



Automated Driving Technologies: Expectations and Impact on Traffic Safety

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Tokyo, Japan*

Saving lives
through research
and education



Who we are?

- Founded in 1947 by American Automobile Association* (AAA) to conduct research to address growing highway safety issues
- Non-profit organization, Section 501(c)(3), funded by voluntary contributions from motor clubs associated with AAA, the Canadian Automobile Association, and individuals

*AAA currently has 56 million members in the U.S.

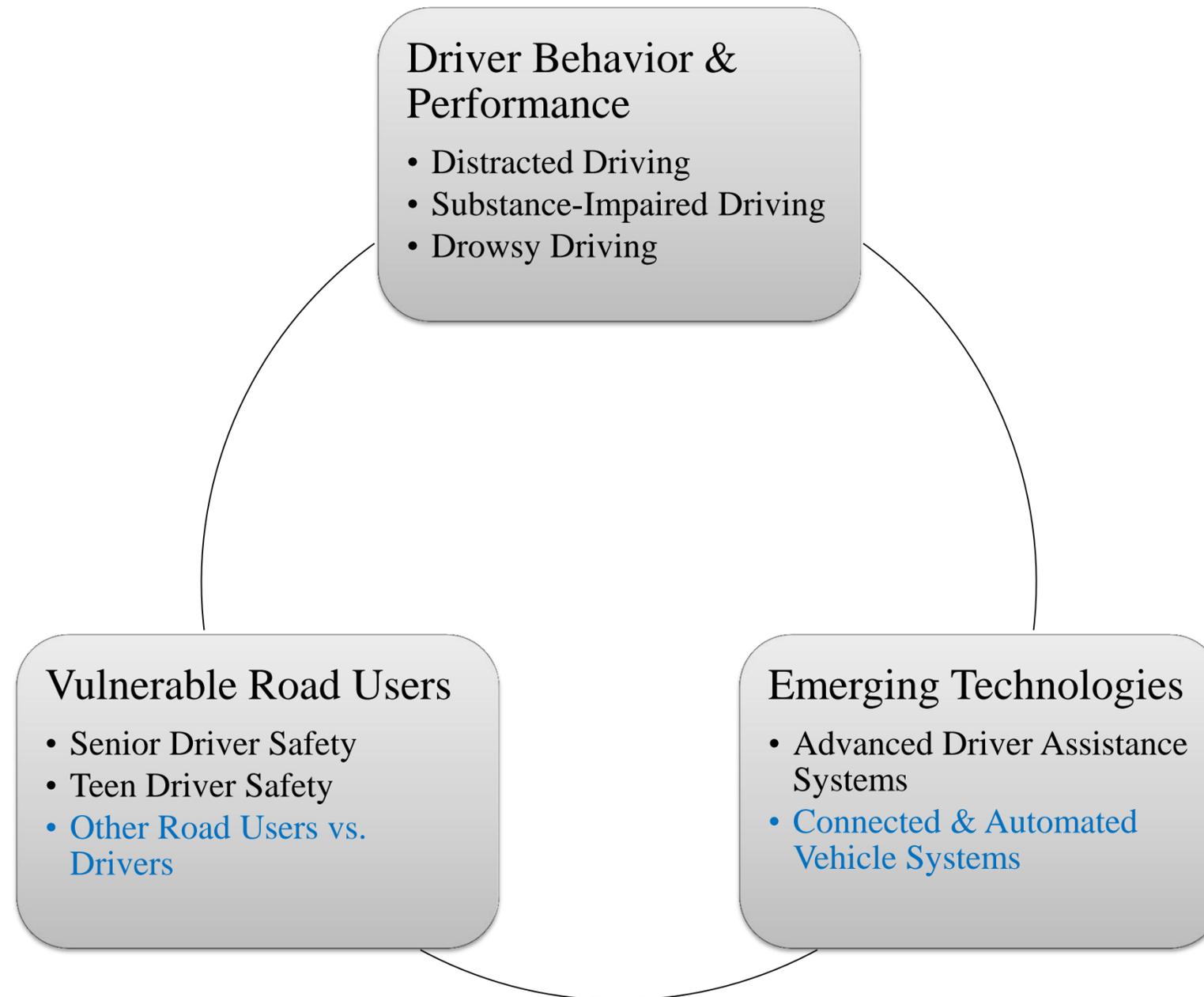


Mission Statement

"To identify traffic safety problems, foster research that seeks solutions, and disseminate information and educational materials."



Research Area



**As transportation technologies
continue to move forward, we need to
ask ...**

- Are the technologies being developed and deployed consistent with the expectations of the users?
 - How to measure? What to measure?
- What are the expected vs. perceived safety benefits of these technologies?
 - Assessment methodologies?

According to an AAA survey ...



- Only 20% U.S. drivers would trust a vehicle to drive by itself with them in it
- Women and “baby boomers” are more likely to be afraid to allow a vehicle to drive by itself with them in it
- Men are more likely to trust vehicle technology – self - parking, automatic emergency braking, & adaptive cruise control

- Theories of driver behavioral adaptation (BA) are examined → how drivers will use ADAS
- Driver reaction depends on accuracy of his understanding (or mental model) of the functions and capabilities of a particular ADAS
- Negative BA effects can arise when a driver's mental model of an ADAS is incomplete/inaccurate → functional limits that are reached only infrequently, difficult for a driver to notice/understand
- Status: Additional ADAS work being planned

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Literature Review of Behavioral Adaptations to Advanced Driver Assistance Systems

March 2016



★ ★ ★ ★ AAA Foundation for Traffic Safety

- Detailed driving information from a sample of U.S. drivers on an ongoing basis since May 2013
- In-depth national estimates on Americans' driving habits every year
- Phone interviews with a representative sample of U.S. drivers aged ≥ 16 years
- More than 7,500 responses for the 2014-2015 effort
- Status: Incorporate questions on automated vehicle technologies

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American Driving Survey 2014–2015

September 2016



Center for Distracted Driving Research

- Multi-year investment with research being carried out at the University of Utah
- Assess and provide information on the usability and distraction potential of new in-vehicle technologies
 - Potential “risks” with these technologies?
 - “Proper” behaviors interacting with these technologies?
 - Develop “distraction ratings” for these technologies
 - ...
- Status: Research with this program will continue in the next several years

Other activities supporting future assessment



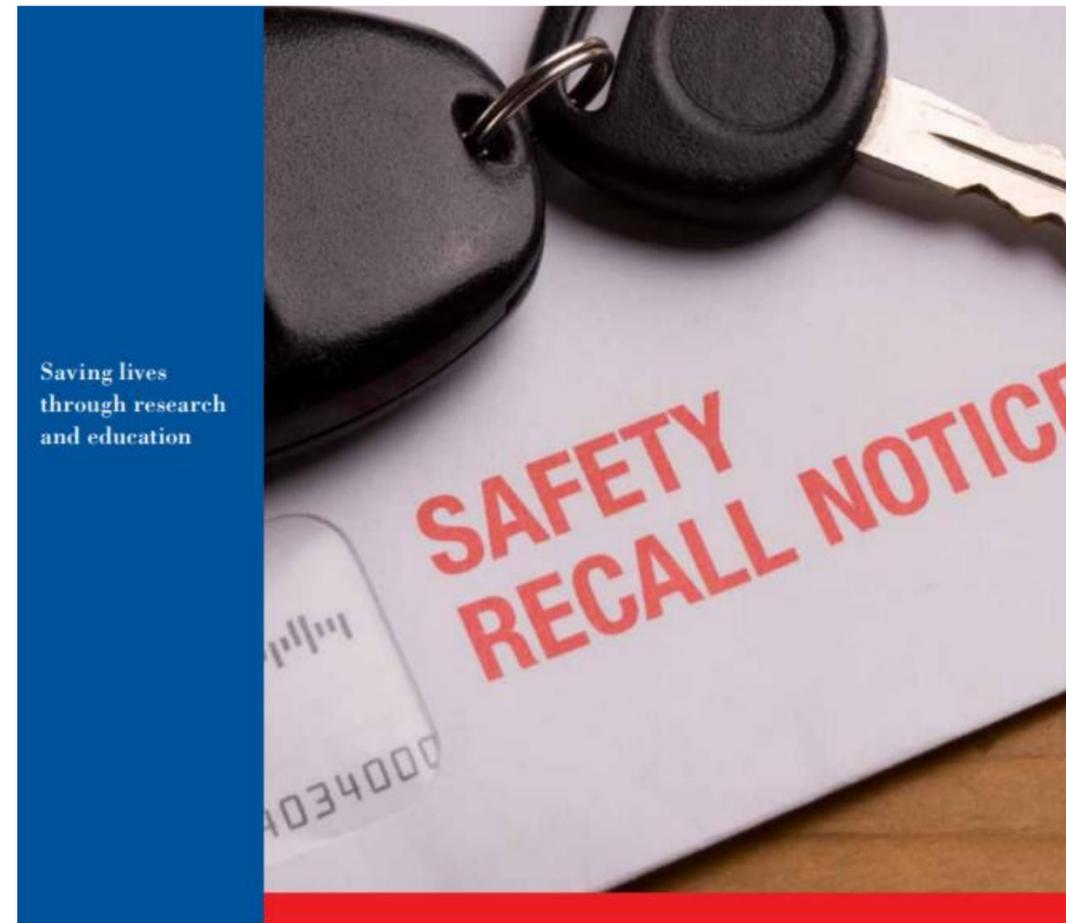
Car crashes rank among the leading causes of death in the United States.

2015 Traffic Safety Culture Index

February 2016



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Telematics, Safety Defects, and Connected Vehicles

March 2016



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Work from AAA Automotive Engineering



FACT SHEET



AUTOMATIC EMERGENCY BRAKING

FACT SHEET



ACTIVE PARKING ASSIST SYSTEMS

FACT SHEET



REAR CROSS TRAFFIC ALERT SYSTEMS

More to come from AAA Foundation

- Invest additional resources to examine various aspects of connected and automated vehicle technologies
- Seek opportunities to share information and collaborate with partners from government, academia, and industry
- Work toward the common goal of improve traffic safety



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