



OFFICE OF RESEARCH & DEVELOPMENT

**2012 R&D
REVIEW**

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Countermeasures for the Prevention of Suicides in Railway Rights-of-Way



U.S. Department
of Transportation

Federal Railroad
Administration

Program Area & Risk Matrix

Countermeasures for the Prevention of Suicides in Railway Rights-of-Way

Program Areas	Risk Factors	Trespass	Grade Crossing	Derailment	Train Collision	All Other Safety Hazards
Railroad Systems Issues						
Human Factors		X	X			
Track & Structures						
Track & Train Interaction						
Facilities & Equipment						
Rolling Stock & Components						
Hazardous Materials						
Train Occupant Protection						
Train Control & Communications						
Grade Crossings & Trespass						

Acknowledgements & Stakeholders

Acknowledgements

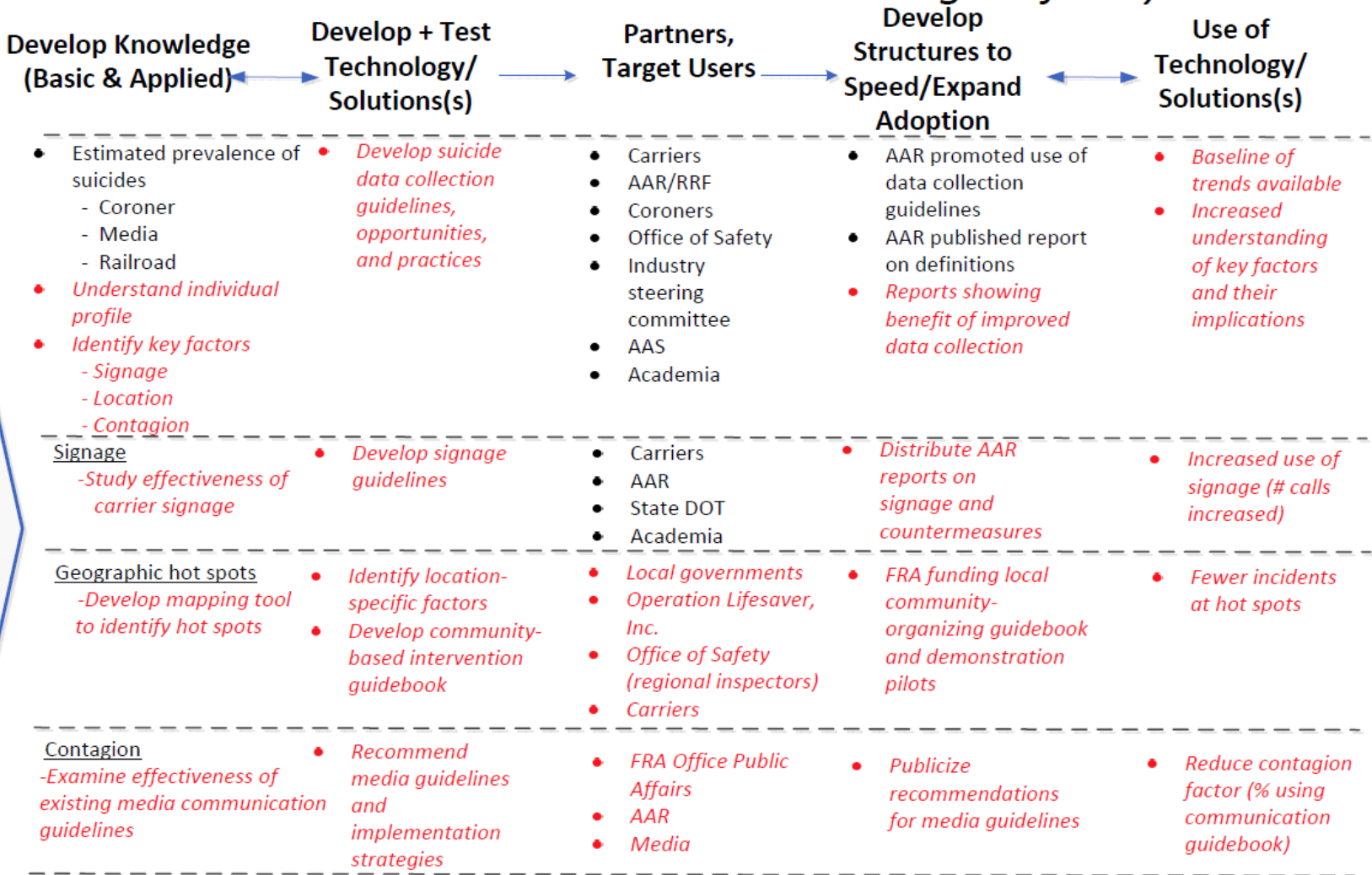
- Volpe Center
- George Washington University (GWU)
- American Association of Suicidology
- Association of American Railroads (AAR)
- Railroad Research Foundation (RRF)

Stakeholders & Project Partners

- Dr. Scott Gabree (VOLPE)
- Dr. Stephanie Chase (VOLPE)
- Anne Doucette (GWU)
- Michael Martino (AAR/RRF)

USDOT FRA R&D: Human Factors Division

Suicide Countermeasures on Railroad Right of Way



Goals

- Fewer suicides from trespassers
- More consistent, complete & useful monitoring of data

Other Interventions

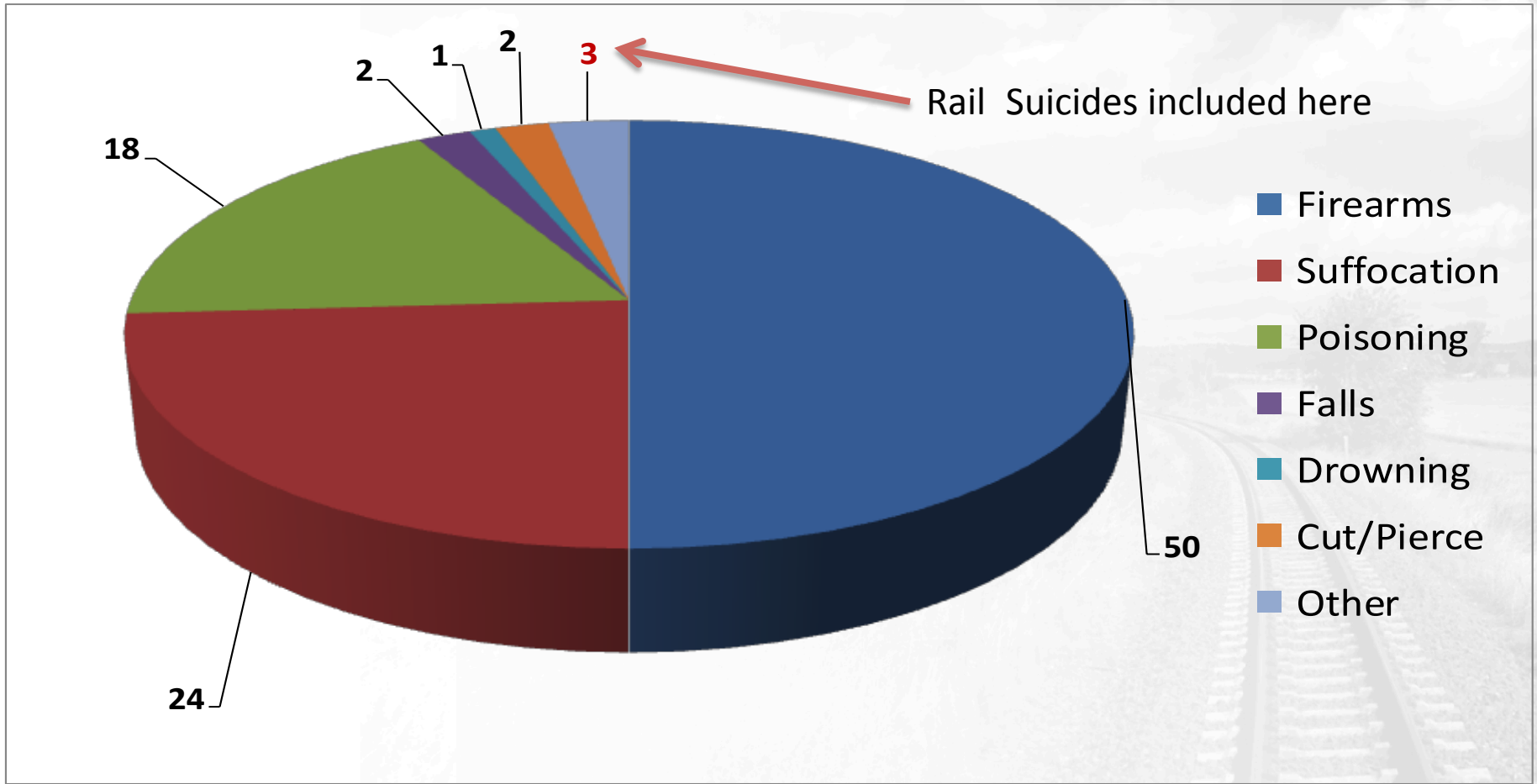
- FRA regulation required better data collection

- Happened or in process
- Planned or emerging

Overview

- Trespassing incidents are an increasing problem for the railroad industry.
- Some of these trespassing incidents are known to be the result of an intentional act (suicide).
- Suicides on railroad rights-of-way are relatively rare events, yet have great impact on railroads, railroad employees, witnesses, and surviving loved ones.
- This study aimed to establish a baseline prevalence of the number of suicides which occur annually on railroad rights-of-way
- This study also assessed whether there are any unique characteristics of individuals who choose to die on railroad rights-of-way which may help to inform future countermeasure or intervention strategy development.
 - Look for unique mitigating factors that could prevent these events.

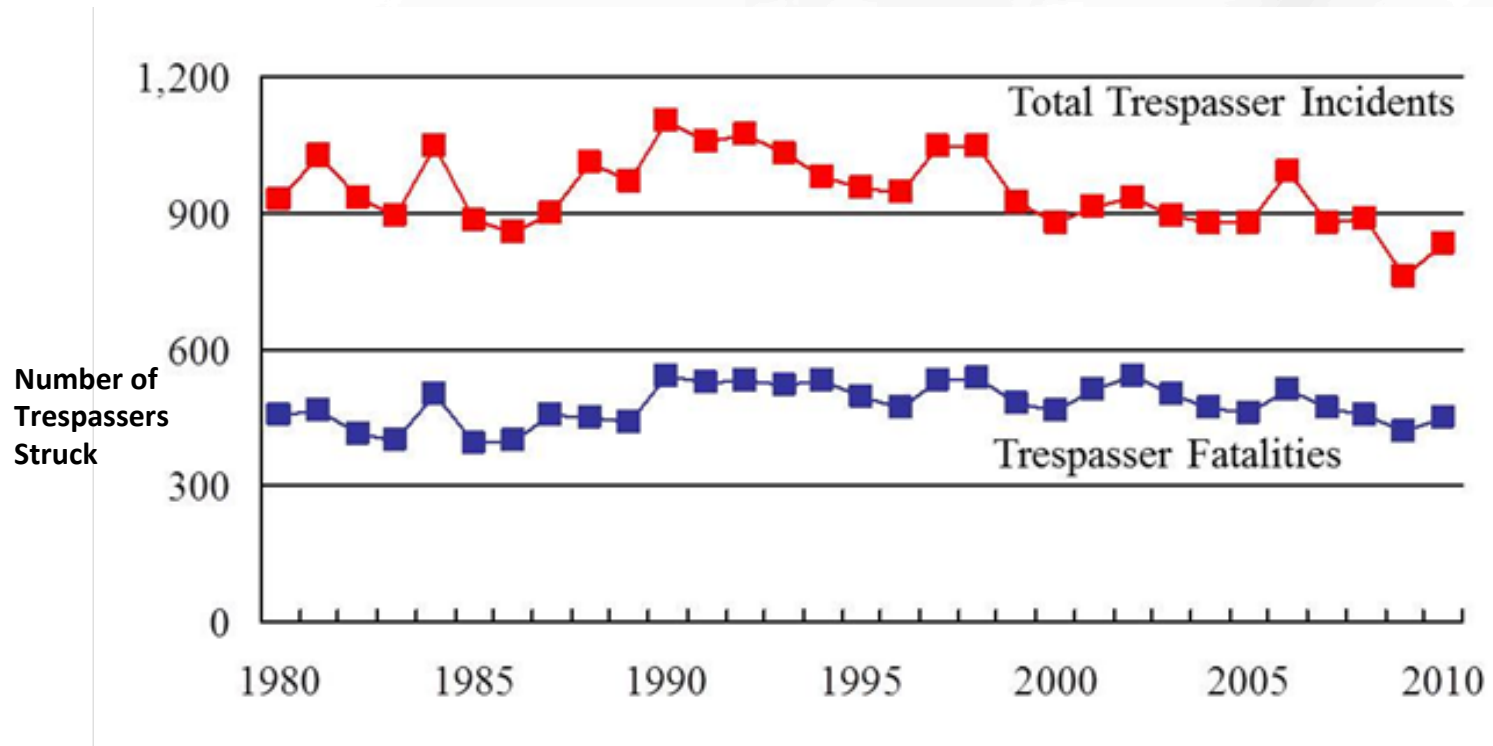
Methods of Suicide- U.S. 2007



Objectives

- The percentage of trespasser incidents on railroad rights-of-way which were suicides was unknown.
- A better understanding of the interacting characteristics of person and site may help to determine why people die by suicide in this manner.
- There is a need to develop effective, evidence-based countermeasures to prevent these suicides.
- In ALL railroad safety categories there have been significant reduction in the past 30 years in incidents except in the area of trespassers
 - Suicide cases are often included in the trespasser incidents

Not All Trespasser Incidents Result in a Fatality



Sources: <http://safetydata.fra.dot.gov/officeofsafety/publicsite/summary.aspx> (2010 data).

FRA, *Railroad Safety Statistics Annual Report, 1997-2010, Tables 1-2, 10-3.*

FRA *Accident/Incident Bulletin, 1980-1996, Table 13.*

Note: Excludes "trespasser" fatalities at grade crossings.

Previous Methods

- Previous research on this topic has primarily been conducted outside of the U.S.
- This is the first study in the U.S. to offer a “snapshot” of the prevalence of suicides that occur on railroad rights-of-way and the characteristics of these individuals.
- This is the first study that tries to catalog the risk factors and warning signs of individuals who die by suicide on railroad rights-of-way in the U.S.

Technology background

- Previous research studies have been based primarily on highly urbanized railroad systems, with no clear distinction between freight and transit lines.
- While transit tracks are mostly in urban and suburban areas, freight tracks also cover rural areas which are known to experience different types of issues (e.g., higher suicide rates and lower likelihood of treatment for substance abuse).

Data Analysis

Retrospective

- Snapshot of the past

Prospective

- Ongoing data collection

Defining Characteristics

- Psychological Autopsies

Plan & Implement Pilot Test

- Implementation and Evaluation

Data Analysis

- **Retrospective:**

- 268 suicides were identified between 6/1/2006 and 5/31/2007
- Per mile of track NJ, CA, FL, and MA had the highest incidence of suicide

- **Prospective:**

- 428 suicides were identified between 6/1/2007 and 5/31/2010
- Per mile of track NJ, FL, CA, NY, and AZ had the highest incidence of suicide

Comparison of Gender and Age of Study Population, Confirmed Cases, and U.S. Suicides

Characteristic	Cases included in		
	FRA Psychological Autopsy study (% of N = 55)	All reported suicides during study timeframe (% of N = 466)	U.S. Suicides by all means, 2007 (% of N = 34,598)
Male	84	81	79
Female	16	19	21
Age <30 years	33	18	22
Age 31-50 years	40	47	39
Age >51 years	27	35	39

Defining Characteristics

Sample of 55 Psychological Autopsies:

- Individuals share much in common with known characteristics of suicides by other means
- Some characteristics were unique to suicides on railroad rights-of-way:
 - Younger than expected
 - Live near railroad tracks
 - Less likely to have access to firearms
 - Often described as having mental disorder or substance abuse disorder
 - Occurred in urban/suburban (compared with rural) areas

Mapping of Psychological Autopsy Sample



Benefits & Disadvantages

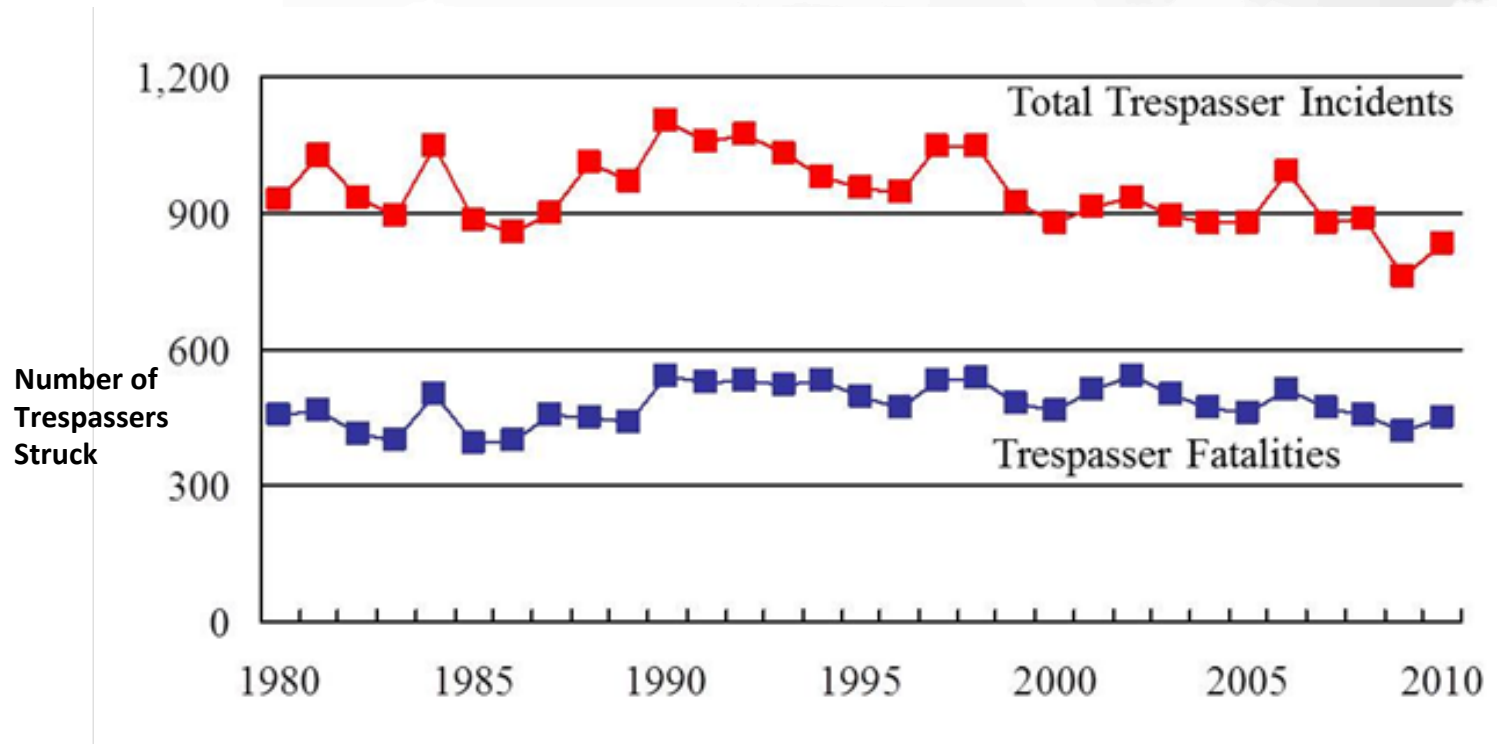
Benefits

- Refine a protocol for improved data collection of suicides that occur on a railroad right-of-way
- Identify “Hotspots”
 - Strategically focus on next Signage Project
 - Examine why these “hotspots” exist
- FRA Regional Grade Crossing personnel may be able to collect additional, useful data
- RR Industry would have a better way to address overt trespasser acts

Disadvantages

- No definitive means to identify the true number of suicides
- Funding
- Railroads do not have personnel to devote more time to identify suicide cases
- Costs associated in gathering additional data

Not All Trespasser Incidents Result in a Fatality



Sources: <http://safetydata.fra.dot.gov/officeofsafety/publicsite/summary.aspx> (2010 data).

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Project Complications

Availability of data

- Lack of systematic data collection system
- Missing data fields
- Absence of basic, e.g. demographic, information
- Unavailability of key informants

Autopsy Findings by Coroners/Medical Examiners (ME)

- Coroners/ME's less likely to rule a suicide without clear evidence (i.e., a note)
- Inconsistent data collection by Coroners and ME's

Willingness to share

- Lack of information from healthcare providers Incomplete record-keeping

Conflicting information from different sources

Insufficient Time Allotted for the Signage Project

Data Not Included

- 49 CFR 225.41 - Suicide data
- FRA does not include suicide data (as defined in § [225.5](#)) in its periodic summaries of data on the number of injuries and illnesses associated with railroad operations.
- FRA will maintain suicide data in a database that is not publicly accessible. Suicide data will not be available on FRA's Web site for individual reports or downloads. Suicide data will be available to the public in aggregate format on FRA's Web site and via requests under the Freedom of Information Act.

Lessons Learned

- **Coroner/Medical Examiner Education**
 - Coroner/Medical Examiners generally rule blunt force trauma and rarely confirm suicide unless a there is definitive evidence, hence most cases are not recognized.
- **Educating Claims/Liability Railroad Representatives**
 - Railroad claims personnel are generally at the scene of a trespasser incident and are quoted by the media about the event. Better to clarify that determination of cause will be deemed by a coroner or medical examiner.
- **Media**
 - Appropriate reporting of suicides on railroad rights-of-way to be determined by Coroner/ME
 - Limited usage of “suicide” by media may mitigate copycat incidents
 - Austria and Germany witnessed in suicides on railroad rights-of-way by lessening the use of the term “suicide” in media reports
- **Mental Healthcare Provider**
 - Consider making aware that not all trespasser incidents result in fatality
- **Public Awareness**
 - Consider making aware that not all trespasser incidents result in fatality
- **Signage**
 - Limited number of cases had cell phones
 - Numerical message preferred over alphabetical
 - Message may be misconstrued

Key Success Factors

- The United States is now getting up to speed with other leading countries in addressing the suicide issues on railway rights-of-way.
- New suicide Study is about to begin in Australia
- Better communication with the media about how to report trespasser incidents
- Better focus for next steps
- Identified a need for a “Best Practices” listing of Suicide preventative programs on rail/transit in the United States
- Identified a need to develop way to track “hotspots”, e.g., mapping.

Lunch | Nearby Food Options

(all within 5-7 minutes walking distance)



- Au Bon Pain: 601 Indiana Ave NW # 1 Washington, DC 20004
- Burger King: 501 G Street NW, Washington, DC 20001
- Chipotle: 601 F Street NW, Washington, DC 20005
- Cosi: 601 Pennsylvania Ave NW # 2 Washington, DC 20004
- Dunkin Donuts: 601 F Street NW, Washington, DC 20004
- Firehook Bakery & Coffee House: 441 4th Street NW, Washington, DC 20001
- Jack's Famous Deli: 501 3rd St NW # 2, Washington, DC 20001
- Quiznos Sandwiches: 772 5th St NW, Washington, DC 20001
- Starbucks: 443 7th St. NW, Washington, DC 20004
- Subway: 501 D Street NW, Washington, DC 20001