Trespass Detection and Warning Research
Brunswick, ME

August 4, 2015

2015 ROW FATALITY & TRESPASS PREVENTION WORKSHOP

AUG 04 - 06
CHARLOTTE, NC
Goal

- Partner with Brunswick Police Department to develop, install, and evaluate a trespass detection and warning system for rail right-of-way applications.

Research Method

- Engage Stakeholders
- Identify trespass locations
- Deploy and evaluate technology

Sponsored by the FRA Office of Research & Development
Train Control & Communications Division (RPD-33)
Current Project Partners

U.S. Department of Transportation
Federal Railroad Administration

Volpe
The National Transportation Systems Center

Town of Brunswick
Maine

Pan Am Railways

MaineDOT

AMTRAK®

Northern New England Passenger Rail Authority
Brunswick Rail Trespasser Detection System

**Expected Features**
- Closed-Circuit Television surveillance (CCTV) and 24/7 automated video monitoring
- Sensors to detect trespassers
- Video transmission to central office (Brunswick PD)
- Pre and Post alarm digital recording
- Amplified speakerphone to warn trespassers
- Mounting height designed to eliminate vandalism
- Scalable

**Expected Outcomes**
- Detects trespass events within monitored area
- Technology system interacts with Brunswick PD dispatch center
- Dispatch determines the nature of a trespass alarm
- Dispatch provides audio warning and/or initiates police response
- Reduce trespass events through the use of a reliable monitoring system
Brunswick Rail Trespasser Detection System

Notional Diagram

Legend

- **PTZ Camera**
- **Power Supply**
- **Speaker**
- **Motion Detector**
- **Internet**

**Brunswick PD**

Point-to-point wireless if nearby, otherwise wired or wireless broadband

Data (Video, Sensor Data, Voice)

120VAC if available; otherwise Solar with batteries

Power
Brunswick Rail Trespasser Detection System
Concept of Operations

1. Trespasser approaches monitored location, trips motion sensors
2. System displays alarm on wall mounted screen at PD dispatch center
3. Dispatch observes video screen and determines if a trespasser is present (pan-tilt-zoom camera may be available)
5. Dispatch uses loudspeaker and says (could also be a pre-recorded message),
   "WARNING. YOU ARE TRESPASSING ON PRIVATE PROPERTY AND ARE IN DANGER OF BEING STRUCK BY A TRAIN. LEAVE THE AREA IMMEDIATELY." (actual language to be determined)
   And/or dispatches police vehicle to the scene
6. The incident and resolution is documented
Trespass Location Identification

- Two data collection rounds
  - Sept-Oct 2013: Seven locations
  - May-June 2014: Three additional locations

- Locations from Freeport, ME to Bath, ME
Temporary Camera Locations

- Black Bridge
- Layover Facility
- Jordan Avenue
- Rock Junction
- Harding
- Desert Road
- Fire Station
- Black Bridge
- Layover Facility
- Rock Junction
- Jordan Avenue
- ROW between Jordan St and trestle over the bridge (camera stolen)
- RR bridge between Harding Road and New Meadows Road
Proposed Sensor/Camera Locations
Examples of Trespass at Fire Station (Freeport)
Examples of Trespass at Rock Junction
Examples of Trespass at Jordan Avenue
Examples of Trespass at Harding
Next Steps

- Procurement finalized; System installation to begin August 2015
- Upgrade Police Department Dispatch Software with Automated Vehicle Location (AVL)
- Research enhancements (wide area detection, trespass notification)
- Operate, Maintain, Evaluate system
Marco daSilva | General Engineer/ Project Manager
Highway-Rail Grade Crossing and Trespass Prevention Research Program
US DOT | OST-R | Volpe Center
Technical Center for Infrastructure Systems and Technology Systems Safety and Engineering Division, V-334
55 Broadway, Kendall Square | Cambridge, MA 02142
Office: 617-494-2246 | Email: marco.dasilva@dot.gov

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