



**Massachusetts Bay
Transportation Authority**

Red/Orange Line Transformation Program Update

**Vehicle Procurement, Infrastructure Improvements,
Reliability & Modernization Improvements and Signal Upgrades**

August 12, 2019



OVERVIEW

This presentation updates the FMCB on the progress of the \$1.98 billion Red/Orange Line Transformation Program, which includes new Vehicle Procurement, Infrastructure Improvements, Reliability & Modernization Improvements, and Signal Upgrades.

Under the direction of the Chief of Red/Orange Line Transportation, Michael Fitzgerald, 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 /Orange Line Transformation Program

Red Line

Orange Line

Total \$1,982.03M

NEW VEHICLE PROCUREMENT PROGRAM

\$1,009.00M

INFRASTRUCTURE IMPROVEMENTS PROGRAM

\$470.36M

SIGNALS UPGRADE PROJECTS

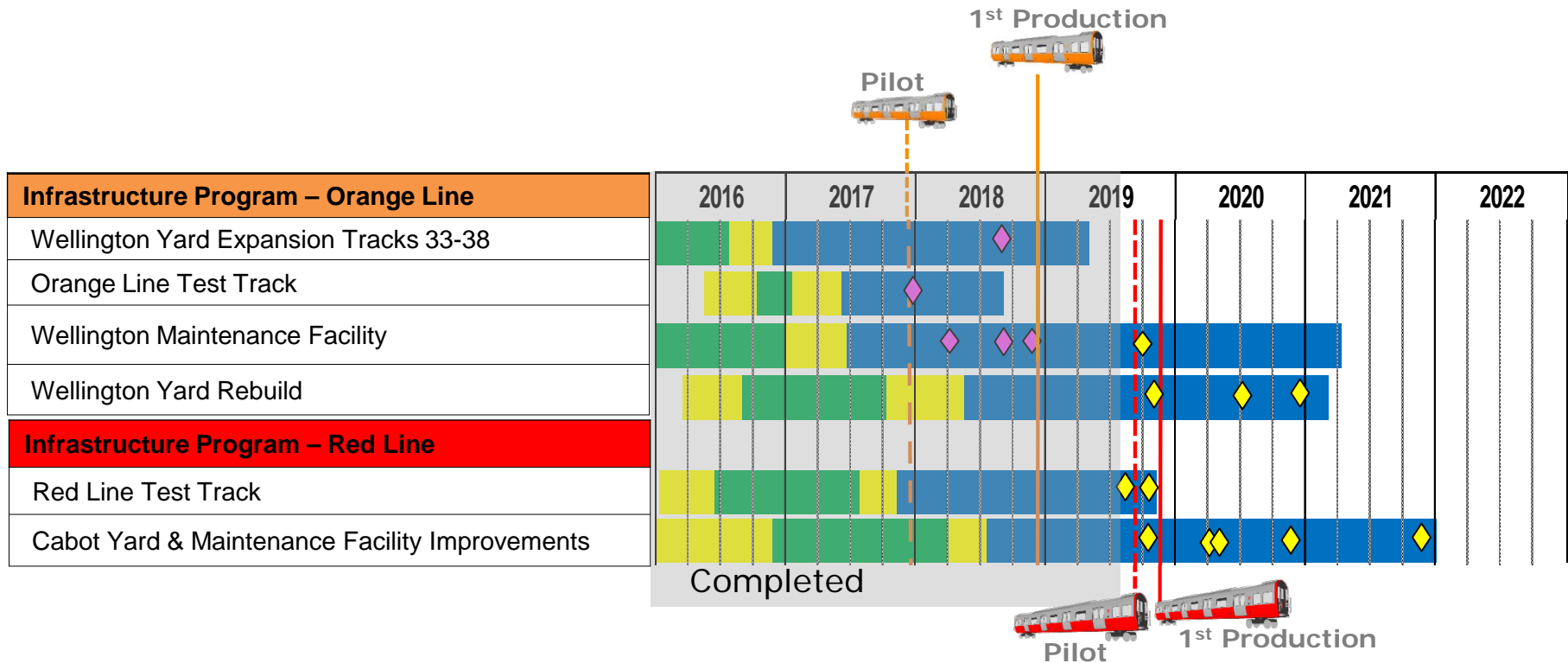
\$350.95M

RELIABILITY & MODERNIZATION PROJECTS

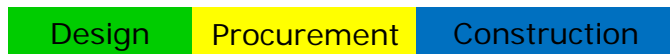
\$151.72M



Red/Orange Line - Schedule by Project



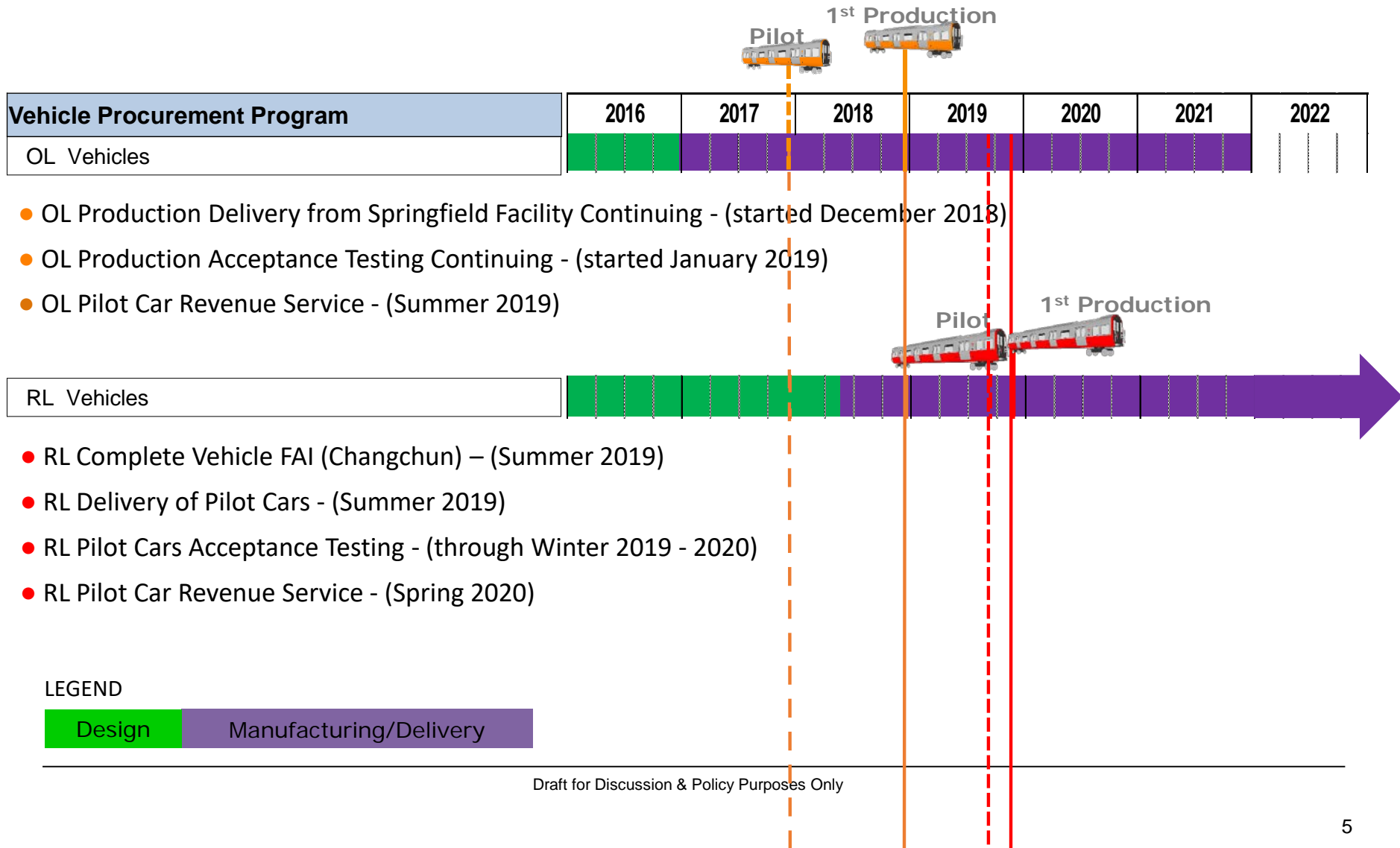
LEGEND

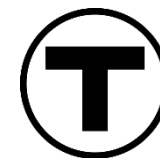


- ◆ Interim Milestones to Support Vehicle Delivery - Completed
- ◇ Interim Milestones to Support Vehicle Delivery

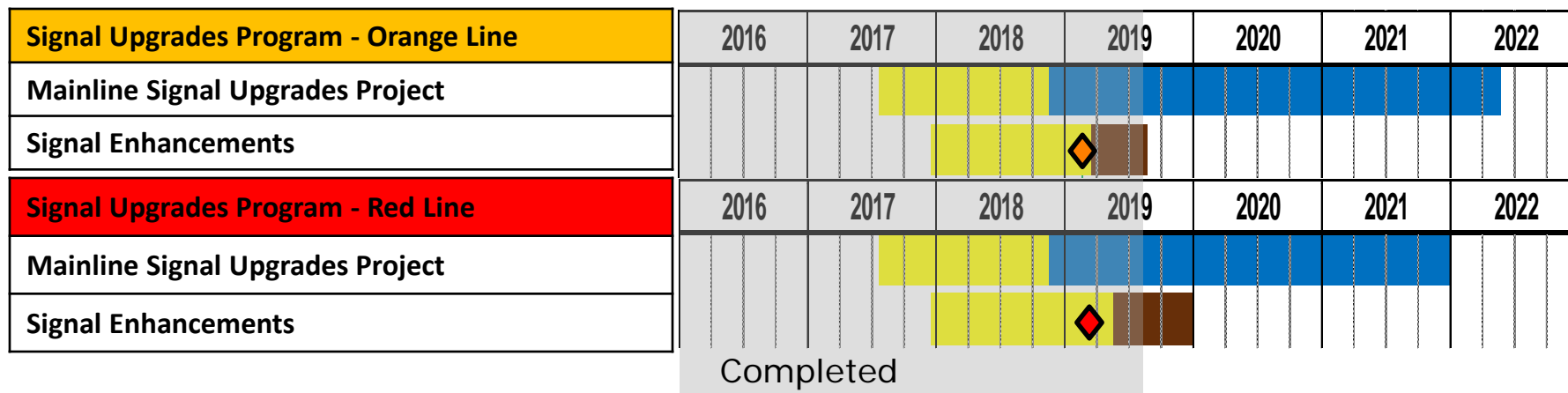


Vehicle Procurement Project Status – Current/Look Ahead





Red/Orange Line Schedule – Signals Upgrades



LEGEND

| | |
|-------------|-------------------|
| Procurement | Design/Build |
| Procurement | MBTA Installation |

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: \$ 227,945,240

Carbuilder Percent Complete: 24.9%



- Replace Entire Red Line Fleet
- 34 new cars
- Total = 252 vehicles



- Replace Entire Orange Line Fleet
- 32 new cars
- Total = 152 vehicles



Orange Line Vehicle Procurement Project Status



The new Orange Line cars will enter revenue service in August. Operator training has been underway since March 2018.



Red Line Vehicle Procurement Project Status



The first Orange Line Married Pair which was initially used for qualification testing has now been relocated to Cabot Yard on the Red Line. This train will be used exclusively for training of the Red Line Operators.

Red Line Operator training began on August 5th.





Production Vehicle Final Assembly – Springfield MA



The Springfield facility continues to transition to a Lean manufacturing system. The Lean system divides the facility into work zones separated with defined tasks in order to gain efficiency.



Orange Line Projects: Wellington Yard Expansion Tracks 33 to 38

JF White

Construction NTP: 12/05/16

Construction Substantial Completion:

Contractual: 01/04/19

Actual: 05/07/19*

Construction Budget: \$19,582,195**

Construction Expenditures to Date: \$16,224,067

Construction Percent Complete: 94%

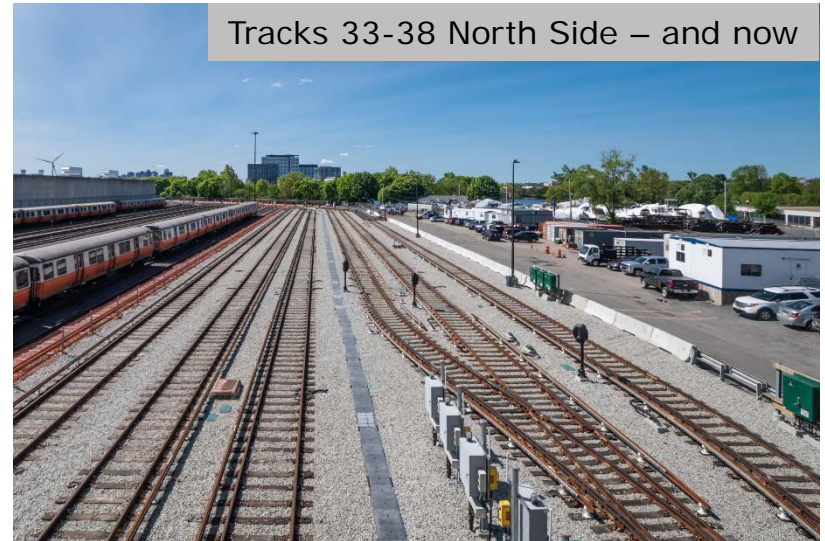
* Extended due to additional disposal of site material.

** Revised due to change order.

Tracks 33-38 North Side – start of construction



Tracks 33-38 North Side – and now



Project Successfully Completed



Orange Line Projects: Orange Line Test Track

LM Heavy

Construction NTP: 06/20/17

Construction Substantial Completion:

Contractual: 09/11/18

Actual: 08/29/18

Construction Budget: \$5,867,000

Construction Expenditures to Date: \$4,155,673

Construction Percent Complete: 99%



Before Construction

New Train On Test Track



And Now

Project Successfully Completed



Orange Line Projects: Wellington Maintenance Facility

Barletta Heavy Division

Construction NTP: 06/30/17

Construction Substantial Completion:

Contractual: 08/04/20

Projected: Spring 2021*

Construction Budget: \$76,282,000**

Construction Expenditures to Date: \$40,464,472

Construction Percent Complete: 60%

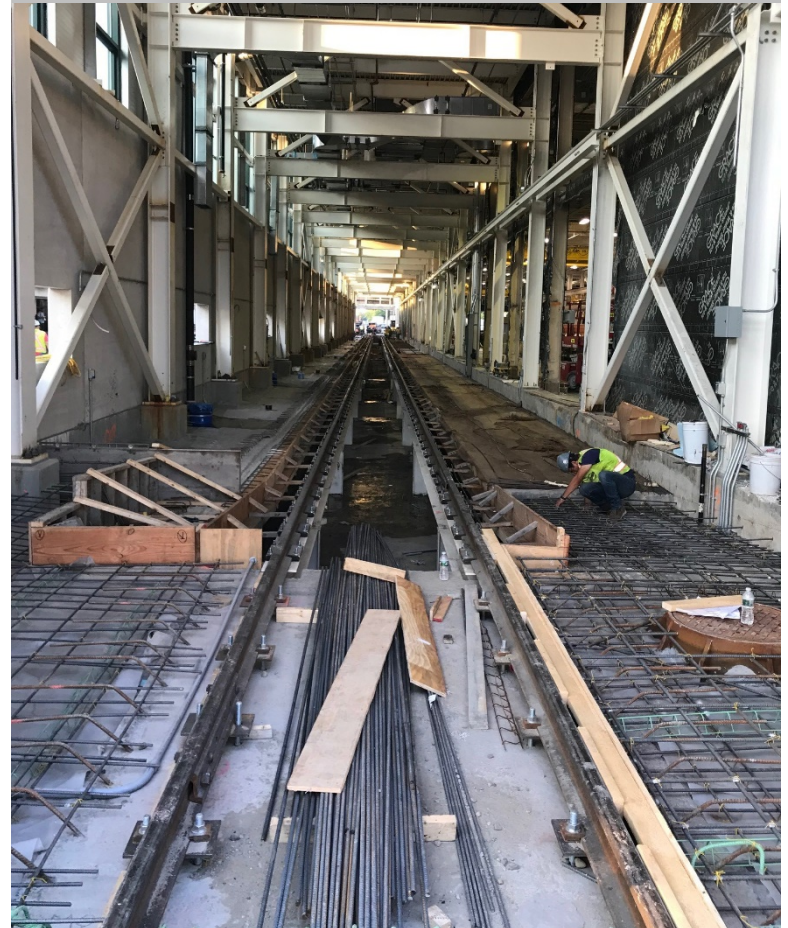
* Adjusted to account for scope added to the contract. Reviewing efforts to mitigate delay.

** Revised due to change order.



New fence installed on barrier (L) and duct bank (R) at East Access Road

Building Expansion – Track 11 Rail Installed and Backfilled/Rebar Installation



ession & Policy Purposes Only



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

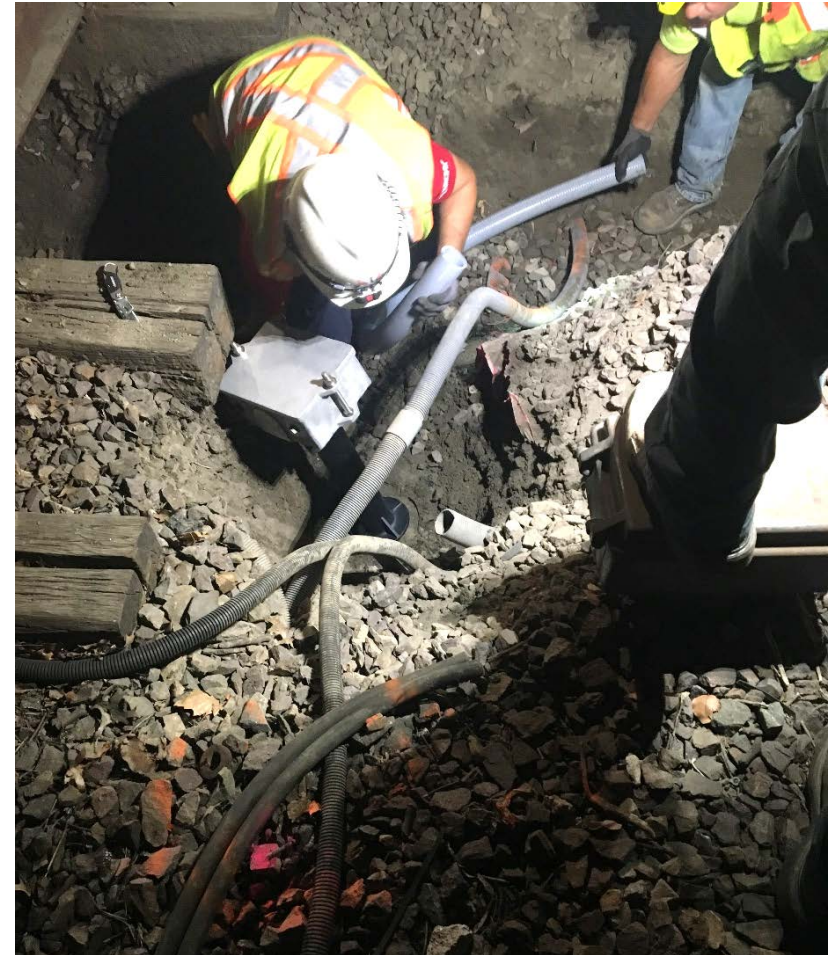
Construction Expenditures to Date: \$12,348,492

Construction Percent Complete: 16%

* Acceleration Opportunity for 2020



Excavation at Track 5 for 330 Signal



Electricians Installing Track Circuit Junction Box



Red Line Projects: Red Line Test Track

Barletta Heavy Division

Construction NTP: 11/17/17

Construction Substantial Completion:

Contractual: 04/07/19

Projected: Fall 2019*

Construction Budget: \$21,269,000

Construction Expenditures to Date: \$11,776,364

Construction Percent Complete: 68%

* Reviewing efforts to mitigate delay.

Installed Third Rail Insulators Leading into Turnout



Vehicle Testing Facility – Restroom Masonry Wall



Policy Purposes Only



Red Line Projects: Cabot Yard & Maintenance Facility Improvements

LM Heavy/Lane Construction

Construction NTP: 08/02/18

Construction Substantial Completion:

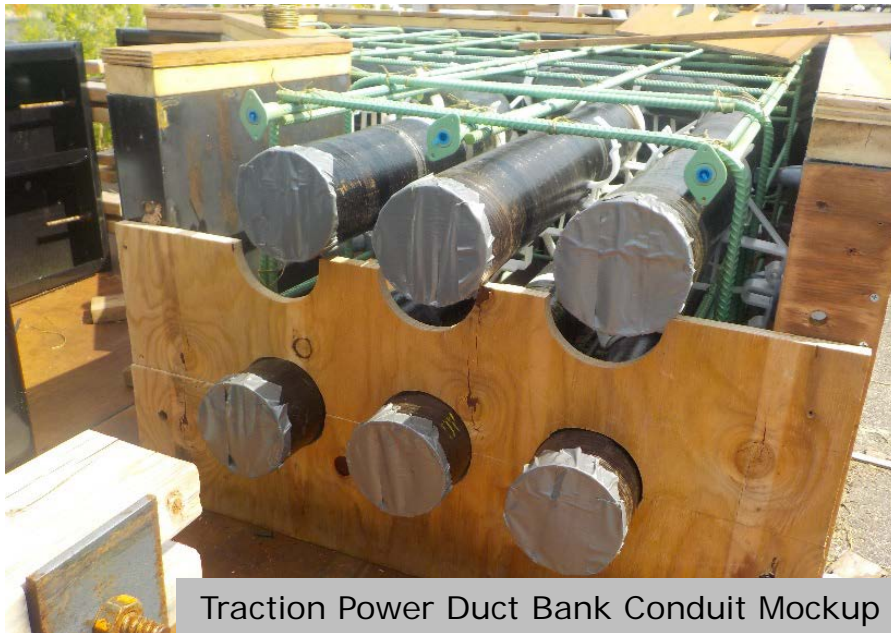
Contractual: 01/04/22

Projected: 01/04/22

Construction Budget: \$213,817,000

Construction Expenditures to Date: \$11,381,129

Construction Percent Complete: 8%



Traction Power Duct Bank Conduit Mockup



Test pitting for Sub-station Test Piles



Signals Upgrade Projects Status

Barletta Heavy Division

Design-Build NTP: 11/30/18

Contract Substantial Completion: 5/25/22

Substantial Completion RL – 01/04/22

Substantial Completion OL – 05/25/22

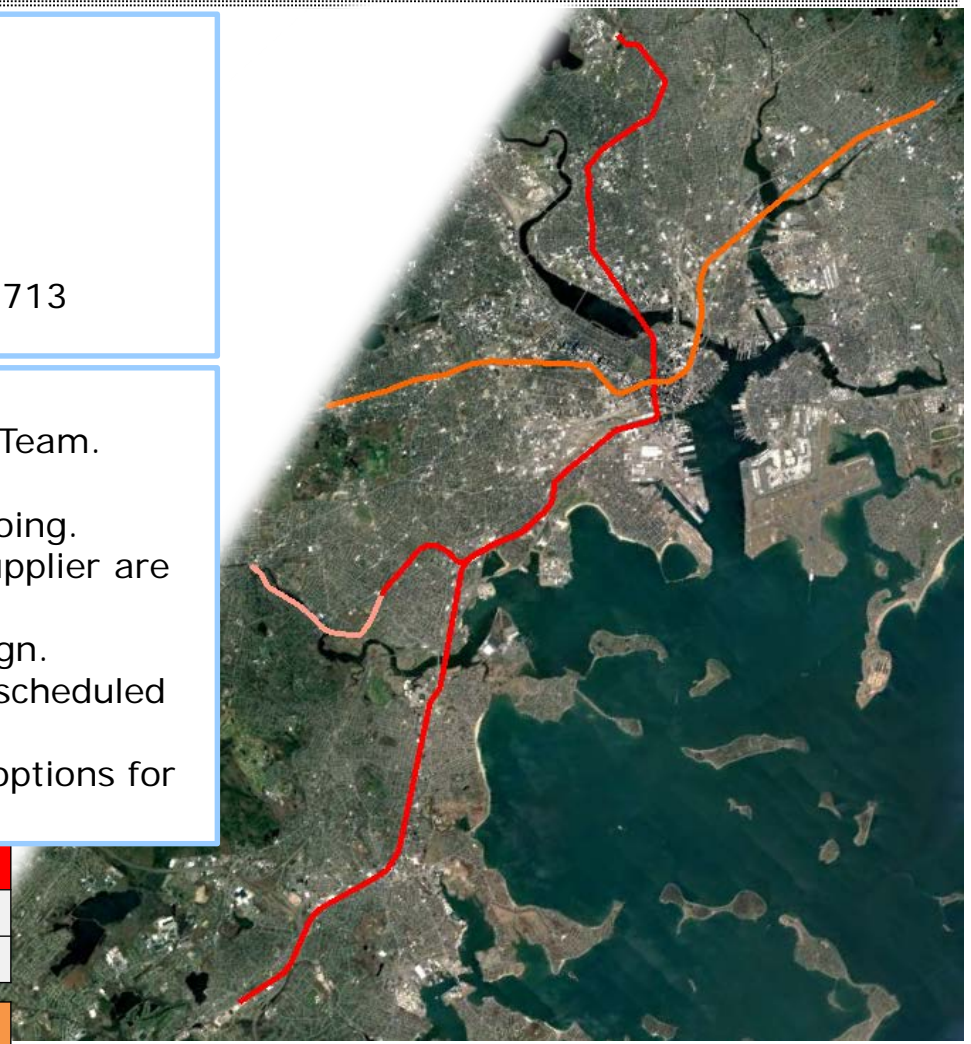
Construction Budget: \$217,677,000

Construction Expenditures to Date: \$6,095,713

Construction Percent Complete: 5%

Progress:

- Continued project meetings with RL/OL Team.
- Over-the-Shoulder reviews of multiple intermediate design documents are ongoing.
- Workshops with the Major Equipment supplier are ongoing.
- Finalizing review of the preliminary design. Preliminary Design Review workshop is scheduled for late August.
- Project re-sequencing and acceleration options for Columbia Junction are being evaluated.



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

Session & Policy Purposes Only



Reliability & Modernization Projects Status – Bridge Strengthening

Status

Bridge Repairs

RL Substantial Completion – 04/15/19

OL Substantial Completion – 07/01/19

Longfellow Approach – Interim Repairs

Substantial Completion – 11/30/19

Material Fabrication Percent Complete: 100%

Construction Percent Complete: 25%

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) **(COMPLETE)**
- Adams Street-M-01-002 (85J) **(COMPLETE)**

