



# Commercial Vehicle Safety Alliance

Improving uniformity in commercial motor vehicle safety and enforcement

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**WRITTEN STATEMENT OF  
COLONEL SCOTT G. HERNANDEZ  
COLORADO STATE PATROL**

**BEFORE THE**

**U.S. SENATE COMMITTEE ON COMMERCE,  
SCIENCE, & TRANSPORTATION**

**ON**

**“Transportation Innovation: Automated Trucks  
and Our Nation’s Highway”**

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## **Introduction**

Chairman Thune, Ranking Member Nelson and Members of the Committee, thank you for holding this important hearing and for inviting me here today to discuss the role automated vehicles will play in the future of safety on our nation's highways.

My name is Scott Hernandez. I am the Colonel of the Colorado State Patrol. As the Colonel, I am responsible for leading approximately 1,200 members whose primary goal is to save lives on our highways. In Colorado to date 247 people have been killed, a staggering number of people. We are committed to driving that number down, eventually to zero.

I am also a member of the Commercial Vehicle Safety Alliance (CVSA), a nonprofit association comprised of local, state, provincial, territorial and federal commercial motor vehicle safety officials and industry representatives. We represent the state agencies tasked with the responsibility for the administration and enforcement of commercial motor carrier safety regulations in the United States (U.S.), Canada and Mexico. We work to improve commercial motor vehicle safety and uniformity by bringing truck and bus regulatory, safety and enforcement agencies together with industry representatives to solve highway transportation safety problems. Every U.S. state, territory and possession, all Canadian provinces and territories, and the country of Mexico are CVSA members.

First, let me say that the enforcement community is excited about the potential improvements to roadway safety that are possible with the deployment of autonomous vehicles. Our commitment is to reduce crashes, injuries and fatalities on our nation's roadways, and we see great potential in autonomous technology. As we all know, driver behavior is the leading cause of motor vehicle crashes. Technology can help eliminate or reduce the risk of human error and driver distraction. In fact, basic versions of vehicle autonomy are already operating on our roads, preventing crashes. Examples of such technologies include enhanced anti-lock braking system (ABS) monitoring systems, vehicle stability systems, lane departure warning systems and collision warning systems. These systems all improve vehicle safety by helping keep vehicles in their lanes and operating at a safe distance from one another.

The National Transportation Safety Board (NTSB) has repeatedly called for deployment of safety technologies on both commercial and personal vehicles to help reduce crashes and save lives. In fact, NTSB has called on the National Highway Traffic Safety Administration (NHTSA) to establish performance standards and mandate deployment of collision avoidance technologies on commercial motor vehicles in its annual NTSB Most Wanted List. Recognizing the tremendous potential benefits, CVSA has long been a supporter of legislation, regulation and policies that encourage the deployment of safety technologies proven, through independent research, to improve commercial motor vehicle safety, either through preventing crashes or mitigating the severity of crashes. Autonomous vehicles are the natural next progression in vehicle safety technology and the enforcement community stands ready to assist in making sure that the technology is deployed as seamlessly and as effectively as possible.

In the late summer of 2016, OTTO approached the State of Colorado expressing interest in conducting an intrastate delivery using an autonomous commercial motor vehicle. With consideration to the fact that there were no laws or regulations prohibiting the operation of autonomous vehicles to include this scenario in Colorado, we chose to partner with OTTO to ensure safety remained paramount. Colorado policy makers also understood the potential for government and enforcement to learn from the process in order to participate in reasonable regulations in the future.

During the early morning hours of Oct. 20, 2016, an autonomous commercial motor vehicle, specifically a 3-axle truck-tractor and 2-axle semi-trailer vehicle combination, delivered a product traveling 120 miles from Ft. Collins to Colorado Springs, Colorado, in a level 4 autonomous demonstration. Soon after entering southbound on I-25 from the Ft. Collins Port of Entry, the driver placed the commercial motor vehicle in autonomous mode and retreated to the space behind and between the driver and passenger seat. The vehicle traveled southbound on I-25 for over 120 miles until the driver took over the controls and exited the interstate towards the terminal. The demonstration highlighted the future possibilities and use of autonomous commercial motor vehicles.

The Colorado State Patrol and Department of Transportation took extensive measures to reduce the risks associated with this demonstration. We used NHTSA's "Federal Autonomous Vehicle Policy" and California's autonomous vehicle laws and rules as guidance. Pre-event testing was monitored for consistency and achievement through specific safety performance gates, ranging from off-road testing to extensive on-road testing. The truck was inspected and deemed to be without a violation by CVSA-certified roadside safety inspectors and the company underwent a safety audit to ensure it had the appropriate level of safety management practices in place to safely operate in commerce. Two separate rides covering over 200 miles were conducted by a Colorado State Patrol commander to visually confirm the technology. The Colorado State Patrol and the Colorado Department of Transportation received detailed weekly briefings on performance through required safety and testing protocols, including testing of scenario plans for risks and fallback.

OTTO provided certification of safety assessments, vehicle, driver and insurance. The safety assessments certification included system safety, validation and data sharing. Driver certification included lists of all drivers, driver training and overall experience. Vehicle certification included the Federal Motor Vehicle Safety Standards (FMVSS).

In an effort to ensure the demonstration was completed in a safe manner for all involved, the Colorado State Patrol escorted the autonomous commercial motor vehicle in a similar fashion as a motorcade or rolling special event, constantly monitoring safety protocols and situational assessment. Constant communication throughout the event existed between the driver/passenger, engineers and state troopers.

The demonstration was beneficial for law enforcement, as we were able to learn valuable lessons. While we will still need to work toward total solutions, the Colorado State Patrol made progress toward understanding the perspective of other governmental agencies, autonomous vehicle crash investigations, why cyber security will be essential as this technology progresses, the development of a unique regulatory framework and how to better partner with all stakeholders.

The proof of concept in Colorado indicates that self-driving vehicles will play a critical role in improving traffic safety and may reduce congestion in the future. This demonstration has provided important information and experience to the Colorado State Patrol and our partners responsible for establishing the necessary legal and regulatory framework for the testing and implementation of autonomous vehicle technologies. Technological advances in the past have saved lives and, clearly, technology will continue to save lives in the future as the Colorado State Patrol, the Commercial Vehicle Safety Alliance and the law enforcement community moves toward zero deaths on our roadways.

Our experience in Colorado makes it clear that it's time to begin planning in earnest for the deployment of semi- and fully-automated commercial motor vehicles. As this Committee moves forward with legislation setting a national framework to guide the deployment of autonomous vehicles, we believe that consideration must be given to the commercial motor vehicle industry. How will autonomous vehicles affect enforcement of federal safety regulations? Which regulations apply to autonomous vehicles and which will have to be modified to adapt to the new technology? Are there regulations that autonomous vehicles should be exempted from entirely? For example, how will federal hours-of-service requirements apply? If there is a person in the cab while the vehicle is operating autonomously, does that person need to maintain their record of duty status? If so, how should that time be recorded? On duty, driving? On duty, not driving? Off duty?

We also have questions regarding the maintenance or mechanical fitness of the underlying components of the autonomous vehicle system; such as, ABS monitoring systems, vehicle stability systems, lane departure warning systems, collision warning systems, etc. If the underlying systems are not functioning properly, then the autonomous system will not work either. We will need to review current inspection procedures and regulatory requirements to ensure that inspectors know how to verify that a system is functional and what to do if it is not. If an autonomous vehicle is placed out of service for critical safety violations, how will the motor carrier be notified?

Autonomous vehicles will also have an impact on the roadside enforcement program. How will an inspector stop an autonomous vehicle for inspection? Will these vehicles be able to recognize and yield to emergency vehicle signals? Further, currently, the driver plays an integral role in the inspection process, working with the inspector to verify that critical vehicle mechanical components and systems are functioning properly. How will this change once inspectors begin encountering driver-less vehicles?

These are just a few of the many questions that will need to be answered before autonomous vehicles can be allowed to enter the driving population. I want to stress that the purpose of these questions is not to slow innovation or create roadblocks to the technology. The enforcement community recognizes the safety benefits and welcome any change that improves roadway safety. However, we must ensure that inspectors and industry understand the role this technology will play and how it will impact commercial motor vehicle enforcement programs. We strongly encourage you to consider all facets of the issue, including what to do once the vehicles are on the roads. Doing so will help avoid uncertainty for the motor carrier industry and the enforcement community.

I appreciate the opportunity to participate in this timely discussion on the future of automated commercial motor vehicles.

Sincerely,  
Colonel Scott Hernandez  
Colorado State Patrol