



**Massachusetts Bay
Transportation Authority**



Green Line Train Protection System (GLTPS) Update

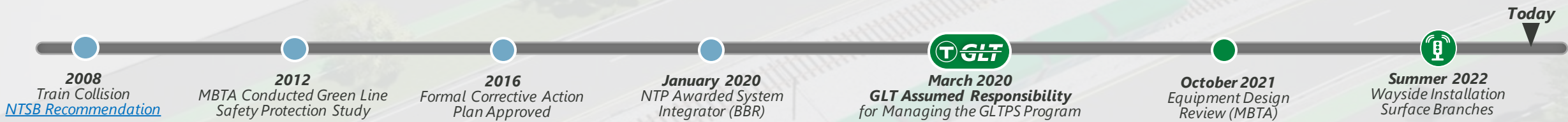
January 26, 2023

Safety Update | GLTPS Background & NTSB Recent Report



Following a 2008 Green Line incident, The National Transit Safety Board (NTSB) recommended that the MBTA implement a Positive Train Protection System

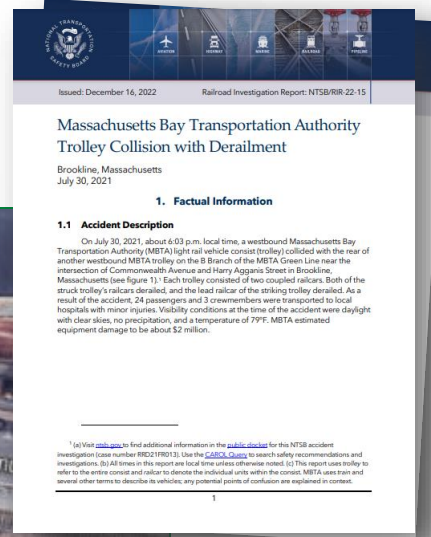
Milestones



NTSB recently filed their Final Report on the Green Line vehicle-on-vehicle collision on Commonwealth Ave in July 2021, highlighting the need of having a train protection system on the Green Line.



Green Line Train Protection System (GLTPS)



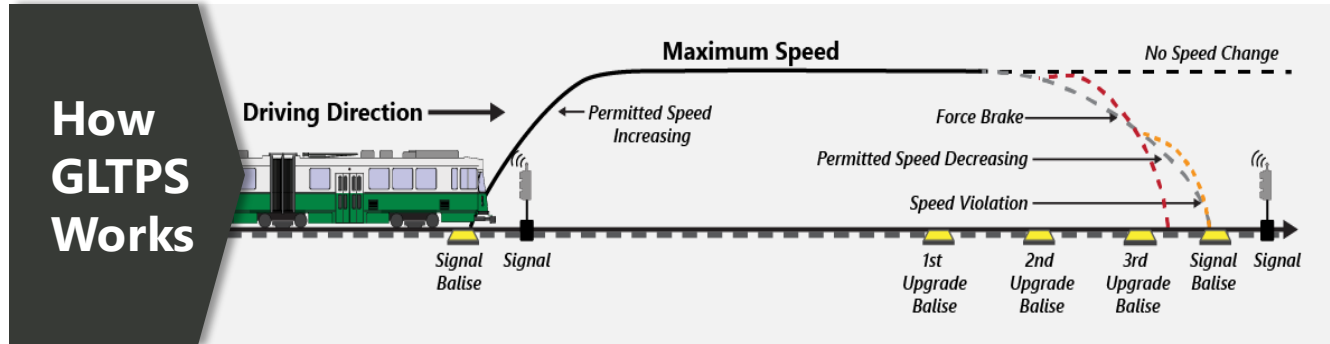
Benefits of GLTPS

- + Reduce the risk of red signal violations
- + Reduce the risk of train-to-train collisions
- + Speed Enforcement

Overview | Green Line Train Protection System (GLTPS)



GLTPS is a train protection system similar to Positive Train Control (PTC) on commuter rail but tailored to a legacy light rail system that operates in mixed traffic, outside of dedicated signalized right of ways

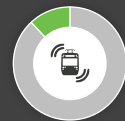
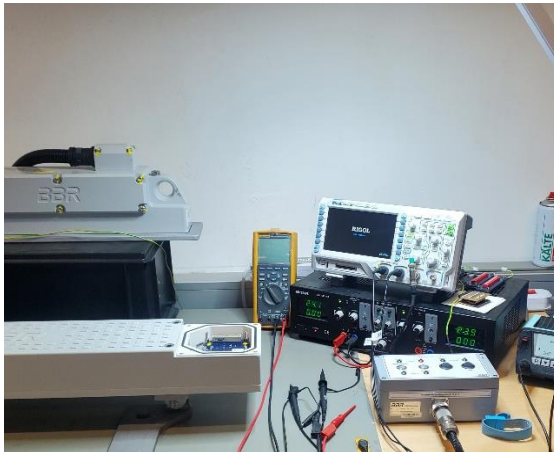


Scope includes designing the integration of new safety equipment into existing legacy infrastructure of both vehicles and wayside signals, along with fine-tuning software and operability in the unique Green Line environment.

This is being done through 4 parallel phases:



Phase 1: Equipment Design & Validation



Phase 2: Vehicle Installation



Phase 3: Wayside Installation



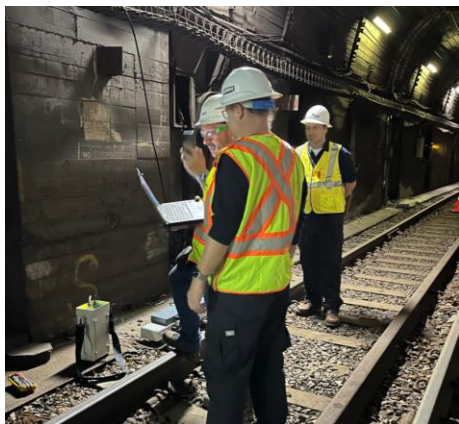
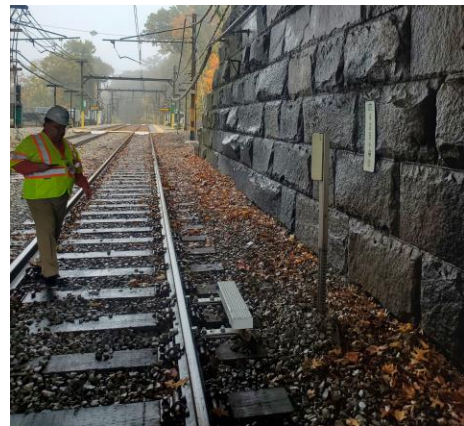
Phase 4: Operational Integration








Progress | Green Line Train Protection System (GLTPS)



Full Access closures in 2022 allowed the installation of Speed Balise on the B, C, D & E surface branches. The combined 65 days of closures increased productivity and provided amplified results.



	103 Type 7's
	87 Type 8's
	24 Type 9's
 58 Speed Balise	 400 Signal Locations

During this same period the System Integrator and Manufacturer was acquired by a new company which has added delays to completing the integration design for the vehicles and procuring material.

Delays & Mitigation | Green Line Train Protection System (GLTPS)



The MBTA worked with the Systems Integrator to identify creative options to safely implement individual functions of the system to improve safety by January 2024 when we will begin deploying these functions on a branch by branch approach

Mitigation Strategy

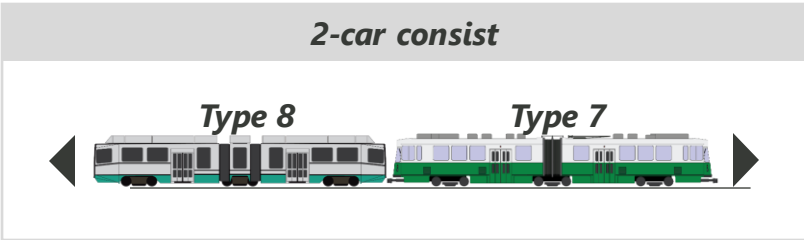
Collision Avoidance & Speed Enforcement

By Branch

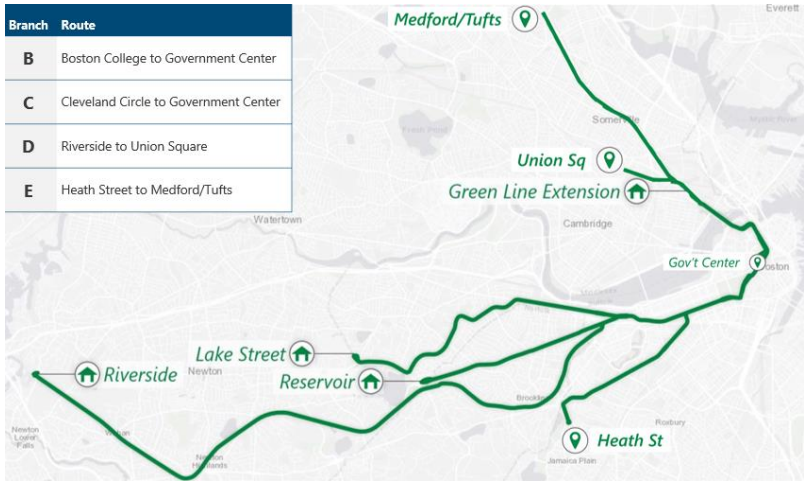
- 3 of 4 initial system safety functions
- Provides collision avoidance
- Provides speed enforcement
- No need to revisit vehicles
- Accommodates turn-back operation

Initial System Safety Functions

- Collision Warning:**
visual and audio alert
- Collision Avoidance:**
warning and full 'penalty' braking
- Speed Enforcement:**
full 'penalty' braking with speed violation
- Red Light Protection:**
full stop before each signal unless given upgrade



Mitigation Strategy:



Next Steps | Green Line Train Protection System (GLTPS)



Implement Collision Avoidance & Speed Enforcement throughout 2023

Next Steps

- Updating the board quarterly of the progress
- Providing riders and constituents with monthly updates through the MBTA website and related newsletters
- Continue working closely with the Systems Integrator on mitigation strategies to ensure the safe and rapid implementation of safety features and operationalize them as soon as possible



 **GLT** / **GREEN LINE»»**
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