Transit Advisory Committee for Safety (TRACS)

Trespasser and Suicide Prevention Subcommittee

TRACS Committee Meeting
September 9-10, 2019
Subcommittee on Trespasser and Suicide Prevention

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<th>Subcommittee Members</th>
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<tr>
<td>Joyce Rose (Lead)</td>
<td>WSP USA</td>
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<tr>
<td>David Harris</td>
<td>New Mexico DOT</td>
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<tr>
<td>Jeff Lau</td>
<td>Bay Area Rapid Transit (BART)</td>
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<td>Karen Philbrick</td>
<td>Mineta Transportation Institute (MTI)</td>
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Subcommittee Meetings Recap

• June 13 meeting: *Transit and Rail Trespass and Suicide Incident Data Analysis*
  [Lisa Staes, CUTR]

• July 11 meeting: *Overview of Current Rail Trespass and Suicide Prevention Efforts*
  [Scott Gabree, Volpe Center]

• August 19 meeting: *Report-Out of Literature Reviews and Decision on Studies to be Presented*
Research Literature Review Process

- 52 research articles, conference presentations, and other documents gathered by FTA and subcommittee members

- Subcommittee narrowed down to 19 most relevant articles for review

- Reviews focused on emerging technologies and transportation innovations that can be implemented by FTA

- Developed a standard “Article Recap Form” for literature reviews
Article Recap Form

• Based on RESTRAIL (**REduction of Suicides and Trespasses on RAILway property**) framework

• Organize the problem and mitigation measures by:
  – What is the Target Problem? (Trespassing, Suicide or Both)
  – Prevention or Mitigation
  – What type of Countermeasure Type? (Technology, Education/Training, Organizational/Procedural)
  – Effect Mechanism (Improve practice/process, Deter access, Influence behavior, Reduce consequences)
# Research Literature Assignments

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For Internal Discussion Purposes Only
Research Literature Recommendations

Based on recommendations of the reviewers, the subcommittee brings forward 5 studies to the full TRACS committee

1. “Remedial Actions to Prevent Suicides on Commuter/ Metro Rail Systems” (Jeff Lau)

2. “Research & Countermeasures to Reduce Suicide on Railway ROW and Impacts on Railway Workers” (Dave Harris)

3. “Interventions to Reduce Suicides at Suicide Hotspots” (Dave Harris)

4. “Railroad Implemented Countermeasures to Prevent Suicide” (Karen Philbrick)

5. “AI-Aided Automated Detection of Railroad Trespassing” (Joyce Rose)
Research Literature Recap: Lau

Recommended study:
• “Remedial Actions to Prevent Suicides on Commuter and Metro Rail Systems”

Main Takeaways
• Invest in railroad employee training on suicide awareness and warning signs
• Engage community around the railroad for a more focused suicide prevention program to be tailored to high-risk groups
• Use monitoring technologies (remote sensing, motion detectors, video feed) to cover for when individuals are circumventing barriers
Information Gaps: Lau

- BART experience: Planned pilot project of Platform Screen Door (PSD) at one of our subway station platforms (12th St./Oakland City Center).

- Not fully funded. I am helping to seek funding opportunities to move this project to construction.
Research Literature Recap: Harris

Two recommended studies:

1. **Research and Counter Measures to Reduce Suicide on Railway Rights of Way and Their Impact on Railway Workers**

2. **Interventions to Reduce Suicides at Suicide Hotspots**
Main Takeaways: *Suicide prevention*

- Encourage help seeking: Suicide phones and Signs
- Increase the likelihood of intervention by a third party (through surveillance and staff training)
- Provide training for mental health institutions in vicinity of tracks
- Use Physical Barriers
- Encourage responsible media reporting of suicide through guidelines for journalists
Main Takeaways: *Railway crew impact/consequence mitigation*

- Establish clear and adapted protocols for incident management and treatment and make a special effort to strictly respect those protocols
- Improve access to and conditions offered by Worker Compensation Board
- Improve access to proactive independent psychological help
- Provide more flexible options for return to work
- Train workers before they are involved in a fatal incident
Information Gap: Harris

• Gap regarding evaluation of strategies in reducing the negative impacts on train crews after a fatality.

• **Strategies:**
  – Pre-incident training for crew and supervisors
  – Comprehensive Critical Incident Response implemented and well known at all levels of the organization
    • Clear roles and expectations
    • Compulsory 3 days off
    • External evaluation of fitness to work
    • Proactive offer to help and support from employer
    • Incident management on site to help reestablish a sense of control for the crew (someone is clearly in charge to their advantage in a situation of absolute helplessness and vulnerability)
    • Comprehensive support to supervisors
    • Involvement of the employee and outside evaluator in the return to work process
Research Literature Recap: Philbrick

• **Article**: Railroad implemented countermeasures to prevent suicide: Review of public information

  – Addressed the prevention of rail suicide using education and training; organizational and procedural factors, and technology-related countermeasures.

  – These countermeasures were designed to improve practices and procedures, deter access, and influence behavior.

  – Premise: A range of suicide prevention strategies, including fencing, signage, detection and monitoring, training of employees and authorities, public and industry events, websites, and media guidelines have been shown to help prevent incidents.
Research Literature Recap: Philbrick

- **Article**: Railroad implemented countermeasures to prevent suicide: Review of public information: (CONTINUED)

Main Takeaways:

- This review revealed many instances where rail carriers’ efforts to mitigate suicide are publicly discussed, either by the carrier itself or through the media.

- In total, 14 carriers and a range of strategies were identified. Overall, it is noted that talking about a safety issue, including mental health, is a proven strategy to increase safe behaviors.

- **Note**: At this time, there is a discrepancy between safety messages and suicide prevention messages, suggesting that efforts could be made to increase the confidence of rail carriers in talking about suicide. A variety physical and technical barriers (e.g., fencing, drones, signage, etc.) have documented effectiveness.
Information Gap: Philbrick

• While some articles note the impact of rail suicides on safety and service, relatively few articles noted the grave impact of these events on train crews.
Suicide Prevention Messages: Philbrick

LIRR Message

Tell us your story.
Don’t end it.
1-877-TalkToUs
(582-5586)
24/7, Free, Anonymous & Confidential

Suicide is not the answer.

Caltrain Message

Help is just a text away

Text BAY to 741741

Free, 24/7, confidential crisis support by text

For more information on suicide prevention resources, visit www.caltrain.com/suicideprevention
Research Literature Recap: Rose

Recommended study:
• “AI-Aided Automated Detection of Railroad Trespassing”

Main Takeaways:
• Many railroads/transit systems are installing cameras along ROW and around stations
• These video feeds can be a “big data” source
• This study developed an artificial intelligence (AI) algorithm that recognizes trespassing events in real time
• Coupled with a live alert system, this AI algorithm can turn video feeds into actionable, real-time alerts for ROW owners and law enforcement
Information Gaps: Rose

• The AI Automated Detection system has been tested on 2 stretches of freight/intercity passenger rail in VA & NC

• Need a larger-scale, single-system test – a closed system (e.g., rail transit) would be ideal

• Technology shortcoming: AI cannot distinguish between authorized track workers and trespassers
### Overall Key Takeaways

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Overall Information Gaps

- The impact of rail suicides on train crews needs to be studied
- Gap regarding evaluation of strategies in reducing the negative impacts on train crews after a fatality
- More comprehensive study needed on video feed Artificial Intelligence algorithm
Next Steps

• Synthesize Literature Reviews

• Continue to Identify Information Gaps

• Collect Data on Current Technologies & Processes

• Collect Data on Emerging Technologies
Questions?