Directive response with FY24-28 programmed spend totaling **\$259.9M**.
- Many of these projects were added between the draft and final versions of the CIP as project teams and the Quality, Compliance, and Oversight (QCO) office worked to refine project scopes and spending projections

## SD 22-4: Track Maintenance & PPE

- \$167.1M total programmed for FY24-28 across 7 projects
- *Related Projects:*
  - **P0547** Work Car Procurement
  - **P1029** FTA Findings Program
  - **P1175** FTA Safety Management Inspection CAP Funding - Asset Management EAM
  - **P2204c** On-Call Contracts to Support Track State of Good Repair\*
  - **P2204d** Implementation of Special Maintenance Repair Plan - Materials and Labor \*
  - **P2204e** Implementation of Special Maintenance Repair Plan - Busing and Support Costs\*
  - **P2204f** Implementation of MOW Corrective Maintenance Work Plan\*

## SD 22-6: Operations Control Center

- \$11.2M total programmed in FY24-28 for one project
- *Related Project:*
  - **P2206a** OCC Station Upgrades and Reconfiguration\*

## SD 22-9: Workforce Assessment

- \$2.7M total programmed in FY24-28 across two projects
- *Related Projects:*
  - **P2209a** Capital Programs Technical Support Services for Construction Oversight Activities\*
  - **P2209b** Gap Analysis of Contractor Oversight\*

## SD 22-12: Policies & Training

- \$1.5M programmed for one project
- *Related Project:*
  - **P2212a** Development of Preventive Maintenance Checklist & Tools\*

## Multiple Special Directives

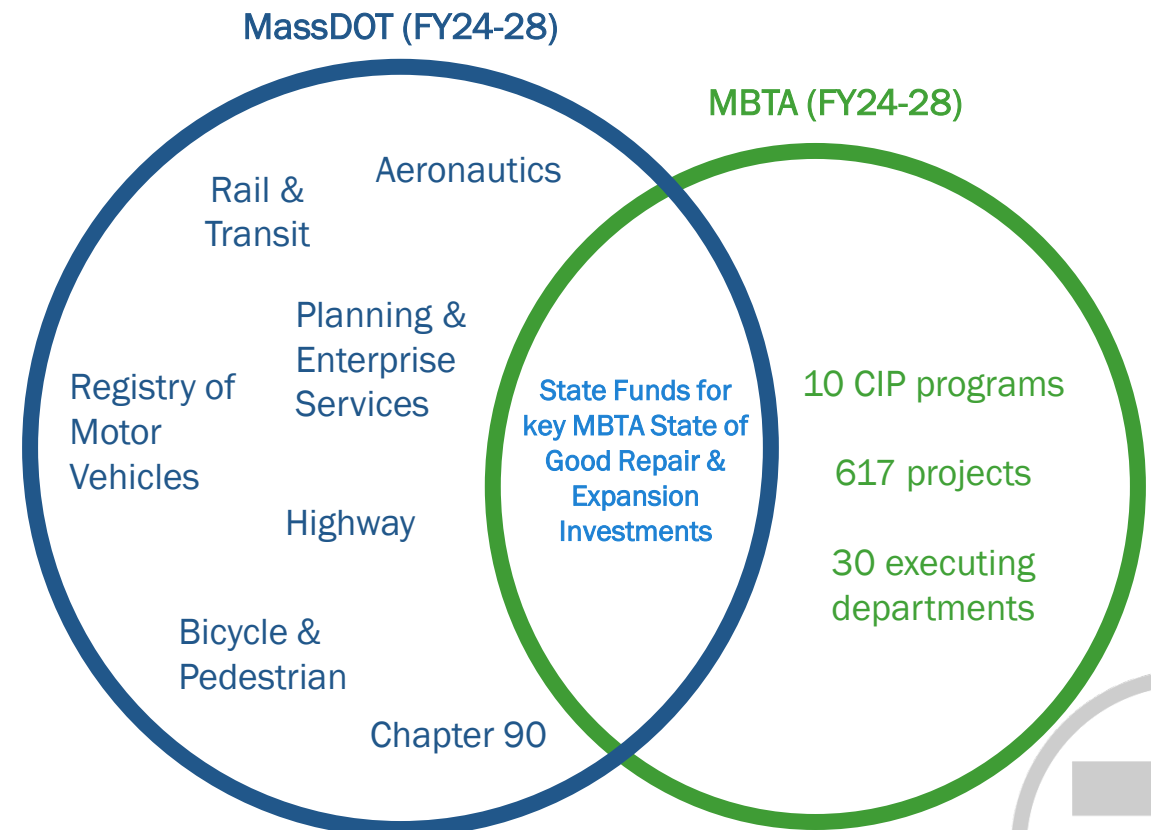
- \$77.5M programmed for anticipated future FTA Directive-Related Costs
- *Related Projects:*
  - **P1238** Additional FTA Directive-Related Costs
  - **P1251** Anticipated FTA Directive-Related Capital Costs\*
- P1238 includes funding set aside for unanticipated costs related to FTA Directive response
- P1251 covers anticipated costs under FTA Special Directives 22-4, 22-9, 22-12, and 22-10, and may be used for FTA Directive-related costs under additional directives as necessary

\*Project was added between release of draft CIP and release of final CIP

# Next Steps

In Development: MassDOT FY24-28 CIP

- MBTA's FY24-28 CIP will be finalized and published following MBTA Board approval.
- The MBTA's state-funded CIP investments continue to be incorporated into MassDOT's Statewide CIP, which is currently expected to be released for public comment in May and approved in June.
- General responses to public comments will be posted on the MBTA website, with an initial summary of key mentions provided.



# Appendix | CIP Program Summary Slides





# Program Summary | Bridge and Tunnel

## Program Purpose

Repairs, reconstructs, and replaces Commuter Rail and transit bridges, tunnels, culverts, and dams

### Total Projects

**43**

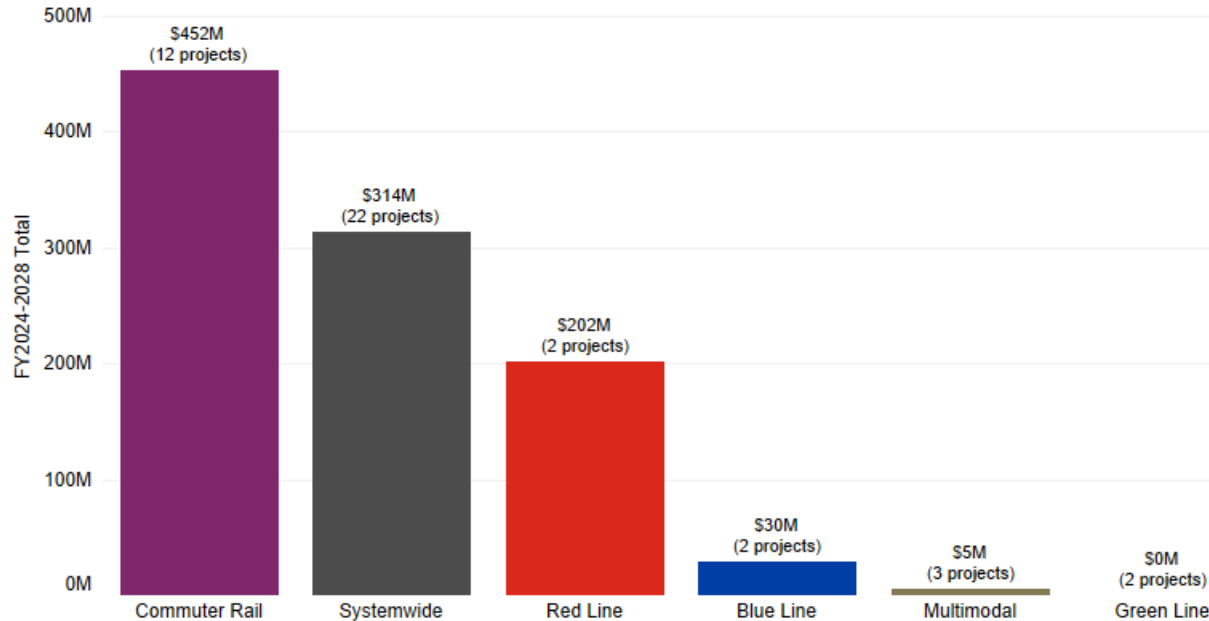
### FY24-28 Programmed Spend

**\$1,002.8M**

### Executing Departments

**5**

## FY24-28 Programmed Spend by Primary Mode



## Top 15 Bridge and Tunnel Projects by FY24-28 Programmed Spend

CIP ID	Project Name	Primary Mode	Authorized Budget	FY2024-2028 Total
P0018	North Station Draw 1 Bridge Replacement	Commuter Rail	\$561M	\$352M
P0551	Longfellow Approach	Red Line	\$210M	\$202M
P1107	Bridge Program Pipeline - Rehabilitation, Repair and Replacement	Systemwide	\$295M	\$85M
P0495	Bridge Bundling Contract	Systemwide	\$132M	\$39M
P0627	Systemwide Bridge Inspection and Rating	Systemwide	\$55M	\$36M
P0912	Systemwide Tunnel Flood Mitigation Program	Systemwide	\$115M	\$24M
P0552	Dorchester Avenue Bridge	Systemwide	\$37M	\$21M
P0912a	Airport Portal Flood Protection	Blue Line	\$20M	\$20M
P0907	East Street Bridge Replacement (Dedham)	Commuter Rail	\$18M	\$18M
P0852	Structural Repairs Systemwide	Systemwide	\$30M	\$18M
P0909	Repairs and Rehabilitation of MBTA-Owned Dams	Commuter Rail	\$30M	\$17M
P1115	South Elm Street Bridge Replacement	Commuter Rail	\$15M	\$15M
P0704	Tunnel Emergency Ventilation Program	Systemwide	\$14M	\$12M
R0074	Tunnel Inspection Systemwide	Systemwide	\$19M	\$11M
P0851	Norfolk Ave and East Cottage St Bridges	Commuter Rail	\$22M	\$10M
<b>Total</b>			<b>\$1,574M</b>	<b>\$879M</b>

# Program Summary | Guideway, Signal, and Power

## Program Purpose

Rehabilitates and upgrades maintenance and administrative facilities that support operations

### Total Projects

**138**

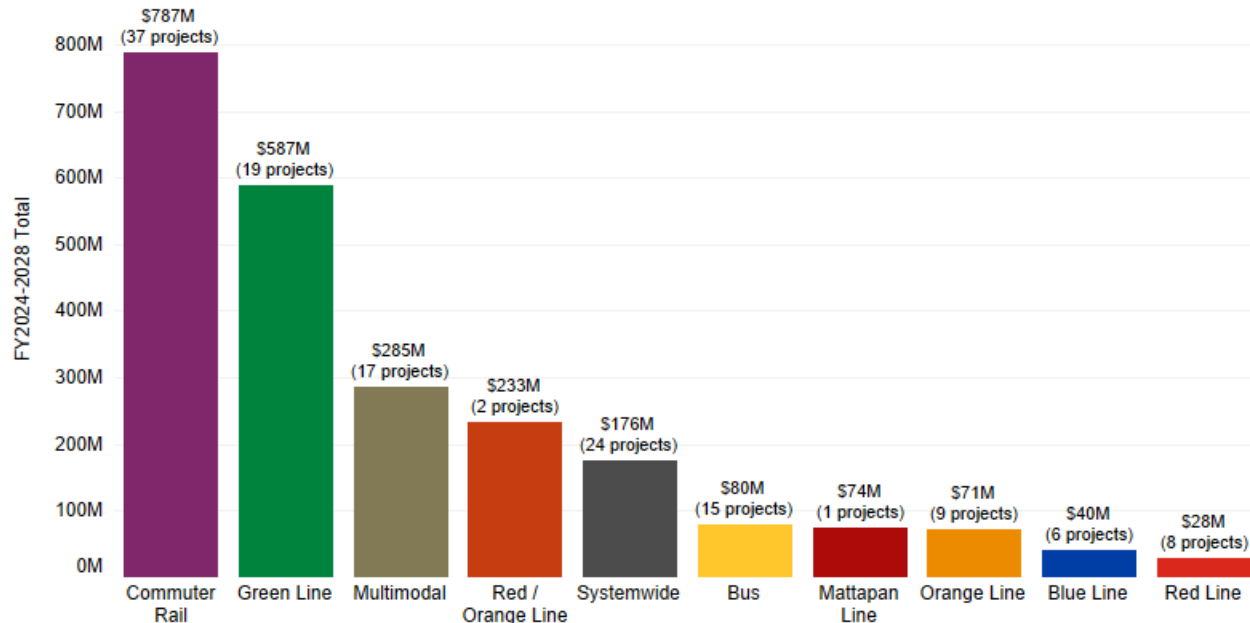
### FY24-28 Programmed Spend

**\$2,362.7M**

### Executing Departments

**8**

## FY24-28 Programmed Spend by Primary Mode



## Top 15 Guideway, Signal, and Power Projects by FY24-28 Programmed Spend

CIP ID	Project Name	Primary Mode	Authorized Budget	FY2024-2028 Total
P0924	B Branch Accessibility & Capacity Improvements	Green Line	\$221M	\$176M
P0370	Green Line Train Protection	Green Line	\$212M	\$146M
P0606	ATC Implementation - North Side Commuter Rail Lines	Commuter Rail	\$439M	\$141M
P0889	Tower 1 Interlocking Early Action Project	Commuter Rail	\$147M	\$125M
P0591	Green Line Central Tunnel Track and Signal Replacement	Green Line	\$120M	\$116M
P0285	Signal Program - Red/Orange Line	Red / Orange Line	\$137M	\$114M
P0612	Commuter Rail Fiber Optic Resiliency	Commuter Rail	\$120M	\$103M
P2204c	On-Call Contracts to Support Track State of Good Repair	Multimodal	\$87M	\$87M
P0923	E Branch Accessibility & Capacity Improvements	Green Line	\$86M	\$86M
P0857	Mattapan HSL Transformation	Mattapan Line	\$115M	\$74M
P0157	Red Line / Orange Line Infrastructure Improvements	Red / Orange Line	\$176M	\$72M
P0516	On-Call Track III	Multimodal	\$51M	\$49M
P0692	PRIIA-NEC Baseline Capital Charges	Commuter Rail	\$112M	\$45M
P1238	Additional FTA Directive-Related Costs	Systemwide	\$37M	\$37M
<b>Total</b>			<b>\$2,061M</b>	<b>\$1,371M</b>

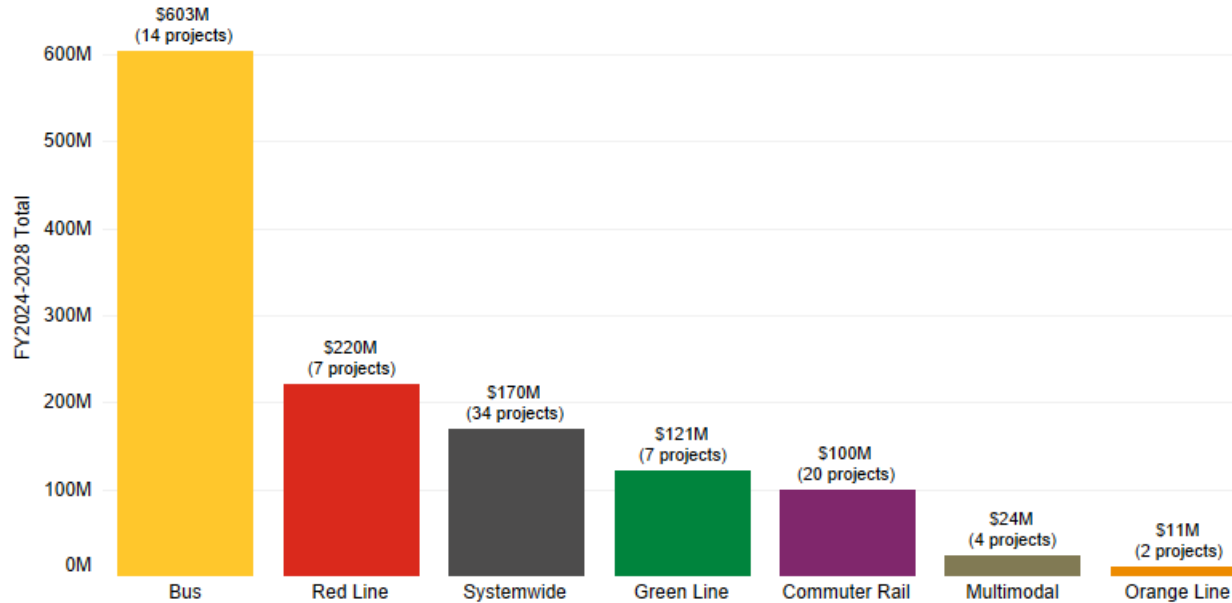
# Program Summary | Maintenance and Administrative Facilities

## Program Purpose

Rehabilitates and upgrades maintenance and administrative facilities that support operations

Total Projects	FY24-28 Programmed Spend	Executing Departments
88	\$1,249.1M	8

## FY24-28 Programmed Spend by Primary Mode



## Top 15 Maintenance and Administrative Facilities Projects by FY24-28 Programmed Spend

CIP ID	Project Name	Primary Mode	Authorized Budget	FY2024-2028 Total
P0671a	Quincy Bus Facility Modernization	Bus	\$464M	\$389M
P0679	Codman Yard Expansion and Improvements	Red Line	\$110M	\$101M
P0512	Cabot Yard Complete Upgrade	Red Line	\$99M	\$90M
P0942	Bus Facility Interim Improvements	Bus	\$80M	\$59M
P1010	Riverside Vehicle Maintenance Facility Modifications & Upgrades	Green Line	\$49M	\$49M
P1144	Commuter Rail Facilities State of Good Repair	Commuter Rail	\$49M	\$43M
P0126	Facility Roof Replacement	Systemwide	\$69M	\$41M
P0671	Bus Facility Modernization Program	Bus	\$91M	\$38M
P0671b	Arborway Bus Facility - Design Funding	Bus	\$36M	\$35M
P0671c	North Cambridge Bus Facility Retrofit	Bus	\$32M	\$31M
P1103	Reservoir Yard and Non-Revenue Track Optimization and Reconfiguration	Green Line	\$31M	\$31M
P1171	Billerica MOW Repair and Storage Facility	Commuter Rail	\$30M	\$30M
P1216	Everett Building 2 Floor Repairs	Multimodal	\$19M	\$19M
P1220	Employee Breakroom and Bathroom Upgrades Program	Systemwide	\$15M	\$15M
P0925	Green Line Yards - Track Upgrades	Green Line	\$15M	\$15M
<b>Total</b>			<b>\$1,188M</b>	<b>\$985M</b>

# Program Summary | Passenger Facilities

## Program Purpose

Rehabilitates and upgrades stations, stops and parking facilities to improve accessibility and the customer experience

### Total Projects

**104**

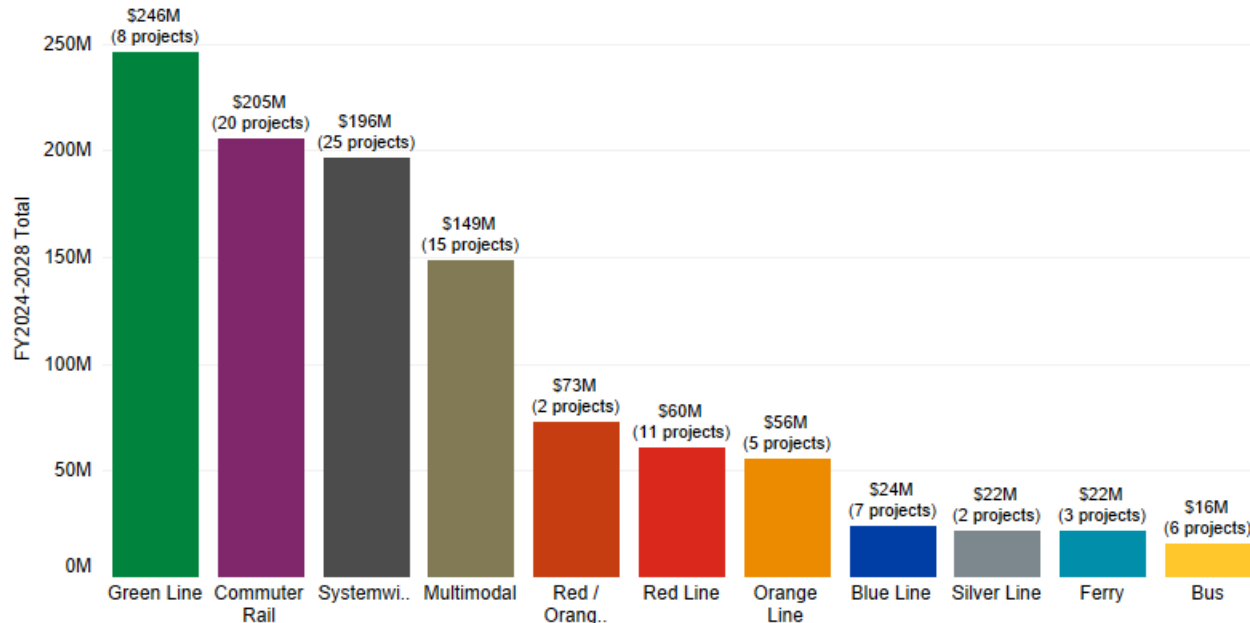
### FY24-28 Programmed Spend

**\$1,068.8M**

### Executing Departments

**13**

## FY24-28 Programmed Spend by Primary Mode



## Top 15 Passenger Facilities Projects by FY24-28 Programmed Spend

CIP ID	Project Name	Primary Mode	Authorized Budget	FY2024-2028 Total
P0856	Ruggles Station Improvements Phase 2	Multimodal	\$125M	\$120M
P0168	Symphony Station Improvements	Green Line	\$83M	\$83M
P1165	Transit Station Economic Development Improvements - Norfolk County	Systemwide	\$100M	\$76M
P0074	Downtown Crossing Vertical Transportation Improvements Phase 2	Red / Orange Line	\$78M	\$72M
P1009	Short Term Accessibility Improvements - FTA Compliance Actions	Green Line	\$57M	\$55M
P0129	Newton Highlands Green Line Station Accessibility Project	Green Line	\$40M	\$35M
P0626	Hynes Convention Center Station	Green Line	\$31M	\$31M
P0179	Winchester Center Station	Commuter Rail	\$54M	\$30M
P0395	Worcester Union Station Accessibility and Infrastructure Improvements	Commuter Rail	\$59M	\$29M
P0108	Back Bay Station Ventilation	Commuter Rail	\$37M	\$26M
P1249	Jackson Square Station Accessibility Improvements	Orange Line	\$26M	\$26M
P0163	Forest Hills Improvement Project	Orange Line	\$30M	\$25M
P0075	Elevator Program Multiple Location Design	Systemwide	\$45M	\$23M
P1025	Lynn Station Parking Garage Deconstruction	Commuter Rail	\$23M	\$22M
P0174	Natick Center Station Accessibility Project	Commuter Rail	\$44M	\$16M
<b>Total</b>			<b>\$831M</b>	<b>\$668M</b>

# Program Summary | Vehicles

## Program Purpose

Rehabilitates and replaces revenue fleets and non-revenue vehicle equipment for reliable and safe operations

### Total Projects

91

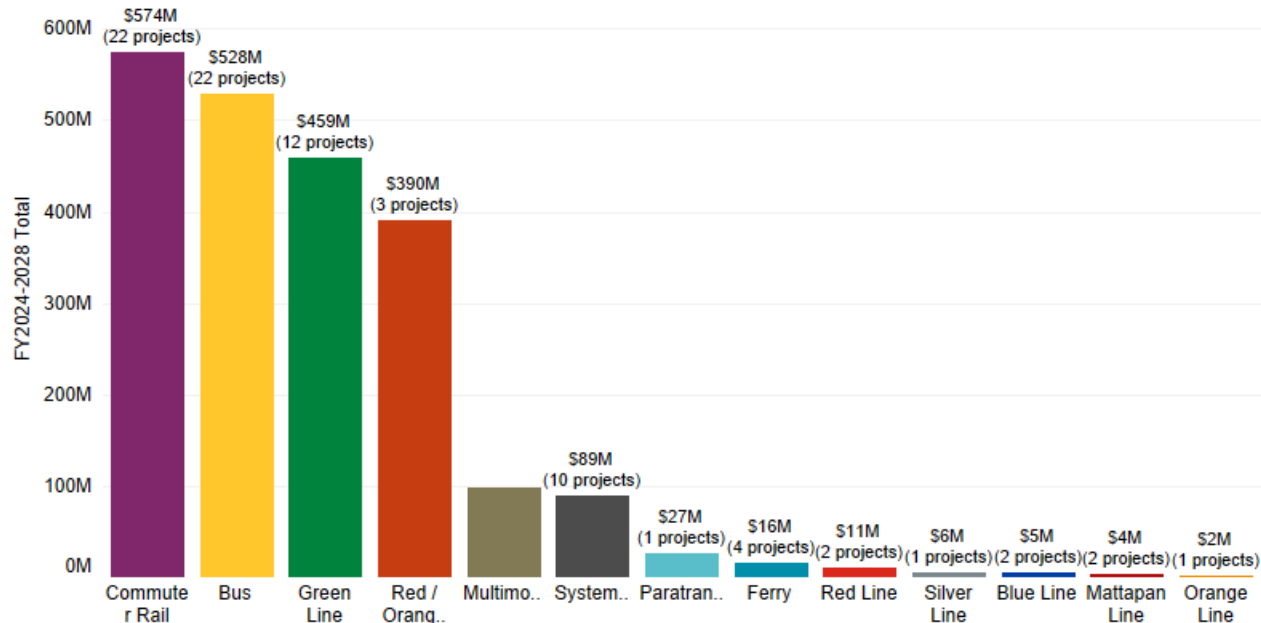
### FY24-28 Programmed Spend

\$2,208.8M

### Executing Departments

7

## FY24-28 Programmed Spend by Primary Mode



## Top 15 Vehicles Projects by FY24-28 Programmed Spend

CIP ID	Project Name	Primary Mode	Authorized Budget	FY2024-2028 Tot..
P0369	Green Line Type 10 Vehicle Replacement Program	Green Line	\$963M	\$422M
P0362	Red / Orange Line Vehicles	Red / Orange Line	\$1,010M	\$383M
P0618	Procurement of 40ft Enhanced Electric Hybrid Buses	Bus	\$313M	\$237M
P1152	Procurement of Hyundai Rotem Bi-Level Coaches - Option	Commuter Rail	\$161M	\$153M
P0893	Procurement of 67 Bi-Level Commuter Rail Coaches	Commuter Rail	\$276M	\$127M
P0911	Hybrid and CNG Bus Overhaul	Bus	\$121M	\$121M
P0653	Procurement of 40ft Battery Electric Buses and Related Infrastructure	Bus	\$101M	\$97M
P1173	HSP46 Locomotive Overhaul	Commuter Rail	\$120M	\$93M
P0547	Work Car Procurement	Systemwide	\$61M	\$51M
P0652	Procurement of 100 Bi-Level Commuter Rail Coaches	Commuter Rail	\$44M	\$42M
P1151	Heavy Rail Vehicle Conditional and Reliability Assessment	Multimodal	\$39M	\$39M
P1162	Reliability Centered Maintenance - Blue, Orange and Red Line	Multimodal	\$35M	\$35M
P0239	F40 Commuter Rail Locomotive Overhaul	Commuter Rail	\$42M	\$32M
P0918	Future Rolling Stock Fleet	Commuter Rail	\$29M	\$29M
P0927	Rolling Stock - Locomotive and Coach State of Good Repair and Resiliency	Commuter Rail	\$30M	\$25M
<b>Total</b>			<b>\$3,344M</b>	<b>\$1,887M</b>

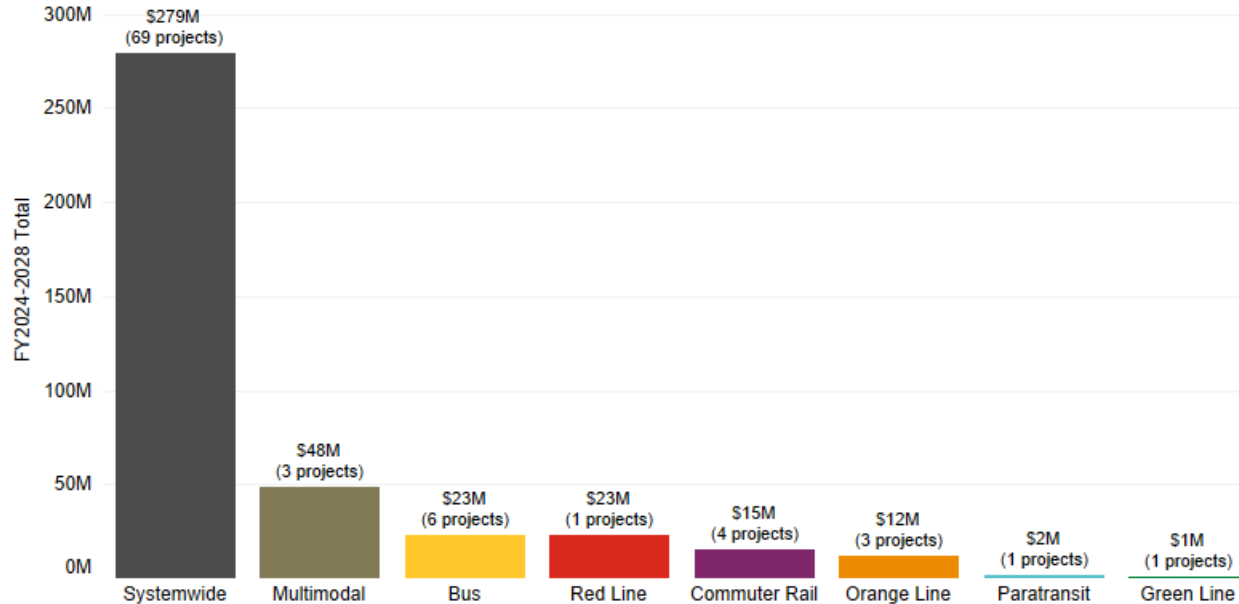
# Program Summary | Business and Operational Support

## Program Purpose

Investments in asset management, safety and security, communications, and other systems supporting operations

Total Projects	FY24-28 Programmed Spend	Executing Departments
<b>88</b>	<b>\$402.1M</b>	<b>21</b>

## FY24-28 Programmed Spend by Primary Mode



## Top 15 Business and Operational Support Projects by FY24-28 Programmed Spend

CIP ID	Project Name	Primary Mode	Authorized Budget	FY2024-2028 Total
P1139	Systemwide Asset Management Program Phase 4	Systemwide	\$54M	\$53M
P1251	Anticipated FTA Directive-Related Capital Costs	Multimodal	\$40M	\$40M
P1012r	Red Line PM/CM and Owners Rep Professional Services	Red Line	\$31M	\$23M
P0321	Bond Costs / SOMWBA	Systemwide	\$52M	\$21M
P0886	Capital Program Support	Systemwide	\$20M	\$20M
P0932	Electrical Safety - Incident Energy Analysis and System Upgrades	Systemwide	\$16M	\$15M
P0683	Project Connect - Financial Systems Transformation	Systemwide	\$29M	\$14M
P1201	Capital Programs Safety Assurance Support	Systemwide	\$13M	\$13M
P1012o	Orange Line PM/CM and Owners Rep Professional Services	Orange Line	\$22M	\$12M
P0645	OHS Program Development and Implementation	Systemwide	\$22M	\$12M
P0916	Bus Network Redesign Implementation	Bus	\$12M	\$11M
P1202	Rail Transformation Contract Procurement Support	Commuter Rail	\$10M	\$10M
R0128	Workforce Modernization Program - HASTUS	Systemwide	\$29M	\$9M
P0931	Safety Management System (SMS) Implementation	Systemwide	\$11M	\$9M
P0690	Design Standards and Guidelines	Systemwide	\$11M	\$9M
<b>Total</b>			<b>\$373M</b>	<b>\$268M</b>

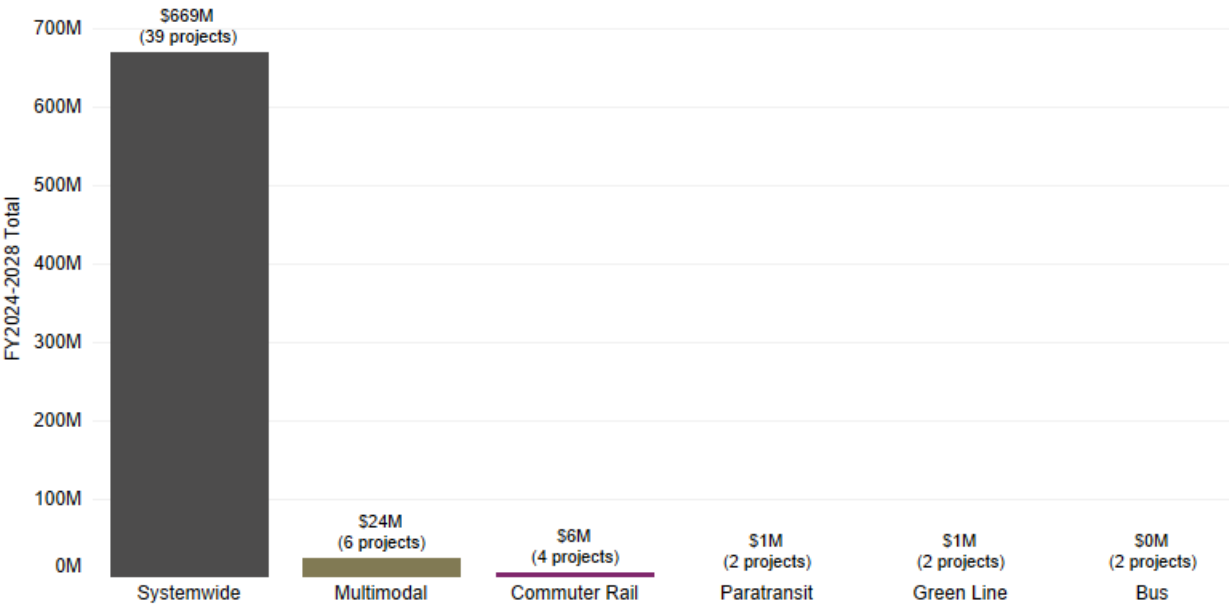
# Program Summary | Technology and Innovation

### Program Purpose

Investments in technology to enhance productivity, modernize the system, and improve the quality of service

Total Projects	FY24-28 Programmed Spend	Executing Departments
<b>55</b>	<b>\$700.5M</b>	<b>16</b>

### FY24-28 Programmed Spend by Primary Mode



### Top 15 Technology and Innovation Projects by FY24-28 Programmed Spend

CIP ID	Project Name	Primary Mode	Authorized Budget	FY2024-2028 Tot..
P0265	Fare Transformation	Systemwide	\$823M	\$472M
P0301	Systemwide Radio	Systemwide	\$140M	\$127M
P0946	ACE Network	Systemwide	\$15M	\$13M
P0908	Communications Rooms Remediation	Multimodal	\$13M	\$11M
P0972	PA/ESS Critical Upgrades	Systemwide	\$11M	\$11M
P0689d	Dispatching Technology for Safety and Bus Modernization	Multimodal	\$11M	\$9M
P0945	IT Disaster Recovery Plan	Systemwide	\$8M	\$5M
P0635	IT Security Modernization	Systemwide	\$18M	\$4M
P0491a	Customer Technology Access Initiatives	Systemwide	\$4M	\$3M
P0689o	Rider Service Alerts Resiliency & Improvements	Systemwide	\$4M	\$3M
P0451	PMIS Implementation	Systemwide	\$11M	\$3M
P1234	Data Center Relocation	Systemwide	\$3M	\$3M
P1028	Light Rail Safety Dispatch and Tracking Improvements	Multimodal	\$3M	\$3M
P1243	Electronic Communications for Frontline Workers	Systemwide	\$3M	\$3M
P0434	Energy Management System	Systemwide	\$4M	\$3M
<b>Total</b>			<b>\$1,069M</b>	<b>\$673M</b>

# Program Summary | Expansion

## South Coast Rail, GLX, and Expansion Projects

### Program Purpose

**Green Line Extension:** Extension of Green Line service from Lechmere to Somerville and Medford  
**South Coast Rail:** Extension of Commuter Rail service to Fall River, New Bedford, and Taunton  
**Expansion Projects:** Planning and design of targeted expansion projects identified as next priorities

### Notable Expansion Projects by FY24-28 Programmed Spend

CIP ID	Project Name	Primary Mode	Authorized Budget	FY2024-2028 Total
P0160	South Coast Rail Expansion	Commuter Rail	\$892M	\$270M
P0095	Green Line Extension	Green Line	\$1,137M	\$216M
P0095a	Green Line Extension - Vehicles	Green Line	\$110M	\$24M
P0160a	South Coast Rail - Coach Procurement	Commuter Rail	\$69M	\$16M
P0866	Red-Blue Connector - Planning	Multimodal	\$15M	\$14M
<b>Total</b>			<b>\$2,223M</b>	<b>\$540M</b>

### Total Projects

**10**

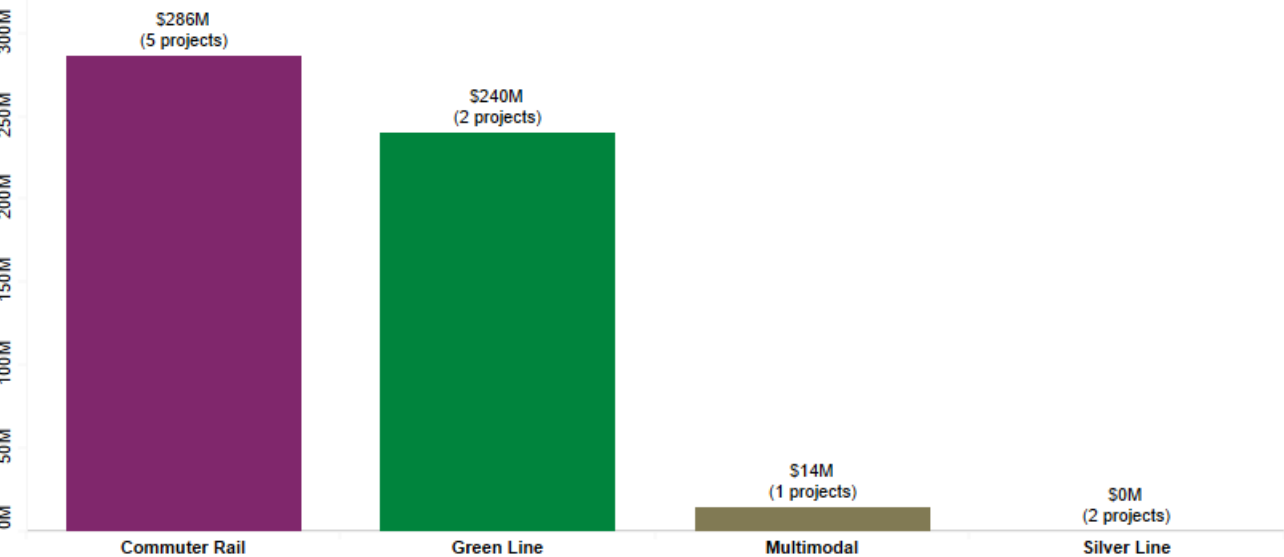
### FY24-28 Programmed Spend

**\$540.4M**

### Executing Departments

**7**

### FY24-28 Programmed Spend by Primary Mode

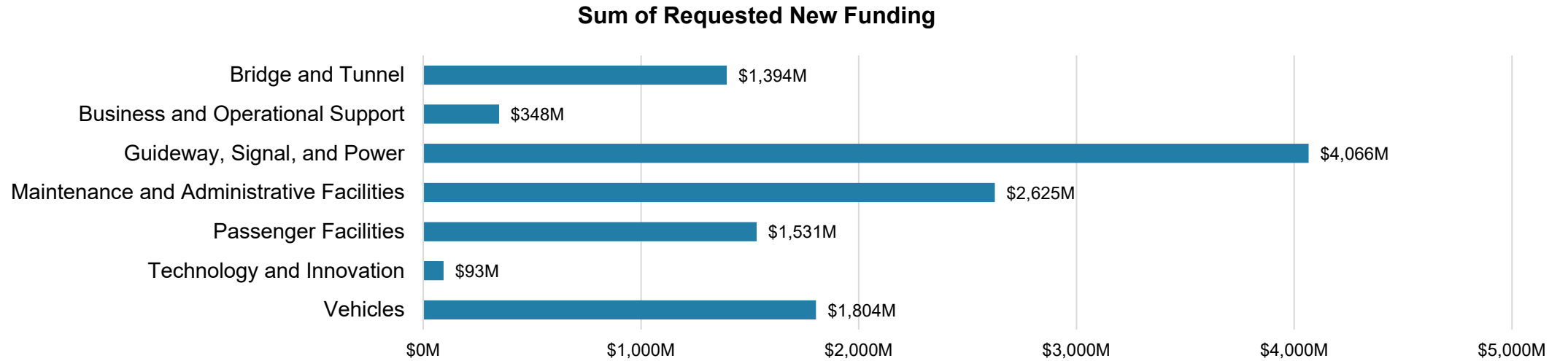




# Appendix



# Reliability and Modernization | Requests Received



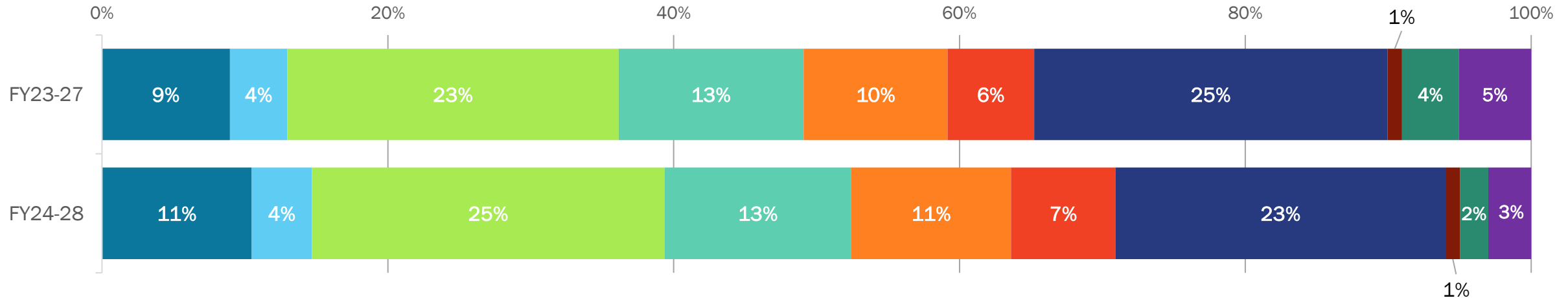
CIP Priority	CIP Program	Number of Requests	Requested New Funding	Percentage of Total New Requests
Reliability and Modernization	Bridge and Tunnel	9	\$1,394M	12%
	Business and Operational Support	20	\$348M	3%
	Guideway, Signal, and Power*	47	\$4,066M	34%
	Maintenance and Administrative Facilities	45	\$2,625M	22%
	Passenger Facilities	40	\$1,531M	13%
	Technology and Innovation	19	\$93M	1%
	Vehicles	20	\$1,803M	15%
	<b>Total</b>	<b>200</b>	<b>\$11,860M</b>	<b>100%</b>



# FY24-28 CIP | Program Sizes

- The FY24-28 CIP program sizes have been updated based on programmed amounts and reflect investment levels that are largely in proportion to the FY23-27 CIP
- This demonstrates the agency’s continued commitment to prioritizing investments in the system’s guideway, signal and power, and vehicle assets

FY23-27 and FY24-28 CIP Program Sizes as a Percentage of the Total CIP Budget



## Reliability & Modernization Priority

- Bridge & Tunnel
- Business and Operational Support
- Guideway, Signal, and Power

- Maintenance and Administrative Facilities
- Passenger Facilities
- Technology and Innovation

- Vehicles

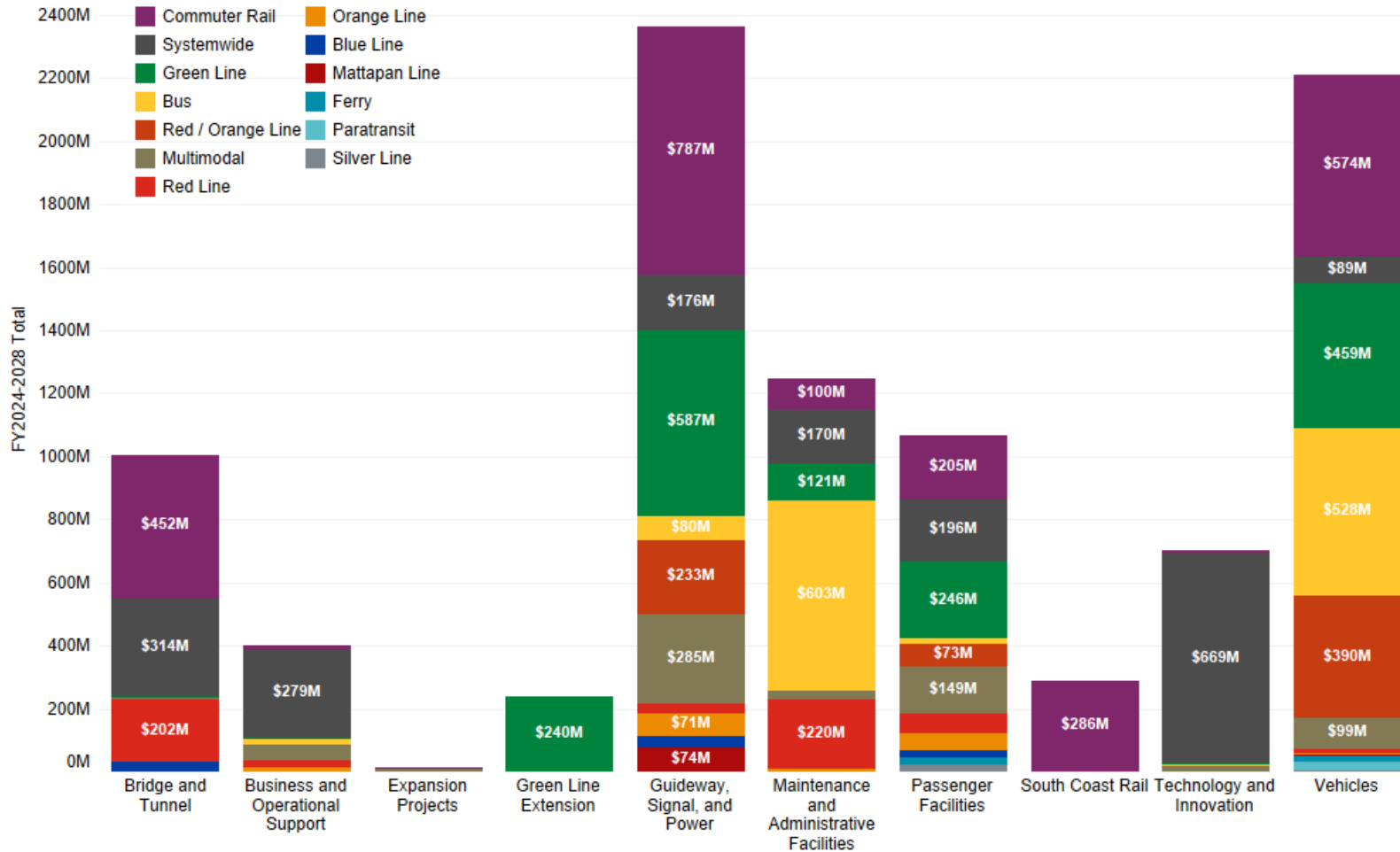
## Expansion Priority

- Expansion Projects
- Green Line Extension
- South Coast Rail

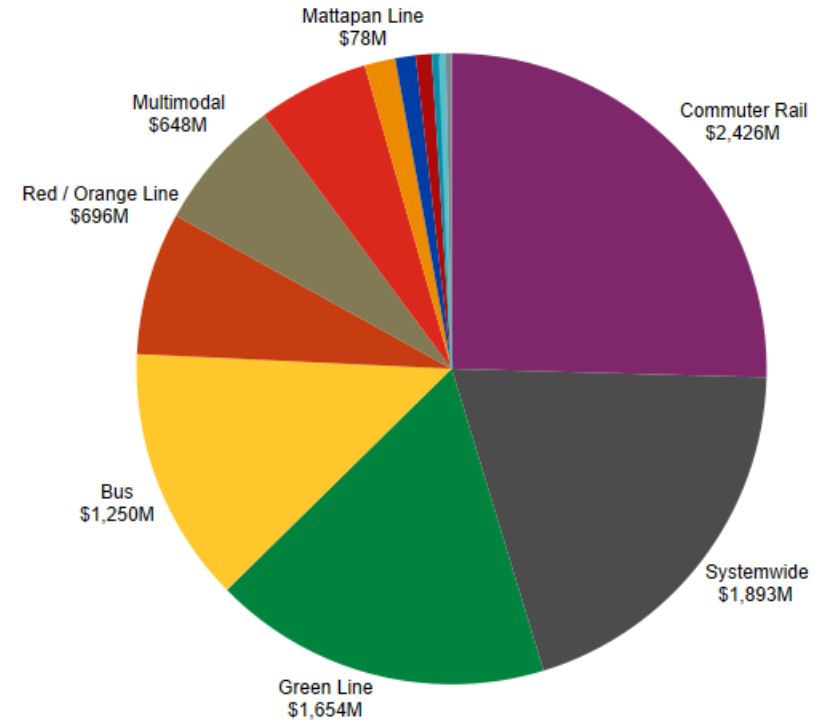


# FY24-28 CIP | Investments by Mode

FY24-28 Programmed Spend by CIP Program and Primary Mode



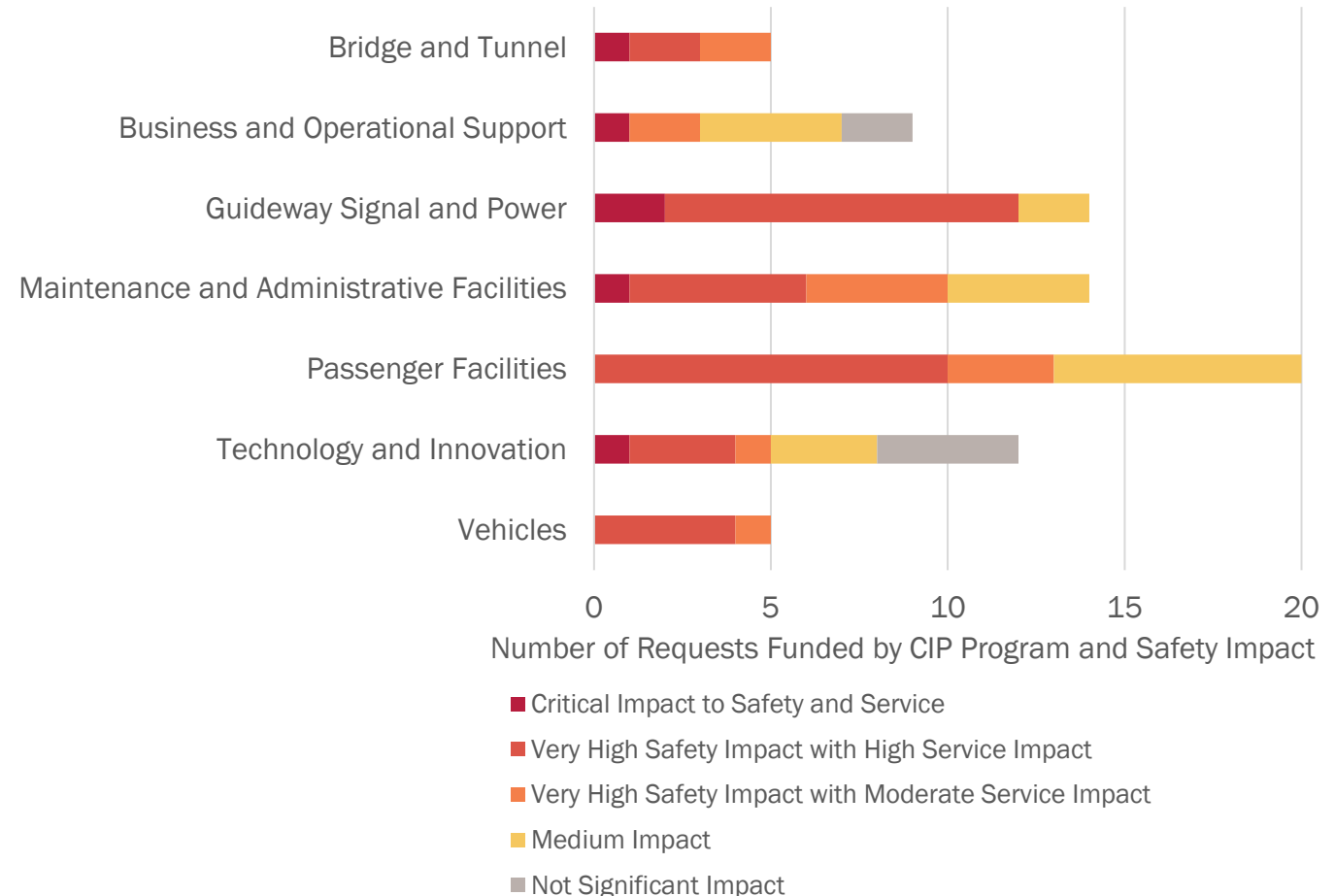
FY24-28 Programmed Spend by Primary Mode



# Safety Impact Evaluation of Funded Requests

- The Safety Impact Matrix (SIM) was developed to serve as an additional input to further elevate and identify key projects during CIP project prioritization to distinguish different levels of safety impact
- Safety impact is conceptualized as the relationship between Safety and Service and builds upon data from the MBTA's SMS, TAM, and CIP scoring process
- Over half of the requests prioritized for new funding in the proposed FY24-28 CIP have at least a Very High Impact
- Requests with Critical and Very High Impact to Safety and Service are related but not limited to state of good repair of our guideway, signal, and power assets; life and fire safety systems at our maintenance and passenger facilities, and vehicle assets

FY24-28 CIP Funded Requests: Distribution of Safety Impact by CIP Program

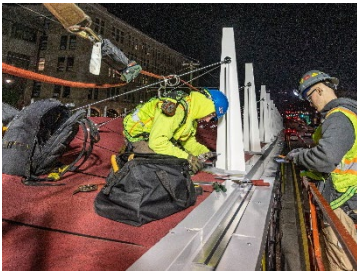


# Prioritizing Safety and Reliability

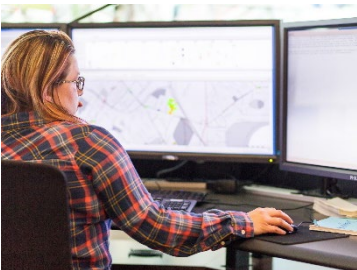
**480+** non-negotiable, safety-sensitive reliability projects, accounting for roughly **\$7.8B of programmed spending** are part of the 5-year CIP. This includes but is not limited to:



- 17** projects related to the FTA's SMI and CAPs that comprise, but are not limited to:
- Systemwide maintenance-of-way (MOW) rehabilitation
  - Procurement of non-revenue equipment
  - Capital Program Safety Assurance



- 305+** critical reliability projects to inspect, repair, and upgrade stations, tracks, bridges, tunnels, signals, power, and IT infrastructure and components



- 20+** projects focused on safety systems, employee training, and asset management efforts to better track, address, and improve systemwide safety and reliability

You can also visit [mbta.com/safety](https://www.mbta.com/safety) and [mbta.com/qco](https://www.mbta.com/qco) for more information on the MBTA's safety initiatives and the FTA's SMI

## Key Safety Projects

Requests for new and existing projects are evaluated using 8 scoring criteria, which include Safety

### Rapid Transit

- Green Line Train Protection (P0370)
- Rapid Transit Tunnel Lighting Upgrades (P1200)

### Commuter Rail

- ATC Implementation – North Side (P0606)
- Rail Crossing Safety Updates (P1146)

### Bus

- Bus Facility Interim Improvements (P0942)
- Facility Circulation Safety Improvements (P1003)
- Charlestown Campus State of Good Repair (P1136)

### Systemwide

- Facility Roof Replacement (P0126)
- Facility Safety Improvements (P1219)

# Building Enhanced and Improved System Accessibility

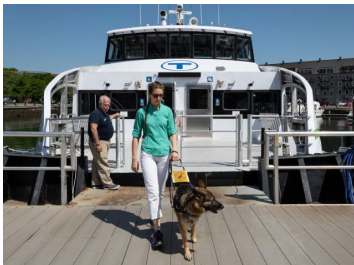
**95+** projects with significant accessibility benefits, accounting for roughly \$2B of programmed spending are part of the 5-year CIP. This includes but is not limited to:



**40+** projects to enhance accessibility at stations, bus stops, and rail and grade crossings, ranging from upgrades to platforms, paths of travel, surfaces, public announcement systems, and other components



**35+** projects to upgrade and improve elevators, escalators, wayfinding, and accessways at key stations, bringing them into compliance with ADA/MAAB, BCIL, and internal standards to create system access and equity



**7** projects to procure and overhaul rail, bus, and ferry vehicles with improved accessibility features that amount to roughly \$542M to enhance and improve system access to all riders

You can also visit [mbta.com/accessibility](https://www.mbta.com/accessibility) for more information on accessibility initiatives

## Key Accessibility Projects

Requests for new and existing projects are evaluated using 8 scoring criteria, which include Accessibility under the mobility criteria

### Rapid Transit

- Green Line D Branch Enhanced Accessibility Improvements (P1233)
- Symphony Station Improvements (P0168)
- Systemwide Escalator and Elevator Replacement Program (P1225)

### Commuter Rail

- High Priority Stations Accessibility Improvements Program (P1150)
- Winchester Center Station (P0179)
- Natick Center Station Accessibility (P0174)

### Bus

- Bus Priority and Accessibility Improvements (P0613)
- Bus Route Safety and Service Improvements (P0044)

# Promoting System Sustainability & Resiliency (S&R)

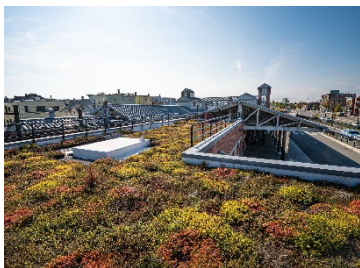
**165+** projects, accounting for roughly \$3.8B of programmed spending, have S&R benefits and are part of the 5-year CIP. This includes but is not limited to:



**75+** projects with system resiliency benefits, including vulnerability assessments, asset hardening and management to curb climate change and environmental impacts systemwide.



**25+** projects with system sustainability benefits related to fleet, facilities, and energy assets to support system electrification and efficient use of system resources



**50+** projects with varying resiliency and sustainability benefits related to facility repairs, vehicle overhauls, and asset management efforts to help build a green future and a resilient transit system for the T

You can also visit [mbta.com/sustainability](https://www.mbta.com/sustainability) for more information on S&R initiatives

## CIP key S&R projects

Requests for new and existing projects are evaluated using 8 scoring criteria, which include a Sustainability and Resiliency criteria

### Commuter Rail

- Future Rolling Stock Fleet (P0918)
- Billerica MOW Repair and Storage Facility (P1171)

### Bus

- Procurement of 40ft Battery Electric Buses and Related infrastructure (P0653)
- Quincy Bus Facility Modernization (P0671a)
- Arborway Bus Facility - Design Funding (P0671b)
- North Cambridge Bus Facility Retrofit (P0671c)

### Systemwide

- Systemwide Climate Resiliency Program (P1205)
- Communications Resiliency Master Plan (P1206)