

UPCOMING TRAININGS & CONFERENCES

A full list of NDA's virtual learning sessions is available at ndaa.org/training-courses/.

NDA's Mastering Masking Digital Course/ On Demand Training (CLE Available)
ndaa.org/training/mastering-masking-2/

NDA's Human Trafficking and the Impact on Commercial Driver's Licenses/On Demand Training
ndaa.org/training/human-trafficking-and-the-impact-on-commercial-drivers-licenses/

NDA's Prosecuting DUI Cases Online Course/ On Demand Training (CLE Available)
ndaa.org/training/prosecuting-dui-cases/

NDA's Investigation and Prosecution of Drug-Impaired Driving Cases Online Course/On Demand Training (CLE Available)
ndaa.org/training/on-demand-learning-investigation-and-prosecution-of-drug-impaired-driving-cases/

NDA's Job Fair
 February 1-2, 2025, Washington, DC

Mastering Masking: Plea Negotiations and CDLs
 February 25, 2025, Albuquerque, NM

RESOURCES

Impaired Driving Resources
ndaa.org/programs/ntlc/

CDL-Related Resources
ndaa.org/programs/ntlc/commercial-drivers-license/

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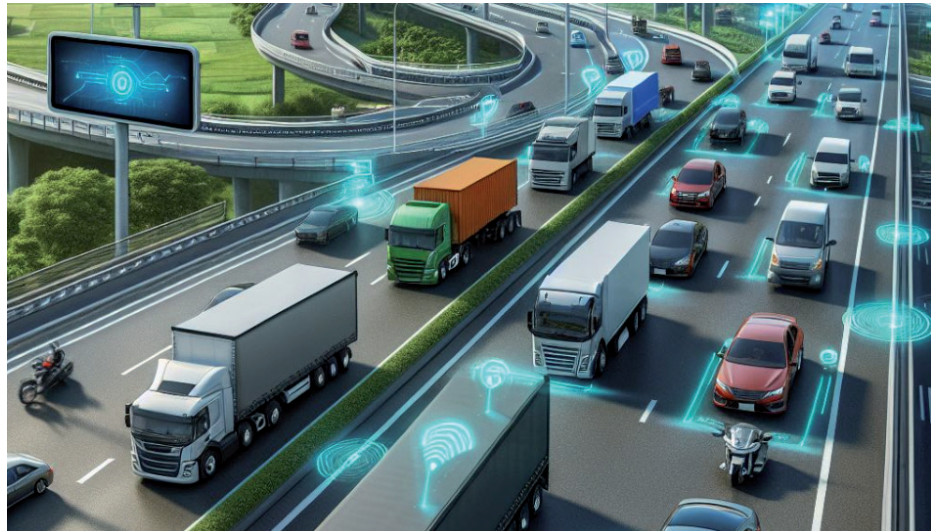
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"Create a highway image of commercial motor vehicles and automobiles in a connected environment" prompt, image generated by Microsoft CoPilot artificial intelligence, December 17, 2024, and consistent with NDA's policy on AI use.

First Responder Interaction with Automated Vehicles

VTTI Training to Keep First Responders and Law Enforcement Safe

By Dr. Tammy Trimble and Daniel Faulkner

As technology advances, vehicles are becoming inherently safer. These advancements, however, introduce new challenges for public safety personnel like law enforcement officers and other first responders.

Two technology advances becoming more common in vehicles are automated driving systems (ADSs) and advanced driver-assistance systems (ADAS). As these technologies continue to be integrated, the role of the human driver is changing. Traditionally, humans have been in full control of a vehicle through each driving task; however, ADSs and ADAS are shifting that control. As the traditional driver shifts, the interactions that public safety officials have with civilian vehicles will also shift.

Approaching a driver during a traffic stop is typically a moment of heightened awareness for law enforcement officers. What happens, for example, when a vehicle that has just come to a halt on the highway shoulder has no driver? Or what happens when an autonomous vehicle is involved in a crash? With the rise of automated vehicles, it is essential for public safety officials to adapt their interaction and enforcement techniques to ensure both public and personal safety.

Since 2017, Virginia Tech Transportation Institute (VTTI)¹ research scientist Dr. Tammy Trimble has led research projects to explore the challenges and dangers public safety officials face when engaging with autonomous technology equipped vehicles. Dr. Trimble's projects have engaged first responders and law enforcement personnel through surveys, workshops, focus groups, and many other interactions to understand their concerns and knowledge level with ADSs and ADAS. Through her research, Dr. Trimble found there is a general lack of understanding of the capabilities of automated vehicle technology. Her research has been aimed at establishing a baseline of knowledge to guide the development of a curriculum to educate first responders and law enforcement officers about potential encounters with ADS and ADAS, while prioritizing their safety.

Dr. Trimble's first project endeavored to identify common scenarios and interaction types that public safety officials may encounter with ADSs and ADAS. Through outreach with 79 public safety officials across North America, multiple scenarios were identified, including interaction types like disabling a vehicle, anticipating vehicle behavior, and even identifying driverless operation. Research from this project informed the Automated Vehicle Safety Consortium's (AVSC)² *Best Practice for First Responder Interactions with Fleet-Managed Automated Driving System-Dedicated Vehicles (ADS-DVs)*.³ This best practice document included the recommendation to develop a first responder action plan. A first responder action plan is provided by the manufacturer of the ADS technology and is designed to provide information unique to first responders' interactions with automated vehicles. Dr. Trimble's research outlined types of interactions and certain scenarios first responders would have with the vehicles, which in turn provided essential information on what should be included in the plan. As her research evolved alongside the technology in vehicles, the related concerns and various interaction types continued to expand.

With the rise of automated vehicles, it is essential for public safety officials to adapt their interaction and enforcement techniques to ensure both public and personal safety.

Building on past research, Dr. Trimble completed a project in 2021 finding that public safety officials continue to have uncertainty about ADS- and ADAS-equipped vehicles. In general, concerns centered around how the vehicles will behave and respond toward first responders and law enforcement and how they, in turn, should interact with the vehicles to remain safe and to keep others safe. This project inspired the idea that ADS- and ADAS-specific training for public safety officials could help to reduce uncertainties and misconceptions; Dr. Trimble's team subsequently recommended a first responder curriculum addressing their specific issues including:

¹ The Virginia Tech Transportation Institute (VTTI), originally called the University Center for Transportation Research (CTR), was founded in Blacksburg, Virginia in 1988. Since its establishment, VTTI has been dedicated to researching and implementing strategies to enhance roadway safety and save lives. Its groundbreaking research has significantly improved the safety of drivers, passengers, public safety personnel, and pedestrians alike.

² The Automated Vehicle Safety Consortium (AVSC) is an industry program of SAE Industry Technologies Consortia. It is comprised of engineering and technology company members in the automated vehicle space who bring decades of experience launching safe, innovative mobility technologies. It works to advance safer testing, development, and deployment of automated vehicles. It fulfills this mission by aligning members around critical issues facing developers, reaching consensus, and publishing and disseminating best practices that lead to broader adoption, and ultimately, formalized standards for autonomous vehicles. For additional information about AVSC, visit avsc.sae-itc.com (last accessed December 11, 2024).

³ AVSC-I-01-2024. Automated Vehicle Safety Consortium. 2024. Revision of *Best Practice for First Responder Interactions with Fleet-managed Automated Driving System-Dedicated Vehicles (ADS-DVs)*. SAE Industry Technologies Consortium. Available at www.sae.org/standards/content/avsc-i-01-2024/.

First Responder Interaction with Automated Vehicles

- whether automated vehicles will stop or yield the right of way
- whether the vehicle will be remotely operated
- how the vehicle will react to being stopped
- how to safely disable the vehicle
- and other related concerns

Armed with the knowledge that public safety officials needed a comprehensive training program, Dr. Trimble and colleagues sought a solution that incorporated the source of automated vehicle technology. A 2022 project aimed to both identify information gaps between law enforcement and the automated vehicle technology industry and to develop outreach materials to equally inform the law enforcement field, the technology industry, and the public. This project found that a collaborative engagement between industry and public safety officials could be extremely helpful in increasing safety.

After years of research, conversations with public safety officials, and interactions with industry professionals, a list of curriculum topics was developed, including:

- Understanding the capabilities of ADAS- and ADS-equipped vehicles and the differences between the two
- Identifying ADS technologies on the road today
- Understanding governmental responsibilities regarding vehicle oversight
- Anticipating when ADAS- and ADS-equipped vehicles will be on the road
- Interacting with ADS-equipped vehicles, including how to gather data from the vehicle and how to safely approach the vehicle
- Considering responder-specific interactions with ADS-equipped vehicles—All the different ways first responders would interact with the vehicle and what they would need to know to perform their public safety-specific job
- Understanding and accessing data—i.e. data recorders, vehicle data, owner/operator information, etc.

With these key topics determined, Dr. Trimble, in collaboration with VTTI Driver Training Instructor Daniel Faulkner, developed and piloted a curriculum to take on the road. Faulkner brings breadth and depth of knowledge not only as it relates to automated vehicles but also automation in commercial motor vehicles. The *First Responder Interaction with Automated Vehicles* curriculum consists of classroom instruction and practical demonstration, teaching public safety officials about the various ADS and ADAS interactions that may occur and how officials can remain safe during such interactions. The team found that with the vast number of different terms and technology, bringing public safety officials into a classroom setting, educating them on the different technologies, and then allowing them to engage with the technology hands-on was the most productive approach.

The first pilot training occurred in July 2024 with representatives from multiple law enforcement agencies across the Commonwealth of Virginia, including local and state police, and representatives from district attorney offices. During the classroom portion of the training, participants engaged with Dr. Trimble and the research team on topics such as the levels of automation in different types of vehicles including commercial motor vehicles, the technologies on the road today, scenarios where public safety officials may encounter these vehicles, and plans for interactions.

The *First Responder Interaction with Automated Vehicles* curriculum consists of classroom instruction and practical demonstration, teaching public safety officials about the various ADS and ADAS interactions that may occur and how officials can remain safe during such interactions.

First Responder Interaction with Automated Vehicles

After the classroom portion, an experiential training opportunity was provided where participants were able to explore several ADAS- and ADS-equipped vehicles and ride inside the vehicles while automation was enabled with a safety driver present. The types of vehicles ranged from advanced vehicles developed at VTTI for private research use, to production vehicles that anyone can purchase.

While the feedback received on the initial pilot training was extremely positive, Dr. Trimble and her team recognize that as new technology is constantly evolving, they must continually update their training and curriculum materials to keep pace. In addition to iterative changes to their training program, Dr. Trimble and her team incorporated feedback from first responders and law enforcement attending the course suggesting additional topics to be included in the course. For instance, the pilot training demonstrated the curriculum should include training on the possible impacts of ADS and ADAS-technologies on crash reporting and prosecution. Since crash cases rely heavily on the information collected at the scene, how crash incident investigations will evolve in response to these new technologies is another area to include in the curriculum. Accordingly, Dr. Trimble and her team have incorporated information pertaining to the impact on and capabilities of the vehicle technology on crash investigations. As the training program expands, so does the audience for which it is beneficial.

The *First Responder Interaction with Automated Vehicles* training is available upon request. To obtain this innovative training, please contact Dr. Trimble at ttrimble@vtti.vt.edu or Dan Faulkner at dfaulkner@vtti.vt.edu.

About the Authors

Tammy Trimble, Ph.D., is a research scientist with VTTI's Division of Data & Analytics. Her experience includes over 20 years in transportation policy research at VTTI where she has worked on several policy-related research efforts related to transportation technologies—including automated vehicles—and associated education efforts.



Daniel Faulkner is a driver training instructor for VTTI. He also has 12 years of experience as a law enforcement officer with the Botetourt County Sheriff's Office and the Roanoke City Police Department.

The Virginia Tech Transportation Institute (VTTI) conducts research to save lives, time, and money and protect the environment. As one of seven premier research institutes created by Virginia Tech to answer national challenges, VTTI is continually advancing transportation through innovation and has affected public policy on national and international levels. To learn more about VTTI and the resources it offers, visit www.vtti.vt.edu.



Mastering Masking: Legal and Ethical Consequences of Plea Negotiations Involving Commercial Driver's Licenses

Registration is *now open!*

Federal and most State law prohibits the "Masking" of convictions. Misconceptions continue to persist surrounding this statute's mandate requiring the reporting of CDL/CMV violations and convictions and prosecutors' discretion to negotiate these cases. Attendees will appreciate how the enforcement of this and other regulations combine to reduce injury and death by keeping unsafe commercial driver's license (CDL) holders off the roads and assuring that each driver has one driver's license and one complete driver's record.

Participants will be able to:

- Understand the Federal definition of "Masking," "Conviction" and "Disqualification" pursuant to the Federal Motor Carrier Safety Regulations
- Learn about the ethical consequences of Masking
- Explore various techniques and skills to educate other professionals on Masking

This course is free and open to traffic safety stakeholders which includes but is not limited to prosecutors, law enforcement, clerks, judges and driver's license agencies. Attendees will be reimbursed for travel and expenses based on eligibility. *

If you have any questions, please contact the [CDL Team](#).

* Pursuant to guidance from the Federal Motor Carrier Safety Administration (FMCSA), NDAA's National Traffic Law Center reserves the right to restrict attendance at its events to ensure the delivery of training and technical assistance consistent with the core purpose of the grant which is to facilitate the proper adjudication and reporting of Commercial Driver's License (CDL) violations.

NTLC

NATIONAL TRAFFIC LAW CENTER



February 25, 2025



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MASTERING MASKING: Legal and Ethical Consequences of Plea Negotiations Involving Commercial Driver's Licenses