Remarks Prepared for

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National Highway Traffic Safety Administration

Automotive Safety Council

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"Auto Safety, Next Steps"

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Good morning and thank you for inviting me to speak today. It's a pleasure to join you at the ASC conference this year.

The theme of your meeting here in Scottsdale, "Auto Safety, Next Steps," strongly resonates with NHTSA's safety agenda. The next steps in automobile safety are leading us in many directions at once: toward emerging technologies, new research initiatives, and our never-

ending focus on driver behavior. Before I address those issues in detail, though, I want to begin by highlighting two big picture topics: the Administration's long-term initiative to dramatically boost fuel efficiency and the emergence of electric vehicles.

In July 2011, President Obama announced an historic agreement with 13 major automobile manufacturers to increase fuel economy standards each year from 2017 to 2025, which the Administration estimated would require 54.5 miles per gallon equivalent for cars and light-duty trucks by Model Year 2025, if all of the improvements are made with fuel economy-increasing technologies.

Transforming our vehicle fleet into a more fuel efficient fleet will conserve energy, help protect the environment, and reduce our dependence on foreign

oil. Getting there is a significant technical challenge but an objective that's within the reach of our industry. After three decades without significantly raising fuel-efficiency requirements, NHTSA and the Environmental Protection Agency have developed the first-ever national program that harmonized fuel economy and greenhouse gas standards for light-duty vehicles for model years 2012 through 2016.

Under those standards, we estimate that passenger cars and light trucks would be required, on average, to increase from 27.6 miles per gallon in 2011 to 34.1 miles per gallon in 2016. The impact of this increased fuel efficiency is huge because light-duty vehicles are responsible for about 60 percent of U.S. transportation petroleum consumption.

We have also proposed fuel efficiency and greenhouse gas emissions standards through model year 2025. DOT and the EPA worked closely with auto manufacturers, the state of California, environmental groups, and other stakeholders to help ensure that the standards we proposed are achievable, cost-effective, and preserve consumer choice.

NHTSA's proposal would increase the stringency of standards for passenger cars by an average of over four percent each year for Model Years 2017 through 2025. Standards for pick-ups and other light-duty trucks would increase an average of nearly three percent annually for the first five model years and an average of over four percent annually for the last four model years. Only the standards for Model Years 2017 through 2021 will be binding due to the statutory limitation on the number of model years for which legally binding

standards can be set by NHTSA in a single rulemaking. The nonbinding standards for the remaining years are intended to aid manufacturer planning.

These programs—combined with the model year 2011 CAFE standards and together spanning model years 2011 to 2025—are expected to dramatically cut the amount of oil we consume and the carbon pollution we generate from cars and trucks.

When combined with other historic steps the Administration has taken to increase light-duty vehicle energy efficiency, the Model Year 2017-2025 proposal is estimated to:

- **Save American drivers more than $1.7 trillion at the pump by 2025.**
- **Reduce America's dependence on oil by an estimated 12 billion barrels over the lifetime of the**

vehicles, and, by 2025, reduce oil consumption by 2.2 million barrels per day—enough to offset almost a quarter of the current level of our foreign oil imports.

- **Slash six billion metric tons in greenhouse gas emissions over the life of the Administration's programs.**

ELECTRIC VEHICLES

Let me turn now to electric vehicles. The United States is poised to lead the world in the development of innovative technologies and manufacturing, to enhance energy security, and to improve the environment through the development of a new generation of cleaner, more efficient cars and trucks.

And there is little doubt that we're meeting at a tipping point for the electric vehicle industry.

At NHTSA and the Department, we think electric vehicles have an important role to play in our continued goal of increasing fuel efficiency, decreasing greenhouse gas emissions, and decreasing dependency on foreign oil. We fully support President Obama's goal of increasing the number of electric and plug-in hybrid vehicles on the road in the United States.

We believe that safety is one of the key measures of success of electrified passenger vehicle technologies. Safety is crucial in all modes of operation, whether during charging—both at home, on road, and at commercial facilities—during normal driving, or during and after crash events.

Potential safety concerns associated with lithium-ion chemistries are different from those associated with other fuels and technologies. That is why we are actively working in this area, including conducting crash tests of new electric vehicles, working with U.S. and international partners to promote EV safety, and conducting Lithium-ion battery safety research.

We are actively testing new electric vehicles introduced for sale in the U.S. to ensure compliance with our existing safety standards and to provide consumers with information about the crash protection offered by these vehicles.

Although the agency is not aware of any roadway crashes that have resulted in battery-related fires in Lithium-ion vehicles, during a NHTSA crash of a

Chevrolet Volt in May 2011, the vehicle's battery sustained damage, resulting in a fire three weeks after the test.

Following that fire, NHTSA conducted additional vehicle and battery-level testing, but the agency's analysis did not indicate that the conditions necessary for a battery fire after a side impact would be likely to occur in the real world. Additionally, General Motors is implementing a remedy that appears to eliminate the risk of fire from real-world crashes under conditions similar to the tests conducted by NHTSA.

In addition to our crash test and monitoring activity, we are also moving forward to begin working with our international partners on electric vehicle safety.

In November 2011, NHTSA announced, together with our partners in Japan and the European commission, a plan to work toward a Global Technical Regulation (GTR) on electric vehicle safety. The goal is to promote harmonized regulations for electric vehicles and electric vehicle safety.

The GTR would address the unique safety issues associated with EVs and their components. It would also set provisions and test protocols to ensure that the electrical components perform safely, are appropriately protected while in use and after a crash event, and are electrically managed while recharging at a residence or charging location.

At the same time, NHTSA is actively involved in a body of research to promote EV safety.

We are assessing the performance and functional requirements of battery/electric storage systems. We have a dedicated effort in our Vehicle Safety Research group conducting a detailed Failure Analysis approach. This effort will help us identify the problems that can occur in Lithium-ion batteries, the likelihood that they will occur, and the safety consequences when they do occur. This will help us prioritize our research and potential rulemaking in this area.

Together with industry and academia, we are also working to establish future safety performance measures and criteria for Lithium-ion batteries. And we are partnering with intergovernmental safety groups to tackle a wide range of related issues, including: test methods, performance data, failure analysis, application limitations, and manufacturer and supplier quality. This forum deals with some proven and difficult

applications, such as the International Space Station, unmanned aerial vehicles, deep sea submersible craft, underwater rescue apparatus, and many military and disaster relief applications, such as water purification and communications.

We are also involved in efforts with other safety-focused government and industry groups and experts. For example, we are working with the Society of Automotive Engineers on standards related to battery and charger safety, test equipment, first responder safety, and electronic messaging, and with the national labs on grid interface standardization and safety. We are also working with the U.S. Advanced Battery Consortium and the Underwriters Laboratory.

NEXT STEPS

With that, let me turn to some of our "next steps" for automobile safety. As you know, NHTSA maintains a data-driven and research-oriented focus that touches on every aspect of driving safety. We envision, and are working to create, a new safety era that will revolve around safe vehicle designs and emerging technologies.

Several compelling technical developments--including Electronic Stability Control systems such as collision imminent automatic braking and lane departure warning, and the game-changing development of Vehicle-to-Vehicle and Vehicle to Infrastructure technologies--have the collective potential to reduce highway fatalities by preventing crashes from occurring in the first place.

At the same time, NHTSA maintains its focus on the human factor of driver decision making. Our data shows

that the majority of crashes occur because of dangerous behavior behind the wheel, including driving while distracted and driving while drunk. We continue to promote enforcement and development of technology-based solutions to curb these dangerous behaviors.

So let me give you some more detail about our next steps for automotive safety. I can think of no better place to start than with a great set of brakes.

ESC

NHTSA has been working steadily to reduce the risk of rollover crashes. Progress in braking technology has evolved from Antilock Brake Systems to Traction Control Systems and now Electronic Stability Control. ESC provides enhanced stability control and improved lateral stability that detects and automatically assists drivers in dangerous situations.

In 2009, electronic stability control saved an estimated 684 lives among passenger vehicle occupants. Since September 1, 2011, all new passenger vehicles must be equipped with ESC. As the overall passenger vehicle fleet becomes increasingly equipped with ESC, the lives-saved estimate will continue to rise.

We are extending our work on ESC to the heavy vehicle sector—and our research has shown that ESC will have a powerful impact on safety in the trucking and motor coach industries. For example, about two-thirds of all heavy truck occupant fatalities occur in rollover crashes. Heavy vehicle loss-of-control and rollover crashes are also a major cause of traffic tie-ups, resulting in millions of dollars of lost productivity and excess energy consumption each year.

The current generation of stability-enhancing technologies for heavy vehicles is able to sense when loss of control or a rollover is imminent and take corrective action without any input from the driver. This technology is vital because, by the time a truck or motorcoach driver senses that the vehicle is beginning to lose control, it is often too late to do anything about it.

NHTSA has completed a comprehensive performance evaluation of ESC on tractors and motorcoaches; developed a cost-benefit analysis utilizing computer simulation and modeling tools; and developed effective test procedures and performance criteria. We have also developed a Notice of Proposed Rulemaking on ESC for heavy tractors and motorcoaches which is currently under review by the Office of Management and Budget.

CONNECTED VEHICLE TECHNOLOGIES

We're also assessing emerging Connected Vehicle technologies. Vehicle-to-Vehicle technologies have the potential to address approximately 80 percent of the vehicle crash scenarios involving unimpaired drivers.

Our research is showing that these technologies could help prevent a majority of the collisions that typically occur in the real world, such as crashes at intersections or while switching lanes.

Beginning in 2011, NHTSA has been conducting Safety Pilot driver clinics in the first phase of a two-part research program jointly developed with the Research and Innovative Technology Administration (RITA) in coordination with other DOT agencies.

The driver clinics are designed to evaluate cars equipped with vehicle-to-vehicle communications systems in a controlled environment where researchers can observe the drivers' responses. The technologies we've been testing include in-car collision warnings, "do not pass" alerts, warnings that a vehicle ahead has stopped suddenly, and other similar safety messages.

These clinics are essential to expanding our understanding of how drivers will respond to the technology and how connected vehicles communicate in real-world scenarios.

The Department of Transportation will launch the second part of the Safety Pilot with a model

deployment that will use approximately 3,000 vehicles to further test Connected Vehicle technology in a year-long long effort from summer 2012 through summer 2013. This phase of testing will operate on roads in Ann Arbor, Michigan, and focus on a limited number of vehicle-to-vehicle infrastructure applications in addition to continuing the research on vehicle-to-vehicle communication systems.

The information collected from both phases of the Safety Pilot will be used by NHTSA to determine by 2013 whether to proceed with additional vehicle-to-vehicle communication activities, including possible future rulemakings.

CRASH TEST DUMMY

NHTSA is also finalizing the design of an advanced frontal crash test dummy called THOR, which is more sensitive to measuring occupant head, chest, and hip injury risk in oblique and small overlap crashes.

THOR is a component of a long-term research program dedicated to the reduction of automotive crash trauma through NHTSA's Office of Vehicle Safety Research. NHTSA has engaged automotive manufacturers, research organizations, and governments worldwide in extensive THOR test and evaluation trials.

We are currently conducting tests in frontal and small overlap crash modes. The test program includes vehicle-to-vehicle testing as well as moveable deformable-

barrier-to-vehicle. The tests measure both vehicle and dummy response.

NHTSA is now finalizing the design of the THOR to better replicate the occupant kinematics in oblique and small overlap crashes. The latest version of THOR is more sensitive for measuring occupant head, chest, and hip injury risk in oblique and overlap crashes. We plan to make a decision on THOR as it relates to offset testing in 2013.

FOCUS ON DRIVING BEHAVIOR

I know that you're well-aware of the latest data showing that in 2010 US highway fatalities fell to 32,885, the lowest level since 1949, despite an

estimated increase of nearly 21 billion miles traveled. Since 2005, fatalities have dropped 25 percent. The trend is very encouraging, but for NHTSA the number of lives lost annually is still much too high.

DADSS

NHTSA is responding to a multitude of factors that contribute to the unacceptably high death toll. One of our most persistent and deadly traffic safety problems is alcohol abuse. In 2009, 10,839 people died nationwide in crashes involving a drunk driver. These deaths make up 32 percent of all fatal crashes.

In an effort to reduce these fatalities, NHTSA initiated a $10 million, five-year cooperative research program in 2008 with the Automotive Coalition for Traffic Safety, a

nonprofit industry coalition funded by 17 automakers. The program, called the Driver Alcohol Detection System for Safety (DADSS), is developing non-invasive technologies to quickly and accurately measure a driver's blood alcohol concentration (BAC). If the system detects that the driver has a BAC at or above the legal intoxication limit (currently .08 BAC or higher), the vehicle will be disabled from being driven.

NHTSA research shows that drivers involved in fatal accidents with blood alcohol levels above the .08 legal limit are eight times more likely to have had a prior conviction for impaired driving than drivers who had no alcohol in their bodies at the time of a crash.

The technology could be voluntarily installed as an option on new cars. One system being developed determines the blood alcohol concentration through a touch-based approach and the other system uses a breath-based approach.

Phase One, completed last year, produced proof-of-principle prototypes focused on speed, accuracy, and precision. These prototypes showed significant promise towards meeting the stringent performance specifications.

The program is now in Phase Two, which will conclude in late 2013 with a practical demonstration of the DADSS alcohol detection systems in a research vehicle. These systems, while still research prototypes, will be

suitable for continued development and subsequent vehicle testing.

Although DADSS research is still in the early stages, we are following a step-by-step, data-driven process to ensure that the end result is a highly unobtrusive, accurate, and precise system. ACTS has also formed a Blue Ribbon Panel of experts to advise the project, including automotive manufacturers and suppliers, public interest organizations, highway safety researchers, domestic and international government agencies, and medical and behavioral scientists.

There is still much more work to be done, but we believe that a technology could be ready for general use and integrated into vehicles in eight to 10 years.

DISTRACTED DRIVING

NHTSA never takes its eye off the human factor. We know that approximately 90 percent of vehicle crashes are due to driver error. And now, one of the newest and deadliest threats on our agenda is distracted driving. In 2010, more than 3,000 people in the United States lost their lives in crashes where distraction was a factor.

We've documented that traffic fatalities remain the leading cause of death in the United States for young people between the ages of 4-34. And we see that young people are especially vulnerable because their world is thoroughly defined by mobile technologies and social connectivity.

The data are telling us that as technology evolves the potential for distraction in vehicles rises. We're seeing the rapid growth of new dashboard and handheld infotainment systems in vehicles now that create dangerous levels of distraction. When drivers are dialing a cell phone, texting, and surfing the Internet, their eyes, hands, and focus are diverted from their primary responsibility: driving.

In response to the emerging threat, NHTSA has developed an evaluative framework for in-vehicle technologies. We have offered specific guidance to automakers to help them develop electronic devices that provide the features consumers want—without interfering with the driver's focus or sacrificing safety by distracting the driver's attention.

Earlier this month, NHTSA conducted hearings on our proposed guidelines across the country and gathered responses from automakers and other stakeholders. As we examine the testimony, NHTSA is looking ahead to a collaborative solution that directly addresses the important interface between electronic devices and distraction.

The notion that a choice must be made between ensuring that drivers are safe and including cutting-edge new features in vehicles is a false one. We can and we must do both at the same time.

Our first goal is to reduce the complexity and the amount of time it takes to use onboard electronic devices. We propose to reduce drivers' distraction through new limitations on electronic designs. Among our key goals, we want to ensure that devices can be

operated with only one hand (leaving the other for steering. We propose a two-second limit on individual eyes-off-the-road glances and a 12-second limit on total eyes-off-road time needed to operate a device.

We also seek to limit both the amount of manual inputs needed to operate a device and unnecessary visual information in the driver's field of view.

Our second goal is to disable operations of various electronic devices while driving, unless the devices are intended for passenger use and cannot be seen or accessed by the driver, or unless the vehicle is stopped and its transmission shift lever is in park. These include visual-manual operations that can be a significant source of driver distraction, for example, text messaging, Internet browsing, navigation system

destination entry by address, and 10-digit phone dialing.

HYPERTHERMIA

Let me end with a few words about child safety, which has long been a major priority for the agency.

NHTSA is continually working to keep children safe in and around vehicles and has a number of programs underway, including the agency's regular outreach to educate parents about the proper use and importance of car seats and boosters; our continued work to prevent tragic backover crashes by improving the rear visibility of vehicles; and ongoing work to improve our research. In fact we recently unveiled a new "10-year old" test dummy to better measure the effectiveness of

the growing number of child safety seats designed to accommodate higher weight children.

This year the agency is continuing to place a special emphasis on the issue of child heatstroke in hot cars, which is medically termed "hyperthermia." Last year alone, at least 33 children in the United States lost their lives after being left in unattended motor vehicles—and an unknown number of other children were injured.

In the coming weeks, Administrator David Strickland will launch NHTSA's 2012 campaign to raise awareness about child heatstroke deaths in motor vehicles. The agency will work closely with parents, caregivers, manufacturers, and its many safety partners to promote community responsibility and awareness about the dangers of leaving toddlers and babies alone in hot cars.

In the coming months, the agency and its partners will coordinate a series of activities across the country to further highlight the issue.

Thank you.