## Agenda

<table>
<thead>
<tr>
<th>Topic</th>
<th>Presenter</th>
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<tbody>
<tr>
<td>Welcome and Call to Order</td>
<td>Matt Camden</td>
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<tr>
<td>Safety Moment</td>
<td>Jeff Kozub</td>
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<td>NSC Update</td>
<td>Sarah Van Huis</td>
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<td>FMCSA Research</td>
<td>Matt Camden</td>
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<td>Open Forum</td>
<td>All Attendees</td>
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<td>Adjournment</td>
<td>Matt Camden</td>
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Welcome

Matt Camden
Section Chair
Safety Moment
Meeting Attendance

![Meeting Attendance Chart]

- Commercial Fleet Section
- School Bus/Transit Section
- Waterborne
- Annual Meeting
- New member welcome
- Commercial Fleet Section
- School Bus/Transit Section
- Commercial Fleet Section
- Hiring the Right Driver/Mid-Year Meeting
- Commercial Fleet Section

Legend:
- Reg
- Attend
- %
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 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 ORMS Data
- Characterization of Controlled Substance and Alcohol Violations
- CMVRD - Drivers Ignoring Out-of-Service Orders at Inspection Stations
- CMVRD - Electric Commercial Motor Vehicle Exploratory Research
- CMVRD - Speed Camera Use
- CMVRD - System Validations and Duty Cycle Data Collections
- CMVRD - Tire Safety Screening Systems (TSS)
- Comparing the Picture of Crashes: Understanding Data Needs and Opportunities for Road Safety
- Development of Off-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 Repositories
- 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 III: Readiness Assessment - Pulsar Informatics
- VTTI ADS Grant: Tracking 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

<table>
<thead>
<tr>
<th></th>
<th>SL Cohort</th>
<th>Non-SL Cohort</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td>Truck-years with single crash</td>
<td>13,091</td>
<td>2,076</td>
<td>15,167</td>
</tr>
<tr>
<td>Truck-years with multiple crashes</td>
<td>520</td>
<td>2</td>
<td>522</td>
</tr>
<tr>
<td>Truck-years without a crash</td>
<td>111,781</td>
<td>10,605</td>
<td>122,386</td>
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<tr>
<td>Total truck-years</td>
<td>125,392</td>
<td>12,683</td>
<td>138,075</td>
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SPEED LIMITER RESULTS

<table>
<thead>
<tr>
<th>Label</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>DF</th>
<th>t Value</th>
<th>P Value</th>
<th>SL-Relevant Crash Rate Ratio</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-SL Cohort vs. SL Cohort</td>
<td>0.6610</td>
<td>0.2875</td>
<td>27</td>
<td>2.30</td>
<td>0.0295</td>
<td>1.94</td>
<td>1.07 to 3.49</td>
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SAE J3016™ LEVELS OF DRIVING AUTOMATION™

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

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**SAE LEVEL 0™**
- **You are driving** whenever these driver support features are engaged – even if your feet are off the pedals and you are not steering
- You must constantly supervise these support features; you must steer, brake or accelerate as needed to maintain safety

**SAE LEVEL 1™**
- These features are limited to providing warnings and momentary assistance

**SAE LEVEL 2™**
- These features provide steering OR brake/acceleration support to the driver

**SAE LEVEL 3™**
- These features provide steering AND brake/acceleration support to the driver
- You are not driving when these automated driving features are engaged – even if you are seated in “the driver’s seat”

**SAE LEVEL 4™**
- These automated driving features will not require you to take over driving

**SAE LEVEL 5™**
- This feature can drive the vehicle under all conditions

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**These are automated driving features**
- These features can drive the vehicle under limited conditions and will not operate unless all required conditions are met

**Example Features**
- • automatic emergency braking
- • blind spot warning
- • lane departure warning
- • lane centering OR adaptive cruise control
- • lane centering AND adaptive cruise control at the same time
- • traffic jam chauffeur
- • local driverless taxi
- • pedals/steering wheel may or may not be installed
- • 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
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
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 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/

IMPACT OF DRIVER DETENTION TIME ON SAFETY AND OPERATIONS

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

@email us
• 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