

FUEL EFFICIENCY IMPROVEMENTS THROUGH TRUCK PLATOONING & AUTOMATION



Skip Yeakel, P.E.
Principal Engineer
Volvo Group North America

13th Annual Partners Meeting
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Overview of Automation development in HD Trucks

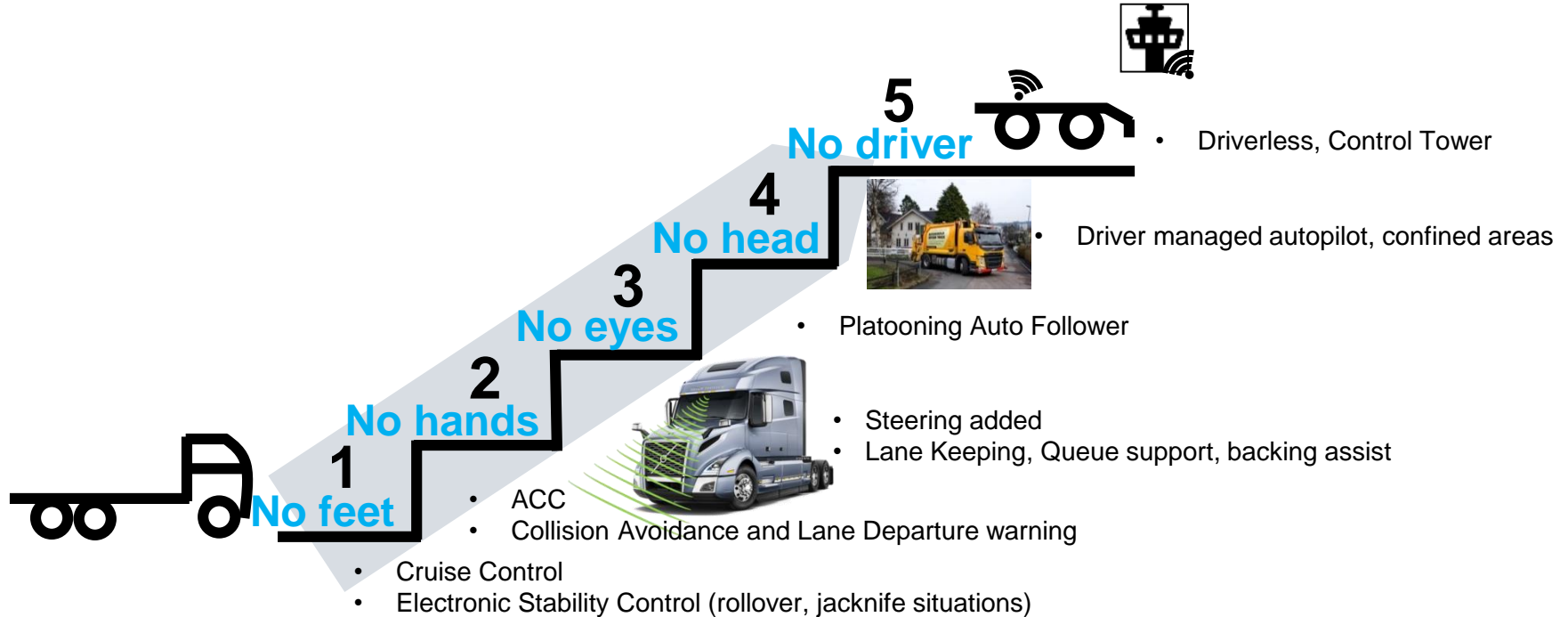
- Advanced Driver Assistance Systems (ADAS) are our primary direction

Benefits:

- Reduce driver stress
- Address traffic conflict areas around the truck
 - Low visibility conditions
 - Sensors to cover "blind spots"
 - Reduce speed for greater following distance
 - Quick reaction thru electronics
- Electronic Stability Controls to reduce rollover



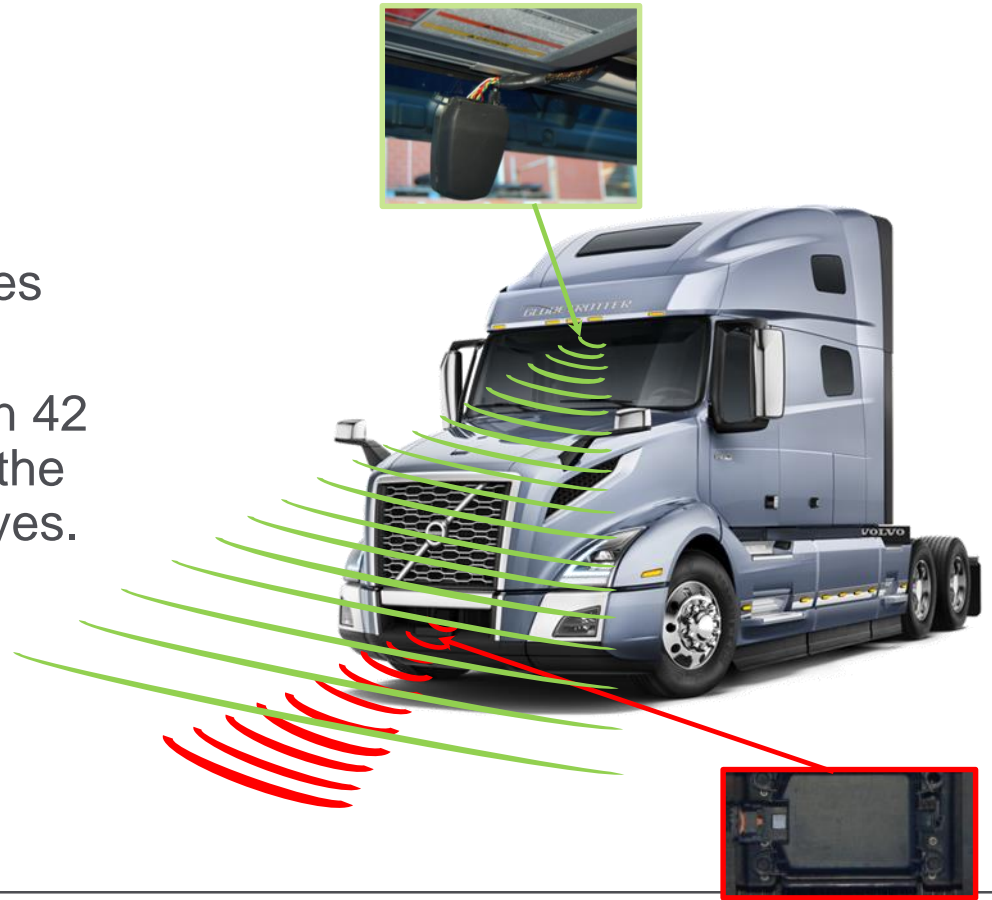
Automation – levels over time



Volvo Active Driver Assist

Radar + Camera = Accuracy

- Radar detection range of 22 degrees wide and about 500 ft. front.
- Camera viewing angle of more than 42 degrees will cover and detect what the radar can't. Act as an extra set of eyes.
- Adaptive Cruise Control (ACC)
- Collision warning and mitigation
- Lane Departure Warning
- Emergency Braking



Higher levels of Automation (level 4)

- Confined areas:
 - Ports
 - Mining
 - Construction sites
 - Refuse
 - Limited access
- Hazardous cargo needs special consideration
- Regulations must be changed in order to permit wide scale testing and development for on-highway use



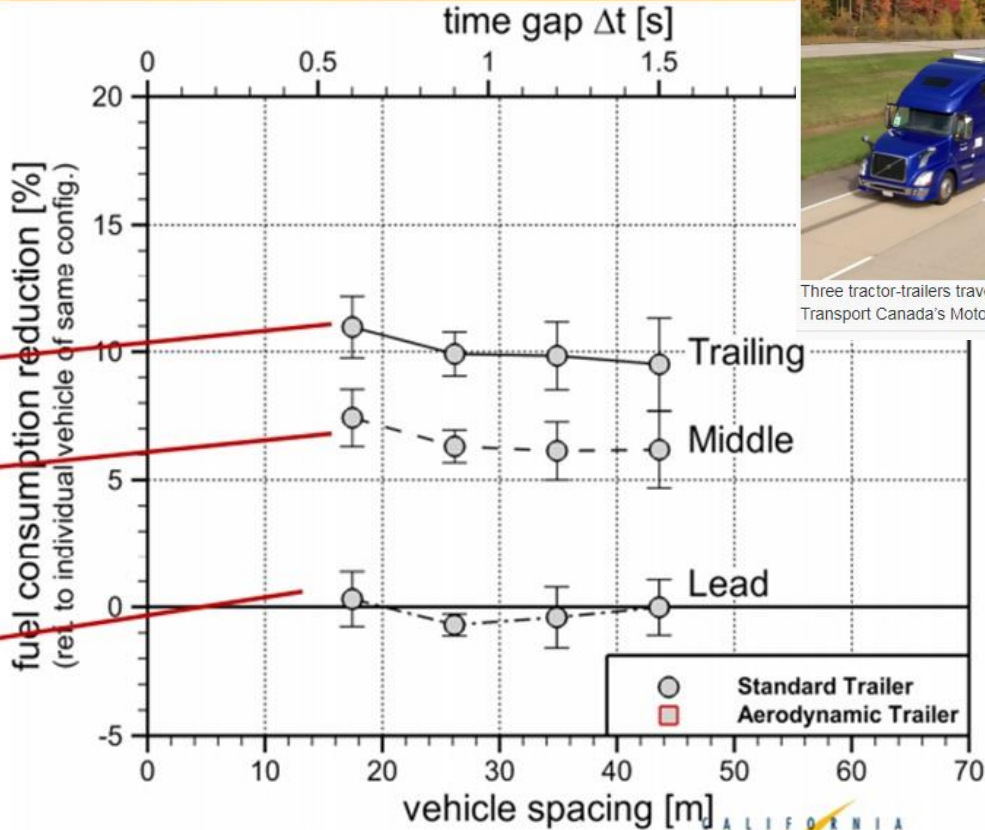


Test Results - NRC Canada Fuel Saving Estimates (65 mph + 65,000 lbs)



Fuel Savings for Individual Trucks
(ref. standard truck)

3rd truck
2nd truck
lead truck



Three tractor-trailers travelling in close proximity to form a platoon during testing at Transport Canada's Motor Vehicle Test Centre



Assessing the Fuel-Saving Potential of Semiautomated Truck Platooning

*Highlights in
Research and Development*



NREL conducted track testing of platooned trucks with 53-ft trailers at the 8.5-mile Uvalde track in San Antonio, Texas.

Photo courtesy of Peloton, NREL 31236

Key Result

Platooning results in significant fuel savings for the lead truck (up to 5.3%) and the trailing truck (up to 9.7%). Varied conditions—ambient temperature, distance between lead and trailing truck, and payload weight—influence the savings.

<https://nacfe.org/technology/two-truck-platooning/>

Trucking Efficiency - Platooning

A woman with dark hair, wearing a yellow jacket and a pearl necklace, is speaking. She is positioned in front of a white Volvo truck. The truck's grille and the number '74' are visible. The video player interface includes a play button, a volume icon, a progress bar showing 1:01 / 2:34, a Creative Commons license icon, a YouTube logo, and a full screen icon. A circular logo for 'TRUCKING EFFICIENCY' is also present in the bottom right corner of the video frame.

SUSAN ALT
SVP, Public Affairs, Volvo Group North America

TRUCKING EFFICIENCY

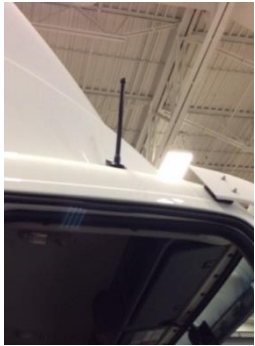
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CC YouTube



Public Highway Platooning Testing

- CACC
 - V2V thru DSRC
 - Speed, gap control
 - Braking
- Customer and highway partnership



THANK YOU! + Q & A



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Skip.Yeakel@Volvo.com

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