

Wayside Workers Protection Program

GOALS AND OBJECTIVES

To protect Metro Employees by installing system that will alert Wayside Workers of an approaching train

Project Scope

- Install a transceiver in each Metro train cab.
- Equip Wayside Workers with portable equipment.
- System will alert the operator of personnel on the right-of-way and alert the wayside worker of an approaching train.

Concept of Operations

- Spread spectrum radio technology is used in this system.
- Train Unit transmits a very directional signal from the front of the train.
- Wayside Workers Device receives the signal and transmits back to the train. Alerting both the Train Operator and the Wayside Worker.

Wayside Personal Device

- When Train Approaches a Wayside Worker the Unit beeps, Flashes and Vibrates



Portable Gang Box

- Portable Gang Box will be deployed when work crews are working a single location
- Portable box is louder and brighter

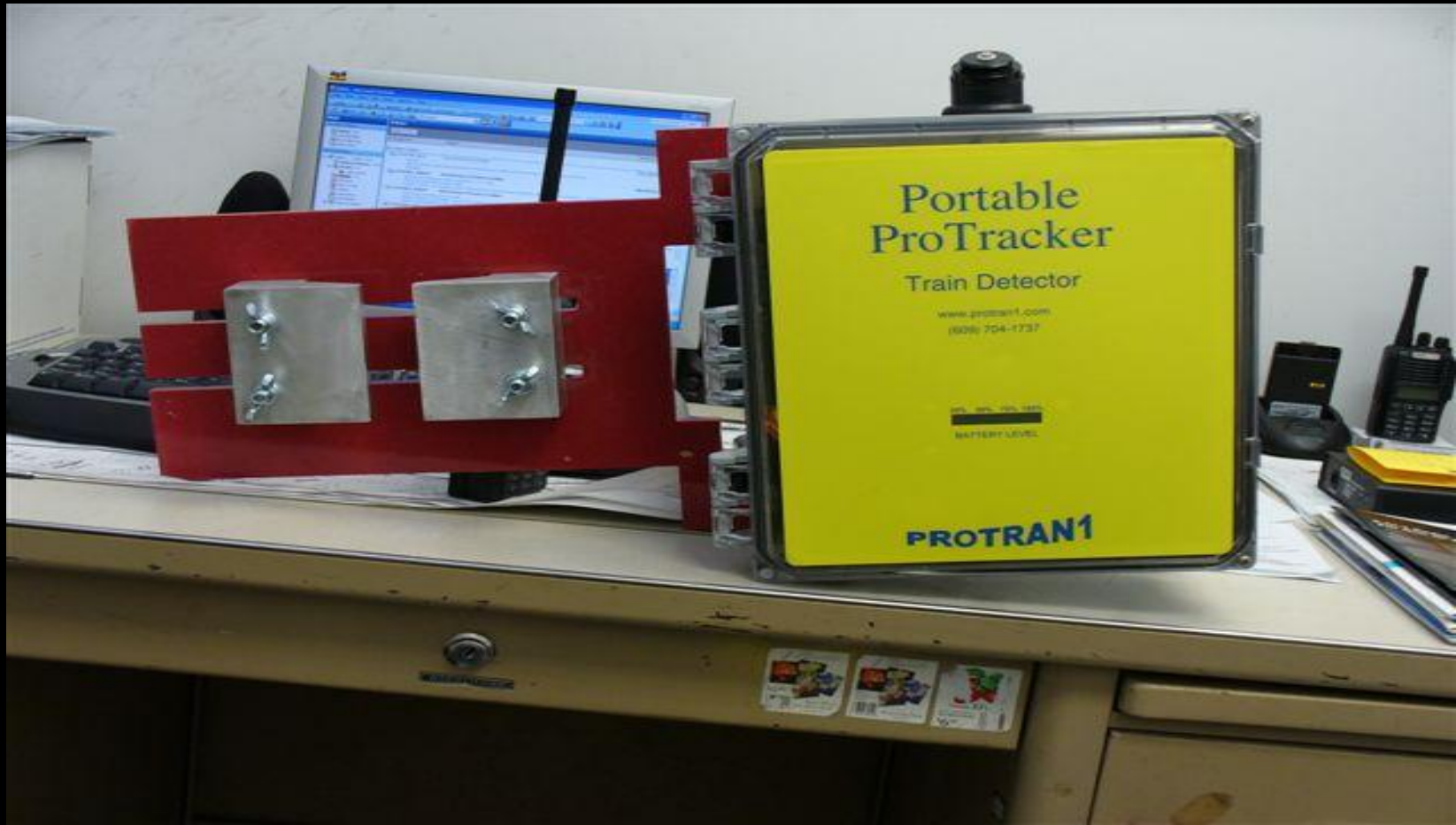


Train Device

- When Wayside Workers are detected the Train Device will Beep and Flash.



Portable Train Detector



MGL and PGL Installation



MRL and MBL Installation



Additional Applications

- System can be used to alert train operators to the presence of a Hi-Rail Vehicle.
- Field Supervisor can place portable units at locations where it is determined that operators need to be aware of a lack of normal Wayside Protection. A broken gate is a good example.

Project Justification

- Enhance the safety for Wayside Workers by installing on all Metro lines a system that will alert personnel of an approaching train.
- In recent years, Nation wide there has been over 15 fatalities of Wayside workers.
- This system would be an additional layer to the existing safety system.

Strategic Goal

Safety First

A more safe work environment

Cost Savings

Just one accident can cost more than
this entire system

Test Set-Up

- Custom built test unit built for quick installation and removal



System Demonstration

- System tested on all four Metro Lines
- Test data recorded
- Comments collected from Train Operators and Wayside Workers

Documentation

- Test Documents for test personnel
- Comment forms
 - Drivers
 - Wayside Workers

Project Approval

- System was tested on the MGL, PGL, MRL and the MBL.
- Test results were documented and placed into a report.
- Project was approved.

Operational cost and Impact

- Cost to operations would be one additional FTE added to the Wayside Communications Department.

Project Cost

Item	Qty	Unit Pr	Cost
Train Unit with Antenna	550	\$ 2,570.00	\$ 1,413,500.00
Portable Train Gang Box	8	\$ 2,000.00	\$ 16,000.00
Personnel Detection Devise	250	\$ 600.00	\$ 150,000.00
Hardware	1	\$ 10,000.00	\$ 10,000.00
Advertising	3	\$ 2,000.00	\$ 6,000.00
Contingency			\$ 956,000.00
RECI	4800 hrs	\$100	\$ 480,000.00
RECI Leader	250 hrs	\$100	\$ 25,000.00
Rail Communications Sup	40 hrs	\$100	\$ 4,000.00
Procurement	50 hrs	\$100	\$ 5,000.00
Labor Compliance	8 hrs	\$100	\$ 800.00
TSE Support - Tech & Engrg	40 hrs	\$100	\$ 4,000.00
Project Management	40 hrs	\$100	\$ 4,000.00
Wayside Comm Mgr	20 hrs	\$100	\$ 2,000.00
CPOT - 5 yrs	120 hrs	\$100	\$ 12,000.00
CPOT - 5 yrs	60 hrs	\$100	\$ 6,000.00
CPOT - 5 yrs	60 hrs	\$100	\$ 6,000.00
LOP:			\$ 3,100,300.00

Permanent Installation

- Installation Order
 - MGL
 - MBL
 - PGL
 - MRL
- Training

Schedule

- 2011
 - Activate System on MGL and MBL
- 2012
 - Activate System on PGL and MRL