Protecting Roadway Workers with an Electronic Overlay – a Demonstration

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Key Presentation Take-Aways

- The Problem: Insufficient TAW Protection

- A Solution: Electronic RWP Safety Overlay

- eRWP Performance Update

The Problem:
Insufficient TAW Protection

- Between 1997-2014 (post-RWP rule) = 46 fatal roadway worker incidents (source: FAMES)

- Human Error Factors

- NTSB Safety Alert (SA-066)

- Industry Awareness: California Mandate

The Solution: Electronic RWP System Safety Overlay

- What is it?

- What does it do?

The Solution: Electronic RWP System Safety Overlay

ZoneGuard Components:

Train Alert & Detection Modules (TAM) (TDM)

Worker Alert Nodes (WArN)

The Solution: Electronic RWP System Safety Overlay

Train Alert & Detection Module Overview:

- Four Sensors
- Redundant Tech

The Solution: Electronic RWP System Safety Overlay

Worker Wearable Device Overview:

- Three versions
- Charging station
- Alarm system
  - Physical
  - Audible

Worker Alert Nodes (WArN)

The Solution: Electronic RWP System Safety Overlay

- Fixed (Permanent)
- Portable
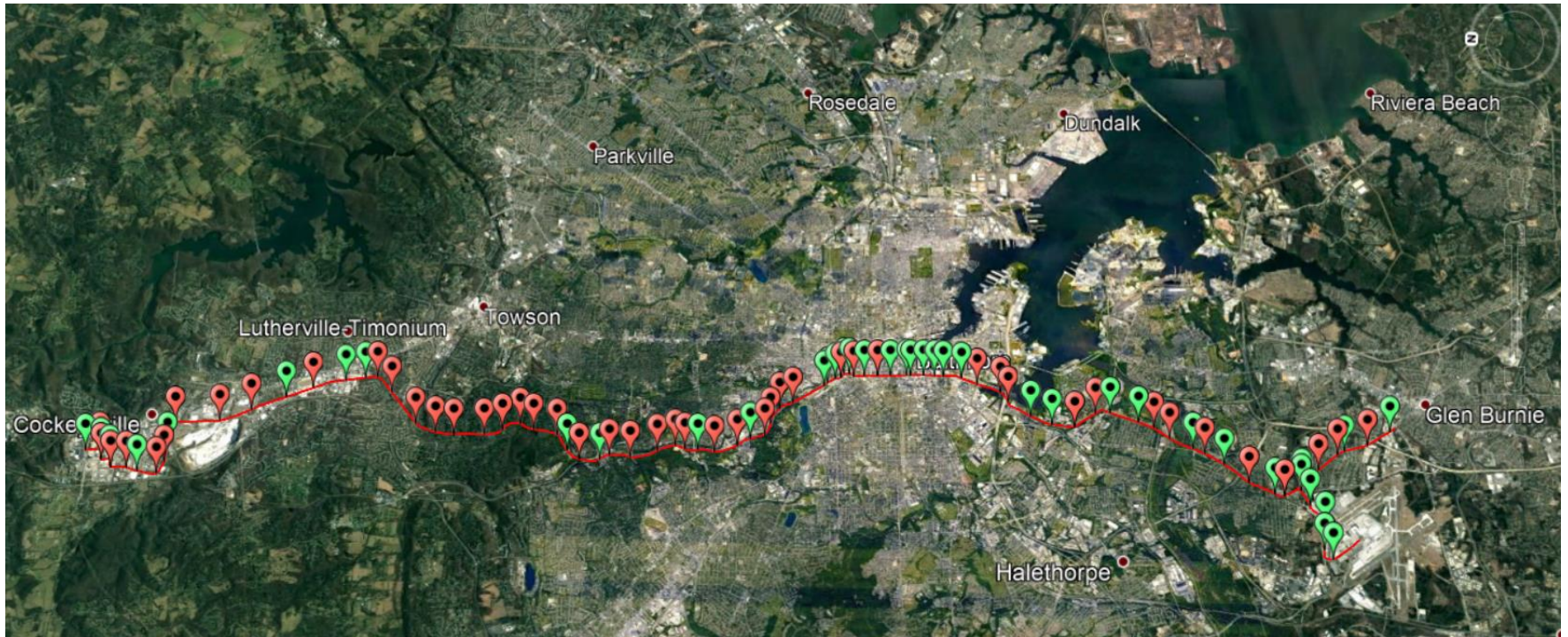
The Solution: Electronic RWP System Safety Overlay

- Customer Demos

eRWP Performance Update: Data Review

eRWP Performance Update: Data Review

TDMS = GREEN

TAMS = RED

eRWP Performance Update: Data Review

- MTA Configuration:
  - 43 TDMS, 56 TAMS = **99 total devices**
  - Wearable Devices = **180 total devices**
    - 140 Worker Wearables
    - 20 Watchman/Lookout Wearables
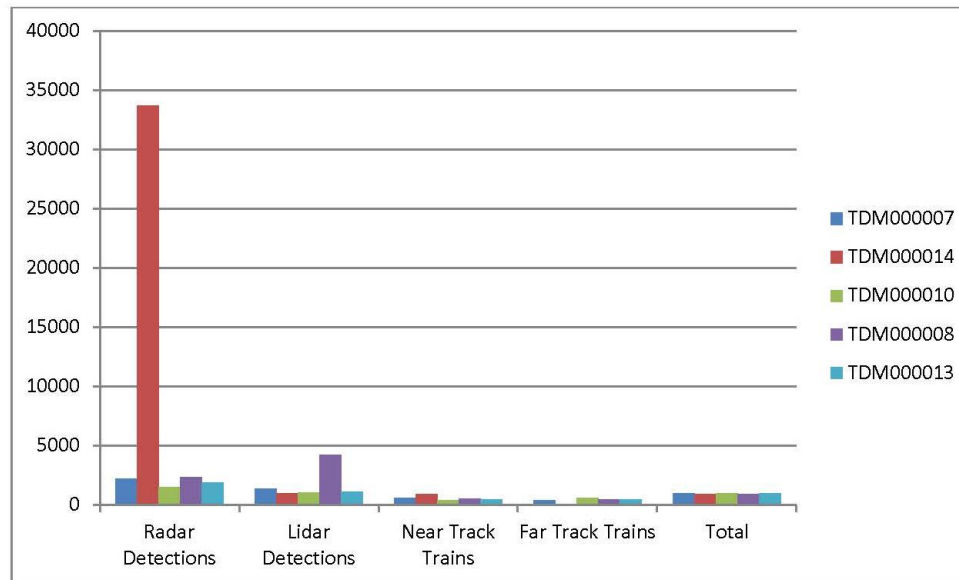   - 20 RWIC Wearables

eRWP Performance Update: Data Review

- Obstacles: Placement of radio network
  - Elevation changes, line of sight obstructions, limited mounting height, catenary poles too close to track for mounting, installing on active tracks

- Solutions:
  - Mounting design
  - Quick installs

eRWP Performance Update: Data Review

Detection Data September 4 – September 10

TDM/TAM ID	RADAR Detections	LIDAR Detections	Total Detected Trains	Near Track Trains	Far Track Trains	Total
			09-04-2017 to 09-10-2017			
TDM000007	2173	1356	976	571	405	976
TDM000014	33737	962	921	921	0	921
TDM000010	1476	1032	983	397	586	983
TDM000008	2322	4199	923	486	437	923
TDM000013	1849	1064	934	466	468	934

eRWP Performance Update: Data Review

- What does the data show?
  - The importance of multiple sensors
    - Environmental factors
    - One type of sensor = false alerts, missed detections

Future ZoneGuard Integrations

- ZoneGuard's web portal
- Lighter and more efficient portable system
- PTC integration
- On-board component

QUESTIONS?

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