TRUCK PLATOONING UPDATE

Jennifer Sebesta
Program Coordinator
Transportation & Planning Services

John Sharp
Deputy Director/Division Director
Transportation & Planning Services

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LEVELED OF AUTOMATION

HUMAN DRIVER MONITORS DRIVING ENVIRONMENT

0
NO AUTOMATION
Zero autonomy: the driver performs all driving tasks.

1
DRIVER ASSISTANCE
Vehicle is controlled by the driver, but some driving assist features may be included in the vehicle design.

2
PARTIAL AUTOMATION
Vehicle has combined automated functions, like acceleration and steering, but the driver must remain engaged with the driving task and the monitor the environment at all times.

3
CONDITIONAL AUTOMATION
Vehicle has combined automated functions, like acceleration and steering, but the driver must remain engaged with the driving task and the monitor the environment at all times.

CRUISE CONTROL

AUTOMATED DRIVING SYSTEM MONITORS DRIVING ENVIRONMENT

4
HIGH AUTOMATION
The vehicle is capable of performing all driving functions under certain conditions. The driver may have the option to control the vehicle.

5
FULL AUTOMATION
The vehicle is capable of performing all driving functions under all conditions. The driver may have the option to control the vehicle.

FOR MORE INFORMATION VISIT: SAI International

acog
**TRUCK PLATOONING**

- **Cooperative Adaptive Cruise Control:** Connected vehicle technology enables the vehicle to continuously communicate and coordinate travel with other trucks to follow each other at close proximity.

- **Level 1 – Driver assistance**
  - **Vehicle** controls coordinated speed and braking with the lead vehicles.
  - **Driver** maintains steering control at all times (always ready to take full control).

- **Level 2 – Partially automated**
  - **Vehicle** handles all steering, braking, and acceleration tasks.
  - **Driver** responsible for watching traffic and responding to system prompts.

- **Driver-Centric not Driverless**
TRUCK PLATOONING BENEFITS

Fuel Consumption

- $70,000/year per truck in diesel fuel
- 20-39% of operating costs
- 43.7 billion gallons of fuel (2015)

Fuel Efficiency

- At 50-60 foot following distance:
  - 4-5% for lead truck
  - 10% for following truck
- 65% of long-haul miles could be platooned
  - Rural, divided, multi-lane interstates/highways (Texas A&M Transportation Institute)
TRUCK PLATOONING BENEFITS

Truck-Related Crashes (2016)

• 4,317 people killed in crashes involving large trucks
• 72% were occupants of other vehicles
• 11% were nonoccupants (pedestrians, cyclists, first responders, roadway workers)

Safety Advances

• Technology: Radar, cameras, laser scanning
• Reaction time versus human driver alone
• Truck platooning can be restricted in severe weather or traffic conditions
ENABLING LEGISLATION PROGRESS

PLATOONING ALLOWED.
LIMITED COMMERCIAL DEPLOYMENT
PLATOON TESTING ALLOWED
LEGISLATION PENDING
TRUCK PLATOONING IN OKLAHOMA

• Many states have following too closely (FTC) statutes (motor vehicle codes), including Oklahoma

• States working on possible agreements for multistate testing
  - I-10 corridor California, Arizona, New Mexico, and Texas
  - I-40 corridor Tennessee, Arkansas, and Oklahoma

• Driving Oklahoma Working Group

• Senate Interim Study 18-12 – Study on Truck Platooning
SOURCES

- https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812451
QUESTIONS?

Jennifer Sebesta
Program Coordinator
Transportation & Planning Services

John Sharp
Deputy Director/Division Director
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ASSOCIATION OF CENTRAL OKLAHOMA GOVERNMENTS
acogok.org
Office: 405.234.2264