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**Comments of Consumer Reports to the  
National Highway Traffic Safety Administration on the  
Request for Comments: New Car Assessment Program  
Docket No. NHTSA-2021-0002**

Consumer Reports (CR), the independent, nonprofit member organization,<sup>1</sup> welcomes the opportunity to comment on the plans of the National Highway Traffic Safety Administration (NHTSA) to significantly upgrade the New Car Assessment Program (NCAP).<sup>2</sup> NCAP provides comparative information on the safety of new vehicles to assist consumers with vehicle purchasing decisions and encourage motor vehicle manufacturers to make safety improvements. As an organization dedicated to a fair and just marketplace that tests, rates, and provides consumers information about cars and their safety, CR has supported the role of NHTSA and NCAP for decades<sup>3</sup>—and has encouraged the development of the most powerful possible version of the program to advance the marketplace and make our roads safer.

As NHTSA is aware, an estimated 42,915 people died in motor vehicle traffic crashes last year—a 10.5% increase from 2020—and at least 2.5 million people suffer non-fatal injuries annually.<sup>4</sup> It is incumbent on NHTSA, manufacturers, consumers, and everyone dedicated to

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<sup>1</sup> Founded in 1936, Consumer Reports (CR) is an independent, nonprofit, and nonpartisan organization that works with consumers to create a fair and just marketplace. Known for its rigorous testing and ratings of products, CR advocates for laws and company practices that put consumers first. CR is dedicated to amplifying the voices of consumers to promote safety, digital rights, financial fairness, and sustainability. The organization surveys millions of Americans every year, reports extensively on the challenges and opportunities for today's consumers, and provides ad-free content and tools to 6 million members across the United States.

<sup>2</sup> NHTSA, New Car Assessment Program, 87 Fed. Reg. 13452 (Mar. 9, 2022) (request for comments) (online at: [www.federalregister.gov/documents/2022/03/09/2022-04894/new-car-assessment-program](http://www.federalregister.gov/documents/2022/03/09/2022-04894/new-car-assessment-program)).

<sup>3</sup> Please note that “Consumers Union” is the former name of the advocacy division of Consumer Reports and the former name of the organization as a whole.

<sup>4</sup> NHTSA, “Newly Released Estimates Show Traffic Fatalities Reached a 16-Year High in 2021” (May 17, 2022) (online at: [www.nhtsa.gov/press-releases/early-estimate-2021-traffic-fatalities](http://www.nhtsa.gov/press-releases/early-estimate-2021-traffic-fatalities)); Centers for Disease Control and Prevention, Web-based Injury Statistics Query and Reporting System (WISQARS) (accessed June 7, 2022) (online at: [www.cdc.gov/injury/wisqars/index.html](http://www.cdc.gov/injury/wisqars/index.html)).

road safety to substantially and expeditiously reduce this terrible toll. In particular, given NHTSA's unique position as the U.S. safety regulator responsible for overseeing the design, construction, and performance of motor vehicles, as well as providing actionable safety information to consumers, the agency must use every tool at its disposal to promote the full, fleetwide adoption of technologies that would reduce deaths, injuries, and crashes on our roads.

Over the years, NCAP has demonstrated its ability to create a powerful market-based incentive for automakers to make the latest life-saving technologies available on more vehicles more quickly, providing a substantial safety benefit to consumers. Unfortunately, the program has been allowed to languish, with almost all vehicles receiving four-star or five-star ratings. This stasis has reduced NCAP's ability to differentiate for consumers the safest new vehicles from those that provide an average or lower level of safety. Substantial upgrades are long overdue, so that the program's ratings keep up with the development of auto safety technologies. It is urgent for NCAP to be strengthened and improved, and made more readily updatable, so that it again becomes—and remains—the world leader in safety information that it used to be.

NHTSA's planned changes to NCAP, as detailed in the request for comments (RFC), would be the most significant enhancements to the program since its creation. As we detail in the following comments, CR considers these changes an important step forward, not only in helping NCAP keep pace with new technologies, but also in better positioning the program for long-term success. We welcome the opportunity to comment on NHTSA's plans, as well as on further refinements and enhancements that would help inform the public and improve road safety.

## **I. General Comments**

In this section, CR provides general comments on the RFC, including the main principles we urge NHTSA to prioritize as it moves forward with changes to NCAP.

### *Crash avoidance*

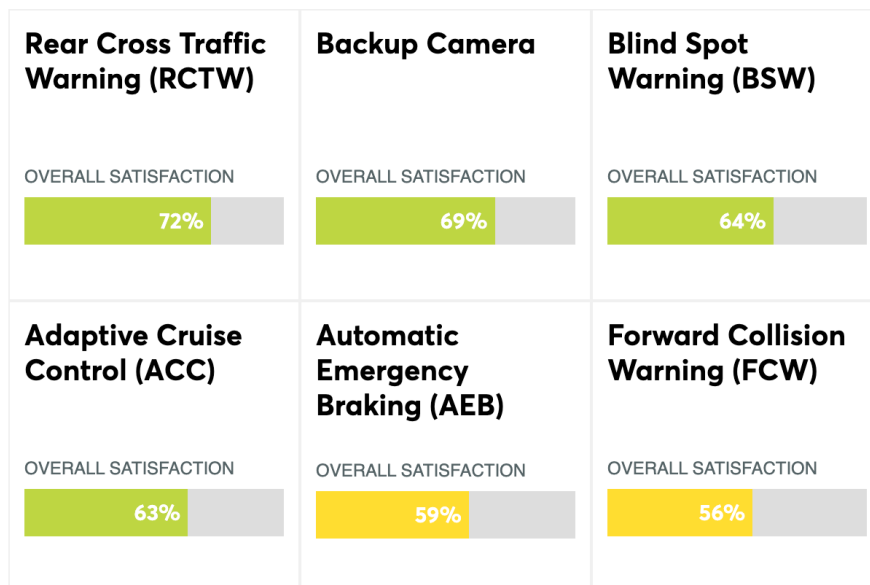
CR strongly supports NHTSA's plans to expand NCAP testing of crash avoidance systems and develop a rating system that faithfully conveys comparative information to consumers about crash avoidance performance. We support the addition to NCAP of the four new recommended technologies: blind spot detection, blind spot intervention, lane keeping support,<sup>5</sup> and pedestrian automatic emergency braking (PAEB). The last of these is particularly

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<sup>5</sup> Drivers are divided on how satisfied they are with lane systems. In CR's most recent survey of its members about their experiences with advanced driver assistance systems—covering about 47,000 vehicles from model year 2017 through 2022—respondents answered questions about their satisfaction with the features. Unlike other advanced safety systems, only a slim majority of drivers said they were “very satisfied” with lane departure warning (LDW) and lane keeping assistance (LKA), though a larger number said they were very satisfied with lane centering assistance (LCA). Regardless of the system, as NHTSA has recognized, LKA, LDW, and LCA systems are only as good as the lines on the road and how clearly the lines can be identified. These systems can falter in various circumstances, such as when multiple markings are painted during road construction, lane lines are faded or covered by snow, markings suddenly disappear or merge as lanes come together, or a camera lens is blinded by direct sunlight. ¶ In CR's survey, many respondents indicated that they were confused about how lane systems work, and the differences among multiple, similarly named systems. The most frequent complaints about LDW systems are that they sound an audible or tactile warning even when a driver is intentionally crossing a lane line. On some vehicles, the complaints involve the warnings themselves, which can be distracting. Generally, drivers indicated that

important, given the marked increase in pedestrian injuries and fatalities in recent years, and the implementation of testing for PAEB should be prioritized. NHTSA should also expedite research into AEB that can effectively detect and respond to people on bicycles and motorcycles, as well as other vulnerable road users, given the greater likelihood that these people will be injured or killed if struck by a car. It is vital for NHTSA to proceed toward testing as urgently as possible.

In CR’s most recent survey of our members about advanced driver assistance systems (ADAS), we found—from the more than 47,000 responses we received from owners of model year 2017-2022 vehicles—that most drivers are highly satisfied with advanced vehicle technology.<sup>6</sup> The most popular systems are the least intrusive ones, with drivers viewing technology most favorably when it helps them check blind spots, avoid obstacles hidden behind their vehicle, or otherwise helps them see what they sometimes cannot. The graphic below shows overall satisfaction with several ADAS technologies:



Other findings include:

- Systems that add convenience—like adaptive cruise control (ACC) and lane centering assistance (LCA)—are popular, especially among older drivers.
- Newer cars get higher satisfaction ratings, indicating that these systems are improving over time.
- Most respondents had little knowledge about driver monitoring systems, but indicated some interest in them.

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they prefer systems that have a steering wheel or seat vibration over those with an audible alert, though CR also received complaints about haptic systems that vibrate too strongly. Consumer Reports, “Guide to Lane Departure Warning & Lane Keeping Assist” (updated May 9, 2022) (online at: [www.consumerreports.org/car-safety/lane-departure-warning-lane-keeping-assist-guide-a7087080070](http://www.consumerreports.org/car-safety/lane-departure-warning-lane-keeping-assist-guide-a7087080070)).

<sup>6</sup> Consumer Reports, “Most Drivers Like New Advanced Safety Technology, CR Survey Says” (May 11, 2022) (online at: [www.consumerreports.org/car-safety/car-safety-technology-adas-survey-a2785002723](http://www.consumerreports.org/car-safety/car-safety-technology-adas-survey-a2785002723)).

## *Crashworthiness*

In previous comments, we have expressed concern that the high percentage of vehicles receiving 4- and 5-star ratings diminishes the NCAP's ability to identify for consumers vehicles with exceptional safety performance. This remains a major concern of ours.

Improvements to NCAP's crashworthiness program are crucial, just as the enhanced incorporation of crash avoidance into NCAP is crucial, and we urge NHTSA to proceed expeditiously with planned program updates. Crashworthiness tests should be reviewed to ensure that they are reflective of the crashes that most commonly result in injuries and fatalities. In addition, crashworthiness testing would be greatly improved through the development and use of dummies that more accurately represent various demographic groups—particularly women. These dummies should also be tested in various seating positions. We look forward to commenting further on forthcoming NHTSA proposals regarding crashworthiness.

## *The role of Euro NCAP and other third-party rating systems*

While the U.S. NCAP was once the world leader in providing the most up-to-date consumer information, Euro NCAP has since surpassed the U.S. program by more effectively remaining up-to-date with advances in vehicle technologies and appropriate testing scenarios, including through the use of a clear and comprehensive roadmap. To once again be a world leader in consumer information, U.S. NCAP should prioritize upgrades that would at least match the value offered by current elements of Euro NCAP. In part, this goal can be achieved through test harmonization, which NHTSA proposes to employ in several respects as it upgrades NCAP.

Wherever it would enhance safety, CR strongly supports NHTSA's close consultation with third-party safety rating programs—such as Euro NCAP and the Insurance Institute for Highway Safety (IIHS), among others—and, as appropriate, adoption of these entities' test procedures and performance requirements. NHTSA has ample opportunities to harmonize elements of NCAP with strong third-party safety rating programs, and we particularly support the agency's initiatives to align with current world-leading Euro NCAP programs. This kind of “harmonizing up,” as opposed to harmonization that involves adopting a lowest-common-denominator approach, would both enhance consumer safety and assist manufacturers by accounting for global supply chains and reducing their testing burden.

Fundamentally, harmonization should not serve to weaken or jeopardize the safety benefits of systems under NCAP evaluation. NCAP ultimately should return to a place where NHTSA can lead the way on strong new test procedures and performance requirements. In such circumstances, there would be times when NHTSA adopts elements from other rating systems, and times when other rating systems adopt elements from NHTSA, creating a virtuous cycle in support of continuous safety improvement. Among other areas, we hope this is what NHTSA's proposals related to blind spot testing will help generate.

## *ADAS nomenclature*

Consumers should be able to understand which crash avoidance technologies and other advanced technologies are available to them, and how those technologies work. However, the fast development of these technologies, and the various names automakers use to describe the same safety features, can make it difficult for buyers and drivers to understand which systems are available on which cars, and what specifically they can do.

To address this problem, CR has worked in partnership with other automotive safety organizations, including AAA, J.D. Power, SAE International, Partners for Automated Vehicle Education (PAVE), and the National Safety Council (NSC), to develop consumer-friendly, standardized names and definitions for common ADAS. Importantly, these generic names are designed to help consumers better understand the capabilities and limitations of driver assistance features, and help drivers, regulators, and safety advocates evaluate new technologies on a like-for-like basis.<sup>7</sup>

We strongly recommend that NHTSA consider the adoption and implementation of these terms in how it conveys information about both systems already in NCAP and those to be newly added to the program. Common nomenclature is also practical for consumer-facing products such as the Monroney Label, the goal of which is to convey key elements of how a vehicle is equipped. Consumers should be able to clearly understand what they read on the page, and to the extent they lack such an understanding, they should have a clear and straightforward glossary of terms to which they can refer. NHTSA's ratings website offers another opportunity not only to utilize common language for systems, but also to provide additional information on how the systems operate, and their potential benefits.

CR continues to offer an analogy of the “recipe” and the “ingredients” when discussing common ADAS nomenclature. While manufacturers should of course feel free to offer safety packages (the recipe) with unique, brand-specific names, there should be concerted efforts to standardize the names of the elements (the ingredients) in those systems. NHTSA should consider adopting each of our coalition's terms and definitions throughout the NCAP program as well as in any consumer facing research related to such systems.

## **II. ADAS Performance Testing Program**

Consumer Reports strongly supports the performance testing of advanced crash avoidance technologies under NCAP, and welcomes NHTSA's intention to update and expand its work in this area. NCAP performance testing provides the data necessary for NHTSA to give consumers useful information about safety technologies on new vehicles—and in turn creates a powerful incentive for manufacturers to equip models with effective versions of these systems.

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<sup>7</sup> AAA, Consumer Reports, J.D. Power, National Safety Council, Partners for Automated Vehicle Education, and SAE International, “Clearing the Confusion: Recommended Common Naming for Advanced Driver Assistance Technologies” (revised Aug. 3, 2020) (online at: [advocacy.consumerreports.org/wp-content/uploads/2018/10/Clearing-the-Confusion-ADAS-Nomenclature-one-pager-8-3-20-FINAL.pdf](https://www.consumerreports.org/wp-content/uploads/2018/10/Clearing-the-Confusion-ADAS-Nomenclature-one-pager-8-3-20-FINAL.pdf)).

NHTSA already carries out initiatives to educate the public about safety technologies, and the agency possesses the authority to issue motor vehicle safety standards for crash avoidance technologies. Between these two activities—general education and binding regulation—lies NCAP, a program specifically designed to improve safety by assisting consumers in buying motor vehicles. Through NCAP, NHTSA can develop performance test criteria for aspects of crashworthiness, crash avoidance, and vulnerable road user safety, and the test results can inform consumers about the comparative safety provided by a vehicle. As NHTSA has recognized in the RFC, NCAP must be kept up to date with changing vehicle capabilities and technologies, and we welcome the opportunity to support that goal in the comments that follow.

While others may be better positioned to comment on the various specific test conditions and procedures included in the proposal, CR supports efforts to develop tests that:

- Adopt key elements of test procedures and performance requirements from Euro NCAP, as well as other world-leading protocols that may exist;
- Prioritize active safety technologies, which generally are more effective than warning technologies;
- Improve warning system performance and satisfaction among consumers by reducing false alerts and other flaws that can prompt people to turn off the systems and lose access to their benefits;
- Incorporate protections, to the greatest extent technically feasible, for vulnerable road users;
- Account for challenging environmental conditions, such as darkness, glare, snow/ice, fog/smoke, and heavy rain; and
- Tie to a continuous review of the NHTSA complaints database for selected systems, as well as ongoing NHTSA defect investigations, to determine where consumer acceptance issues or concerns arise, including circumstances where consumers are experiencing false activation events or systems are creating a perceived or real risk of increasing crashes rather than mitigating them.

CR may have additional comments to submit after this comment period ends in response to specific questions NHTSA has posed related to lane keeping technologies, blind spot detection technologies, pedestrian automatic emergency braking, and forward collision prevention technologies. We appreciate NHTSA's consideration of such comments to the extent possible.

### **III. ADAS Rating System**

As CR has previously commented, we strongly support the development in NCAP of ratings for crash avoidance systems that would help consumers distinguish between the highest-performing vehicles and those that provide protection that is average or worse. We agree that NHTSA will need to strike a balance between weighting dictated solely by real-world data, and weighting that ensures each component provides a meaningful contribution to the rating system. Nevertheless, these ratings would also help consumers understand the relative contribution of various systems to crash prevention and how together they would reduce crash,

injury, and fatality risk. NHTSA's current "check-mark" system for communicating the presence of a crash avoidance system on a vehicle is a useful place to start, but a more dynamic system, and one that provides more granular comparative information, is warranted.

While star ratings are well known, and consumers now encounter them in a wide range of contexts that have nothing to do with vehicle safety ratings, CR is open to various approaches for rating crash avoidance technologies and communicating these ratings to consumers. In different contexts, CR itself uses different approaches, including a points-based system for a vehicle's Overall Score and the road test score that feeds into it, and a one-through-five rating system for predicted reliability, predicted owner satisfaction, and reliability history (the last of which is depicted using red, orange, yellow, lime, and green chevrons). We also see value in "medals" or "awards" approaches in certain circumstances, similar to those utilized by IIHS.

In general, to provide the greatest incentive for manufacturers to add crash avoidance technologies at all price points, we urge NHTSA to only credit vehicles with technologies if they are standard equipment across all of a model's trim lines. We also urge NHTSA to reserve the highest rating—whether it is a medal, award, 5 stars, or maximum points—for only those vehicles that meet the most demanding feasible requirements across the board, and that offer the most advanced protection available at the time. Awarding credits for optional equipment, or providing the highest rating too easily, would dilute the rating system and be inconsistent with the idea of NCAP once again becoming a world leader.

CR continues to encourage NHTSA to develop an overall rating system in addition to itemizing a vehicle's performance in a test or category of tests. A single, overall rating is clearest for consumers to understand, and would serve as an entry point for consumers to investigate specific categories of safety, such as through clear and prominent ratings for crash protection, crash avoidance, and vulnerable road user safety. NHTSA should also keep individual test-based performance ratings publicly available on its website.

CR may have additional comments to submit after this comment period ends in response to specific questions NHTSA has posed related to communicating ADAS ratings to consumers and various ADAS rating system concepts. We appreciate NHTSA's consideration of such comments to the extent possible.

#### **IV. Revising the Monroney Label**

The Monroney label is one tool for conveying key information to consumers, but CR agrees that it has significant limitations—especially given how car buying has changed since the label's inception. Therefore, we encourage NHTSA to prioritize improvements to the agency's website and other digital offerings, and minimize the amount of time and resources it spends on the Monroney label. Recognizing the time and energy that a Monroney label rulemaking requires, we appreciate that the agency is seeking to conduct necessary research and be as efficient as possible when it makes changes to the rule.

The main benefit of the Monroney label for consumers is to determine exactly what equipment a particular vehicle has. We do not consider it particularly valuable for conveying

performance ratings information. With an abundance of vehicle shopping research done online, NHTSA should consider that consumers may be more likely to see information on *nhtsa.gov*, or at least to see it sooner, than to see the Monroney label. In CR's purchases of approximately 50 new vehicles per year, CR shoppers frequently have had to ask dealers for the label, as it is often removed prior to delivery, and in some cases, placed inside the vehicle's glove box. The label is often not found on the window of a car where it can be used for comparison shopping at a given dealer. We think there is a significant portion of car buyers that never actually sees the Monroney label, unless they find it in their car after purchase. Even when a consumer does see the label, it is only useful at the time of a new car purchase, whereas similar information on a well-maintained website would yield more sustained value in the far larger used car market.

Accordingly, CR supports NHTSA focusing its efforts on improving consumer-facing NCAP information online. The NHTSA website and other digital offerings have the potential to reach a wider audience with more up-to-date and meaningful information, and what NHTSA provides online should not be held back by the Monroney label's limitations, such as the small amount of space available for safety information. Currently, NCAP information on NHTSA's website could be considered overly broad unless a consumer knows where to look. Nesting of data for those who want additional details should be more conspicuously conveyed. IIHS's website offers a good model for delivering data more clearly.

Utilizing common nomenclature for ADAS is also key to improving consumer understanding, and it is particularly important when making vehicle comparisons. We strongly recommend that NHTSA consider adopting the common nomenclature referenced above and requiring that it be used on both the NHTSA website and Monroney label to enable consumers to make apples-to-apples comparisons. CR reiterates that manufacturers would of course be able to name and market safety packages (the recipe), while maintaining common generic language for the elements those packages include (the ingredients).

## **V. NCAP Roadmap and Emerging Vehicle Technologies**

CR commends NHTSA for casting a wide net on existing and emerging vehicle safety systems that could help reduce deaths, injuries, and crashes on our roads. Automotive safety technology is advancing at a rapid pace, and it is wholly appropriate for NHTSA to closely examine, today, which features are likely to warrant consideration for inclusion in NCAP in the near future. We welcome the agency's ambition, particularly after NCAP progress has remained relatively stagnant for years. We offer the following comments as NHTSA maps out how to complete several pending initiatives and considers utilizing NCAP—for the first time—to raise consumer awareness of safety technologies that may help people make safe driving choices.

As NHTSA seeks comment on cutting-edge technologies, the completion of a robust NCAP roadmap—as required by Congress—will further help the agency, manufacturers, and auto safety experts be on the same page about NCAP's future. CR supports the establishment of a robust roadmap for future NCAP changes and related NHTSA initiatives, including both mid-term (up to 5-year) and longer-term (5 to 10-year) elements. As indicated above, the ability of this proposal to reposition the U.S. NCAP system as strong and relevant relies partially on its ability to build on what has been accomplished in Euro NCAP. Multiple elements of this



proposal work toward that end, including the adoption of strong Euro NCAP test procedures and performance requirements, and more meaningful ratings development. Another example is NHTSA maintaining a roadmap for NCAP to help prevent the program from becoming outdated and help manufacturers develop their future product plans.

While the draft roadmap presented in the RFC is not currently as precise nor as detailed as the Euro NCAP 2025 Roadmap,<sup>8</sup> CR supports a number of initiatives it references as essential to include in U.S. NCAP, including:

- A 2022 proposal for a crashworthiness pedestrian protection program in NCAP, including head-to-hood, upper leg-to-hood leading edge, and lower leg-to-bumper tests;
- Advances in crashworthiness relevant to the current crash scenarios where fatality and injury most commonly occur, to maintain relevance, stringency and—most importantly—differentiation among the crashworthiness ratings of vehicles, including:
  - A determination, in 2022, whether a new frontal oblique test is appropriate for inclusion in FMVSS and/or NCAP, followed by a potential notice-and-comment process; and
  - A 2022-2023 proposal to use the THOR-50M dummy in NCAP’s full frontal impact tests and the WorldSID-50M in the program’s side impact barrier and side impact pole tests, soon after work commences to add the dummies to the Code of Federal Regulations;
- An announcement of next steps, in 2022-2023, regarding the potential incorporation into NCAP of additional advanced crash avoidance technologies, including lighting for improved nighttime pedestrian visibility (such as adaptive driving beams, upgraded lower beams, and semiautomatic headlamp beam-switching) and rear AEB for pedestrian detection;
- The start of a rulemaking to update the Monroney label, in 2023, built on the ongoing multi-year consumer research effort to modernize the label and determine how best to convey the availability and performance of technologies to consumers both via the Monroney label and online resources;
- The start, in 2023, of an effort to revise the 5-star safety ratings system; and
- An assessment, in 2025 or beyond, of the potential inclusion in NCAP of tests for (1) intersection safety assist; (2) opposing traffic safety assist; and (3) AEB for all vulnerable road users, including pedestrians, bicyclists, and motorcyclists, in all major crash scenarios including when the vehicle is turning left or right. We urge NHTSA to expedite research and analysis in this space so it proceeds toward testing as urgently as possible.

In addition to the elements included in the proposed roadmap, CR also recommends other areas that should be considered as NHTSA develops the roadmap. These include:

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<sup>8</sup> Euro NCAP, Euro NCAP 2025 Roadmap (Sept. 12, 2017) (online at: [cdn.euroncap.com/media/30700/euroncap-roadmap-2025-v4.pdf](https://cdn.euroncap.com/media/30700/euroncap-roadmap-2025-v4.pdf)).

- Conducting additional research into, and then enhancing, test scenarios for all types of crash avoidance technologies to reflect less-than-ideal conditions, including low light, glare, fog/smoke, and precipitation conditions.
- Adding rear cross-traffic warning and rear AEB to NCAP, including to detect and prevent collisions with all vulnerable road users (not just pedestrians).
- Carrying out research and development on updated test dummies so that NCAP does not only reflect current dummy technology and biofidelity, but also better represents all types of vehicle seating positions, including the back seat, and all types of occupants, including women, whose bodies are not represented appropriately at present. This includes:
  - Accelerating approval of the THOR-5F for use in vehicle crash testing;
  - Considering how to utilize dummy occupants in the rear seating positions of current frontal crash tests to drive advances in rear-seat technologies and countermeasures; and
  - Developing a new female dummy while allowing the scientific evidence—such as real-world injuries and fatalities and gender difference research (as it pertains to injury thresholds and material properties)—to dictate the development. Most discussion of a new female dummy has centered on the potential for a dummy that represents an average woman’s body, but we encourage NHTSA to follow the data and see where it leads. Perhaps, as an example, there is a greater need for an average female dummy that is representative of the vulnerable elderly population, rather than one that is representative of a young healthy female. NHTSA must be the driving force, and the agency should issue a call to action to evaluate the available data, determine the research gaps, and conduct the research needed to make these decisions.
- Expanding NCAP to include technologies that help drivers make safer behavioral choices such as those related to alcohol detection, speeding, and drowsy, impaired, and distracted driving. While some behaviors may be addressed with driver monitoring systems, as referenced below, other technologies, such as those to address belt use and alcohol detection, are necessary based solely on the sheer scale of the injuries and fatalities each contributes. CR strongly supports the congressional mandates for NHTSA to require rear seat-belt reminders and effective, passive technology on cars that can prevent drunk and impaired driving, and there is likely a role for NCAP to play as well. We are also interested in the potential for intelligent speed assistance to save lives, and note that the technology will be mandatory on new vehicles in Europe starting next month.
- Prioritizing and promoting the phased roll-out of driver monitoring systems (DMS). We urge NHTSA to consider the following:
  - While lane keeping technologies may reduce lane and roadway departure crashes, given the potential for inattentive driving, especially in the case of LCA, this technology should be rolled out in a smart, sensible way.<sup>9</sup> Some vehicles pair LCA with ACC, during which time vehicle systems maintain both speed and lane

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<sup>9</sup> For more information, please see *CR Auto Industry Insights: ADAS Lane Systems* (May 2021) (online at: [data.consumerreports.org/reports/adas-lane-systems](https://data.consumerreports.org/reports/adas-lane-systems)).

position/steering control. This combination of systems, activated together, is known as active driving assistance,<sup>10</sup> and it is considered a form of Level 2 driving automation by SAE International. To help maintain driver engagement, active driving assistance should always be accompanied by a direct driver monitoring system—effective technology that ensures the driver is looking at the road. CR’s 2021 survey on consumer perceptions of ADAS found that this recommendation aligns with consumer preferences, with survey respondents indicating that they are more satisfied with active driving assistance systems that are paired with DMS. Among drivers of active driving assistance systems, most want some form of driver monitoring technology, and a majority want a reliable eye tracking system.<sup>11</sup>

- We note that section 24209 of Pub. L. 117-58, the Bipartisan Infrastructure Law (known formally as the Infrastructure Investment and Jobs Act), directs NHTSA to research the “installation and use” of DMS to “minimize or eliminate” “driver distraction, disengagement, automation complacency” and “foreseeable misuse of advanced driver-assist systems.”<sup>12</sup> NHTSA must complete a report on this research by November 2024, and initiate rulemaking as necessary based on the research. This work, as well as other requirements under the Bipartisan Infrastructure Law that are missing—such as rulemakings for forward collision warning and AEB, lane departure warning and lane keeping assistance, and child heatstroke prevention technology—should be reflected in NHTSA’s roadmap as they are closely related to the agency’s existing and potential work within NCAP.
- CR is conducting ongoing testing and research on the performance and benefits offered by DMS. CR scoring for tested vehicles awards additional points to the Overall Score for vehicles that include adequate driver monitoring on vehicles with active driving assistance.<sup>13</sup> Tested vehicles that have an active driving assistance system but lack an adequate DMS will begin receiving a penalty, starting with 2024 models.
- CR has called on automakers to limit DMS data collection to what is strictly necessary to ensure that a driver’s eyes are on the road, and CR reserves the right to withhold points for inadequate privacy practices. We have stressed that the best system is closed-loop, with no video being recorded and no images leaving the car, and we expect that drivers may be more likely to trust and embrace the cameras for safety purposes if they come with strong privacy protections.

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<sup>10</sup> For more information, please see Consumer Reports Data Intelligence, *CR Active Driving Assistance Systems: Test Results & Design Recommendations* (Nov. 2020) (online at: [data.consumerreports.org/reports/cr-active-driving-assistance-systems%e2%80%8b](https://data.consumerreports.org/reports/cr-active-driving-assistance-systems%e2%80%8b)).

<sup>11</sup> Consumer Reports Data Intelligence, *Consumer Perceptions of ADAS: Driver Monitoring Systems* (May 2022) (online at: [data.consumerreports.org/reports/consumer-perceptions-of-adas-driver-monitoring-systems](https://data.consumerreports.org/reports/consumer-perceptions-of-adas-driver-monitoring-systems)).

<sup>12</sup> Pub. L. No. 117-58.

<sup>13</sup> Consumer Reports, “Driver Monitoring Systems Can Help You Be Safer on the Road” (updated Feb. 17, 2022) (online at: [www.consumerreports.org/car-safety/driver-monitoring-systems-ford-gm-earn-points-in-cr-tests-a6530426322](https://www.consumerreports.org/car-safety/driver-monitoring-systems-ford-gm-earn-points-in-cr-tests-a6530426322)).

- DMS technologies also offer additional potential benefits that apply more broadly to maintaining driver engagement and could play a role in protecting against impaired driving, drowsy driving, or driver inattention for any other reason. Recognizing this potential, DMS will be phased-in as mandatory in new vehicles in Europe, starting this year.
- Addressing the human-machine interface (HMI) design characteristics that can lead to driver inattention and eyes-off-the-road behavior. CR incorporates ratings for controls and HMI aspects of vehicle design in our ratings. As vehicle design has gravitated toward screen interfaces, the potential for confusing or even distracting controls has increased, and should be addressed in the NCAP roadmap. Design, secondary task lockouts, phone integration, and various other factors should be considered.
- Identifying the role for NCAP/FMVSS in driving the adoption of rear-seat safety systems.<sup>14</sup> Several technologies and countermeasures have been proven over time to improve the safety of front-seat occupants, including advanced seatbelt features such as pretensioners and load-limiters, frontal and side impact airbags, and effective rear seat-belt reminders. With the exception of curtain airbags, rear seats often lack these features. NHTSA should emphasize in the roadmap what it will do to promote the deployment of these elements. Also, including the most current dummies in rear-seat positions in crashworthiness tests can help indirectly advance those features, as they may be necessary for the highest ratings in those seating positions.
- Setting a high bar for rear occupant detection systems. Various types of rear seat reminder and rear occupant detection systems exist. While child hyperthermia fatalities and injuries may never be as common as other target incidents referenced in the proposal, countermeasures already exist that offer the ability to protect this vulnerable population. We urge NHTSA to leverage both NCAP and the directed rulemaking under the Bipartisan Infrastructure Law to promote the most capable versions of these systems, which can protect a child gaining access to a vehicle as readily as they protect against a child being unknowingly left in the back seat. CR notes that Euro NCAP will start scoring vehicles' child presence detection systems this year, and we recommend that they should be considered for future updates to the NCAP program.
- Charting a future path for vehicle-to-everything (V2X) communications technology. As NHTSA indicates, the agency is still in the process of evaluating recent technological evolution and regulatory changes to the radio spectrum environment. Nevertheless, it is widely recognized that applications of vehicle-to-vehicle (V2V) and V2X communications technologies have a significant potential to improve safety outcomes and enhance the benefits of other safety systems. As soon as NHTSA identifies its next steps on V2X, whether related specifically to intersection safety assist or more broadly applicable, it should specify them on the NCAP roadmap. We note that considerations related to V2X deployment are included in the Euro NCAP 2025 Roadmap.
- Examining, together with agency work focused on protecting vulnerable road users, the role that standards for visibility from the driver's seat (direct vision) should play under

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<sup>14</sup> For additional information, please see Consumer Reports Data Intelligence, *Rear Seat Safety: Test Procedures + Design Recommendations* (Oct. 2021) (online at: [data.consumerreports.org/reports/rear-seat-safety-test-procedures-design-recommendations](https://data.consumerreports.org/reports/rear-seat-safety-test-procedures-design-recommendations)).

NCAP and FMVSS, especially given alarming trends in the size of certain vehicles. A June 2021 CR analysis and story documented that the hood height of passenger trucks has increased by an average of at least 11% since 2000, and new pickups grew 24% heavier on average from 2000 to 2018. CR found that drivers of these vehicles have poorer front sight lines, creating a blind spot that can hide a pedestrian or smaller car in front.<sup>15</sup>

- Mapping next steps for regulation of the vehicle identification number (VIN), especially to make it easier to determine which safety systems are on which vehicle. Evaluating the benefits and effectiveness of various technologies can be challenging due to the inability to determine from crash data whether a vehicle was equipped with key systems. Evaluation is even more difficult in cases where crash avoidance systems are offered as optional equipment. If one could more readily figure out from the VIN which features are equipped on a vehicle, it would greatly improve research on the efficacy of these systems.

CR may have additional comments to submit after this comment period ends in response to specific questions NHTSA has posed related to driver monitoring systems, driver distraction, alcohol detection, seat belt interlocks, intelligent speed assist, and rear seat child reminder assist. We appreciate NHTSA's consideration of such comments to the extent possible.

## **VI. Revising the 5-Star Safety Rating System and Other Activities**

It is vital for NHTSA's ratings to be updated to reflect more stringent performance in evaluations, and for the crashworthiness and rollover ratings to be organized in a manner that makes it as straightforward as possible for NHTSA to fully incorporate both crash avoidance and vulnerable road user protection into NCAP. CR recognizes that the 5-star ratings system is well established, and has successfully conveyed vehicle safety benefits and performance for decades. As such, the familiar 5-star presentation of ratings should probably remain, at least for crashworthiness and rollover purposes. However, receiving a high star rating in NCAP does not carry the meaning for consumers that it once did—and to address the program's current challenges, we understand that broader reforms to the ratings system may be required.

NHTSA notes in the RFC that a points-based rating system comes with several advantages over the current 5-star safety ratings system, which is based on a linear combination of the injury probability for multiple body regions. These include greater flexibility to target injury criteria that is more representative of real-world injury incidence, greater flexibility to update the program in the future through a phased approach, and greater consistency with similar consumer information programs, such as IIHS and Euro NCAP.

As CR commented above, we understand well the benefits of a points-based rating system, and we use it ourselves for multiple aspects of our car ratings. If NHTSA pursues such an approach, it could still maintain the star ratings for purposes of presentation to consumers and their ease of understanding. Indeed, CR is open to various potential approaches for the ratings, including those that would require major changes. To us, what is most important is that NHTSA improves the differentiation and stringency of the ratings moving forward.

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<sup>15</sup> Consumer Reports, "The Hidden Danger of Big Trucks" (June 8, 2021) (online at [www.consumerreports.org/car-safety/the-hidden-dangers-of-big-trucks](https://www.consumerreports.org/car-safety/the-hidden-dangers-of-big-trucks)).

One particular question conveyed in the RFC is whether or not the rollover risk elements of the current ratings should be maintained. While electronic stability control (ESC) has significantly reduced the incidence of loss-of-control rollovers, some elements of rollover risk should be maintained in NCAP. In particular, it remains important to differentiate tripped rollover risk for vehicles for road departure crashes. If, in the future, NHTSA does decide to scale back its rollover risk assessment, we suggest the agency could still continue to address center of gravity variations, as was the case in this issue's early inclusion in the program.

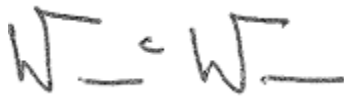
CR may have additional comments to submit after this comment period ends in response to specific questions NHTSA has posed related to providing consumers with more meaningful vehicle safety ratings, including examination of a potential points-based rating system, the concepts of baseline risk and relative ratings, and how the agency might better present star ratings to the public. We also may weigh in with comments on the programmatic challenges NHTSA has raised, including those involving manufacturers' self-reported data and website updates. We appreciate NHTSA's consideration of such comments to the extent possible.

## **VII. Conclusion**

Consumer Reports thanks NHTSA for its consideration of our comments. NCAP is an essential consumer information program that drives adoption of vehicle safety technologies and helps save lives on our road. It is urgent for NCAP to be substantially upgraded, and for the program to be made more dynamic so that it can remain relevant to consumers and help them differentiate the safety protections offered among new vehicles they may purchase.

CR urges NHTSA to move forward expeditiously, and revise NCAP to maximize the consumer information and safety benefits the program can deliver. We understand that implementing changes to NCAP is complex and challenging, especially given Congress' underfunding and understaffing of the agency and the ever-expanding range of vehicle safety features available for consideration under the program. We stand ready to work with NHTSA in support of a stronger NCAP, to answer any questions the agency may have about our comments, and to provide input on future initiatives that NHTSA indicates are forthcoming.

Respectfully submitted,



William Wallace  
Associate Director, Safety Policy



Jennifer Stockburger  
Director of Operations, Auto Test Center