



**Massachusetts Bay  
Transportation Authority**

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## **Green Line Train Protection System**

**January 9, 2017**



## Background

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- Major accidents
    - › May 2008 – 1 fatality and multiple injuries
    - › May 2009 – multiple injuries
  - July 2009: NTSB Safety Recommendation
  - February 2010: DPU Corrective Action Plan
  - December 2012: Green Line PTC presentation to MassDOT Board
  - Train Control Systems
    - › Initial focus was on Positive Train Control
    - › Evaluation of alternative technologies with a focus on preventing signal violations and train to train collisions
    - › Discussion with regulatory agencies on alternative technologies
    - › October 11, 2016 Green Line Train Protection System (GLTPS) RFP released
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## Green Line Train Protection System (GLTPS) Purpose

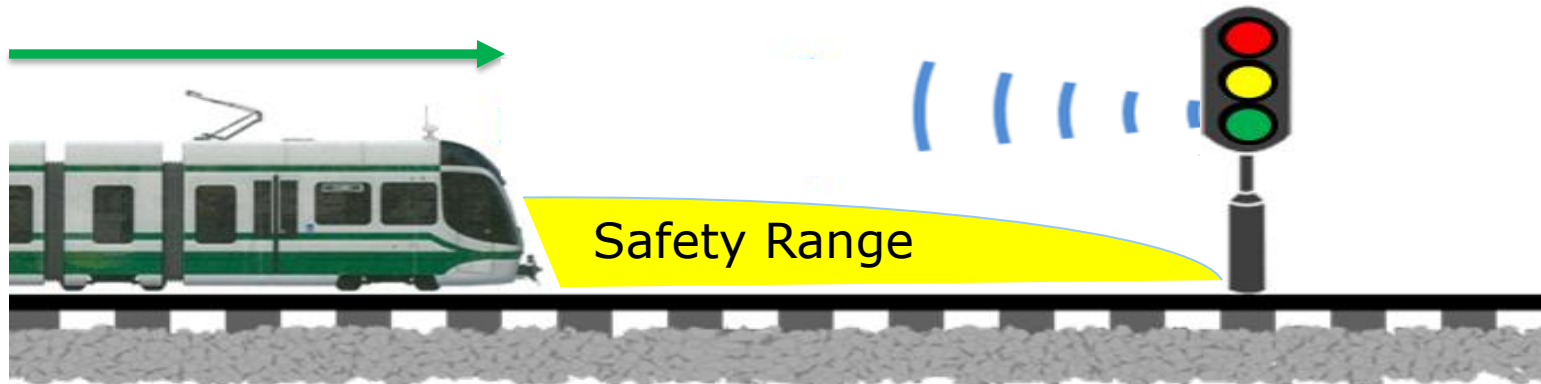
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- Improve the Safety of the Green Line
  - > Reduce the risk of red signal violations
  - > Reduce the risk of train-to-train collisions
- Provide Options for System Expandability to:
  - > Prevent overspeed
  - > Provide Right-of-Way (ROW) Worker protection



## Signal to Train

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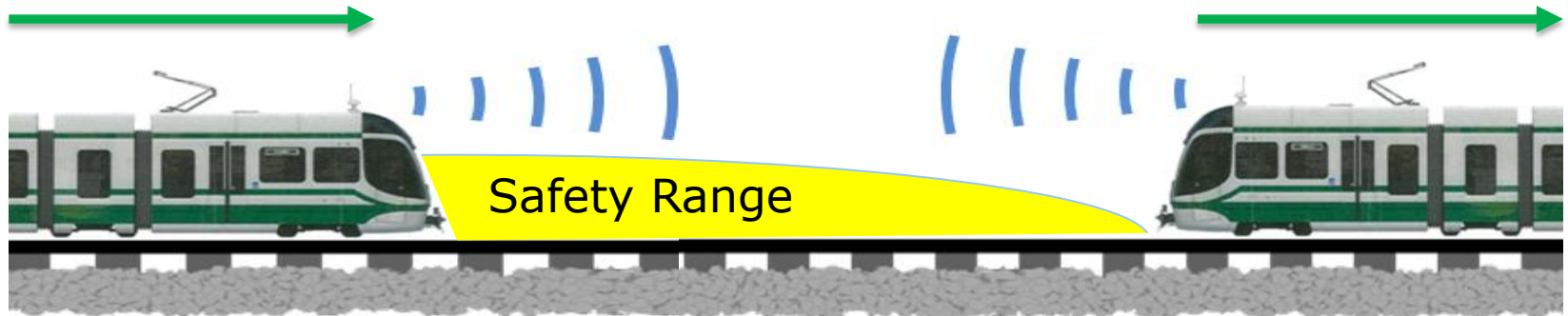


- Wireless communication between signal(s) and train(s)
- Real-time tracking of train speed and distance to signal
  - › On-board processor calculates braking range and applies full service brake if the safety range is violated preventing the train from driving past the red signal.



## Train to Train

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- Wireless communication between trains
- Real-time tracking of train speeds and distance to the train in front
  - › On-board processor calculates braking range and applies full service brake if the safety range is violated preventing the train from striking the train in front.



## GLTPS Project Approach

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- **Overlay Approach (Minimal Modification)**
    - > Project requires integration of the GLTPS onto legacy trains and wayside signaling equipment
      - > Minimize needed MBTA Resources
      - > Minimize System Shut-downs
  - **Modular Approach (System Integration)**
    - > Combination of service-proven technologies to improve safety needs of the Green Line
      - > Ability to Perform Targeted Rollout on Wayside
  - **3-Step Procurement (Risk Reduction)**
    - > Technical Proposals
    - > Proof of Concept
    - > Final Negotiations Including Pricing
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## Project Status

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- RFP 24-16 posted to the MBTA's Open Invitation for Bids / Request for Proposal page on October 11, 2016
- Pre-Bid Meeting held on October 25, 2016
- Clarification Phase: October 11, 2016 – December 22, 2016
- Proposals Due: February 15, 2017
- Proof of Concept Phase: Q2 2017 – Q3 2017
- Anticipated NTP to be issued: Q4 2017 – Q1 2018
- Anticipated Phased-In Start and End: Q2 2019 – Q4 2022
  - › GLTP system will be operational on a train by train and signal by signal basis as the GLTPS is installed and commissioned.