



Massachusetts Bay Transportation Authority

Red Line/Orange Line Improvement Program Update

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

May 20, 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

Orange Line

Total \$1,982.03M

NEW VEHICLE PROCUREMENT PROGRAM \$1,009.00M

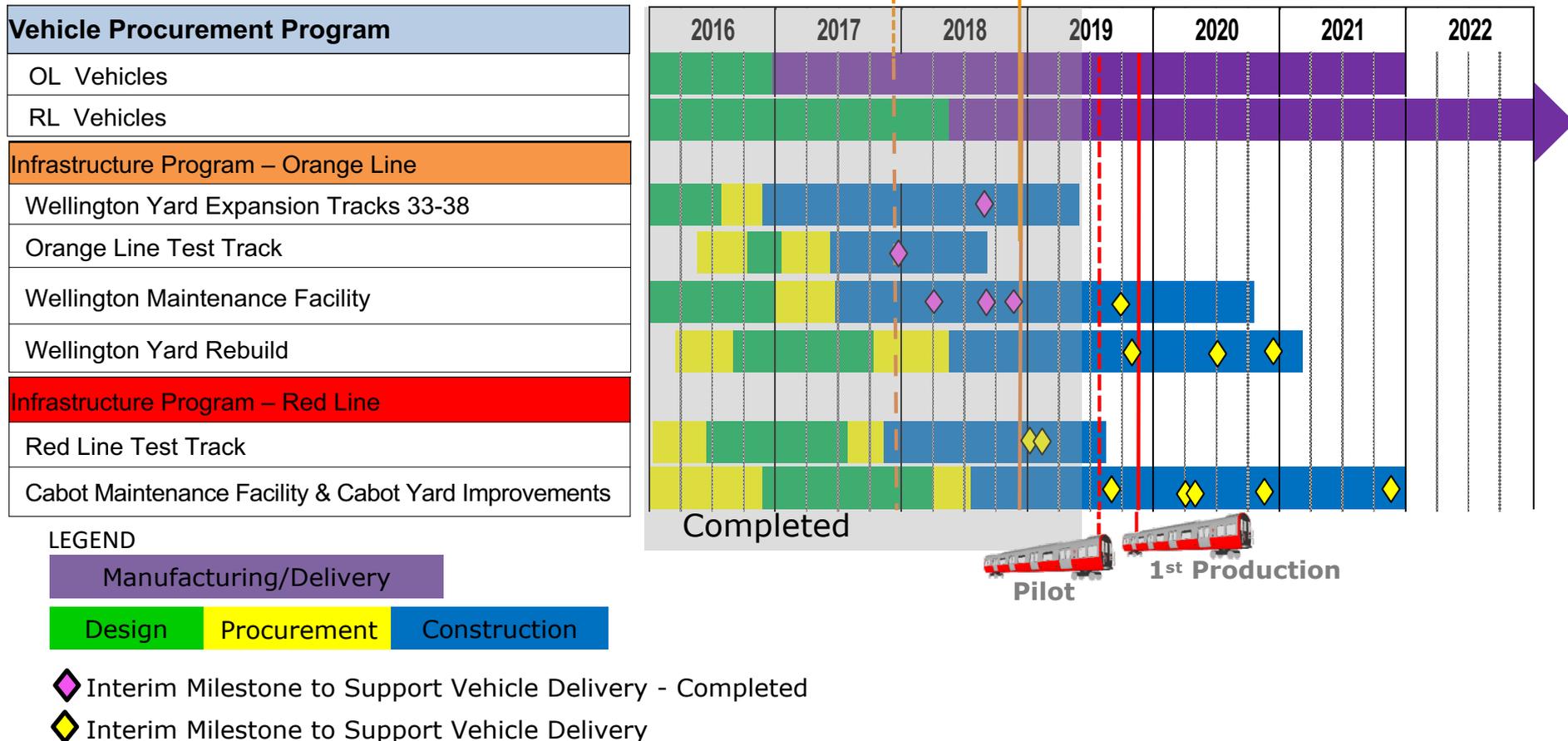
INFRASTRUCTURE IMPROVEMENTS PROGRAM \$470.36M

SIGNALS UPGRADE PROJECTS \$350.95M

STATE OF GOOD REPAIR PROJECTS \$151.72M

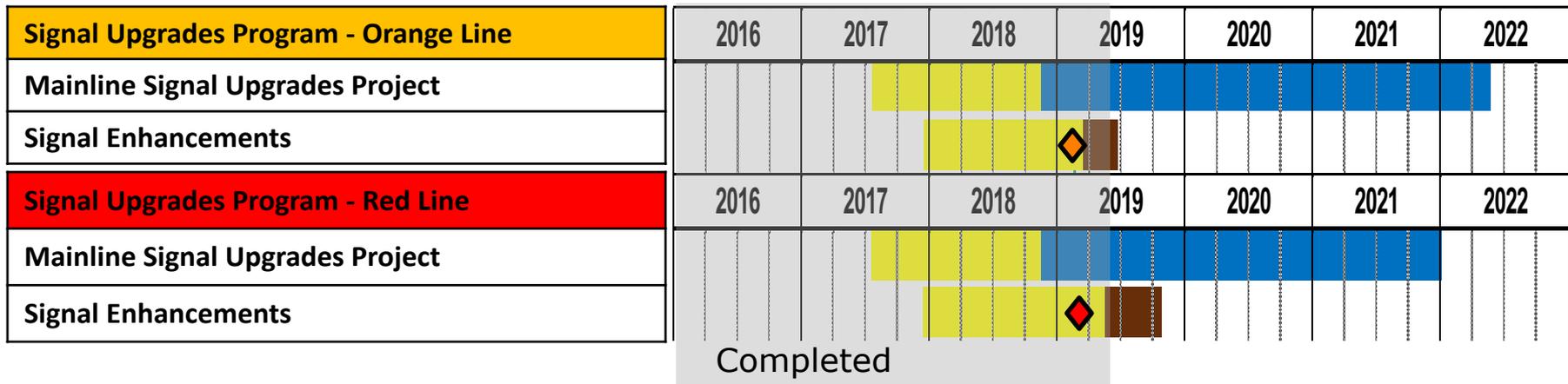


Red Line/Orange Line - Schedule by Project





Red Line/Orange Line Schedule – Signals Upgrades



LEGEND



- Start of Orange Line e-Vane Delivery
- Start of Red Line e-Vane Delivery



New Vehicle Procurement Program

New Vehicle Procurement Program

Total Project Value: \$ 1,009,871,671

Expenditure to date: \$ 225,412,964

Carbuilder Percent Complete: 25.2%



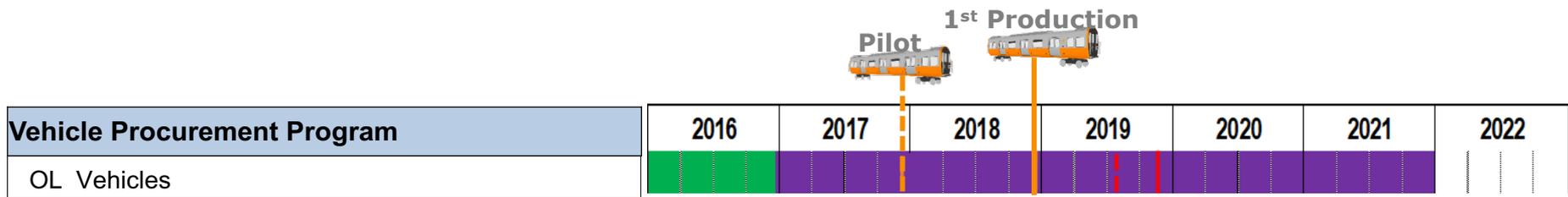
- Replace 218 Red Line cars
- 34 new cars
- Total = 252 vehicles



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



Vehicle Procurement Project Status – Current/Look Ahead



- OL Production Delivery from Springfield Facility Continuing - (started December 2018)
- OL Production Acceptance Testing Continuing - (started January 2019)
- OL Pilot Car Revenue Service - (Summer 2019)



- RL Complete Vehicle FAI (Changchun) – (Spring 2019)
- RL Delivery of Pilot Cars - (Summer 2019)
- RL Pilot Cars Acceptance Testing - (through Winter 2019)
- RL Pilot Car Revenue Service - (Winter 2019/2020)

LEGEND





Orange Line Vehicle Procurement Project Status

Orange Line car shells are continuing to be produced in CRRC's facility in Changchun, China. The welded car bodies are water tested prior to shipment to Springfield, Massachusetts for final assembly.

Water testing is performed in three phases:

- 1) Welded Car Body Test
- 2) Side and End Window Test (prior to interior insulation installation)
- 3) Final Completed Car Test

CRRC Changchun is currently in the process of fabricating the underframe of production car #65.





Red Line Vehicle Procurement Project Status

Pilot car testing (including Climate Chamber testing) is ongoing in Changchun. The Climate Chamber tests the capabilities of the HVAC system at all potential ambient temperatures and humidity ranges to ensure the system will function correctly all year.

Production of Red Line car shells is ongoing. The car shells will soon begin shipment to Springfield for final assembly and testing.





Production Vehicle Final Assembly – Springfield MA

The Springfield final assembly facility is completing modifications on Married Pair 7 to bring it to the latest configuration before shipment to the Wellington car house.

Springfield recently shipped Married Pair 6 to Wellington car house, where testing is ongoing. The Project Team expects a full six-car consist of Springfield-produced cars to be fully tested when we enter passenger service this summer.





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: 05/07/19 *

Construction Budget: \$17,977,777

Construction Expenditures to Date: \$13,296,402

Construction Percent Complete: 89%

* Extended due to additional disposal of site material.

Tracks 33-38 North Side – at start of construction



Tracks 33-38 North Side – and now





Orange Line Projects: Orange Line Test Track

LM Heavy

Construction NTP: 06/20/17

Construction Substantial Completion: 08/29/18

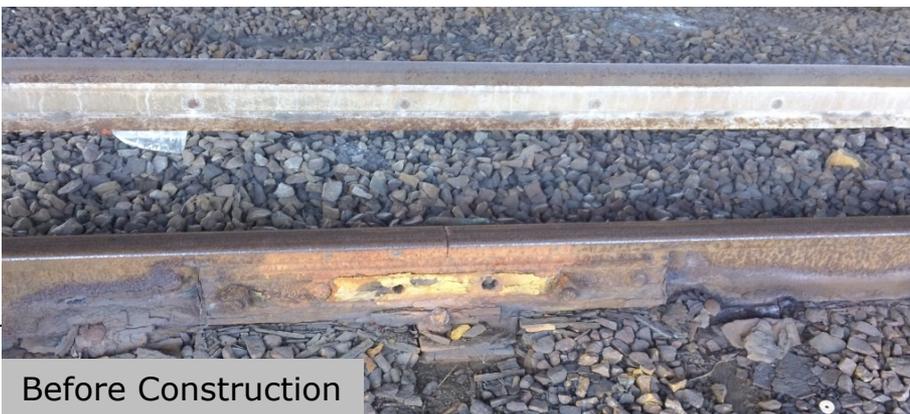
Contractual: 09/11/18

Actual: 08/29/18

Construction Budget: \$5,867,000

Construction Expenditures to Date: \$3,939,146

Construction Percent Complete: 99%



For Informational Purposes Only



Orange Line Projects: Wellington Maintenance Facility

Barletta Heavy Division

Construction NTP: 06/30/17

Construction Substantial Completion:

Contractual: 08/04/20

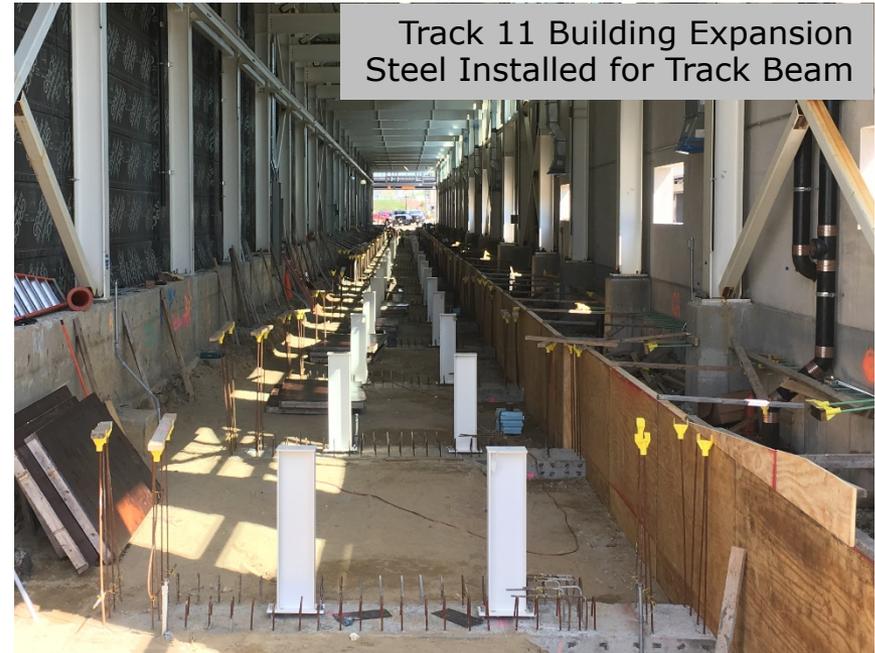
Projected: 10/22/20*

Construction Budget: \$72,582,000

Construction Expenditures to Date: \$36,224,866

Construction Percent Complete: 56%

* Adjusted to account for scope added to the contract.



Utility Work in Zone 3C



New Tile in Men's Locker Room – Crew Quarters





Orange Line Projects: Wellington Yard Rebuild

Barletta Heavy Division

Construction NTP: 05/31/18

Construction Substantial Completion:

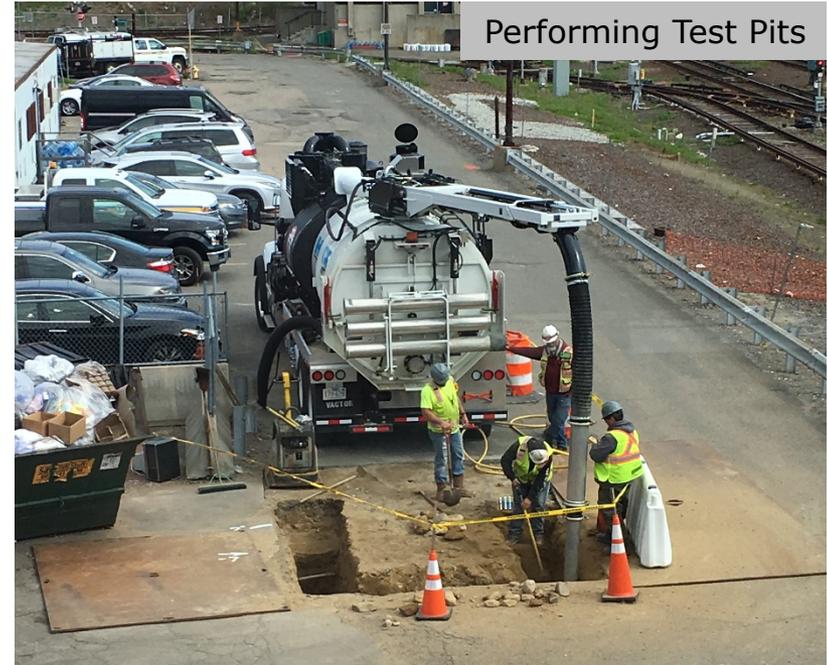
Contractual: 03/07/21

Projected: 03/07/21

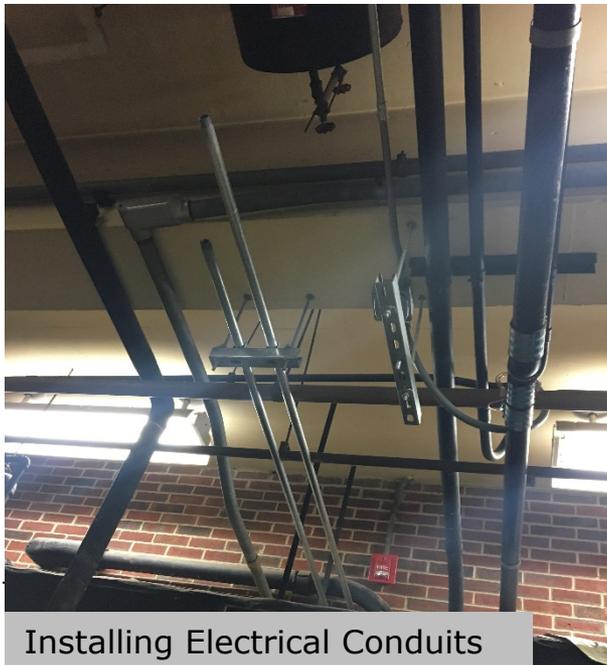
Construction Budget: \$102,663,000

Construction Expenditures to Date: \$2,871,027

Construction Percent Complete: 9%



Performing Test Pits



Installing Electrical Conduits



Receiving Materials

Dr



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: \$8,998,128

Construction Percent Complete: 59%

* Working with Contractor to mitigate delay

Access Track - Installing Insulators & Third Rail



Yard 61 - VTF Roof Installation





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

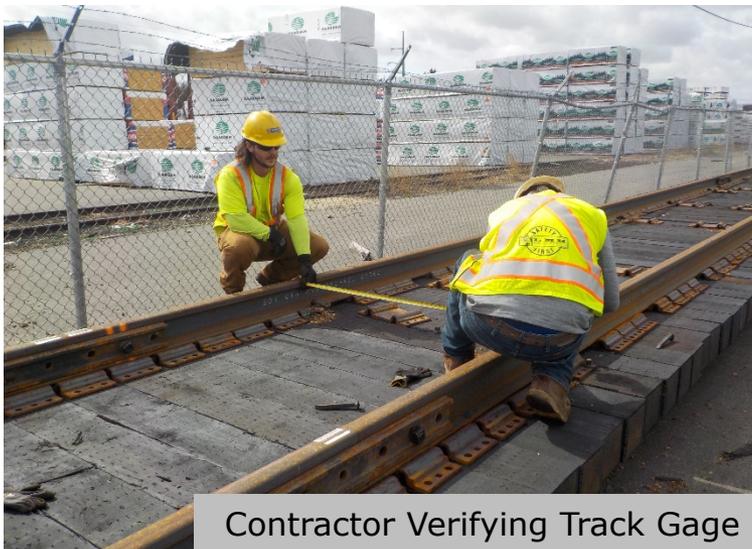
Construction Budget: \$213,817,000

Construction Expenditures to Date: \$9,021,203

Construction Percent Complete: 6%



Contractor Pre-plating Track



Contractor Verifying Track Gage



Signals Upgrade Projects Status

Construction NTP: 11/30/18
Contract Substantial Completion: 5/25/22
Substantial Completion RL – 01/04/22
Substantial Completion OL – 05/25/22
Construction Budget: \$217,677,000
Construction Expenditures to Date: \$162,552

Progress:

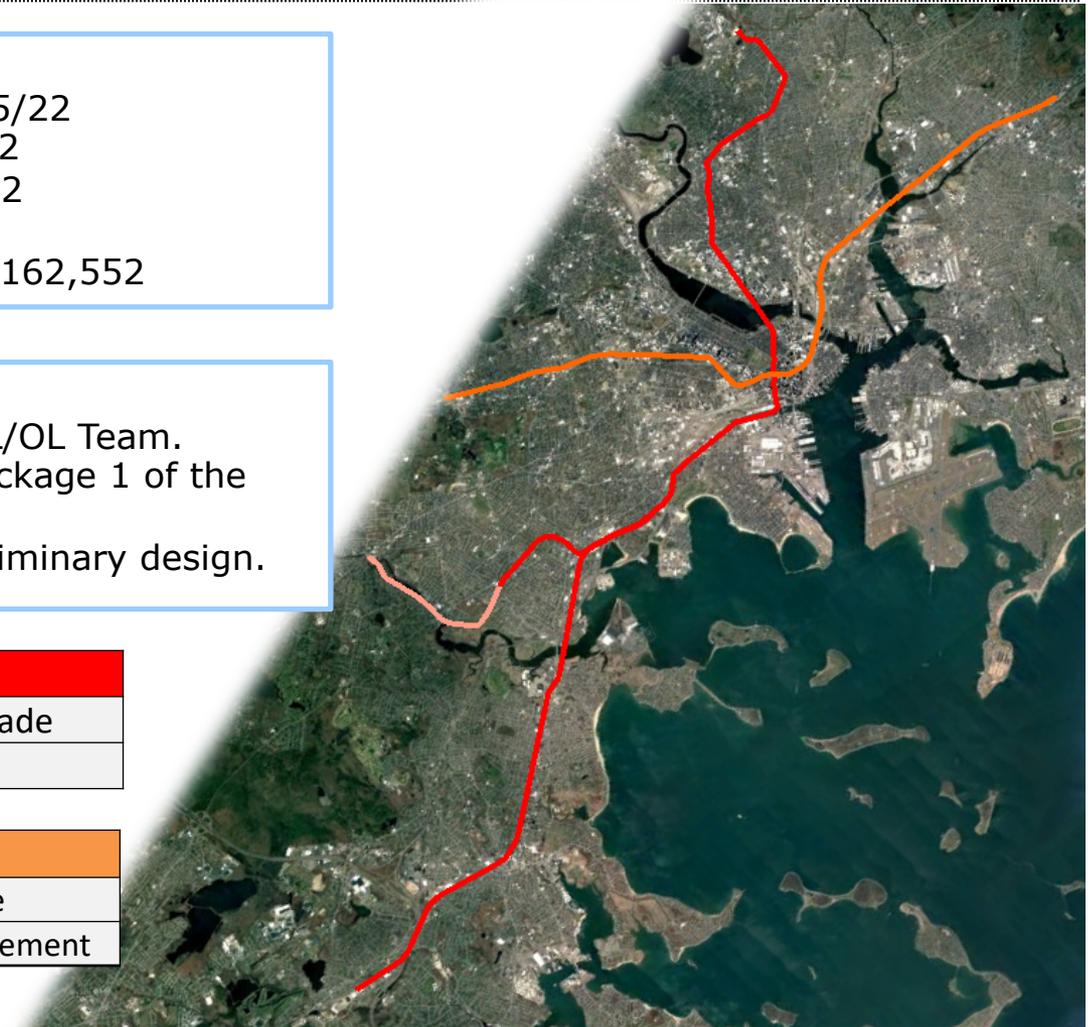
- Ongoing project meetings with RL/OL Team.
- Over-the-Shoulder reviews for package 1 of the Preliminary design are ongoing.
- Continue development of the preliminary design.

Red Line

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

Orange Line

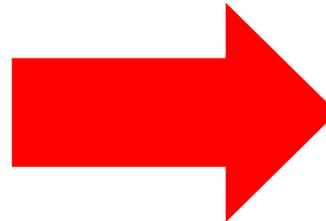
OL Signaling and Train Control System Upgrade
OL South West Corridor Wayside Signal Replacement





Preparation for Signals Upgrades – Chinatown Bungalow

OLD



NEW





State of Good Repair Projects Status – Bridge Strengthening

Status

Bridge Repairs

RL Substantial Completion – 07/31/19

OL Substantial Completion – 07/15/19

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) **(COMPLETE)**
- Longfellow Approach - Interim Repairs **(IN CONSTRUCTION)**

Orange Line

Bridge Repairs

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

