ADVOCATES
FOR HIGHWAY
AND AUTO SAFETY

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ADVOCATES FOR HIGHWAY AND AUTO SAFETY

BEFORE

THE CONSUMER AFFAIRS, INSURANCE,
AND AUTOMOTIVE SAFETY SUBCOMMITTEE

SENATE COMMITTEE ON COMMERCE, SCIENCE AND TRANSPORTATION

OVERSIGHT HEARING ON PASSENGER VEHICLE ROOF STRENGTH

JUNE 4, 2008

Introduction

Good morning Mr. Chairman and members of the Senate Consumer Affairs, Insurance and Automotive Safety Subcommittee of the Committee on Commerce, Science and Transportation. I am Jacqueline Gillan, vice-president, of Advocates for Highway and Auto Safety (Advocates). Founded in 1989, Advocates is an alliance of consumer, health and safety organizations, and insurance companies and associations working together to make our roads and highways safer. Advocates encourages the adoption of federal and state laws, policies, programs, and regulations that save lives and reduce injuries in motor vehicle crashes on our nation's highways.

Our organization has worked closely with the members and staff of the full Committee and has been integrally involved in generating many of the motor vehicle-related safety provisions contained in Section 10301 of SAFETEA-LU, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, Pub. L. 109-59 (Aug. 10, 2005). The vehicle safety-related rules required in title X, subtitle C of SAFETEA-LU were developed and adopted by this Committee in a bipartisan effort to improve public safety on our highways. Congress showed great vision in that legislation by crafting a comprehensive approach to rollover crashes that addresses both vehicle crash avoidance and crashworthiness, and requires both an upgraded roof strength regulation and a standard to reduce occupant ejections. Collapsing roofs and occupants thrown from their vehicles are the two leading reasons why rollover crashes are so deadly. The Congressional plan in SAFETEA-LU to address all major, interrelated aspects of rollover crash losses in a comprehensive and coordinated way ultimately could save thousands of lives and prevent tens of thousands of injuries annually if implemented in the manner Congress intended.

Unfortunately, I am here to inform you that despite clear, explicit Congressional direction to mitigate the problem of rollover crash deaths, the National Highway Traffic Safety Administration (NHTSA), the agency within the U.S. Department of Transportation that is charged with implementing the SAFETEA-LU provisions, has not seized this opportunity to strengthen its standards related to rollover protection by proposing optimally effective occupant protection countermeasures. Despite legislative instruction to address the necessary safety measures in a coordinated manner to prevent deaths and severe injuries in rollover crashes, the sad truth is that NHTSA is taking an inadequate and piecemeal approach to rollover safety. The agency has divided the rollover crash event into isolated, disconnected safety problems and devised improvements intended to achieve only marginal gains in safety.

To date, NHTSA has not followed the strong bipartisan leadership of Congress that directed vigorous agency responses to chronic vehicle safety problems. Instead, the agency has fashioned weak and incomplete regulatory responses to SAFETEA-LU rulemaking initiatives. In taking this understated approach to major safety issues affecting the lives of millions of vehicle occupants, NHTSA has failed to provide the necessary safety protection for current and future generations of drivers and passengers. This is true not only in its the proposed roof strength rule, the subject of today's hearing, but also in its earlier efforts to reduce side impact losses, a rule that is still pending, as well as in its research approach to ejection prevention, and even in the final rule on electronic stability control systems, which was published in 2007. In each case, the agency has so far done considerably less than it could have to advance safety and occupant protection. As discussed later in this statement, in each of these regulatory areas NHTSA has opted for marginal improvements in safety technology and benefits rather than adopt existing, state-of-the–art safety performance, test procedures, and technologies that would secure significantly greater safety benefits. As a result, SAFETEA-LU rulemakings will not achieve the potential level of safety envisioned by Congress.

NHTSA has not heeded Congress on roof strength. The agency has proposed a weak rule to improve roof strength that cannot achieve the legislative goal of ensuring enhanced, equal protection of front seat occupants, both the driver and passenger. I am here today to urge Congress to make it clear to NHTSA that the current rulemaking proposal is unacceptable and that the agency needs to dramatically rethink and revise its proposal in order to fulfill its statutory obligations and protect the American public.

Rollover Crash Background

There is perhaps no more terrifying or lethal motor vehicle crash than a rollover. When a rollover crash occurs, a car, pickup truck, or sport utility vehicle (SUV) is out of control in the fullest sense. A driver has no power to stop this catastrophic event. The tires are no longer gripping the road and evasive maneuvers using steering and braking are no longer possible. In a rollover crash the driver and other vehicle occupants are at the mercy of the laws of physics and are protected by only the effectiveness of safety systems that has been designed into their vehicle.

The outcome of rollover crashes is absolutely horrific. According to a NHTSA status report on rollover occupant protection research, rollovers are only two percent of all annual motor vehicle crashes, but resulted in 10,698 deaths in rollover crashes in 2006. 2006 Annual Assessment of Motor Vehicle Crashes, NHTSA, Sept. 2007, updated January 2008, at 95. A total of 32,092 vehicle occupant deaths occurred that year in motor vehicle crashes, so rollover crashes alone account for *more than one-third of annual occupant fatalities*. *Traffic Safety Facts 2006*, NHTSA, National Statistics Summary, at 1.

These figures are staggering and completely unacceptable. Yet, NHTSA, the agency entrusted with protecting people in their passenger vehicles, has been reluctant to take any action on its own initiative to reduce the tens of thousands of deaths in rollover crashes that occur year, after year, after year. Although the agency has received petitions for a rollover stability standard since the 1980s, NHTSA did not see fit to establish such a standard. In 1991, Congress required the agency to consider the issue and the agency opened rulemaking in 1992 (57 FR 242, Jan. 1, 1992), but terminated that effort in 1994 (59 FR 33254, June 28, 1994).

Despite the involvement of roof crush in many rollover crashes, NHTSA took no action through the remainder of the 1990s to address the issue with a proposed rule strengthening the standard, even after its acknowledgement of the extent and severity of losses from rollovers. At the same time, with increased sales of narrow wheelbase, high center of gravity Light Trucks and Vans (LTVs), including pickup trucks and SUVs, the number of rollover crash deaths in these types of vehicles rose dramatically.

More than *120,662 people have died* in rollover crashes and over *2.9 million have been injured* since NHTSA terminated its rulemaking action in 1994. NHTSA Data Run, 1994-2006, prepared for Advocates for Highway and Auto Safety, National Center for Statistics and Analysis, NHTSA, May 27-28, 2008.

In short, NHTSA has not been diligent in responding to the enormous threat posed by rollover crashes. Although electronic stability control systems showed great promise in preventing rollovers, NHTSA took no action to require that technology until directed to do so by Congress in SAFETEA-LU. And, again, with respect to roof strength, even though roof crush is a major factor in rollover crashes, it was not until the enactment of SAFETEA-LU that the agency published its weak proposed rule.

1971 Roof Strength Standard

The current roof strength standard, Federal Motor Vehicle Safety Standard (FMVSS) No. 216, *Roof Crush Resistance*, was originally adopted in 1971 (effective Sept 1, 1973), and after 37 years, it remains the only standard that addresses vehicle crashworthiness in a rollover. This outdated standard still relies on 1960s thinking to provide protection to occupants in 21st century vehicles. The standard is extraordinarily weak, requiring that a plate press on one front corner of the roof at only 1.5 times the weight of the vehicle – the gross vehicle weight rating (GVWR) – but only up to 5,000 pounds for passenger cars. 23 CFR § 571.216S4(a).

The standard is even weaker for LTVs. In the early 1990s, NHTSA extended the test still using only 1.5 times the vehicle weight, to these other types of passenger vehicles – but only up to 6,000 pounds GVWR. 55 FR 15510 (Apr. 17, 1991). Incredibly, the agency excused all LTVs over 6,000 pounds from even being tested. As a result, there is *no* standard for roof strength for large SUVs, big pickup trucks, and large passenger vans. *Id.*, § 571.216S4(b).

Many researchers have documented the major role that roof crush plays in rollover crash deaths and injuries, and that a stronger standard could prevent many deaths and serious injuries. Despite this research, the standard has remained essentially unchanged despite the thousands of annual deaths and injuries from rollover crashes. Against this backdrop NHTSA has proposed an upgrade to the roof strength standard that, by the agency's own reckoning, will save very few lives in rollover crashes.

The 2005 Proposed Rule is Badly Flawed

The 2005 NHTSA notice of proposed rulemaking (NPRM) on roof strength, 70 FR 49223 (Aug. 23, 2005), is badly flawed in several fundamental ways. First, the 2005 NPRM retains the static plate (platen) test developed four decades ago and fails to require a dynamic, real-world rollover crash test that adequately models what actually happens to passenger vehicles and their roofs in rollover crashes. Second, the proposal only requires vehicles be tested at 2.5 times the weight of the vehicle which is a 2.5 strength-to-weight ratio (SWR). This represents only a marginal increase in roof strength, a level already met by two-thirds of the current makes and models in production today.

In addition, the proposed rule actually weakened the existing standard by removing any limit on the amount of permitted intrusion of the roof into the occupant compartment. Instead, the agency substituted a strict "no head contact" criterion with the top of the head of a 50th percentile male test dummy. *Id.* at 49232. If there is any amount of space, no matter how small, between the roof and the head of the test dummy, the vehicle passes; any roof contact with the dummy's head and the vehicle fails. Taking this course of action would allow vehicles that already have very low roofs close to the heads of drivers and passengers to continue to be manufactured and sold as long as the roof did not actually touch the head of the dummy during the static test.

This means, however, that occupants taller than the 50th percentile male test dummy are provided no assurance of any head protection from a collapsing roof in a rollover crash. Indeed, NHTSA's minimalist contact/no contact criterion guarantees that taller people, including as much as half of all male drivers, will be at greater risk of being struck by a collapsing vehicle roof in a rollover crash.

The 2008 Supplemental Proposed Rule (SNPRM) is Defective

NHTSA published a supplemental notice of proposed rulemaking (SNPRM), 73 FR 5484 (Jan. 30, 2008), in part to address the issue of affording protection on both the driver's and passenger's sides of the vehicle in response to Section 10301 of SAFETEA-LU. The SNPRM supplied additional test results and summarily mentioned alternative regulatory options. Yet, the SNPRM builds on the weak foundation laid in the prior 2005

NPRM, since it augments and encompasses but does not replace the prior proposal. Thus, references in this statement to the SNPRM include both the prior 2005 NPRM as well as the 2008 SNPRM.

The SNPRM is both substantively unacceptable and legally inadequate. The fundamental flaws in the agency's approach include: the failure to consider a dynamic test in place of the old, 1971-era static test; the inadequacy of the agency's testing procedure for each side of passenger vehicle roofs; the gross underestimation of safety benefits from a stringent roof strength standard; and the failure to provide benefit/cost analyses for suggested alternative roof strength options, including the lack of a benefits assessment for specific alternative regulatory proposals included in the agency rule. These problems fatally undermine the SNPRM, and as a result require the agency to rethink and revise its approach to roof strength, including documentation of specific proposed regulatory alternatives, and issuance of a new proposal before a final rule is adopted. NHTSA cannot move forward to a final rule on the basis of the SNPRM. My statement addresses each of these problems in turn.

- **No Consideration of a Dynamic Test**

It appears that NHTSA refused to credit new developments on potential dynamic tests and to explore them carefully as Congress urged the agency to do in Section 10301 of SAFETEA-LU: "The Secretary may consider industry and independent dynamic tests that realistically duplicate the actual forces transmitted during a rollover crash." These are not idle words – Congress expected that NHTSA would examine and review a new generation of dynamic roof strength tests now in use by manufacturers and independent researchers. However, the agency has not indicated in the SNPRM that it actually acquired or conducted comparison tests on any of the dynamic test systems in use today.

Advocates supports the use of a dynamic test that shows the real-world behavior of passenger vehicle roofs crashing into the ground, and how occupants respond to those terrific forces, including the performance of active and passive restraint systems, seating systems, door locks and latches, and vehicle windows (glazing). Real-world, dynamic testing is the best means of modeling what occurs in actual rollovers and determining what safety countermeasures should be proposed.

NHTSA's proposal to press down only on the front corner of a vehicle roof with a plate at an undemanding force level does not reproduce real-world crash forces. This compliance test can show nothing about occupant kinematics, that is, how people in actual rollover crashes respond to rollover forces and are injured, or how the multiple in-vehicle safety systems contribute to protecting occupants from deaths and severe injury. Instead, the agency has proposed an inadequate approach to improving resistance of passenger vehicle roofs to deformation and intrusion that can result in severe or lethal head and neck trauma.

Before NHTSA issues a final rule it must test and evaluate the current technologies used for dynamic rollover testing to determine roof strength performance. This should include actual testing of the Jordan Rollover System (JRS), the Controlled Rollover Impact

System (CRIS), used for in-house testing by a least one manufacturer, and other similar test devices. Until the agency conducts its own tests and acquires first-hand experience with these dynamic test devices, it has not fulfilled its obligation under SAFETEA-LU and to the public.

Since NHTSA continues to rely on the static test as the basis for rulemaking, Advocates has analyzed the substantive and procedural problems we have found in the SNPRM. Advocates' comments filed with the agency SNPRM rulemaking docket analyzed these problems in detail and those comments are submitted for the hearing record. This statement addresses the major problems we found.

- **NHTSA's Testing Procedure is Inadequate**

In the SNPRM, NHTSA provides new static roof test results that reveal a fundamental flaw in the agency's testing methodology. In conducting testing on both the driver and passenger sides of existing vehicle makes and models, NHTSA has undermined its ability to use the results of its new round of tests by adopting a flawed testing protocol. This is not just a minor matter of technical procedure but a basic mistake in gathering scientific data based on sound testing methodologies. In conducting tests on each side of vehicle roofs, the agency failed to heed its own proposed standard of a 2.5 times vehicle strength-to-weight ratio (SWR) when conducting the tests on the first side of the roof. Instead of conducting a first-side test to a specific minimum strength level in accordance with its own proposed test regime to lay the foundation for testing the second side of the roof, NHTSA simply continued applying pressure to the plate on the first side of the roof regardless of the strength level achieved. The agency stopped the test only when the roof touched the head of the test dummy, or the windshield cracked, or 5 inches of crush had been attained. In doing so, NHTSA made it impossible to use the test of the first side of the roof to obtain consistent results regarding how the second side would perform when crushed with the plate. Not surprisingly, the actual second side test results were inconsistent and varied widely. Some vehicles had stronger roofs, that is, resisted crush better when the second side was tested, while others were weaker, sometimes substantially weaker, when the plate was pressed on the other corner of the roof.

Since NHTSA appears committed to the static force platen test, it is essential that any first-side test must be properly conducted to demonstrate how a roof will perform when a subsequent crushing force is applied to the second side of the roof. By allowing any amount of force application to be used and plate intrusion limited by either a maximum of 5 inches, or windshield cracking, or dummy head contact, the agency rendered its tests worthless for determining how first-side roof crush affected second-side crush. The crux of the matter is whether both sides of a vehicle roof meet a standard using a demanding force application level, such as 3.5 or 4.0 times the vehicle weight, controlled by limits on maximum intrusion and minimum residual headroom. NHTSA must redo properly the first test to determine how well the first-side crush response predicts the response of the second side. So far, the agency has no basis from the data generated for consideration in the SNPRM to adopt a standard that ensures that both the driver and the passenger have a high level of protection from roof crush and intrusion. NHTSA has to conduct these tests at different strength-to-weight ratios based on the SNPRM, from an SWR of 2.5 up to 4.0 and

offer a specific choice based on a realistic assessment of benefits and costs. Until the agency performs these new tests and offers documentation to support one or more specific regulatory alternatives for notice and comment, it cannot move forward to a final rule.

- **No Requirement for Survival Headroom**

Another essential safety aspect that is lacking in the proposed rule is a requirement for minimum residual headroom – to ensure that in real-world rollovers there is survival space maintained over the heads of occupants after the dynamic response of the roof to rollover forces. One of the cardinal rules of safety design in recent years has been the importance of maintaining the integrity of the passenger compartment in a crash. This philosophy has been used to improve crash survivability in frontal and side impacts and should be applied to protect against roof crush and intrusion.

Research analysis shows that even though the roof actually comes down onto the heads of occupants in a simulated rollover crash, the vehicle roof can, nevertheless, show some post-crash space over the head of occupants. Passenger vehicle roofs flex and recoil in real-world rollovers. A dynamic test could show what actually happens in the interaction between a deformed roof and the vehicle occupants during a rollover crash. To account for this movement of the roof, a static roof strength test must require residual headroom to assure an adequate level of occupant safety when the roof deforms in a rollover. A residual survival space or headroom requirement is only a surrogate for the safety margin that could be provided through a dynamic test, but far better than the minimal "no contact" criterion proposed in the SNPRM. The no-contact/contact, pass/fail criterion is an inherently defective approach to approximating what is needed to protect occupants in actual rollover crashes, and it cannot ensure that the roof will not actually injure occupants in real-world rollover crashes. A given vehicle can pass both the strength and no-contact criteria of the supplementary proposed rule, yet that same roof can still injure or kill occupants. Thus, a regulation based on a static test should include a minimum headroom requirement to ensure occupant survival space.

- **Reliance on Windshield and Windows to Improve Static Test Results**

Another aspect of the proposed standard that is objectionable is the fact that the static test is conducted with the vehicle windshield in place and the vehicle side windows rolled up. In many rollover crashes, the windshield frequently pops out of its frame when force is applied to the front of the roof in a rollover. In addition, window glazing made of tempered glass shatters during the initial contact in a crash if it is not retracted. Nevertheless, the proposed roof strength rule continues to rely on an artificial test protocol that involves testing the roof with the windshield in place and all side windows in a closed position. Testing a vehicle roof with the added strength of the window glazing in place provides an artificial result and a false sense of security. Passing the static strength test conducted in this manner provides no assurance that the same vehicle will not suffer glazing failure roof deformation and intrusion in a real-world rollover crash.

- **The SNPRM Implies a Severe Underestimation of Safety Benefits**

NHTSA has revised downward its estimate in the SNPRM of the population that would benefit from stronger roofs from the number presented in the 2005 NPRM on the

basis of yet-unrealized claims about the influence of electronic stability control systems on rollover crash occurrence. After NHTSA successively whittles down the number of lives that are relevant to a stronger roof crush resistance standard through one rationalization after another, the agency concludes that stronger roofs would affect the lives of only 476 people. 73 FR 5485. This is not the number of lives saved, but rather the target *population* within which the agency believes that benefits of saving lives can occur with a stronger roof standard. In the 2005 proposed rule, NHTSA estimated that the target population was 595 fatally injured occupants who could be affected by a stronger standard. 70 FR 49229. But within that target population estimated for the 2005 proposed rule, the agency guessed that as few as *only 13 or 44 lives would be saved annually from stronger roofs*. *Id.* at 49242. As a result, the agency's unstated benefits estimate for a 2.5 SWR standard, given a smaller target population calculated for the SNPRM, would inevitably be even lower, in fact, lower almost to the vanishing point.

An agency benefits assessment of a stronger roof crush resistance standard must also be forged in light of the important study performed by the Insurance Institute for Highway Safety (IIHS). IIHS's analysis, contained in its publication, *Roof Strength and Injury Risk in Rollover Crashes* (March 2008) (IIHS Roof Strength Study), demonstrates that real-world benefits can accrue to many occupants who are not part of the agency's benefits target population because other crashworthiness system features operate to save lives in tandem with much stronger roofs. IIHS Roof Strength Study at 13.

IIHS found that increasing the SWR to about 3.16 would save 212 lives in single-vehicle rollovers. *Id.* at 11. This figure of 3.16 SWR is as far as IIHS's data analysis would permit it to judge benefits in lives saved. However, the IIHS submitted comments to the SNPRM docket stating that a standard at 3.5 SWR could save even more lives. Even at just 3.16 SWR, IIHS estimates that the number of lives saved would be almost double the number for a standard indexed to 2.5 SWR. Advocates firmly believes that benefits would further increase at some unknown but nevertheless exponential rate if the agency raised the static test requirement to at least 4.0 SWR along with adopting all of Advocates' other suggested revisions, including the need for a maximum intrusion limit and a minimum survival-headroom limit, that we have shown to be necessary.

It is also true that NHTSA acknowledges the limitations of its own benefits assessment. The agency has only 32 crash cases from which it has previously inferred benefits, as pointed out in the IIHS Roof Strength Study at 2. Such a small number of cases has several data shortcomings. The agency itself states that "the characteristics of this limited sample may not accurately represent the full benefits from the proposed roof crush resistance upgrade." 70 FR 49242. The agency is correct. It should place no confidence in its meager estimate of lives saved from stronger roofs cited in the 2005 NPRM or the updated target population figure used in the 2008 SNPRM.

- **NHTSA Makes No Determination of Cost Estimates in the SNPRM**

Finally, with regard to cost estimates for more protective vehicle roofs, there is no definitive analysis accompanying the SNPRM. The agency cites high cost figures provided by industry sources, including claims that a standard based on a SWR of 3.5 would cost an

additional $130 for a large SUV to comply with, could be even 50 percent higher (73 FR 5488), and might require an unbelievable additional 540 pounds of extra weight for an SUV that meets such a standard.

On the other hand, NHTSA also refers to a "tear-down" study conducted by Ohio State University that examined the Volvo XC-90 and the Ford Explorer SUVs. 73 FR 5489, *Improving Roof Crush Performance of a Sport Utility Vehicle*, Ohio State University (2007). The inexpensive but highly effective roof strengthening of the XC-90 was applied to upgrade a Ford Explorer to the roof crush resistance of the Volvo. It was determined that achieving equivalent roof strength "would increase material and tooling costs by $81 and weight by 15 kilograms (33 pounds)." *Id*. Another study conducted by the National Crash Analysis Center of The George Washington University, *Cost, Weight, and Lead Time Analysis Roof Crush Upgrade*, "found that strengthening the 2003 Ford Explorer to 3.0 SWR would raise the vehicle's price by $33 to $35 and increase its weight by 5 to 10 kilograms (10 to 23 pounds)." *Id.*

The SNPRM provides no insight, however, regarding the agency's view of these varying costs. Since there is no adequate cost analysis presented for public review and comment, it was impossible for the public to provide the agency with informed comments on the potential costs and benefits of the different options that the agency indicated it was considering. NHTSA cannot proceed to a final rule without first presenting the public with an in-depth benefit/cost analysis of the different regulatory alternatives it is considering and stating which alternative it is proposing and supporting that choice.

The SNPRM is Procedurally Inadequate

It is apparent that NHTSA has not laid the necessary foundation in the rulemaking record in order to issue a final rule. As already mentioned, even though NHTSA offers several new alternative SWRs as potential candidates for testing roof crush resistance, it provides no assessment of the costs and benefits of the potential alternatives that it states could be chosen for a final rule. The alternatives laid out in the SNPRM range from a choice of a 1-side test at 2.5 SWR up to a 2-sides test at 3.5 SWR. Lacking credible test results and benefits analyses for selecting one alternative over another, NHTSA simply asserts a "just trust us" rationale. The SNPRM states that "regardless of which alternative is adopted in the final rule, the agency will ensure that the final rule is cost beneficial * * *." 73 FR 5490.

This pronouncement is breathtaking in the context of agency rulemaking where publication of a benefit/cost analysis prior to adoption of a final rule is a baseline requirement of established rulemaking procedure. NHTSA must provide supporting documentation from test data and a benefits-cost analysis tailored to justify the regulatory alternatives it is considering. The agency must allow the public an opportunity to review and comment on its detailed regulatory analyses before it determines which option to adopt. NHTSA cannot proceed from the preliminary assessment of new, potential regulatory alternatives mentioned in the SNPRM without a full, detailed rulemaking proposal of those regulatory alternatives.

NHTSA's Flawed Approach to SAFETEA-LU

At the outset of this statement I mentioned the crucial topic of NHTSA's approach to the SAFETEA-LU passenger vehicle safety-related rulemakings. That approach is neither as forward-looking or comprehensive as Congress intended, nor is it justified under the circumstances.

For example, NHTSA's use of the 37-year-old static test for improving roof strength will inhibit the development of other safety regulations. Choosing an anachronistic, static test for roof crush resistance denies the agency the advantages of determining the value of improving other key safety design and performance features of passenger vehicles in rollovers. The isolated approach of simply applying a plate pushed against a front corner of a vehicle roof immediately undermines a systems engineering approach to rollover safety. It eliminates the possibility of the agency studying the effects of a dynamic roof strength test on other vehicle safety systems including door latches, locks, and hinges to resist failure leading to occupant ejection. Because it is a static, not a dynamic test, it also forgoes showing occupant kinematics and injury responses in actual rollovers. It dispenses with any possibility of determining restraint system effectiveness in achieving occupant containment and reducing occupant excursion within the vehicle cabin when rollovers occur. After all, these systems operate dynamically and not in isolation from each other. Rather, they work synergistically and nearly simultaneously to reduce injury to occupants by preventing excessive excursion or by providing forgiving surfaces to cushion occupant impacts with injury-inflicting vehicle interior features. NHTSA has instead chosen a roof crush resistance test approach that cannot provide any information in these areas and therefore impedes the development of other safety standards.

The SNPRM proposal continues the use of the static plate test stands in stark contrast to other major vehicle safety standards that have evolved from static or quasi-static to fully dynamic compliance tests, including different frontal crash tests and lower and upper interior side-impact crash tests. The need for full evaluation of rollover crashes under real-world test conditions was emphasized in comments filed by a group of international crash safety researchers, DVExperts International Pty. Ltd. (DVExperts). DVExperts stressed that "[e]ach of the other mandated crashworthiness standards rely on a systems approach to crashworthiness. A dynamic test [of roof strength] is necessary to evaluate the performance of the rollover protection system, which is made up of the restraints, airbags, glazing, and roof strength." DVExperts at 4.

This crucial point about the negative influence of a static test for roof strength on other crashworthiness standards should not be taken lightly. A bare-bones static test can directly impact the quality of allied rulemaking actions that NHTSA must undertake to fulfill Section 10301 of SAFETEA-LU, including the actions the agency must take to prevent partial and complete occupant ejection. Partially ejected occupants, as well as occupants who are unbelted but remain within the occupant compartment, would certainly benefit from a stronger roof strength rule that is based on a realistic dynamic test. It is likely that non-ejected, unbelted occupants, for example, could suffer fewer severe and fatal head, face, and neck injuries by preserving more rollover survival space which, in

turn, would reduce the chances of an occupant striking rigid roof structures such as headers, rails, and sunroof frames, as well hitting the roof proper apart from these framing structures.

It is clear that a static test for determining roof strength in rollovers has far-reaching consequences for other crashworthiness safety countermeasures that Congress has charged NHTSA with improving and ensuring a high level of effectiveness. This raises the question of what shortcomings will be built into an agency proposed rule on ejection prevention. If the agency chooses a test using a surrogate measure for showing whether different features of vehicle interiors can prevent partial or complete occupant ejection, this again will not be a test of how people actually are ejected in different kinds of crashes, especially in rollover crashes.

NHTSA's shortsighted approach to effective standards may have compromised the potential safety benefits of electronic stability control (ESC) systems technology adopted in a final rule in 2007. 72 FR 17236 (April 6, 2007). ESC systems help prevent vehicle departure from their intended paths, and ultimately help to reduce rollover crashes due to loss of vehicle control. While requiring ESC on all new vehicles after September 1, 2011, the agency did not require that the most effective ESC systems be installed. The performance standard issued by the agency did not require ESC systems to include automatic braking, traction control, a performance criterion for vehicle understeer, or roll stability control for SUVs. The agency rule not only set the performance requirements below the current state-of-the-art level for ESC technology, it requires less sophisticated ESC systems than some manufacturers are already installing in production models. That ensured that less advanced ESC systems would remain in the marketplace for years to come. While the mandatory installation of ESC systems in all vehicles will save many lives, the adoption of a stronger, more sophisticated performance standard by NHTSA would have made the rule even more effective.

Another example of NHTSA opting for halfway measures is the still pending rulemaking on improving side impact protection for occupants, 69 FR 27990 (May 17, 2004), a rulemaking that Congress in SAFETEA-LU required NHTSA to complete by July 1, 2008. Although NHTSA took the right approach in the 2004 proposed rule to ensure full side impact protection for front seat occupants by essentially requiring upper and lower air bags, the agency failed to require the same demanding test for rear seat occupants that would lead to a similar use of side impact air bags. Advocates' comments to the rulemaking docket point out in detail how the agency has shortchanged providing equal protection for rear seat occupants, and we emphasized that the agency's proposed rule does not protect children under the age of 12 regardless of their seating position.

Congress, in response to this unacceptable agency action to deny improved side impact protection to rear seat occupants, included language in SAFETEA-LU to correct this omission. The Senate specifically directed that the Secretary shall complete a rulemaking proceeding to establish a standard "designed to enhance passenger motor vehicle occupant protection, *in all seating positions*, in side impact crashes." (Emphasis supplied.) The proposed rule issued in 2004 will not adequately protect rear seat

occupants, especially with regard to head and neck injuries; does not protect children; and does not sufficiently address the special, additional injury-prevention needs of older occupants in side impact crashes. It remains to be seen if NHTSA heeds explicit legislative instruction on providing enhanced side impact occupant protection in all seating positions.

Conclusion

Advocates is compelled, in light of the problems with the pending rule, to recommend that NHTSA not issue a final rule upgrading Standard No. 216 by the statutory deadline of July 1, 2008. It is clear that the roof crush resistance supplementary proposed rule is incomplete, not properly documented, does not provide much greater safety for occupants, and is not ready to be issued as a final rule. Congress foresaw the possibility that the agency might require more time than allotted in SAFETEA-LU. As a result, Section 10301grants the Secretary unilateral authority to delay a rule under the rollover protection provision that the Secretary determined could not be issued on time. In this instance, the Secretary should make such a determination and set a new, later date for issuing a final rule. Although Advocates has fought for many years to get this standard substantially upgraded, we would rather have NHTSA get it right than issue a weak and ineffectual rule that will surely remain in place unchanged for decades to come.

Recently, the White House Chief of Staff, Joshua Bolton, issued a memorandum to the heads of all departments and agencies regarding the issuance of regulations in the final year of the administration. *Memorandum: Issuance of Agency Regulations at the End of the Administration* (May 9, 2008). He emphasized that regulatory agencies have a responsibility to continue to ensure that regulations issued during the final year are "in the best interests of the American people." Bolton Memorandum at 1.

Mr. Chairman, I can state without hesitation that it would not be in the best interests of the American people for NHTSA to issue the roof strength rule in its present guise. The Bolton Memorandum went on to state that agencies should provide an appropriately open and transparent process including "robust public comment, and a careful evaluation of and response to those comments." Bolton Memorandum at 2. The roof strength rule lacks the necessary test results and benefit/cost analysis that must be presented to the public before the agency can issue a final rule. This rule is too important, too many deaths have already occurred, and too many lives are at stake for the agency to rush to issue a defective, deficient and dangerous rule.

That concludes my testimony, and I would be pleased to answer any questions that you may have.