



Commercial Vehicle Motor Fleet Section Meeting

October 22, 2023

Agenda

Topic	Presenter
Welcome and Call to Order	Matt Camden
Safety Moment	Jeff Kozub
NSC Update	Sarah Van Huis
FMCSA Research	Matt Camden
Open Forum	All Attendees
Adjournment	Matt Camden

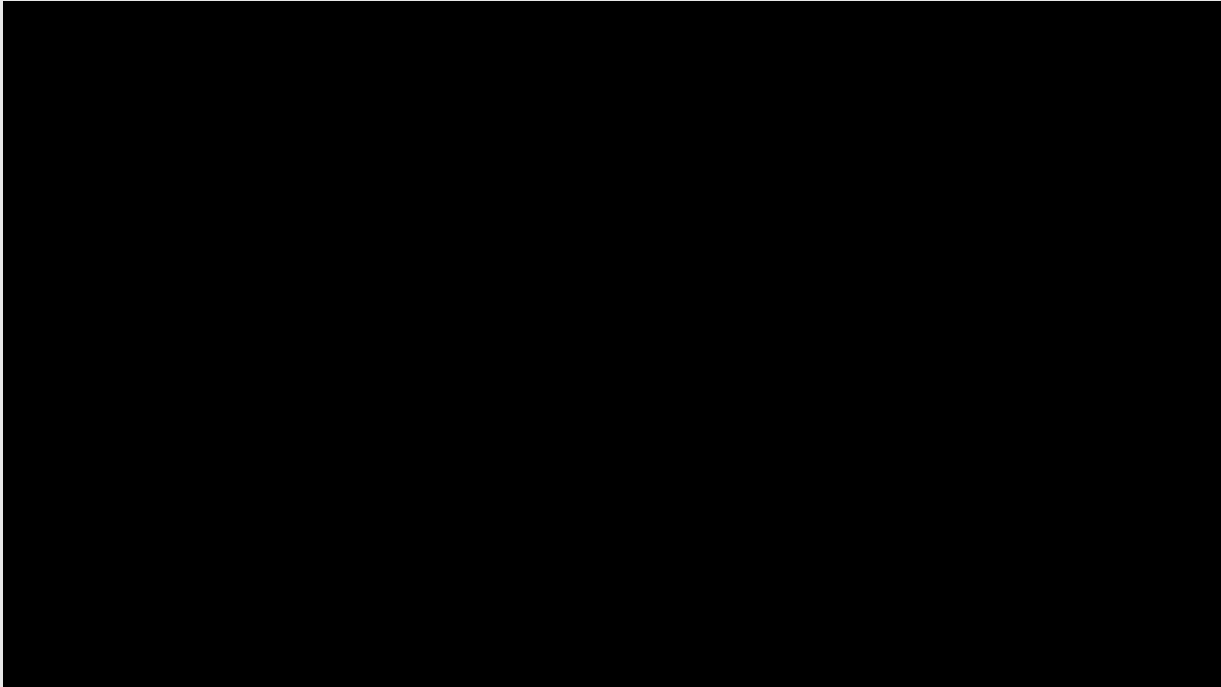


Welcome

Matt Camden
Section Chair



Safety Moment

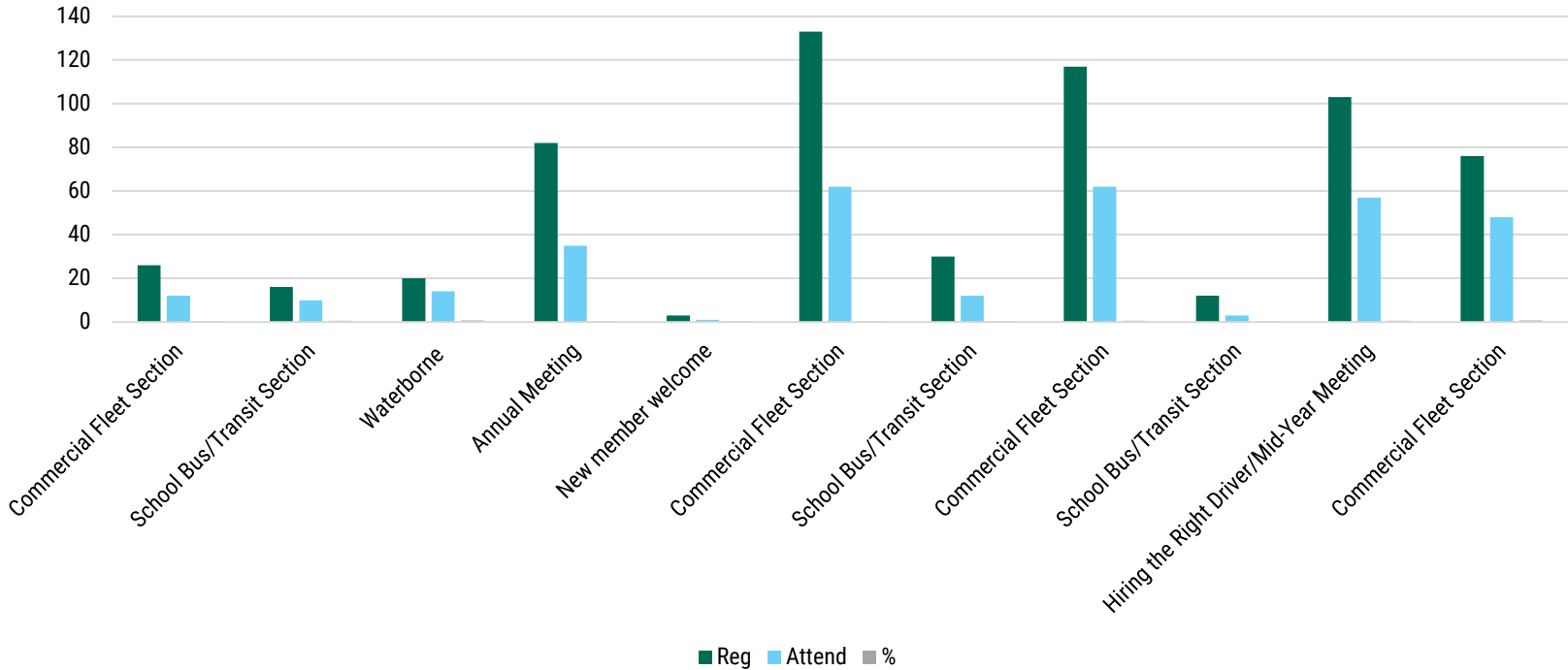




NSC Update

Sarah Van Huis

Meeting Attendance



Program Committee Application

- Open until Nov. 5
- One year commitment from December 2023 to November 2024
- Quarterly meetings
- Works on identifying topics and speakers for virtual programming and in-person events
- Willing to moderate or present on occasion



Engagement Committee Application

- Open until November 5
- One year commitment from December 2023 to November 2024
- Quarterly meetings
- Acts as welcoming committee when in person and on new member calls
- Recommends ways to make meetings and events more impactful
- Promotes Division on LinkedIn





FMCSA Select Active & Published Research

Matt Camden



VTTI

FMCSA RESEARCH PORTFOLIO

COMMERCIAL VEHICLE/MOTOR FLEET
SECTION – NEW ORLEANS, LA 2023



VIRGINIA TECH
TRANSPORTATION INSTITUTE
VIRGINIA TECH.

FMCSA Active Research

Active Research Projects

- [ACE Program: AV Truck Maintenance, Testing, and Storage Support Aberdeen \(Phase 2\)](#)
- [ACE 2.0 Program - Systems Engineering](#)
- [ACE Program: Testing and Demonstration Activities](#)
- [ADAS Crash Safety Analyses via OBMS Data](#)
- [Characterization of Controlled Substance and Alcohol Violations](#)
- [CMVRTC - Drivers Ignoring Out-of-Service Orders at Inspection Stations](#)
- [CMVRTC: Electric Commercial Motor Vehicle Exploratory Research](#)
- [CMVRTC - Speed Camera Use](#)
- [CMVRTC - System Validations and Duty Cycle Data Collections](#)
- [CMVRTC - Tire Safety Screening Systems \(TS3\)](#)
- [Completing the Picture of Crashes: Understanding Data Needs and Opportunities for Road Safety](#)
- [Development of On-Road Driving Performance Evaluation Methods for ADS-equipped Heavy Vehicles](#)
- [Economic Research for Policy](#)
- [Effectiveness of Third-Party Testing and Minimum Standards for Commercial Driver's License \(CDL\) Knowledge and Skills Tests](#)
- [FMCSA Data Repository](#)
- [Hazard Warning Devices for Automated CMVs](#)
- [High Blood Pressure and Medical Certification of Commercial Motor Vehicle Drivers](#)
- [Human Factors in ADS-equipped CMVs](#)
- [Identification of Factors Associated with High-Risk Prioritization](#)
- [Impacts of Driver Compensation on Safety and Driver Retention](#)
- [Impact of Driver Detention Time on Safety and Operations](#)
- [Investigation of the Potential for Commercial Driver's License Holders to Avoid CDL Disqualification](#)
- [Investigating the Safety of Commercial Motor Vehicle Operation by Deaf and Hard of Hearing Drivers](#)
- [ITD Program and Architectural Technical Support](#)
- [Model AV Operational Safety Plan for Motor Carriers](#)
- [Operational Test of In-Motion CMV Inspections \(Level VIII Inspections\)](#)
- [Safe Driver Apprenticeship Pilot \(SDAP\) Program](#)
- [Safety Impacts of Human-ADS Team Driving Applications](#)
- [SBIR Phase II: Readiness Assessment - Design Interactive](#)
- [SBIR Phase II: Readiness Assessment - Pulsar Informatics](#)
- [VTTI ADS Grant: Trucking Fleet Concept of Operations \(CONOPS\) for Managing Mixed Fleets](#)

PAST RESEARCH: SAFETY IMPACTS OF SPEED LIMITERS

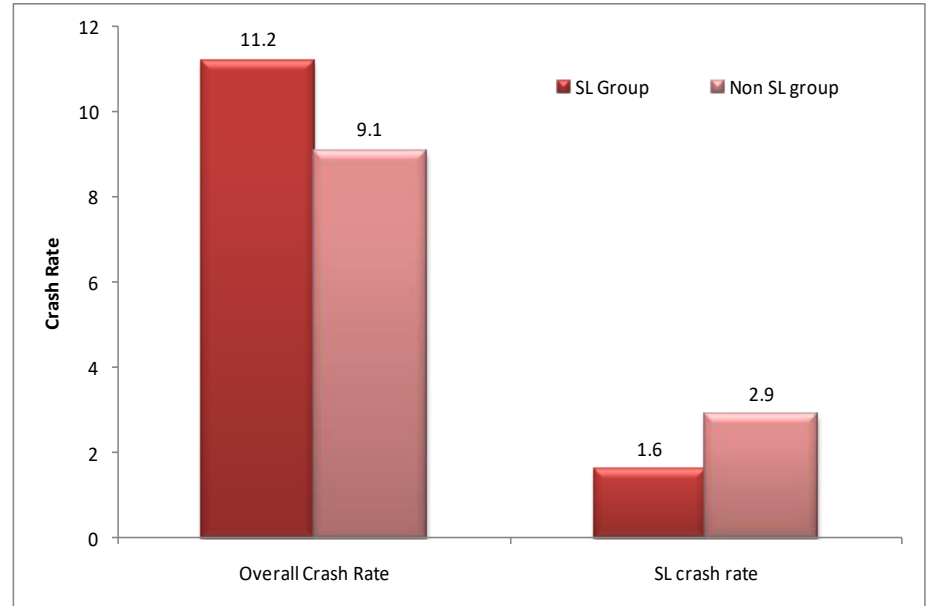
- Speed is a major factor in CMV crashes
- Speed limiters are one countermeasure
 - Pros: limit max speed
 - Cons: reduce ability to accelerate to avoid conflicts and potential speed differentials
- Objective: To identify and assess the impacts on a motor carrier of implementing speed limiter programs, including safety impacts through reduction in the number and severity of crashes, and through operational issues such as fuel economy.
- Study completion in 2011

SPEED LIMITER METHODS

- 22 fleets provided data, 2 fleets removed due to poor quality (i.e., not possible to determine crash location)
- Non-SL = 6
- SL = 14

	SL Cohort	Non-SL Cohort	Total
Truck-years with single crash	13,091	2,076	15,167
Truck-years with multiple crashes	520	2	522
Truck-years without a crash	111,781	10,605	122,386
Total truck-years	125,392	12,683	138,075

SPEED LIMITER RESULTS



Label	Estimate	Standard Error	DF	t Value	P Value	SL-Relevant Crash Rate Ratio	95% Confidence Interval
Non-SL Cohort vs. SL Cohort	0.6610	0.2875	27	2.30	0.0295	1.94	1.07 to 3.49



SAE J3016™ LEVELS OF DRIVING AUTOMATION™

Learn more here: sae.org/standards/content/j3016_202104

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	SAE LEVEL 0™	SAE LEVEL 1™	SAE LEVEL 2™	SAE LEVEL 3™	SAE LEVEL 4™	SAE LEVEL 5™
What does the human in the driver's seat have to do?	You are driving whenever these driver support features are engaged – even if your feet are off the pedals and you are not steering			You are not driving when these automated driving features are engaged – even if you are seated in “the driver’s seat”		
	You must constantly supervise these support features; you must steer, brake or accelerate as needed to maintain safety			When the feature requests, you must drive	These automated driving features will not require you to take over driving	

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	These are driver support features			These are automated driving features		
What do these features do?	These features are limited to providing warnings and momentary assistance	These features provide steering OR brake/acceleration support to the driver	These features provide steering AND brake/acceleration support to the driver	These features can drive the vehicle under limited conditions and will not operate unless all required conditions are met	This feature can drive the vehicle under all conditions	
Example Features	<ul style="list-style-type: none"> • automatic emergency braking • blind spot warning • lane departure warning 	<ul style="list-style-type: none"> • lane centering OR • adaptive cruise control 	<ul style="list-style-type: none"> • lane centering AND • adaptive cruise control at the same time 	<ul style="list-style-type: none"> • traffic jam chauffeur 	<ul style="list-style-type: none"> • local driverless taxi • pedals/steering wheel may or may not be installed 	<ul style="list-style-type: none"> • same as level 4, but feature can drive everywhere in all conditions

ADAS CRASH SAFETY ANALYSES VIA OBMS DATA

- Background
 - Advanced driver assistance systems (ADAS) have the potential to mitigate or prevent crashes
 - Currently, only outdated, anecdotal, and estimated data on safety efficacy
- Purpose
 - Use onboard monitoring system (OBMS) data to assess safety benefits
 - Quantify the efficacy of ADAS from real-world data for 4 years of data

HUMAN FACTOR IN ADS-EQUIPPED COMMERCIAL MOTOR VEHICLES

- Overall, the project found that there was little research effort being undertaken specifically related to ADS-equipped CMVs.
- Goal:
 - Conduct research on human factors related to ADAS and ADS- equipped CMVs.
- This study is a truck simulator study of CMV drivers regarding the use of ADAS/ADS-equipped CMVs, specifically SAE Level 2 and Level 3 vehicles
 - Non-driving tasks
 - Transfer of control
 - Driver training

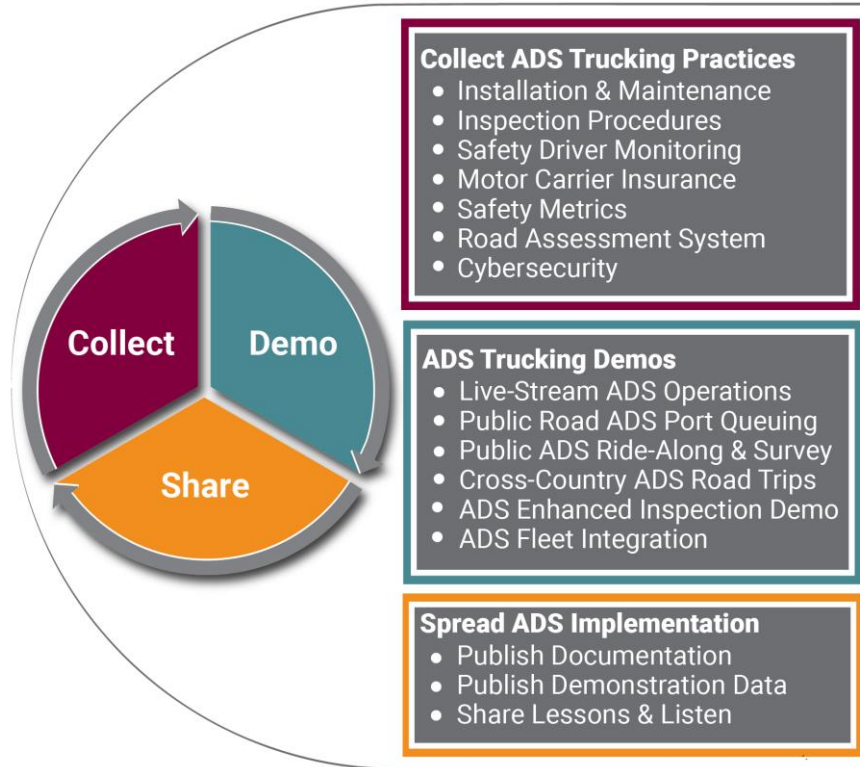
SAFETY IMPACTS OF HUMAN-ADS SHARED DRIVING

- As safety and automation technology advances, new concepts of "team driving" are developing
- The safety implications of these new interactions (interoperability) and effects of the automation need to be quantified and better understood to inform future policy decisions.
- Goal:
 - Study the safety implications of interactions between humans and ADSs in emerging trucking operational scenarios.
- Driver simulator study focusing on
 - ADS L4 operation
 - In-vehicle vs. off-board drivers
 - Fatigue, attention, and workload

ADS TRUCK FLEET CONCEPT OF OPERATIONS

- Automated heavy vehicles are coming (slowly)
- MANY questions remain on how to safely implement, integrate, and benefit from automated driving systems (ADS)-equipped trucks
- Goals
 - **Safety** - Demonstrate the safe integration of ADS-equipped trucks into the U.S. transportation system
 - **Data** - Provide USDOT data for safety analysis and rulemakings to help modernize regulations
 - **Deployment** - Demonstrate how to integrate ADS-equipped trucks in a productive, cooperative way into the existing road freight ecosystem
 - **Collaboration** - Include a broad and diverse group that includes government entities, a university, trucking associations, and private partners.

UNDERSTANDING THE ECOSYSTEM FOR ADS DEPLOYMENT



- Installation and Maintenance
- Inspection
- Driver State Monitoring
- Insurance
- Safety Metrics
- Road Assessment System
- Data Security/Cybersecurity

ADS Port Queuing Demo



CMV INSPECTIONS

CMV inspections include a pre-trip inspection performed by the driver and occasional roadside inspections during the trip by law enforcement officials, with the assistance of the driver, which cover mechanical and external parts of the vehicle.

AV Trucking Enhanced Inspection Pilot Video



IMPACT OF DRIVER DETENTION TIME ON SAFETY AND OPERATIONS

- Previous studies on driver detention were limited in scope
 - Focused on large carriers
 - Focused on total time spent at a facility vs. time spent loading/unloading
- Goal:
 - Collect more detailed and representative data to better understand the frequency and severity of CMV driver detention time
- Contribute to a more complete understanding of detention time
 - Facilitate private sector decisions to reduce detention time
 - Improve safety and supply chain efficiency.

DETENTION TIME PARTICIPANTS

<https://www.vtti.vt.edu/driver-detention/>



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[FACILITIES](#)

[GET INVOLVED](#) ▼

[DIRECTORY](#)

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A photograph of a man with glasses and a beard driving a truck, viewed from the side. The image is overlaid with a semi-transparent blue and red gradient.

IMPACT OF DRIVER DETENTION TIME ON SAFETY AND OPERATIONS

[CONTACT](#)

We need *your* help! We are looking for carriers to participate in the study.

[@ EMAIL US](#)

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NATIONAL REGISTRY MEDICAL EXAMINER PERFORMANCE

- FMCSA established the National Registry of Certified Medical Examiners (National Registry) program to ensure that drivers who operate CMVs are physically qualified to operate safely.
- Driver physical qualification examinations must be performed by medical examiners (ME) who are certified and listed on the National Registry.
- Goal:
 - Assess and verify whether MEs are performing and reporting the results of driver physical qualification examinations in accordance with the Federal Motor Carrier Safety Regulations (FMCSRs).

Questions?



SAFETY PAIN POINTS

WHAT ARE YOU EXPERIENCING?

WHAT DO YOU NEED?

HOW CAN NSC HELP?



SECTION IN 2023-2024

WHAT WOULD YOU LIKE TO SEE IN THIS SECTION
TOPICS FOR PRESENTATIONS DURING VIRTUAL
MEETINGS
PRESENTER IDEAS



Open Forum



Adjournment