U.S. Department of
Transportation

**Federal Railroad
Administration**

2015 Right-of-Way Fatality and Trespass
Prevention Workshop

Office of Research,
Development,
and Technology
Washington, DC 20590

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REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE May 2017	3. REPORT TYPE AND DATES COVERED Final Report August 4–6, 2015

4. TITLE AND SUBTITLE

  2015 Right-of-Way Fatality and Trespass Prevention Workshop

5. FUNDING NUMBERS

RR97A5-NTG57
RR97A7-NJ886

6. AUTHOR(S)

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7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

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Cambridge, MA 02142

8. PERFORMING ORGANIZATION REPORT NUMBER

DOT-VNTSC-FRA-16-01

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

U.S. Department of Transportation
Federal Railroad Administration
Office of Railroad Policy and Development
Office of Research, Development and Technology
Washington, DC 20590

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

DOT/FRA/ORD-17/06

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION/AVAILABILITY STATEMENT
This document is available to the public through the FRA Web site at http://www.fra.dot.gov.

12b. DISTRIBUTION CODE

13. ABSTRACT (Maximum 200 words)

In response to the successful 2008 and 2012 Trespasser Workshops, Federal Railroad Administration (FRA) sponsored the 2015 Right-of-Way (ROW) Fatality and Trespass Prevention workshop to keep up the momentum that had been previously established. The FRA Administrator (who was Acting Administrator at the time), gave the keynote speech, which was followed by 23 technical presentations in the areas of pedestrian safety; community outreach and education; design technology and infrastructure; enforcement; and intentional deaths or acts.

Workshop attendees broke into working groups and developed prioritized recommended actions for their respective topics. The groups generated more than 110 ideas that covered new or expanded initiatives, strategies, and research projects. Finally, each group selected three to five top recommended actions for its respective topic area, which resulted in identifying 24 high-priority recommended actions.

14. SUBJECT TERMS

  FRA, railroads, light rail, transit, trespass, right-of-way

15. NUMBER OF PAGES
85

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT

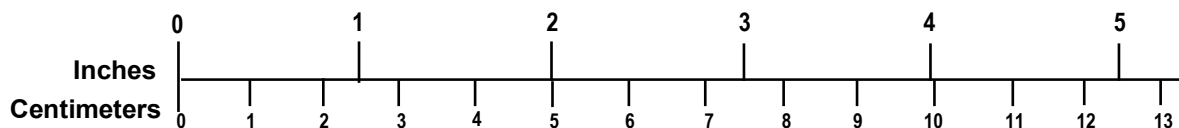NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. 239-18
298-102

METRIC/ENGLISH CONVERSION FACTORS

ENGLISH TO METRIC

LENGTH (APPROXIMATE)

1 inch (in)	=	2.5 centimeters (cm)
1 foot (ft)	=	30 centimeters (cm)
1 yard (yd)	=	0.9 meter (m)
1 mile (mi)	=	1.6 kilometers (km)

AREA (APPROXIMATE)

1 square inch (sq in, in^2)	=	6.5 square centimeters (cm^2)
1 square foot (sq ft, ft^2)	=	0.09 square meter (m^2)
1 square yard (sq yd, yd^2)	=	0.8 square meter (m^2)
1 square mile (sq mi, mi^2)	=	2.6 square kilometers (km^2)
1 acre = 0.4 hectare (he)	=	4,000 square meters (m^2)

MASS - WEIGHT (APPROXIMATE)

1 ounce (oz)	=	28 grams (gm)
1 pound (lb)	=	0.45 kilogram (kg)
1 short ton = 2,000 pounds (lb)	=	0.9 tonne (t)

VOLUME (APPROXIMATE)

1 teaspoon (tsp)	=	5 milliliters (ml)
1 tablespoon (tbsp)	=	15 milliliters (ml)
1 fluid ounce (fl oz)	=	30 milliliters (ml)
1 cup (c)	=	0.24 liter (l)
1 pint (pt)	=	0.47 liter (l)
1 quart (qt)	=	0.96 liter (l)
1 gallon (gal)	=	3.8 liters (l)
1 cubic foot (cu ft, ft^3)	=	0.03 cubic meter (m^3)
1 cubic yard (cu yd, yd^3)	=	0.76 cubic meter (m^3)

TEMPERATURE (EXACT)

$[(x-32)(5/9)]$ °F = y °C

METRIC TO ENGLISH

LENGTH (APPROXIMATE)

1 millimeter (mm)	=	0.04 inch (in)
1 centimeter (cm)	=	0.4 inch (in)
1 meter (m)	=	3.3 feet (ft)
1 meter (m)	=	1.1 yards (yd)
1 kilometer (km)	=	0.6 mile (mi)

AREA (APPROXIMATE)

1 square centimeter (cm^2)	=	0.16 square inch (sq in, in^2)
1 square meter (m^2)	=	1.2 square yards (sq yd, yd^2)
1 square kilometer (km^2)	=	0.4 square mile (sq mi, mi^2)
10,000 square meters (m^2)	=	1 hectare (ha) = 2.5 acres

MASS - WEIGHT (APPROXIMATE)

1 gram (gm)	=	0.036 ounce (oz)
1 kilogram (kg)	=	2.2 pounds (lb)
1 tonne (t)	=	1,000 kilograms (kg)
	=	1.1 short tons

VOLUME (APPROXIMATE)

1 milliliter (ml)	=	0.03 fluid ounce (fl oz)
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1 liter (l)	=	1.06 quarts (qt)
1 liter (l)	=	0.26 gallon (gal)
1 cubic meter (m^3)	=	36 cubic feet (cu ft, ft^3)
1 cubic meter (m^3)	=	1.3 cubic yards (cu yd, yd^3)

TEMPERATURE (EXACT)

$[(9/5) y + 32]$ °C = x °F

QUICK INCH - CENTIMETER LENGTH CONVERSION

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Centimeters	0 1 2 3	4 5 6	7 8	9 10	11 12	13

QUICK FAHRENHEIT - CELSIUS TEMPERATURE CONVERSION
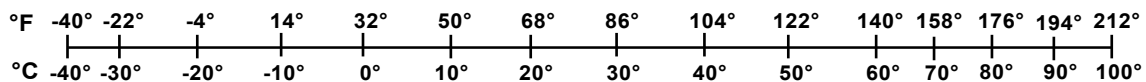
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°C	-40°	-30°	-20°	-10°	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°

Acknowledgements

The authors also wish to thank and acknowledge the contributions of all participants to the successful development of new or expanded initiatives, strategies, programs, and new research projects.

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Executive Summary

From August 4 to August 6, 2015, the U.S. Department of Transportation (U.S. DOT) Office of Research and Technology (OST-R) at John A. Volpe National Transportation Systems Center (Volpe Center) hosted the 2015 Right-of-Way (ROW) Fatality and Trespass Prevention Workshop in Charlotte, North Carolina. The workshop was sponsored by the Federal Railroad Administration (FRA).

Previously, FRA and the Federal Transit Administration (FTA) sponsored the first ROW Fatality and Trespass Prevention Workshop in 2008 in San Carlos, CA, and a second ROW Fatality and Trespass Prevention Workshop in 2012 in St. Louis, MO. These workshops brought together multiple rail constituents, including transit, freight, and commuter rail, to evaluate common problems and solutions pertaining to ROW fatality and trespass prevention, which remains a major risk mitigation area facing the rail community.

The purpose of the workshop was threefold:

1. Provide FRA and key stakeholders with an update of current and future activities in the areas of ROW fatality and trespass prevention.

2. Solicit new ideas from workshop attendees on prospective new or expanded initiatives, strategies, programs, and research projects.

3. Maintain the momentum generated in / from previous workshops.

To achieve these goals, subject matter experts (SMEs) were brought together to facilitate the <perhaps meant "discussion"?> of railroad and transit ROW trespass incidents and fatalities by sharing information, identifying specific recommended actions related to education, engineering, and enforcement (Three E's), and prioritizing those actions.

To assist with the planning and direction of the workshop, FRA nominated a Steering Committee, which consisted of leaders from various U.S. DOT agencies as well as their key partnering organizations (both public and private), and asked them to address different perspectives on highway-rail grade crossing safety and trespass prevention.

The Steering Committee developed the technical agenda, identified five topic areas, selected appropriate speakers, and actively participated in the execution of the workshop. The five topic areas are:

- Pedestrian Safety Issues (PSI)

- Community Outreach and Education (COE)

- Design, Technology, and Infrastructure (DTI)

- Enforcement (ENF)

- Intentional Deaths/Acts (IDA)

The 2½-day workshop was attended by a total of 170 delegates, including representatives from federal, state, and local governments, as well as participants from railroads, transit agencies, enforcement (railroad and non-railroad), academia, nongovernmental organizations, and

consultants. Additionally, there were international participants from Canada and the United Kingdom.

Ms. Sarah Feinberg, then Acting FRA Administrator, opened the workshop with a videotaped welcome address. On behalf of President Barack Obama and U.S. DOT Secretary Anthony Foxx, she thanked participants for their dedication to saving lives and making communities safer. For the full keynote address, visit: https://www.fra.dot.gov/conference/row/presentations.shtml

On the first day, speakers made presentations on the three of the five research areas identified by the Steering Committee: Pedestrian Safety Issues; Community Outreach and Education; and Design, Technology and Infrastructure. Eleven presentations were delivered on these three topic areas.

During the workshop's second day, the remaining two topic areas (Enforcement and Intentional Deaths/Acts) were covered over seven presentations. Day 2 also featured five simultaneously-held working group breakout sessions. The working groups were asked to come up with original ideas, including new or expanded initiatives, strategies and programs, and new research projects. These ideas were intended to produce:

- Alternatives based on the public interest

- Ideas not necessarily based on current conventions or standards

- Possible research projects with different procedures, innovative technologies, new participants, and changed responsibilities

The participants developed more than 110 ideas during the five breakout sessions. Then each breakout session group identified the top three to five project proposals and this vetting process resulted in producing the top 24 recommended actions across all five topic areas.   These actions were presented to the entire group in the "Working Group Summaries of Top Research Needs" session of the workshop and are listed in Table 1 on the following page.

The remaining actions that did not make the list (see Table 8) indicate <or> suggest the full spectrum of issues that were discussed.

Table 1. Top 24 Recommended Actions Developed by Topic Area

Topic Area	Action	Title
Pedestrian Safety Issues	1	Signage
	2	Crossing Guards
	3	Clearinghouse
	4	Pedestrian Safety Workshop
	5	Best Practices Guide
Community Outreach and Education	1	Target National Associations to Raise Trespass Awareness
	2	National Railroad Safety Day/Week
	3	Community Outreach with the Big Leagues
	4	Nationwide Media Buy Campaign
	5	Rail Safety Question on Every Driver's Ed and CDL Licensing Test Nationwide
Design, Technology and Infrastructure	1	Aerial Detection of Trespassing or Right-of-Way Changes
	2	Intrusion Detection and Notification
	3	Technology to Influence Behavior
	4	Research for Application of Technology or Mitigation Method Relative to Environment or Condition
	5	Standardized System of Train Engineer Data Collection and Reporting - Near Misses, Trespassers, etc.
Enforcement	1	Model Trespass Statute
	2	Grant Programs for Railroad Enforcement
	3	Model Railroad Law Enforcement Authority
	4	Use of Technology to Detect, Deter and Apprehend
Intentional Deaths/Acts	1	Talk to Suicide Survivors to Develop Best Practices
	2	Develop Rail-Specific Media Guidelines
	3	Educate Coroners/CMEs About Rail Death Determination
	4	Universal Railroad Emergency Number
	5	Secondary Probable Suicide Statistics to be Used to Determine Hot Spots

Following the approach of previous workshops, the results of this 2015 workshop are intended to be used by U.S. DOT modal administrations and their stakeholders to enhance safety on the nation's rail transportation network.

Based on evaluations and comments made during the sessions, the overwhelming consensus was that the workshop was a success. A total of 85 out of the 170 total attendees (50 percent)

responded to the survey (included in Appendix B) which was issued after the workshop. The results were asollows:

- Over 90% very or extremely satisfied with registration process, presentations, and session structure
- Over 81% very or extremely satisfied with breakout session/discussion (this rating was 58% at the 2012 workshop); some feedback noted lack of time for this activity
- About 40% of respondents indicated breakout session was what they like most
- 100% very or extremely satisfied with workshop staff
- 61% very or extremely satisfied with conference location and facilities
- 90% very or extremely satisfied with overall quality of the workshop
- 91% responded yes to "workshop met your expectations"
- 91% recommended these types of workshops be held at least every 2-3 years (13% every year, 78% every 2-3 years)

Presentations and ancillary documents from the workshop are posted online at:

https://www.fra.dot.gov/conference/row/presentations.shtml

1. Introduction

Trespassing along railroad rights-of-way (ROW) is the leading cause of rail-related deaths in America. Generally, most trespassers are pedestrians who use railroad tracks as a shortcut. More than 500 trespass fatalities and nearly as many injuries occur in the United States every year withthe vast majority of these events being preventable.

In 2008, the Federal Railroad Administration (FRA) and the Federal Transit Authority (FTA) sponsored the first ROW Fatality and Trespass Prevention Workshop to address this problem. The workshop, held in San Carlos, CA, was the first to bring together multiple rail constituents from transit, freight, and commuter rail to focus on common problems and solutions surrounding ROW fatality and trespass prevention. It was attended by 121 delegates from various organizations and government agencies. To view the presentations of the 2008 conference, visit http://www.fra.dot.gov/eLib/Details/L04235. A second national workshop sponsored by FRA and FTA was held from August 14 to August 16 of 2012, in St. Louis, MO. It was attended by 174 delegates. To view the presentations of the 2012 conference, visit https://www.fra.dot.gov/conference/trespass2012/presentations.shtml.

Based on the successes of the 2008 and 2012 ROW Fatality and Trespass Prevention Workshops, FRA sponsored a third ROW Fatality and Trespass Prevention Workshop held from August 4 to August 6 of 2015, in Charlotte, NC.

Figure 1. 2015 ROW Fatality and Trespass Prevention Workshop: Session in Action

As in 2008 and 2012, the 2015 workshop consisted of various program sessions presented by rail and transit experts and other safety professionals who shared their ideas on key issues, best practices, technical developments, human behavior, law enforcement, public education awareness outreach methods, and techniques related to trespass prevention. The workshop allowed the 170 attendees (representing federal, state, and local governments, freight and passenger railroads, transit agencies, labor unions, academia, nonprofit organizations, and consultants) to learn about and discuss advances, accomplishments, challenges, and approaches related to ROW fatality and trespass prevention.

The result was a workshop that facilitated an open exchange of ideas, created opportunities to network with peers, provided a showcase of the newest and best safety-related applications, and led to discussions of future recommended actions. The first two days of the workshop included presentations by representatives of various organizations on railroad and transit ROW trespass issues. These presentations corresponded to the aforementioned five topic areas of Pedestrian Safety Issues, Community Outreach and Education, Design, Technology and Infrastructure, Enforcement, and Intentional Deaths/Acts.

In the afternoon of Day 2, five working group breakout sessions were simultaneously held. The breakout work sessions identified potential new or expanded initiatives, strategies, and programs across the range of the five topic areas to facilitate the reduction of ROW trespass incidents and fatalities. The 2015 workshop concluded after the participants created a list of 24 recommended high-priority actions across these topic areas (refer to Table 1).

Figure 2. Example of Working Group Deliberating on Recommended Actions

The final day of the workshop concluded with a "Working Group Summaries of Top Research Needs" session, followed by two final presentations, capped by closing statements.

This report documents the purpose, processes, analyses, and results of the workshop. For additional supporting information on the workshop agenda, discussions, presentations, correspondence, visit: https://www.fra.dot.gov/conference/row/index.shtml

1.1 Project Objectives/Goals

The purpose of the workshop was three-fold:

1. Share existing industry leading practices and explore new strategies that the rail industry could pursue to reduce the number of ROW trespass incidents and fatalities.

2. Bring together subject matter experts (SMEs) to facilitate the reduction of railroad and transit ROW trespass incidents and fatalities by sharing information, collaborating, and prioritizing specific recommended actions related to education, engineering and enforcement (i.e., the "three E's").

3. Maintain the momentum generated by previous workshops.

The collaborative effort allowed participants to identify and prioritize specific research needs related to technology, human factors, methodology, enforcement, and education for incorporation into the strategic vision of FRA, other U.S. DOT modes, and their stakeholders.

1.2 Approach

To help determine the structure and direction of the workshop, FRA nominated various candidates of experts for the Steering Committee to address different perspectives of highway-rail grade crossing safety and trespass prevention. The Committee included leaders of various U.S. DOT agencies and their key partnering organizations (both public and private), as indicated in Table 2.

Table 2. Steering Committee Members

Name	Agency/Organization
Marco daSilva	Volpe Center
Frank Frey	FRA
Michail Grizkewitsch	FRA
Ryan Gustin	CSX
Michael Martino	Association of American Railroads (AAR)
Tarek Omar	FRA
Jahmal Pullen	North Carolina Department of Transportation (NC DOT)
Ron Ries	FRA
Joyce Rose	Operation Lifesaver (OLI)
Monica Shaw	FRA
Roger Smock	NC DOT

The Steering Committee was intended to bring together a wide range of views from a diverse pool of experts, including federal researchers, representatives of highway safety, law enforcement, rail and transit industry, management and labor, academia, and consultants. They were asked to aim for outcomes based on:

- Alternatives that work for the public interest;

- Ideas that were not necessarily based on current conventions or standards as needs, perceptions, and potential were more important than existing conventions;

- Possible research projects with different procedures, innovative technologies, new participants, and changed responsibilities.

The committee identified the following five topic or research needs areas:

Pedestrian Safety Issues

This topic area included reviews and analyses of pedestrian safety, including the following:

- Current intersection planning and design parameters

- Active and passive warning signage treatments

- Intuitive pathway channeling and cognitive danger recognition

- Methods to counteract inappropriate pedestrian behaviors

- Specific treatments at high density pedestrian crossings (near station platforms, for instance) with second train potential

The research in this area will facilitate a common industry approach to standardization of pedestrian-at-grade-crossing efforts nationwide, with the goal of reversing the upward trend in pedestrian fatalities.

Community Outreach and Education

In this session, some nationwide community outreach initiatives and programs were discussed; best practices were presented, and provided a blueprint for organizing successful community coalitions.

Design, Technology, and Infrastructure

This session addressed topics involving engineering activities, successes, and challenges with respect to fatalities and trespassing along the railroad's ROW.

Enforcement

This session examined safety and security initiatives that are currently in place and being effectively implemented to identify, apprehend and prosecute any track trespassers along the railroad ROW. This session aimed to provide the participants with information that can be "taken home" and put into practice, potentially resulting in a reduction of trespasser incidents nationwide.

Intentional Deaths/Acts

This session looked at current practices and research studies that aim to mitigate or eliminate intentional death acts on the nation's railroad ROW. This session provided attendees the opportunity to discuss current industry and public practices aimed at the prevention of intentional deaths through shared risk identification, statistical analysis, mapping high risk areas, and developing future prevention strategies and methods to gauge their success.

Next, the Steering Committee designated five team leaders by each topic area (see Table 3 for listing) to moderate the technical sessions, guide delegates in the analysis, and discuss the recommended actions which would be developed by the five working groups. The Steering Committee in turn nominated 19 speakers and presenters (see Table 4) to provide up-to-date research information and research progress on the five topic areas.

The breakout groups were assembled with the following factors in mind: attendee preference, group size, and the importance of providing a representative mix of participants from different modes, roles, and responsibilities. They were designed to stimulate as much discussion as possible and facilitate sharing of ideas across disciplines and modes.

Table 3. Team Leaders by Topic Areas

Topic Areas	Team Leader	Organization
Pedestrian Safety Issues	Frank Frey	FRA
Community Outreach and Education	Joyce Rose	OLI
Design, Technology, and Infrastructure	Jahmal Pullen	NC DOT
Enforcement	Ryan Gustin	CSX
Intentional Deaths/Acts	Michael Martino	AAR

Table 4. Workshop Speakers by Topic Areas

Topic Areas	Speaker	Title	Organization
Pedestrian Safety Issues	Kay Fitzpatrick	Senior Research Engineer	Texas A&M Transportation Institute
	Jeff Warner	Associate Transportation Researcher	Texas A&M Transportation Institute
	Thad Joseph	Manager, Services	Commonground/CGM GS
	Cliff Davy	Public Information Officer	Commonground/CGM GS
Community Outreach and Education	Kristin South	Sr. Communications Specialist	UP
	Ronnie Garcia	Manager, Field Safety	BNSF

	Art Miller	System Director, Safety and Regulatory Compliance	The Western Group
	Greg Deibler	Manager, Systems Safety	Virginia Railway Express (VRE)
Design, Technology, and Infrastructure	Rich Gent	President/CEO	Hot Rail Group
	Marco daSilva	Sr. Engineer	Volpe Center
	Chris Cunningham	Program Manager	ITRE
	Richard Mullinax	Crossing Signals Manager	NC DOT
Enforcement	Louis Jogman	Traffic Safety Committee Chair	Illinois Association of Chiefs of Police
	Jim Kveton	Deputy Chief	Elmhurst Police Department
	John Reiser	Assoc. Prosecutor	Washtenaw County APA
Intentional Deaths/Acts	Scott Gabree	Engineering Psychologist	Volpe Center
	Bianka Mejia	Engineering Psychologist	Volpe Center
	Mike Lauritzen	Sr. Business Consultant	North American Management
	Ann Doucette	Professor of Evaluation and Health Policy	George Washington University

Table 5 illustrates the range of participants, from federal, state, and local governments to railroads, transit agencies, labor unions, academia, nonprofit organizations, consultants, and international ministries, while Table 6 indicates the total number of participants by working group for each topic area.

Table 5. Distribution of Participants by Organization Type

Organization Type	Number of Delegates
Federal Government	21
Highway Agencies/DOTs	24
Railroads	47
Transit Agencies	15

Industry	3
Consultants	15
Enforcement—Railroads	8
Enforcement—General	3
University/Academia	8
Legal	5
Non-Government Organizations	14
Volpe Center Onsite Contractor Staff	1
Private Citizens	3
International	3
Total	170

Table 6. Distribution of Participants by Topic Area

Topic Area	**Number of Participants**
Pedestrian Safety Issues	35
Community Outreach & Education	42
Design, Technology and Infrastructure	28
Enforcement	36
Intentional Deaths/Acts	29
TOTAL	170

All of the topic area presentations were made to the entire group during the first two days. Near the end of Day 2, the breakout groups assembled separately to come up with three to five recommendations for new or expanded initiatives and strategies within their own topic area. First, participants added brainstorming ideas for recommendations to flipcharts. Then, each attendee voted by placing adhesive dots next to the five recommendations (s)he preferred the most.

At the completion of this process, the working groups had generated a total of 113 possible recommendations from which the group voting process narrowed down to a list of the top 24 recommended actions.

To retain ideas that provided insight into a topic area but not selected as top recommended actions, the workshop staff gathered all the flipcharts and notes taken during the breakout session. These ideas are presented in Table 8, in Section 2.2: Other Recommendations Discussed and Recorded at Breakout Sessions.

1.3   Main Session Presentations By Topic Areas

The 2 ½-day agenda for the 2015 ROW Fatality and Trespass Prevention Workshop is outlined below.   The presentation slides can be accessed by visiting:
https://www.fra.dot.gov/conference/row/presentations.shtml

Day One

Keynote Address

- Sarah Feinberg, Acting Administrator, FRA (video recording)

Welcome Address

- Paul Worley, North Carolina DOT - *Words of Welcome to Charlotte, North Carolina*. No PowerPoint™ slides were used.

General Addresses

- Ronald Ries, FRA - *Trespassing Issues that Face the Nation*

- Michail Grizkewitsch, FRA and Marco DaSilva, Volpe Center - *FRA Accomplishments*

SESSION 1: Pedestrian Safety Issues

Moderator: Frank Frey, FRA

- Dr. Kay Fitzpatrick & Jeff Warner, Texas A&M – *Texas A&M Transit Institute-Pedestrian Crossing of Public Transit Rail Services: Findings from Transit Cooperative Research Program (TCRP) 175*

  Thad Joseph & Cliff Davy, Commonground/MGS - *SunRail Project Safety Initiatives*

SESSION 2: Community Outreach and Education

Moderator: Joyce Rose, Operation Lifesaver

- Kristin South, UP - *Can Communities Regard Freight Railroads as Good Neighbors?*

- Ronnie Garcia, BNSF - *Using Social Media to Expand Public Safety Outreach*

- Art Miller, The Western Group - *Trespass Challenges and Solutions from the Film and Entertainment Production Industry*

- Greg Deibler, Virginia Railway Express (VRE) - *An "All-Fronts" Public Safety Outreach Campaign*

SESSION 3: Design, Technology, and Infrastructure

Moderator: Jahmal Pullen, NC DOT

- Rich Gent, Hot Rail Group - *Use of Unmanned Aerial Vehicles for Trespass Abatement*

- Marco daSilva, Volpe Center - *Trespassing Detection Research Project*

- Chris Cunningham, ITRE - *Researching Reduction in Railroad ROW Trespassing Incidents*

- Richard Mullinax, NC DOT - *Evaluation of Dynamic Gate Operations with Vehicle Detection*

Day Two

SESSION 4: Enforcement

Moderator: Ryan Gustin, CSX Community Affairs and Safety

- Louis Jogman, Illinois Association of Chiefs of Police - *Illinois Rail Safety Week*

- Jim Kveton, Elmhurst PD <<Police Department?>> - *Elmhurst PD <<Police Department?>> Strategies for Reducing Rail Collisions and Fatalities*

- John Reiser, Washtenaw County APA - *Strategies and Difficulties with Prosecution*

SESSION 5: Intentional Deaths/Acts

Moderator: Michael Martino, AAR

- Scott Gabree, Volpe Center - *Potential Countermeasures to Mitigate Suicides on the Railroad ROW*

- Bianka Mejia, Volpe Center - *Impacts of Media on Trespass and Suicide Incidents on ROW*

- Mike Luaritzen, NAMGT - *Demographic and Psychographic Profiles of Intentional Trespasser Fatalities*

- Ann Doucette, GWU - *Suicide on Railroad ROW: Advantages & Challenges of an International Response*

Organization of Working Groups/Introduction of Teams

Day Three

Working Group Summaries of Top Research Needs

- Stephen Covey, CN <<Canada? Canadian? >> Police - *Curbing Trespassing and Grade Crossing Incidents through Strategic Enforcement and Education, A Canadian Perspective*

- Michail Grizkewitsch and Norma Griffiths, FRA and Wende Corcoran, OLI - *1ˢᵗ Responder Training Programs*

- David Moskowitz, Charlotte Areas Transit System (CATS) - *CATS Perspective*

Final Thoughts and Workshop Closeout

1.4 Opening Addresses

At the beginning of the workshop, a videotaped keynote speech by FRA Acting Administrator Sarah Feinberg was presented (Figure 3). Ms. Feinberg provided words of both encouragement and urgency by emphasizing the fact that ROW trespassers account for the largest number of rail-related casualties, approximately 500 incidents per year. She paid tribute to the people who were gathered in the conference room, commending them for devoting three days to learning, sharing, and making their voices heard.

She conveyed to the attendees that the 2008 and 2012 conferences were great successes that set high standards, and that the 2015 conference could raise the bar even higher. She underscored FRA's and DOT Secretary Anthony Foxx's commitment to this issue, stating that trespassing is dangerous and the major cause of ROW fatalities.

Ms. Feinberg expressed her interest in strategies and perspectives that could help prevent fatalities and reduce injuries. According to Ms. Feinberg, the workshop discussions will serve as a launching pad for new ideas for research, studies and actions that could significantly reduce accidents and fatalities.

Ms. Feinberg emphasized the cultural aspects of trespassing on the railroad right-of-way. Americans are fascinated by trains, which is a good thing, but this fascination has led to accident-causing activities, such as walking in the ROW with ear buds on. She viewed the workshop as a great opportunity to re-examine the variables that lead to ROW trespass incursions, envision steps for the near future, and reduce this danger over the long term.

Ms. Feinberg closed the keynote address by stating that she looked forward to seeing the results of the workshop.

Figure 3. FRA Acting Administrator Feinberg's Video-recorded Keynote Address Delivered to Workshop Audience

Highlights from Welcome Address

Paul Worley, North Carolina DOT

Mr. Worley warmly welcomed workshop participants to the City of Charlotte and the State of North Carolinaand underscored NC DOT's commitment to rail safety.

Highlights from General Addresses

Ronald Ries – *Trespassing Issues that Face the Nation*

Mr. Ries emphasized the commitment of Acting Administrator Feinberg and Secretary Foxx to rail grade crossing and ROW trespass issues, adding bothare top priorities for the DOT. He concluded by stating that Ms. Feinberg has set the tone for the session and he looks forward to briefing her with the results of the workshop.

Mr. Ries summed up with the acronym HELP: **H**ear with an open mind; **E**valuate what you hear; **L**earn from others—speakers, during breaks and meals; and **P**articipate fully.

Michail Grizkewitsch and Marco daSilva - *FRA Accomplishments*

The presenters discussed how ideas develop over time based on the following recommendations made in the 2012 workshop:

- *Fencing Design and Utilization (Pedestrian Safety Issues)*: The working group had

recommended that engineering design solutions should be developed, such as pedestrian channelization techniques to mitigate pedestrian crossing hazards. The proposed solutions will be included in a study that will focus on guidelines, best practices and recommendations for fencing design targeted at pedestrians.

A focus of the study, currently underway, will be to conduct research on the present-day use of high-security fencing by railroad and transit agencies.

- *Fencing Design and Utilization (Design, Technology and Infrastructure)*: This group suggested that a study on the current use of high-security fencing by railroads and transit agencies could gather and analyze cost and implementation approaches for using high-security fencing.

   The study will conduct research on the present-day use of high security fencing by the railroads and transit agencies.

- *Enforcement*: This group suggested that enforcement should focus on "high value" targets such as hotspots or areas where trespassers with malicious intent, homeless people, and drug/alcohol drug users frequent. Strategies for different types of trespassers—casual, impaired, malicious—should be devised.

   A report will research and identify current best practices and effective initiatives used by law enforcement organizations in areas that have a high degree of public awareness and compliance with railroad trespass laws.

Other examples were mentioned as well, including the development of training aids for trespass prevention and creation of a simulator at the Volpe Center to test for real time safety responses to real world situations; train activated in-pavement lights to decrease driver and pedestrian risky behavior at grade crossings; and the issuance of media guidelines for suicide reporting.

2. Identification of Top Recommended Actions

On Day 2 of the workshop, attendees were divided into five working groups that would:

- Provide FRA and all workshop stakeholders with the current status of activities and research in their area of railroad ROW trespassing expertise;

- Formulate, by consensus, an updated set of ROW trespassing initiatives, strategies, programs, and research; and,

- Prepare these needs in a prioritized action item format.

2.1 Working Group Top Recommended Actions

The working groups met for a threehour block of timewith each group led by a team leader or moderator, assisted bysupport staff as necessary. Group participants were asked to brainstorm initiatives, strategies, programs, and research projects, and then prioritize the recommendations. These priorities were reported back to the main group by the moderator in the general session held on the last day.

The brainstorming process produced many ideas that were discussed, vetted, and consolidated into a formal list of ideas on flip charts. After brainstorming was finished, the groups selected the top three to five recommendations in their topic areas by voting. This vetting process yielded 24 top recommended actions from more than 110 suggestions across the five topic areas. Table 7 shows how the 24 recommended actions were distributed by topic area.

The breakout groups had slight variations in their voting procedures, their level of detail, and their reports. Each moderator/facilitator team employed his or her individualized approach and strategies to gather information from their working group.

Table 7. Distribution of Top 24 Recommended Actions by Topic Area

Topic Area	Team Leader	Number of Recommendations
Pedestrian Safety Issues	Frank Frey	5
Community Outreach and Education	Joyce Rose	5
Design, Technology, and Infrastructure	Jahmal Pullen	5
Enforcement	Ryan Gustin	4
Intentional Deaths/Acts	Michael Martino	5

2.2 Top Observations and Recommendations Developed by Each Working Group

Pedestrian Safety Issues

1. *Signage:* Provide a framework for identification and rotation of signage to maintain freshness, and prevent signs from becoming stale. Keep signs from becoming ineffective due to factors such as fading; crisp and effective messaging can be a low-cost alternative; key issues are cost, desire of local authorities, ongoing maintenance, and methodology.

2. *Crossing Guards:* Equip personnel at the ROW location so they can control pedestrian movement during large-scale or special events; to prevent mass number of pedestrians from entering outside of the crossing envelope; set of eyes to monitor approaching train traffic; inexpensive, effective and immediate, augment other safety outreach efforts such as rail crossing safety blitzes; determining what entity will send such personnel and who will pay the costs for the presence of a crossing guard.

3. *Clearinghouse:* Establish a clearinghouse for both pedestrian and railway grade crossings to provide states, transit and the railroad industry stakeholders with general grade crossing information, ideas and best practices for grade crossing safety (using an approach such as the Federal Highway Administration (FHWA) Pedestrian Bicycle Information Clearinghouse, http://www.pedbikeinfo.org [1]), provide immediate information through a website, and eventually through a live person; can benefit from a wide dissemination of current practices and theories as well as shared local experiences to a wide audience. However, clearinghouses can be fairly costly to launch and they require rigorous ongoing maintenance.

4. *Pedestrian Safety Workshop:* Create a forum for sharing best practices, engineering solutions, etc., so local ideas can be extended to the nationwide audience and current case studies can be shared to accelerate exchange of information among peers and foster lessons-learned. Also, participants can network with subject matter experts, new innovations and ideas can be discussed. Travel restrictions may be limiting, an optimal mix of participants and attendees would be best, the schedule should account for existing scheduled seminars.

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[1] *Since its inception in 1999, the Pedestrian and Bicycle Information Center's (PBIC) mission has been to improve the quality of life in communities through the increase of safe walking and bicycling as a viable means of transportation and physical activity. To support this mission, the PBIC:*
- *Develops, synthesizes, promotes and distributes accurate and current bicycling and walking information.*
- *Provides expert technical assistance to various audiences to ensure that citizens and professionals have access to the best available information.*
- *Generates a network of informed individuals and organizations who can increase the exposure of pedestrian/bicycle issues to the general public.*

To accomplish that mission, the PBIC manages several websites, produces a variety of reports, guides and case studies, and offers training and technical assistance.

5. *Best Practices Guide*: Develop best design practices document that covers signage, channelization, geometrical features, local characteristics, etc. It should include technology transfer and sharing of innovative ideas, which leads to saving lives, reducing incidents and accidents, and facilitating the adoption of proven crossing treatments from various homegrown initiatives to a national audience. A team of SMEs should be established to capture the various design and operational approaches.

Community Outreach and Education

1. *Ask National Associations to Raise Trespass Awareness:* Deliver existing anti-trespassing program and safety message information to national associations for their members, customers and employees (e.g., International Association of Police Chiefs, Fast Food, Gas Stations, Canadian Automobile Association, Association of American Retirees, American Public Transportation Association, American Association of State Highway and Transportation Officials, International Association of Fire Chiefs, etc.). National organizations can help spread rail safety/anti-trespass messages through their own memberships and reach a broader audience than rail safety advocates can achieve on their own. This approach makes message delivery more efficient and allows the anti-trespassing groups to target money and resources. However, achieving buy-in from the national associations may be challenging and the groups need to identify what will incentivize national association participation.

2. *National Railroad Safety Day/Week:* Work towards a Presidential proclamation for a National Rail Safety Day or Week with uniform anti-trespass and crossing safety messages. If a National Rail Safety Day or Week occurs at the federal level, governors for all states are more likely to make participation a priority (and provide funding). Federal agencies, railroads, and other safety partners can blitz communities and media outlet. If a unified message is sent to all communities, fatalities and injuries will decrease and public awareness of rail safety issues will be raised. Executive branch support for Presidential proclamation will be needed communication and pre-planning for first National Rail Safety Day/Week (after a few years, hopefully can advertise better safety results).

3. *Community Outreach with the Big Leagues*: Form safety partnerships with the community outreach arms of major sporting outlets (i.e., the National Football League, Major League Baseball, Major League Soccer, and the National Hockey League). Host volunteer efforts, play Public Service Announcements (PSA) in arenas, create handouts, and place a logo or signage on team uniforms. A professional sports league partnership can provide large venues for discussing safety and the messenger can create automatic public buy-in. They can also provide a huge opportunity for social media outreach, including PSA's at arenas and other forms of high-visibility outreach that provide opportunities to create a message that evokes emotion—all of us are impacted by sporting events and trespassing on the ROW. The anti-trespassing groups need to focus on one organization and get the process in place. The costs need to be assessed—a certain amount will be borne by federal safety partners and railroads, while the rest could be shifted to the professional sports partner.

4. *Nationwide Media Buy Campaign*: Create a nationwide media buy campaign with a unified PSA message that would be funded by railroads, federal and state DOTs for targeted television and radio networks. If ad time is purchased for PSAs instead of relying on earned media, campaign managers could target areas with significant trespassing problems and use existing trespasser profiles and demographic research to build precise ad profiles that determine where and when a PSA should be aired. National Association of Broadcasters and State Broadcasting Associations multi-outlet buys could be used to support this concept, and Ad Council buys can be made with a 501(c) (3) designation. The campaign must be in both English and Spanish—Telemundo, Univision, and other Spanish-language TV, radio and print media can aid in distribution. Name brand recognition will be needed for the campaign and the sponsoring organization. The campaign must change the public perception that trespassing is socially acceptable, which would lead to fewer injuries and fatalities. Most PSA campaigns rely heavily on earned media because purchasing ad time is expensive in major media markets. Promoting the campaign will require a high level of coordination with partners and stakeholders.

5. *Rail Safety Question on every Driver's Ed and CDL Licensing Test Nationwide*: State Departments of Motor Vehicles should include a Grade Crossing Safety message/question in driver and CDL tests. This proposal focuses on grade crossings (versus pedestrian trespassing). Nevertheless, the session participants thought that the idea would lead to increases in driver awareness of rail crossing safety measures as well as reductions in crossing incidents and grade crossing trespassers. Key partners include motor carriers organizations and companies, U.S. DOT agencies, the FRA Grade Crossing Team, the American Association of State Highway and Transportation Officials (AASHTO), and other organizations who effectively work to impact state legislation.

Design, Technology, and Infrastructure

1. *Detecting Trespassing or ROW Change with an Aerial Vehicle:* Develop unmanned aerial vehicle (UAV) or satellite technology to capture corridor anomalies, trespassers or obstructions along railroad corridors. Technology should also provide communication to the locomotive engineer. The new technology has tremendous potential for the rail industry by locating trends and high risk areas for enforcement and providing real time notification. The industry will need Federal Aviation Administration (FAA) laws written to allow for use.

2. *Intrusion Detection and Notification:* Develop automated or operator-based technology to detect trespasser or obstructions, including locomotive-mounted, operator controlled or wayside apparatus, to warn trespassers and distribute information between locomotive engineer, railroad dispatcher or integrate with PTC. The system would provide a real-time way to deter the trespasser, alert the trespasser, notify the railroad, and law enforcement of the trespasser. The technology is already out there, needed to determine how to implement.

3. *Technology to Influence Behavior:* Develop technologies to influence human behavior towards trespass prevention and alert trespassers of potential hazards. Multiple technologies such as light (color, brightness, visual stimulation, etc.), vibration (train or

wayside applications), microwave, and infra-red should be considered. The industry needs to find new and better ways to deter trespasser behavior and inform trespassers or violators of potential hazards along the railroad corridor or at high-risk locations. Such technologies are difficult to implement and potentially costly to implement.

4. *Research for Application of Technology or Mitigation Method Relative to Environment or Condition*: Research needed into applying technologies or mitigation methods relative to the environment or condition. The industry needs to have a thorough understanding of different conditions and how they vary, so the available technology can be tied to the condition. The applications could be standardized across rail carriers or public agencies and standardization will vary depending on the location.

5. *Standardized System of Train Engineer Data Collection and Reporting - Near Misses, Trespassers, etc.*: standardized system of data collection and reporting of trespassing, near-misses and grade crossing issues; need for information on trespasser hot spots or incidents, define enforcement zones; need participation by stakeholders to obtain good data.

**Enforceme
nt**

1. *Model Trespass Statute:* Develop a federal law for trespass and pass it on to the states for consideration. Currently, there is no consistency in the way that trespass statues are written. A uniform law would allow law enforcement to more effectively and consistently enforce railroad related trespass laws. The participants wanted to be aware of large fines because they may lose buy-in. The anti-trespassing groups would need to educate the judicial system to garner support.

2. *Grant Program for Railroad Enforcement*: Establish a federally-funded and supported grant program that is designed to support the enforcement of railroad-specific violations. Since local law enforcement has limited resources, a grant program would help them focus and enforce railroad specific laws, engage community stakeholders with more effective enforcement and reduce trespass causalities, especially when funding is required. Data would be required for a grant program and finding an appropriate agency to manage the grant will be necessary.

3. *Model Railroad Law Enforcement Authority*: Provide federal guidance to assist states with the statutes that grant the appropriate law enforcement powers to railroad law enforcement personnel. Currently, railroad police authority differs between the various states, and consistent statutes would allow railroad law enforcement to carry out their mission more effectively. Uniform statutes would give railroad law enforcement the ability to more effectively enforce trespasser and all other railroad-related violations without wondering whether they have jurisdiction as well as the ability to appropriately enforce the state laws. There may be resistance from the states to pass the necessary statues and/or modify existing language.

4. *Use of Technology to Detect, Deter and Apprehend*: Adopt current technology and/or equipment to detect, deter, and apprehend violators of railroad related statutes. Railroad law enforcement personnel and local law enforcement often do not have the manpower to adequately police railroad right-of-way effectively, and technology could allow law enforcement personnel to handle larger areas with their limited time and resources. Technology may also reveal other items of interest (i.e. worn paths, homeless camps, illegal dumping), but the gear can be very expensive. Law enforcement may have to solicit vendors and appropriately sharing the data with law enforcement partners might prove difficult. Finally, using data for prosecution might require additional effort and/or investigation.

**Intentional
Deaths/Acts**

1. *Obtain Best Practices from Suicide Survivors:* Ask survivors of rail suicide attempts why they chose the railroad ROW, and find out what might have prevented them from making an attempt. Examine best practices from other suicide prevention campaigns to better understand why they chose the rail for a suicide attempt. Develop more effective suicide prevention messaging. Finally, find survivors who were willing to participate.

2. *Develop Rail-Specific Media Guidelines*: Develop industry guidelines for media and rail representatives that encourage responsible reporting. Help discourage sensationalistic reporting of rail suicides, which should lead to fewer copycat suicides. Define how information is distributed to the media.

3. *Educate Coroners/CMEs About Rail Death Determination:* Educate Coroners/Certified Medical Examiners (CMEs) about specific issues related to rail deaths, because current determinations are slow and inconsistent. This suggestion should lead to better quality data faster. However, it will need cooperation with the coroners/CMEs.

4. *Universal Railroad Emergency Number*: Create an easy-to-remember number for reporting rail emergencies (e.g., suspected suicidal behavior). The call would also be tagged with a Global Positioning System (GPS) location, which would provide a more accurate location of the incident, allow easier reporting of the incident by the public, and generate a quicker response to rail emergencies. However, the cost of the phone center must be taken into account.

5. *Use Secondary Probable Suicide Statistics to Determine Hot Spots*: To add another category in FRA's reporting for probable cause of death at the scene. This category would reduce the time and inconsistency of suicide determinations and provide quicker and more reliable data to identify hot spots. FRA manpower and legal issues.

2.3   Other Recommendations Discussed and Recorded at Breakout Sessions

The 24 recommendations were the top vote-getters, but many other important ideas were also proposed. Many participants felt that assigning top five standing was difficult because they felt that the other suggestions are worthy as well. Those other ideas are presented in Table 8. Similar ideas are included in this table because they were developed independently within their respective groups.

Table 8. Other Ideas/Recommendations Not Selected for the Top 24

TOPIC AREA	TITLE
Pedestrian Safety Issues	Research – Pedestrian Crossing Design/Specifications; how far we walk; platform design for circumstances—most methods of channelization; whistle codes for trespass, unauthorized persons
	Overpass/underpass treatments—criteria and thresholds
	Flashing pedestrian in-pavement lights

TOPIC AREA	TITLE
	Where do pedestrians look when they walk? This is a research suggestion
	Identify crossings that need improvement, what variables to use
	Grade crossing blitzes to include enforcement
	Data—need to separate out suicides from data
	Basics—start at square one
	Survey public perceptions
	Need short-term practical ideas for quick implementation
	Boy Scout merit badges
	Pop-up ads on mobile devices, direct messaging to larges events/sports games
	Measure effectiveness of treatments; where they are most effective; and how they differ, depending on site characteristics
	Collison reduction factors; develop surrogate measures for pedestrian crossing; sharing near-hit data
	Selection of treatment for each site decisions
	Pedestrian simulator to evaluate devices such as in pavement lights, or develop measures of effectiveness such as accident reduction factors or some other model
Community Outreach and Education	PSAs and social media directed at schools
	Focus on high risk target areas
	Educate media about positive news reporting
	Better training for the judiciary
	On line collaboration tool for railroad personnel
	Celebrity endorsements
	Pre-produced training/campaign materials
	Gamification—apps for students and passengers
	Brochures in hotel lobby kiosks, public spaces, departments of motor vehicles, medical clinics/offices
	Sticker/decals in beer and wine coolers
	Small business outreach
	Safety cards/reminders inserted into headphone case purchased at point of purchase

TOPIC AREA	TITLE
	Research strategies for dealing with trespassers that are situated near a ROW, by category.
	Focus groups to research and test strategies
	Text book covers, [message would appear on the text book cover]
	National high school safety campaign through social media
	Hang tags for new cars/rentals
	Gas pump videos
	Information sessions on long distance trains to make people aware of trespassing issues
	Early education; get messages in the school at an early age; Imagination Literacy Project distributes 750,000 book monthly for families with children
	Tell more facts regarding what if the attempt at suicide failed? The consequences of this.
	Audibly and visually warn trespassers to get off track
	Research why are females committing suicide by train
	Social media campaigns similar to the "bucket challenge"
	Research strategies for dealing with trespass as a result of high risk locations near railroad such as homeless shelters, rehabs, soup kitchens, mental health facilities
	Small business outreach
	Community focus groups to research, test mitigation, objectives and awareness strategies in areas where trespasses occur often
Design, Technology, and Infrastructure	Use of different colors as a deterrent (for example, yellow lines)
	Use of natural barriers such as water, shrubbery
	Develop technology to give "vibration" to persons in track area (i.e., a person wearing ear buds)
	More pedestrian infrastructure—sidewalks, under/overpasses
	Use of dye pack/smart water as a means of identifying trespassers
	Improved competitive funding process to make pedestrian improvements and prioritize
	Light technology to influence behavior
	Integrate railroad into community development plans to accommodate crossing railroads
	Integrate technology enhancements to infrastructure

TOPIC AREA	TITLE
Enforcement	Information sharing
	Officers on trains
	National enforcement awareness campaign. National trespass day/week
	Education programs: New hire/academy
	Enforcing laws
	Recoup expenses from trespass activities
	Judicial education program for staff/clerks
	The real costs of vandalism
	Amend railroad liability for enhancement efforts
	Interagency information sharing
	National reward/bounty program
	Data to support trespass costs in terms of dollars and personnel needed
	"Dig Safe" type of program may have applicability to ROW incursions
	Model deferred diversion programs
	Supply uniformed police enforcement community with guidelines, standards, data collected from standardized forms…see something, say something
Intentional Deaths/Acts	Use big events as a way to raise awareness and promote safety
	Ads or information campaigns to educate public about behaviors that indicate risk
	Coordination between FRA and FTA; FTA can help with station issues
	Bring in others, like veterans, to help support cause
	Focus on catastrophic injury versus fatality
	Use GPS to get location information; use to send help to correct location for non-crossing trespass
	Study how other suicide prevention approaches have done campaigns
	Universal signage that is not dependent on specific languages
	Potential to reach out to mental health providers; actions may be pre-meditated or practiced
	Study what best types of signage is—what language, what audience
	Rail industry to work with mental health providers on World Mental Health Day
	Public safety campaign to have open conversations about suicide

TOPIC AREA	TITLE
	How do we determine effect? Explore alternative ways to judge impact
	Railroads give financial support to organizations that already address suicide
	Use "intentional death" instead of "suicide"
	Regional studies of suicides to determine cultural, environmental, etc., differences
	Toolkits for RRs to help them understand risks in the areas they run (trespass, suicides, etc.)
	Explore use of electronic road signs for suicide prevention messages
	Messages on public programs to prevent suicide in a more graphic message
	Consider campaigns that are graphic, or focusses on sayings such as "it gets better campaign", "messy problem"
	How do we determine true effects? Explore alternative ways to judge impact

2.4   Presentation of Final Results

On Day Three, the workgroup moderators presented their findings from the previous day's breakout session to the entire workshop.

For each of the working groups, results were presented in the following sequence:

1. Team members with facilitators and moderators identified

2. A list of the top three to five recommendations

3. For each recommendation (which is the working groups' deliverable to the workshop):

   a. Project identification

   b. Description

   c. Rationale

   d. Perceived benefits

   e. Key implementation issues

4. Working group presentation to the entire group

It should be noted that the language presented in this subsection is as agreed upon by the workshop groups, with minor edits for readability.

2.4.1 Pedestrian Safety Issues

This topic area required a review and analysis of current intersection planning and design parameters, active and passive warning signage treatment, and intuitive pathway channeling and cognitive danger recognition; identified specific treatments at high-density pedestrian crossings (e.g., near station platforms) with second train potential; and considered methods to counteract inappropriate pedestrian behaviors. Ideally, the research in this area would facilitate a common

industry approach to standardization of pedestrian at-grade crossing efforts nationwide, with the goal of reversing the upward trend in pedestrian fatalities.

Table 9 lists the attendees that participated in the Pedestrian Safety Issues breakout session.

Table 9. Pedestrian Safety Issues Breakout Group

Name	Agency/Organization
Fred Biederman	DRSC
Grant Brodehl	Rio Metro Regional Transit District
Eric Cheng	Utah DOT
Kay Fitzpatrick	Texas A&M Transportation Institute
Frank A. Frey	US DOT/FRA
Brian Gilleran	US DOT/FRA
James Harrison	US DOT/Volpe Center
Javier Hurtado	Gannett Fleming
Martha Jimenez	SCRRA
Thad Joseph	Sun Rail Project/CGMGS
Catherine LeFevers	North Carolina Operation Lifesaver
Matt Mitchell	BNSF
John Plebanek	Union Pacific Railroad
Lisa Revell-Petro	Florida DOT
Sheldon Shaw	Utah Transit Authority
Nancy Sheehan	CA Operation Lifesaver
Phillip Thomas	Maryland Transit Administration
Jeffery Warner	Texas A&M Transportation Institute
Heyward Watford	CSX

Recommended Actions for Topic Area 1: Pedestrian Safety Issues

- **Project 1. Signage**
- **Project 2. Crossing Guards**
- **Project 3. Clearinghouse**
- **Project 4. Pedestrian Safety Workshop**
- **Project 5. Best Practices Guide**

The Pedestrian Safety Issues group had a very robust conversation and many ideas were discussed. As with other sessions, there was more emphasis of on action items that were quicker to implement as well as offering immediate and effective results—low hanging fruit—as well as longer term research suggestions. The group was very engaged and there were many great ideas. The time was fully occupied with discussion and lively exchange. Many participants wished that there was more time.

Project 1: Signage
- Description: Provide a framework for the identification and rotation of signage. This is to maintain freshness, and prevent signs from becoming stale.
- Rationale: Prevent signs from becoming ineffective, such as fading. From a physical and psychological standpoint.
- Benefits: Crisp and effective messaging can be a low cost alternative.
- Key Implementation Issues: Cost, desire needed from the local authorities, ongoing maintenance, and methodology.

The group felt that standardized, fresh messaging could be obtained through consistently formatted signage that is systematically rotated and refreshed in order to retain effectiveness. MUCTD standards should be expanded to encompass the pedestrian grade crossing topic area; the application of signage standards should not just incorporate the roadway, but should be expanded for application to pedestrian pathways as well.

Project 2: Crossing Guards
- Description: Equipping personnel at the location to control the movement of pedestrians at large-scale or special events
- Rationale: Prevent mass number of pedestrians from entering outside of the crossing envelope. They can serve as a set of eyes to monitor approaching train traffic
- Benefits: Project is inexpensive, effective and immediate. Augment other safety outreach efforts, such as crossing safety blitzes
- Key Implementation Issues: Who will send such personnel and pay the costs for a crossing guard?

The deployment of crossing guards at major events is a low cost, effective way to control the flow of people, and enhance safety. They can be deployed at any hot spot along the

ROW, not just the crossing. The guard can surveil the right of way; keep an eye out for trains, and help channel people safety and quickly across the tracks.

Project 3: Clearinghouse
- Description: Provide states, transit, and the railroad industry stakeholders with general grade crossing information for both pedestrian and roadway grade crossings, ideas and best practices for grade crossing safety – FHWA Pedestrian Bicycle Information Clearinghouse.
- Rationale: Provide immediate information through a website, and eventually through a live person
- Benefits: Wide dissemination of current practices and theories, sharing local experiences to a wide audience
- Key Implementation Issues: Could be fairly costly to launch, and it would require rigorous ongoing maintenance

This recommendation cites the effectiveness of the FHWA Pedestrian Bicycle Information Clearinghouse, http://www.fhwa.dot.gov/environment/bicycle_pedestrian/index.cfm as a model.[2]

Project 4: Pedestrian Safety Workshop

- Description: Forum to share best design practices, engineering solutions, etc.
- Rationale: Provide local ideas to the national audience. Share current case studies, establish consistent ideas, accelerate or exchange information among peers, foster lessons learned
- Benefits: Networking with subject matter experts, incubate new innovations and ideas
- Key Implementation Issues: Travel restrictions, obtaining an optimal mix of participants and attendees, take existing scheduled seminars into account

The group suggested that a Pedestrian Safety session be planned for members of the rail safety community. This session should be designed to piggyback with a similarly-

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[2] *According to Bicycle and Pedestrian website:*

- *Each state has a Pedestrian Coordinator in its State Department of Transportation to promote and facilitate the increased use of non-motorized transportation. The Clearinghouse issues guidance and helps to ensure that requirements in legislation are understood and met by the States and other implementing agencies. The site contains information about the amount of Federal funding obligated on pedestrian and bicycle projects in your State, available Federal funding sources, existing legislation, and guidance about accessible design, and is designed to provide information on a wide variety of engineering, encouragement, education, and enforcement topics.*

themed multi-day workshop developed for related areas of concern. The session will be designed to help to generate ideas, costs and responsibilities for additional drill study or action. Appending this session to the right workshop will broaden the inputs to other stakeholders and facilitate a broader two way exchange leading to new ideas and concepts.

Project 5: Best Practices Guide

- Description: Developing best design practices regarding signage, channelization, geometrical features, local characteristics, etc.
- Benefits: Reducing incidents and accidents, and facilitating proven crossing treatments from various homegrown initiatives to a national audience
- Key Implementation Issues: establishing a team of SME's to capture the various design and operational challenges

The compilation and publishing of a best practices guide will help with the sharing of ideas, especially home grown ideas, to a broader nationwide audience so that other systems may learn and adopt locally grown, but nevertheless broadly applicable ideas.

2.4.2 Community Outreach and Education

This session presented some community outreach initiatives and programs currently practiced nationwide, presented best practices, and provided other information for creating a successful community coalition.

Table 10 lists the attendees that participated in the Community Outreach and Education breakout session.

Table 10. Community Outreach and Education Breakout Group

Name	Agency/Organization
Clyde Armstrong	Metro-North Railroad
Sheriee Bowman	CSX Transportation
Greg Deibler	Virginia Railway Express
Jim Ganey	FDOT
Ronnie Garcia	BNSF
George Good	Federal Transit Administration
Norma Jean Griffiths	USDOT - FRA

Tina Hissong	Michigan Department of Transportation
Elizabeth Hudd	Federal Railroad Administration
Anne Jackson	CSX
Sandy Kelley	Florida East Coast Railway
Marcus Landy	SC Office of Regulatory Staff
Daniel Lites	Kansas City Southern Railroad
Rachel Lui	Transport Canada Rail Safety
Arthur J. Miller, Jr.	The Western Group
Terry Morris	UPRR
Lawson Narvell	NTSB
Rich Neff	Amtrak
Steven Neubauer	BNSF
Darlene Osterhaus	KDOT
Barbara Petito	Amtrak OPS Safety
Michael Regimbal	Operation Lifesaver Canada
Ronald Ries	Federal Railroad Administration
Joyce Rose	Operation Lifesaver, Inc.
Buck Ruissel	Union Pacific Railroad
Sandra Sea	CSX Transportation, Inc.
Roger Smock	BeRailSafe/NCDOT
Kristen South	Union Pacific Railroad
Jean Tierney	VIA Rail
Todd Walters	UPRR
Chris Watson	Arizona Corporation Commission – Railroad Safety

Recommended Actions for Topic Area 2: Community Outreach and Education

- **Project 1. Ask National Associations to Raise Trespass Awareness**
- **Project 2. National Railroad Safety Day/Week**
- **Project 3. Community Outreach with the Big Leagues**
- **Project 4. Nationwide Media Buy Campaign**
- **Project 5. Rail Safety Question on Every Driver's Ed and CDL Licensing Test**
- **Nationwide**

The group was very motivated. It followed a structured approach that focused on individual brainstorming, separating into five subgroups that compiled ideas, eliminated duplication, and combined like ideas. Then the subgroups reported out to the entire group and the participants voted on each idea. After that, attendees completed the description, rationale, benefits and key implementation issues for each of the recommendations.

Project 1: Ask National Associations to Raise Trespass Awareness
- Description: Utilize existing anti-trespassing programs and safety message information and provide them to national associations so they can advocate to their members, customers and employees (e.g., International Association of Chiefs of Police, Fast Foot, Gas Stations, CAA, AAR APTA, ASSHTO, International Association of Fire Chiefs, etc.)
- Rationale: National organizations can help spread rail safety/anti-trespass messages through their own memberships, reaching a broader audience than rail safety advocates can achieve on their own
- Benefits: Increased efficiency of message delivery; target their money and resources
- Key Implementation Issues: Achieving buy-in from national associations may be challenging; need to identify what will incentivize national associations' participation

The working group saw the national organizations as an effective mode of getting the word out. Working with national associations will ensure that safety messaging is broadly distributed in a consistent and distinctive manner. The national associations have extensive membership, a focused audience, and methods of communicating with members that will get the trespass message widely distributed. This is another way to get locally grown ideas on the national stage.

Project 2: National Rail Safety Day/Week
- Description: Presidential proclamation for a National Rail Safety Day or Week with uniform anti-trespass and crossing safety messages. Rationale: If a National Rail Safety Day/Week, governors for all states are more likely to make participation a priority (and provide funding). Federal agencies, railroads, and other safety partners can blitz communities and media outlets

- Benefits: Exposing a unified message to all communities; decreasing fatalities and injuries; and raising public awareness of rail safety issues
- Key Implementation Issues: Executive branch support needed for Presidential proclamation; communication and pre-planning for first National Rail Safety Day/Week (after a few years, we hopefully can advertise better safety results)

An annual Safety Week would go a long way to reaching the populace and ensuring the safety message hits home. A nationwide safety week will foster a consistent message throughout the country, complement ongoing messaging, and add power to the message. It will lead to additional coordination among different segments of the rail safety community. The working group was very enthusiastic about this suggestion. It was noted that Congress has not been issuing these types of proclamations anymore, so other means for establishing a national day (or week) is needed.

Project 3: Community Outreach with the Big Leagues
- Description: Approach the community outreach arm of major sporting outlets (National Football League, Major League Baseball, Major League Soccer, and National Hockey League) to form a safety partnership. The partnership could host volunteer efforts, play PSAs in arenas, provide handouts, add logos/signage to team uniforms
- Rationale: A professional sports league partnership provides large avenue to discuss safety with automatic public buy-in because of who is delivering the message
- Benefits: The partnership would have a huge opportunity for social media outreach, PSAs could be played at arenas, and high-visibility outreach would be possible. Opportunity to create a message that evokes emotion—all of us are impacted by drinking, sporting events, and ROW trespassing
- Key Implementation Issues: Need to focus on one organization to get process in place. How much will need to be borne by federal safety partners and railroads, and how much of associated costs can be shifted to the professional sports partner

Everyone agreed that this approach has very good potential to get the message out and spread the word widely.

Project 4: Nationwide Media Buy Campaign
- Description: Media buy campaign funded by railroads, federal, and state DOTs to run a unified PSA message nationwide on targeted television and radio networks
- Rationale: Purchasing ad time for PSAs instead of relying on earned media allows campaign managers to target areas with significant trespassing problems. Use existing trespasser profiles and demographic research to build precise ad profiles that determine the networks/times/messages for the PSA. Utilize National Association of Broadcasters and State Broadcasting Associations multi-outlet buys; can also utilize Ad Council buy with 501(c) (3) designation. Campaign must be in both English & Spanish – Telemundo, Univision and similar Spanish-language TV, radio and print media can aid distribution
- Benefits: Create name brand recognition for campaign and sponsoring organization.

Change the public perception that trespassing is socially acceptable, resulting in fewer injuries and fatalities

- Key Implementation Issues: Most PSA campaigns have relied heavily on earned media; purchasing ad time will be expensive in major media markets. High level of coordination with partners and stakeholders is required to promote campaign
- Benefits: The partnership would have a huge opportunity for social media outreach, PSAs could be played at arenas, and high-visibility outreach would be possible. Opportunity to create a message that evokes emotion—all of us are impacted by drinking, sporting events, and ROW trespassing
- Key Implementation Issues: Need to focus on one organization to get process in place. How much will need to be borne by federal safety partners and railroads, and how much of associated costs can be shifted to the professional sports partner

Normally, a PSA is arranged with a local station. This idea is different because it specifies the purchase of the consistent nationwide ad(s). Unlike the local PSAs which can be arranged for free due to FEC provisions, this idea costs significant money. The cost is a major factor, but the approach is worth examining

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Project 5: Rail Safety Question on Every Driver's Ed and CDL Licensing Test Nationwide
- Description: Encourage state DMV's to include a grade crossing message or question in tests for drivers' licenses and CDL Licenses
- Rationale: This proposal seems to fall in the educational outreach for drivers and does not really apply to trespasser outreach.   But it still seemed like a very good idea to the COA breakout participants
- Benefits: Increased driver awareness of rail crossing safety measures; reduction in grade crossing incidents and grade crossing trespassers
- Key Implementation Issues: Key partners include motor carriers organizations and companies, US DOT agencies, FRA Grade Crossing Team, AASHTO, and other organizations who effectively work to impact state legislation

The work group had a concern that this recommendation was more of a grade crossing rather than a trespass issue. Notwithstanding, the group overwhelmingly voted put this recommendation in their Top Five.

2.4.3 Design, Technology, and Infrastructure

This session presented topics specifically related to engineering activities, successes and challenges with respect to fatalities and trespassing along the railroad's rights of way.

Table 11 lists the attendees that participated in the Hazard Management breakout session.

Table 11. Design, Technology and Infrastructure Breakout Group

Name	Agency/Organization
Kurt Anderson	CTC., Inc.

Shannon Bailey	Protran Technology
William Browder	AAR
Randall Brown	US DOT FRA
Rick Campbell	CTC, Inc.
Debra Chappell	US DOT/FRA
Marco daSilva	US DOT/Volpe Center
Russ Dawydiuk	GO Transit
Jason Field	Moffatt & Nichol
Richard Gent	Hot Rail Security LLC
Daniel Lindstrom	Transitvue Communication Systems
Will Miller	Norfolk Southern Corporation
Richard Mullinax	NCDOT-Rail Division
Tarek Omar	US DOT/FRA
Michael Perry	Sound Transit
Jahmal Pullen	NC DOT-Rail Division
Brian Ralsin	American Structurepoint, Inc.
Scott Sauer	SEPTA
John Shurson	BNSF Railway Company
Ian Stevens	Network Rail

Recommended Actions for Topic Area 3: Design, Technology, and Infrastructure

- **Project 1. Aerial Detection of Trespassing or ROW Changes**
- **Project 2. Intrusion Detection and Notification**
- **Project 3. Technology to Influence Behavior**
- **Project 4. Research for Application of Technology or Mitigation Method Relative to Environment or Condition**
- **Project 5. Standardized System of Train Engineer Data Collection and Reporting-Near Misses, Trespassers, etc.**

The Design, Technology, and Infrastructure group had a very robust session; the group was going strong when time ran out. A great deal of discussion was based around innovative technologies, methodologies, and standardized but tailorable approaches to the collection of data, including near misses.

Project 1: Aerial Detection of Trespassing or Right of Way Changes
- Description: Develop an unmanned aerial vehicle (UAV) or satellite to capture corridor anomalies, trespassers or obstructions along railroad corridors. Technology should also provide information to the locomotive engineer.
- Rationale: New technology for the rail industry that has tremendous potential.

- Benefits: Locate trends and high risk areas for enforcement and provide real time notification.
- Key Implementation Issues: Need FAA laws that allow for the vehicles' use.

The ability of UAVs to monitor the ROW would open up a myriad of possibilities for data collection and real time identification of hot spots or other program areas. This is the first time that drones made the top recommendations. While this is pure research, the real challenge will be to weave this into the currently extant regime of other identification and mitigation measures being undertaken on the ground.

Project 2: Intrusion Detection and Notification
- Description: Develop automated or operator-based technology, (i.e. locomotive-mounted, operator controlled or wayside apparatus) that detects trespassers or obstructions. It should warn the trespasser and distribute information to locomotive engineers, railroad dispatchers and be integrate with Positive Train Control (PTC).
- Rationale: Develop a real-time way to deter the trespasser.
- Benefits: Alert the trespasser to leave and notify the railroad and law enforcement of the trespasser.
- Key Implementation Issues: The technology is already out there and we need to determine how it can be implemented.

This recommendation utilizes the PTC infrastructure to expand and enhance real time communications. It takes advantage of it by appending warning information to the exchange capability, i.e., existing data communications pathways and the PTC.

Project 3. Technology to Influence Behavior
- Description: Develop technologies to influence human behavior to prevent trespassing or alert trespassers of potential hazard. Consider multiple technologies, such as lighting (color, brightness, visual stimulation, etc.), vibration (train or wayside applications), microwave or infra-red, GPS/phone based alert or audio alerts.
- Rationale: Need to find new and better ways to deter trespasser behavior.
- Benefits: Inform trespassers or violators of potential hazards along railroad corridor or at high-risk locations.
- Key Implementation Issues—Difficult to implement and potentially costly to implement.

More work needs to be done on raising real time trespasser awareness, which could be accomplished through by identifying and enhancing of the physical attributes of the ROW and stations. This will help by conferring a greater understanding of how certain physical attributes can be modified for greater impact. It will provide a tailored and customized approach in each situation while optimizing safety. It will, in effect, provide a tool kit for making better design decisions.

Project 4: Research for Application of Technology or Mitigation Method Relative to Environment or Condition

- Description: Research for application of technology or mitigation method relative to environment or condition.
- Rationale: Need to have a thorough understanding of different conditions and how they
- vary. Available technology should be tied to the condition.
- Benefits: A way to standardize application across rail carriers or public agencies
- Key Implementation Issues: Will vary depending on the location.

The mitigation approach needs to be tailored for various environmental conditions. There is no one size fits all; there is a need for tailoring to unique mixtures of technologies and circumstances at the station and ROW, as well as mitigation measures.   Standardization of certain physical attributes will help strengthen safety measures that are currently in place.

Project 5. Standardized System of Train Engineer Data Collection and Reporting—Near Misses, Trespassers, etc.

- Description: A standardized system of data collection and reporting for trespassing, near-misses, and grade crossing issues.
- Rationale: Need for information on trespasser hot spots along ROW.
- Key Implementation Issues: Need participation by stakeholders to obtain good data.

Pertinent and timely data regarding ROW incursions will allow for better enforcement. If real time data is extended to the engineer cab, the possibilities and usages for data are expanded and this will help mitigate incidents. Rapid feedback between the environment and engineer expedites and tightens the information flow of critical information to people that need it.

2.4.4 Enforcement

This session presented a number of safety and security initiatives that are currently in place and are being effectively implemented to identify, apprehend, prosecute, and track trespassers along railroad ROWs.   This session sought to provide participants with information that can be "taken home" and put into practice, potentially resulting in a reduction of trespasser incidents nationwide.

Table 12 lists the attendees that participated in the Enforcement breakout session.

Table 12. Enforcement Breakout Group

First Name	Organization
Michael Allen	NJ Operation Lifesaver
Kevin Anderson	BNSF Railway Police

Isaac Avery	NC DOT
John Bennett	Alaska Railroad Police Department
Herman Bernal	Arizona DOT
Tom Drake	FRA – Region 3
Jessica Feder	Indiana Operation Lifesaver
Grant Bidwell	BNSF Railway
Phillip Foster	BNSF Railway
Denise Gauthier	BNSF Railway
Michail Grizkewitsch	Federal Railroad Administration
Ryan Gustin	CSX Transportation
Israel Herevia	Capital Metro Transportation Authority
Stephen Klinger	Norfolk Southern Railroad
James Kveton	Elmhurst Police Dept.
Susan Madigan	All Aboard Florida
Sonia Moeller	Brunswick PD
Thomas Micek	BNSF Railway
Richard Morris	BNSF Police
Tashi Ngamdung	US DOT/Volpe Center
Jacob Potter	Mi-Corporation
John Reiser	Washtenaw County
Greg Sandsness	BNSF Railroad Police
Robert Scarpino	Caltrain
Russell Schafer	BNSF Police
Richard Shankle	Oregon DOT
Rebecca Snyder	CSX
David Smith	CN Railroad Police
French Thompson	BNSF Railway

Recommended Actions for Topic Area 4: Enforcement

- **Project 1. Model Trespass Statute**
- **Project 2. Grant Program for Railroad Enforcement**
- **Project 3. Model Railroad Law Enforcement Authority**
- **Project 4. Use of Technology to Detect, Deter and Apprehend**

The group had a spirited session with full participation. It was only afterwards that participants realized that three of the top four recommendations voted upon were initiatives that corresponded to recommendations brought forth in the previous workshops[3]. These first three recommendations deal with statutes and efforts to bring more consistent and nation-wide enforcement framework and authorities down to the tracks.

Project 1: Model Trespass Statute
- Description: Develop a Federal law for trespass and pass it on to state level for potential adoption.
- Rationale: Currently, there is no consistency in trespass statutes.
- Benefits: A uniform law would allow law enforcement to more effectively enforce railroad related trespass.
- Key Implementation Issues: Must be aware of large fines or else we may lose buy-in. Would need to educate the judicial system to garner support.

 A nationwide statute would allow for consistency between states. This would make coordination between states and railroads easier due to uniform provisions that are quickly and mutually understood. This would be of great help to the railroads going through multiple jurisdictions.

Project 2: Grant Program for Railroad Enforcement
- Description: Establish a Federally funded and supported grant program that is designed specifically for the enforcement of railroad specific violations.
- Rationale: Railroad/transit ROW trespass is currently viewed as "low priority" because it is the same status as all other forms of trespass; enforcement requirements change from state to state.
- Benefits: A single law, written specifically for our issues, will help to build uniformity and make it easier to educate the public
- Key Implementation Issues: Model legislation is easy to develop (i.e., FRA), but

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[3] The correlation between 2012 and 2015 recommendations is as follows:

- 2012, Project 1. Model Trespass Statute corresponds to 2015 Project 2, Broad-based Trespass Law
- 2012, Project 5. Seek Law Enforcement Grants corresponds to 2015 Project 2, Grant Program for Railroad Enforcement
- 2012, Project 2. Broad-based Trespass Law corresponds to 2015 Project 1, Model Trespass Statutes

encouraging the states to implement it is another issue. Perhaps a good option is to tie trespass laws to grant funding

Localities treat rail trespass violations like any other kind of trespass violations. There are no special provisions which cover the railroad operating environment. Further, there is variance between the states. If a uniform and rail specific trespass regime is implemented, a clearer and more consistent approach can be obtained which would be beneficial to all stakeholders nationally.

Project 3: Model Railroad Law Enforcement Authority
- Description: Provide federal guidance to the state for the development of language for their state statute which provides the necessary law enforcement authority to railroad law enforcement personnel
- Rationale: Currently railroad police authority differs among the various states, we are seeking consistency so that railroad law enforcement can carry out their mission more effectively
- Benefits: Ability to more effectively enforce trespasser and all other railroad related violations without worry about if they have jurisdiction and/or the ability to appropriately enforce the state laws
- Key Implementation Issues: Resistance to passing the necessary statutes and/or modifying the existing language to make this happen

If state statutes enfolded railroad police authorities into their statutory regime, the states could develop more seamless, consistent and effective initiatives to lower trespass incidents and fatalities nationwide.

Project 4: Use of Technology to Detect, Deter and Apprehend
- Description: Seek to adopt current technology and/or equipment for the benefit of detecting, deterring, and apprehending violators of railroad related statutes
- Rationale: Railroad law enforcement personnel and local law enforcement often do not have the manpower to adequately police railroad ROW effectively
- Benefits: Use of technology would allow law enforcement personnel to cover greater areas with limited time and resources spent. May also review other items of interest, (i.e., worn paths, homeless camps, illegal dumping)
- Key Implementation Issues: This technology and/or equipment can be very expensive, may have to solicit use of vendors. Sharing the data appropriately with law enforcement partners might prove difficult. Using data for prosecution might require additional effort and/or investigation

Technology has a very key role in expanding the range and capabilities of our current law enforcement framework, by serving to expand the capabilities and reach of law enforcement.

2.4.5 Intentional Deaths/Acts

This session looked at current practices and research studies designed to mitigate or eliminate intentional death acts on the Nation's railroad ROWs. This session provided attendees the opportunity to discuss current industry and public practices aimed at the prevention of intentional deaths. Session objectives included shared risk identification, statistical analysis, mapping high-risk areas, and developing future prevention strategies and methods to gauge their success.

Table 13 lists the attendees that participated Enforcement breakout session.

Table 13. Intentional Deaths/Acts Breakout Group

First Name	Organization
Caroline Apple	CSXT
Tasha Bartholomew	Caltrain
Louis Brown	WMATA
Bob Burns	NAMGT
Margaret Cannell	North Carolina Operation Lifesaver
Troy Creasy	CSX
Barbara Daugherty	HNTB
Ann Doucette	The Evaluators' Institute, George Washingtion University
David Dunderdale	Dave Dundy Safety
Shannon Eppers	Norfolk Southern
Lou Frangella	Federal Railroad Administration
Scott Gabree	Volpe Center
Gary Hedgepath	Norfolk Southern PD
Julianne Kaercher	Ohio Rail Development Commission
Michael Lauritzen	North American Management
Michael Lefevre	All Aboard Florida
Mike Martino	Association of American Railroads
Bianka Mejia	Volpe Center

Phillip Meraz	Iowa DOT
Ann Mills	RSSB
Mark Rowley	Union Pacific Police Department
Yazmin Sanghera	Transport Canada
Karin Stamy	Norfolk Southern

Recommended Actions for Topic Area 5: Intentional Deaths/Acts

- **Project 1. Talk to Suicide Survivors for Best Practices**
- **Project 2. Develop Rail-Specific Media Guidelines**
- **Project 3. Educate Coroners/CME about Rail Death Determination**
- **Project 4. Universal Railroad Emergency Number**
- **Project 5. Secondary Probable Suicide Statistic to be used to Determine Hot Spots**

This group would propose recommendations that offer quick results instead of longer term research initiatives. Their discussions were high-paced and lots of ideas were generated. The group felt strongly that all their recommendations had merit and it was hard to order the suggestions or winnow them down to the top three to five suggestions.

For instance, the fact that certain age brackets tend to commit suicide more than other brackets can help when risks and countermeasures are analyzed, where the 25 to 35 age bracket are somewhat predictive of hot spots or other areas needing mitigation measures. In Iowa, this was not the case. What is being done in Iowa that is leading to an incident rate that is unexpectedly low? There are things to learn from this experience that may have bearing on others. The sharing of this information has potential to lessen rates of suicides and related incidents nationally.

Project 1: Talk to Suicide Survivors for Best Practices
- Description: Talk to survivors of rail suicide attempts to understand why they chose the railroad, and what might have prevented their attempt. Also examine best practices from other suicide prevention campaigns.
- Rationale: Better understand why they chose the rail for a suicide attempt.
- Benefits: Develop more effective suicide prevention messaging.
- Key Implementation Issues: Finding survivors willing to participate.

There needs to be more studies that examine the motivations and behaviors of the persons who attempt suicide. These insights may help suicide mitigation activities and the findings

might have great utility in determining human factors and responding to them with better targeted messaging.

Project 2: Develop Rail-Specific Media Guidelines
- Description: Work with rail carriers and rail representatives to develop guidelines for media that encourage responsible reporting.
- Rationale: Discourage sensationalistic reporting of rail suicides.
- Benefits: Fewer copycat suicides.
- Key Implementation Issues: Distribution of information to the media.

There needs to be sensitivity and care when suicides are reported by the media. The wording and intonation of the message has implications for readers. These guidelines would help mitigate suicide rates by not encouraging copycat attempts.

Project 3: Educate Coroners/CMEs about Rail Death Determination
- Description: Work with coroners/CMEs to educate them to rail specific issues concerning rail deaths.
- Rationale: Current determinations are slow and inconsistent.
- Benefits: Better quality data, faster.
- Key Implementation Issues: Cooperation of the coroners/CMEs would be needed.

Standardized approaches and communications within the coroner community would greatly help determine and analyze causal factors behind trespassing incidents. Better data generated in this way, along with faster and more efficient transfer of data will aid in building a stronger program through the identification of hot spots, and the approaches taken to mitigate the risk.

Project 4: Universal Railroad Emergency Number
- Description: An easy-to-remember number to call to report rail emergencies (ex. suspected suicidal behavior). The call would also be tagged with a GPS location.
- Rationale: Better location of incident, and easier reporting of the incident by the public.
- Benefits: Quicker responses to rail emergencies.
- Key Implementation Issues: Cost of phone center.

The 911, 411, and 511 phone numbers exist to make it easy to communicate about emergencies and for accessing needed services. What about a 711 (RR1) phone number for reporting trespass incidents? A standard number like this would allow for better and more comprehensive response and analysis of our ROWs.

Project 5: Use Secondary Probable Suicide Statistic to Determine Hot Spots
- Description: Add another category in FRA reporting for probable cause at the death at the scene.
- Rationale: Eliminate inconsistent suicide determinations and reduce the time needed to make them.
- Benefits: Quicker and more reliable data to identify hot spots.
- Key Implementation Issues: FRA manpower and legal issues.

The addition of causal factors will shed more light on incidents. This information, along with location coordinates will make it easier for preventative measures to be formulated, targeted and implemented.

3. Top Recommendations

On Day 3 of the workshop, there was a tilt towards practical nearer-term actions over longer term research ideas. Participants are eager to see more results, more quickly. Thus, many of the recommendations proposed in this workshop involved initiatives with near-term results.

The workshop suggestions overlapped and similar suggestions were made by different groups. For instance, more than one group recommended day to week-long "blitzes" on a local and national scale. While the Community Outreach and Education group formulated a recommendation for a National Safety Week (which became the workshop's second recommendation), the Pedestrians work group states that one of the benefits for crossing guards would be to augment other safety efforts, such as blitzes. These recommendations were made independent of the other, yet they both refer to blitzes.

Also, this workshop had numerous recommendations related to social media and pushing the word out to the general audience. There was considerable discussion about data enabling ideas through rapid data transmission and improving the efficacy of various initiatives.

Several recommendations advocated promoting locally generated ideas to the national stage and giving them national exposure. <<For example ?>>, the *Pedestrian Safety Issues* group specified the development of a best practices guide as one of its recommendations. One of the benefits was presenting proven crossing treatments from various homegrown initiatives to a national audience." At the same token, the benefit of the workshop's third recommendation (Clearinghouse) is also stated as "sharing local experiences to a wide audience.".

In this workshop, the participants often made multiple references to the same initiative with the understanding that their recommendationsmight belong in one of the other topic areas. Since the three Es are often overlapping and convergent, it is difficult to view one topic without considering it in its wider context and interrelationship to other topic areas. The work of the breakout groups reflects this reality. Since the workshop delved deeper into the subject matter, we encountered more points of intersection between topic areas.

This framework of cooperation has begun to generate new ideas, and the results are encouraging. In 2015, the emphasis was more kinetic and active. Workshop participants tackled the issues of railroad ROW trespassing and stayed engaged throughout the three days.   The networking message from / by this community has been perfected and the workshop is operating in the way it was envisioned. This is real tangible progress.

Table 14 shows how the recommendations correspond to the key themes of Data, Media, Designated Safety Day/Week, Research, Quick Victories and Best Practices. This information is presented by topic area: PSI, COE, DTI, ENF, and IDA. Each recommendation could include second and third level analyses to map sub-provisions of the recommendations to the various characterizations. Such an analysis would reveal the overlapping components of the recommendations.

Table 14. Characterization of Recommendations - Matrix

Characterization	Topic Area				
	PSI	**COE**	**DTI**	**ENF**	**IDA**
Data			Standardized system of train engineer data collection and reporting (5)		Secondary probable suicide statistics to be used to determine hot spots (5)
Media		Target national associations to raise trespass awareness (1) Community outreach with the big leagues (3) National media buy campaign (4)			
Designated Safety Day/Week		National Railroad Safety day/week (2)			
Research			Aerial detection for trespassing or ROW changes (1) Intrusion detection and notification (2) Tech to influence behavior (3) Research for application of tech/mitigation method relative to environment/condition (4)	Model railroad law enforcement authority (3)	Talk to suicide survivors to develop best practices (1)
Quick Victories	Crossing guards (2)	Rail safety question on every driver's ed and CDL licensing test nationwide (5)		Grant programs for railroad enforcement (2)	Universal railroad emergency number (4)
Best Practices	Signage (1) Clearinghouse (3) Pedestrian safety workshop (4) Best practices guide (5)			Model trespass statute (1) Use of tech to detect, deter and apprehend (4)	Develop rail-specific media guidelines (2) Educate coroners/CMEs about real death determination(3)

4. Final Thoughts and Workshop Closeout

Ronald Ries of FRA delivered the following closing remarks.

It says a lot about your dedication that on the last day of a workshop such as this, most of you are still here. FRA wishes to challenge attendees regarding the long road ahead; lots of effort will be needed to keep folks safe, save lives, and avert pain to families and the many affected. The challenge is to go beyond taking notes to putting some of the ideas into practice. FRA suggests that we continue the relationships that have been established and/or reinforced at this workshop.

We have learned a great deal about the commonality of issues and problems that are faced by general rail and transit operations. We need to keep in contact and keep going. In addition, we will be looking for ways to improve and better coordinate efforts. We will post presentations and ancillary materials to the FRA Web site.

This gathering shows how far we have come since we started this series of workshops. Even as recently as the 2012 conference, there seemed to be an emphasis on building new linkages between the 3 E's that involves collaboration and networking. It is apparent that the hoped for networking and interdisciplinary discussions has happened and has moved forward; that is hinted at by the nature of the recommendation in this 2015 workshop that were more immediate. The recommendations were built on the concepts and recommendation developed in previous years, moving this forward.

FRA is hopeful that the results of this workshop will be used by U.S. DOT modal administrations and their stakeholders to enhance safety on the nation's rail transportation network. And, given the track record of the previous workshops, this is certain to be the case.
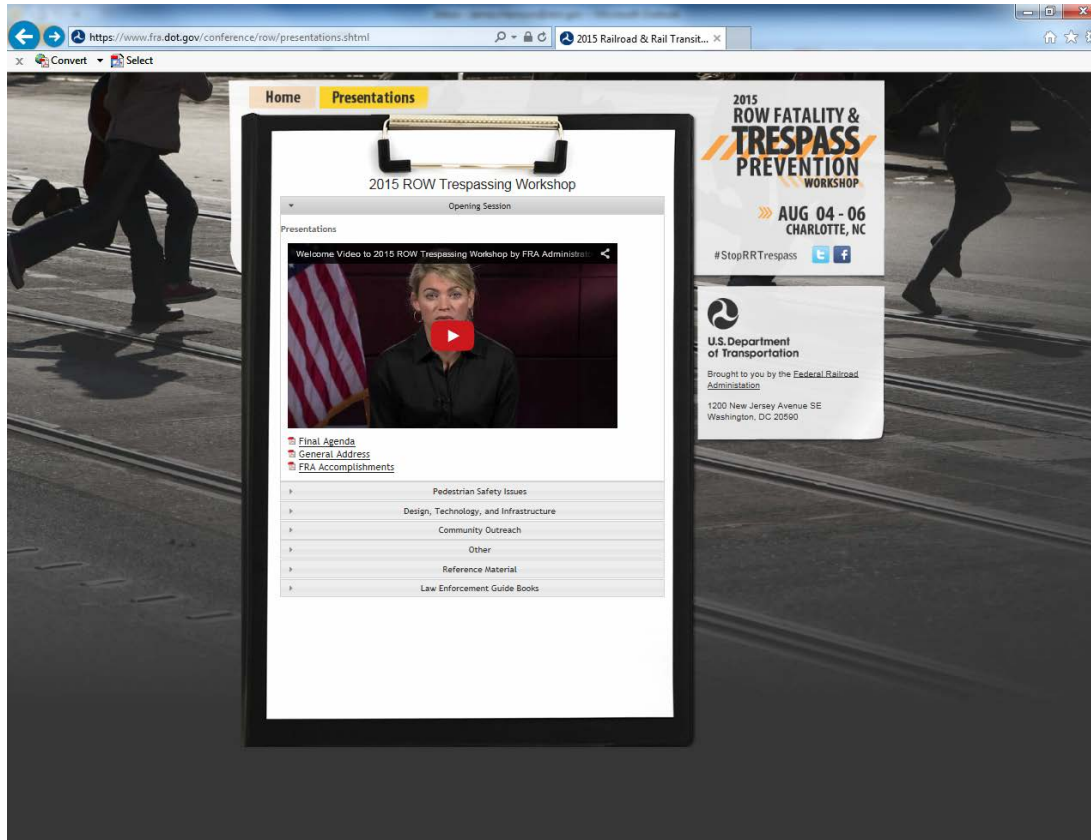
Appendix A.
Workshop Materials

A word about the dissemination of workshop materials via Internet:

FRA employs the Internet to share handouts, presentations, biographical sketches, ancillary documents, attendee lists and the like. A Web site (http://www.fra.dot.gov/conference/row/index.shtml) has been established for summary materials, presentations, history, and contact information. A snapshot is shown in Figure 4.

FRA intends to update this site as other resources become available.

This workshop does not need to stop on August 6, 2015. It can continue through the use of the Internet and social media such as Facebook and Twitter, where further discussion and sharing of information can continue.

Figure 4. 2015 ROW Fatality and Trespass Prevention Workshop Home Page

Appendix B.
Post-Workshop Electronic Survey Results

Enclosed is a high-level summary of the workshop feedback received through the evaluation form circulated to the workshop participants on the morning of Day 3.

Highlights:
- A total 85 out of the 170 total attendees returned an evaluation form (50%)
- Over 90% very or extremely satisfied with registration process, presentations, and session structure
- Over 81% very or extremely satisfied with breakout session/discussion (this rating was 58% at the 2012 workshop); some feedback noted lack of time for that activity; about 40% of respondents indicated breakout session was what they like most
- 100% very or extremely satisfied with workshop staff
- 61% very or extremely satisfied with conference location and facilities
- 90% very or extremely satisfied with overall quality of the workshop
- 91% responded yes to "workshop met your expectations"
- 91% recommended these types of workshops be held at least every 2-3 years (13% every year, 78% every 2-3 years)

The survey as handed out to the participants is contained in the next page. The response summary is contained in subsequent pages.

Federal Railroad Administration

2015 ROW Fatality and Trespass Prevention Workshop

Charlotte, NC – August 4-6, 2015

Evaluation

Workshop Evaluation: Please take a moment to complete this evaluation of the 2015 ROW Fatality and Trespass Prevention Workshop. Your responses will be valuable in planning future Workshops. Thank you.

Which of the following best describes the industry you belong to?

☐ Federal agency
☐ State or Local agency
☐ Transit agency
☐ Railroad

☐ Consultant
☐ Union Rep
☐ Association or organizations representing the railroad community

☐ Academic or University
☐ Education and Public Awareness
☐ Other _____

Please rate your satisfaction level for the following.

Category	Extremely	Very	Somewhat	Not at all	Comments
Registration process					
Workshop presentations					
Workshop session structure					
Breakout session discussions/results					
Courtesy and helpfulness of workshop staff					
Conference location and facilities					
Overall quality of the Workshop					

How did you hear about the workshop?
☐ Email   ☐ From colleague   ☐ Website   ☐ Other: _____

Did the Workshop meet your expectations?   ☐ YES   ☐ NO
Comments:

How often should this type of workshop be held?   ☐ Yearly ☐ Every 2-3 yrs ☐ Every 5 yrs ☐ No Preference

What did you like most about this Workshop? _____

What did you like least about this Workshop? _____

What kinds of topics would you like to see included at future Workshops? _____

General comments: _____

51

## 1. Which of the following best describes the industry you belong to?

	Response Count	Response Percent
Federal agency	17	20.0%
State or Local agency	14	16.5%
Transit agency	8	9.4%
Railroad	28	32.9%
Consultant	6	7.1%
Union Rep	0	0.0%
Association or organizations representing the RR community	2	2.4%
Academic or University	1	1.2%
Education and Public Awareness	6	7.1%
Other	3	3.5%
Total	85	100.0%

Other: Grass Root Safety Council (2), Technology
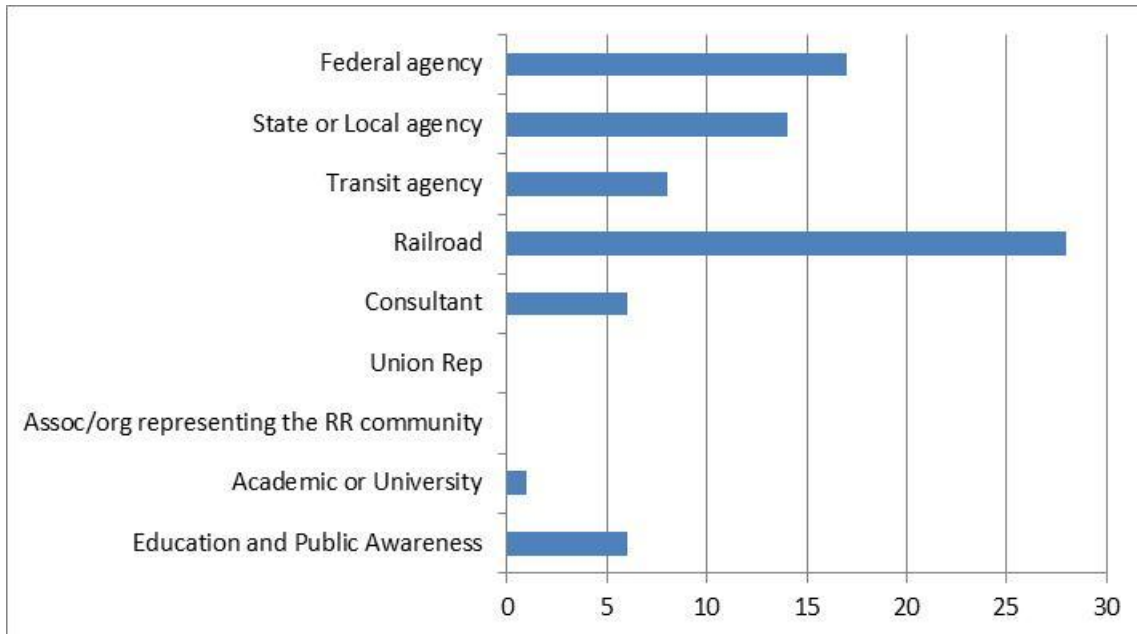
2. Please rate your satisfaction level for the registration process.

	Response Count	Response Percent
Extremely	72	85%
Very	12	14%
Somewhat	1	1%
Not at all	0	0%
Not rated	0	0%
Total	85	100%
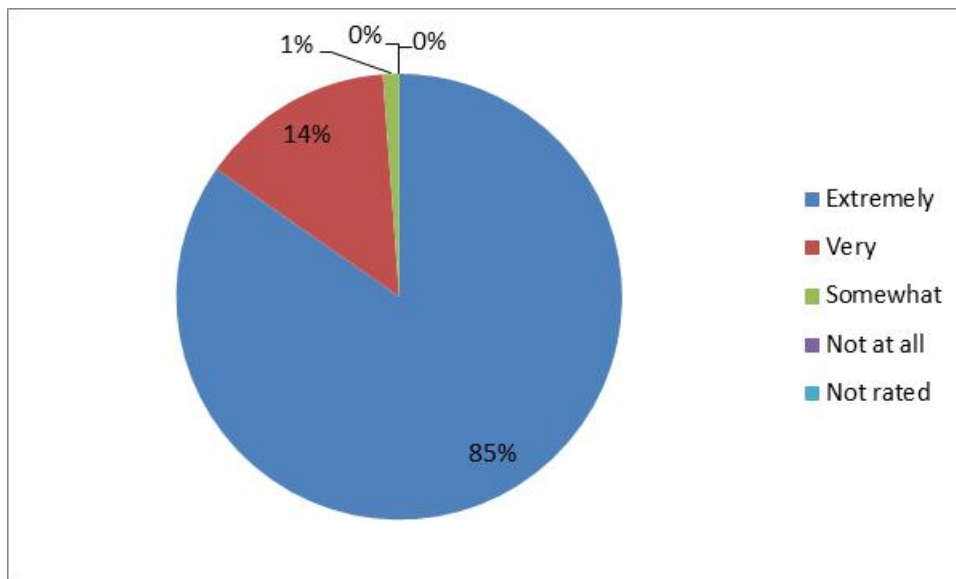
Comments:

Extremely

- Easy
- Easy
- Easy and fast
- Easy process
- Quick and easy; allowed network opportunity
- Simple and fast
- Very easy and fast
- Well

Very

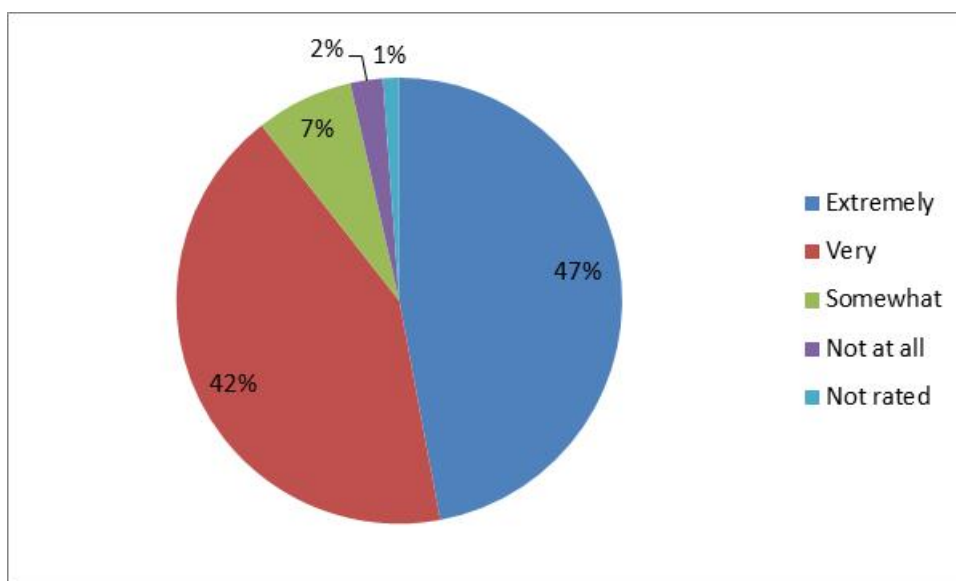- Personal confirmation & emails from Mike G!

Somewhat

- I expected a bit more feedback once I'd registered - workshop package, etc.

3. Please rate your satisfaction level for the workshop presentations.

	Response Count	Response Percent
Extremely	40	47%
Very	36	42%
Somewhat	6	7%
Not at all	2	2%
Not rated	1	1%
Total	85	100%

Comments:

<u>Extremely</u>
- 1st class
- Better time management; a few very long ones
- Brief but informative
- Informative
- Informative
- Panels - awesome
- The quality of the presentations and the audience participation was outstanding
- Well
- Would like a session on research to determine best (most effective) messages to use for different ages/gender. Focus testing would be beneficial.

<u>Very</u>
- Informative
- More engaging with audience members
- Perhaps panel presentations can be shortened to allow for more questions
- Simplify presentations; too much info make it difficult to follow and read
- Some were excellent
- Would like to see new and fresh presentations

<u>Somewhat</u>
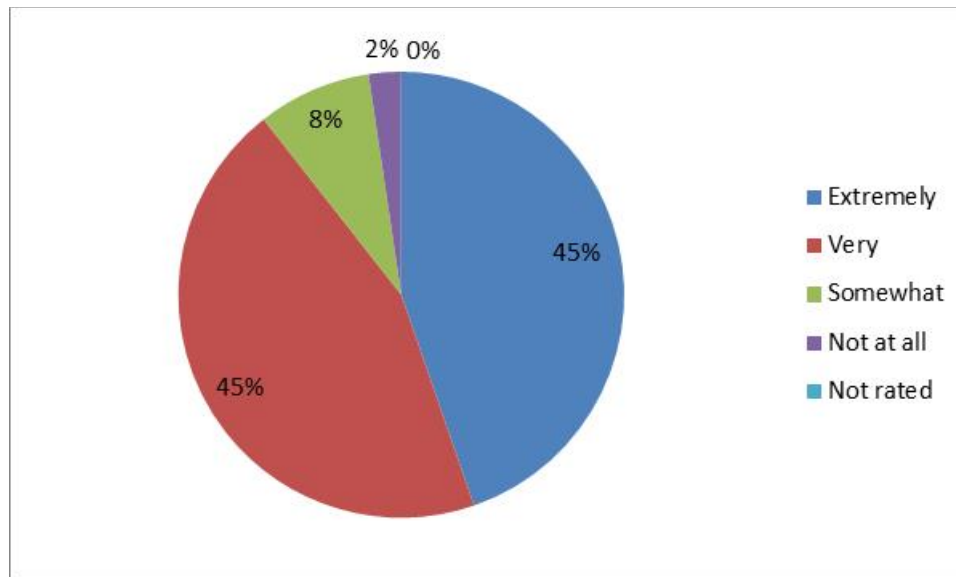- Difficult to see; too much info per slide
- Some were better than others

<u>Not at all</u>
- Same info by the same people at every conference

4. Please rate your satisfaction level for the workshop session structure.

	Response Count	Response Percent
Extremely	38	45%
Very	38	45%
Somewhat	7	8%
Not at all	2	2%
Not rated	0	0%
Total	85	100%

Comments:

Extremely
- Do 1/2 day the 1st day and 2 full days after
- Q&A after presentations was terrific idea
- Well
- Well done
- Wide overall spectrum covered

Very
- I liked the variety of presentations within each session
- More time should be allotted
- Well done

Somewhat
- Add an hour or so
- Some sessions a little long; maybe one day for sessions and one for breakouts

Not at all
- Way too much of being talked to

5. Please rate your satisfaction level for the breakout session discussions/results.

	Response Count	Response Percent
Extremely	41	48%
Very	28	33%
Somewhat	13	15%
Not at all	1	1%
Not rated	2	2%
Total	85	100%
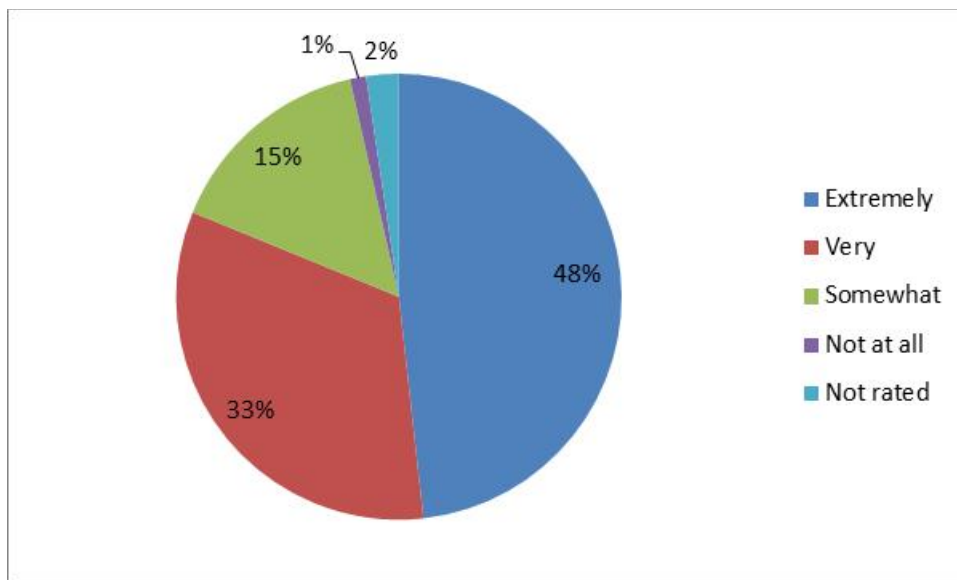
Comments:

Extremely
- Great discussion regarding multi topics
- Great process to determine recommendations
- Informative
- Maybe add an additional time for a 2nd breakout session
- Needed more time
- Participants fully engaged
- Very helpful; maybe could be longer
- Workable suggestions and ideas

Very
- Great potential
- Hard to structure
- It would be great to have a full day

- Well

<u>Somewhat</u>

- Always a challenge for new material
- Clearly define purpose; action now or future research or both?
- Great discussion, but not enough time
- I was disappointed that there was no real trespass breakout session. The issue is not just pedestrians at crossings. The largest issue is all along the tracks. I did not see this was truly addressed.
- Not enough time for breakout sessions
- This isn't my thing and I felt we struggled answering the questions. The discussion was good though.

<u>Not rated</u>

- I didn't participate in the breakout sessions due to a schedule conflict

6. Please rate your satisfaction level for the courtesy and helpfulness of the workshop staff.

	Response Count	Response Percent
Extremely	67	79%
Very	18	21%
Somewhat	0	0%
Not at all	0	0%
Not rated	0	0%
Total	85	100%
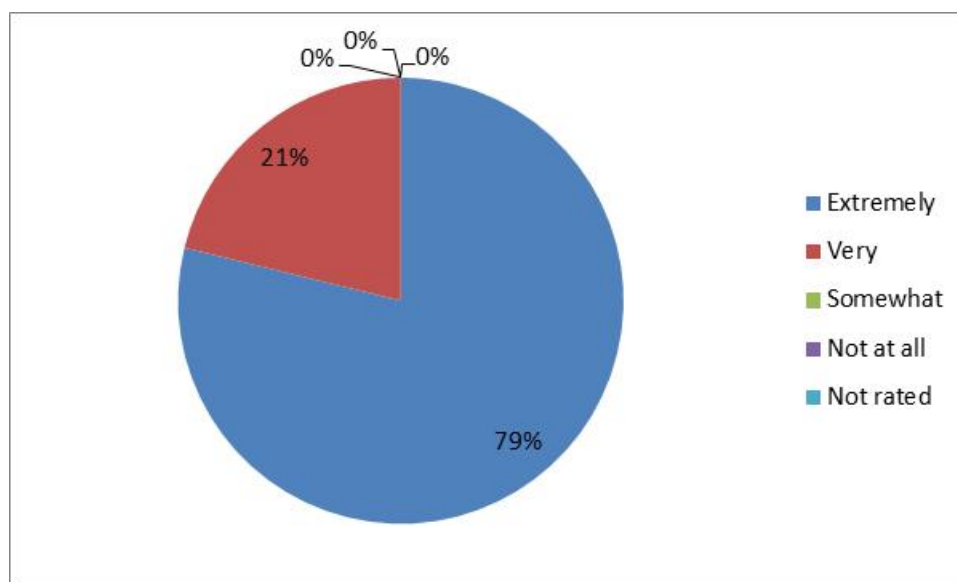
Comments:
Extremely
- Couldn't have done better
- Friendly, informative, approachable
- Great
- Great
- Great staff!!
- Helpful

Very
- Need to teach staff that there are no bad ideas *(this may have been meant as a breakout session comment, but the attendee wrote it in the comments for this question)*

7. Please rate your satisfaction level for the conference location and facilities.

	Response Count	Response Percent
Extremely	30	35%
Very	31	36%
Somewhat	23	27%
Not at all	0	0%
Not rated	1	1%
Total	85	100%
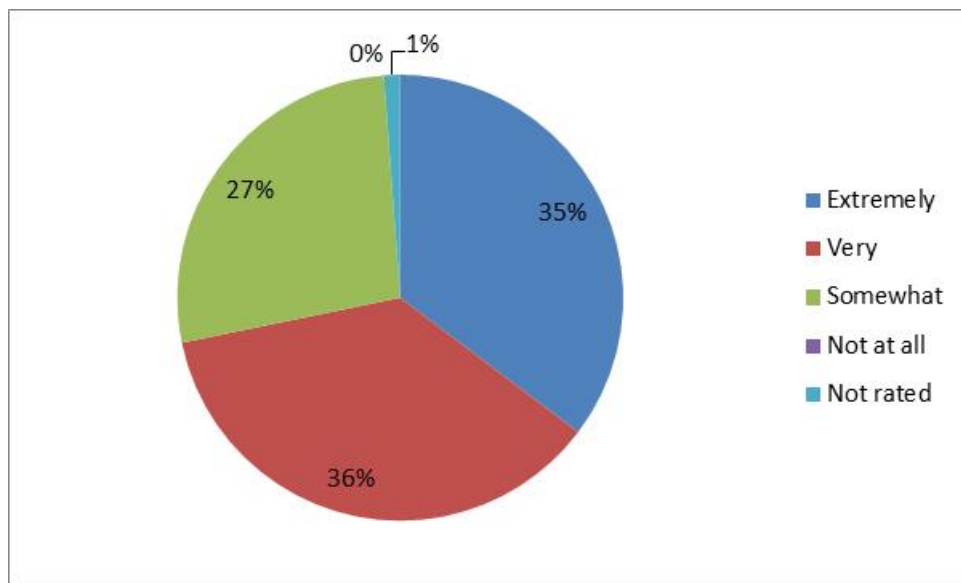
Comments:

Extremely
- Beautiful
- Beautiful and easy to traverse
- Excellent venue
- Hotel staff were extremely helpful and polite
- Location was great; facility - daily use of internet, meals.
- Well

Very
- Better Wi-Fi
- Nice location
- Pretty good hike to get to anything
- Walking location of restaurants could have been better

Somewhat
- A location closer to restaurants for lunch & to downtown would be nice
- Had some issues with hotel room

- Hotel amenities (Wi-Fi, parking and meals) were way overpriced, but conference center was great
- Location good, hotel not so much (dated)
- Location is fine. Hate paying for Wi-Fi and parking, expensive breakfast
- Sheraton just OK - being closer to center would have been good. Providing more substantial breakfast fruit/bagels. Would have been nice to have a list of nearby restaurants and map to use at lunch.

8. Please rate your satisfaction level for the overall quality of the workshop.

|	Response Count	Response Percent
Extremely	43	51%
Very	33	39%
Somewhat	4	5%
Not at all	2	2%
Not rated	3	4%
Total	85	100%
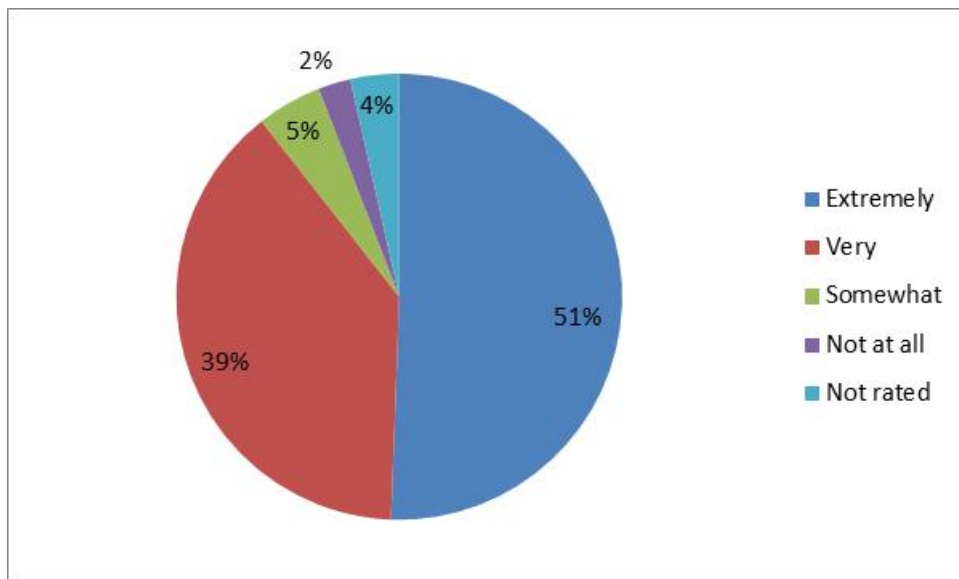
Comments:

Extremely
- Excellent!
- Fantastic!!
- Informative
- The hotel provided Lincoln town car service to the airport at taxi price was sweet

Very
- Excellent. Very insightful & worth the trip!
- Good
- Great - could there be more appearance by academia?

Somewhat
- Need more takeaway from workshop

Not at all
- Too much OL. We liked better solutions.

9. How did you hear about the workshop?

Email	26	31%
From colleague	46	54%
Website	4	5%
Other	7	8%
No response	2	2%
Total	85	100%
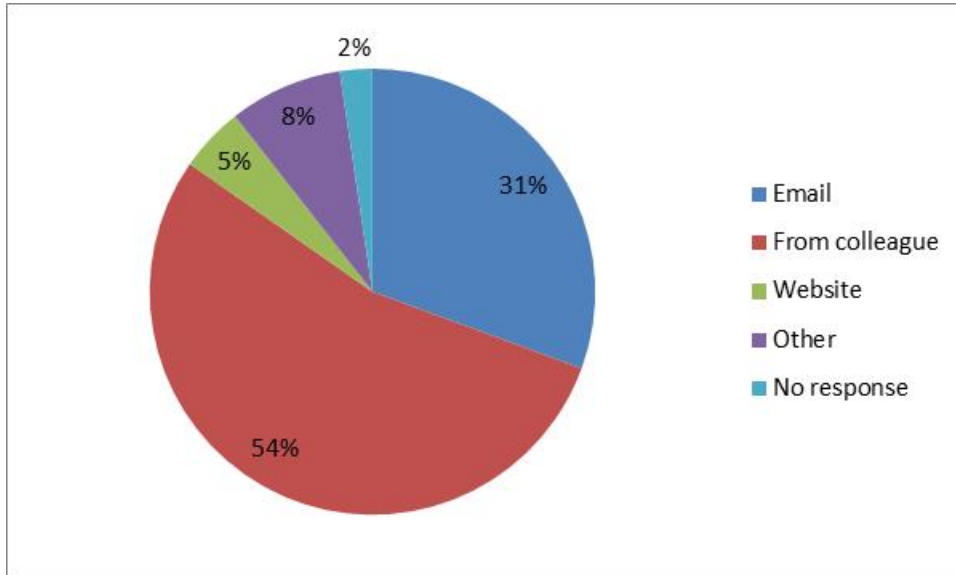
10. Did the workshop meet your expectations?

Yes	77	91%
No	5	6%
Not rated	3	4%
Total	85	100%
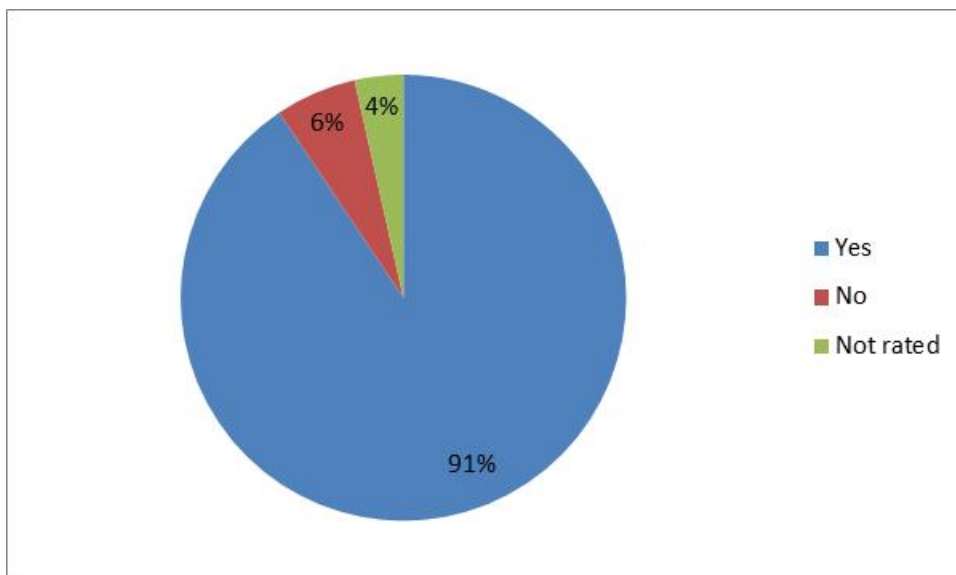
11. How often should this type of workshop be held?

Yearly	11	13%
Every 2-3 yrs.	66	78%
Every 5 yrs.	2	2%
No Preference	6	7%
Total	85	100%
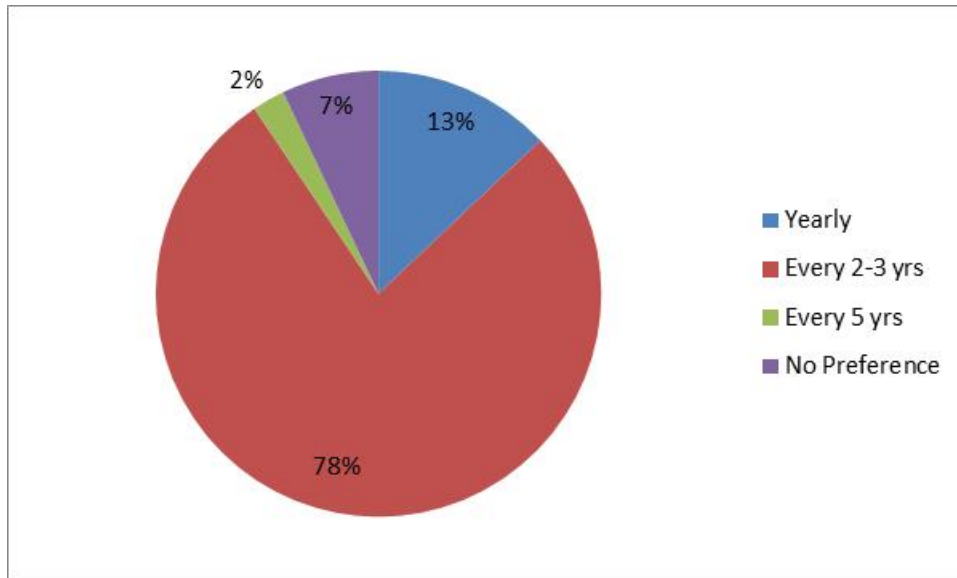
12. What did you like <u>most</u> about this workshop?

- Art Miller very interesting
- Brain storming
- Brainstorming
- Breakout session
- Breakout session
- Breakout session
- Breakout session - intentional deaths
- Breakout session (networking)
- Breakout session was engaging
- Breakout sessions
- Breakout sessions
- Breakout sessions
- Breakout sessions
- Breakout sessions were appropriate and well-led
- Breakout was excellent
- Breakout workshops
- Break-outs
- Collaboration
- Collaboration
- Comprehensive discussion of all issues with trespassing
- Content of presentations/breakouts
- Different viewpoints from different countries
- Discussion in breakout
- Discussion in break-out sessions
- Diverse number of presentations attributed to time constraints, versus a few long ones
- Diversity of SMEs; breakout sessions
- Diversity of speakers with excellent perspectives
- Dynamic presenters/presentations
- Enforcement speakers
- Enthusiasm of presenters and networking with participants
- Excellent presentations; great opportunity to network with other safety partners
- Exchange of ideas; "workshop" format
- Extremely constructive
- Format - interesting topics and speakers
- General casual nature of conference; easy to meet people
- Great speakers
- Group discussion
- I enjoyed hearing specific examples of what's working well for others.
- Ideas on how to save lives
- Information sharing among peers
- Interaction with fellow delegates
- Interaction/speakers

- Networking
- Networking opportunity
- Networking; topics
- New information (suicide), some of the outreach programs (social media)
- Partnership & collaboration
- Presentations
- Presentations and breakout session
- Presentations and interaction in breakout groups
- Qualified participants and experts, good exchange of ideas.
- Quality of presentations
- Range of discussion particularly stats and suicide
- Scott Gabree & Mike Lauritzen
- Session 1 & 3. The discussions during the breakout session.
- Sharing of best practices always provides new learning and the day 2 afternoon workshops included some community representatives
- Smaller breakout sessions
- Speaker presentations
- Speakers were very good. Would have liked Joyce (OL) to do a short presentation of OL materials available and to discuss future plans for OL.
- Tech presentations
- Technology
- The breakout session
- The broad range of experience represented
- The community outreach
- The exchange of ideas
- The group presentations
- The interaction between the various groups
- The networking between the academic side and the grunts in the field; meeting the people I have been dealing with for years
- The opportunity to connect with other professionals in the industry. I liked the breakout reports on the final day.
- The range of topics in each session
- The working group breakouts
- UPRR had good suggestions
- Variety of presentations and topics
- Very informative speakers and presentations
- Volpe
- Wide variety of speakers
- Wide view, mixed perspective
- Workshop breakout

13. What did you like least about this workshop?

- All good!
- Banquet chairs
- Breakfast
- Breakout. Specifically one could put all their stickers on one idea. This skewed the top 5
- Design & Infrastructure
- Distance to anything from hotel
- Fewer presentations and stats on intentional deaths
- Focus on negligent trespassing but minimal discussion on notifying or alerting trespassers to oncoming trains
- Had already seen most presentations
- Hot location!
- Hotel
- Hotel add-on costs
- Hotel location
- Hotel location was distant from other services, especially as lunch wasn't provided
- I thought all was good; some speakers were better than others
- I would have liked working group breakout both days. It was hard sitting through presentations all day on day 1 of the conference. Maybe breakouts in our top 2 areas of interest.
- In the breakouts, people deferred to the "experts" to validate ideas and if the "experts" said some version of "no" the idea was dismissed
- Inconsistent timing of presentations. Too much GRX talk for trespass meeting
- Lack of local police officers (other than assistent chiefs) who deal with RR trespass
- Liked all aspects; N/A
- Limited time for Q&A after presentations
- n/a
- n/a
- n/a
- n/a
- n/a
- n/a
- Need more time to exchange ideas
- No discussion of relationship between Government and industry and building it / how to.
- No group cocktail hour to socialize
- None
- None
- None - excellent workshop and very informative
- Not enough breaks, but good workshop
- Not much to learn from
- Nothing stands out. Overall very well done.
- Nothing. I loved it all
- OL, OL, OL, Signs, Signs, Signs
- Old information in presentations

- Old presentations that I have seen over and over again. Would like to see new presentations.
- Perhaps have wider representation
- Presentations that did not directly relate to my concerns - e.g. suicide, CATS, etc.
- Presentations were long and monotonous
- Repetitiveness of some material
- Research - some is necessary and helpful but session #5 was too research focused
- Room bathrooms too small
- Session 5 contained too much statistics and lacked general application.
- Session one FRA moderator derogatory comments on colleagues
- Sitting still for long periods
- Some of the researchers seemed siloed; not sure they all recognize it's not just the populated areas that have issues
- Still some old ideas being tried
- Suicide presentations could have been made by 1 person. It was redundant to have 5 speakers.
- The lack of addressing the trespass issue
- The workshops. Particularly the outputs session. There just didn't seem to be much enthusiasm about progressing outcomes and I can't see how everything will be taken forward.
- Too hot
- Too many presentations; many presentations offer no answers to our issues
- Too many speakers on the same topic; longer breakout sessions would be beneficial
- Too much OL. Too much commuter rail. Too many data collectors and finders.
- Very minor issue - audio for the room speakers was poor (echo)
- Wanted more info on new technology; felt that was a little light on content
- Would like a way to "force" more networking - i.e. lunch/dinner, etc.

14. What kinds of topics would you like to see included at future workshops?

- A session to address how to reach the trespasser on the tracks and not just at crossings.
- Addition of C/ME Personnel/Experts
- Bicyclists, ADA considerations
- Case by case discussion
- Communications/social media messaging for railroads
- Concentration on freight, special events, outreach to breweries and bars
- Current corner on what is coming or being worked on in law + industry
- Dangers of the ROW to emergency responders
- Data reporting
- Discussion on trespassing @ railroad crossings
- Don't know
- Educational applications for the general public. Use of upcoming technology for not just detection but education.
- Engineering design to present new products & ideas on reducing trespass. T & E on those who have been involved in incidents.
- Failed programs - a summary of ideas, programs, interventions, etc., that failed and why. This topic would educate the attendees to not re-introduce ideas that failed and would allow re-introduction of failed ideas that may be viable today based on technology, funding, cultural, etc. changes
- Follow-up on the recommendations from this workshop
- FTA-transit (like 2012)
- Funding of projects
- Funding of projects
- Funding strategies/avenues
- Funding, effectiveness
- Getting corporations involved with business around RR and highly dense populated areas
- Grade crossings
- Have a freight-only workshop. No OL, No Passenger
- How do we transition research into nationwide implemented programs that save lives
- How do civic leaders handle trespassing; what are the thoughts of cities and states on trespassing; more social media uses; use of new technology; how to nationally standardize signage; how to get local communities involved in preventing trespassing?
- How to lobby for initiatives
- How to make OL effective
- I would like to see the result of the proposed research topics. Progress reports from these topics.
- Impact on drivers; relationship between industry & Gov.
- More Class 1, less light rail
- More of same
- More on crossing safety
- More on the human factors and economic status of the trespassers
- More on what other transit and railroads are doing on trespassing signage and safety throughout the US

- More research
- More time to better formulate breakout session ideas & develop them
- More updated info. I've seen many of these presentations before.
- Near miss
- Not sure
- Potential add social media campaigns
- Railroad panel with moderator - Q&A session/case studies
- Rather than focusing a session on suicide, suggest opening it up to a more general topic - say "human psychology" and include acts of vandalism, graffiti, etc. as part of that.
- Research on messages that work for specific age/gender
- Risk assessment
- RR panel & how they handle trespassers. Consultant panel - how do they handle the trespass issues on designs.
- Rural and freight issues, stopped trains and switching create significant opportunities for trespass issues
- Separate freight and commuter
- Stick with the current issues
- Strategic plan development with annual update and reporting
- Suicide prevention.
- Ways to use GIS data to see trends or hot spots
- What's the overall structure of the relationship between the organizations that presented

15. General comments:

- A very useful conference which presented me with some new thinking. I would have found a more organized networking session useful.
- Consider breakouts by industry also in the future. It seemed that commuter/passenger/freight reps had different outlooks in the workshop and this would have benefitted the ability for similar agencies to network.
- Enjoyed workshop
- Exceeded expectations.
- Excellent
- Excellent workshop
- FRA did an excellent job on sponsoring a comprehensive workshop on trespassing; look forward to future workshops. Topic discussions/presentations were filled with information
- Fresh cup of fruit at breakfast
- Great conference
- Great conference and great opportunity to network with fellow railroad and association colleagues
- Great experience. Taking ideas back to agency for implementation
- Great job
- Hold workshop yearly if improved dramatically. Signs solve nothing. People ignore signs.
- I like the idea of Volpe, but they don't seem to ever say anything concrete & useful
- I thought the FRA team was fabulous and kept everything running on time. Great FRA team.
- Maybe reach out to others in the industry to see how others are handling trespassing
- Meet annually to develop common tools/standards
- Need more of this
- Need to seek more people from communities that struggle with these issues, so not industry known people but outsiders that can bring their unique perspectives to the attention of all.
- Nice conference for no cost. Might want to consider a small fee in future to cover better breakfast and provide written materials such as speaker bios and contact info. In future announce at beginning of conference that materials will be available on FRA website.
- Organize 1 outside activity to explore city where event is located as a group helps to bond group
- Overall a great workshop
- Overall, a very useful workshop. I have several ideas to take home with me. Thank you for your efforts! Everything was smooth and easy.
- Overall, I thought the conference was well-organized. I appreciated the fact that there was global representation from the US, UK, and Canada. I also enjoyed my time in Charlotte. It was my first time here.
- PA system had echo, difficult to understand speakers. Need to have more local law enforcement presence.
- Please continue partnership with FTA & transit
- Ronnie Garcia presentation on using social media was a highlight for me.

- Room acoustics horrible. Most speakers were mush - mouthed and difficult to understand.
- Staff did an excellent job putting this together and presenting the information
- Thank you for putting this on. There was a lot of work put into the planning. Consider adding a few minutes to lunch (one hour was tight)
- Thank you for the invite!
- Thanks for a great workshop!
- The range of topics with excellent panelists far exceeded my expectations. I would bring more colleagues next time. Would be nice to have a local tour/field visit component for local RR.
- The room was dimly lit and not good for bad eyes; not enough breaks between presentations; too many presentations/talking heads.
- This was a great session, thank you for inviting TC to attend
- This was a very expensive area - per diem won't cover meals, needed free Wi-Fi, etc.
- This was an excellent experience!
- Very good workshop!! Thanks.
- Very nice
- Very well done!
- We all know what OL does. We all know the 3 Es. Same presentation over and over
- Well done with sincere, professional presenters and moderators. Subject matter experts well chosen.
- Well organized
- Well work the time and effort
- Why is Volpe here? Tell me something I didn't know.
- Worthwhile; time & $ well spent

Appendix C.
Workshop Agenda

Monday, August 3

5:00 – 8:00 pm   Registration

Tuesday, August 4

7:30 – 8:30 am   Registration

8:30 – 10:00 am   Opening Session
           Keynote Address:
           • Sarah Feinberg, FRA Acting Administrator
            (Pre-recorded)
           Welcome Address:
           • Paul Worley, NCDOT
           General Addresses:
           • Ronald Ries, FRA
             Trespassing Issues that Face the Nation
           • Michail Grizkewitsch & Marco daSilva
             FRA Accomplishments

10:00 – 10:15 am   Break

10:15 am – 12:00 pm   Session 1: *Pedestrian Safety Issues*
           Moderator: Frank Frey, FRA
           • Dr. Kay Fitzpatrick & Jeff Warner
             TTI - Pedestrian Crossing of Public Transit Rail
             Services: Findings from TCRP Report 175
           • Thad Joseph, Commonground/MGS
             SunRail Project Safety Outreach Initiatives
           • Cliff Davy, Commonground/MGS
             SunRail Project Safety Outreach Initiatives

12:00 – 1:00 pm   Lunch (On Your Own)

1:00 – 2:30 pm   Session 2: *Community Outreach & Education*
           Moderator: Joyce Rose, OLI
           • Kristen South, UPRR
             Can Communities Regard Freight Railroads as
             Good Neighbors?
           • Ronnie Garcia, BNSF Railway
             Using Social Media to Expand Public Safety Outreach
           • Art Miller, the Western Group
             Trespass Challenges and Solutions from the Film and
             Entertainment Production Industry
           • Greg Deibler, Virginia Railway Express
             An "All Fronts" Public Safety Outreach Campaign

2:30 – 3:00 pm	Break

3:00 – 4:30 pm	Session 3: Design, Technology and Infrastructure

Moderator: Jahmal Pullen, NCDOT

- Rich Gent, Hot Rail Group
Use of Unmanned Aerial Vehicles for Trespass Abatement

- Marco DaSilva, VOLPE
Trespassing Detection Research Project

- Chris Cunningham, ITRE
Researching Reduction in RR ROW Trespassing Incident

- Richard Mullinax, NCDOT
Evaluation of Dynamic Gate Operations with Vehicle Detection

4:30-4:45 pm	Adjournment

- Rondald Ries, FRA

Wednesday, August 5

7:30 – 8:15 am	**Registration**
8:15 – 8:30 am	**Welcome**

- ***Ronald Ries, FRA***

8;30 – 10:00 am	**Session 4: Enforcement**

Moderator: Ryan Gustin, CSX Community Affairs and Safety

- Louis Jogman, Illinois Association of Chiefs of Police
Illinois Rail Safety Week

- Jim Kveton, Elmhurst PD
Elmhurst PD Strategies for Reducing RR Collisions and Fatalities

- John Reiser, Washtenaw County APA
Strategies and Difficulties with Prosecution

10:00 – 10:15	**Break**

10:15am – 12:00 pm	**Session 5: Intentional Deaths/Acts**

Moderator: Michael Martino, AAP

- Scott Gabree, VOLPE
Potential Countermeasures to Mitigate Suicides on the Railroad ROW

- Bianka Mejia, VOLPE
Impacts of Media on Trespass and Suicide Incidents on ROW

- Mike Lauritzen, NAMGT
Demographic and Psychographic Profiles of Intentional Trespasser Fatalities

- Ann Doucette, GWU

Suicide on Railroad ROW: Advantages & Challenges of an International Response

12:00 — 12:15 pm	Organization of Working Groups/Intro of Teams
12:15 — 1:15 pm	Lunch (On Your Own)
1:15 — 2:45 pm	Working Group Breakouts

        • *Pedestrian Safety Issues* (Green Team) Location: Symphony I

        • *Design, Technology and Infrastructure* (Yellow Team) Location: Symphony III

        • *Community Outreach & Education* (Orange Team) Location: Symphony IV

        • *Enforcement* (Blue Team) Location: Symphony VII

        • *Intentional Deaths/Acts* (Purple Team) Location: Symphony V

2:45 — 3:00 pm	Break
3:00 — 4:30 pm	Working Group Breakouts
4:30 — 4:45 pm	Adjournment

Thursday, August 6

8:00 — 8:15 am	*Welcome Addresses:* • Ronald Ries, FRA
8:15 — 9:15 am	**Working Group Summaries of** **Top Research Needs**

9:15 — 10:00 am	Stephen Covey, CN Police
	    Curbing Trespassing and Grade Crossing Incidents
	    Through Strategic Enforcement and Education, A Canadian Perspective"

10:00 — 10:15 am	Break
10:15 — 10:45 am	Michail Grizkewitsch & Norma Griffths, FRA & Wende Corcoran, OLI *1st Responder Training Programs*
10:45 — 11:30 am	David Moskowitz *CATS Presentation*
11:30 am — 12:00 pm	*Final Thoughts and Workshop Closeout*

Abbreviations and Acronyms

AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
CDL	Commercial Driver's License
CMEs	Certified Medical Examiners
COE	Community Outreach and Education
DTI	Design, Technology, and Infrastructure
ENF	Enforcement
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GPS	Global Positioning System
IDA	Intentional Deaths/Acts
NC DOT	North Carolina Department of Transportation
NTSB	National Transportation Safety Board
OLI	Operation Lifesaver, Inc.
OST-R	U.S. DOT Office of Assistant Secretary of Research and Technology
PSI	Pedestrian Safety Issues
PTC	Positive Train Control
ROW	Right-of-way
SMEs	Subject Matter Experts
Three E's	Education, Engineering, and Enforcement
U.S. DOT	U.S. Department of Transportation
UAV	Unmanned Aerial Vehicle
Volpe Center	John A. Volpe National Transportation Systems Center
WMATA	Washington (DC) Metropolitan Area Transportation Authority