

# Developing a Near-Miss Reporting System for Roadside Responders

## INTRODUCTION

The safety of roadside responders is often placed in jeopardy by the potential dangers posed by passing vehicles. To develop and implement effective protection measures for roadside responders, comprehensive safety data is essential. Traditional methods relying on crash data to identify incidents involving roadside responders, such as struck-by or secondary crashes, provide some information about the risks, but fail to capture information regarding near-miss incidents that occur far too often. These near misses, in which roadside technicians narrowly avoid crashes or harm, often go unreported and undocumented, creating a significant data gap. The lack of reliable information on the frequency and characteristics of near-miss incidents hinders efforts to understand the working environment of roadside responders and protect them while they assist other road users. Near-miss reporting systems are therefore invaluable tools for collecting this crucial data. Despite the existence of several reporting systems tailored for roadside responders and for workers in other domains, these platforms exhibit notable deficiencies in both the quality and quantity of reports submitted. These shortcomings highlight the necessity for a more robust and effective system. To address this critical issue, the current project aims to identify the elements required for a successful near-miss reporting system specifically designed for roadside responders.

## METHODOLOGY

Four major technical tasks were carried out for this project:

- 1. Review of existing reporting systems:** This task aimed to identify, review, and document existing and relevant reporting systems, along with key attributes of these systems.
- 2. Interviews with stakeholders:** Nine interviews were conducted with both developers and managers of existing reporting systems, aiming to gain agency-level insights regarding the challenges, barriers, and opportunities of developing a near-miss incident reporting system for roadside responders.

## TECHNICAL REPORT:

Liu, J., Ningzhe, X., Penmetsa, P., Barnett, T., Pate, J., & Jones, S. (2024). *Developing a Near-Miss Reporting System for Roadside Responders* (Technical Report). Washington, D.C.: AAA Foundation for Traffic Safety.

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## ABOUT THE AAA FOUNDATION FOR TRAFFIC SAFETY

Founded in 1947, the AAA Foundation for Traffic Safety in Washington, D.C., is a nonprofit, publicly supported charitable research and educational organization dedicated to saving lives by preventing traffic crashes and reducing injuries when crashes occur. Funding for this research was provided by voluntary contributions from AAA/CAA and their affiliated motor clubs, individual members, AAA-affiliated insurance companies, and other organizations or sources.

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3. **Focus groups:** Six focus groups involving 28 participants from 19 states and from different agencies were conducted to understand how roadside responders perceive and participate in near-miss reporting.
4. **National survey:** A national survey was administered and completed by over 1,300 respondents to gather additional insights regarding working experience, training background, incident reporting experience, attitudes toward near-miss reporting, perspective about reporting system design, and other general information.

## KEY FINDINGS

Collectively, the project tasks yielded several important insights into challenges and barriers to reporting near-misses. A few selected insights from the review, interviews, focus groups, and survey are presented. A comprehensive account is provided in the full report.

- Nearly 30% of towing industry respondents reported encountering near-miss incidents daily, a rate that is significantly higher than other agency types, including law enforcement, fire, etc.
- While 85% of respondents believe reporting near-miss incidents can improve safety practices, over 40% of towing respondents reported not receiving any incident reporting training.
- More than 40% of respondents from towing and law enforcement perceive near-miss incidents as a routine part of their job.
- The majority of stakeholders believe that having tools to assess and analyze near-miss data will significantly benefit their respective organizations, allowing them to translate insights from data into actionable items via training materials.
- Early training, continuing education, and strong and committed leadership were considered necessary to embed the culture of reporting near misses within a respective organization.
- Making systems easily accessible and viable to use with smartphones could increase the amount of reporting as most responders do not have access to computers.
- Respondents from towing agencies shared concerns about reporting, including potential insurance impacts, legal consequences, as well as the burden of completing reports.
- Stakeholders discussed the potential use of advanced technologies to augment data about near misses.

These insights were translated into a series of recommendations for near-miss reporting systems, as shown in the table below. See the full report for a comprehensive list.

<p>User-Friendly Interface</p>	<ul style="list-style-type: none"> <li>• <b>Simplicity:</b> Ensure the system is intuitive and straightforward, with a clean and simple reporting process.</li> <li>• <b>Mobile Compatibility:</b> Ensure the system functions seamlessly on smartphones and tablets.</li> </ul>
<p>Multiple Reporting Forms</p>	<ul style="list-style-type: none"> <li>• <b>Multiple Ways to Report:</b> Allow for self-reports as well as reports submitted on someone else's behalf.</li> <li>• <b>Flexible Design:</b> Balance standardization with flexibility to address the unique requirements of different response agencies.</li> </ul>
<p>Comprehensive Data Fields and Confidentiality</p>	<ul style="list-style-type: none"> <li>• <b>Comprehensive Data Fields:</b> Gather data on the responder's demographics, experience, and job role, along with contextual information regarding the near-miss incident.</li> <li>• <b>Confidentiality:</b> Allow anonymous submissions to encourage more responders to report incidents without fear of repercussions.</li> </ul>
<p>Standardized Definitions and Reporting Criteria</p>	<ul style="list-style-type: none"> <li>• <b>Clear Definitions:</b> Establish standardized definitions of what constitutes a near miss to ensure consistency in reporting.</li> <li>• <b>Risk Tolerance:</b> Acknowledge the varying risk tolerances/perceptions among responders and address these in the reporting criteria.</li> </ul>
<p>Advanced Data Acquisition Technologies</p>	<ul style="list-style-type: none"> <li>• <b>Automated Detection:</b> Whenever possible, integrate technologies such as camera-based sensing systems to automatically detect incidents.</li> <li>• <b>Cost and Regulation Management:</b> Address concerns about advanced technologies' cost and regulatory challenges.</li> </ul>
<p>Analysis Tools and Feedback Mechanisms</p>	<ul style="list-style-type: none"> <li>• <b>Quality Control:</b> Involve humans to review and standardize the reported data. Use AI to filter and ensure consistency and quality of data.</li> <li>• <b>Data Analysis:</b> Develop tools to analyze the data and convert insights into actionable items, such as training materials and safety protocols.</li> <li>• <b>Feedback Loop:</b> Provide timely feedback to responders on the outcomes and benefits derived from reported near-miss incidents.</li> </ul>
<p>Training and Education</p>	<ul style="list-style-type: none"> <li>• <b>Initial and Ongoing Training:</b> Provide education for responders on the benefits of near-miss reporting and how to use the system.</li> <li>• <b>Positive Safety Culture:</b> Foster an environment where supervisors and responders are encouraged to regularly discuss near-miss incidents.</li> </ul>
<p>Publicity and Awareness</p>	<ul style="list-style-type: none"> <li>• <b>Outreach Programs:</b> Use associations, social media, events, and public awareness campaigns to promote the near-miss reporting system.</li> <li>• <b>Stakeholder Engagement:</b> Collaborate with various agencies and stakeholders to ensure widespread adoption and consistent system use.</li> </ul>
<p>Policies and Legal Protections</p>	<ul style="list-style-type: none"> <li>• <b>Non-Punitive Reporting Policies:</b> Develop and enforce policies that ensure near-miss reporting is non-punitive.</li> <li>• <b>Confidential Reporting Agreements:</b> Establish agreements with responders and agencies that emphasize the confidentiality and protection of reported data.</li> <li>• <b>Legislative Support:</b> Lobby with legislatures to implement policies requiring near-miss reporting, protect reported data, and adapt policies according to different state requirements.</li> </ul>
<p>Deployment Considerations</p>	<ul style="list-style-type: none"> <li>• <b>Budget Planning:</b> Plan for the costs associated with developing, deploying, and maintaining the near-miss reporting system.</li> <li>• <b>Funding Sources:</b> Explore funding opportunities to support the implementation and sustainability of the system and seek partnerships with government agencies, industry organizations, and other stakeholders.</li> </ul>