

GLTPS

GREEN LINE TRAIN PROTECTION SYSTEM A CAPITAL TRANSFORMATION PROJECT

August 2023 Review and Lookahead

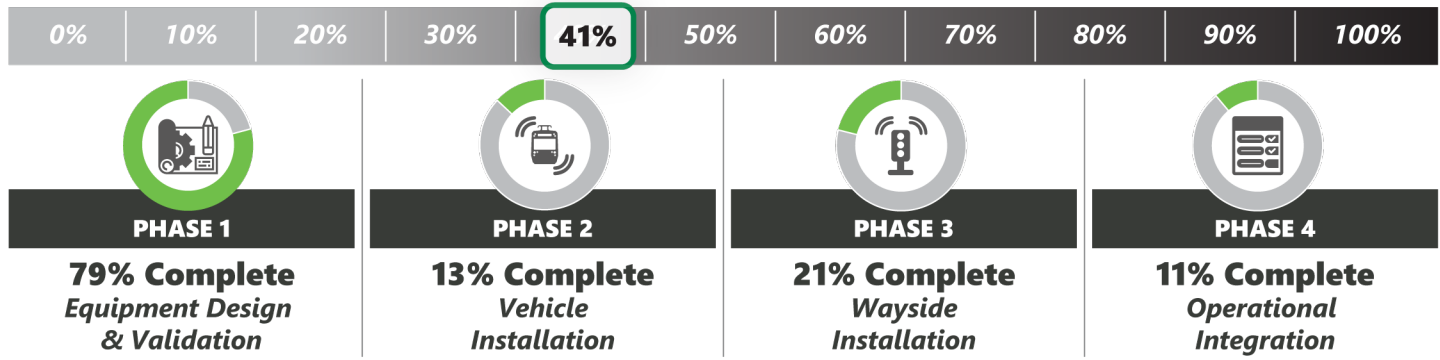
The **Green Line Train Protection System (GLTPS)** combines vehicle and wayside equipment that work together to provide train-on-train collision avoidance and red light signal protection, and enforce speed limits. The project has four overlapping phases which are all currently underway:

- **Phase 1 Equipment Design** integrates new technology into legacy MBTA systems, along with validating functionality and that requirements are met.
- **Phase 2 Vehicle Installation** of camera, radar, and radio equipment into light rail vehicles with Pilot activity already underway at the Innerbelt Vehicle Maintenance Facility.
- **Phase 3 Wayside Installation** is currently on hold but is planned to resume soon with more Speed Balises being installed to support Collision Avoidance and Speed Enforcement on the entire system.
- **Phase 4 Operational Integration** is when MBTA personnel will receive information and training on GLTPS and plans are developed for system cutover.



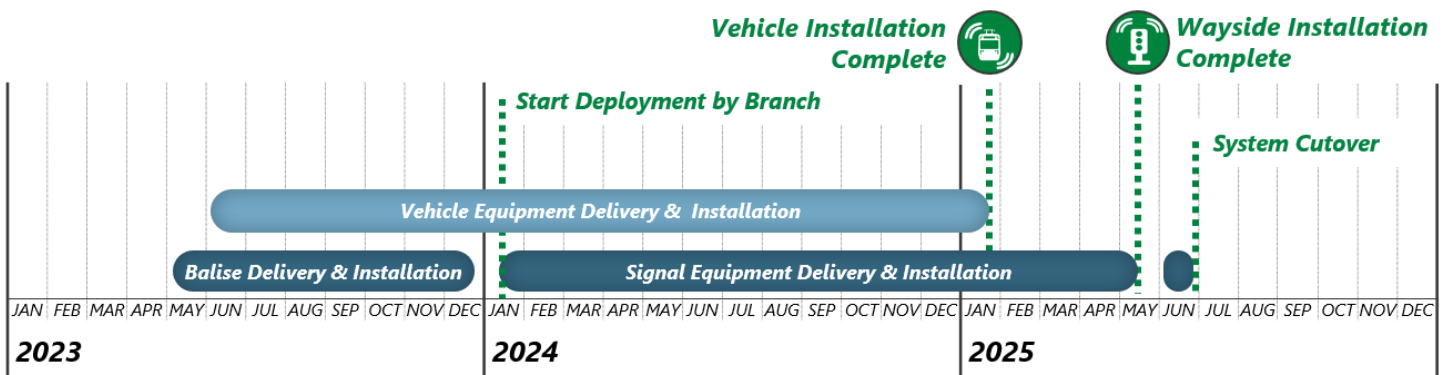
Validating material and process travelers

GLTPS by the Numbers



Did you know...

A First Article Inspection, or FAI, not only validates the design from paper to reality, but also validates the manufacturing process. This helps ensure that not just the first unit is built well, but that all subsequent units are built the same, with proper quality and documentation.



This Past Month



Equipment Design & Validation

- **Type 7 Vehicle Kit First Article Inspections (FAIs) continued** at Transitair in Hornell, NY. As part of first article inspections, tests are witnessed to validate the procedures for conducting the test and the related reports that document conformance. Automatic testing of the cable harnesses is done for both time savings and a more consistent and controlled process, along with an automatically generated test report.
- **Type 8 Prototype Fit-ups occurred** at Innerbelt VMF. While the electronic equipment is the same for all vehicles, the integration of that equipment must be done uniquely for each fleet to match that specific vehicle type's design and characteristics. Type 8 will have a different cab box enclosure since it has a different cab configuration from the Type 7.



Witness of cable harness validation testing



Vehicle Installation

- **Type 7 Pilot Vehicle Installation was completed** at Innerbelt VMF. During this process the Bills of Material (BoM) for each sub-kit was confirmed along with the draft installation instructions. Noted discrepancies and 'red line' changes are being addressed and will be incorporated into the design drawings so the production kits can be manufactured.

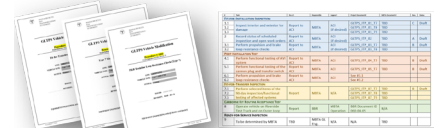


Installation of dashboard on Type 7



Operational Integration

- **A Test Plan and procedures are being developed** for vehicle pre- and post-installation testing. This will confirm the condition of the production vehicles as they are removed from service for kit installation and then validate that the vehicles are ready to return to service after installation and program testing.



Vehicle pre- & post-installation testing

Lookahead For Next Month

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



Equipment Design & Validation

- Complete Type 7 First Article Inspections (FAIs) and resolution of open items
- Begin to review draft Type 8 design documents based on prototyping



Wayside Installation

- Receive delivery of Speed Balises to start installation to support speed enforcement
- Complete dynamic envelope testing at specified tunnel locations



Vehicle Installation

- Conduct static and dynamic testing on Type 7 Pilot vehicle 3708
- Begin installation of the first Type 7 production kit



Operational Integration

- Receive and review draft Operations and Maintenance Manuals
- Work with video production company to finalize videos for advance training