



# **Massachusetts Bay Transportation Authority**

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

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

**April 29, 2019**



## OVERVIEW

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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

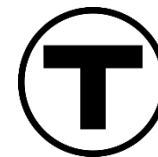
**Total \$1,982.03M**

NEW VEHICLE PROCUREMENT PROGRAM \$1,009.00M

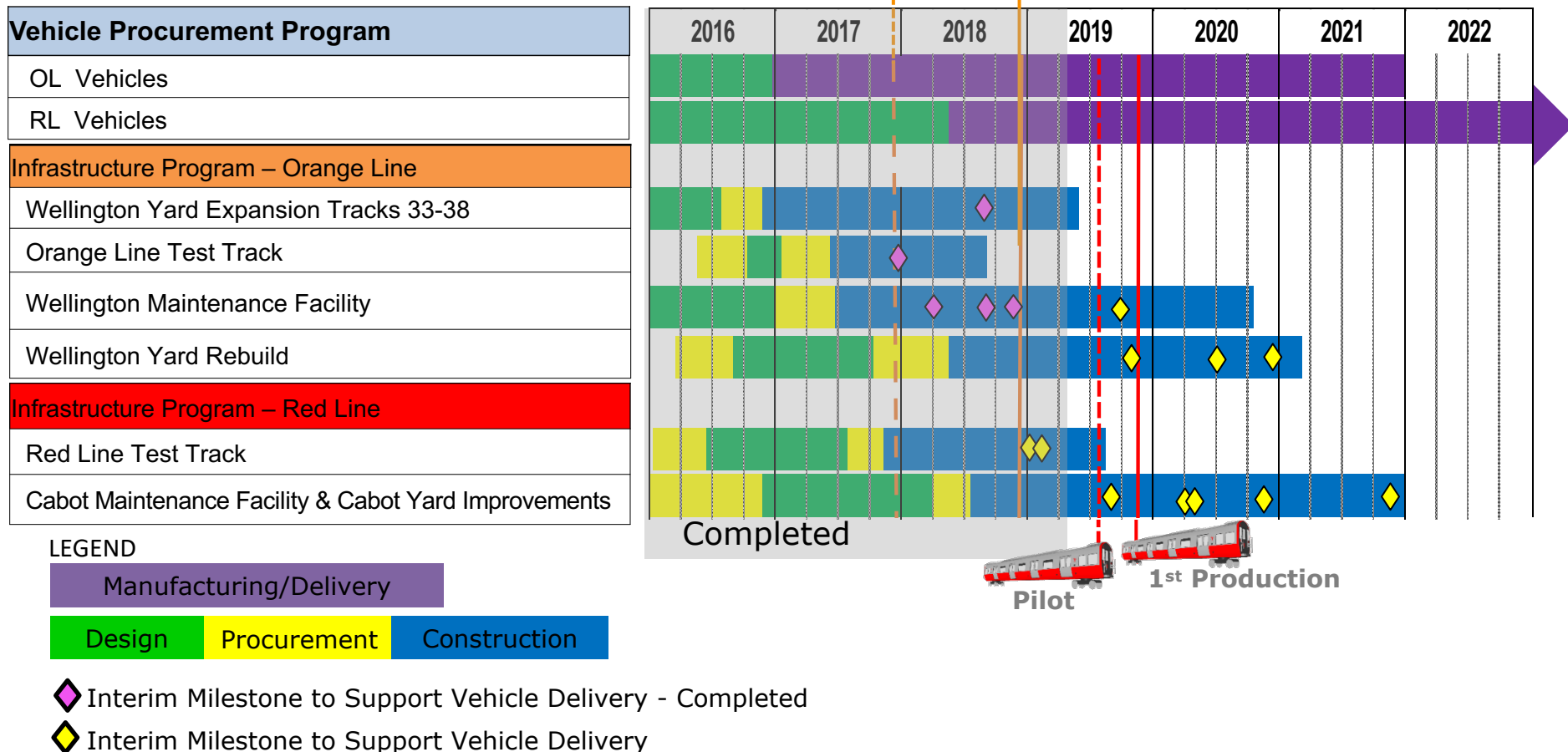
INFRASTRUCTURE IMPROVEMENTS PROGRAM \$470.36M

SIGNALS UPGRADE PROJECTS \$350.95M

STATE OF GOOD REPAIR PROJECTS \$151.72M



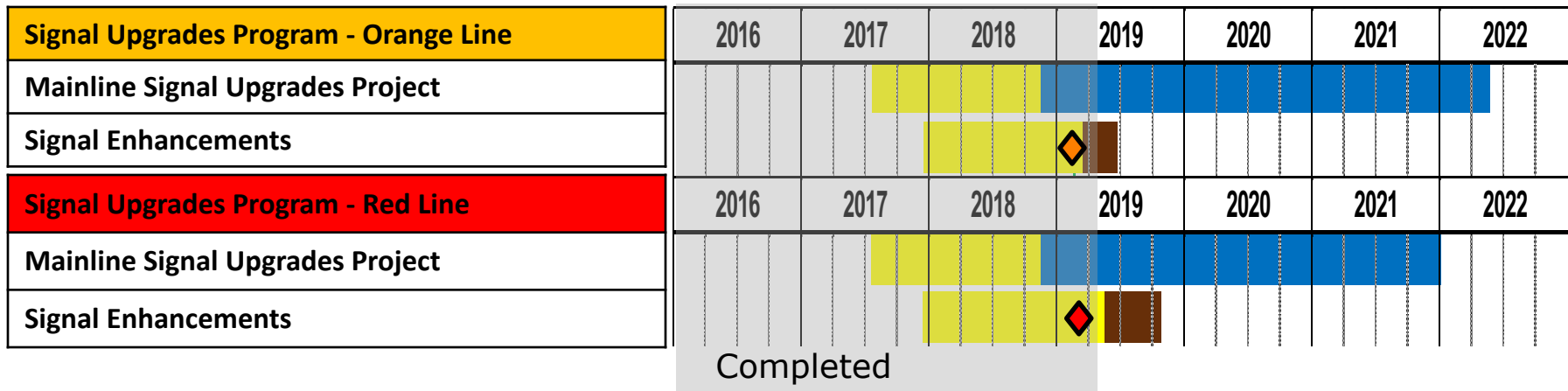
## Red Line/Orange Line - Schedule by Project



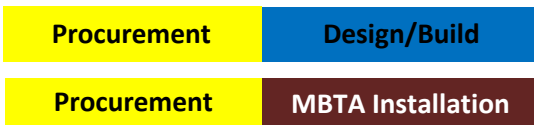




## Red Line/Orange Line Schedule – Signals Upgrades



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: \$ 222,285,778

Carbuilder Percent Complete: 24.45%



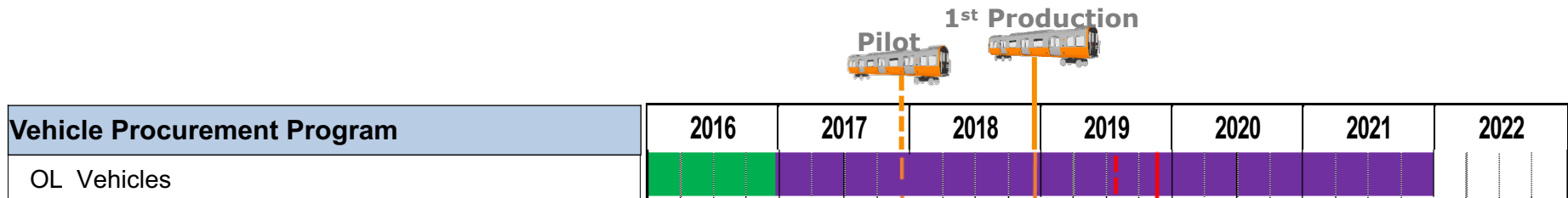
- Replace 218 Red Line cars
- 34 new cars
- Total = 252 vehicles



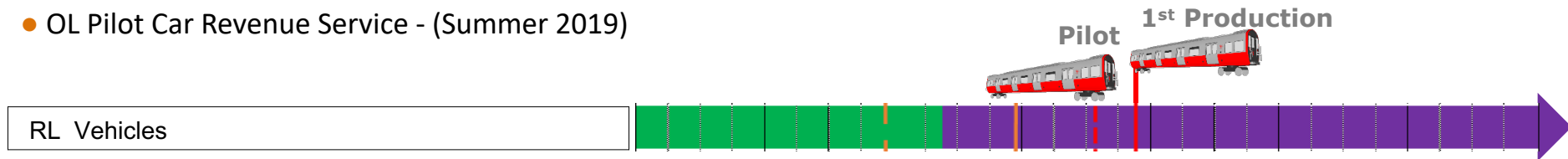
- Replace 120 Orange Line cars
- 32 new cars
- Total = 152 vehicles



## Vehicle Procurement Project Status – Current/Look Ahead

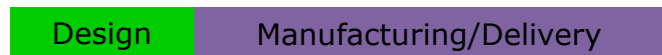


- OL Production Delivery from Springfield Facility Continuing - (started December 2018)
- OL Production Acceptance Testing Continuing - (started January 2019)
- OL Pilot Car Revenue Service - (Summer 2019)



- 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

The project team recently presented its new Orange Line Vehicle Simulator to MBTA and DPU officials. The simulator is located at the MBTA's Training Facility that is currently being renovated to provide state of the art training opportunities for MBTA staff.

The Red Line Vehicle Simulator is currently being assembled. Both simulators include a full-size operator cab with controls that are identical to those on the actual vehicle.





## Red Line Vehicle Procurement Project Status

The project team recently completed a vehicle-level inspection of the first Married Pair of Red Line pilot cars in Changchun, China.

The second Married Pair of Red Line pilot cars is currently in a climate chamber for HVAC qualification testing. This testing will take at least one more month to complete and it is a necessary step to ensure MBTA's passengers are comfortable during any environmental conditions.

The first run of production car shells is currently being fabricated in Changchun. The shells will then be shipped to Springfield for final assembly.







## Production Vehicle Final Assembly – Springfield MA

The Springfield facility recently delivered Married Pair 6 to Wellington carhouse for conditional acceptance. The facility will deliver Married Pair 7 before the end of April.

Springfield continues to improve on its manufacturing processes and is steadily increasing its 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

Projected: 05/10/19 \*

Construction Budget: \$17,977,777

Construction Expenditures to Date: \$12,379,984

Construction Percent Complete: 88%

\* Extended due to additional disposal of site material

Tracks 33-38 North Side – 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

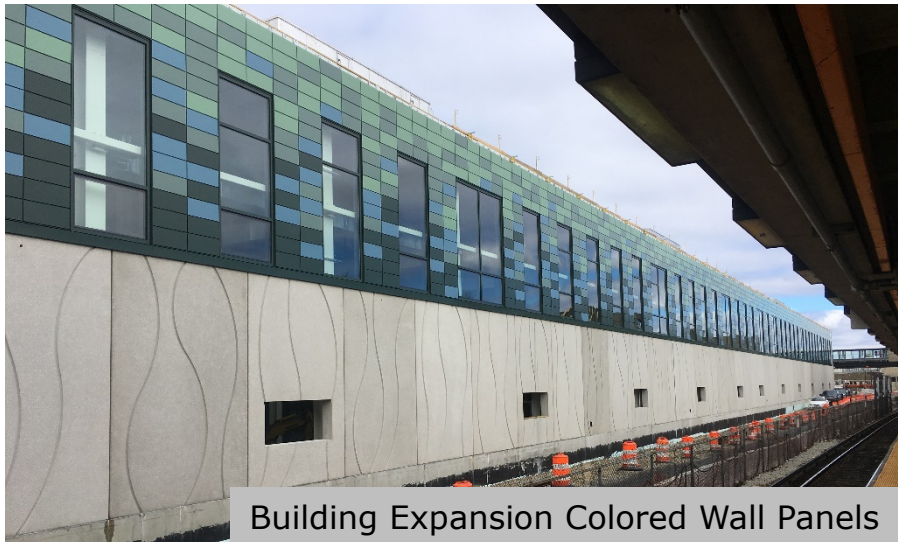
Construction Expenditures to Date: \$33,551,850

Construction Percent Complete: 51%

\* Adjusted to account for scope added to the contract.



Building Expansion Pile Caps for Track Beam



Building Expansion Colored Wall Panels



## 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: 6%

Performing Test Pits







## 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: 54%

\* Working with Contractor to mitigate delay.

Loading Track - Starting to lay insulators & third rail



Yard 61 - VTF Erecting Steel





## 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%



Demolition for Substation, Generator, and Ductwork



Helical Piles Completed at Parts & Storage Building



## 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
- Central Operations Office established in Dorchester
- Baseline Schedule accepted
- Two technical workshops held with the Major Equipment Supplier
- Over-the-Shoulder reviews for package 1 of the Preliminary design are ongoing
- Continue development of the preliminary design

### Red Line

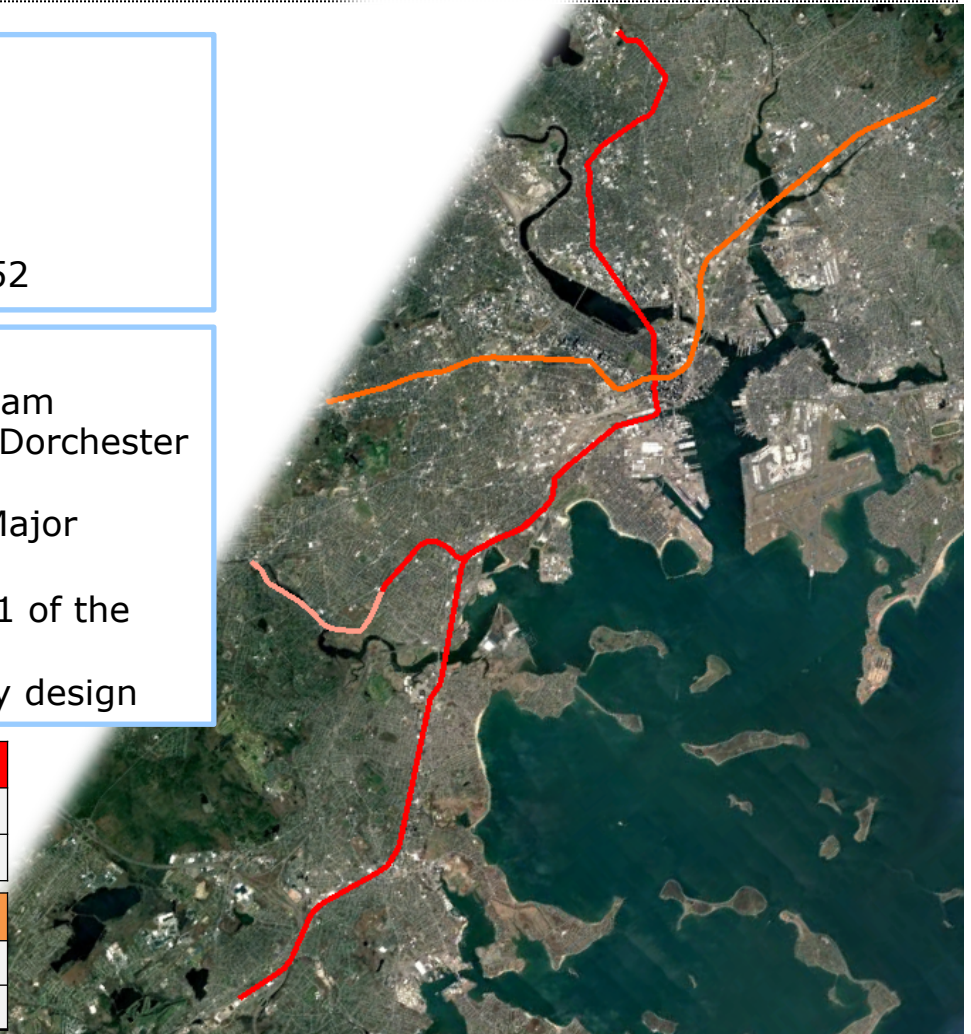
RL Signaling and Train Control System Upgrade

RL Columbia Junction Phase II

### Orange Line

OL Signaling and Train Control System Upgrade

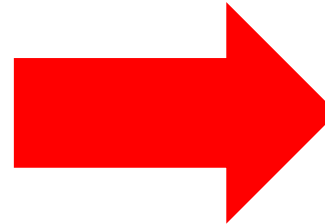
OL South West Corridor Wayside Signal Replacement







## Preparation for Signals Upgrades – Alewife Bungalow





## 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) **(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)**

