The Center for Auto Safety
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June 29, 2020

Office of the Administrator
c/o James C. Owens, Deputy Administrator

National Highway Traffic Safety Administration
Docket Management Facility
U.S. Department of Transportation
1200 New Jersey Avenue SE
West Building, Ground Floor, Room W12-140
Washington, DC 20590-0001

Submitted electronically via www.regulations.gov

RE: Notice and Request for Public Comment, Government 5-Star Safety Ratings, Docket No. NHTSA–2020–0006

Dear Deputy Administrator Owens,

The Center for Auto Safety ("the Center") appreciates the opportunity to provide comments in response to the request for public comment on the proposed collection of information regarding Government 5-Star Safety Ratings Label Consumer Research. The Center, founded in 1970, is an independent, member-supported, non-profit consumer advocacy organization dedicated to improving vehicle safety, quality, and fuel economy, on behalf of all drivers, passengers, and pedestrians. In 2020, we are celebrating 50 years of advocacy for consumer automotive safety and informed choice.

At this time, it is a misuse of limited government resources to conduct a consumer survey on the 5-star safety ratings label when there are more immediate concerns with overall improvements to the New Car Assessment Program (NCAP) and vehicle safety ratings. It is premature for NHTSA to design new safety labels when they have not properly defined the testing regime for which the labels will be providing information. As you are aware, the NCAP program has not been updated since 2010, since which time over 150 million new vehicles have been sold.[1]

[1] See US Auto Industry Sales Analysis. https://www.goodcarbadcar.net/usa-auto-industry-total-sales-figures/

The Center suggests NHTSA focus first on updated testing, specifically adapting improved vehicle crashworthiness ratings; addressing gaps in occupant and pedestrian safety across different vehicle manufacturers and models; redefining injury criteria to account for all body types, ages, seating positions, and available passenger-protection technology; defining the scope of how to test or rate ADAS features; and implementing a system for comparing all of these features.

It would be both puzzling and troubling if NHTSA were proposing to use public opinion rather than qualified technical expertise to restructure the scope of NCAP. NCAP is fundamentally an experimental engineering study of the response of complex structural designs, passive restraints, automated protective sensors and data processing, and pyrotechnic devices. NCAP compares the forensic results of carefully staged crashes to provide reliable comparative safety data to consumers. It would be bad policy if the proposed survey were to inexcusably replace the needed technical insights potentially available from NCAP results with a popularity contest that results in lasting damage to NCAP and its utility to consumers.

Already, recent years' NCAP star ratings demonstrate the program is failing to sufficiently distinguish between models, resulting in overall side impact ratings of 5 stars for over 98% of all vehicles tested as recently as 2018.[2] There is no better data point to indicate the program needs updating than 98% of the vehicles being rated as 5 stars. In overall frontal impact ratings, over 86% of tested vehicles received ratings of 4 or 5 stars.[3] This stagnation in ratings provides too 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 drive the market towards providing more and better safety options for consumers. Over 36,000 Americans die every year in auto crashes and additional millions are seriously injured.[4] Incentivizing safety advancements is fundamental to 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, the delay in safety updates to NCAP and the request for a consumer survey suggests the NHTSA is not prioritizing this critical function of its consumer information program, only making it appear as though the agency takes seriously this urgent need.

MAJOR NCAP UPDATE AREAS

Present NCAP ratings do not provide an accurate representation of all desired safety concerns. NCAP is no longer the global leader it once was with vehicle safety ratings. Newer ratings

[2] See 2019 NCAP Combined Crashworthiness Rating Calculator, September 11, 2019. https://beta.regulations.gov/document/NHTSA-2018-0081-0038

[3] Id.

[4] Early Estimates of 2019 Motor Vehicle Traffic Data Show Reduced Fatalities for Third Consecutive Year, May 5, 2020. https://www.nhtsa.gov/press-releases/early-estimates-traffic-fatalities-2019

systems, such as Euro NCAP, have made recent important modifications such as distinguishing between adult and child crashworthiness results with separate ratings categories. Euro NCAP also rates vehicles for vulnerable road user protection, automatic safety assist technology, and provides for separate assessment of other safety technologies.[5]

It would surely be appropriate to revise the NCAP safety ratings with all of this relevant input, and then implement public surveys to receive consumer feedback on how these critical updates can be best represented in the Moroney label design. But label redesign without the input of NHTSA's technical community – which is surely aware of available safety technology, engineering options, and international test standards – would inevitably put the cart before the horse, forcing NCAP tests to conform to the label design, rather than having the label design illustrate the results of better test scope and protocols. A survey cohort that is not equally informed cannot possibly evaluate priorities for updating NCAP, nor label design to illustrate those test results.

The Center's suggestions for NCAP enhancements follow.

Improved Vehicle Crashworthiness Ratings

NHTSA should supplement the crash test ratings with an awards program that recognizes "vehicles that stand out based on having recommended advanced safety technology features."[6] Adding a government award or (special) designation would further support informed consumer choice and confidence.

Overall, NHTSA should provide separate ratings and recommendations for crashworthiness and crash avoidance, specifically in relation to driver assistance technology. The current methodology of combining these ratings obscures important data for consumers, particularly because of growing interest in safety technology. Separate ratings provide more details that consumers are interested in. Furthermore, consumers want window stickers which also include data on advanced safety technologies, in addition to safety ratings.[7]

NHTSA should restructure NCAP label illustrations so that expected safety performance is visibly rated as just that (e.g., with three stars of five, less than expected performance is evidenced with fewer stars, and exceptional performance rewarded with additional stars). NCAP must once again provide consumers with reliable comparisons of vehicle crash safety, no longer rewarding mediocrity by obscuring subpar performance and penalizing manufacturers who excel.

[5] See Euro NCAP Protocols, https://www.euroncap.com/en/for-engineers/protocols/

[6] Summary of NCAP 5-Star Safety Ratings Quantitative Research, Team Stratacomm, May 5, 2020.

[7] Id.

Addressing Gaps in Occupant and Pedestrian Safety Across Different Vehicle Manufacturers and Models

General recommendations and broad information are not nearly as helpful to consumers as safety information for specific vehicles. This goes along with consumer desire to learn about advanced safety technology, especially for newer vehicles. In addition to receiving more stars for safety ratings, manufacturers and models that uniquely and or distinctively promote better safety features should be specially recognized by NHTSA, and this acknowledgement should be communicated to consumers.

Two immediate ways NHTSA can assist consumers with this knowledge: 1) Promote NHTSA's website and materials to further promote resources that consumers can easily access for specific information, 2) Direct consumers to resources (particularly online) that explain driver assistance technology and recommended safety features on certain vehicles.

In 2017, "5,977 pedestrians were killed in traffic crashes in the United States." Additionally, about 137,000 pedestrians were injured from crash-related injuries. Pedestrians are "1.5 times more likely than passenger vehicle occupants to be killed in a car crash."[8]

NCAP still lacks an assessment of how vehicle design affects pedestrian safety. This assessment is urgent considering developments in automated driving and driver assistance systems, which have unfortunately already caused harm to pedestrians. Euro NCAP has identified 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, incentivizing car designers to incorporate pedestrian safety design features.

NHTSA should include pedestrian safety tests in NCAP and assess design features and component capabilities that detect and protect pedestrians. 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.

NHTSA should furthermore follow safety recommendations from the National Transportation Safety Board (NTSB), including 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 such as pedestrian collision avoidance systems and other more passive safety systems into NCAP.[9]

[8] Pedestrian Safety, CDC. https://www.cdc.gov/motorvehiclesafety/pedestrian_safety/index.html

[9] NTSB Public Meeting of September 25, 2018, Highway Special Investigation Report Pedestrian Safety NTSB/SIR-18/03, https://www.ntsb.gov/news/events/Documents/2018-DCA15SS005-BMG-abstract.pdf

Redefining Injury Criteria to Account for All Body Types and Age Groups

NCAP requires drastic upgrades in its criteria for determining injury and types of injury in relation to different kinds of individuals. This would incentivize manufacturers to improve crashworthiness categories and crash avoidance technologies to address the full scope of automotive hazards, continuously improving safety standards through competition and market forces.

Safety ratings should clarify results based on adult and child crashworthiness. NHTSA can create distinct protocols for testing in regard to adults and children (compare to Euro NCAP, which has separate testing categories for "Adult Occupant Protection" and "Child Occupant Protection"[10]). NHTSA has already taken some steps in safety testing for children, such as using child dummies and small adult dummies in certain crash tests. But more must be done to provide this vital information to concerned parents, including providing distinct ratings for adult crashworthiness and for child crashworthiness, and ratings and recognition of technology shown to increase child safety.

NHTSA must also do more to protect elderly drivers and passengers. Older passengers are more susceptible to chest injuries in crashes than younger adults, yet NCAP frontal impact tests treat all passengers as one of two body types, a 50th percentile male or a 5th percentile female.[11] The US government has funded development of additional common body type dummies,[12] yet they are inexplicably excluded from NCAP test protocol. NHTSA should use NCAP to specially recognize and/or award safety technologies that further protect elderly drivers and passengers, and include separate ratings information for them (e.g., a silver star rating for this population). This is especially important considering the high number of elderly drivers and that many technologies that improve the survivability of this population also improve the survival of women and juveniles.

Obesity is also a factor that affects risk of injury in automotive accidents. A 2015 NHTSA study found that obesity in both men and women "introduces effective slack into the seat belt by routing the belt further away from the skeleton, which may affect injury risk due to more severe contacts with the interior and 'submarining' in frontal crashes."[13] NHTSA should upgrade its safety tests and ratings information to notify consumers of these additional risks related to weight to better inform their vehicle purchases, and push for newer seatbelts and seatbelt ratings that include this.

[10] The Ratings Explained. https://www.euroncap.com/en/vehicle-safety/the-ratings-explained/
[11] 49 CFR Part 572, Subpart B & Subpart O.
[12] New Crash Test Dummies Model Obese and Elderly Drivers, University of Michigan, https://medicine.umich.edu/file/new-crash-test-dummies-model-obese-elderly-drivers
[13] Biomechanics & Trauma. https://www.nhtsa.gov/research-data/biomechanics-trauma

Testing and Rating of ADAS Features

Advanced Driver Assistance Systems (ADAS) help keep passengers safe by warning drivers of dangerous scenarios. However, the testing and rating mechanisms for these systems have much room for improvement. Currently, NHTSA only rates ADAS features based on technological availability without validating their efficacy.[14]

NHTSA must update NCAP to rate ADAS features on how well they actually work and include this technology in its safety ratings. Due to constant developments in this field, NHTSA must work soon to optimize safety measures with ADAS, including measuring how new technology meets NHTSA measures and how they improve crash avoidance, and any crash avoidance technology that NHTSA recommends for optimized safety. Critically, NCAP tests must be extended to analyze ADAS features that are known to have caused fatalities so that consumers have access to reliable safety information, rather than their current sole reliance on manufacturer's assertions of safety performance.[15]

ADAS technologies include automatic emergency braking (AEB), lane keeping, forward collision warning, and blind spot warning. These features have different labels, nomenclature, and capabilities among manufacturers. While the Department of Transportation recently started requiring vehicle window stickers to include availability crash avoidance features that includes ADAS technology (such as automatic braking and lane departure) next to crashworthiness data, NHTSA must work to develop universal standards across the industry supported by evaluation within NCAP.

NCAP should implement a system for comparing emergency braking systems, including automatic emergency braking (AEB). A modernized ratings system should include differences between crash imminent braking (CIB) and dynamic brake support (DBS), as most consumers do not understand the differences between these systems.[16] The inability of the public to distinguish

[14] For example, there is no minimum performance standard for AEB the most well-known ADAS feature. Not only has this lack of standard lead to consumer confusion but recalls and investigations. Nissan's version remains under a defect investigation: https://www.autosafety.org/nhtsa-grants-center-for-auto-safety-petition-to-investigate-nissan-rogue-automatic-emergency-braking/

[15] Preliminary Report: Crash and Post-crash Fire of Electric-powered Passenger Vehicle, NTSB, https://www.ntsb.gov/investigations/AccidentReports/Pages/HWY18FH011-preliminary.aspx ; Highway Preliminary Report: HWY19FH008, https://www.ntsb.gov/investigations/AccidentReports/Pages/HWY19FH008-preliminary-report.aspx; Collision Between a Sport Utility Vehicle Operating With Partial Driving Automation and a Crash Attenuator, https://www.ntsb.gov/investigations/accidentreports/pages/har2001.aspx ; Driver Errors, Advanced Driver Assistance System Design, Led to Highway Crash, https://www.ntsb.gov/news/press-releases/Pages/NR20190904.aspx; Preliminary Report, Highway HWY16FH018, https://www.ntsb.gov/investigations/AccidentReports/Pages/HWY16FH018-preliminary.aspx ; Preliminary Report Released for Crash Involving Pedestrian, Uber Technologies, Inc., Test Vehicle, https://www.ntsb.gov/news/press-releases/pages/nr20180524.aspx

[16] Summary of NCAP 5-Star Safety Ratings Quantitative Research, Team Stratacomm, May 5, 2020.

between these features shows that a survey cannot be a replacement for in-depth technical analysis of NCAP scope and protocols. Furthermore, NCAP should look at AEB updates implemented by Euro NCAP, including conducting specific testing protocols for "Vulnerable Road Users" (e.g., pedestrians and cyclists) and even extended test specifications, such as varying light conditions.[17]

NHTSA should reprogram NCAP to evaluate the efficacy of all available safety-critical designs and systems to provide buyers with assessments of crash avoidance features, both in absolute terms and relative to other vehicles. Assessment outcomes could be provided to consumers by simply adding colors 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).

As mentioned previously, NHTSA should further support informed consumer choice and confidence by adding a government award or (special) designation for vehicles with superior advanced safety features.

CONCLUSION

NCAP has long been one of NHTSA's most successful programs in providing vehicle owners with critical safety data while incentivizing manufacturers to invest in reliable vehicles resulting in safer vehicles for all road users. The 5-star safety ratings system is the cornerstone of the NCAP and is meant to provide an objective rating that clearly provides consumers with important vehicle safety information.[18] The United States leadership in this area was second to none for decades.

However, due to a lack of attention to this popular, non-mandatory program, the 5-star safety ratings and NCAP overall require major upgrades before incorporating consumer feedback from targeted surveys. The Center is pleased to see attempts to have consumers participate in the process, but NHTSA must first address the lack of adequate testing that ignores anthropometric diversity, fails to distinguish between vehicles' overall safety performance, and does not evaluate the safety of commercial ADAS technology, in addition to other essential factors.

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 to once again become the safest in the world.

[17] ADAS Testing. https://tass.plm.automation.siemens.com/adas-testing

[18] See NHTSA Announces Coming Upgrades to New Car Assessment Program, October 16, 2019. https://www.nhtsa.gov/press-releases/ncap-upgrades-coming

Thank you for the opportunity to present our views on the notice and request for public comment.

Sincerely yours,

Jason Levine
Executive Director

cc: Secretary Elaine Chao, U.S. Department of Transportation