



**Massachusetts Bay
Transportation Authority**

**MBTA Contract R19PS03
Program Management/Construction Management
Amendment Nos. 3 and 4**

Red Line/Orange Line Improvements Program

December 12, 2016

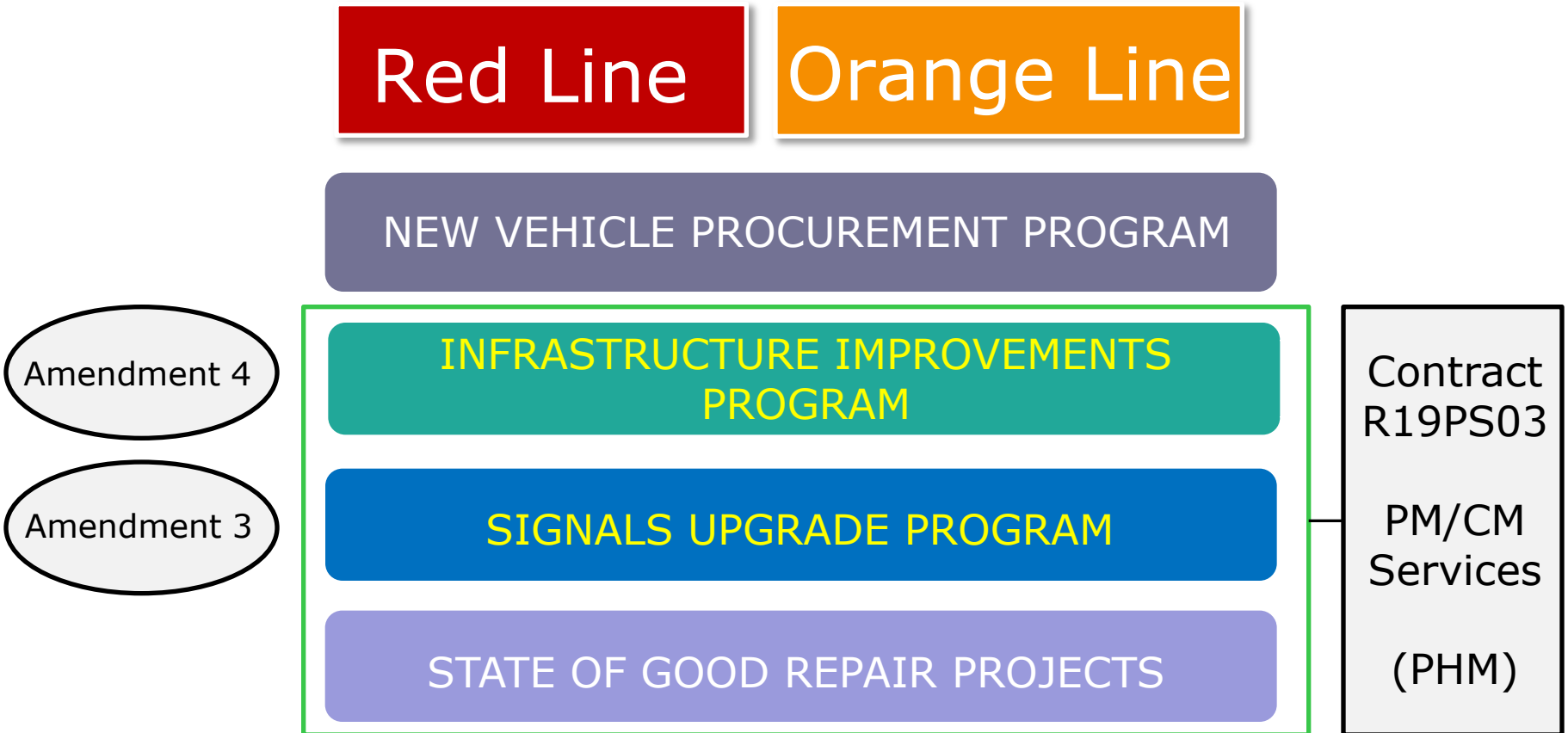


OVERVIEW

- Today's board action will allow the continuation of Program Management / Construction Management (PM/CM) services provided by Patrick Engineering and Mott MacDonald JV (PHM) for the Red Line/Orange Line Infrastructure Improvements Program in support of the new vehicles. This action will provide program implementation services through December 31, 2017 which coincides with the delivery of the Orange Line pilot car.
- Today's board action will also allow for the advancement of the specific projects in support of the \$352M Red Line and Orange Line Signal Upgrades Program.



Red Line/Orange Line Improvement Program





New vehicles program schedule: Notice to Proceed issued 12/18/14

RED LINE

Pilot Car
March 18, 2019



First Production Vehicle
Nov 18, 2019



Last Production Vehicle
Jun 18, 2022

ORANGE LINE

Pilot Car
Dec 18, 2017



First Production Vehicle
Dec 18, 2018



Last Production Vehicle
Dec 18, 2022



Summary of MBTA Contract R19PS03 with Patrick Mott MacDonald JV (PHM)

Base Contract: PM/CM Services for the Red Line/Orange Line Infrastructure Improvements Program

Base Contract Amount: \$14,386,925

Base Contract Period: 4/7/15 – 4/7/16

Amendment No. 1: No Cost Time Extension from 4/7/16 to 8/30/16

Amendment No. 2: No Cost Time Extension from 8/30/16 to 12/31/17
(coincides with the delivery of the OL Pilot Car)

Amendment No. 3 (Pending): PM/CM Services for Red Line and Orange Line Signal System Upgrades

Amendment No. 3 Amount: \$4,671,744

Amendment No. 4 (Pending): Continuation of PM/CM Services for the Red Line/Orange Line Infrastructure Improvements Program

Amendment No. 4 Amount: \$16,025,486



Signal Upgrade Program

- FY2017 - FY2021 Capital Improvement Program (CIP) authorized funding of \$500M for the Red Line, Orange Line, and Green Line Signal Upgrade Program
- \$352M Authorized for the Red Line and Orange Line Signal Upgrades
- \$8.9M was obligated to PayGo Grant LX1601 for Red Line and Orange Line Signal Upgrade for FY17



PM/CM Scope of Services / Amendment No. 3 Signal Upgrades

The Patrick Mott MacDonald JV (PHM) operates as an extension of MBTA staff and supports the MBTA by providing Program Management/Construction Management (PM/CM) services. Amendment 3 allows for PHM to provide the following scope of services:

- Management, Coordination and Progress Reporting
- Conceptual Design Document
- Strategic Program Plan
 - Scope, Cost, Schedule and Risk Definition
- Develop and Issue Signal Upgrade RFP
- Design Reviews and Coordination
- Construction Planning
 - Interface Management/Constructability
- Cost and schedule reporting (PMIS)
- Monitor and report on design and construction schedules



Amendment No. 3 Signal Upgrade PM/CM Scope of Services

The signal upgrade scope of services applies to the following projects:

Red Line

- Red Line Digital Audio Frequency Track Circuits Upgrade
- Red Line Cabot Yard Signal Replacement
- Red Line 60 Hz Track Circuit Upgrade to 100 Hz
- Red Line Ashmont Interlocking Upgrade
- Columbia Junction Phase 2
- Red Line Headway Adjustment

Orange Line

- Orange Line Digital Audio Frequency Track Circuits Upgrade
- Orange Line Wellington Yard Signal Replacement Project
- Orange Line 60 Hz Track Circuit Upgrade to 100 Hz
- Orange Line Southwest Corridor Track Support
- Orange Line Test Track Third Rail Heater
- Orange Line Headway Adjustment



PM/CM Scope of Services / Amendment No. 4 Continuation of Services

The Patrick Mott MacDonald JV (PHM) operates as an extension of MBTA staff and supports the MBTA by providing Program Management/Construction Management (PM/CM) services. Amendment 4 allows for continuation of these services.

Base Contract Initial Phase - Program Definition

- Type Studies
- Strategic Program Plan
 - Scope, Cost, Schedule and Risk Definition
- Design Reviews and Coordination
- Construction Planning
 - Interface Management/
Constructability
- Cost and schedule reporting (PMIS)
- Monitor and report on design construction schedules.

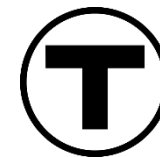
Amendment #4 Implementation Phase

- Continuation of Design Management
- Procure Designers of Record & Contactors
- Prepare & Complete Bid Documents
- Advertise and Bid Construction Packages
- Perform CM Services
- Monitor and Report on Design and Construction Schedules.

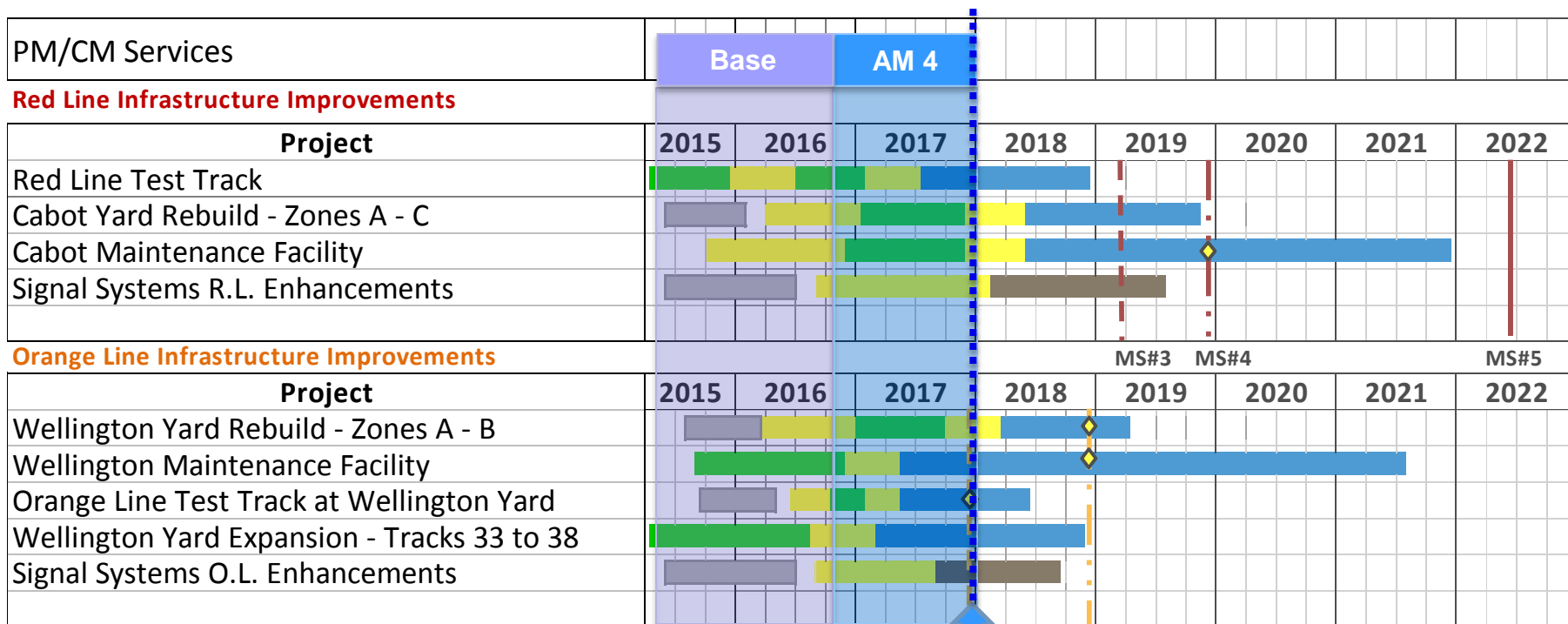


Amendment No. 4 Continuation of PM/CM Services

Red Line Orange Line Infrastructure Improvement Projects (Cost in Millions)	FY2017 Obligation	FY2018 Obligation	FY2019 Obligation	FY2020 Obligation	TOTAL Obligation	Anticipated Construction Advertisement Date
Orange Line Test Track at Wellington Yard	\$6.38				\$6.38	Feb. 2017
Wellington Yard Expansion-Tracks 33 to 38	\$26.00				\$26.00	✓ Oct. 2016
Wellington Maintenance Facility	\$104.09				\$104.09	Mar. 2017
Wellington Yard-Zones A-B	\$11.84	\$38.32			\$50.16	Oct. 2017
Red Line Test Track	\$5.06	\$16.01			\$21.07	May 2017
Cabot Maintenance Facility	\$5.78	\$84.19			\$89.97	Dec. 2017
Cabot Yard Rebuild-Zones A-C	\$9.24	\$46.09			\$55.33	Dec. 2017
Signal Systems RL & OL Enhancements	\$3.65				\$3.65	Feb. 2017
RL/OL Program Level (PM/CM, OR & Project Admin.)	✓\$38.68	\$17.35	\$14.96		\$70.99	
Unallocated Contingency		\$3.0	\$37.10	\$30.88	\$70.98	
Total MassDOT ISA Approved Funding	\$210.72				\$498.62	
Additional MassDOT ISA Funding Required		\$204.96	\$52.06	\$30.88		



Red Line/Orange Line Improvement Program - Schedule



Orange Line Pilot Vehicle Deliver

- Design Activities
- Construction Activities
- PHM Type Studies
- Work by MBTA
- Designer / GC Procurement
- Interim Milestone to Support Vehicle Delivery

MS#6



Request of the Fiscal and Management Control Board

Staff request that the Fiscal and Management Control Board authorize the MBTA Acting General Manager to award and execute **Amendment #3** to Contract R19PS03 – PM/CM Services for the Red Line/Orange Line Infrastructure Improvements Program (Signal Upgrades) with Patrick Engineering and Mott MacDonald JV (PHM) for an amount not to exceed \$4,671,744.



Request of the Fiscal and Management Control Board

Staff request that the Fiscal and Management Control Board authorize the MBTA Acting General Manager to award and execute **Amendment #4** to Contract R19PS03 – PM/CM Services for the Red Line/Orange Line Infrastructure Improvements Program (Continuation of Services) with Patrick Engineering and Mott MacDonald JV (PHM) for an amount not to exceed \$16,025,486.



**Massachusetts Bay
Transportation Authority**

APPENDIX

MBTA Contract R19PS03

Program Management/Construction Management

Red Line/Orange Line Improvements Program

December 12, 2016



Back-Up

RL/OL INFRASTRUCTURE IMPROVEMENT PROGRAMS	Est. Program Cost (\$M)	PM/CM Services				ACTUAL AND PROJECTED PM/CM CONSULTANT COST			
		Initial Proposed Fee	Independent Cost Estimate	Contract/ Amend. Amount	Duration	FY15/16 (Actual)	FY17	FY18	TOTAL
RL/OL Infra. Imps for New Vehicles (Base Contract)	\$ 498.6	\$ 16,423,608	\$ 13,900,738	\$ 14,386,925	4/7/15 - 4/7/16	\$ 9,034,217	\$ 5,352,708		\$ 30,412,411
RL/OL Infra. Imps for New Vehicles (Amendment 4)		\$ 18,339,383	\$ 15,865,207	\$ 16,025,486	Through 12/31/17		\$ 8,835,769	\$ 7,189,717	
RL/OL Infra. Imps for Signal Upgrades (Amendment 3)	\$ 406.4	\$ 5,031,587	\$ 4,472,993	\$ 4,671,744	Through 06/30/17	\$ -	\$ 4,671,744		\$ 4,671,744
RL/OL SGR Infra. Imps	\$ 718.9	TBD	TBD	TBD					
Total	\$ 1,623.9	\$ 39,794,578	\$ 34,238,938	\$ 35,084,155		\$ 9,034,217	\$ 18,860,221	\$ 7,189,717	\$ 35,084,155