



National Transportation Safety Board

NTSB Webinar: Collision Avoidance Systems - Why You Need Them in Your Trucks Today!

April 18, 2019

Board Member Earl Weener, Ph.D.

Earl F. Weener, Ph.D. took the oath of office as the 41st Member of the National Transportation Safety Board on June 30, 2010. He brings to the Board his experience as an industry executive, long-time safety advocate, flight instructor, pilot, boat captain and aerospace engineer. He has long advocated for collision avoidance technologies in both aviation and highway modes.



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

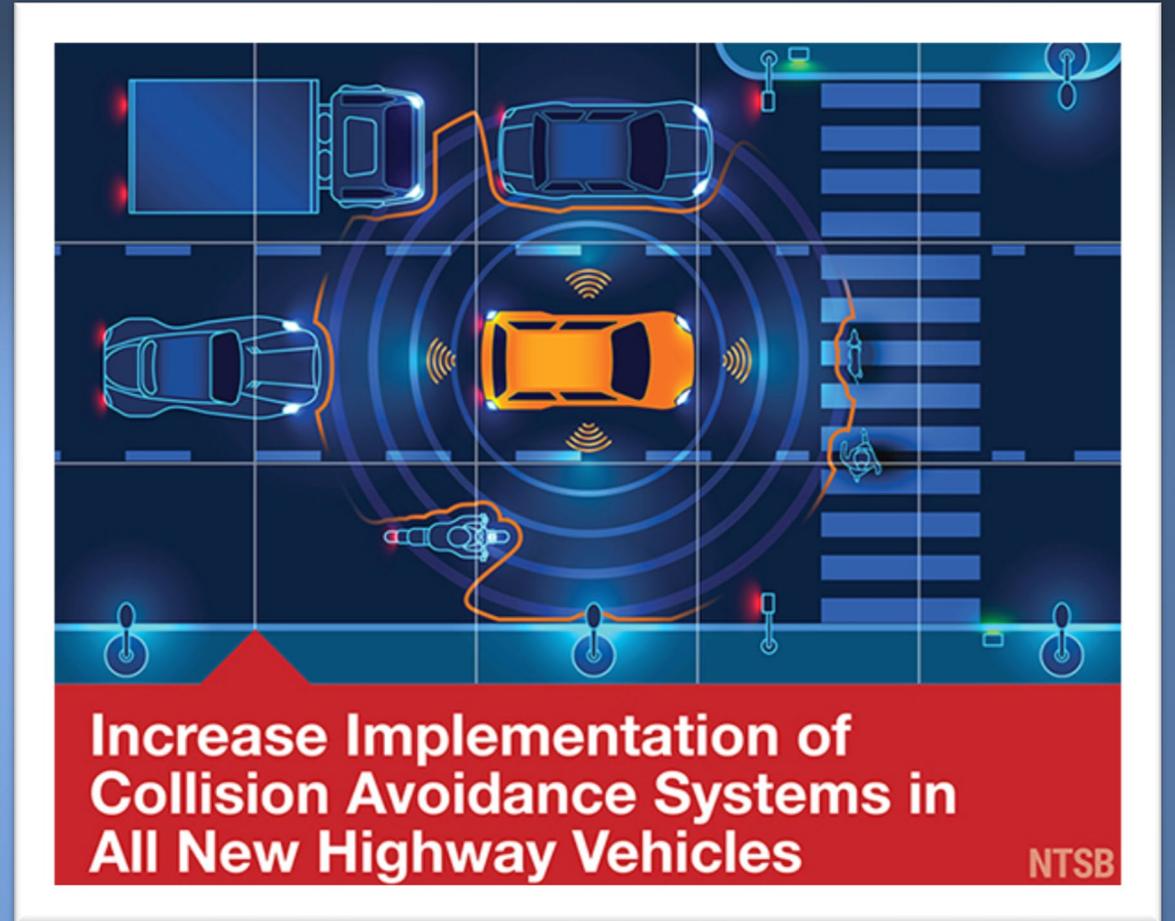


Our Mission

The NTSB is an independent Federal agency charged by Congress with **investigating** every civil aviation accident in the United States and significant accidents in the other modes of transportation – highway, marine, railroad and pipeline – and **issuing safety recommendations** aimed at preventing future accidents.

NTSB

2019-2020 Most Wanted List



The Use of Forward Collision Avoidance Systems to Prevent and Mitigate Rear-End Crashes



Special Investigation Report
NTSB/SIR-15/01
PB2015-104098

National Transportation Safety Board

 **NTSB**
SAFETY ALERT
National Transportation Safety Board

★ **Addressing Deadly Rear-End Crashes** ★
Forward Collision Avoidance Systems Can Save Lives

The Problem

- Between 2012 and 2014, almost half of all two-vehicle crashes were rear-end crashes. These crashes killed more than 1,700 people each year.
- In that same time frame, the NTSB investigated nine rear-end crashes involving a passenger or a commercial vehicle striking the rear of another vehicle, which killed 28 and injured 90 people.
- A 2007 National Highway Traffic Safety Administration (NHTSA) study showed that 87 percent of rear-end crashes involved a driver failing to attend to the traffic ahead.

The Solution

- Considerable research on forward collision avoidance systems (CAS) in both passenger and commercial vehicles has shown that these systems can prevent or mitigate rear-end crashes.
 - Forward CAS typically consist of (1) collision warning that alerts a driver of the impending crash, and (2) autonomous emergency braking (also known as "crash imminent braking") that automatically applies brakes.
- NHTSA is recommending the use of forward CAS.
- Broad deployment of forward CAS in all vehicles is necessary to reduce the severity of rear-end crashes.

What You Can Do

- When purchasing a vehicle, **consumers** should consider vehicles equipped with collision warning and autonomous emergency braking. To find out which vehicles offer these features, go to NHTSA's safercar.gov website.
- **Commercial vehicle fleet owners** should consider transitioning their fleets to vehicles equipped with collision warning and autonomous emergency braking.

For more information: See report NTSB/SIR-15/01, The Use of Forward Collision Avoidance Systems to Prevent and Mitigate Rear-End Crashes, on the NTSB website (www.ntsb.gov). SA-046 June 2015

Reports/Studies

CAS – NTSB Recommendation History

- **1995** - Examining the effectiveness of collision warning (CW) in heavy vehicles
- **2001** - Development of performance standards for CW and adaptive cruise control (ACC) in passenger and heavy vehicles
- **2008** - Examining the effectiveness of automatic emergency braking (AEB) in heavy vehicles
- **2015** - Installing CW and AEB as standard equipment in all vehicles; expanding NCAP to rate CAS





National Transportation Safety Board

NTSB Investigations

Ensar Becic, Ph.D.

Project Manager

Office of Highway Safety



NTSB Investigations

- 2015 Special Investigation Report (SIR)
 - Examined 9 rear-end crashes between 2012 and 2014
 - One of these crashes occurred in Cranbury, NJ
- Since the SIR, the NTSB investigated several other crashes involving CVs in which forward CAS could have made a difference
 - San Jose, CA

Cranbury, NJ – June 2014

- The northbound traffic on I-95 was slowing due to approaching road construction and the reduced speed limit (45 mph)
- A 2012 Limo Van had slowed to under 10 mph as it reached the end of the traffic queue
- A 2011 Peterbilt (Walmart) truck, traveling at 65 mph struck the limo which collided into other vehicles
 - The truck continued and struck another vehicle

Cranbury, NJ



Cranbury, NJ

- The limo passenger died
- Minor to serious injuries
 - The limo driver
 - 5 limo passengers
 - 3 occupants of other vehicles
- The truck was equipped with a forward CAS



Cranbury, NJ – CAS

- The 2011 Peterbilt was equipped with Bendix Wingman ACB
 - Adaptive cruise control
 - Forward collision warning
 - No AEB



Example of Following Distance Alert Display



Example of Stationary Object Alert Display



Example of Impact Alert Warning Display

Cranbury, NJ – CAS

- The Bendix CAS data showed:
 - Adaptive cruise control was not in use; no radar data
 - No audible alerts; a short alert (under 0.5 seconds) could not be ruled out
- CAS Recommendations
 - CAS manufacturers: Improve recording, storage and retrieval of data
 - NHTSA: Standards for forward CAS in commercial vehicles
- High velocity differential

San Jose, CA – January 2016

- A motorcoach was traveling northbound on US-101 near San Jose
- The conditions were dark with heavy rain and wind gusts



San Jose, CA – January 2016

- The motorcoach entered and traveled in an unmarked gore area
- Impacted a previously damaged crash attenuator
- Saliency was diminished due to environmental conditions



San Jose, CA

- 2 passengers died
- 13 passengers and the driver sustained injuries
- The motorcoach was a 2014 MCI, and not equipped with CAS
- High speed of travel (56 mph) encountering a stationary object



San Jose, CA – CAS Testing

- Conducted testing at Transportation Research Center in East Liberty, OH
 - Meritor Wabco OnGuard CAS (with CWS and AEB)



San Jose, CA – CAS Testing

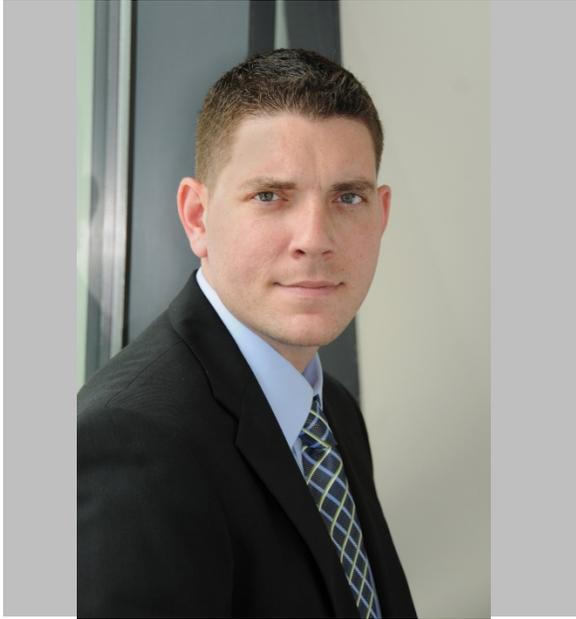
- Testing conducted at speeds up to 55 mph
- Test findings
 - Attenuator detected in 18 of 19 trials
 - Alerted the driver and automatically applied brakes
 - Driver steered after AEB engaged
- Recommendations:
 - NHTSA: Standards for forward CAS in commercial vehicles
 - CV manufacturers: Install CWS and AEB as standard equipment



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***AMERICAN
TRUCKING
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Ross Froat

American Trucking
Associations

Director, Engineering &
Information Technology

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Overview of Industry Implementation & Adoption

ATA Federation

ATA Membership

- Fleets, technology suppliers, truck manufacturers, business providers, academic affiliations

Conferences

- Intermodal Motor Carriers Conference
- Automobile Carriers Conference
- Agriculture & Food Transporters Conference
- Government Freight Conference
- Regional and Distribution Carriers Conference

Councils

- Safety Management Council
- Transportation Security Council
- National Accounting & Finance Council
- Technology & Maintenance Council
- Trucking Association Executives Council

Affiliated Associations and Trade Groups

ATA Federation Annual Meetings

• ATA Events

- Management Conference Exhibition (Oct.)
- Mid-year Management Session (May)
- Executive Committee Meeting (Jan.)
- General Counsel Forum (July)
- Call on Washington
- America's Road Team
- Share the Road
- National Truck Driver Appreciation Week

• ATA Council Events

- TMC Annual Meeting & Exhibit (March)
- TMC Fall Meeting & Technician Competition (Sept.)
- SMC Truck Driver Competition (Aug.)
- SMC/TSC Spring (March) & Fall (Nov.) Meetings & Exhibit
- NAFC Annual Meeting (June)
- TAEC Annual Meeting



Driver Assist

Driver Assist Safety Technology

AEB

ACC

AES

BSD

DBS

FCW

LKA

CMS

CIB

LDW

ESC

ADB

Driver Assist Safety Technology

- **Camera Monitoring Systems**

- Enhance driver and system field of vision
 - At night and in bad weather
 - Blind spot maneuvering



- **Adaptive Driving Beams**

- Enhance driver, system and surrounding traffic field of vision
 - Reduce glare
 - Focus forward lighting



ATA Equipment Policy 2015

ATA supports AEB for all new vehicles (Class 1-8)

- A DOT voluntary program challenging vehicle manufacturers to standardize AEB on new vehicles
- Fleet incentive-based programs to expedite ADAS technology adoption

ATA Technical Advisory Group Survey 2018

ATA's TAG represents nearly 500,000 power units; with 1:3.5 trailers

- In 2013, 17% using collision avoidance systems
- In 2017, 42% using collision avoidance systems
- In 2019, 62% expected to use collision avoidance systems
 - Majority for AEB and ACC; minority for BSD, FCW, LDW



Technology choices will depend on business operations

THANK YOU



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The Driver's Perspective

**Enjoli DeGrasse,
Deputy Director IBT
Safety and Health
Department,
Teamster's Union**



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