THE CASE FOR THE FEDERAL REAR VISIBILITY MOTOR VEHICLE SAFETY STANDARD:

REBUTTAL TO AUTO MANUFACTURERS' ARGUMENTS OPPOSING REARVIEW VIDEO CAMERA SYSTEMS

The U.S. Department of Transportation's (DOT) issuance of the rear visibility safety standard to protect pedestrians, including small children, from being killed or injured in back over crashes, has been delayed for two and a half years. In the fourth and most recent letter from the Secretary of Transportation, dated June 20, 2013, leaders of the House Energy and Commerce Committee and the Senate Commerce, Science and Transportation Committee were informed of yet another delay in issuing this lifesaving safety standard. DOT stated that the rearview visibility standard will not be issued before January, 2015, nearly four years past the Congressional deadline.

A major reason for the excessive delay is the opposition of the Alliance of Automobile Manufacturers (Alliance), consisting of the largest auto manufacturers in the world, including BMW Group, Chrysler Group, Ford Motor Company, General Motors Company, Jaguar Land Rover, Mazda, Mercedes-Benz USA, Mitsubishi Motors, Porsche, Toyota, Volkswagen Group of America and Volvo Cars North America.

Key arguments used by auto manufacturers are outlined in a presentation provided to the White House Office of Management and Budget, Office of Information and Regulatory Analysis, in 2011.[1] After receipt of this presentation during a personal meeting with the manufacturers, OMB would not approve issuance of the congressionally mandated rule by then-DOT Secretary of Transportation Ray LaHood.

The Alliance presentation argues that a rule requiring rearview back over video camera systems is not cost effective, that rearview video cameras (which are favored by consumers), are not effective at preventing back over crashes but that mirrors are effective in affording rearview visibility, and that cars (as opposed to sport utility vehicles or SUVs) don't need rearview video camera systems.

These claims are incorrect and were refuted by the National Highway Traffic Safety Administration's (NHTSA) cost-benefit analysis of the available technology. This document addresses and rebuts the key claims raised in the Alliance presentation that have been used to oppose adoption of the rear visibility rule.

Rearview Video Cameras Are Currently the Only Effective Solution to Back Over Crashes

- Extensive research has shown that rearview video camera systems are currently the only effective technology capable of reducing the occurrence of back over crashes with pedestrians located immediately behind motor vehicles, the area associated with the highest risk of back over crashes.
    - Rearview video systems provide the most comprehensive view to the rear of the vehicle of any available technology, and is the only technology to provide the driver a realistic view of who or what is in the blindzone immediately behind the vehicle.

[1] "Benefit Cost Analysis of NHTSA's Rearward Visibility Proposal" Power Point, Alliance meeting with Office of Information and Regulatory Affairs (OIRA), Office of Management and Budget (OMB), Dec. 16, 2011, available at http://www.whitehouse.gov/omb/2127_meeting_12162011.

- Drivers use rearview video systems far more effectively than other technologies (mirrors and sensors) in avoiding back over crash situations with pedestrians.[2]
- Drivers of camera equipped vehicles are enthusiastic supporters of this technology.

- Mirrors and sensors have shown very limited effectiveness and do not satisfy Congress's mandate for improving safety.[3]
  - Sensor systems have been proven inconsistent in their ability to detect pedestrians, particularly the most vulnerable population affected by back over crashes – children – and are ineffective at influencing driver behavior, that is, to get drivers to stop.[4]
  - Mirrors are also largely ineffective at preventing back over crashes. Regardless of the type used, whether convex or rear-cross view, mirrors do not significantly increase the driver's view to the rear of the vehicle and the blindzone immediately behind the vehicle. At best, mirrors provide a distorted image that limits their effectiveness.
    - For mirrors mounted at the back of vehicles, like look-down and cross-view mirrors, aspects of image quality worsen as the length of the vehicle increases, since for longer vehicles the mirror is further from the driver.[5]
    - Distortion in mirror images viewed by the driver delays reaction time as the driver requires additional time to properly perceive and interpret the distorted image.[6]
    - Side view mirrors completely fail to provide drivers with a view of the region immediately behind the vehicle.[7]
    - Adoption of the European mirror standard (ECE R46)[8] does not improve mirror effectiveness because the ECE standard only provides for a view from the side of the vehicle outward, but does not improve the driver field-of-view in the blindzone directly behind the vehicle.[9]

- "Overall, NHTSA's research showed that out of all technologies tested, rearview video systems were the most effective in aiding drivers to avoid backing crashes. …. [R]earview video systems examined were able to consistently display the rear obstacles to the drivers, as well as enable and induce drivers to avoid them."[10]

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[2] Federal Motor Vehicle Safety Standard, Rearview Mirrors; Federal Motor Vehicle Safety Standard, Low-Speed Vehicles Phase-In Reporting Requirements, Notice of Proposed Rulemaking, 75 FR 76186, 76196 (Dec. 7, 2010), available at http://www.gpo.gov/fdsys/pkg/FR-2010-12-07/pdf/2010-30353.pdf.
[3] *Id*. at 76189.
[4] *Id*.
[5] *Id*. at 76197.
[6] *See id*. at 76197 & 76239.
[7] *Id*. at 76239.
[8] ECE Regulation No. 46 Uniform Provisions Concerning the Approval of Devices for Indirect Vision and of Motor Vehicles with Regard to the Installation of these Devices. Available at: http://www.unece.org/fileadmin/DAM/trans/main/wp29/wp29regs/2013/R046r5e.pdf.
[9] 75 FR 76217.
[10] *Id*. at 76226.

Back Over Safety Countermeasures Should Not Be Limited to Specific Types of Vehicles

- The incidence of pedestrians, including young children, being backed over by light vehicles is not limited to any particular vehicle type. Testing has proven that drivers of all vehicle types, cars as well as light trucks and vans (LTVs), are unable to see the entire blindzone area behind the vehicle without the aid of an effective rear visibility countermeasure.[11]

- Research found that a majority of the victims in back over crashes were directly behind the vehicle and within a range of 20 feet from the rear bumper, an area that is not visible to the driver in almost any vehicles of all types.[12]

- There is no credible basis for distinguishing cars and LTVs for the purpose of requiring a rearview safety countermeasure. The injury rate in back over crashes for cars and LTVs is approximately proportional to their representation in the vehicle fleet.[13]
    - Although passenger cars are involved in a smaller number of fatal back over crashes than LTVs, cars are nevertheless involved in a significant portion of fatal back over crashes and account for more than half of the injuries from back over incidents.[14]
    - Research shows that while LTVs were statistically overrepresented in back over-related fatalities, LTVs are not significantly overrepresented in back over-related injuries or in back over crashes generally.[15]
    - The data show that passenger cars are just as likely to be involved in a back over incident as are other types of vehicles. The substantially similar numbers of back over crashes (including injuries and fatalities) among vehicle types undermines the assertion that the most effective back over crash safety countermeasure should be limited just to LTVs.[16]
    - Research has shown that some vehicles with small blindzone areas have fairly high backing and back over crash rates.[17]

- Research by Consumer Reports has shown that the average blindzone in cars and LTVs are comparable. "We have found the average midsized sedan has a blind [zone] of 13 feet for the average-height driver, and the average midsized SUV has an 18-foot blind spot."[18]

- Applying improved rear visibility requirements to just a portion of the fleet, *i.e.*, LTVs but not cars, would create a disparity in safety afforded the public based solely on the type of vehicle purchased. Requiring visibility improvements in only some vehicles but not others, even though both experience the same blindzone problem, would send a mixed message leading drivers of vehicles that are not equipped with improved rear visibility technology to believe that their vehicle does not have a blindzone problem. Such a result would defeat the intent of the law.[19]

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[11] *Id*. at 76214.
[12] *Id*. at 76217.
[13] *Id*. at 76214.
[14] *Id*.
[15] *Id*.
[16] *Id*. at 76215.
[17] *Id*. at 76217.
[18] http://www.consumerreports.org/cro/news/2010/04/danger-zone-how-big-is-your-vehicle-s-blind-spot/index.htm.
[19] 75 FR 76214.

Mirror Modifications Alone Are Inadequate In Preventing Back Over Crashes

- Additional or enhanced rearview mirrors inside the vehicle cannot provide a solution to the problem of back over crashes. Rearview mirrors mounted at or near the rear of vehicles provide only a relatively small coverage area and the image seen by the driver would be fairly small and distorted, making the viewed objects difficult to discern. Outside rear-mounted rearview mirrors suffer from these same problems, are susceptible to misalignment and damage and are not practicable or appropriate for many vehicles.[20]
    - Even when a driver has a view to the rear of the vehicle, the mirror image distortion causes critical delay in driver reaction time at the most important point in a backing maneuver. This type of delay does not occur using a non-distorted video camera display.

- Current standard equipment mirrors have been present in the back over incidents that have occurred to date, but have not prevented these incidents. Standard equipment rearview mirrors in current production vehicles typically show a much wider area than is required by the existing standard (FMVSS No. 111), but they do not provide a view of the blindzone immediately behind the vehicle. Current side view mirrors provide a fairly wide field of view to either side of a motor vehicle, but again, not in the rear blindzone.[21]

- NHTSA concluded that it could anticipate little or no net improvement in back over crash and injury rates if the European mirror standard (ECE R46) were adopted.[22] While the European mirror standard extends the view of side view mirrors outward, away from the vehicle on both sides, the European standard does not require a field of view that includes the area immediately behind the vehicle, where the risk for back over crashes is greatest.[23]
    - At the extreme lateral distances to each side of a vehicle, in the area in which an ECE-compliant convex mirror would display, but a standard U.S. side-view mirror would not, pedestrians are sufficiently far from a vehicle that a driver relying on the mirror would likely not perceive a risk that an individual would intersect the vehicle's path as the vehicle moved rearward.[24]

NHTSA's Analysis Did Not Accurately Reflect the Benefits of Back Over Crash Prevention

- The NHTSA Preliminary Regulatory Impact Analysis (PRIA) used an outdated Value of a Statistical Life for estimating the cost per equivalent life saved.
    - In February, 2013 the NHTSA updated its estimate of the Value of a Statistical Life (VSL) of $9.1 million.[25] This is nearly 50 percent greater than the VSL of $6.1 million which the agency used in the PRIA (and which the Alliance relied on as well).

[20] *Id*. at 76239.
[21] *Id*. at 76217.
[22] *Id*. at 76218.
[23] *Id*. at 76217.
[24] *Id*.
[25] Guidance on Treatment of the Economic Value of a Statistical Life in U.S. DOT Analyses, Memorandum to Secretarial Officers and Modal Administrators, Undersecretary of Policy, DOT (Feb. 28, 2013).

- The agency in its latest update of VSL, recommends that the agency consider low and high estimate of VSL of $5.2 million and $12.9 million. By contrast, the entire range of values from $3.5 to $8.7 million used in the PRIA (and relied on by the Alliance), is entirely below the midpoint value of $9.1 million for the range currently used by the agency for cost-benefit analysis.

- The NHTSA cost analysis in the NPRM estimated the unit costs for video camera systems at between $159 to $203 per vehicle.[26] The agency analysis, however, grossly underestimated per unit cost reductions that would result from the issuance of a final rule.[27]
  - Significant cost reductions would be expected from mass production of rearview video systems due to economies of scale.[28]
  - In the absence of an agency issued final rule requiring rearview video technology be installed as standard equipment, auto manufacturers offer the same technology as part of optional equipment packages that far exceed the cost range cited in the NPRM.[29]

- Video Back Over Prevention Systems are Cost-Effective Compared to Other Technology.
  - The comparative cost per equivalent life saved for rearview video systems is far less than either ultrasonic or radar sensor systems.[30]
  - The NHTSA rated the effectiveness of cross-view or look-down mirrors at 0 percent because during testing drivers did not use these mirrors to avoid striking obstacles.[31]
  - Money spent on improving vehicle rear and side view mirrors to address back over is wasted because research shows mirrors alone are ineffective at preventing back overs.[32]

- NHTSA has a duty to take into account relevant factors that are not readily quantifiable.
  - "100 of the 228 (44%) annual victims of back over crashes are under 5 years of age with nearly their entire lives ahead of them; 80 of the 100 children are under 3 years of age."[33]
  - Executive Order 12866 refers explicitly to considerations of equity. (''(I)n choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including * * * equity), and there are strong reasons, grounded in

[26] 75 FR 76189.
[27] Preliminary Regulatory Impact Analysis (PRIA), Backover Crash Avoidance Technologies NPRM FMVSS No. 111, pp. IX-7, Office of Regulatory Analysis and Evaluation , NHTSA (Nov., 2010) (Agency analysis limits cost reductions to no more than 5 percent below estimated cost) ("the cost generally will fall within 10 percent of the point estimate shown in the cost chapter. Any cost within this range would have equal chance to be the true cost. Thus, the analysis treats the cost as uniformly distributed.").
[28] "The Economies of Scale and Scope," The Economist (Oct. 20, 2008), available at http://www.economist.com/node/12446567.
[29] For example, a rear back over camera system on a 2013 Toyota Camry XLE 4-door sedan is bundled as part of a "convenience package" with non-safety items (including push button starting system, smart key system w/panic wireless door locks, auto-dimming rearview mirror w/compass, alarm & immobilizer anti-theft system, HomeLink universal transceiver and overhead console), that is sold to consumers for $1,195 (manufacturer's suggested retail price), available at http://autos.aol.com/cars-Toyota-Camry-2013-XLE__4dr_Sedan/options/.
[30] PRIA, page VII-8, Table VII-5a.
[31] 75 FR 76236, Table 12.
[32] *Id.*
[33] 75 FR 76238.

those considerations, to prevent the deaths at issue here. In addition, this regulation will, in many cases, reduce a qualitatively distinct risk, which is that of directly causing the death or injury of one's own child.[34]

- NHTSA acknowledges that the strict benefit-cost analysis does not account for the need to quantify the premium the public places on preventing the injury or death of a child.[35]
- For the purpose of economic analysis, work cited by NHTSA indicates that society places a premium on the life of a child. When the VSL was $6.1 million, the agency put the value of a child's life at between $12 and $15 million dollars, far greater than the prevailing VSL at that time.[36] Since the VSL was increased to $9.1 million. That means that the current value of a child's life should also be proportionally increased.
- "Although NHTSA attempts, within its capabilities, to quantify the benefits of its actions, it still has a duty to regulate when such regulation would meet the need for motor vehicle safety, even in areas with inherent uncertainty. Therefore, especially for the crash avoidance standards, decision-making necessarily rests in part on policy judgment."[37]

- "Given the very young age of most of the children fatally-injured in back over crashes, attempting to provide them with training relevant to the particular circumstances of those crashes or with an audible warning would not enable them to identify or take steps to protect themselves, given their impulsiveness, their lack of understanding of the abstract concept of risk/danger/safety, and their lack of situational awareness, judgment and physical ability (*e.g.*, dexterity) to take timely and effective self-protective action."[38]

Conclusion

The Secretary of Transportation and the White House Office of Management and Budget should reverse the decision to delay issuance of the rearward visibility final rule. Currently, there is no motor vehicle safety standard to address and prevent the hundreds of fatalities and thousands of injuries that occur annually in back over crashes. Congress authorized the issuance of a rearview visibility standard in the Cameron Gulbransen Transportation Safety Act. Moreover, NHTSA has a duty to protect vulnerable populations, such as young children and older adults, who are highly overrepresented in back over crashes. Continued delay will result in additional unnecessary and unacceptable deaths and injuries.

During its rulemaking proceeding, NHTSA determined that a rearview visibility performance standard is feasible, reasonable and meets the need for motor vehicle safety. The agency concluded that rearview video camera systems are the best available technology to provide rearview safety protection. Many manufacturers have reached the same conclusion and are already installing video camera systems in current production models in a cost-effective manner, because they are very popular with consumers. For these reason, industry objections to the final rule are without merit.

[34] *Id*.
[35] *Id*. at 76238-239.
[36] *Id*. at 76189, footnote 6.
[37] 63 FR 37820, 37826 (July 14, 1998).
[38] 75 FR 76239.