

Massachusetts Bay Transportation Authority

Red Line/Orange Line Improvement Program Update

**Vehicle Procurement, Infrastructure Improvements, State of
Good Repair Improvements and Signal Upgrades**

Fiscal and Management Control Board

January 28, 2019

Overview

The following summary provides an update to the FMCB on the progress of the \$1.98 billion Red Line/Orange Line Improvement Program; which includes new Vehicle Procurement, Infrastructure Improvements, State of Good Repair Improvements and Signal Upgrades.

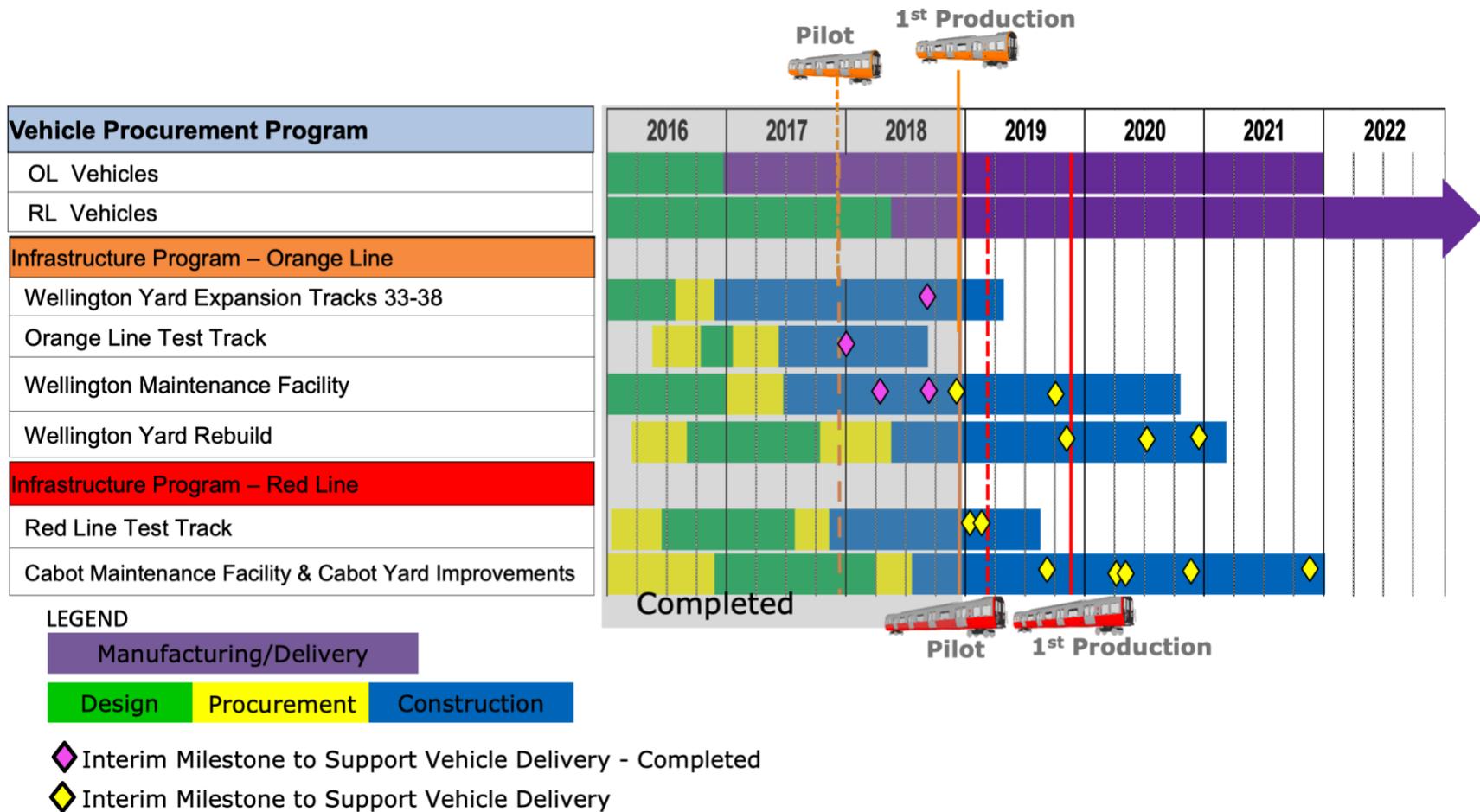
This program supports the MBTA's goal to improve the level of service on the Red Line to 3-minute headways and the Orange Line to 4.5-minute headways. This would increase capacity by 50% on the Red Line and 40% on the Orange Line from scheduled headways.

Red Line/Orange Line Improvement Program

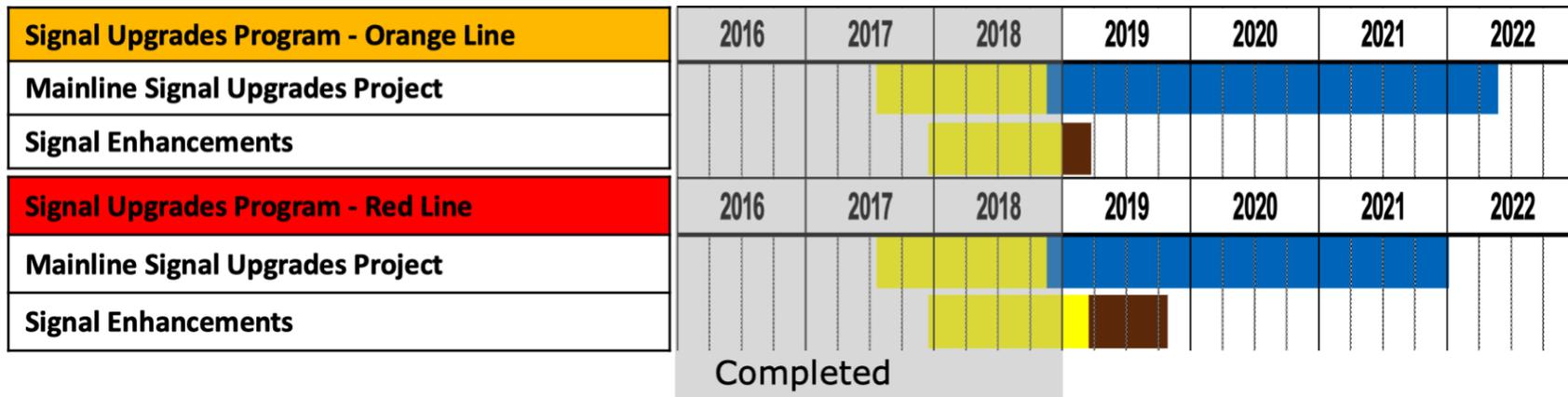
Red Line and Orange Line, **Total = \$1,982.03 million**

- New vehicle procurement program = \$1,009.00 million
- Infrastructure improvements program = \$470.36 million
- Signals upgrade projects = \$350.95 million
- State of good repair projects = \$151.72 million

Red Line and Orange Line Schedule by Project



Red Line/Orange Line Schedule – Signals Upgrades



LEGEND

Procurement	Design/Build
Procurement	MBTA Installation

New Vehicle Procurement Program

New Vehicle Procurement Program

- Total Project Value: \$1,009,871,671
- Expenditure to Date: \$202,223,955
- Carbuilder Percent Complete: 22.25%

Red Line



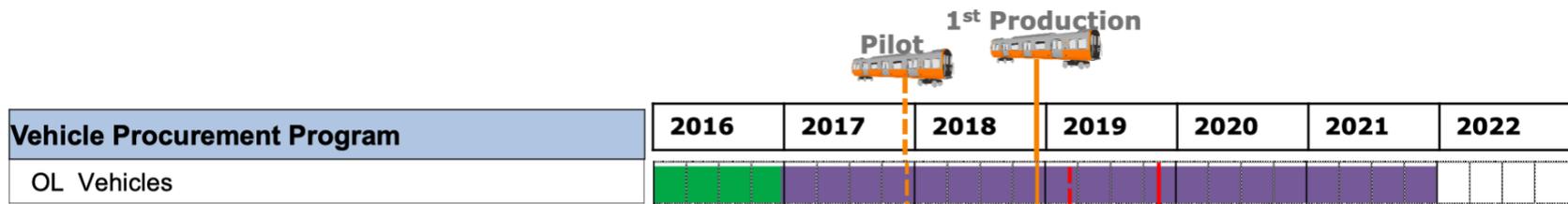
- Replace 218 Red Line cars
- 34 new cars
- Total = 252 vehicles

Orange Line

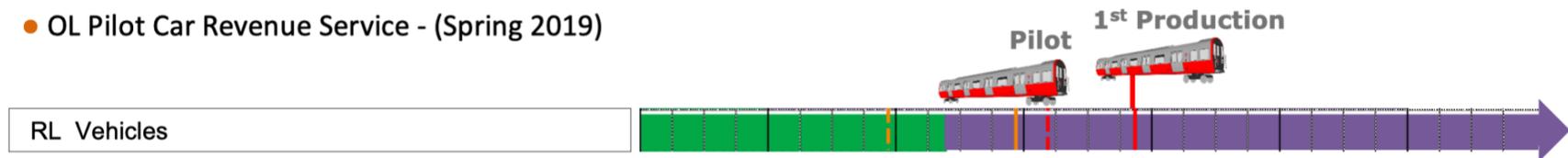


- Replace 120 Orange Line cars
- 32 new cars
- Total = 152 vehicles

Vehicle Procurement Project Status – Current/Look Ahead



- OL Production Delivery from Springfield Facility Started - (December 2018)
- OL Production Acceptance Testing Begins - (January 2019)
- OL Pilot Car Revenue Service - (Spring 2019)



- RL Complete Vehicle FAI (Changchun) – (Spring 2019)
- RL Delivery of Pilot Cars - (June 2019)
- RL Pilot Cars Acceptance Testing - (through November 2019)

LEGEND



Orange Line Vehicle Procurement Project Status

- Three Married Pairs (6 cars) are currently undergoing Communications and Vehicle Monitoring System testing. The Passenger Emergency Intercom (PEI), a critical component in the Communications system, can be seen in the top picture to the right.
- The 1st production car from Springfield completed its incoming inspection at Wellington carhouse and is now undergoing acceptance testing.
- Representatives from the door supplier are currently assisting with the routine tests.



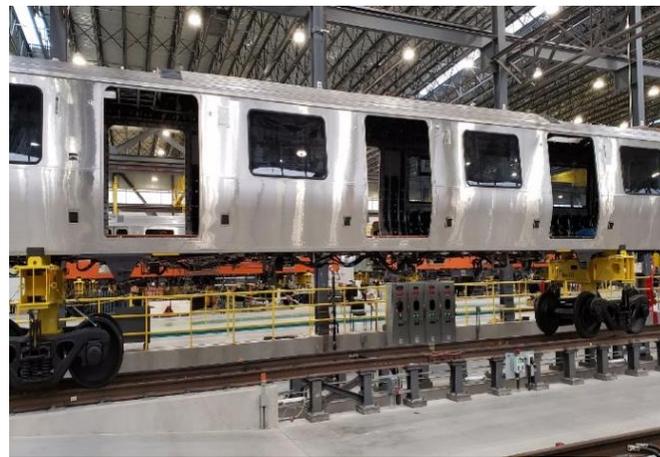
Red Line Vehicle Procurement Project Status

- Manufacturing the first six Red Line Pilot carshells in Changchun, China is ongoing. In addition to the vehicle-level inspections after the cars are complete, the Project Team performs inspections on subcomponents before installation.
- The passenger area sidewall panels (including the LCD monitor enclosure) were inspected recently and can be seen in the top picture to the right.
- The cab sidewall and ceiling panels were inspected recently and can be seen in the bottom picture to the right.



Production Vehicle Final Assembly – Springfield, MA

- The Springfield team is nearing completion on the second pair of production cars (Married Pair #6). This is the next pair of cars to be delivered to the Authority.
- Ten more carshells were recently delivered to the Springfield facility, bringing the total number at Springfield to 20.



Orange Line Projects: Wellington Yard Expansion Tracks 33 to 38

JF White

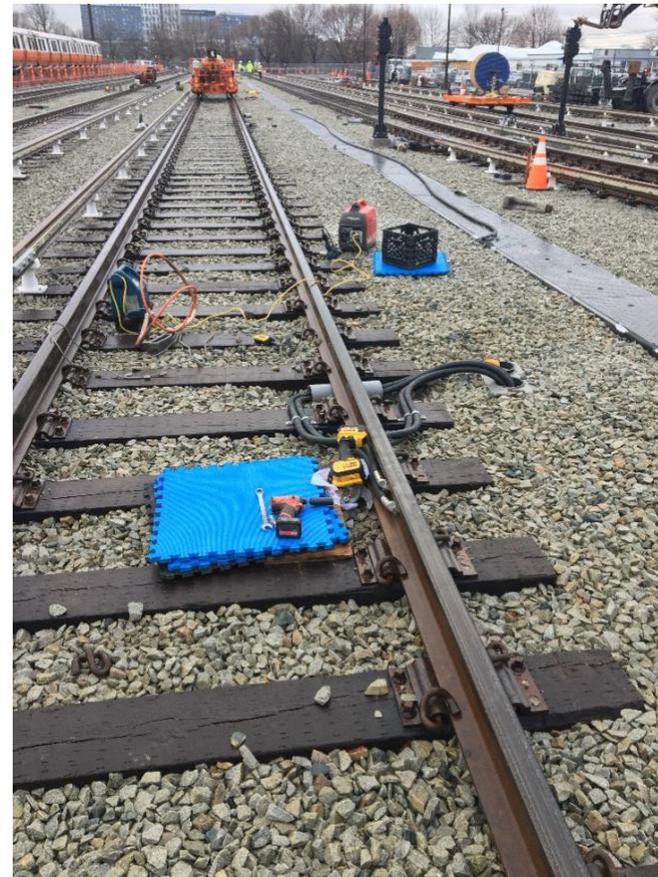
- Construction NTP: 12/05/16
- Construction Substantial Completion:
 - Contractual: 01/04/19
 - Projected: 05/03/19*
- Construction Budget: \$17,977,777
- Construction Expenditures to Date: \$10,498,701
- Construction Percent Complete: 84%

*Projected substantial completion date under evaluation

North side CIH:



Completed Track Boding T35 North:



Orange Line Projects: Orange Line Test Track

LM Heavy

- Construction NTP: 06/20/17
- Construction Substantial Completion:08/29/18
 - Contractual: 09/11/18
 - Actual: 08/29/18
- Construction Budget: \$5,867,000
- Construction Expenditures to Date: \$3,939,146
- Construction Percent Complete: 99%

New Train on Test Track:



Orange Line Projects: Wellington Maintenance Facility

Barletta Heavy Division

- Construction NTP: 06/30/17
- Construction Substantial Completion:
 - Contractual: 08/04/20
 - Projected: 10/22/20*
- Construction Budget: \$72,582,000
- Construction Expenditures to Date: \$23,162,074
Construction Percent Complete: 46%

*Working with Contractor to mitigate 2-month delay due to scope being added to the contract.

Building Expansion Windows/Frames and Paneling:



Track 12 Hoist – Completed Testing:



Orange Line Projects: Wellington Yard Rebuild

Barletta Heavy Division

- Construction NTP: 05/31/18
- Construction Substantial Completion:
 - Contractual: 03/07/21
 - Projected: 03/07/21
- Construction Budget: \$102,663,000
- Construction Expenditures to Date: \$1,953,964
- Construction Percent Complete: 4%



Red Line Projects: Red Line Test Track

Barletta Heavy Division

- Construction NTP: 11/17/17
- Construction Substantial Completion:
 - Contractual: 04/07/19
 - Projected: 08/22/19*
- Construction Budget: \$21,269,000
- Construction Expenditures to Date: \$4,376,677
- Construction Percent Complete: 44%

*Working with Contractor to mitigate delay.

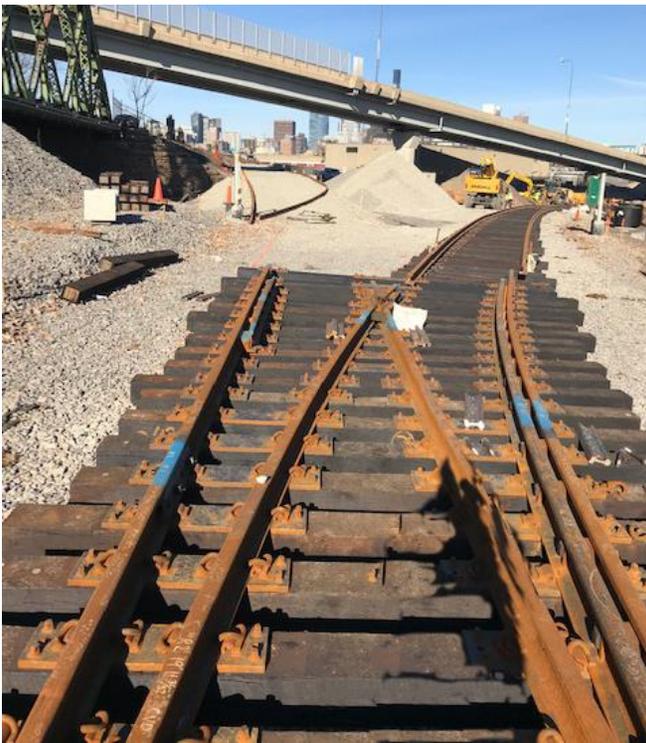
Installed Modified No. 6 Turnout:



Yard 61_VTF_AC and DC Trailer and MTPSS Location:



150 RH Switch into new Test Track:



Red Line Projects: Cabot Yard & Maintenance Facility Improvements

LM Heavy/Lane Construction

- Construction NTP: 08/02/18
- Construction Substantial Completion:
 - Contractual: 01/04/22
 - Projected: 01/04/22
- Construction Budget: \$213,817,000
- Construction Expenditures to Date: \$5,172,247 Construction Percent Complete: 4%



Signals Upgrade Project Status

NTP – 11/30/18

Substantial Completion RL – 01/04/22

Substantial Completion OL – 05/25/22

Progress

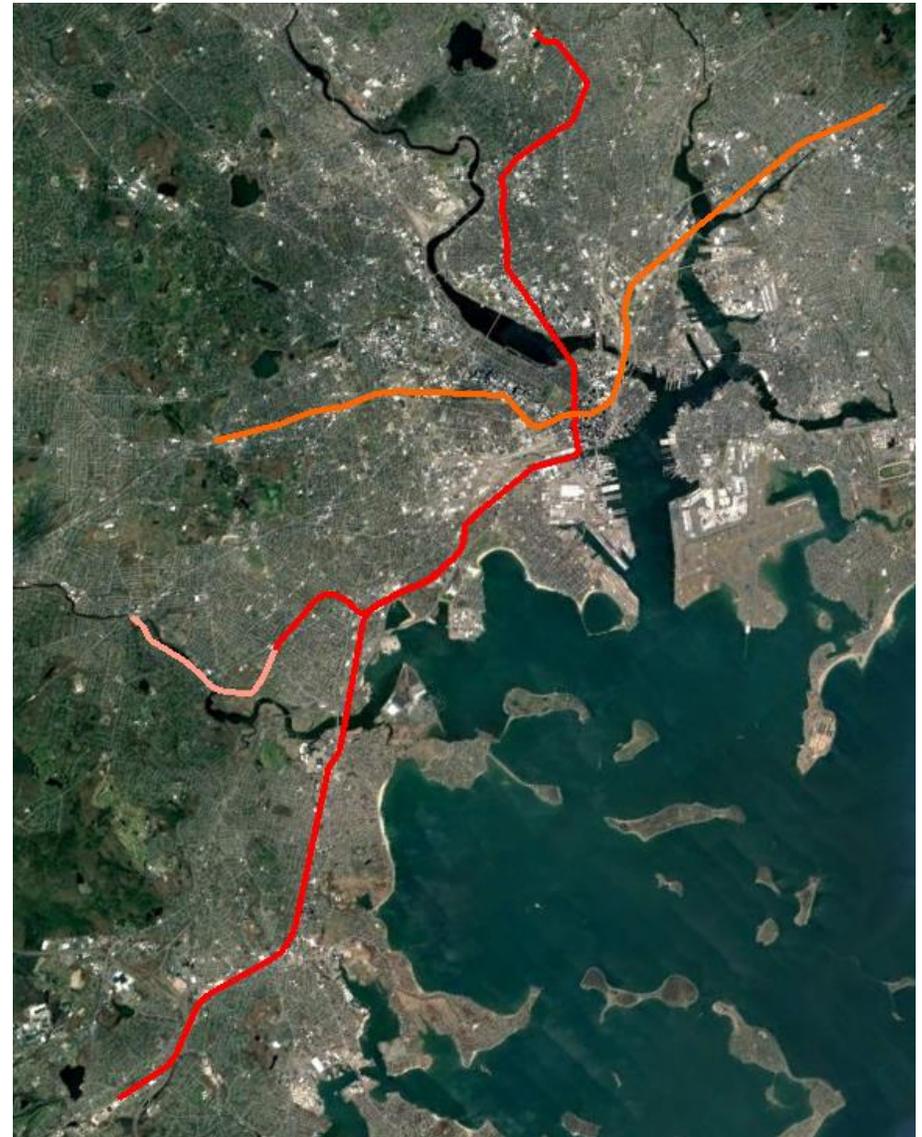
- Design meeting with DB Entity - 12/11/18
- Kickoff meeting with FTA Project Manager Oversight Consultant - 12/19/18
- Project Kickoff Meetings Held

Red Line

- RL Signaling and Train Control System Upgrade
- RL Columbia Junction Phase II

Orange Line

- OL Signaling and Train Control System Upgrade
- OL South West Corridor Wayside Signal Replacement



State of Good Repair Projects Status – Bridge Strengthening

Status

Bridge Repairs

- RL Substantial Completion – 05/01/19
- OL Substantial Completion – 03/15/19

Longfellow Approach – Interim Repairs

- Substantial Completion – 06/31/19

Red Line

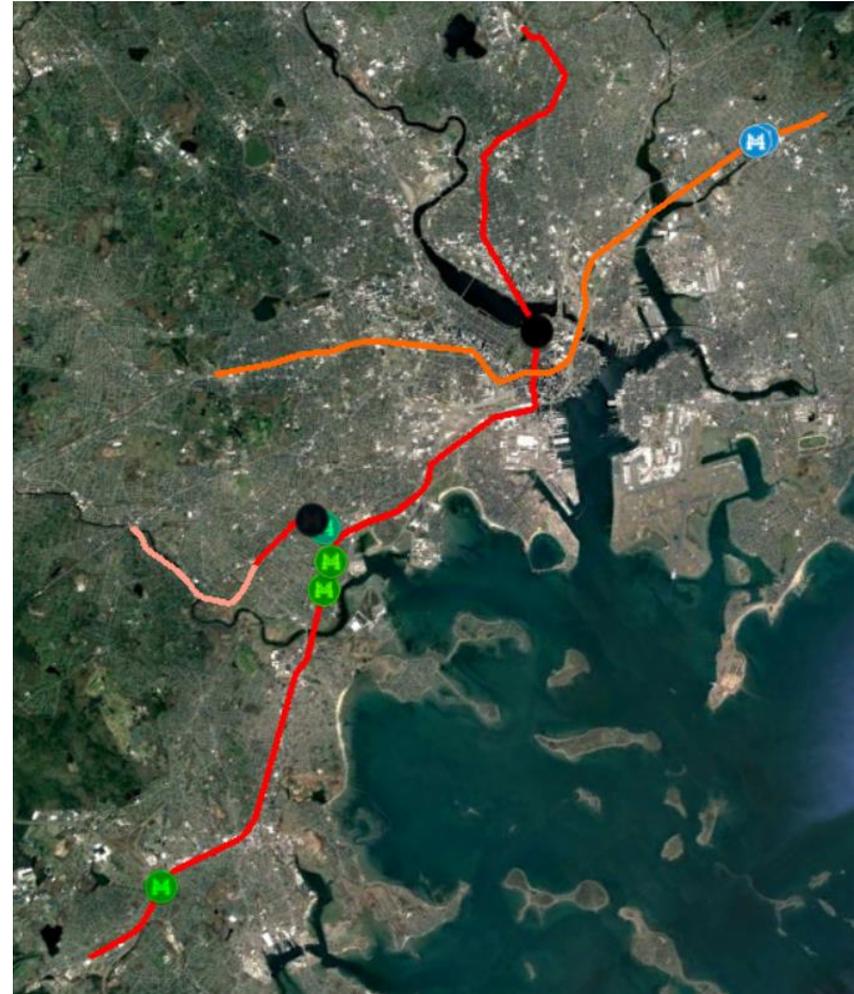
Bridge Repairs

- Granite Spur-B-21-069 (A23) (COMPLETE)
- Conley St.-B-16-136 (A38) (COMPLETE)
- Fields Corner Busway-B-16-418 (A3N) (COMPLETE)
- Victory Rd -B-16-134 (A36) (COMPLETE)
- Geneva Ave-B-16-142 (A3D) IN CONSTRUCTION
- Longfellow Approach - Interim Repairs (IN PROGRESS)

Orange Line

Bridge Repairs

- Charles Street-M-01-003 (85) IN CONSTRUCTION
- Adams Street-M-01-002 (85J) IN CONSTRUCTION



Vehicle Procurement & Improvement Program Collaboration

Preparation of Production Vehicle Arrival at Wellington Yard and Pilot Vehicle Arrival at Cabot Yards

