



First Responder Transportation Safety Conference

Final Report

DECEMBER 2023

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16. Abstract <p>The transportation industry poses unique risks to first responders, who are frequently called to respond to accidents and emergencies on highways, railways, and other transportation corridors. In recognition of this challenge, the conference on transportation safety for first responders brought together first responder agencies, technology developers, training experts, and transportation officials to showcase the latest advancements in transportation safety for first responders. The conference featured cutting-edge technologies that are designed to improve transportation safety for first responders. These include tools and systems that help first responders to better navigate and operate in complex transportation environments, such as advanced GPS and mapping tools, specialized communications systems, and enhanced situational awareness technologies.</p> <p>In addition to technology demonstrations, the conference also highlighted the latest training programs and resources that are available to first responder agencies. These include specialized training programs that focus on transportation safety, as well as online training resources that can be accessed by first responders in the field. Overall, the conference on transportation safety for first responders was a valuable opportunity for first responder agencies to learn about the latest advancements in transportation safety technology and training, and to explore new strategies for enhancing the safety and effectiveness of their operations in transportation environments.</p>			
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TABLE OF CONTENTS

Executive Summary	1
1.0 Introduction.....	2
2.0 Workshop Description	4
Conference Sponsors:	4
The Center for Advanced Transportation Mobility (CATM)	4
Rutgers Center for Advanced Infrastructure and Transportation (CAIT)	4
Embry-Riddle Aeronautical University, Multimodal Intelligent Transportation Systems Laboratory	5
HAAS Alerts	5
J-Tech.....	5
AutoReturn.....	6
3.0 Conference Agenda.....	6
Session Title: Sign-in and Registration Hosted by CAIT	6
Session Title: Welcome Session and Opening Remarks	7
Session Title: FHWA TIM Research and Programs for Responder Safety	9
Session Title: Incident Management Tools and Vehicle Demonstrations	11
Session Title: Impacts of Emergency Vehicle Lighting and Markings on Responder Safety	12
Reception Title: HAASpitality Hour, hosted by HAAS Alerts	13
Session Title: Breakfast Hosted by AutoReturn	13
Session Title: Incident Response Research and Project Highlights.....	13
Presentation Title: New Jersey’s TIM Training and Move-Over Awareness Campaign	14
Presentation Title: Developing Automated Vehicles for First Responder Safety	14
Presentation Title: Emergency Responder Safety Institute Resources and TIM Training.....	15
Session Title: What is Keeping You Up at Night that Deserves Research Investment?	15
Session Title: Poster Research Presentation and Lunch Host by J-Tech LaneBlade	16

APPENDIX A: MEETING NOTES	18
APPENDIX B: ADVERTISEMENT FLYER.....	23
APPENDIX C: PROGRAM	25
APPENDIX D: ATTENDEE LIST	33

EXECUTIVE SUMMARY

As the organizers of the inaugural two-day conference hosted by TRB's Joint-Subcommittee on Emergency Response AMR00(1) and the Rutgers University Center for Advanced Infrastructure and Transportation (CAIT), we were proud to bring together esteemed experts in transportation safety for a crucial dialogue. The workshop findings presented by entities such as the National Highway Traffic Safety Administration (NHTSA), National Roadway Safety Strategy (NRSS), and the United States Department of Transportation (USDOT) underscore the pressing need for a comprehensive approach to emergency response. Addressing issues such as post-crash care, problem identification, countermeasures, and responder safety, the conference aimed to foster collaboration and disseminate knowledge on cutting-edge research and best practices. The diverse responses to the question of what keeps stakeholders up at night regarding emergency response safety highlight the complexity of the challenges faced, from recruiting and maintaining professionals to data collection and communication issues. The insights that were shared will undoubtedly contribute to a collective effort in advancing safety measures and protocols for the benefit of emergency responders and the communities they serve.

1.0 INTRODUCTION

First responders, including firefighters, police officers, and ambulance drivers, face distinct transportation safety needs that set them apart from other road users. These unique requirements are inherent to their work, involving the necessity to navigate swiftly changing and unpredictable situations while responding to emergencies. Consequently, specialized training and equipment are essential for first responders to safely and effectively operate in transportation environments.

To address these challenges, first responders were equipped with specialized communications tools enabling seamless interaction with their peers and real-time updates on road conditions and traffic patterns. The design, construction, and operation of transportation infrastructure were also recognized as crucial factors influencing the safety and efficiency of first responders. Considerations, such as the placement of traffic signals, road design, and emergency access point locations, directly impacted the ability of responders to reach their destinations swiftly and safely.

Recognizing the unique needs of emergency responders, interdisciplinary collaboration, research, and innovation become integral within the field of transportation. The focus shifts towards ensuring that transportation infrastructure was designed and operated with a priority on the safety and efficiency of first responders, all while considering the needs of other road users.

An important milestone in this endeavor was the convening of the First Responder Transportation Safety Conference. Hosted by TRB's Joint-Subcommittee on Emergency Response AMR00(1) and the Rutgers University Center for Advanced Infrastructure and Transportation (CAIT), this conference brought together experts from diverse disciplines such as transportation engineering, emergency management, and public safety. The aim was to explore new strategies for enhancing transportation safety for first responders through

collaboration and innovation. By fostering interdisciplinary dialogue, the conference sought to develop solutions that could elevate the safety and efficiency of first responder operations in transportation environments, ultimately contributing to the preservation of lives and the protection of communities.

Topics covered in the conference included:

- Impacts of the Move-Law,
- Rural Traffic Incident Management,
- Responder Safety Training, Regional Traffic Management Centers,
- Integrated Incident Management,
- Technologies for Reducing Secondary Crashes and Responder Struck-by Incidents,
- Next Generation TIM,
- Advancements in Emergency Vehicle Lighting and Retroreflective,
- Digital Alerting Technology,
- Electric Vehicle Fire, and
- Automated Vehicle Technologies and Emergency Response.

The target audience for the conference comprised stakeholders from law enforcement, fire and EMS agencies, towing communities, and transportation professionals. The workshop aimed to facilitate the exchange of innovative ideas in traffic safety among responders and transportation experts, promoting collaboration, technology transfer, and innovation within the transportation sciences.

This significant event took place on November 1-2, 2023, at the Center for Advanced Infrastructure and Transportation (CAIT) at Rutgers, The State University of New Jersey. CAIT, established in 1986, is a leading research institution with a mission to improve the safety, durability, and sustainability of transportation infrastructure. Through cutting-edge

research, knowledge dissemination, and education, CAIT brought together a multidisciplinary team of researchers, engineers, and professionals to advance the field of transportation, including areas such as civil engineering, transportation planning, and public policy.

2.0 WORKSHOP DESCRIPTION

Conference Sponsors:

The Center for Advanced Transportation Mobility (CATM)

The Center for Advanced Transportation Mobility (CATM) was established in 2016 through the University Transportation Center Program under the Fixing America's Surface Transportation (FAST) Act. CATM is a consortium consisting of three higher education institutions: North Carolina Agricultural and Technical State University (lead), Virginia Polytechnic Institute and State University and Embry-Riddle Aeronautical University – Daytona Beach. These three institutions collaborate on projects focused on identifying solutions to mobility concerns within two primary thematic areas: 1) Enabling safe and efficient mobility for vulnerable road users and 2) Optimizing mobility in emergency situations.

Rutgers Center for Advanced Infrastructure and Transportation (CAIT)

Rutgers Center for Advanced Infrastructure and Transportation® (CAIT) research focuses on preserving, rehabilitating, and improving infrastructure, boosting network resilience, reducing life-cycle costs, and increasing mobility and safety. CAIT® tackles some of the country's most pressing infrastructure challenges, especially those that are endemic in high-volume multimodal corridors like in the Northeast. The bulk of CAIT® efforts fall within several broad areas: assessing and monitoring the health of bridges, roads, and pipelines; creating revolutionary technologies, materials, and tools; formulating strategies to prolong the service life of infrastructure; and training the current and future workforce. CAIT develops practical tools and processes that can be applied—not in theory, not on paper, not

five years in the future—but as mainstream tools in the hands of transportation professionals solving real-world problems right now.

Embry-Riddle Aeronautical University, Multimodal Intelligent Transportation Systems Laboratory

Transportation research into the safety, operations, design, planning, and maintenance issues involving our nation’s infrastructure, with an emphasis on airports, is combined with classroom experience in the Multimodal Intelligent Transportation Laboratory at Embry-Riddle Aeronautical University. The lab features the latest methods of research in fields of data collection, traffic simulation, transportation safety, and advanced traffic signal timing management. In this space, Civil Engineering students can also study transportation modes, including aviation, highway, public transit, and pedestrian.

HAAS Alerts

HAAS Alert’s digital alerting service, Safety Cloud®, is a breakthrough evolution in emergency alerting, enhancing roadway safety for responders and other vulnerable road users and transforming emergency alerting for the future of connected vehicles. Safety Cloud® enhances emergency lighting, sirens, and signage by also delivering real-time warnings to drivers inside cars and navigation apps as they approach active emergency vehicles, giving them advance warning to slow down and move over. Connected to millions of drivers nationwide through leading automotive brands like Jeep, Dodge, Ram, and Chrysler, and through trusted navigation apps like Waze, Safety Cloud® reduces the likelihood of collision by 90%, ensuring that everyone on the road can get home safely.

J-Tech

J-Tech is “Helping You Make Roads Safer Workplaces” through development of innovative highway safety equipment and by being your solutions resource. J-Tech designs and manufactures crash trucks (attenuator trucks, TMAs), cone deployment trucks, and highway

safety equipment, such as LaneBlade®, for road debris removal and hitch mounted safety baskets for work zone cone deployment. Their equipment is used by highway contractors, state Departments of Transportations, tollways, utilities, and traffic management companies across North America.

AutoReturn

AutoReturn is the nation's leading towing management systems provider. For over 15 years, they have worked with cities, counties, and states nationwide to manage transportation, storage, and return of a vehicle after local law enforcement orders a tow. Their technical solution automates communications among law enforcement, towers, and vehicle owners, for faster, safer vehicle removal from unauthorized parking areas and crash scenes. With AutoReturn, officers and other first responders are safer and have more time for higher-priority work because crash scenes get cleared quickly and secondary accidents decrease. AutoReturn enables the streamlined communications that make this a reality, decreasing incoming calls to dispatch centers and automating intelligent dispatch with both public and private tow fleets. AutoReturn has processed millions of police tows across the globe and has active customers in 12 of the top 20 most populous metropolitan regions in the United States.

3.0 CONFERENCE AGENDA

DAY 1 – November 1, 2023

Session Title: Sign-in and Registration Hosted by CAIT

Session Time: Nov. 1, 2023, 12:00 – 1:00 PM

Session Sponsor: CAIT

Session Descriptions: Participates may sign in and enjoy refreshments provided by CAIT.

Session Title: Welcome Session and Opening Remarks

Session Time: Nov. 1, 2023, 1:00 PM – 2:00 PM

Session Description: The conference organizers warmly welcomed participants, offering an overview of the conference program and providing insights into the Transportation Research Board and the Joint Subcommittee on Emergency Response. In addition, attendees were introduced to the conference sponsors and the prestigious CAIT organization. To conclude this session, remarks were presented from Gam Wijetunge, the Director of the Office of EMS for NHTSA.

Session Speakers and Bios:

Scott Parr, PhD, PE., Chair, TRB AMR00(1) Joint Subcommittee on Emergency Response

Dr. Scott Parr, PhD, P.E. is a professional engineer and associate professor at Embry-Riddle Aeronautical University in the Department of Civil Engineering. Dr. Parr co-founded and chairs the Joint-Subcommittee for Emergency Response, within the Transportation Research Board. He earned his PhD in Civil Engineering from Louisiana State University specializing in Transportation Engineering and Emergency Management. Dr. Parr has published dozens of articles in peer reviewed journals and has participated as an expert panelist at conferences and workshops around the world. He serves as a subject area expert for several journals such as the Transportation Research Record, Journal of Emergency Management and American Society of Civil Engineer's Natural Hazards Review. Dr. Parr has led research collaborations with the United States Department of Transportation, Department of Homeland Security, U.S. Nuclear Regulatory Commission, and the Canadian Nuclear Safety Commission. Prior to his appointment at Embry-Riddle, he was an assistant professor in the Department of Civil and Environmental Engineering at California State University, Fullerton as well as the Associate Director of Research at the Gulf Coast Center for Evacuation and Transportation Resiliency, a U.S. Department of Transportation sponsored University Transportation Center.

Patrick Szary, PhD, Associate Director, Rutgers CAIT

Dr. Patrick Szary is the associate director for the Center for Advanced Infrastructure and Transportation (CAIT) at Rutgers University. As PI/Co-PI he has generated more than \$75.2M in funding for the Center. Along with Director Ali Maher, Szary leads the development of CAIT's competitive proposals to maintain the USDOT-designated University Transportation Center (UTC) status.

He has been an integral part of CAIT since its inception in 1998 as a UTC Program funded by the USDOT. Building on the Center's experience as a Regional and National Center, Dr. Szary has adopted a far-reaching research vision that has been instrumental in making the Center a stable resource in the dynamic NY/NJ metropolitan area.

From improving the durability of infrastructure to developing the transportation workforce, Dr. Szary directs research topics and themes at CAIT to ensure research is aligned with national USDOT strategic goals as well as the needs of regional stakeholders.

Gamunu "Gam" Wijetunge, Director, NHTSA Office of EMS

Gamunu "Gam" Wijetunge, serves as the National Highway Traffic Safety Administration (NHTSA) Director of the Office of EMS and has worked within NHTSA's Office of EMS for more than 20 years. He is also a volunteer paramedic, fire captain, and president of a volunteer rescue squad in Maryland. Within his director role, Gam is responsible for the National 911 Program housed within the Office of EMS. For many years, Gam has been a leader within NHTSA's Office of EMS, an advocate for clinicians, and a trusted colleague for both Federal partners and Fire/EMS organizations. His commitment to collaboration within the EMS community may be best illustrated through his stewardship of EMS Agenda 2050, which sets a clear path for the continued improvement of people-centered EMS systems for the next 30 years. Throughout his tenure at NHTSA, Gam has played an integral collaborative role in the development of EMS systems nationwide. These include leading

efforts to develop evidence-based guidelines and tackle EMS system improvement issues, address recruiting, retention, clinician safety and other EMS workforce topics, improve national EMS preparedness through coordination with other federal agencies, and facilitate consensus and collaboration within leadership and working groups of the Federal Interagency Committee on EMS (FICEMS).

Session Title: FHWA TIM Research and Programs for Responder Safety

Session Time: Nov. 1, 2:00 – 3:30

Session Description: During this 1.5-hour session, the FHWA shared information related to recently completed research in the areas of roadside worker safety, responder struck by and secondary crashes, traffic incident management (TIM) for rural environments, and more. This session engaged the audience to think critically about how to improve state-wide, regional, and local TIM Programs through the lens of responder safety. The session also introduced ongoing TIM programs that offer resources to help responders advance their state of practice in traffic incident management.

Session Speakers:

Ekaraj Phomsavath, FHWA New Jersey Division

Mr. Phomsavath is the ITS Specialist for the USDOT–FHWA New Jersey Division Office. Current division office duties and responsibilities include providing guidance, federal oversight, and technical assistance in the planning, design, integration testing, and ITS deployment including the traffic operations programs, TSM&O-related Every Day Counts (EDC) initiatives, planning for operations, truck size and weight, and emergency management to the New Jersey DOT, MPOs, and partner agencies. In this capacity, he also assists the NJDOT in advancing their TSM&O programs in the areas of ITS deployment, crowdsourcing for operations, safety service patrol, traffic incident management, traffic operations center, and traveler information system. Mr. Phomsavath had previously served

as a member of the USDOT's Superstorm Sandy Response/Recovery Team and Papal Visit Task Force.

Art O'Connor, FHWA New York Division

Mr. O'Connor has been with the FHWA for over 35 years. Art co-established the New York City Metropolitan Office in 1996-1997 and for over 26 years, has worked closely with all downstate metropolitan partner agencies in the advancement of a wide range of federally-funded ITS and operations programs and initiatives. He spent the previous nine years in the FHWA Boston (Cambridge) office as a Highway Engineer in a variety of traffic engineering, safety, and ITS related positions. He worked for six years as a Structural Engineer in private sector consultant and construction engineering firms with specialization in the nuclear power industry.

Art has served as an Adjunct Faculty Professor at Stony Brook University (Long Island, NY) and at his alma mater, Merrimack College (North Andover, MA). He holds a PhD and Master of Science in Transportation Planning and Engineering from the New York University Tandon School of Engineering, a Master of Business Administration from Suffolk University (Boston, MA), and a Bachelor of Science in Civil Engineering from Merrimack College. He is a Registered Professional Engineer in multiple states. He serves on the ITS-NY Board of Directors and as President Emeritus of ITS-NY. He is also a member of both ASCE and ITE.

Vaishali Shah, AEM Corporation

Ms. Shah is an innovative program manager, principal investigator (PI), and technical adviser, having contributed to multiple NCHRP, SHRP, FHWA, USDOT ITS JPO, and FAA efforts over her 30-year career. Vaishali engages national, state, and local stakeholders through workshops, focus groups, site visits, webinars, peer exchanges, assessments, and

technical assistance to bring together disparate interests to prioritize and chart a successful path forward. Vaishali also brings expertise in the development and use of simulation, modeling, and advanced analytics to improve decision-making. She helps agencies navigate the acquisition life cycle, focusing on concept of operations and the business case for complex transportation systems and has led systems engineering, acquisition, and implementation for programs that range from \$1M to \$400M.

Currently, Vaishali supports the FHWA Traffic Incident Management (TIM) Program Team and its Executive Leadership Group (ELG), Crash Responder Safety Week (CRSW), Every Day Counts Round Seven (EDC-7) Next Generation TIM: Technologies for Saving Lives, and communications activities. She also supported the EDC Round 5 and 6 Innovation, Crowdsourcing for Operations and various NCHRP studies related to transportation operations. Vaishali holds a BS in civil engineering from the University of Maryland and MS in transportation engineering from the University of Texas at Austin.

Session Title: Incident Management Tools and Vehicle Demonstrations

Session Time: Nov. 1, 2023, 3:30 PM – 4:45 PM

Session Description: Participants had the opportunity to experience incident management tools and demonstrate advanced vehicle technologies designed to enhance transportation safety for first responders. They explored innovative solutions that empower first responders with real-time data, decision support systems, and vehicle capabilities to streamline incident management and improve overall safety outcomes.

Session Title: Impacts of Emergency Vehicle Lighting and Markings on Responder Safety

Session Time: Nov. 4:45 – 5:30 PM

Session Description: This session delved into the vital aspects of how emergency vehicle lighting and markings directly affect the safety of our responders. We analyzed the latest research findings, shared best practices, and engaged in discussions surrounding the optimization of lighting and marking systems to ensure the well-being of those who rush to our aid. Participants discovered the pivotal role these technologies play in enhancing visibility, communication, and overall responder safety

Session Speaker:

John Bullough, PhD, Program Director, Light and Health Research Center, Icahn School Medicine at Mount Siani

John Bullough, PhD is a Program Director at the Light and Health Research Center, within the Department of Population Health Science and Policy, part of the Icahn School of Medicine at Mount Sinai. Prior to joining Mount Sinai in 2021, he was Director of Transportation and Safety Lighting Programs at the RPI Lighting Research Center. John has managed research studies for the National Highway Traffic Safety Administration, the Federal Highway Administration, Transportation Research Board, National Institute for Occupational Safety and Health, and New York and New Jersey Departments of Transportation. He has written or co-authored about 500 articles and technical publications on lighting, human factors, and transportation safety. John is a Fellow of the Illuminating Engineering Society and served as a previous Chair of the TRB's "Committee on Visibility."

Reception Title: HAASpitality Hour, hosted by HAAS Alerts

Reaction Location: Heldrick Hotel, New Brunswick, NJ

Reception Time: 6:30 PM – 7:30 PM

Reception Description: A "HAASpitality Hour" reception was hosted by HAAS Alerts. Participants enjoyed light appetizers and drinks while networking with other conference attendees, connecting with presenters, and engaging with the event planners.

DAY 2 – November 2, 2023

Session Title: Breakfast Hosted by AutoReturn

Session Time: Nov. 2, 2023, 8:00 AM – 9:00 AM

Session Description: The day started with breakfast and a software demonstration hosted by AutoReturn. This session explored cutting-edge solutions, allowed participants to engage with industry experts, and witness firsthand how AutoReturn's innovative software can reduce clearance times.

Session Title: Incident Response Research and Project Highlights

Session Time: 9:00 AM – 10:45 AM

Session Description: This informative session delved into critical topics related to first responder safety and traffic incident management (TIM). This session provided valuable insights into the latest developments, campaigns, and resources aimed at ensuring the safety of those who respond to emergencies on our roads. A distinguished panel of experts shared their knowledge and experiences, shedding light on innovative strategies and initiatives.

Presentation Title: New Jersey's TIM Training and Move-Over Awareness Campaign

Session Speaker: Robert Burd, Manager | Deputy EMC, Office of Emergency Management, Security, and Response, New Jersey Department of Transportation

Presentation Title: Analysis of Impact of the Move Over Law in New York

Session Speaker: Yunpeng (Felix) Shi, EIT, PhD Candidate at SUNY, Buffalo

Yunpeng (Felix) Shi is an enthusiastic PhD candidate specializing in civil engineering, with a focus in transportation engineering at the University at Buffalo, SUNY. He holds a master's degree in civil engineering from the same institution and completed his bachelor's in the same field at the University of California, Irvine. Felix's research is centered on Intelligent Transportation Systems (ITS), specializing in autonomous and connected transportation, especially under challenging weather conditions. His research is conducted under the mentorship of Professor Adel Sadek. Over the years, he has been deeply involved in a range of projects, including assessing the safety and performance of self-driving shuttles, developing predictive models for US-Canada border crossing delays, and conducting detailed testing and analysis of LiDAR sensor performance. Currently, Felix is actively engaged in the Buffalo NY ITS4US deployment project and is contributing to the development of the Incident Information Management System (IIMS), where he conducts traffic analysis and assesses performance using connected vehicle data.

Presentation Title: Developing Automated Vehicles for First Responder Safety

Session Speaker: Jacob "Jake" Valente, PhD Candidate, Virginia Tech.

Mr. Valente is a fifth-year biomedical engineering PhD candidate at Virginia Tech. Under the advisement of Dr. Miguel Perez at the Virginia Tech Transportation Institute (VTTI), he conducts several different research inquiries centered around improving emergency response to motor vehicle collisions. His work includes analysis of driving behavior, emergency

vehicle operations, the formation of an occupant injury triage system to evaluate crash victim conditions, and the research and development of automated vehicle practices and procedures.

Presentation Title: Emergency Responder Safety Institute Resources and TIM Training

Session Speaker: Joe Kroboth, III, PE, SFPE, CFPS, Project Manager, Responder Safety Institute, Cumberland Valley Volunteer Firemen's Association

Mr. Kroboth currently holds the role of Project Manager at the Emergency Responder Safety Institute, where his responsibilities encompass the coordination of emergency responder training, research initiatives, and standards development. He boasts a long-standing commitment to this cause, having been a charter member of the Emergency Responder Safety Institute, as well as an emergency responder struck-by family survivor. Chief Kroboth brings over four decades of experience in the Fire Service, having served as both a volunteer and career Fire Chief. Chief Kroboth has a noteworthy history of involvement in various roles within the field of Fire and Emergency Services. Notably, he has served as the Past President of the Cumberland Valley Volunteer Firemen's Association, as Fire Chief of the Volunteer Fire Company of Halfway (MD), and as the Director of Fire and Emergency Services for Washington County (MD). His professional affiliations extend to being a member of the Society of Fire Protection Engineers, and he is a certified Fire Protection Specialist with the NFPA.

Break: 10:45 AM – 11:00 AM

Session Title: What is Keeping You Up at Night that Deserves Research Investment?

Session Time: 11:00 AM – 12:00 PM

Session Description: In this highly interactive and collaborative session, participants made a collective effort to shape the future of transportation safety for emergency responders. The

goal was to identify and prioritize the research needs within this critical field, enabling us to better protect those who risk their lives to safeguard our communities. Participants engaged in small-group discussions to explore pressing challenges, evaluate existing safety countermeasures, and envision innovative solutions.

Session Speaker: Lindsay Arnold, MPH, Researcher, AAA Foundation for Traffic Safety

Lindsay Arnold conducts and manages research on issues including substance-impaired driving and vulnerable road users at the AAA Foundation for Traffic Safety. Prior to joining the Foundation in 2012, she served as a public health fellow in the National Highway Traffic Safety Administration's Office of Behavioral Safety Research, and as a researcher at the University of California, Berkeley's Safe Transportation Research and Education Center. Her research has been published in scientific journals including *Accident Analysis & Prevention*, *American Journal of Epidemiology*, and *Journal of Safety Research*. She is a member of the Transportation Research Board's Committee on Impairment in Transportation and serves as a reviewer for several journals. Arnold holds a Road Safety Professional Level 1 (RSP1) certification and a master's degree in public health with a focus in epidemiology/biostatistics from the University of California, Berkeley.

Session Title: Poster Research Presentation and Lunch Hosted by J-Tech LaneBlade

Session Time: 12:00 – 1:00 PM

Session Sponsor: J-Teck LaneBlade

Session Description: This illuminating poster session was dedicated to sharing the latest research and innovations in emergency responders' transportation and safety. It offered a visual and interactive platform for researchers, practitioners, and industry experts to showcase their work and engage in discussions with conference attendees, explore a diverse

range of topics and discover groundbreaking solutions aimed at enhancing the safety and efficiency of emergency responders on our roadways.

APPENDIX A: MEETING NOTES

National Highway Traffic Safety Administration [NHTSA]

- Eliminate: death and disability
- Provide: leadership and coordination
- Assess, plan, and develop

National Roadway Safety Strategy (NRSS)

- Long-term goal of 0 roadway deaths
- Safe system approach
- 1. Post Crash Care
 - a. Expedient access to EMS care
- 3 Key Actions
 - Improve quickness and quality of care
 - Improve the quality and quantity of EMS data
 - Improve EMS personnel on-scene data
- 2. Problem Identification
 - a. 1.5 million Crashes
 - b. (2021) 42,939 Fatalities
 - c. 40% of the victims were still alive when the first responders arrived on-scene
 - d. 8,747 EMS responses to crashes in which a person was either partially or fully ejected from the vehicle.
 - e. 48,939 incidents required vehicular extraction.
 - f. 169,462 EMS responses involved seriously injured patients.
- 3. Countermeasures
 - a. Classify the call at emergency medical dispatch
 - b. Timely on scene care
 - c. Safe and effective transportation to a trauma center
 - d. Data driven performance measurements
 - e. Special crash investigation programs
- 4. Contacts for EMS Data
 - a. University of Utah
 - b. NEMS.gov >Crash Dashboard
 - c. State and Local EMS

United States Department of Transportation [USDOT]

1. Cost of Crashes
 - a. \$340 Billion (Economic)
 - b. 1.37 Trillion (Societal Harm)
2. Safe System Approach

- a. Safer People
- b. Safer Speeds
- c. Post Crash Care
- d. Safer Vehicles
- e. Safer Roads
- 3. Safe System Principles
 - a. Humans make mistakes
 - b. Death and serious injury are unacceptable
 - c. Humans are vulnerable
 - d. Responsibility is shared
 - e. Safety is proactive
 - f. Redundancy is crucial
- 4. Traffic Incident Management Programs (TIMS)
 - a. 30-35% lower incident clearance time
 - b. Model minimum uniform crash criteria
- 5. Next Generation TIMS
 - a. Everyday Counts: State based model that identifies and rapidly deploys emergency personnel
 - i. Advance warning technology
 - ii. Debris removal systems
 - iii. Emergency vehicle lighting
 - iv. Emergency vehicle preemption
 - v. Unmanned aircraft systems (UAS) for TIMS
 - vi. TIM technologies for EMS support post-crash care
- 6. TIM Self-Assessment (SA)
 - a. A formal process since 2003 to assess the function of the TIM program as well as implementing any changes
- 7. National Responder Training
 - a. 680,000 responders trained since 2012 for safe and quick roadway clearance

Impacts of Emergency Vehicle Lighting and Markings on Responder Safety

- 1. Warning lights are the primary line of defense for the protection of first responders.
- 2. AIM'S: Alert, Inform, and Manage
 - a. Alert: Get the driver's attention.
 - b. Inform: Allow drivers to see what is there.
 - c. Manage: Guide drivers to a safe location.
- 3. Control Standards
 - a. Society of Automotive Engineers
 - b. National Fire Protection Agency

4. What are the properties of warning lights that are important?
 - a. Intensity
 - b. Modulation: reducing modulation decreases reaction time
 - c. Flashing Patterns: Random flashing can be confusing, whereas sequencing the lights is less confusing. It was also found that drivers slowed down more in the presence of synchronized lights, and they found them to be the least glaring.
 - d. Flash Rate: People interpreted faster flashing as a more urgent situation and more attention-getting.
 - e. Color: Red and blue lights were judged as more visible while blue and white lights were judged as more glaring. It was also found that the flashing light color did not affect how visible the road scene was.
5. Impacts of vehicle markings
 - a. The presence of reflective markings behind the flashing lights resulted shorter detection distances for a firefighter silhouette.
 - b. Response times were 0.5s shorter with lower light levels.
 - c. Most people associate red with emergency situations.
 - d. Different colors are associated with different events.

What is keeping you up at night that deserves research investigation?

Question 1: What are the most challenging problems that threaten the safety of emergency responders?

Responses:

- How do we recruit and maintain emergency response professionals?
- What factors play a role in recruiting and maintaining emergency response professionals?
- What are the primary driving factors in retaining these emergency professionals?
- Teach students and traffic roadway designers to forward think about emergency response situations.
- Design roadways to accommodate emergency response scenarios.
- There is no EMS data collection due to the lack of funding. There is also a lack of representatives to speak on their behalf.
- Work with local police departments to gather crash data for systematically identifying and prioritizing hotspots.
- Share information and integrate technology.
- Identify issues with data specificity.

- Would love to see research-backed evidence about what the primary driving factors of the staffing crisis for 911 centers is, and how can we fund those factors.
- The United States has a security focus, which causes us to lose opportunities to progress technologically.
- NEMSIS has a lot of useful information; however, the software provider makes it very difficult to use and takes away from its purpose.
- There is no national approach to fund getting the data out of your phone and into the 911 database.
- Investing in the 911 infrastructure is the best way to gain insight into this crisis.
- A national 911 dataset is crucial to getting things to change.
- Merge 911 data and EMS data to make a more comprehensive data set.
- There is no national database for 911 calls. There is also no information on how many 911 calls there are nationwide.
- Start with 911 professionals as the source.
- Personal stories and data can be used to leverage change. People in Congress are upset that there is no data set regarding 911 calls and, without this, change is hard to make.
- How do we get more information to describe the whole scenario? The next generation of 911 would provide the information to tell a story via data.

Question 2: What safety countermeasures are currently in use by emergency responders?

Responses:

1. Conduct research to find ways to implement more safety counter measures.
There are a lot of counter measures that already exist, they are just not utilized/ implemented.
 - a. It would be interesting to see the perception barriers, and how do we overcome that.
 - b. For example, if police officers are required to wear reflective vests, that will keep them safer if they are responding to a crash, it can also put a target on other parts of the job.
2. Research done on road closure as a counter measure
 - a. In Colorado, they can close a road to clean up an incident scene quicker. It would be interesting to see research done to determine if it is quicker and safer to close the entire road down to clean up a crash as opposed to other methods.

- b. Research could be done to see if this counter measure would create congestion, and if it would cause more secondary crashes.
 - i. There needs to be great communication to surrounding drivers to communicate the road closure so that they can be informed and take a different route and prevent further crashes.
- 3. Active slowing – state troopers will solemn across the road to put spacing in between the cars on the road to prevent accidents, and it can give drivers an incentive to get off at a closer exit before the crash.
- 4. Police vehicles with lights and sirens on – when the car brakes, the flashing lights dimmed and the entire back lights up as a brake light.
 - a. Not necessarily something that needs to be researched. It is an intuitive measure.
- 5. Does it make a difference in visibility if the flashing lights of a vehicle are higher up. That is why people merge earlier when there are fire trucks present.
 - a. Blue lights translate further than red, so should we change all lights to blue? However, blue lights are more glaring. So, what is the best option?
- 6. Is there an opportunity to teach new drivers different things and processes to make things easier and safer for ERTs?
 - a. In many states, the driver's manual contradicts the state law.
 - b. Would love to see more structure, regulations, and uniformity among rules and teaching new drivers.
 - c. Incorporating short videos into driver's ed curriculums is the best way to portray some of the most important rules and laws. Also, a standardized system for education needs to be created for driver's ed.
- 7. Why aren't responders doing what they should be doing to better protect themselves?
 - a. We must change as people before we can allow any technology to help us.
 - b. There is a communication problem between different agencies. Everyone knows what their job is, but when they come together to a crash site, for instance, they all think that their job is the most important, and they just want to do what they are supposed to do. They don't work together very well, and they all think that their job takes priority.

APPENDIX B: ADVERTISEMENT FLYER

TRB's Joint-Subcommittee on Emergency Response AMR00(1)
Rutgers Center for Advanced Infrastructure and Transportation (CAIT)

Emergency Responder Transportation Safety Research Summit, 2023



Hosted by TRB's Joint-Subcommittee on Emergency Response AMR00(1) and Rutgers CAIT, this two-day conference brings together transportation-safety experts to share new research & best practices for emergency responders.

From firefighters and paramedics to police officers and tow operators, all emergency responders are welcome to attend and learn from the best in the business. The conference will cover a wide range of pressing topics — and provide an opportunity to learn from experts in the field and participate in interactive workshop discussions.

To fully mobilize this subcommittee, organizations like yours are critical partners. While you may not have members among the 13,000 people that attend the TRB Annual Meeting, your voice and participation is critical to elevating key emergency response priorities.

When & Where
November 1st & 2nd, 2023
Rutgers CAIT, Piscataway NJ

Register
>> cait.rutgers.edu/event/emergency-responder-summit/

Sponsored By



Agenda

• Day 1

- 12:00 – 1:00 pm **Sign-in and refreshments**
- 1:00 – 1:30 pm **Opening Remarks & Introduction of TRB Subcommittee**
 - What brings us here?
- 1:30 – 2:00 pm **Introduction to Transportation Research Board (TRB)**
 - What resources does TRB offer to responder agencies?
 - How to become involved
- 2:00 – 3:30 pm **FHWA Traffic Incident Management (TIM) Research**
- 3:30 – 4:45 pm **Incident Management Tools and Vehicle Demonstrations**
- 4:45 – 5:30 pm **Emergency Vehicle Lighting Research**
- 5:30 pm **Program adjourns, light reception (time, TBD)**

• Day 2

- 8:00 – 8:30 am **Sign-in and breakfast**
- 8:30 – 9:00 am **AutoReturn Software Demonstration**
- 9:00 – 10:30 am **Incident Response Research Highlight Projects**
 - NYDOT
 - NJDOT
 - ERSI (CVVFA)
 - VITTI
- 10:30 – 11:00 am **Break**
- 11:00 – 12:00 pm **What is Keeping You Up at Night that Deserves Research Investment?**
 - Facilitated discussion.
- 12:00 – 1:00 pm **Student Poster Presentations and Lunch**
- 1:00 pm **Adjourn**

APPENDIX C: PROGRAM



EMBRY-RIDDLE
Aeronautical University

RUTGERS.
Center for Advanced Infrastructure
and Transportation



TRB's Joint-Subcommittee on Emergency Response AMR00(1)

Emergency Responder Transportation Safety Research Summit 2023

November 1 & 2

Rutgers CAIT Auditorium
100 Brett Road Piscataway NJ, 08854

EMERGENCY RESPONDER TRANSPORTATION SAFETY RESEARCH SUMMIT 2023

Hosted by TRB's Joint-Subcommittee on Emergency Response AMR00(1) and the Rutgers University Center for Advanced Infrastructure and Transportation (CAIT), this inaugural two-day conference brings together leading experts in the field of transportation safety to discuss the latest research and best practices for emergency responders. To fully mobilize this subcommittee, professionals like you are critical partners. While you or your organization may not currently be among the 13,000 that attend the TRB Annual Meeting, your voice and participation in this subcommittee is an important avenue to elevate the priorities related to safety and efficacy of emergency response to new levels.

AGENDA

November 1st, 2023

- | | |
|----------------|---|
| 12 - 1 pm | Sign-in and Registration
Rutgers CAIT Auditorium, 100 Brett Rd. Piscataway NJ, 08854 |
| 1 - 2 pm | Welcome Session and Opening Remarks
Scott Parr, PhD, PE, Chair, TRB AMR00(1) Joint Subcommittee on Emergency Response

Patrick Szary, PhD, Associate Director, Rutgers CAIT
Gamunu "Gam" Wijetung, Director, NHTSA Office of EMS |
| 2 - 3:30 pm | FHWA TIM Research and Programs for Responder Safety
Ekaraj Phomsavath, ITS Specialist, FHWA New Jersey Division

Art O'Connor, PhD, PE, Senior ITS Engineer, FHWA New York Division
Vaishali Shah, Director—Transportation Systems, AEM Corporation |
| 3:30 - 4:45 pm | Incident Management Tools and Vehicle Demonstrations
Demonstrations from NJDOT, HAAS Alerts, and J-Tech |
| 4:45 - 5:30 pm | Impacts of Emergency Vehicle Lighting and Markings on Responder Safety
John Bullough, PhD, Program Director, Light and Health Research Center, Icahn School Medicine at Mount Siani |
| 6:30 - 7:30 pm | HAASpitality Hour, hosted by HAAS Alerts
Join us for a "HAASpitality Hour" hosted by HAAS Alerts! Enjoy a light reception of appetizers, drinks, and more while networking with conference participants, connecting with presenters, and engaging with the event planners.

Location: The Heldrich Hotel & Conference Center Room: The Johnson Room
Address: 10 Livingston Ave, New Brunswick, NJ 08901 |

DAY 2

November 2nd, 2023

8 - 9 am	Breakfast, Hosted by AutoReturn Rutgers CAIT Auditorium, 100 Brett Rd. Piscataway NJ, 08854
9 - 10:45 am	Incident Response Research and Project Highlights <i>New Jersey's TIM Training and Move-Over Awareness Campaign</i> Presenter: Robert Burd, Manager Deputy EMC, Office of Emergency Management, Security, and Response, New Jersey Department of Transportation <i>Analysis of Impact of the Move Over Law in New York</i> Presenter: Yunpeng (Felix) Shi, EIT, PhD Candidate at SUNY, Buffalo <i>Developing Automated Vehicles for First Responder Safety</i> Presenter: Jacob "Jake" Valente, PhD Candidate, Virginia Tech. <i>Emergency Responder Safety Institute Resources and TIM Training</i> Presenter: Joe Kroboth, III, PE, SFPE, CFPS, Project Manager, Responder Safety Institute, Cumberland Valley Volunteer Firemen's Association
10:45 - 11 am	Break
11 am - 12 pm	What is Keeping You Up at Night that Deserves Research Investment? Lindsay Arnold, MPH, Researcher, AAA Foundation for Traffic Safety In this interactive session, we invite you to join a discussion on the future of transportation safety for our dedicated emergency responders. Participants will engage in small-group workshops to explore pressing challenges, evaluate existing safety countermeasures, and envision innovative solutions.
12 - 1 pm	Research Poster Session and Lunch, Hosted by J-Tech LaneBlade Join us across campus for boxed lunch and an illuminating poster session dedicated to the latest research and innovations in emergency responders' transportation and safety. Session Location: Richard Weeks Hall of Engineering, Rm. 211
1 pm	Adjourn

Learn about our presenters on next page

ABOUT OUR PRESENTERS

Scott Parr, PhD, PE, Chair, TRB AM00(1) Joint Subcommittee on Emergency Response

Dr. Scott Parr, Ph.D., P.E. is a professional engineer and associate professor at Embry-Riddle Aeronautical University in the Department of Civil Engineering. Dr. Parr co-founded and chairs the Joint-Subcommittee for Emergency Response, within the Transportation Research Board. He earned his Ph.D. in Civil Engineering from Louisiana State University specializing in Transportation Engineering and Emergency Management.

Dr. Parr has published dozens of articles in peer reviewed journals and has participated as an expert panelist at conferences and workshops around the world. He serves as a subject area expert for several journals such as the Transportation Research Record, Journal of Emergency Management, and American Society of Civil Engineer's Natural Hazards Review. Dr. Parr has led research collaborations with the United States Department of Transportation, Department of Homeland Security, U.S. Nuclear Regulatory Commission, and the Canadian Nuclear Safety Commission.

Prior to his appointment at Embry-Riddle, Dr. Parr was an assistant professor in the Department of Civil and Environmental Engineering at California State University, Fullerton as well as the Associate Director of Research at the Gulf Coast Center for Evacuation and Transportation Resiliency, a U.S. Department of Transportation sponsored University Transportation Center.

Patrick Szary, PhD, Associate Director, Rutgers CAIT

Dr. Patrick Szary is the associate director for the Center for Advanced Infrastructure and Transportation (CAIT) at Rutgers University. As PI/Co-PI he has generated more than \$75.2M in funding for the Center. Along with Director Ali Maher, Szary leads the development of CAIT's competitive proposals to maintain its USDOT-designated University Transportation Center (UTC) status.

He has been an integral part of CAIT since its inception in 1998 as a UTC Program funded by the USDOT. Building on the Center's experience as a Regional and National Center, Dr. Szary has adopted a far-reaching research vision that has been instrumental in making the Center a stable resource in the dynamic NY/NJ metropolitan area.

From improving the durability of infrastructure to developing the transportation workforce, Dr. Szary directs research topics and themes at CAIT to ensure research is aligned with national USDOT strategic goals as well as the needs of regional stakeholders.

Gamunu "Gam" Wijetunge, Director, NHTSA Office of EMS

Gamunu "Gam" Wijetunge, serves as the National Highway Traffic Safety Administration (NHTSA) Director of the Office of EMS and has worked within NHTSA's Office of EMS for more than 20 years. Gam is also a volunteer paramedic, fire captain and the president of a volunteer rescue squad in Maryland. Within his director role Gam is also responsible for the National 911 Program housed within the Office of EMS.

For many years, Gam has been a leader within NHTSA's Office of EMS, an advocate for clinicians, and a trusted colleague for both Federal partners and Fire/EMS organizations. His commitment to collaboration within the EMS community may be best illustrated through his stewardship of EMS Agenda 2050, which sets a clear path for the continued improvement of people-centered EMS systems for the next 30 years.

Throughout his tenure at NHTSA, Gam has played an integral collaborative role in the development of EMS systems nationwide. These include leading efforts to develop evidence-based guidelines and tackle EMS system improvement issues, Address recruiting, retention, clinician safety and other EMS workforce topics, Improve national EMS preparedness through coordination with other federal agencies, and more.

Ekaraj Phomsavath, ITS Specialist, FHWA New Jersey Division

Mr. Phomsavath is the ITS Specialist for the USDOT – FHWA New Jersey Division Office. His current division office duties and responsibilities include providing guidance, federal oversight, and technical assistance in the planning, design, integration testing, and ITS deployment including the traffic operations programs, TSM&O-related Every Day Counts (EDC) initiatives, planning for operations, truck size & weight, and emergency management to the NJDOT, MPOs, and partner agencies.

In this capacity, he also assists the NJDOT in advancing their TSM&O programs in the areas of ITS deployment, crowdsourcing for operations, safety service patrol, traffic incident management, traffic operations center, and traveler information system.

He had previously served as a member of the USDOT's Superstorm Sandy Response/Recovery Team and Papal Visit Task Force.

Art O'Connor, PhD, PE, Senior ITS Engineer, FHWA New York Division

Mr. O'Connor has been with the FHWA for over 35 years. Art co-established the New York City Metropolitan Office in 1996-1997 and has spent over 26 years working very closely with all downstate metropolitan partner agencies in the advancement of a wide range of federally-funded ITS and operations programs and initiatives. He spent the previous 9 years in the FHWA Boston (Cambridge) office as a Highway Engineer in a variety of traffic engineering, safety, and ITS related positions. He also spent the previous 6 years as a Structural Engineer in private sector consultant and construction engineering firms with specialization in the nuclear power industry.

Art has served as an Adjunct Faculty Professor at Stony Brook University (Long Island, NY) and at his alma mater, Merrimack College (North Andover, Mass.). Art holds a Ph.D. and Master of Science in Transportation Planning & Engineering from the New York University Tandon School of Engineering, a master's in business administration from Suffolk University (Boston, MA), and a Bachelor of Science in Civil Engineering from Merrimack College. He is a Registered Professional Engineer in multiple states. He is honored to serve on the ITS-NY Board of Directors and as President Emeritus of ITS-NY. He is also a member of both ASCE and ITE.

Vaishali Shah, Director—Transportation Systems, AEM Corporation

Ms. Shah is an innovative program manager, principal investigator (PI), and technical adviser, having contributed to multiple NCHRP, SHRP, FHWA, USDOT ITS JPO, and FAA efforts over her 30-year career. Vaishali engages national, state, and local stakeholders through workshops, focus groups, site visits, webinars, peer exchanges, assessments, and technical assistance to bring together disparate interests to prioritize and chart a successful path forward.

Vaishali also brings expertise in the development and use of simulation, modeling, and advanced analytics to improve decision-making. She helps agencies navigate the acquisition life cycle, focusing on concept of operations and the business case for complex transportation systems. She has led systems engineering, acquisition, and implementation for programs ranging from \$1M - \$400M.

Currently, Vaishali supports the FHWA Traffic Incident Management (TIM) Program Team and its Executive Leadership Group, Crash Responder Safety Week (CRSW), Every Day Counts Round Seven (EDC-7) Next Generation TIM: Technologies for Saving Lives, and communications activities. Vaishali holds a BS in Civil Engineering from the University of Maryland and MS in Transportation Engineering from the University of Texas at Austin.

John Bullough, PhD, Program Director, Light and Health Research Center, Icahn School Medicine at Mount Sinai

John Bullough, Ph.D. is a Program Director at the Light and Health Research Center, within the Department of Population Health Science and Policy, part of the Icahn School of Medicine at Mount Sinai. Prior to joining Mount Sinai in 2021, he was Director of Transportation and Safety Lighting Programs at the RPI Lighting Research Center.

John has managed research studies for the National Highway Traffic Safety Administration, the Federal Highway Administration, the Transportation Research Board, the National Institute for Occupational Safety and Health, and the New York and New Jersey Departments of Transportation. He has written or co-written about 500 articles and technical publications on lighting, human factors, and transportation safety. John is a Fellow of the Illuminating Engineering Society and served as a previous Chair of the TRB's Committee on Visibility.

Robert Burd, Manager | Deputy EMC, Office of Emergency Management, Security, and Response, New Jersey Department of Transportation

Robert M. Burd is the Manager of NJDOT's Office of Emergency Management, Security, and Response (OEMSR). He supervises the Emergency Management, Homeland Security, and Traffic Incident Management Programs for the Department.

Robert has been involved in large incidents and events to include Hurricane Sandy, Super Bowl 48, the Papal Visit to Philadelphia, the state government response to the COVID Pandemic, as well as many others. He represents the Department on the AASHTO Committee on Transportation System Security and Resilience. He has been with the Department since 2012.

Prior to his time at NJDOT, Robert retired from the Army / NJ Army National Guard as an active-duty officer. He held several positions including Scout Leader, Assistant Operations Officer, Logistics Officer, Troop Executive Officer, and Troop Commander. Robert deployed from 2008-2009 as Director of Logistics for Camp Bucca, Iraq.



Yunpeng (Felix) Shi, EIT, PhD Candidate at SUNY, Buffalo

Yunpeng (Felix) Shi is an enthusiastic Ph.D. Candidate specializing in Civil Engineering, with a particular focus on Transportation Engineering at the University at Buffalo, SUNY. Felix holds a master's degree in Civil Engineering from the same institution and completed his Bachelor's in the same field at the University of California, Irvine. Felix's research is centered on Intelligent Transportation Systems (ITS), specializing in autonomous and connected transportation, especially under challenging weather conditions. His research is conducted under the mentorship of Professor Adel Sadek. Over the years, he has been deeply involved in a range of projects, including assessing the safety and performance of self-driving shuttles, developing predictive models for US-Canada border crossing delays, and conducting detailed testing and analysis of LiDAR sensor performance.

Currently, Felix is actively engaged in the Buffalo NY ITS4US deployment project and is contributing to the development of the Incident Information Management System (IIMS), where he conducts traffic analysis and assesses performance using connected vehicle data.

Jacob "Jake" Valente, PhD Candidate, Virginia Tech.

Mr. Valente is a fifth-year biomedical engineering PhD candidate at Virginia Tech. Under the advisement of Dr. Miguel Perez at the Virginia Tech Transportation Institute (VTI), he conducts several different research inquiries centered around improving emergency response to motor vehicle collisions. His work includes analysis of driving behavior, emergency vehicle operations, the formation of an occupant injury triage system to evaluate crash victim conditions, and the research and development of automated vehicle practices and procedures.

Joe Kroboth, III, PE, SFPE, CFPS, Project Manager, Responder Safety Institute, Cumberland Valley Volunteer Firemen's Association

Mr. Kroboth currently holds the role of Project Manager at the Emergency Responder Safety Institute, where his responsibilities encompass the coordination of emergency responder training, research initiatives, and standards development. He boasts a long-standing commitment to this cause, having been a charter member of the Emergency Responder Safety Institute, as well as an emergency responder struck-by family survivor.

Chief Kroboth brings over four decades of experience in the Fire Service, having served as both a volunteer and career Fire Chief. Chief Kroboth has a noteworthy history of involvement in various roles within the field of Fire and Emergency Services. Notably, he has served as the Past President of the Cumberland Valley Volunteer Firemen's

Association, as Fire Chief of the Volunteer Fire Company of Halfway (Md), and as the Director of Fire and Emergency Services for Washington County (MD). His professional affiliations extend to the Society of Fire Protection Engineers, where he is a member, and his certification as a Fire Protection Specialist with the NFPA.

Lindsay Arnold, MPH, Researcher, AAA Foundation for Traffic Safety

Lindsay Arnold conducts and manages research on issues including substance-impaired driving and vulnerable road users at the AAA Foundation for Traffic Safety. Prior to joining the Foundation in 2012, she served as a public health fellow in the National Highway Traffic Safety Administration's Office of Behavioral Safety Research, and as a researcher at the University of California, Berkeley's Safe Transportation Research & Education Center.

Her research has been published in scientific journals including Accident Analysis & Prevention, American Journal of Epidemiology, and Journal of Safety Research. She is a member of the Transportation Research Board's Committee on Impairment in Transportation and serves as a reviewer for several journals.

Arnold holds a Road Safety Professional Level 1 (RSP1) certification and a master's degree in public health with a focus in epidemiology/biostatistics from the University of California, Berkeley.



Learn about our sponsors on next page

ABOUT OUR SPONSORS

Rutgers Center for Advanced Infrastructure and Transportation (CAIT)

CAIT research focuses on preserving, rehabilitating, and improving infrastructure; boosting network resilience; reducing life-cycle costs; and increasing mobility and safety. Rutgers Center for Advanced Infrastructure and Transportation (CAIT) tackles some of the country's most pressing infrastructure challenges, especially those that are endemic in high-volume multimodal corridors like the Northeast. The bulk of our efforts fall within several broad areas: assessing and monitoring the health of bridges, roads, and pipelines; creating revolutionary technologies, materials, and tools; formulating strategies to prolong the service life of infrastructure; and training the current and future workforce. CAIT develops practical tools and processes that can be applied—not in theory, not on paper, not five years in the future—but as mainstream tools in the hands of transportation professionals solving real-world problems right now.

The Center for Advanced Transportation Mobility (CATM)

The Center for Advanced Transportation Mobility (CATM) was established in 2016 through the University Transportation Center Program under the Fixing America's Surface Transportation (FAST) Act. CATM is a consortium consisting of three higher education institutions: North Carolina Agricultural and Technical State University (lead), Virginia Polytechnic Institute and State University and Embry-Riddle Aeronautical University – Daytona Beach. These three institutions collaborate on projects focused on identifying solutions to mobility concerns within two primary thematic areas: 1) Enabling safe and efficient mobility for vulnerable road users and 2) Optimizing mobility in emergency situations.

Embry-Riddle Aeronautical University, Multimodal Intelligent Transportation Systems Laboratory

Transportation research into the safety, operations, design, planning, and maintenance issues involving our nation's infrastructure, with an emphasis on airports, is combined with classroom experience in the Multimodal Intelligent Transportation Laboratory. The lab features the latest methods of research in fields of data collection, traffic simulation, transportation safety, and advanced traffic signal timing management. In this space, Civil Engineering students can also study transportation modes, including aviation, highway, public transit, and pedestrian.

HAAS Alerts

HAAS Alert's digital alerting solution Safety Cloud is a breakthrough evolution in emergency alerting, bringing critical real-time connectivity to roads and transforming emergency alerting for a new century. Emergency lights have been the primary tool used by emergency fleets and road operators to notify drivers since the early 20th century. As roads grew busier and car cabins became quieter over time, though, emergency lights have become less effective. Despite the passage of Move Over laws and responder safety strategies like traffic cones, signage, and blocker vehicles, a growing number of responders are injured or killed from passing vehicles every year.

J-Tech

J-Tech is "Helping You Make Roads Safer Workplaces" through development of innovative highway safety equipment, and by being your solutions resource. J-Tech designs and manufactures crash trucks (attenuator trucks, TMAs), cone deployment trucks, and highway safety equipment such as our new LaneBlade® for road debris removal and hitch mounted safety baskets for work zone cone deployment. Our equipment is used by highway contractors, state Departments of Transportation, tollways, utilities, and traffic management companies across North America. We look forward to helping you make roads safer workplaces and safer traveling places.

AutoReturn

AutoReturn is the nation's leading towing management systems provider. For over 15 years, we have worked with cities, counties, and states nationwide to manage transportation, storage, and return of a vehicle after local law enforcement orders a tow. Our technical solution automates communications among law enforcement, towers, and vehicle owners, for faster, safer vehicle removal from unauthorized parking areas and crash scenes. With AutoReturn, officers and other first responders are safer and have more time for higher-priority work because crash scenes get cleared quickly and secondary accidents decrease. AutoReturn enables the streamlined communications that make this a reality, decreasing incoming calls to dispatch centers and automating intelligent dispatch with both public and private tow fleets. AutoReturn has processed millions of police tows across the globe, and we have active customers in 12 of the top 20 most populous metropolitan regions in the United States. Learn more at www.autoreturn.com.

Emergency Responder Transportation Safety Research Summit 2023



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The inaugural Emergency Responder Transportation Safety Research Summit was organized and hosted by TRB's Joint-Subcommittee on Emergency Response AMR00(1) and the Rutgers University Center for Advanced Infrastructure and Transportation (CAIT).

To learn more about TRB's Joint-Subcommittee on Emergency Response and to get involved, please contact:

Dr. Scott Parr Ph.D., PE.
Chair, TRB AMR00(1) Joint Subcommittee on Emergency Response

Email: parrs1@erau.edu

APPENDIX D: ATTENDEE LIST

First Name	Last Name	Company	Title	Email Address
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