



**Massachusetts Bay
Transportation Authority**

Green Line Fleet (Type 7) Overhaul – Project Update and Final Engineering Services

December 10, 2018



Background

The Type 7 base fleet is currently over 30 years old and was overdue for a mid-life overhaul. Program focus--

- Restore the reliability of the fleet
- Preserve the integrity of the vehicle structure, roof, and exterior, which has experienced water damage and corrosion
- Targeted systems replacement or overhaul to ensure the vehicles can continue to provide safe and reliable operation
- Improve passenger comfort

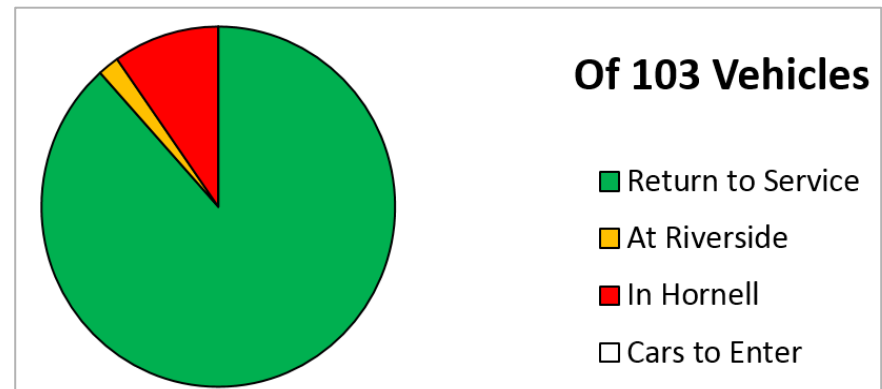




Project Status

- Total of 103 vehicles sent to Alstom (Hornell, NY)
 - 3600 (Base order) fleet (86 vehicles)
 - 3700 (Option order) fleet (17 vehicles)
- Current program status:
 - 91 vehicles have been completed and returned to Service
 - 2 vehicles completed and are in Commission Testing in Boston
 - 10 vehicles remain in Production in Hornell

Cars	Projected Delivery
3716, 3715	Dec 2018
3609*, 3700	Jan 2019
3712, 3710	Feb 2019
3718*, 3708	Mar 2019
3701, 3704	Apr 2019
3707*	May 2019



* Long-term out-of-service vehicle



Schedule and Program Challenges

- Alstom is behind the original Contract delivery schedule of one vehicle per week. Contributing factors include:
 - Complexity of integrating overhauled aging systems
 - Retained parts being reinstalled after stripping entire vehicle (“touching everything”)
 - Higher than expected out of scope repairs ‘Hidden Damage’
- Eight Change Orders have been executed with Alstom, three of which included significant additional work with related time extensions
- Anticipated delivery of the final 10 vehicles by Spring 2019.



Green Line Type 7 Project Achievements

- The program has resulted in significant service improvements
 - **15 Long-term out-of-service vehicles** overhauled and all will be put back in revenue service.
 - SSO fleet consistently exceeds MMBF target of **9300** miles (Pre-overhauled MMBF: **5888** miles, 2-year Average: **9450**)
 - Closeout agreement under review to include final project work elements.





Proposed Amendment for CH2M (Jacobs)

- Recognizing Alstom's expanded work scope and time extensions, additional engineering program support is required
- Proposed scope includes:
 - Engineering review/support and vehicle testing
 - Program and contract management
 - Inspection services (at Alstom Plant and Riverside)
 - Warranty support
 - Required contract close-out
- Proposed contract amendment will provide project support through the end of the warranty engineering period in June of 2020
- Funding for this amendment is programmed in the existing project budget
- This request will be the final amendment to this contract
- Total negotiated amount for Amendment 7 is \$997,861