MEETING NOTES

Truck & Bus Technology Subcommittee ACS60(5)
Annual Subcommittee Meeting at TRB

January 8, 2024

Agenda:

- Introductions
- Presentations
    - FMCSA's Advanced Technology Division Updates
        - Jeff Loftus, Federal Motor Carrier Safety Administration (FMCSA)
    - Real-World Experience with Electronic Stability Control (ESC) on Truck Tractors
        - Fred Andersky & Randy Salvatora, Bendix
        - Tom Weakley, Owner-Operator Independent Drivers Association (OOIDA)
- Brainstorming new technology research needs
- Closing

Notes:

Real-World Experience with Electronic Stability Control (ESC) on Truck Tractors

Fred Andersky & Randy Salvatora, Bendix

- Crash data shows a decrease in rollover crashes likely due to ca combination of technology availability, Federal mandate, and drivers understanding the technology due to driver training.
- Electronic Stability Control (ESC) systems build on antilock brake systems (ABS). ESC understands the driver's intent and what the vehicle is doing. Drivers can overdrive an ESC system (e.g., driving too fast for a curve, following too close, ignoring maintenance warning lights). No stability control system can address rollovers due to trucks traveling too close to soft shoulders.
- Maintenance is important. If ESC is out, you still have ABS and foundation braking. If ABS is out, you lose ESC too. Maintenance of wheel ends and tires is important for ABS and ESC.
- Brake systems are evolving. Electronic Brake Systems (EBS) are the future.
- Bendix is working on Smart Trailers (Trailer EBS + connectivity)
- Slides attached.

FMCSA's Advanced Technology Division Updates

Jeff Loftus, Federal Motor Carrier Safety Administration (FMCSA)

- Office is managing research on advanced driver assistance systems (ADAS), automated driving systems (ADS), roadside safety enforcement, and the Innovative Technology Deployment Grant Program.
- Presented summaries of research projects on ADAS, ADS, and Roadside Safety Enforcement Technology.
- Innovative Technology Deployment (ITD) Grant Program funds innovative safety solutions.
- Slides attached.

Real-World Experience with Electronic Stability Control (ESC) on Truck Tractors

Tom Weakley, Owner-Operator Independent Drivers Association (OOIDA)

- Messaging is important to explain the need for ADAS systems to experienced drivers. OOIDA has many multi-million mile crash-free drivers who have safely operated their trucks without advanced safety systems, like ESC or AEB. Telling them they need these systems because they are unsafe is not well received.
- Collaborate with drivers to develop training and messaging that answers their questions:
    - Why do I need the system?
    - What will it cost me?
    - Can I service it myself?

Technology Research Needs Discussed in 2024 Subcommittee Meeting:

- **Crashworthiness technologies**
- **Real-time truck parking & monitoring technologies**
    - If trucks are poorly parked, the physical number of available parking spaces may be less than the count. (FMCSA and FHWA may have grant money for this research.)
    - Need to study Electronic Logging Devices (ELDs) and truck parking availability.
    - Need to make truck parking availability data accurate so drivers can rely on it to meet ELD or Hours of Service requirements.
    - Develop performance metrics of data quality for truck parking information, develop standard APIs (similar to work zone data exchange, WZDx). Maybe the ACS60 Technology Subcommittee and Data Subcommittee can collaborate on this?
- **New data** to study: FMCSA's Large Truck Crash Causation Factors Program (LTCCFP) – crash data that includes different advanced safety technologies like electronic stability control (ESC) and automatic emergency braking (AEB).
- **ADAS False Positives / False Activations** – How prevalent are they? When do they happen?
- **Vulnerable Road User (VRU)** safety needs related to truck size and weight, Safe Streets for All (grant programs), and heavy vehicle conspicuity.

Technology Research Needs Previously Identified in 2023 Subcommittee Meeting:

- **Connecting electronic logging device (ELD) data with state DOT truck parking availability data.** Identify ways to link state DOT real-time data on truck parking availability at rest stops with ELD data to alert drivers about parking availability related to their remaining hours of service. Mandatory hours of service (HOS) requirements specify how long commercial drivers can work before taking rest breaks. Truck parking availability is an issue for the safety of drivers and the motoring public. Many states are starting to collect real-time truck parking occupancy data at public rest areas. This information is typically shared with drivers using dynamic message signs in advance of the rest areas. Connecting parking data with ELD data could help drivers learn of overcapacity issues at their estimated rest area. For example, if one hour of driving remains, and parking at a rest area 60 miles down road is full, drivers could make the informed decision to stop at a closer rest area to ensure they find a safe place to park for a mandatory rest break. What are the opportunities and challenges for also connecting private parking facility data where available?

- **Trip-Level Safety Data**. As we study truck safety, consider understanding the influence of hours into a trip (or into total hours of service for a shift), rather than studying averages over total miles traveled. Many factors influence safety that might not be constant over all miles or throughout a shift.

- **Driver Education on Levels of Automation for Commercial Driver License (CDL) Training**. Develop a training program to teach drivers the capabilities and limitations of each Level of Automation or of specific advanced driver assistance systems (ADAS).

- **Smart Trucks and Dumb Trailers: Understanding the safety of automated tractors and low-tech trailer combination units.** As advanced driver assistance systems and automated driving systems enter the market through new truck tractors, how do these systems perform in the real-world when pulling trailers that do not have new sensor and communication technologies?

- **Safe Transitions Between ADS and Human Driving Responsibility for Level 3 Automation**. How do you safely reengage a driver in a SAE Level 3 vehicle? Overcoming driver distraction or fatigue from inattentiveness.