



**Massachusetts Bay
Transportation Authority**

**Green Line Train Protection System (GLTPS)
System Integration Contract**

May 20, 2019



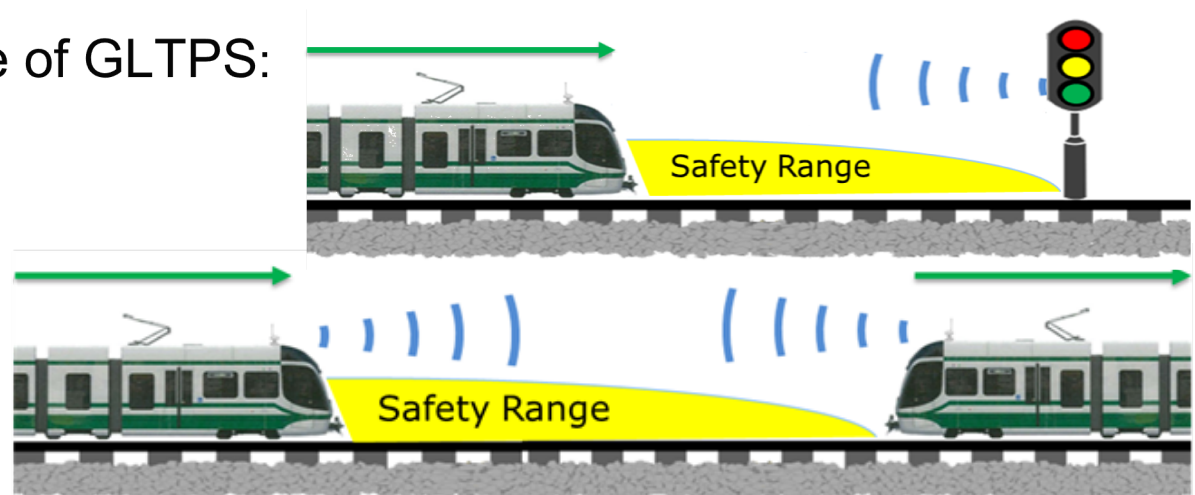
Background

- To meet regulator recommendations as a result of accidents on the Green Line in 2008 and 2009, the MBTA developed the GLTPS Concept.
- The GLTPS was developed with the following approach:
 - › Overlay system – integration of the GLTPS onto legacy trains and wayside signaling equipment.
 - › Modular components – combination of service-proven concepts and innovative application.
 - › Risk mitigation – Three step procurement with physical demonstration and evaluation.

- The primary purpose of GLTPS:

- › **Reduce the risk of red signal violations**

- › **Reduce the risk of train-to-train collisions**





Procurement Process

- RFP released Oct-16
- 7 Technical Proposals received Feb-17
- 2 Proposers selected for Proof of Concept (Phase 1 complete) Jun-17
- Proof of Concept Application Demonstrations completed Dec-17
- Proposals received from Proof of Concept Proposers Mar-18
- Technical Proposals evaluated May-18
- Vendor selected Jan-19
- Update to Regulators Apr-19



Selected Solution

BBR Verkehrstechnik GmbH (Germany) is leading a team consisting of ACI Alternate Concepts, Inc. (Boston), Signal South, LLC (Jacksonville) and Bosch Engineering GmbH (Germany) among others.

- The selected system is designed to incorporate state of the art technologies: vital microprocessor controller, car-borne camera and radar sensors.
- All Automatic Block and Interlocking Signals will be replaced with low-maintenance, high-reliability LED-based signals.

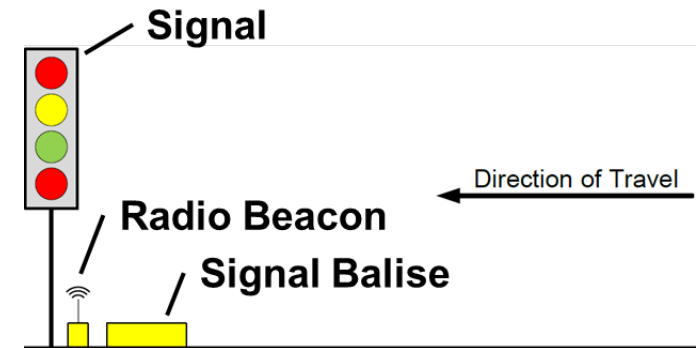




Selected Solution – How is the primary purpose achieved?

Red Signal Protection

- GLTPS monitors each signal and sends the status to oncoming trains
- GLTPS intervenes if the operator does not obey a 'STOP' signal, and will apply brake automatically if the operator responds too late or not at all



Collision Avoidance

- The camera monitors the track ahead and transmits the data in real time to the radar sensor
- The radar sensor recognizes potential obstacles in front of the vehicle
- GLTPS will warn the operator if a threat is detected
- GLTPS will apply the brake automatically if the operator responds too late or not at all





Project Schedule

Next Steps:

- Board Award of System Integration Contract May 2019 (Today)
- NTP to GLTPS System Integration Contractor Jun-Jul 2019

Outlook:

- RFP and Board Award of Wayside Installation Contract 2021
 - Initiation of Phased Implementation 2022
 - System Demonstration complete, start of incremental service 2023
 - Performance Monitoring & Operational Tuning complete 2025
 - The Type 10 will be delivered with GLTP integrated into the vehicle
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Request of the Fiscal Management and Control Board

- Staff request that the Fiscal and Management Control Board authorize the MBTA General Manager to award and execute all work scope items in Formal Contract No. RFP 24-16 for the Green Line Train Protection System Integrator with BBR Verkehrstechnik GmbH for an amount not to exceed \$82,660,002