



**Massachusetts Bay  
Transportation Authority**

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**Capital Program Update:  
FY19 Year End**

**Report to Fiscal and Management Control Board**

**July 23, 2019**



## Outline of Presentation

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1. Overarching Capital Program Goals
2. FY19 Performance vs. FY19 Key Performance Indicators (KPIs)
3. FY20 Look Ahead



## Performance vs. Capital Program Key Performance Indicators (KPIs)

MBTA has met FY19 capital program goals – spending over \$1 billion in capital investment and awarding over \$1 billion in new contracts

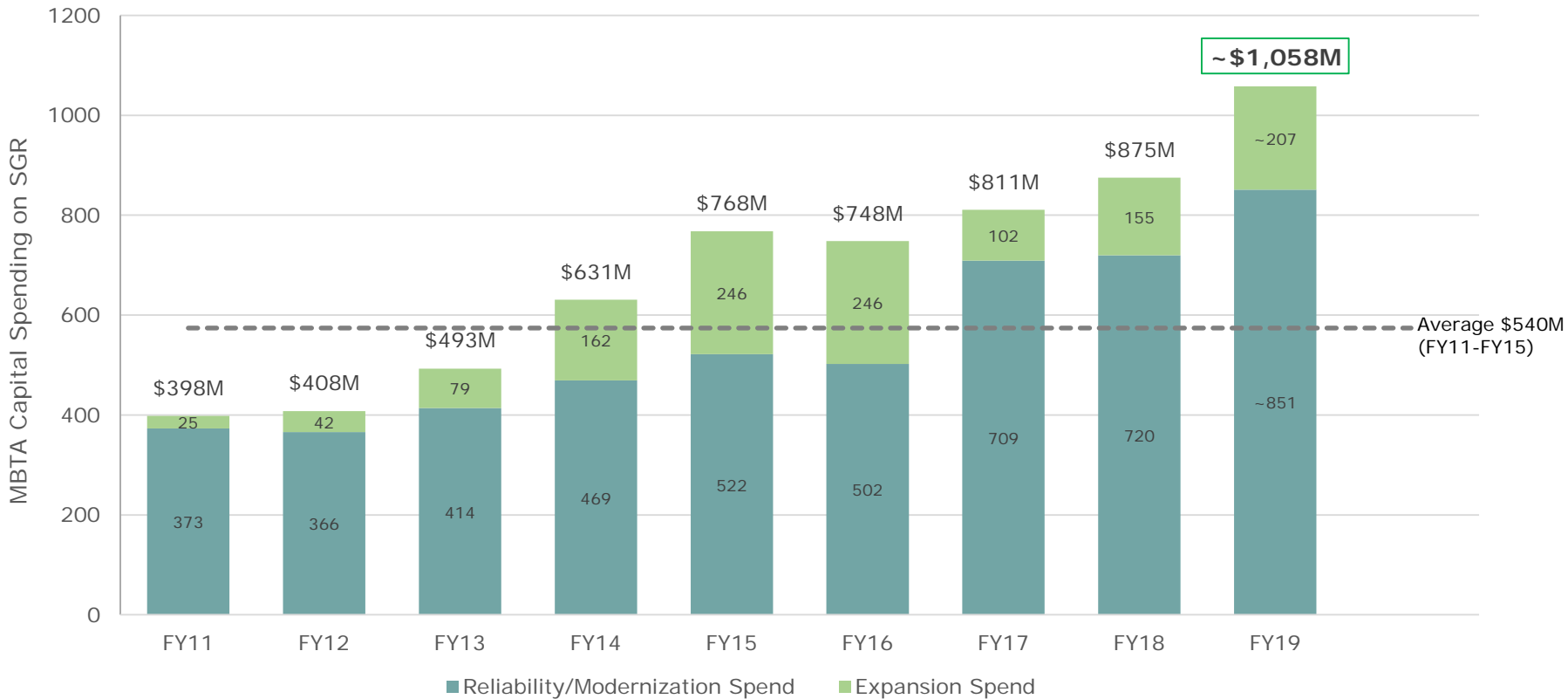
Key Performance Indicator	FY16 Actual	FY17 Actual	FY18 Actual	FY19 Target	FY19 YTD Actual*	Status
Total Capital Investment	\$748M	\$811M	\$875M	\$1B	~\$1,058M	✓
Reliability/Modernization Programs Capital Investment	\$502M	\$709M	\$720M	\$850M	~\$851M	✓
Expansion Programs Capital Investment	\$246M	\$102M	\$155M	\$150M	~\$207M	✓
Capital Construction Contracts Awarded	\$110M	\$345M	\$639M	\$650M	\$849M	✓
Vehicle Procurement Contracts Awarded	New for FY19	New for FY19	New for FY19	>\$300M	\$406M	✓
Percentage of FY19-23 CIP projects Underway/In-Progress	New for FY19	New for FY19	New for FY19	>75%	79.0%	✓

\*June accounting period has not closed as of the date of this presentation. Capital investment is measured on a cash basis, consistent with prior years.



## MBTA Capital Investment by Fiscal Year

Total MBTA Capital Investment **exceeded \$1 billion in FY19** and was nearly double the FY11-15 average

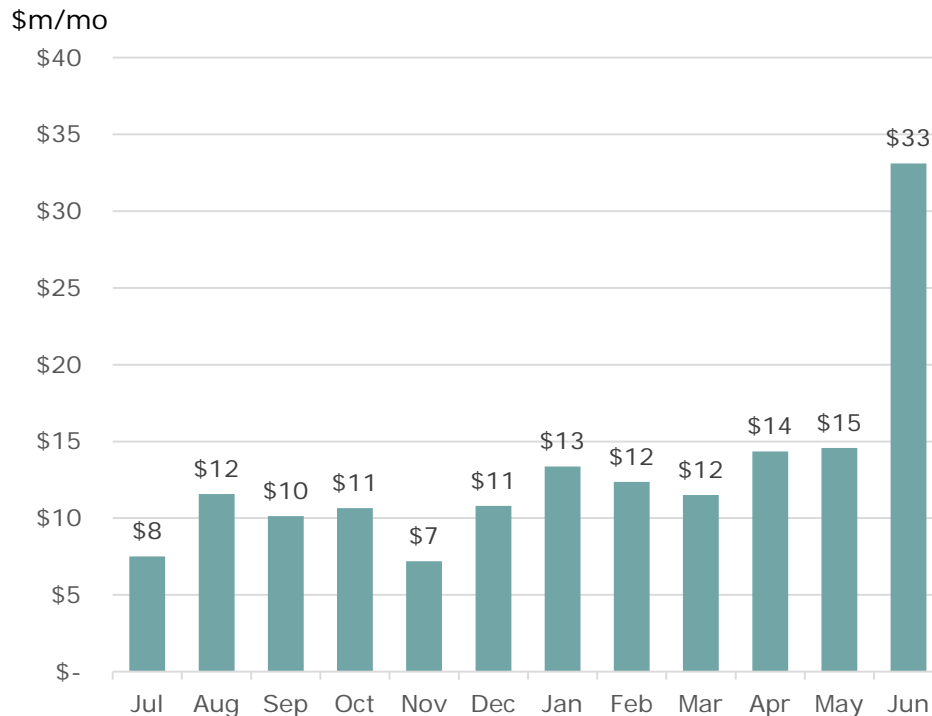


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## FY19 Lockbox Spending

We have reinforced our focus and oversight towards Lockbox funding through more rigorous monitoring and reporting around Lockbox expenditure, allowing for dedicated discussion around this during monthly dashboard reviews with the respective departments.



**\$157M** FY19 Lockbox spend thru 6/30 ✓

**\$150M** Annual Lockbox funding

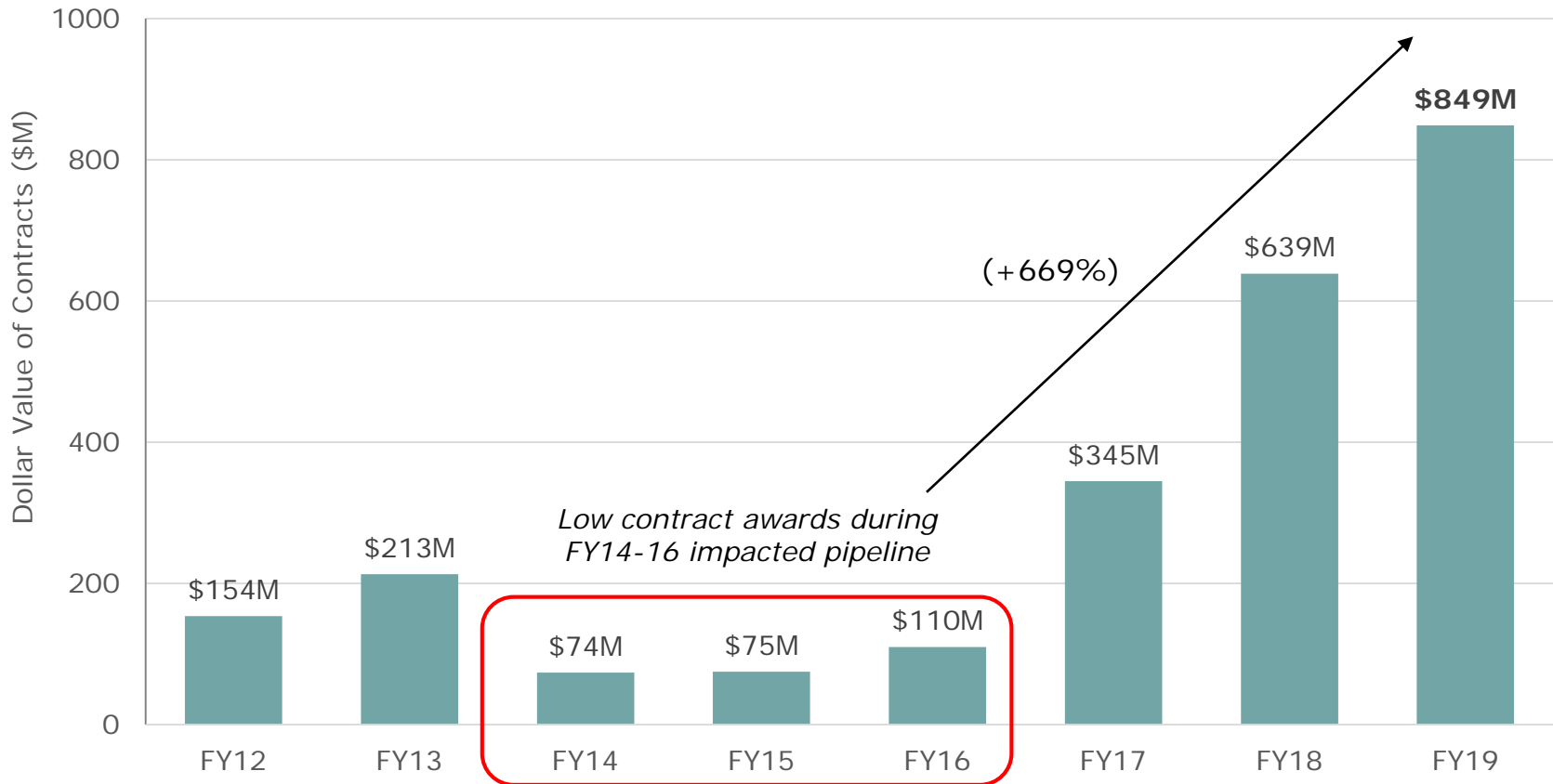
Major projects with partial Lockbox funding:

- Red Line No. 3 Car Replacement
- Red/Orange Line Signal Program
- Park Street Station Improvements
- Green Line Signal Program
- Station Wayfinding and Brightening
- Alewife Garage Rehabilitation
- North Station Terminal Signal Improvements



## Performance vs. Capital Program KPIs – Construction Contracts

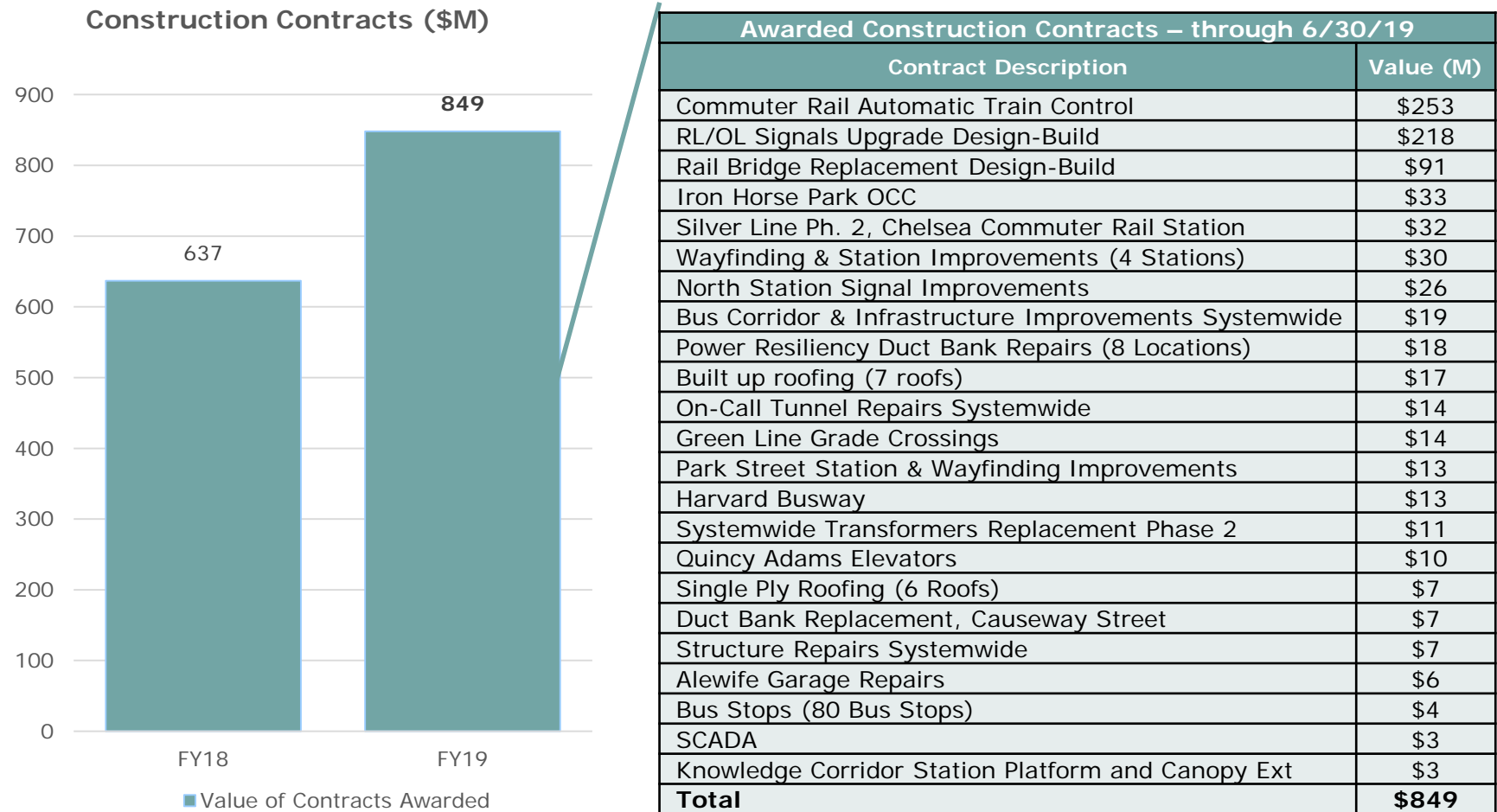
**Construction Contract Awards FY12 – FY19**  
*(excludes Green Line Extension)*





## FY19 KPI: Award > \$650M in Capital Construction Contracts – \$849M Awarded

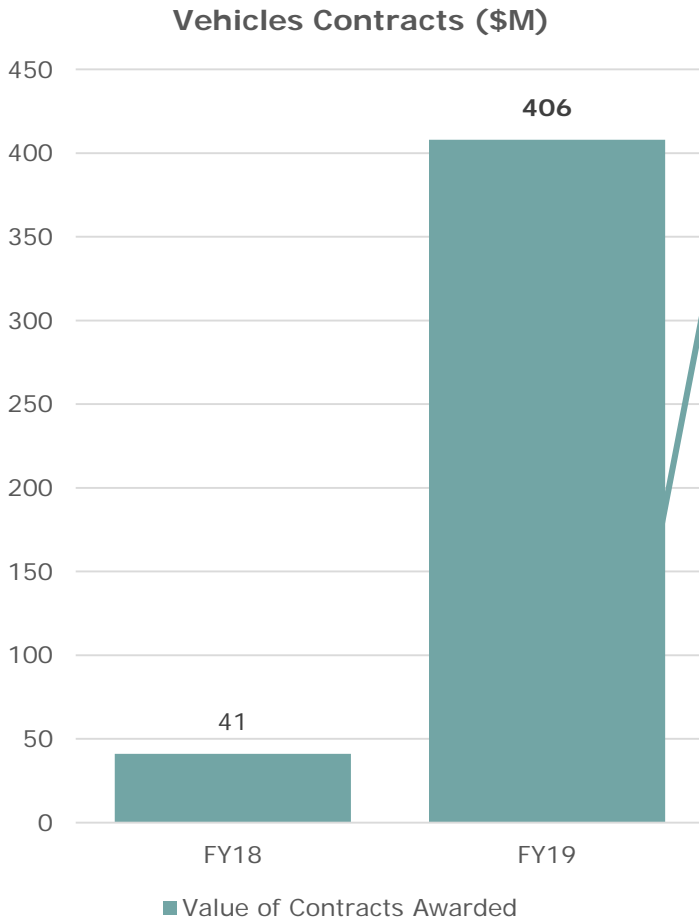
Capital Construction contracts awarded exceeded FY19 target.





## FY19 KPI: Award \$300M in Vehicle Procurement Contracts - \$406M Awarded

Vehicle contracts awarded exceeded FY19 target.



Awarded Vehicle Contracts – through 6/30/19	
Contract Description	Value (M)
194 Hybrid Buses	\$150.5
Green Line Train Protection Vendor	\$83
Commuter Rail Locomotive Overhaul Option	\$85
Green Line Type 10 Professional Services	\$44
Green Line Train Protection Professional Services	\$18
5 LoNo Bus Procurement	\$13
New Bus Professional Services	\$12.5
<b>Total</b>	<b>\$406</b>





## MBTA FY19 Milestones & Achievements: Reliability Programs

Notable **vehicle** project milestones during FY19 include:

- **Bus:** Received 5 “Lo-No” prototype battery electric buses; exercised option for additional 194 hybrid buses
- **Green Line:** Completed overhaul of 103 Type 7 vehicles
- **Commuter Rail:** Received 5 overhauled F40 locomotives to extend service life and increase reliability



*Prototype bus*



*Before/after photos of F40 locomotive overhaul*



## MBTA FY19 Milestones & Achievements: Reliability Programs

**Gloucester Bridge** reduced from two track to single track structure. Revenue service resumed utilizing single track.





## MBTA FY19 Milestones & Achievements: Reliability Programs

### Wollaston Station Reconstruction

- Opening Scheduled for **August 2019**

Project includes:

- New Station Head House
- Three New Elevators
- Two New Escalators
- Modernized, code compliant station

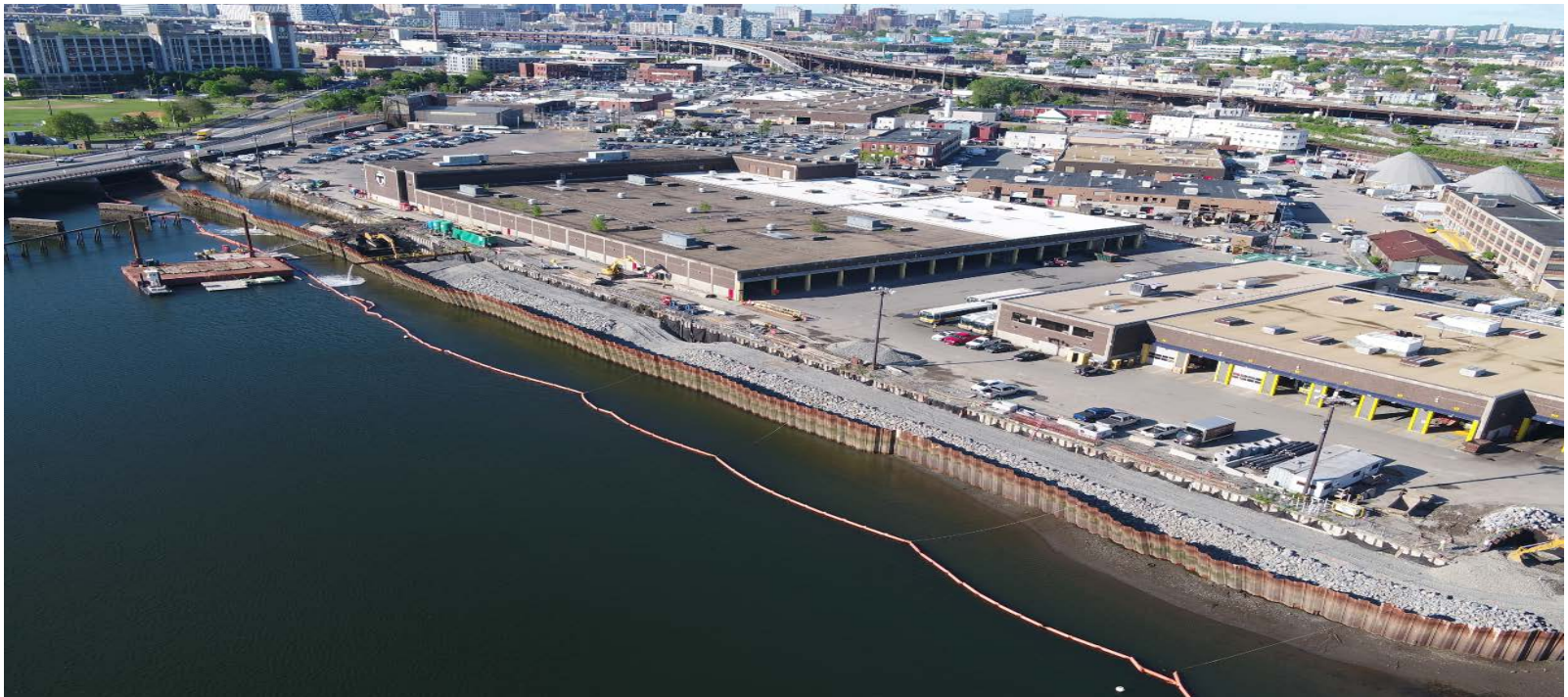






## MBTA FY19 Milestones & Achievements: Reliability Programs

The **Charlestown Seawall Project** is rapidly progressing with an anticipated completion of the shoreline stabilization/resiliency work by December 2019



*Charlestown Seawall*

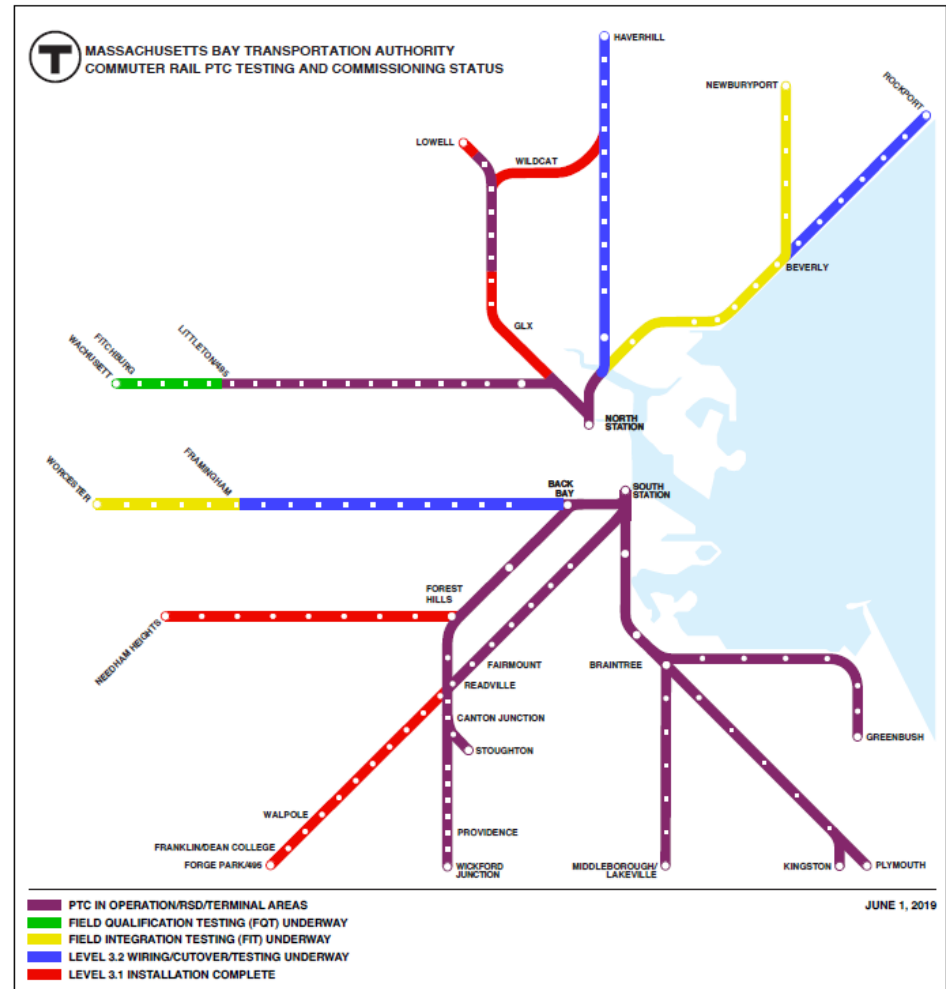


## MBTA FY19 Milestones & Achievements: Modernization Programs

### Positive Train Control

Notable PTC Program milestones during FY19 include:

- Hardware installation completed
- Extension to 2020 granted by FRA
- Initial Revenue Service Demonstration phase on the 2 pilot lines completed
- 7 lines placed in Extended Revenue Service Demonstration
- PTC on schedule to meet December 31, 2020 regulatory deadline for completion

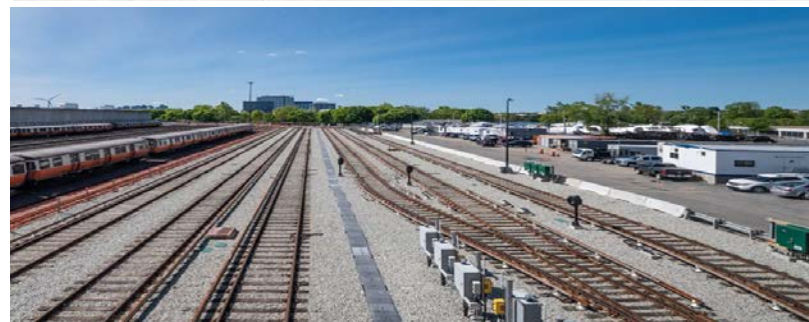




## MBTA FY19 Milestones & Achievements: Modernization Programs

### Red Line/ Orange Line Program

- Completed Orange Line Test Track
- Wellington Tracks 33-38 substantially complete
- Received Orange Line pilot cars



Wellington Track 33-38





## MBTA FY19 Milestones & Achievements: Modernization Programs

**Downtown Crossing (DTX) Station Elevators** completed construction of two new elevators to bring the station toward egress compliance



*New DTX Elevator Nos. 998 and 999 at Redline Northbound Passageway*



*New DTX Elevator Nos. 998 and 999 at Orange Line Oak Grove Platform*



## MBTA FY19 Milestones & Achievements: Expansion Programs

### Green Line Extension

- Introduced new GL Type 9 vehicles into revenue service
- Started construction of critical retaining walls, track work, bridge work and corridor drainage

Received 9 of 24 green line type 9 cars



DB Entity – Medford Street – Installing Temporary Drainage



DB Entity – Washington Street Bridge – Chipping concrete, grading







## FY19 Milestones & Achievements: Expansion Programs

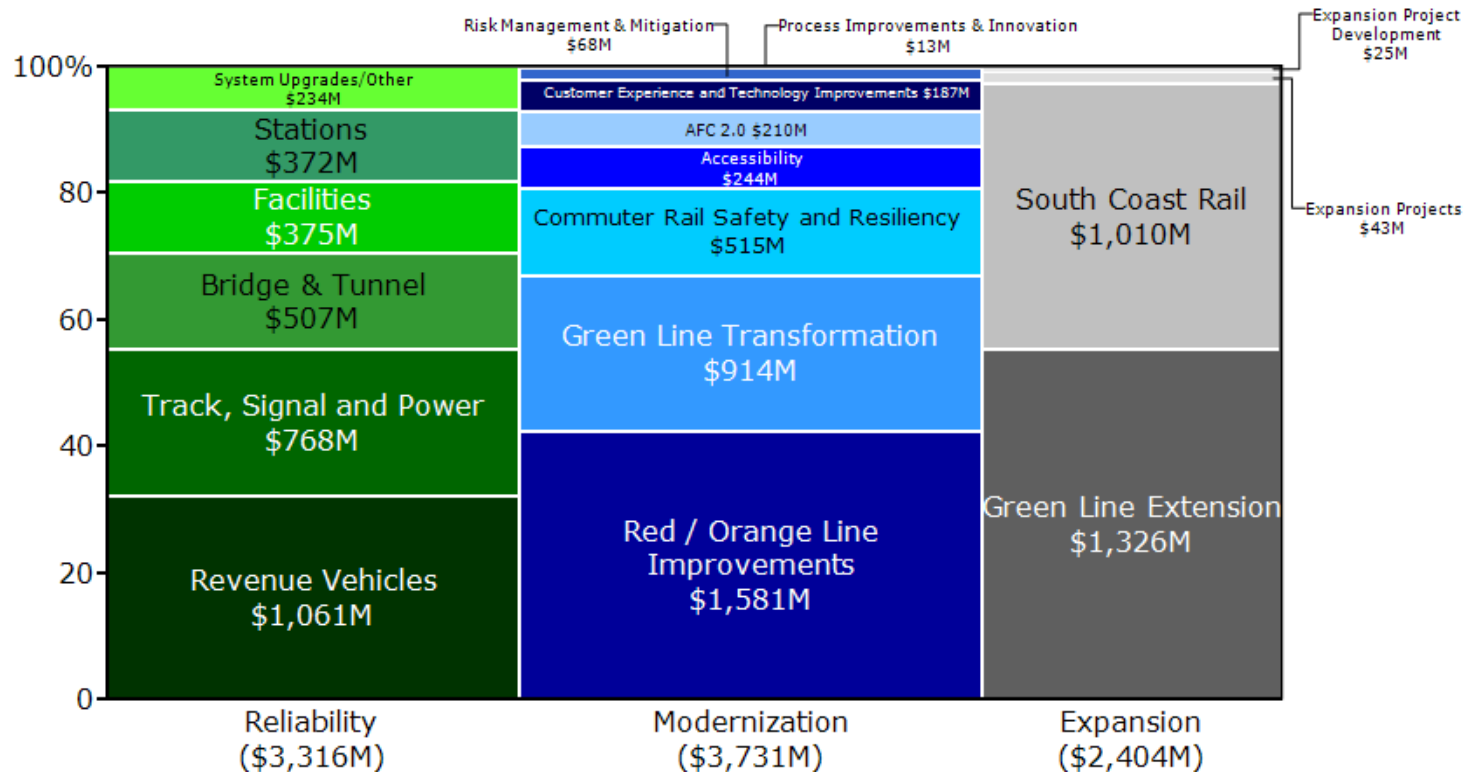
**Blue Hill Ave Commuter Rail Station** opened February 2019





**FY20 Look Ahead: FY20-24 CIP programs reflect \$9.4 billion**

**FY20-24 CIP by Priority and Program (\$M)**





## FY20 Capital Program Key Performance Indicators (KPIs)

Key Performance Indicator	FY19 Actual*	FY19 Target	FY20 Target
Total Capital Investment	~\$1,058M	\$1B	\$1.4B
Reliability/Modernization Programs Capital Investment	~\$851M	\$850M	\$875M
Expansion Programs Capital Investment	~\$207M	\$150M	\$539M
Capital Construction Contracts Awarded	\$849M	\$650M	\$850M
Vehicle Procurement Contracts Awarded	\$406M	>\$300M	\$250M
Professional Services Contracts Awarded	New for FY20	New for FY20	TBD
Percentage of FY20-24 CIP projects Underway/In-Progress	79.4%	>75%	>75%

\*June accounting period has not closed as of the date of this presentation.



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**Appendix**

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## FY19 Milestones & Achievements: Reliability Programs

CIP Program	FY19 CIP \$	FY19 Milestones
Revenue Vehicles	\$237M	<ul style="list-style-type: none"> <li>✓ Exercise option contract for additional 194 hybrid buses</li> <li>✓ Award future bus procurement consultant contract awarded</li> <li>☐ Advance planning for Green Line Type 10 vehicle</li> <li>✓ Received all 5 “LoNo” prototype buses for testing to inform future fleet</li> <li>✓ Complete overhaul of 103 Green Line Type 7 vehicles</li> </ul>
Track, Signal, and Power	\$144M	<ul style="list-style-type: none"> <li>✓ Begin Green Line D Branch Track and Signals project</li> <li>✓ Continue Orange Line Direct Fixation (track) repairs</li> <li>✓ Award Green Line Grade Crossings construction contract</li> </ul>
Bridges and Tunnels	\$57M	<ul style="list-style-type: none"> <li>✓ Initiate design for Lechmere Viaduct rehabilitation</li> <li>✓ Procure professional services for inspection/rating of bridge inventory</li> <li>✓ Award “bridge bundle” design-build contract for six CR bridges</li> <li>• Begin Orange Line Tunnel Repair project in downtown core (FY 2020)</li> <li>✓ Procure professional services for North Station Draw 1 Bridge Replacement</li> </ul>
Stations (includes parking)	\$73M	<ul style="list-style-type: none"> <li>✓ Initiate comprehensive station needs assessment</li> <li>✓ Advance design for Winchester Center Station Improvements</li> <li>✓ Award Alewife Garage repairs contract</li> <li>☐ Open Wollaston Station (August 2019).</li> </ul>
Facilities (admin and maintenance)	\$79M	<ul style="list-style-type: none"> <li>✓ Award construction contract for CR Iron Horse Park OCC</li> <li>☐ Advance planning for new or expanded bus maintenance facility</li> <li>✓ Begin Facility Roof Replacement project to replace roofs at 13 facilities</li> </ul>
System Upgrades	\$67M	<ul style="list-style-type: none"> <li>☐ Implement MBTA enterprise asset management program</li> <li>☐ Implement MBTA cybersecurity programs</li> <li>• Begin procurement for systemwide radio upgrade project</li> </ul>

✓ Achieved

☐ In Progress

• Planned



## FY19 Milestones & Achievements: Modernization Programs

CIP Program	FY19 CIP \$	FY 2019 Goals and Objectives
Red and Orange Line Improvements Program	\$154M	<ul style="list-style-type: none"> <li>✓ <b>Award Red/Orange Line Signals Design-Build project</b> <ul style="list-style-type: none"> <li>▪ Introduce new Orange Line cars into revenue service (FY 2020)</li> <li>▪ Receive new Red Line pilot cars for testing (FY 2020)</li> </ul> </li> <li>☐ Complete OL Test Track, RL Test Track, and Wellington Track 38/39 (FY 19/20)</li> </ul>
Commuter Rail Safety and Resiliency Program	\$109M	<ul style="list-style-type: none"> <li>✓ <b>Achieve Positive Train Control milestones</b></li> <li>✓ <b>Award North Side Automatic Train Control work</b></li> <li>✓ <b>Initiate Commuter Rail resiliency program</b></li> </ul>
Accessibility Program	\$49M	<ul style="list-style-type: none"> <li>☐ Enhance system-wide accessibility through investment in station upgrades, replacement and redundant elevators, bus stop improvements, and removing other barriers at stops and stations</li> </ul>
Risk Management and Mitigation Program	\$38M	<ul style="list-style-type: none"> <li>✓ <b>Award Green Line Train Protection</b></li> <li>☐ Support OSHA implementation with priority capital investments</li> </ul>
AFC 2.0	\$16M	<ul style="list-style-type: none"> <li>• Award Design-Build contract for equipment installation (FY 2020)</li> </ul>
Customer Experience and Tech. Improvements Program	\$37M	<ul style="list-style-type: none"> <li>✓ <b>Launch Customer Technology Capital Program</b></li> <li>☐ Improve wayfinding and lighting at Top 10 stations</li> <li>☐ Support Better Bus Project through targeted capital investments in partnership with cities and towns</li> </ul>
Process Improvements and Innovation	\$15M	<ul style="list-style-type: none"> <li>✓ <b>Begin FMIS upgrade and business process redesign</b></li> <li>✓ <b>Launch Project Management Information System (PMIS) Phase 2</b></li> </ul>

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## FY19 Milestones & Achievements: Expansion Programs

CIP Program	FY19 CIP \$	FY 2019 Goals and Objectives
Green Line Extension	\$179M	<ul style="list-style-type: none"> <li>✓ Introduce new GL Type 9 vehicles into revenue service</li> <li>✓ Start the bridge replacements at Broadway, Washington Street, and Medford St</li> <li>✓ Complete the Design Packages (DP) for all of the Early Release Construction (ERC) aspects</li> <li>✓ Start Construction of critical retaining walls, track work, bridge work and corridor drainage</li> </ul>
Expansion projects	\$17M	<ul style="list-style-type: none"> <li>✓ Complete Blue Hill Ave Station on the Fairmount Line</li> <li>✓ Award construction contract for new Chelsea Commuter Rail Station</li> </ul>

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## MBTA Long Term Capital Plan

Reliability/Modernization investment is part of a 15-year long-term capital plan to address capital needs for asset condition and modernization while also making additive investments in system transformation, safety, and capacity enhancements

**Long Term Capital Plan (FY17-32)**  
(dollars in millions)

