



**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**

**November 5, 2018**



## 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 current rates.



## Red Line/Orange Line Improvement Program

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Red Line

Orange Line

**Total \$1,982.03M**

NEW VEHICLE PROCUREMENT PROGRAM \$1,009.00M

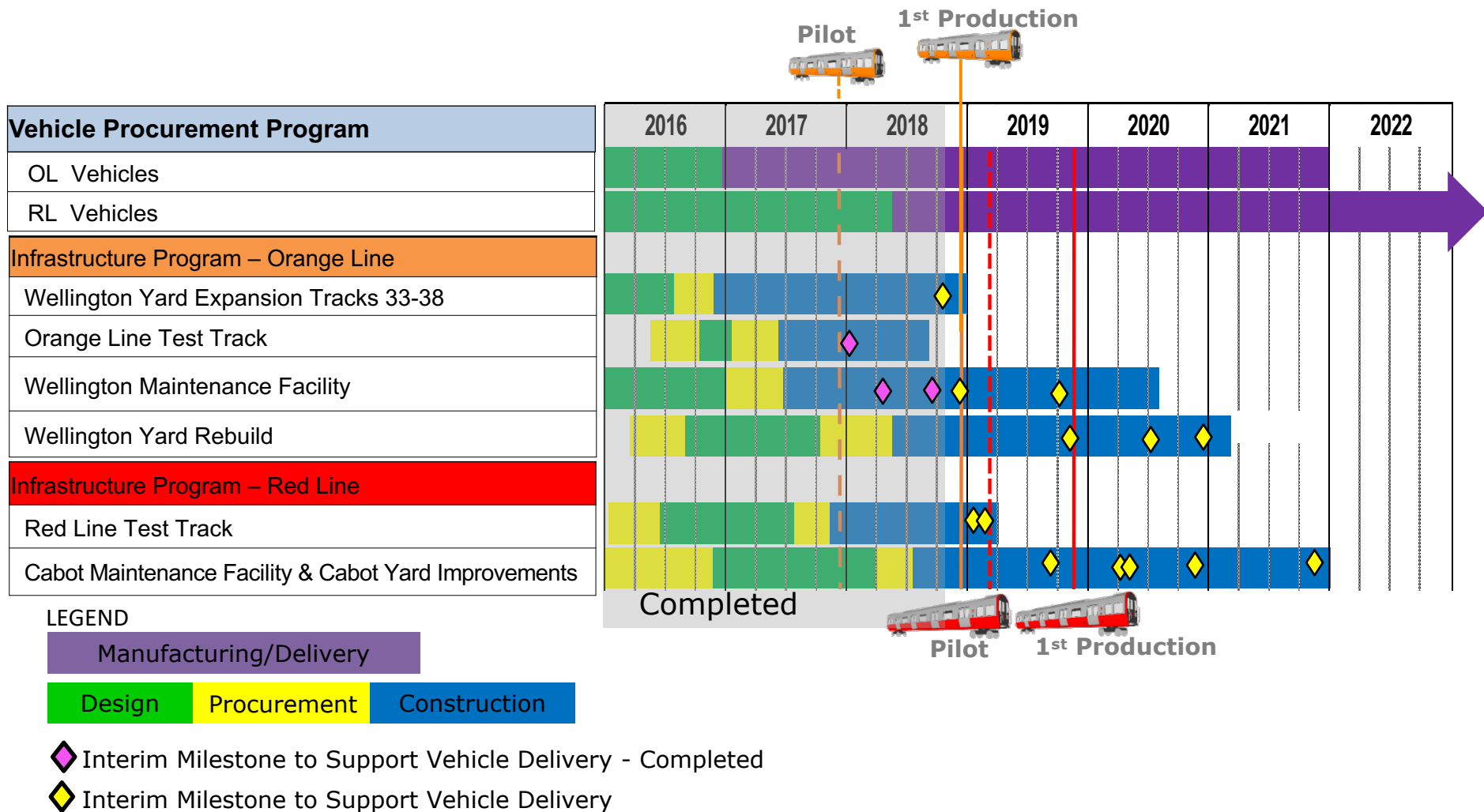
INFRASTRUCTURE IMPROVEMENTS PROGRAM \$470.36M

SIGNALS UPGRADE PROJECTS \$350.95M

STATE OF GOOD REPAIR PROJECTS \$151.72M

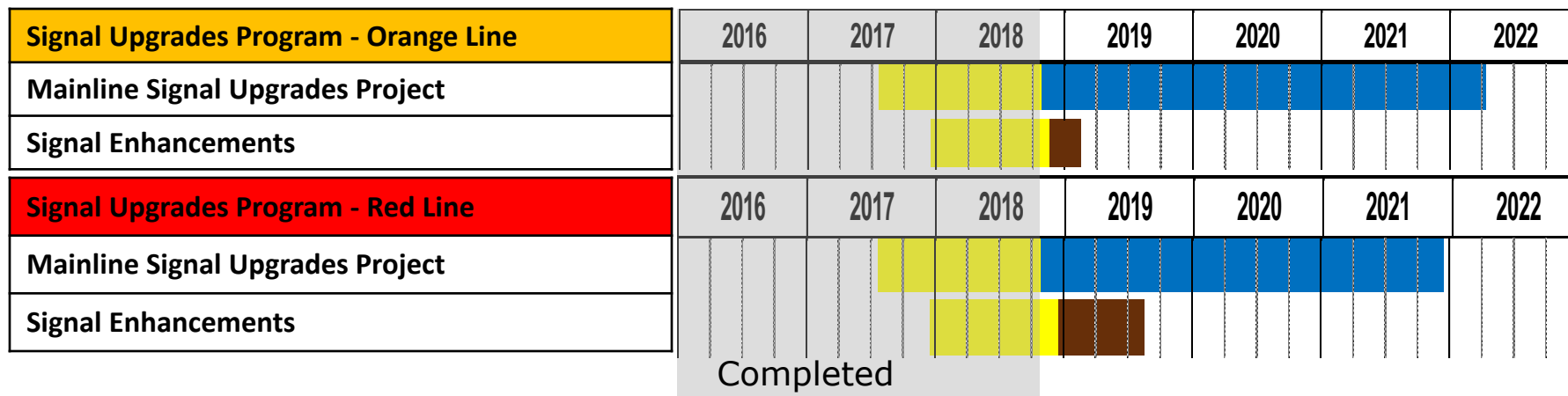


## Red Line and Orange Line Schedule by Project





## Red Line/Orange Line Schedule – Signals Upgrades



### LEGEND

Procurement	Design/Build
Procurement	MBTA Installation



## New Vehicle Procurement Program

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### **New Vehicle Procurement Program**

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

Expenditure to date: \$ 191,261,768

Carbuilder Percent Complete: 18.94%



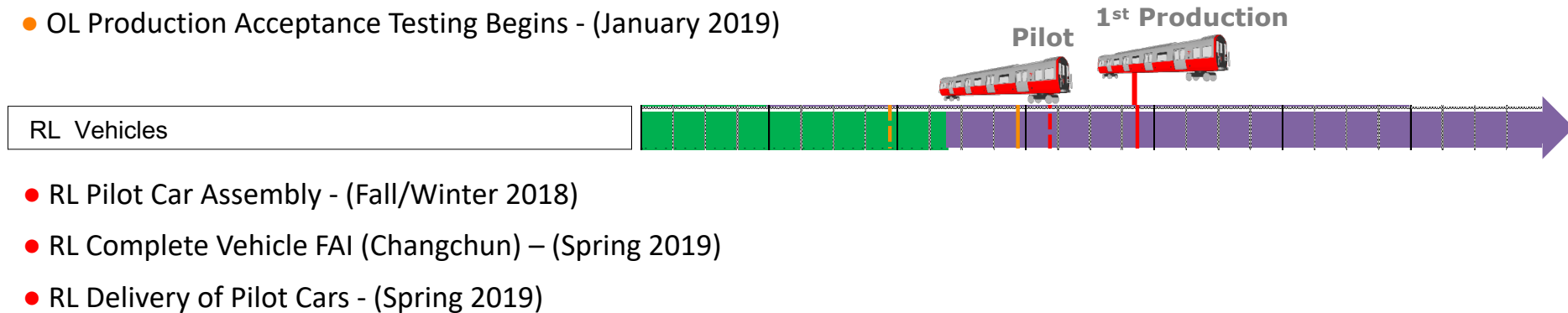
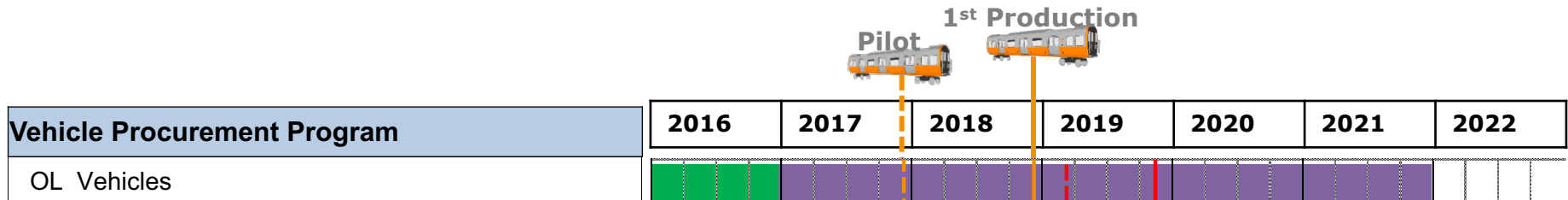
- Replace 218 Red Line cars
- 34 new cars
- Total = 252 vehicles



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



## Vehicle Procurement Project Status – Current/Look Ahead



### LEGEND





## Orange Line Vehicle Procurement Project Status

The Orange Line Pilot Cars are currently undergoing performance testing simulating a fully loaded train. For this testing, sandbags are used to replicate AW3 loading.

AW3 is defined as a car with a full seated passenger load, as well as the weight of standing passengers at 1.5 square feet of floor space per passenger. Each car is loaded with over 700 sandbags, each weighing 50 lbs, for a total simulated passenger weight of 35,000 lbs.

The cars then undergo testing at various speeds to measure the performance of the propulsion and brake systems to ensure that acceleration and braking rates are met under their fully loaded condition.





## Red Line Vehicle Procurement Project Status

The first of the Red Line Pilot Carshells is nearing completion. Following inspection, the shells will progress to assembly in preparation for testing and subsequent shipment.

The completed Red Line Pilot Cars will arrive from Changchun in the Spring of 2019.



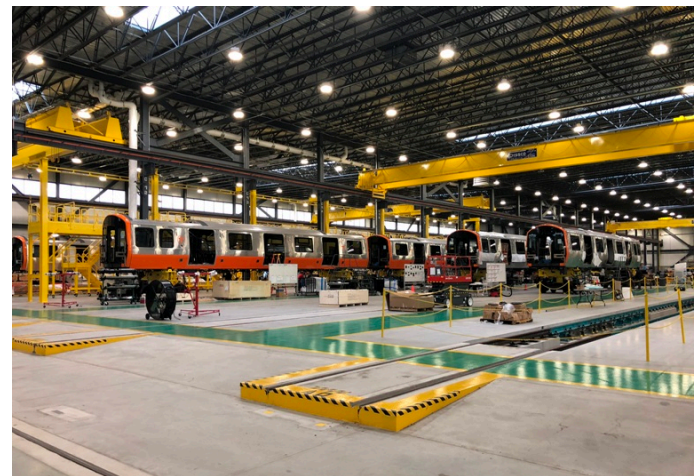


## Production Vehicle Final Assembly – Springfield MA

Final assembly on the first four production cars is continuing in preparation for pre-acceptance testing.

The Orange Line Production Cars are scheduled for delivery at the end of the year.

An additional 12 carshells, which shipped from Changchun, China on September 23, 2018, are scheduled to arrive in Springfield in early December 2018.

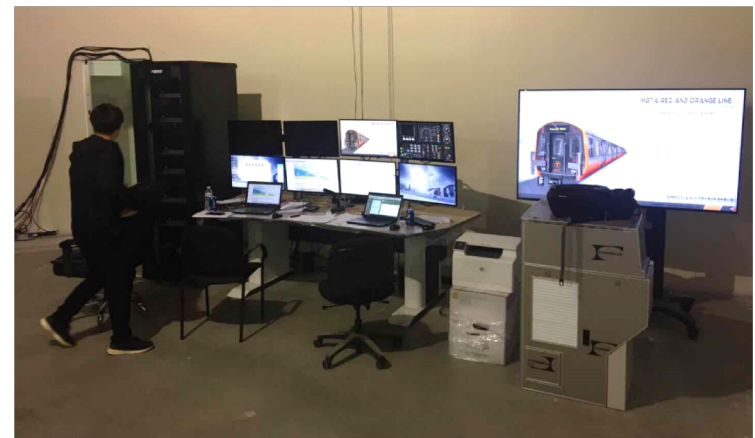
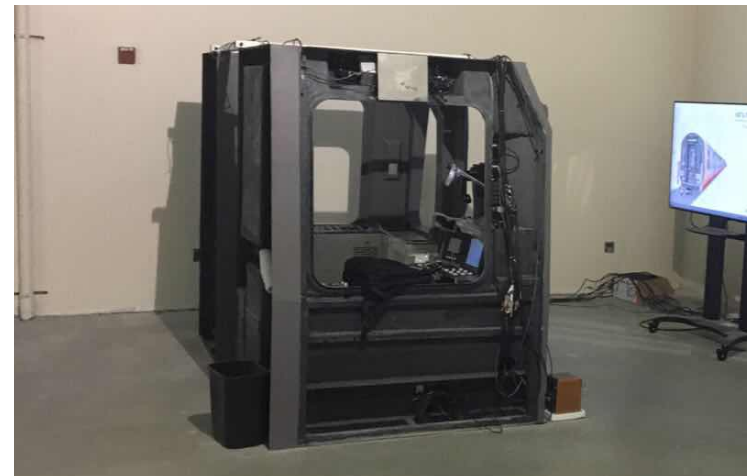




## Training Simulators – Boston MA

CRRC is beginning the assemble of one of the two training simulators, which was included as part of the vehicle procurement. These simulators will feature a full size cab which is identical to the Orange and Red Line vehicle's cab. By the use of a control station, MBTA instructors will be able to replicate real life scenarios based on the actual infrastructure of each line.

The simulators will be located in Charlestown in the old money room.





## 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: 03/25/19\*

Construction Budget: \$17,977,777

Construction Expenditures to Date: \$8,932,103

Construction Percent Complete: 70%

\*Working with contractor to improve upon projected date.





## Orange Line Projects: Orange Line Test Track

### **LM Heavy**

Construction NTP: 06/20/17

Construction Substantial Completion: 8/29/18

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



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## Orange Line Projects: Wellington Maintenance Facility

### **Barletta Heavy Division**

Construction NTP: 06/30/17

Construction Substantial Completion:

Contractual: 08/04/20

Projected: 08/04/20

Construction Budget: \$72,582,000

Construction Expenditures to Date: \$17,283,335

Construction Percent Complete: 34%

Rebar for Hoists



Facility Building Expansion Steel Installation

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## Orange Line Projects: Wellington Yard Rebuild

### **Barletta Heavy Division**

Construction NTP: 05/31/18

Construction Substantial Completion:

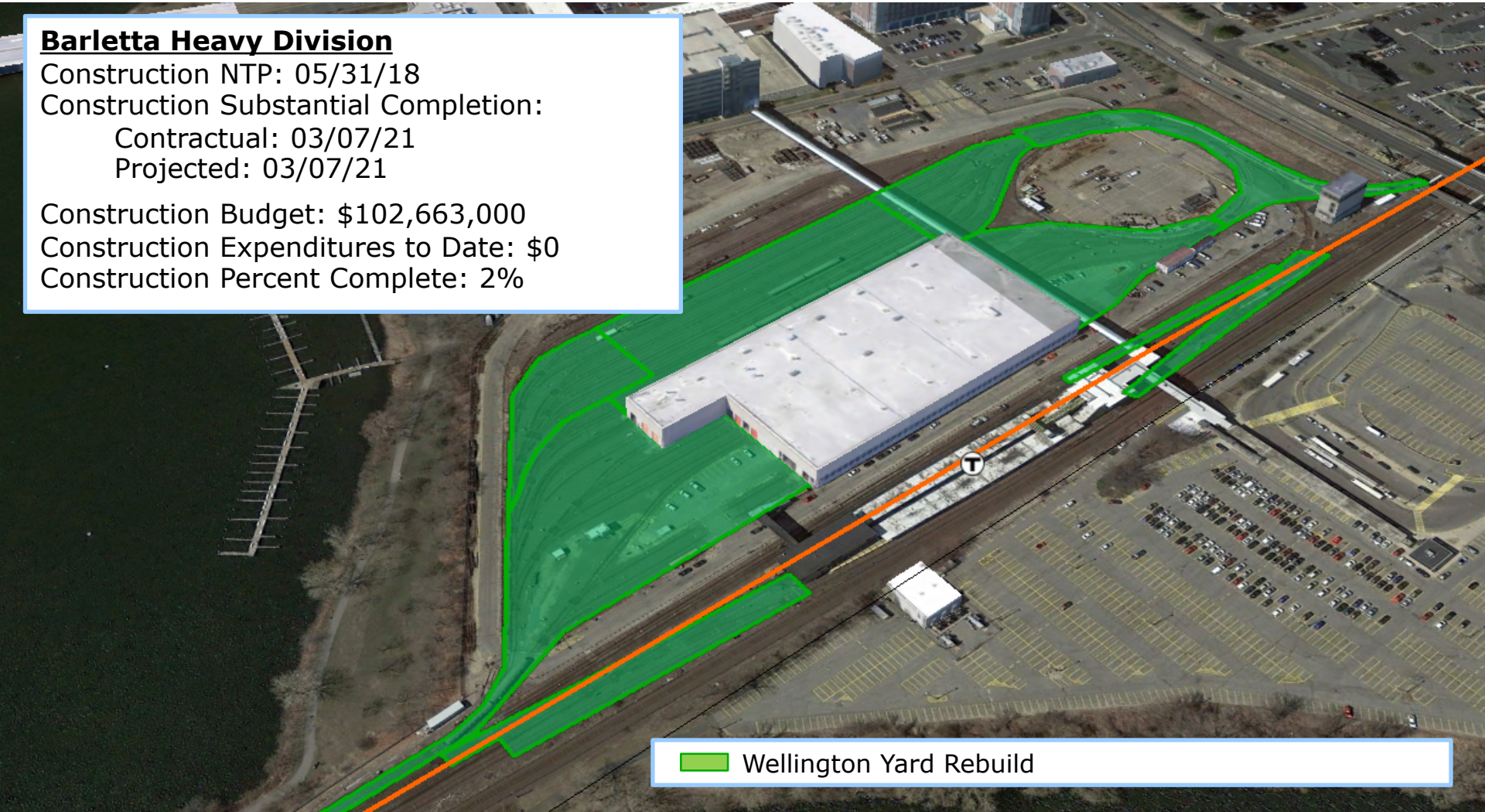
Contractual: 03/07/21

Projected: 03/07/21

Construction Budget: \$102,663,000

Construction Expenditures to Date: \$0

Construction Percent Complete: 2%





## Red Line Projects: Red Line Test Track

### **Barletta Heavy Division**

Construction NTP: 11/17/17

Construction Substantial Completion:

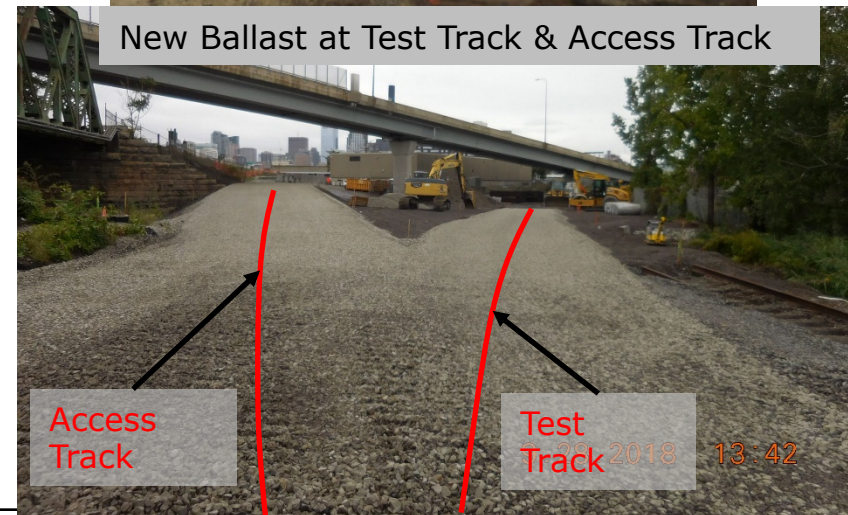
Contractual: 04/07/19

Projected: 04/07/19

Construction Budget: \$21,269,000

Construction Expenditures to Date: \$432,705

Construction Percent Complete: 34%



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## Red Line Projects: Cabot Yard & Maintenance Facility Improvements

### **LM Heavy/Lane Construction**

Construction NTP: 08/02/18

Construction Substantial Completion:

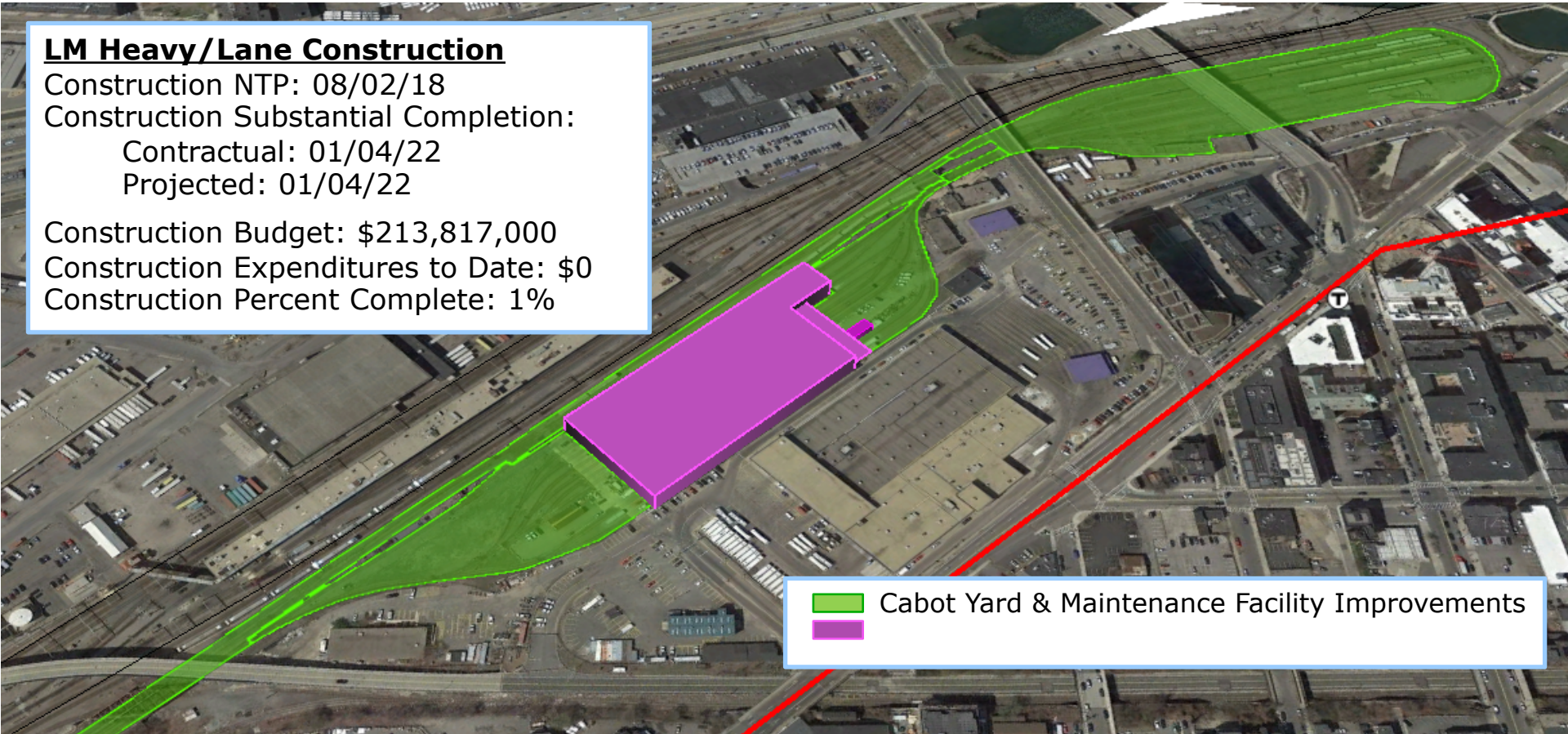
Contractual: 01/04/22

Projected: 01/04/22

Construction Budget: \$213,817,000

Construction Expenditures to Date: \$0

Construction Percent Complete: 1%





## Signals Upgrade Projects Status

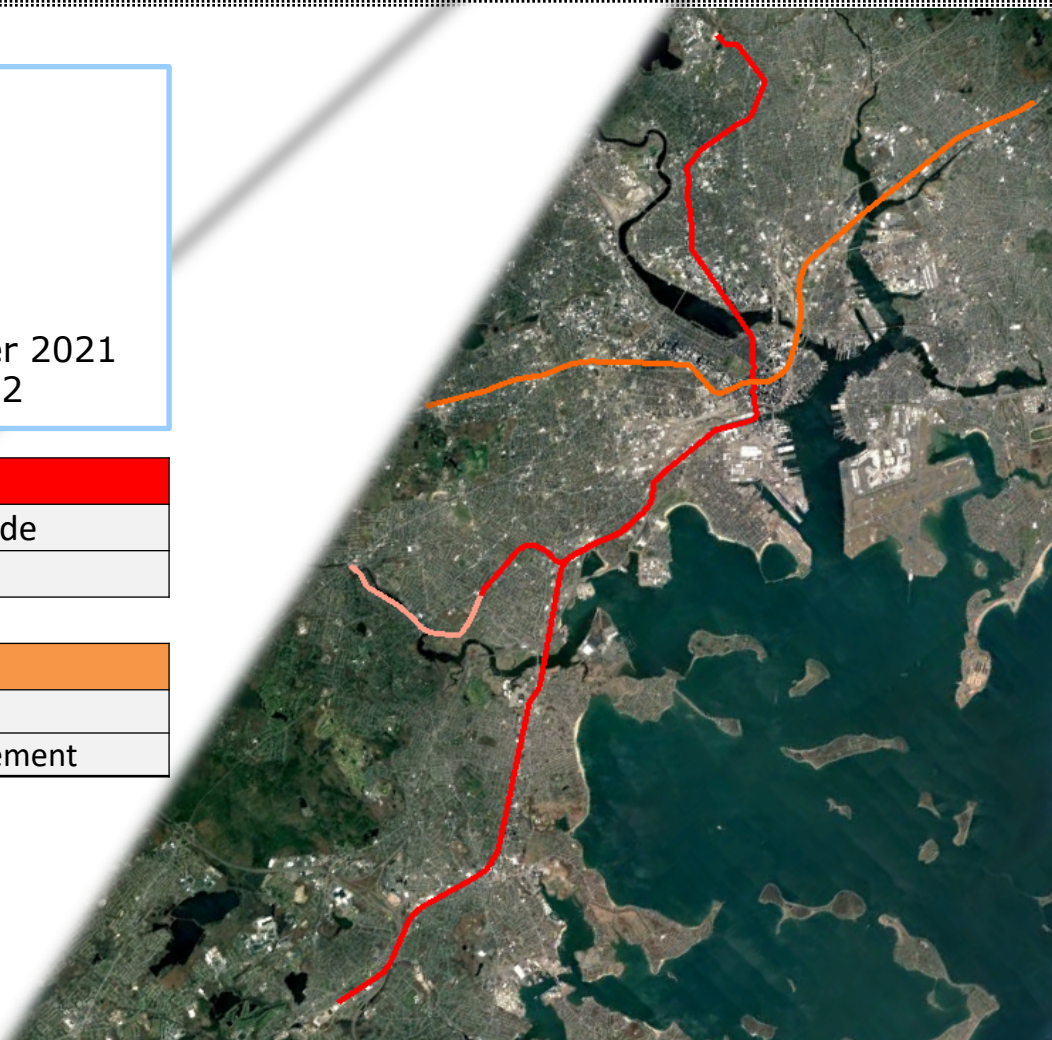
RFP Issued – 02/12/18  
Proposer Meetings – 05/30/18  
Proposals Due – 08/20/18  
Public Price Opening – 09/20/18  
NOA – October 2018  
NTP – November 2018  
Substantial Completion RL – December 2021  
Substantial Completion OL – April 2022

### 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 – 11/30/18

#### **Longfellow Approach – Interim Repairs**

Substantial Completion – 06/31/19

### **Red Line**

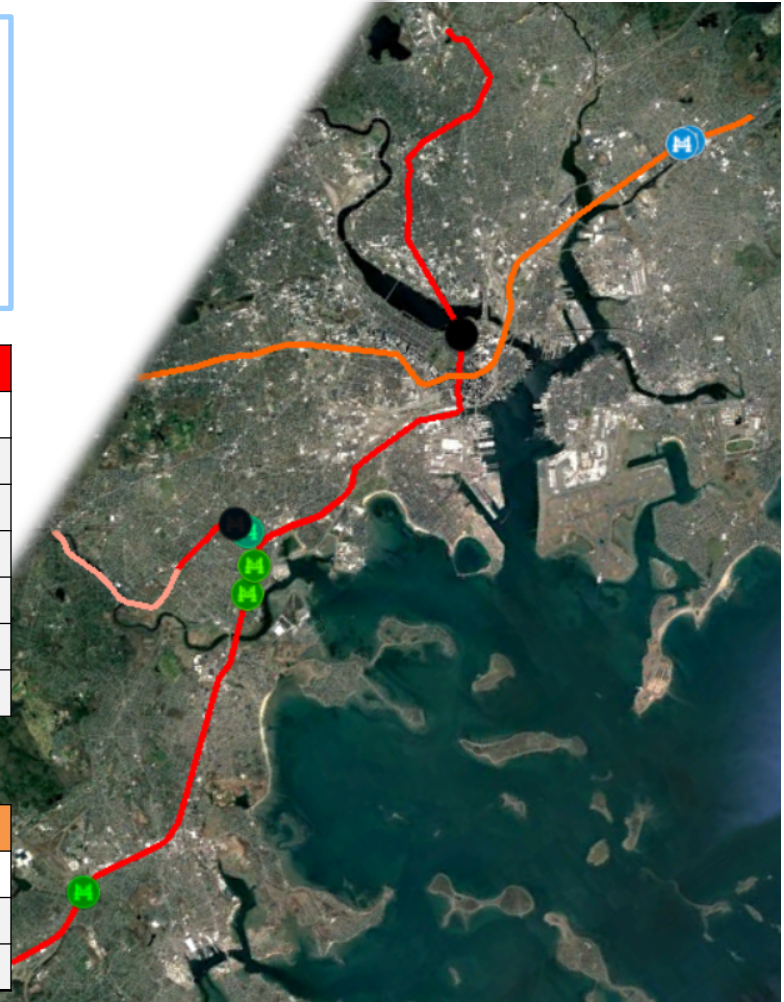
#### **Bridge Repairs**

- 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 PROGRESS)**
- 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: Monthly Highlight

- New Bus Operations CDL Training Lot at Wellington Yard

