



Massachusetts Bay Transportation Authority

Commuter Rail Positive Train Control (PTC)

Program Update

October 2, 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 (*)	\$333,105,394
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
Total Program Budget	\$397,317,134
Contingency (16.0%)(*)	\$61,187,502
Total Program Cost	\$459,152,896

* Includes COs 1 - 4

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	
Commuter Rail Line		PTC Weekend Shutdowns																														
Newburyport / Rockport	No Impact to Weekend Service			*	*	*	*							E	E	E	E	E														
Lowell (including Wildcat)																																
Needham																																
Haverhill																																
Fairmount													**																		**	**

* Coincides with already planned shutdown for Beverly Drawbridge replacement ** Coincides with already planned Fairmount Line shutdown
E = Early Finish (as compared to prior June 26, 2017 Update)

- Overlap of lines denotes contingency for early start/late finish. It is expected that **no more than two lines would be shut down on any given weekend.**
- Weekend shutdowns for the Franklin, Fitchburg, and Worcester commuter rail lines may commence in 2017 depending on actual completion dates of other lines.
- 2018 PTC weekend shutdowns will commence in Spring of 2018.
- No weekend shutdowns are required on the Greenbush, Middleborough, Providence/Stoughton and Kingston/Plymouth lines.

Installation Activities

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



Wood Pole Installation



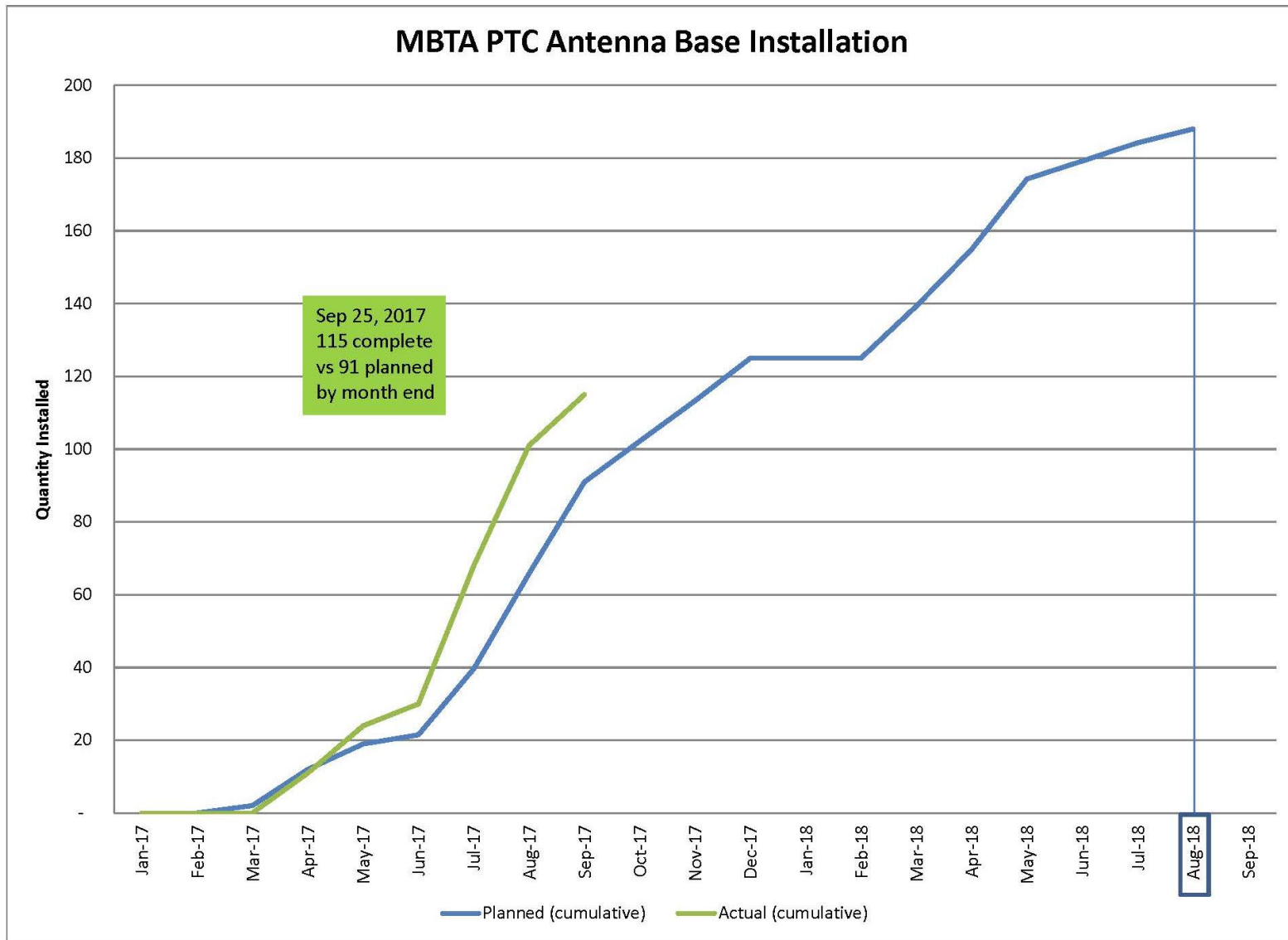
Overhead F.O. Installation

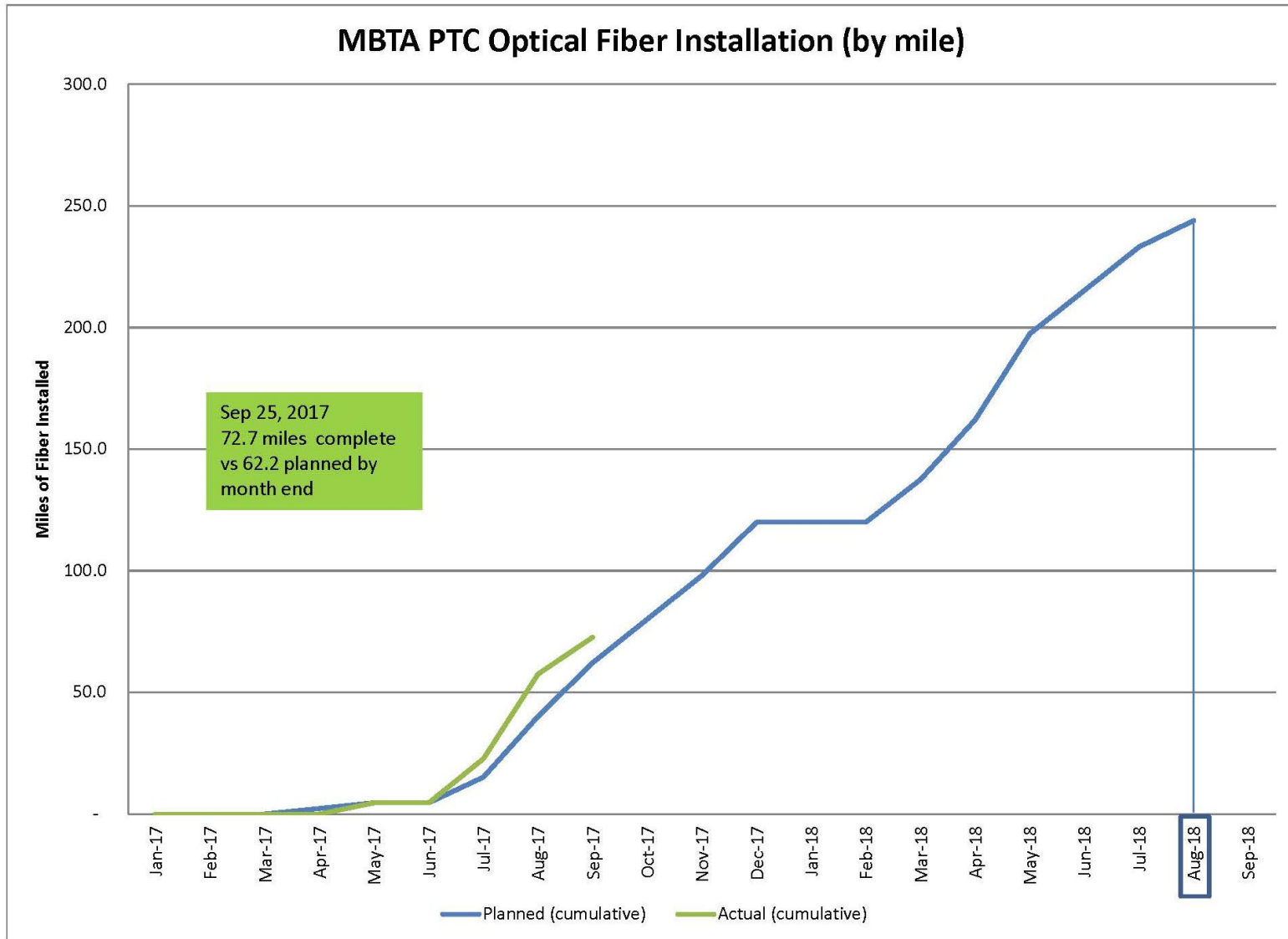


Antenna Base Installation



House Installation



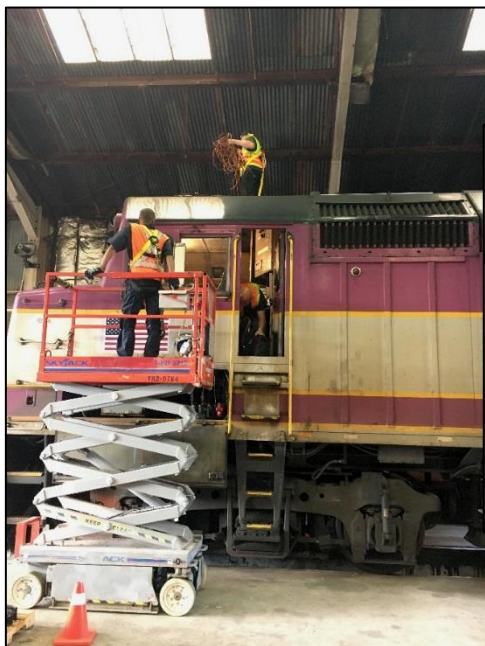


Field Installation Quality Issues

- Examples of QA issues
 - Inadequate separation between new and existing cables
 - New cables in trees, against obstructions, or mounted too low
 - Excessive bends in the new cable
- MBTA QA reports provided to Ansaldo. Issues concerning quality have been raised with Ansaldo at the PTC Steering Committee and meetings with Ansaldo leadership
- Quality workshops held with Ansaldo project staff
- Ansaldo's Mitigation Plan to resolve Quality issues is due by 10/6

Onboard Vehicle Installation Progress

- 39 Locomotives PTC 'Rev 10' Equipped
 - 103 Locomotives in Fleet (38% upgraded)



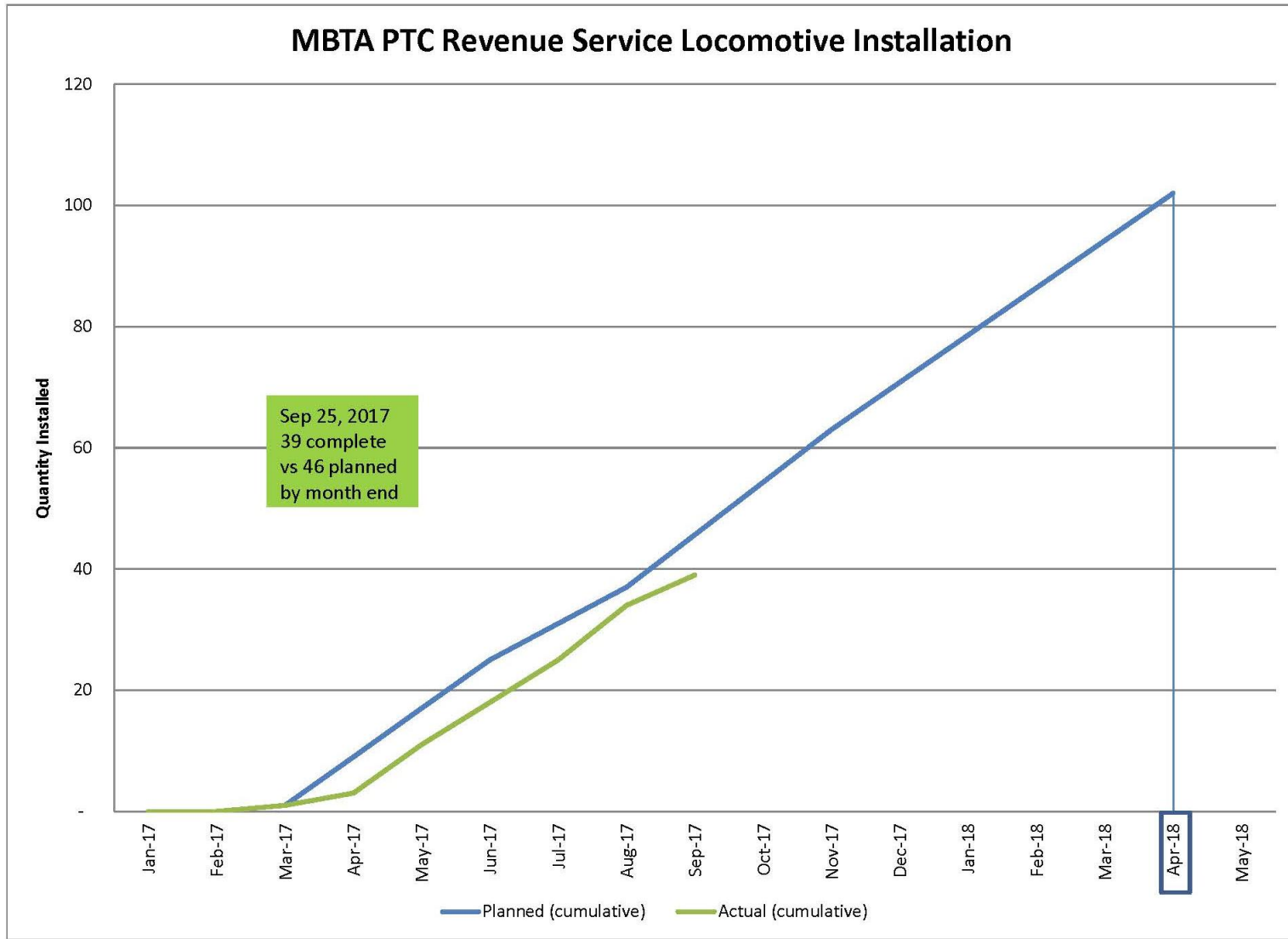
**Rooftop Mounted
Antenna being installed**



Mobile Communications Package



**Rooftop Antenna
installed**



Revenue Service Demonstration (RSD) Testing Application (Pilot Lines)

- On-Site System Component Testing
 - Original Schedule Date October 2017
(New Target - December 2017)
 - On-Site System Component Testing Mitigation
 - 9/28/17 MBTA Executives met with Siemens Corporate Executives and ASTS Management and Project Staff
 - 9/29/17 MBTA Executives had call with ASTS Worldwide CEO
- Forecasted RSD
 - Application for RSD Submittal – October 2018
 - Stoughton Branch – December 2018
 - NHML – December 2018

PTC Safety Plan

- Unofficial Draft Safety Plan received 9/27/17
- Formal 1st Submission due 12/18/17

Radio Spectrum Update

- MBTA and PTC-220 LLC have both signed an agreement which allows for spectrum in sufficient quantity and with performance characteristics that meet necessary requirements for interoperable PTC operation between MBTA, Amtrak and CSX.
- Application filed to FCC for transfer of licenses

Next Steps

- TIFIA/RRIF Loan Agreements to be Finalized
- Continue to secure environmental clearance to support installation activities.
- Continue Meetings with FRA and FTA
- Continue Interoperability Meetings with tenant railroads (Amtrak, CSX and Pan Am)
- Complete Detailed Design
- Continue with Vehicle Equipment Installations
- Monitor Development and Testing of PTC Software
- Initiate Testing on the Stoughton and Lowell Lines
- Continue Wayside Installation (antenna, fiber optic, transponders, signal system interfaces)
- Continue Outreach for Weekend Shutdowns

Recap

- Project is proceeding close to schedule
- Issues with installation quality, software delivery and potential schedule impacts are being addressed
- Regularly scheduled meetings are being held with Ansaldo corporate leadership to address field quality issues and potential schedule impact
- Regularly scheduled meetings are being held with Ansaldo and Siemens executives to address software delivery issues and testing schedule