



# **Massachusetts Bay Transportation Authority**

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## **Red/Orange Line Transformation Program Update**

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

**August 12, 2019**



## OVERVIEW

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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

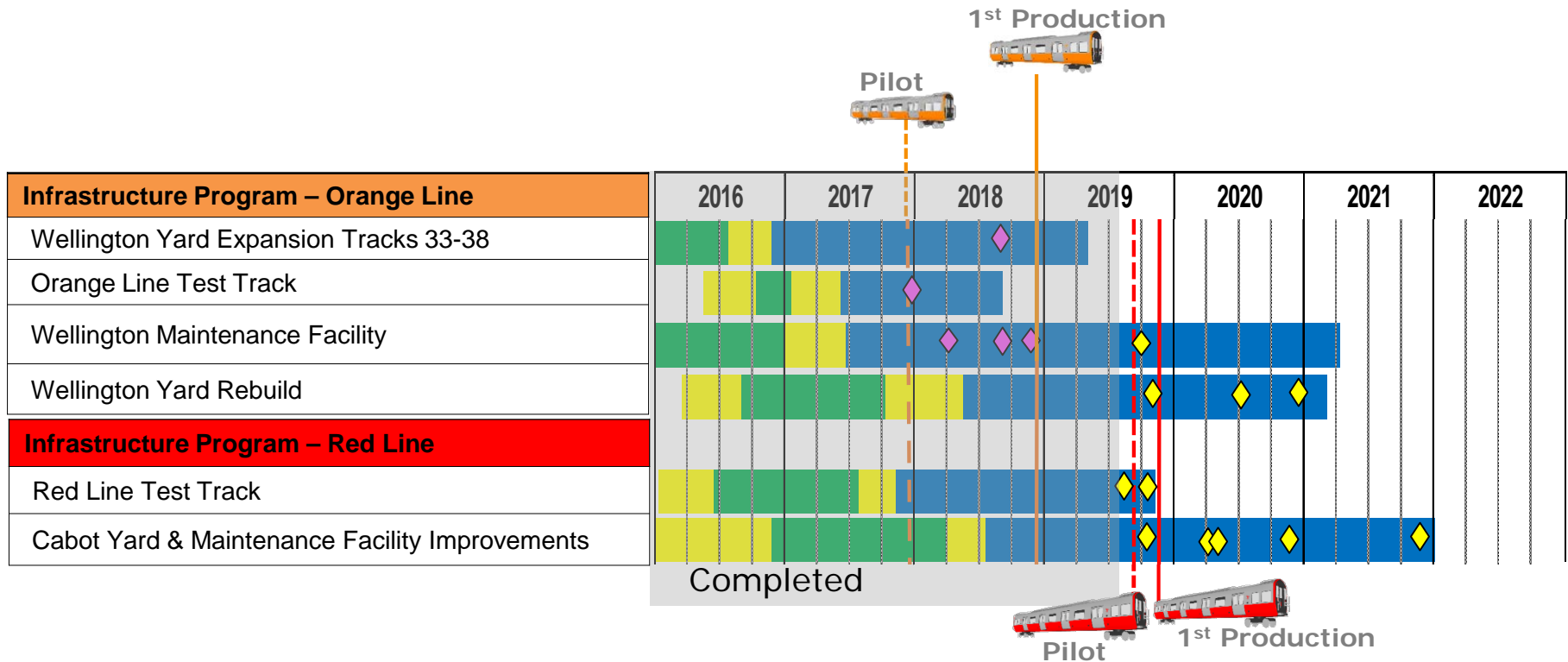


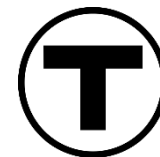
**Total \$1,982.03M**

NEW VEHICLE PROCUREMENT PROGRAM	\$1,009.00M
INFRASTRUCTURE IMPROVEMENTS PROGRAM	\$470.36M
SIGNALS UPGRADE PROJECTS	\$350.95M
RELIABILITY & MODERNIZATION PROJECTS	\$151.72M

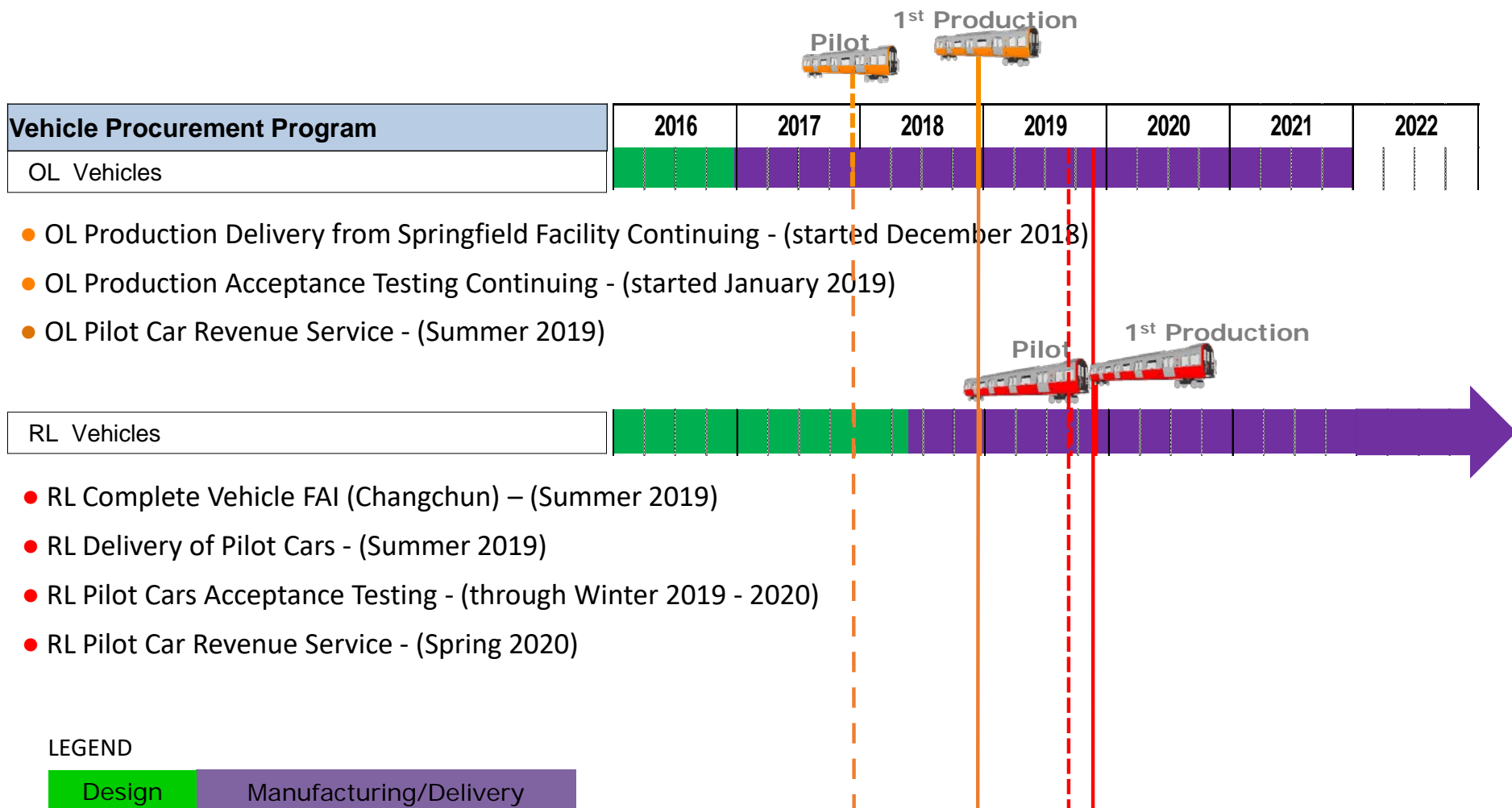


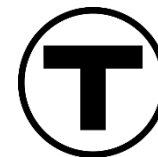
## Red/Orange Line - Schedule by Project



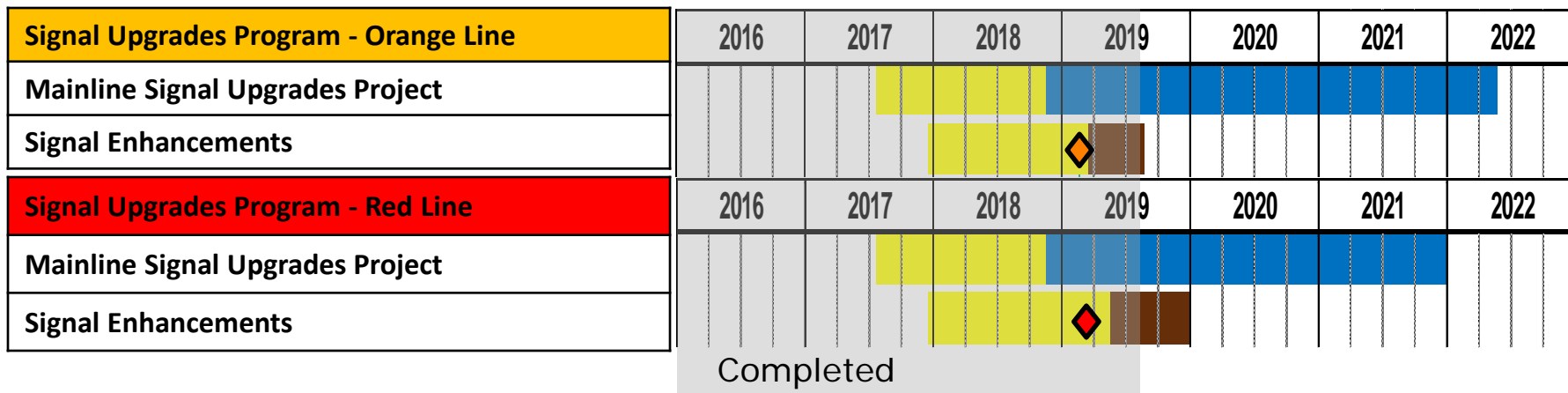


## Vehicle Procurement Project Status – Current/Look Ahead

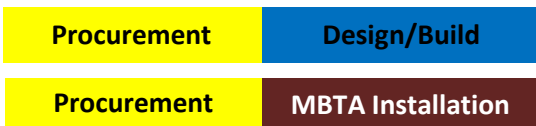




## Red/Orange Line Schedule – Signals Upgrades



LEGEND



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



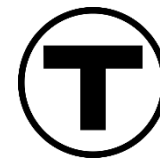
## New Vehicle Procurement Program



- 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.





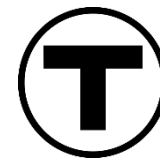
## Red Line Vehicle Procurement Project Status



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 5<sup>th</sup>.





## 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\*

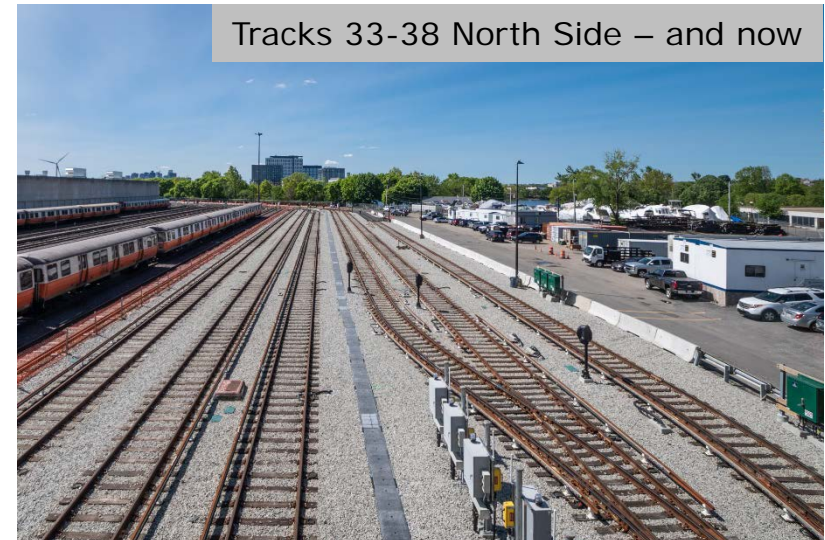
Construction Budget: \$19,582,195\*\*

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



**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%



**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\*\*

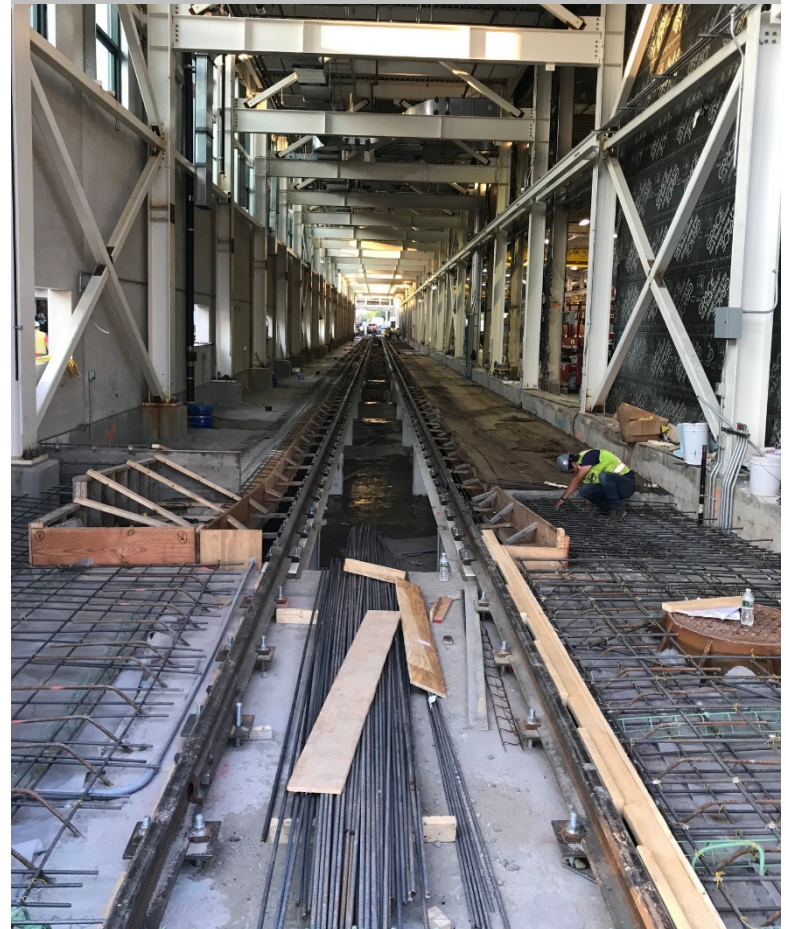
Construction Expenditures to Date: \$40,464,472

Construction Percent Complete: 60%

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

\*\* Revised due to change order.

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



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

Information & 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

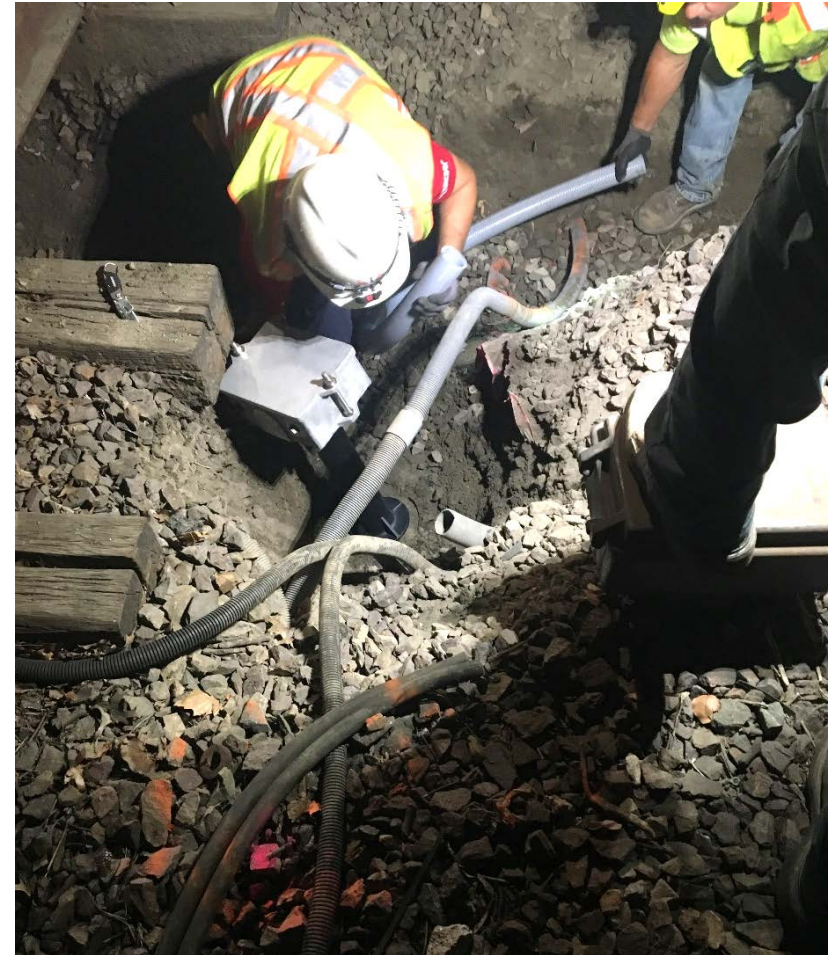
Construction Expenditures to Date: \$12,348,492

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

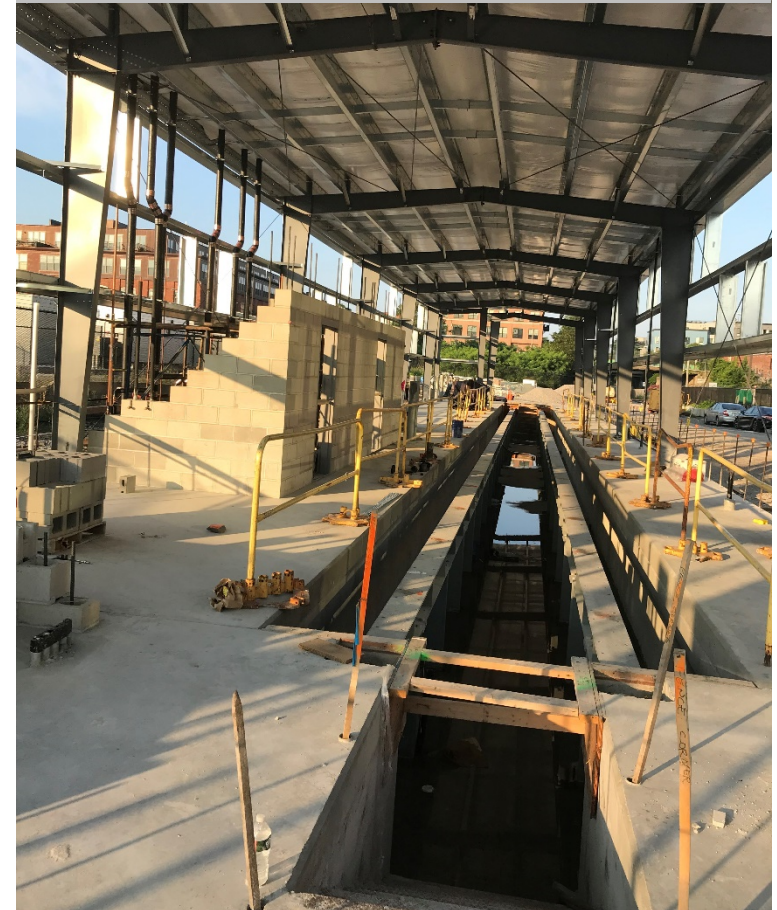
Construction Percent Complete: 68%

\* 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





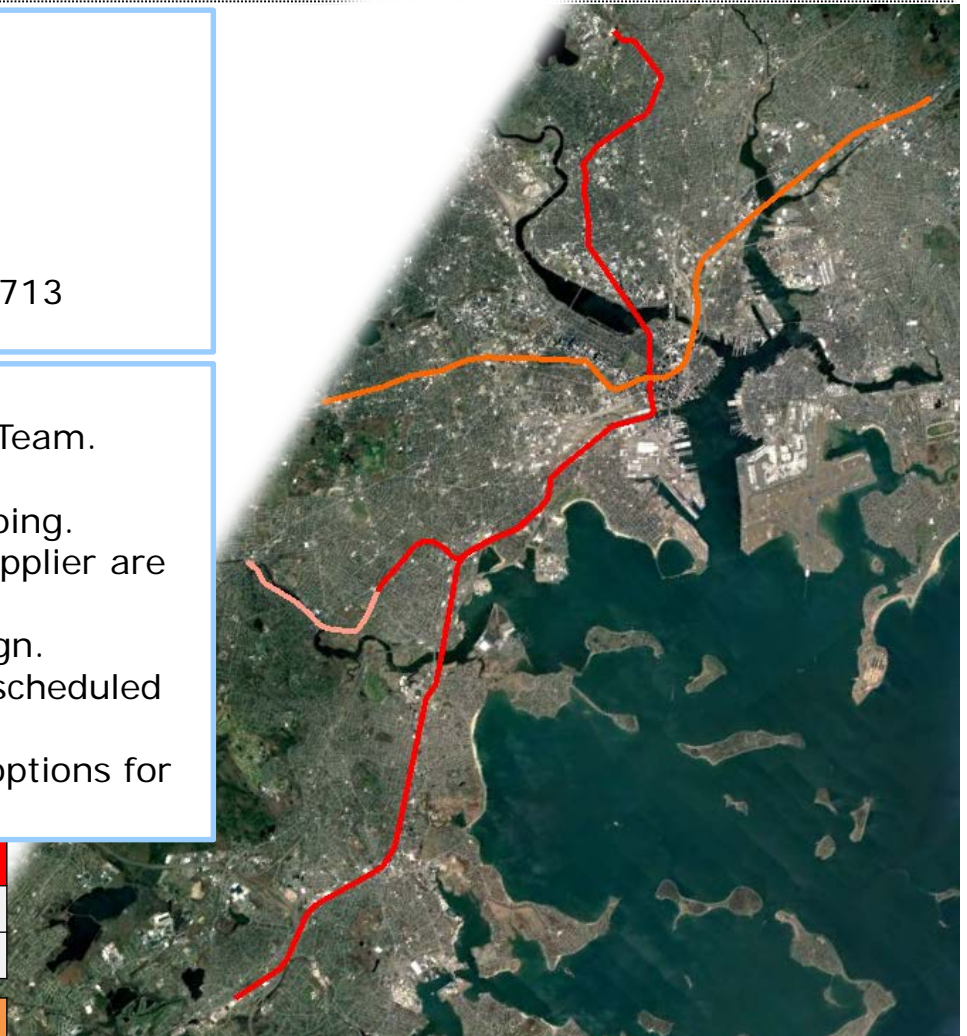
## Signals Upgrade Projects Status

### 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.



Information for Planning & Policy Purposes Only

### 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



## 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)**

