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Docket Management Facility  
U.S. Department of Transportation  
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Washington, DC 20590

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**RE: New Car Assessment Program (NCAP) Next Steps No. NHTSA–2018–0055**

The Center for Auto Safety (Center) appreciates the opportunity to comment on the future of the New Car Assessment Program (NCAP). The Center, founded in 1970, is a non-profit consumer advocacy organization dedicated to improving vehicle safety, quality, and fuel economy. For forty years NCAP has been an integral part of the National Highway Traffic Safety Administration's (NHTSA) safety program by providing consumers with crashworthiness information to inform vehicle purchases. At the same time, NCAP has incentivized vehicle manufacturers to improve occupant protection thereby saving thousands, if not tens of thousands, of lives.

The vital role NCAP plays in mitigating and preventing auto fatalities and severe injuries is why the Center is concerned that NHTSA's current request for comments suggest a shift in how the agency envisions the purpose of NCAP. Surely NHTSA would never intentionally threaten the ability of NCAP to effectively evaluate new safety technologies and continue to provide consumers with valuable comparative information when making vehicle decisions. However, the request for comment suggests a misunderstanding of the foundation of NCAP's historic success and seems all too familiar based on a recent track record of this administration and agency bending over backwards to assist industry instead of focusing on consumer safety and needs.

NCAP's ability to help make cars sold in the United States safer has not been achieved by rigid processes akin to those required in the formation of Federal Motor Vehicle Safety Standards. Rather, the success of NCAP has been dependent on the program's flexibility in adapting to improved vehicle crashworthiness, and an ability to highlight gaps in safety across manufacturers and models. This history is what makes NHTSA's current request for comments so potentially damaging. If taken at face value, one might conclude this request is an attempt to radically change the way NCAP has traditionally functioned and convert the program into a formal notice and comment-type rulemaking process. This would be ill-advised because it would dismantle the built-in

flexibility of NCAP in an era where crash avoidance and crashworthiness technology need more oversight and explanation than ever. Moreover, the proposed process would enable manufacturers to self-certify and submit non-independent data, preventing the program from achieving the level of discrimination that a truly useful ratings system provides.

Already, recent years' NCAP star ratings suggest that the program is failing to sufficiently distinguish between models, resulting in overall frontal and side impact ratings of 4- or 5-stars for over 98% of all vehicles tested.<sup>1</sup> This stagnation in ratings provide incredibly little comparative information for consumers in purchasing vehicles, and no incentive for manufacturers to improve crashworthiness and safety technology. NHTSA should be using this request for comment to seek to enhance the program's influence on driving the market towards providing more safety options for consumers. Over 37,000 Americans die every year in auto crashes and an additional 2 million are seriously injured. Incentivizing safety advancements is a foundational element of NHTSA's mission and NCAP has long been one of the most successful tools available to the agency in effectuating safety improvements by the private sector. Yet, a fair conclusion based on the request for comments, and recent agency actions, would be that NHTSA is comfortable allowing NCAP to become nothing more than a rubber stamp for automaker advertising efforts.

## **I. Current Request for Comments**

The current request for comments suggests drastic changes in the way NCAP will work in the future, while the agency fails to justify how or why any of these changes would improve the program.

The request suggests the agency is considering moving towards a more formal NCAP upgrade process similar to notice and comment rulemakings conducted under the Administrative Procedure Act (APA). This suggestion is highly problematic for many reasons, not the least of which is the fact that major NCAP changes have never been subject to the APA or similar formal structure. This has allowed the program the necessary flexibility to adapt to new crashworthiness technologies in a timely manner and without placing additional burdens of rulemaking on NHTSA. NHTSA is currently late on at least a dozen congressionally mandated rulemakings, not to mention other agency-initiated rules that are in limbo. There is no evidence that this delay will be resolved any time soon. Placing NCAP in such a structure effectively ensures that programmatic changes will lag far behind schedule in evaluating new safety technology and deprive consumers of meaningful safety information.

Additionally, the request for comments purposefully obscures NCAP's role as a force in incentivizing automakers to invest and improve on safety technology and treats the program merely as a consumer information system. Even from its infancy, NCAP

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<sup>1</sup> See NCAP Combined Crashworthiness Rating Calculator, September 19, 2018. <https://www.regulations.gov/document?D=NHTSA-2017-0037-0037>

was viewed by the agency as a system with dual benefits for consumers.<sup>2</sup> In addition to providing ratings information for potential vehicle purchasers, the program was always intended to force manufacturers into a competitive ratings system that would result in increased safety investments in order to achieve high marks.

Furthermore, the request for comments suggests that the agency is considering allowing automakers to self-certify certain tests. This idea threatens one of the pillars of the NCAP program that it is an independent assessor of safety and occupant protection technology. NCAP tests have long been conducted by the federal government independent of automaker influence. This independence is why the program still relies on blind car purchases to prevent manufacturers from gaming the system. NCAP test results are fully available to the public for review, while self-certifications are not. Further, such self-certifications would undoubtedly be deemed protected by the agency's confidential business information regulations. NCAP must continue to function independently of the whims of manufacturers whose main concerns are maintaining perfect ratings, and share prices, rather than investing in safety.

Finally, the request for comments is practically devoid of any technical specificity regarding proposed changes to the NCAP program. Commenters are provided little detail on the current state of the program and no specifics on the agency's plans for the future. The request for comments is little more than a series of questions presented with no underlying data or justification for proposed modifications to NCAP. The first page of the current request notes that one of the primary criticisms of the agency's 71-page 2015 NCAP request for comments was that it wasn't supported by sufficient technical information.<sup>3</sup> Without even a hint of irony, NHTSA has followed up on this outcry for more technical details by issuing a six-page request for comments with no supporting information provided.

## **II. Major NCAP Update Areas**

Unfortunately, current NCAP ratings do not give an accurate representation of all safety-related pedestrian safety, crash avoidance, and crashworthiness design and technology. As compared to newer ratings systems, such as Euro NCAP, for example, NCAP fails to discriminate between adult and child crashworthiness results with distinct rating categories, nor does it segregate assessment other safety technologies.<sup>4</sup> Manufacturers who invest in enhanced safety features, whether for the US market or to enhance their global competitiveness, should receive NCAP credit for their additional investments in safety technology - but do not - because NCAP is no longer the global leader in auto safety ratings.

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<sup>2</sup> See 46 FR 7025, January 22, 1981. "In addition to aiding consumers in making better informed purchasing decisions, the ratings program should foster competition among automobile manufacturers in the design of safer products. NHTSA sees the use of marketplace forces as a means by which design flexibility can be enhanced and costs minimized, while improving vehicle safety performance. Thus, the agency expects the automotive ratings program to be a valuable supplement to the vehicle safety standards."

<sup>3</sup> See <https://www.federalregister.gov/documents/2018/08/03/2018-16653/new-car-assessment-program#p-14>.

<sup>4</sup> Euro NCAP Protocols, <https://www.euroncap.com/en/for-engineers/protocols/>

If NCAP ratings allowed consumers to identify and evaluate vehicles with enhanced front passenger, back seat passenger, child, senior citizen, side impact, crash avoidance, and pedestrian crash safety, as well as post-crash safety (such as flammable fluid containment and automatic notification of emergency personnel) it would give appropriate credit and incentivize manufacturers to continuously improve crashworthiness and crash avoidance technologies to address the full scope of automotive hazards. NCAP, which once set the standard for safety ratings, could do so again within the current NCAP star rating system, either by recalibrating the system to enhance resolution among tested vehicles, through use of color in the rating system, or by adding another star.

Today all manufacturers receive essentially the same NCAP rating, despite the demonstrable comparative safety enhancements of some, giving little incentive to manufacturers to improve crashworthiness safety technologies. By neglecting to update NCAP, NHTSA is not using this vital tool to improve vehicle safety performance.

The Center’s specific NCAP enhancement technology evaluation suggestions follow.

### **Anthropometric Test Device upgrades**

NHTSA should standardize test procedures and the biomedical design of advanced Anthropometric Test Devices (ATDs) (e.g., THOR and World-SID ATDs), and approve their use in NCAP, in order to enhance the ability of researchers and analysts to interpret test results from one test condition into equivalent results at other conditions. Extensive research has shown much greater susceptibility to chest injuries in lower speed front crashes by older Americans and 5% young female passengers than the standard 50% male.<sup>5</sup> Data collected from appropriately standardized ATDs collected at higher speeds as per current standards would provide a means of interpreting those higher speed crash results for the more susceptible elderly and female cohorts without the need for additional tests.

Analysis of test data has also shown sensitivity to placement of restraints, especially shoulder belts. ATD upgrades should also include standardization of seat belt placement to complement ATD sensor location(s), to assure collection of the most meaningful data for both acceleration and chest compression.

### **Rear Seat Passengers**

Without changes to NCAP ratings, manufacturers have no incentive to improve rear seat safety. It would be tragic if overall passenger safety is degraded by design changes reflected in high NCAP ratings based solely on front seat test results. As front

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<sup>5</sup> *Age Appropriate Restraints For The Right Front Passenger*, Augenstein, Perdeck, Digges, Bahouth. 51st Annual Proceedings Association For The Advancement Of Automotive Medicine, October 15 – October 17, 2007.

seat safety has improved in response to NCAP tests and resultant car design evolution, the once accurate appraisal of rear seat passengers as being safer is no longer necessarily accurate. The risk of AIS2+ head injuries for belted rear occupants and AIS2+ thorax injuries for unbelted rear occupants has significantly increased in newer model vehicles.<sup>6</sup> It is imperative that NCAP acknowledge the significant and increasing susceptibility of rear seat passengers to crash injury risk, particularly since this risk appears to be related to design changes that have enhanced front seat safety.

NCAP crash tests should include rear seat occupant ATDs of 5% female and 50% male, as well as infants and other ATDs as they become available, to validate vehicle safety, with the purpose of making the rear seat as safe as the front.

### **Older Americans (Silver NCAP)**

Numerous studies have shown that older drivers and passengers are more susceptible to chest injuries in crashes than younger adult populations,<sup>7,8</sup> yet NCAP frontal impact tests treat all passengers as one of two body types, a 50<sup>th</sup> percentile male or a 5<sup>th</sup> percentile female.<sup>9</sup> Americans over 65, functioning as both drivers and passengers, are a significant and growing proportion of the population. Technologies that improve the survivability of this population also improve the survival of women and juveniles. Manufacturers are contemplating and including technologies in vehicles that enhance elderly survival such as, e.g., adaptive air bags,<sup>10</sup> limited force restraint systems that anticipate crash severity and automatically adjust belt restraint tension to minimize injury,<sup>11</sup> and inflatable seat belts.<sup>12</sup>

Yet, without NCAP recognition of these lifesaving technologies, manufacturers have little incentive to accelerate their adoption. NCAP should include evaluation and rating of safety technologies adapted for the survival of the elderly and other vulnerable populations so that manufacturers receive credit for their investments in their life saving innovations and every demographic enjoys the benefits of safer cars. We suggest using a silver star to indicate a given vehicle possess such technology.

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<sup>6</sup> *Trend of Rear Occupant Protection in Frontal Crashes over Model Years of Vehicles*, Esfahani, Digges, SAE Technical Paper 2009-01-0377, 2009, <https://doi.org/10.4271/2009-01-0377>, <https://www.sae.org/publications/technical-papers/content/2009-01-0377/>

<sup>7</sup> Op cit., *Age Appropriate Restraints For The Right Front Passenger*, Augenstein, Perdeck, Digges, Bahouth.

<sup>8</sup> *Investigation Of The Performance Of Safety Systems For Protection Of The Elderly*, J. Augenstein<sup>1</sup>, K Digges, G. Bahouth, D. Dalmotas, E. Perdeck, J. Stratton, Annu. Proc. Assoc. Adv. Automot. Med. 2005;49:361-9

<sup>9</sup> 49 CFR Part 572, Subpart B

<sup>10</sup> <http://online.wsj.com/public/resources/documents/Eyesontheroad02132005.pdf>

<sup>11</sup> Advanced Restraint Systems (ARS) Final Report, DOT HS 811 794A, <https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/811794a.pdf>

<sup>12</sup> *The Ford inflatable seat belt: How it affects car seats and children*, Consumer Reports News: March 01, 2011. <https://www.consumerreports.org/cro/news/2011/03/the-ford-inflatable-seat-belt-how-it-affects-car-seats-and-children/index.htm>

## **Crash Avoidance Technology**

When NCAP was initiated there were no crash avoidance technologies, as they are currently understood, available to manufacturers or consumers. Now there are many crash avoidance features including computer-controlled disc brakes, antilock braking systems, lane change warning, blind spot detection and warning, rear cross-traffic alert, pre-collision braking, rear vision cameras, reverse automatic braking, V2X, and electronic stability control. Some of these safety features are mandatory, others optional, and some are still under development. All may contribute to crash avoidance.

Despite the incredible lifesaving promise of these technologies, when they work, the effects of these technologies are not evaluated and included in NCAP assessments, which calls into question the utility of the current version of NCAP to assess new vehicles' safety. To accelerate incorporation of these life-saving technologies into cars, to stimulate competition and incentivize continuous safety improvement, the NCAP program could, and should, evaluate the efficacy of these important systems and provide buyers with assessments of crash avoidance features, both in absolute terms and relative to other vehicles. Assessment results could be provided to consumers by simply adding color to the NCAP star system, e.g., a blue star for best results, a green star for significant safety enhancement, and a black star for marginal crash avoidance enhancement.

## **Far-Side Impact**

Far-side impact is a significant source of injury and death to American motorists.<sup>13</sup> Related injuries and deaths are usually associated with the occupant sliding out from under the shoulder belt, causing a wide range of injuries, with head injuries being predominant. Countermeasures that would minimize or eliminate such injuries have been identified.<sup>14</sup> Accelerating adoption of these countermeasures, especially inflatable curtains, would save many lives in far-side impacts and also reduce injuries in rollovers. One of the purposes of NCAP is to motivate investment in life saving technologies, such as inflatable curtains.

Extending NCAP assessments to include far-side impacts would likely motivate additional investment in these technologies. Some manufacturers are already including inflatable curtains in their automobiles, and they should receive NCAP credit for their investment and the added safety this addition provides to consumers. The public should also be made aware, through NCAP ratings, of the differential in safety between vehicles that include this life-saving technology, and those that have chosen not to provide this safety feature.

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<sup>13</sup> *Characteristics Of The Injury Environment In Far-Side Crashes*, K. Digges<sup>1</sup>, H Gabler<sup>2</sup>, P. Mohan<sup>1</sup>, B. Alonso, [Annu Proc Assoc Adv Automot Med](#). 2005; 49: 185–197.

<sup>14</sup> *Injury Reduction Opportunities of Far side Impact Countermeasures*, Ola Bostrom<sup>1</sup>, Hampton C. Gabler<sup>2</sup> Kennerly Digges<sup>3</sup>, Brian Fildes<sup>4</sup>, Cecilia Sunnevang, [Ann Adv Automot Med](#). 2008; 52: 289–300.

## **Post-Crash NCAP**

NCAP should be expanded to include important post-crash characteristics of automobiles which effect occupant survivability, including ease of vehicle egress, flammable material concerns, and the performance of automatic crash notification (ACN) systems. NCAP ratings can be a powerful motivator for manufacturers to promote post-crash safety.

The ability of occupants to open doors and safely egress from the post-crash vehicle should be evaluated and included in NCAP ratings. The ability to safely egress a damaged vehicle is fundamental to post-crash survival, and consumers should know if the vehicle they are considering is a death trap.

Second, NCAP should assess the propensity of vehicles to burn after a crash. There are many flammable components in modern cars, including fuel, engine compartment fluids (e.g., power steering fluid and transmission fluids) that can be released in a crash, and numerous ignition sources including environmental items, dynamic metal objects, catalytic convertors, and electrical sparks that can easily ignite these fluids, starting a conflagration that can end in the death of injured or trapped vehicle occupants. Electric car batteries are also known to spontaneously ignite after collisions, sometimes quickly and sometimes hours or days after the crash.

All of these potential fires are dangerous to the vehicle’s occupants, surrounded as they are by flammable fluids, plastics, and unexpended gas generator propellants, and to first responders. NCAP should provide test data to potential consumers ranking the post-crash fire hazard assessments of new cars as part of the crash test results.

Finally, NCAP should evaluate the performance of ACN systems. NHTSA has yet to set performance specifications for ACN technology, nor is it required in vehicles. As a result, installation and performance of ACN varies widely across manufacturers. The ability to provide first responders and trauma centers with crash data immediately after an event occurs can be critical to proper response and treatment of crash victims.

## **Pedestrian Safety NCAP**

According to the CDC, “in 2015, 5,376 pedestrians were killed in traffic crashes in the United States. This averages to one crash-related pedestrian death every 1.6 hours. Additionally, almost 129,000 pedestrians were treated in emergency departments for non-fatal crash-related injuries in 2015. Pedestrians are 1.5 times more likely than passenger vehicle occupants to be killed in a car crash on each trip.”<sup>15</sup>

In other words, in 2015 pedestrian deaths accounted for more than 16% of people killed<sup>16</sup> in police-reported motor vehicle traffic crashes. The figures only increased, as almost 6,000 pedestrians were killed in 2016. The death/injury rate for a pedestrian

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<sup>15</sup> Pedestrian Safety, CDC, [https://www.cdc.gov/motorvehiclesafety/pedestrian\\_safety/index.html](https://www.cdc.gov/motorvehiclesafety/pedestrian_safety/index.html)

<sup>16</sup> Traffic Safety Facts, NHTSA, 2015, <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812375.pdf>

involved in accident is 5.7 times the rate for a motor vehicle occupant. Clearly, no assessment of vehicular safety should be considered complete without an assessment of vehicular design impact on pedestrian safety, yet NCAP has none. There is an urgent need to reduce the incidence of pedestrian involved crashes and reduce the appalling death rate and NCAP can be part of the solution. Euro NCAP has recognized this need and now includes in its vehicle ratings both collision avoidance features and automobile design features that protect pedestrians and minimize death and injury in an accident,<sup>17</sup> incentivizing car designers to incorporate pedestrian safety design features into their offerings.

Updates to NCAP's ratings should also include assessment of design features and component capabilities that detect and protect pedestrians. This need is particularly urgent with the emergence of automated driver assistance and automated driving systems, which have unfortunately already caused the death of a pedestrian.<sup>18</sup> The potential use of advanced sensors such as RADAR, LIDAR, infrared detectors, and advanced lighting systems to enhance pedestrian safety has tremendous potential for improving pedestrian collision avoidance.

The National Transportation Safety Board (NTSB) recently issued eight safety recommendations to NHTSA addressing the need include performance-based standards for vehicle headlight systems, development of performance test criteria for vehicle designs that reduce pedestrian injuries, and incorporation of pedestrian safety systems including pedestrian collision avoidance systems and other more passive safety systems into NCAP.<sup>19</sup> The Center supports the NTSB recommendations, and urges NHTSA to incorporate a focus on pedestrian safety into the NCAP rating system, incentivizing companies offering cars for sale in the US market to address the horrendous pedestrian death rate from crashes and protect the American public.

## **Conclusion**

NCAP has long been one of NHTSA's most successful programs in providing vehicle owners with critical safety information while incentivizing manufacturers to invest in safer vehicles resulting in safer roads for drivers, passengers, and pedestrians. Unfortunately, the current request for comments suggests that the agency is considering rolling back this safety success story. Forcing NCAP to go through procedures that resemble formal rulemaking would cripple the program at a time when consumers need it to respond quickly in evaluating ever changing safety technology. Allowing automakers a greater say in testing threatens almost 40 years of programmatic independence that has saved thousands of lives. There are numerous areas in which America's NCAP now lags far behind programs in Europe and other countries that once modelled themselves on the US system.

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<sup>17</sup>Vulnerable Road User (VRU) Protection, <https://www.euroncap.com/en/vehicle-safety/the-ratings-explained/vulnerable-road-user-vru-protection/>

<sup>18</sup> How a Self-Driving Uber Killed a Pedestrian in Arizona, <https://www.nytimes.com/interactive/2018/03/20/us/self-driving-uber-pedestrian-killed.html>

<sup>19</sup> NTSB Public Meeting of September 25, 2018, Highway Special Investigation Report Pedestrian Safety NTSB/SIR-18/03, <https://www.nts.gov/news/events/Documents/2018-DCA15SS005-BMG-abstract.pdf>



As long as manufacturers continue to receive 4 and 5 stars for virtually every vehicle they produce, they have zero incentive to invest in safety, as well as zero incentive to support changes to the NCAP program. Modifications to the program that would provide greater discrimination between vehicle models are desperately needed to ensure that NCAP remains both an instructive consumer information program as well as a competitive ratings system that incentivizes safety improvements.

The Center for Auto Safety calls on NHTSA to move quickly to update NCAP in a way that provides the American consumer with transparent, comparative safety rating information which will properly incentivize new American vehicles into becoming the safest in the world.

Sincerely,

A handwritten signature in black ink, appearing to read "Jason Levine". The signature is written in a cursive style with a large, sweeping initial "J".

Jason Levine  
Executive Director