



U.S. Department of Transportation
Federal Transit Administration



Wayside Worker Protection Technology— TrackSafe Phase II Research & Demonstration Report

Background

Transit authorities across the U.S. are responsible for transporting millions of people daily. To ensure safe travel for their patrons, transit teams are responsible for inspection, maintenance, and construction of transit railways on a regular basis, which requires workers to expose themselves to the inherent hazards of the rail right-of-way (ROW). In many cases, these activities occur while trains are in service traversing at significant speeds, and fatal accidents have occurred in the ROW due to workers and train operators not being locationally aware of each other's presence. In 2015, the Federal Transit Administration (FTA) sought to advance research to develop technology in areas such as track worker safety to reduce transit injuries and fatalities.

To pursue this endeavor, the Metropolitan Atlanta Rapid Transit Authority (MARTA) partnered with Bombardier Rail to perform a demonstration of Bombardier's TrackSafe technology on a section of MARTA's operational rail transit system. The project also expanded the Phase I demonstration to assess the feasibility and benefits of a system-wide deployment of TrackSafe. As part of Phase II, TrackSafe was designed, manufactured, installed, and commissioned along a three-mile section of MARTA's Red Line and placed into operation to allow a team of ROW inspectors, rail controllers, and others to use the system and provide feedback from their experience.

Objectives

Goals of the project were to improve the safety of transit workers through use of new and advanced roadway worker protection (RWP) technologies, improve visibility of ROW workers to both train operators and rail control center staff responsible for permitting access to the wayside, demonstrate the reliability of new technologies deployed in an operating transit environment, gain feedback and an assessment from those that interacted with the technology during a finite demonstration period, and provide an evaluation and lessons learned from various phases of deployment.

Findings and Conclusions

FTA's vision of deploying RWP solutions into an operating transit environment proved to be very relevant; TrackSafe hardware components were tested, and information that could not be simulated in a manufacturing facility or laboratory was gleaned.

This report introduces TrackSafe technology, provides MARTA's observations, and shares lessons learned acquired during multiple phases of the program. The scope of the project included the design, fabrication, installation, commissioning, and demonstration of TrackSafe along approximately three track miles of MARTA's rail corridor from Dunwoody Station to North Springs Station. After commissioning the system, a team of ROW workers used TrackSafe for 180 days during both revenue and non-revenue operations. Subsequently, this group was interviewed by a third-party observation team and shared their experience with the technology.

MARTA and Bombardier successfully completed this research and demonstration with several takeaways that will help inform and improve RWP technologies for transit industry peers. During the initial phase of the program, the TrackSafe concept was well-received by MARTA Operations, and Bombardier was empowered with feedback directly from ROW workers. During Phase II, Bombardier incorporated some of the insights gained from Phase I to successfully design, fabricate, and deploy an improved version of TrackSafe onto three miles of track along the MARTA Red Line.

FTA's vision of deploying RWP solutions into an operating transit environment proved to be very relevant for Phase II. TrackSafe hardware components were tested, and the team was able to glean information that could not be simulated in a manufacturing facility or laboratory. The resulting lessons learned were, in some cases, specific to TrackSafe and in others universal to all RWP technology platforms.

Benefits

The report details the proof of concept, design, construction, commissioning, and operation of the technology, shares issues experienced during the project and provides a qualitative assessment supported by lessons learned. Sharing these experiences should further enhance RWP technologies for more reliable systems in the future, ultimately creating a safer work environment for ROW workers at rail transit agencies.

Project Information

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