



# **Massachusetts Bay Transportation Authority**

---

## **Commuter Rail Positive Train Control (PTC)**

### **Program Update and Replacement Service Discussion**

June 26, 2017

## Regulatory Schedule

- Legal deadline for PTC implementation is December 31, 2018.
- DOT/FRA can grant an additional 24 months (to December 31, 2020) to have PTC fully operational provided the MBTA meets certain criteria, including the installation of all PTC hardware by September 2018.
- A PTC Implementation Plan has been submitted to the FRA which provides for installation of hardware on all Commuter Rail lines and two pilot lines (Stoughton Line and Lowell Line) by the end of 2018, with full PTC implementation by December 31, 2020.
- FRA has the authority to assess penalties (up to \$105K/day) if new statutory deadlines are not met.

## Program Budget

Item	Value
Ansaldo Contract (*)	\$347,957,134
Keolis Support	\$25,000,000
MBTA / Pan Am Site Prep	\$470,000
MBTA Program Staff Costs	\$4,600,000
MBTA Spectrum Procurement	\$240,000
MBTA Spectrum Legal Services	\$50,000
MBTA Program Consultant Services (Initial)	\$10,000,000
MBTA Program Consultant Services (Future)	\$15,000,000
Other	\$3,500,000
<b>Total Program Budget</b>	<b>\$397,317,134</b>
Contingency (13.2%)(*)	\$52,335,762
<b>Total Program Cost</b>	<b>\$459,152,896</b>

\* Includes \$9.5M Acceleration Change Order to Ansaldo Contract

## PTC Program Scope

- Design, installation, and implementation of PTC will impact every segment of the Commuter Rail system
- Installation work will be performed on every Commuter Rail line, dispatch center, locomotive, and control car, impacting operations systemwide.



## **PTC Implementation Plan (through 12/31/2020)**

- Spectrum acquisition through PTC 220 LCC
- Field Installation Work
  - ~ 180 PTC Antennas
  - ~ 207 PTC Wayside Installations
  - ~ 4500 PTC Transponders
  - Optical Fiber installation
    - ~ 230 miles new pole route
    - ~ 50 miles restored/existing pole route
- PTC Vehicle Installations
  - 100 MBTA Locomotives + 25 Pan Am Locomotives
  - 114 MBTA Cab cars
- PTC Training Program (931 employees)
- Revenue Service Demonstration for two Pilot Lines:
  - Stoughton Line and Lowell Line
- Dispatch Center Upgrades: CROCC and CTEC
- Interoperability ( CSX, AMTRAK, Pan Am)
- Revenue Service Demonstration for all lines
- Safety Certification

## PTC Milestones/ Progress

Deadline	Segment	Activity	Start	Finish	Planned % Complete	Actual % Complete	Status
30 Sept 2018  Deadline for extension of FRA mandate	Wayside/Comms	Detail Design	July 16	June 18	72%	67%	
		Field Install	March 17	Sept 18	4%	6%	
	Vehicle	Detail Design	July 16	Sept 17	78%	69%	
		Field Install	March 17	Sept 18	10%	7%	
	Pilot Lines (x2)	Integration	October 17	June 18	0%	0%	
		Certification	July 18	Sept 18	0%	0%	
31 Aug 2020  Substantial completion	System	Local Testing	October 18	March 20	0%	0%	
		Line Testing	January 19	June 20	0%	0%	
		Cutover	November 19	August 20	0%	0%	

## Installation Activities

- Pole and antenna mast installation
- Fiber Optic cable installation
- Site preparation and minor civil work (foundations and platform for houses)
- New house installation (pre-installed equipment)
- Field wiring and equipment installation in existing houses



**Wood Pole Installation**



**Overhead F.O. Installation**



**Antenna Base Installation**



**Site Preparation**

## Next Steps

- Obtain TIFIA/RRIF Loans (anticipated by August 2017)
- Continue to secure environmental clearance to support installation activities.
- Finalize Swap Spectrum Agreements and file with FCC (anticipated by August 2017)
- Continue Meetings with FRA and FTA
- Continue Interoperability Meetings with tenant railroads (Amtrak, CSX and Pan Am)
- Complete Design
- Continue with Vehicle Equipment Installations
- Continue Wayside Installation (install antenna, fiber optic, transponders, signal system interfaces)
- Continue Outreach for Weekend Shutdowns



## Schedule Update – Required Weekend Shutdowns in 2017 (to meet FRA requirements to obtain extension to 2020)

		2017																																	
	3-Jun	10-Jun	17-Jun	24-Jun	1-Jul	8-Jul	15-Jul	22-Jul	29-Jul	5-Aug	12-Aug	19-Aug	26-Aug	2-Sep	9-Sep	16-Sep	23-Sep	30-Sep	7-Oct	14-Oct	21-Oct	28-Oct	4-Nov	11-Nov	18-Nov	25-Nov	2-Dec	9-Dec	16-Dec	23-Dec					
<b>Commuter Rail Line</b>					<b>PTC Weekend Shutdowns</b>																														
<b>Newburyport / Rockport</b>	<b>No Impact to Weekend Service</b>						*	*	*	*																									
<b>Lowell (including Wildcat)</b>																																			
<b>Needham</b>																																			
<b>Haverhill</b>																																			
<b>Fairmount</b>																																			

\* Coincides with already planned shutdown for Beverly Drawbridge replacement

- Overlap of lines denotes contingency for early start/late finish. It is expected that **no more than two lines will be shut down on any given weekend.**
- 2018 PTC weekend shutdowns will commence in Spring of 2018 and will impact the Franklin, Fitchburg, and Worcester commuter rail lines.
- No weekend shutdowns are required on the Greenbush, Middleborough, Providence/Stoughton and Kingston/Plymouth lines.

## **Newburyport/Rockport Replacement Bus Shuttle Service**

- In response to customer, community and local and state elected official feedback and outreach, the MBTA has committed to providing:
  - Weekday service to each of the commuter rail stations along the Newburyport/Rockport lines, connecting to the commuter rail train at Salem Station.
  - Weekend service to each of the commuter rail stations along the Newburyport/Rockport lines, including Chelsea, Lynn and Swampscott, connecting at North Station.

## PTC 2017 Weekend Installation Schedule & Replacement Bus Shuttle Cost Estimate

Line	No. of Weekends	Dates	Estimated Ridership*	Estimated Cost**
Newburyport/Rockport	13	July 8 to September 30	59K	\$1,028K
Lowell	9	August 5 to October 1	19K	\$371K
Needham	10	Sept 23 to November 26	5K	\$129K
Haverhill	11	September 23 to December 3	24K	\$517K
Fairmount	5	November 24 to December 24	3K	\$170K

*\* Estimated ridership equals total one-way trips for all affected weekends*

*\*\* Estimated cost equals assumed Saturday and Sunday costs multiplied by the number of affected weekends (Note: No Sunday service currently provided on the Needham Line)*

**PTC Cost Estimate: \$2,215,000**

## Discussion

### **Short-Term:**

- PTC Installation:

Should staff consider alternative service to the remaining Commuter Rail lines that require PTC installation.

### **Mid-Term:**

- Replacement Bus Shuttle Service – Policy Development:

MBTA and MassDOT staff are working to develop a Replacement Bus Shuttle Service Policy to present to the Board in the Fall 2017. Once passed, the goal of this policy will be to guide decisions regarding Replacement Bus Shuttle Service for all MBTA and MassDOT related repair and construction.