



## 21<sup>ST</sup> CENTURY NCAP

# Plan to Advance Safety at the Speed of Innovation

### WHAT IS NCAP?

Advances in motor vehicle safety technology are making their way into cars faster than ever before – faster than the government can establish regulations. As a result, the National Highway Traffic Safety Administration (NHTSA) should support automaker investments in safety by providing up-to-date information to consumers. In addition to regulating vehicle safety, NHTSA provides safety information to vehicle purchasers through the New Car Assessment Program (NCAP). The current NCAP rates vehicles primarily on their crashworthiness performance, but it also provides some information on crash avoidance features, though it does not rate them. An effective and consistently maintained NCAP can leverage market forces to accelerate consumer adoption of advanced safety performance and technology. Early success of the program in the United States has resulted in similar programs being adopted worldwide. However, NCAP has not been updated since 2011, and has fallen behind in providing consumers with meaningful information. The Alliance for Automotive Innovation (Auto Innovators) therefore offers these recommendations for modernizing NCAP, along with some “Kick Start” items to allow NHTSA to immediately address new advanced safety features found in today’s cars and trucks.

### THE NEED FOR A MODERNIZED APPROACH

NCAP has historically been updated on an irregular basis and, as a result, has fallen behind the progress made in other countries. Attempts to modernize the program have not proven effective. The industry, and consumers, are generally provided little advance indication of future NCAP updates or what new elements and ratings will be adopted. Given the significant lead time necessary to implement new safety technology or re-engineer existing performance, a more predictable program is needed to maximize the potential benefits of NCAP.

NCAP modernization is long overdue. If the U.S. is to remain a global leader in automotive safety innovation, our policies and programs must keep pace. An effective NCAP would ensure a consistent, long-term vision and a review schedule that could enhance this program while also achieving the goal of modernization.

### WHAT THE ALLIANCE FOR AUTOMOTIVE INNOVATION RECOMMENDS

In addition to “Kick Starting” with the immediate NCAP updates recommended here, Auto Innovators provides the following process recommendations to unlock NCAP’s full potential. The goal is to help ensure that NCAP updates will be informed, predictable, transparent, and supported by sound science and data. Robust research informs an effective NCAP which can in turn pave the way for regulation.

## “KICK START”

### IMMEDIATE NCAP UPDATES

Given the time needed to implement these recommended processes, Auto Innovators urges NHTSA to update NCAP immediately upon finalization of a scoring methodology that incorporates the following crash avoidance technologies, expedited by using current EuroNCAP test hardware and a subset of EuroNCAP test procedures that align with the test scenarios, speeds, and conditions either currently evaluated or proposed by NHTSA for evaluation:

- **Forward Collision Warning/ Automatic Emergency Braking (FCW/AEB)**
- **Pedestrian Automatic Emergency Braking (PAEB)**
- **Lane Departure Warning (LDW)**
- **Lane Departure Warning with intervention/Lane Keep Assist (LDW/LKA)**
- **Automatic High Beam Headlamps/High Beam Assist**

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## RECOMMENDATIONS

1. Establish Mid- to Long-Range NCAP Opportunity Roadmaps
2. Annual Stakeholder Engagement
3. Consistent and Harmonized Program Updates
4. Program Review & Evaluation
5. Prioritize Rulemaking to Remove Existing Regulatory Barriers

## BENEFITS

1. Provides Meaningful Information for Consumers
2. Accelerates Deployment of Safety Technology
3. Supports Future Regulatory Activity

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**Our vision for 21st Century NCAP includes five recommendations to ensure that NCAP achieves its main objectives of providing meaningful information for consumers, accelerating the deployment of safety technologies, and supporting future regulatory activity.**

### RECOMMENDATION 1: Establish Mid- to Long-Range NCAP Opportunity Roadmaps

**NHTSA should compile and regularly update mid- to long-range NCAP opportunity roadmaps that identify promising new safety technologies appropriate for potential inclusion in NCAP.**

**Why It Helps:** These roadmaps will help educate consumers about emerging technology and provide the advanced vision needed by vehicle manufacturers to proactively satisfy the increasing safety objectives set by each program update.

**Specifics:** Auto Innovators recommends that no later than two years after adoption of these process recommendations, and every third year thereafter, NHTSA publish roadmaps on new motor vehicle safety opportunities, including new technologies that are demonstrated to have measurable safety benefits or show substantial promise for doing so. The roadmaps should identify those safety opportunities that are likely to be available within the following five calendar years and those that are likely to be available within the following ten calendar years. Development of these roadmaps would also be useful to NHTSA as components of a larger agency-wide safety priority identification exercise.

### RECOMMENDATION 2: Annual Stakeholder Engagement



**NHTSA should annually engage stakeholders to provide information on NHTSA's research developments and solicit input on future technologies and technical challenges.**

**Why It Helps:** This engagement will facilitate the ongoing development and implementation of a technically robust and broadly accepted program that appropriately incentivizes new technologies and safety performance expected to have real-world safety benefits for consumers.

**Specifics:** Auto Innovators recommends that NHTSA conduct stakeholder meetings at least annually to learn

about new safety technology developments and other safety opportunities and to provide stakeholders with information about the Department's research priorities for new safety opportunities and technologies over the coming five years.

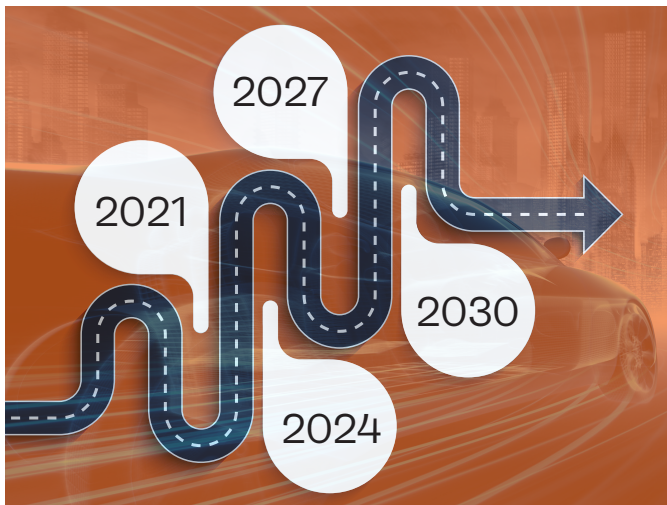
As part of the roadmap development process, key stakeholder groups should be consulted and given the opportunity to provide input to assist the agency in the following ways:

- Development, implementation, and periodic update of the Mid- to Long-Range NCAP Opportunity Roadmaps.
- Identification and prioritization of safety opportunities that lend themselves to a market-based/consumer information approach.
- Coordination with established third-party safety rating programs, such as Euro NCAP, China NCAP, and the Insurance Institute for Highway Safety's (IIHS) "Top Safety Pick," to avoid potential duplication or conflicts and provide appropriate harmonization of test procedures and test devices (e.g., crash test dummies and crash avoidance testing targets).

- Establishment of procedures for selecting advanced safety technologies to be rated.
- Development of test procedures, Part 572 certified ATDs and significant test equipment (e.g., vehicle and pedestrian surrogates), and performance metrics to be used to rate advanced safety and connected vehicle technologies.
- Gathering of insight and evidentiary data into alignment or misalignment of proposed changes with respect to current and future automated vehicle regulations.
- Development of a rigorous and science-based means for providing consumers with an overall safety rating(s) that distinguishes meaningful safety performance differences in a simple and easy to understand manner.
- Periodic evaluation of program effectiveness.
- Coordination with the “Clearing the Confusion” efforts of SAE International, along with industry and safety partners, to develop and implement the use of common nomenclature for new technologies as they become available.

### RECOMMENDATION 3: Consistent and Harmonized Program Updates

**NHTSA should maintain a consistent three-year NCAP program review and update cycle that is informed by the Mid- to Long-Range NCAP Opportunity Roadmaps.**



**Why It Helps:** Significant safety benefits will result from a consistently updated, and therefore modernized, program that leverages market forces to accelerate the introduction of advanced safety technologies and performance into the market.

**Specifics:** Auto Innovators recommends that, within one year following the publication of the NCAP Opportunities Roadmaps, NHTSA publish a notice in the Federal Register to propose potential program updates based on its review and consideration of public comment. This process should be repeated every third year thereafter consistent with the publication of the updated NCAP Safety Opportunities Roadmaps.

As part of the proposed program updates notice that follows, NHTSA should ensure that new safety opportunities or technologies (identified within the initial

NCAP Safety Opportunities Roadmaps) have demonstrated measurable safety benefits with reasonable cost implications. At NHTSA’s discretion, subsequent update proposals may add new safety opportunities or technologies to the program. Each update notice should also summarize the expected safety benefits associated with each new safety opportunity or technology being considered, and include relevant data supporting its inclusion based on demonstrated measurable safety benefits, as well as details of the cost implications and assumptions relied upon by the agency. Each update notice should further explain how NHTSA intends to incorporate the new safety technologies into the safety ratings program, including what objective criteria and test procedures will be used to evaluate performance, and what measuring devices (including anthropomorphic dummies) will be used in the evaluations. We strongly recommend that NHTSA not use an anthropomorphic dummy for purposes of the safety ratings program until it has been adopted through rulemaking into 49 C.F.R. Part 572.

At the Agency’s discretion, each update notice may also include information about new safety technologies that were identified in the NCAP Safety Opportunities Roadmaps as showing substantial promise for improving safety but were not ultimately incorporated in the calculation or award of safety ratings for new motor vehicles. Information about the availability of such technology, however, may be provided separately from the safety rating itself.

Regarding the process for ensuring consistent and harmonized program updates:

- NHTSA should publish a request for public comment on a draft version of each update notice at least 120 days before publishing the final update notice and should take public comments into account when deciding the content of the final update notice.

- NHTSA should also provide at least two years lead-time between the publication of the update notice and the effective date of future revisions to the safety rating program announced in the notice. NHTSA should not award or announce any ratings based on the revision to the safety ratings program prior to the effective date.
- If NHTSA's triennial NCAP Safety Opportunities Roadmaps do not identify any new technologies that have demonstrated measurable safety benefits since the last report, the agency should publish a notice in the Federal Register stating that there will be no update to the safety ratings program for this review cycle.
- In considering any changes to NCAP, NHTSA should focus on a program that is complementary to established third-party safety rating programs such as Euro NCAP, China NCAP, and the Insurance Institute for Highway Safety's (IIHS) "Top Safety Pick" to avoid potential duplication or conflicts and provide appropriate harmonization of test procedures and test devices. NHTSA should also avoid awarding ratings that would confuse consumers by their differences from existing new car ratings programs.

#### **RECOMMENDATION 4: Program Review & Evaluation**

**NHTSA should conduct periodic reviews of program effectiveness to identify technologies or provisions that are no longer appropriate for NCAP. NHTSA should support these periodic evaluations with appropriate research to:**

- **Verify the ratings are effective and understood by consumers, and**
- **Verify the relationship between assigned ratings and actual real-world safety performance.**

**Why It Helps:** Consumers are more likely to rely on NCAP information when making vehicle purchasing decisions if the information is meaningful and easy to understand.

**Specifics:** Auto Innovators recommends that NHTSA periodically evaluate NCAP to determine whether the program needs to be updated to eliminate technologies that are no longer appropriate for inclusion within the safety ratings program. The periodic evaluation should be no less frequently than triennially. Any technologies identified as no longer appropriate should be removed from the program in the next update notice after an opportunity for public comment on the proposed elimination.

#### **RECOMMENDATION 5: Prioritize Rulemaking to Remove Existing Regulatory Barriers**

**NHTSA should continue to prioritize rulemaking to remove existing barriers related to advanced technology. Some promising safety technologies that would lend themselves well to NCAP incorporation, such as adaptive driving beams, are currently prohibited or severely limited by Federal regulation.**

**Why It Helps:** Updating existing regulations to remove barriers to innovation will help ensure that non-safety-related specifications do not unnecessarily limit advances in safety.

**Specifics:** Throughout the development of Federal Motor Vehicle Safety Standards, some innovative new technologies were not contemplated. There are multiple instances of specific wording and/or test procedures that inhibit the introduction and deployment of new technologies. Auto Innovators is actively supporting the agency's efforts to update these regulations, including FMVSS 208 to address occupant crash protection.

There are specific regulatory barriers to deployment of new technologies that need to be addressed because they are preventing safety advances. For instance, some manufacturers may be unable to meet the timelines of the industry voluntary agreement to deploy AEB as standard equipment because another standard, the Part 581 bumper standard, which governs damageability, restricts compliance of certain sensor types. Auto Innovators suggests that there is room for interpretation of the legislation behind Part 581, that could allow for a broader range of sensors that would permit advanced crash avoidance systems such as AEB penetrate the fleet more quickly.

Auto Innovators also urges NHTSA to review and update expeditiously FMVSS 108, the lighting standard, which does not, as written, allow for adaptive beam headlamps, which are widely deployed in Europe. Additionally, FMVSS 111, on rear visibility, requires a driver's side mirror and does not allow for a camera-based system, which provides an enhanced field of view.

These are technologies that are well developed with proven safety effectiveness that should not be unintentionally prohibited by outdated regulations.

## ROLE OF NCAP IN ADVANCING MOTOR VEHICLE SAFETY

An effective and consistently maintained NCAP based on Mid- to Long-Range Roadmaps will leverage market forces to accelerate the development and deployment of advanced safety technologies and performance. It also facilitates a pathway toward potential follow-on regulation, if appropriate, once market penetration and field experience become sufficient to support cost/benefit analysis.

The value of an NCAP that has developed a process for continuously evaluating emerging safety technologies and folding them into a Long-Range Roadmap for vehicle manufacturers cannot be overstated. It permits automakers to develop long-term safety strategies that are aligned with the identified NCAP safety priorities and expected updates. As a result, when updated ratings are implemented, manufacturers have had enough time to have product in place that provides the enhanced safety performance. This is a “win-win-win” scenario for government, vehicle manufacturers, and especially consumers.

A key benefit of a continuous evolution of NCAP is that the introduction of advanced safety technologies and performance are encouraged through market incentives (objective ratings) in an orderly and predictable manner. To support the ratings, test procedures/evaluation metrics and safety benefits are identified. As the safety technology matures and the percentage of vehicles equipped with the technology increases, the cost for the technology typically decreases. At that time, since most of the fleet is equipped with the technology, the incremental cost of requiring the technology also decreases to the point where the cost/benefit ratio may support potential regulation. If regulation is the eventual goal, this is the most efficient path to get there.

Due to frequent changes in leadership, NCAP has historically been updated on an irregular basis. This has resulted in unpredictable, sometimes hasty efforts to modernize the program. In these situations, industry is provided little advance indication of what the new NCAP elements and ratings will be. Implementing new safety technologies across a fleet requires significant lead time. Therefore, when the new technology is incorporated into NCAP, the performance levels of the fleet typically receive lower ratings initially, which is confusing for consumers. Ultimately, this type of update does not achieve the desired safety outcome. However, a consistent, long-term vision and review schedule could enhance this program while also achieving the goal of modernization. If the NCAP update process is consistent and based on the Mid- to Long-Range Roadmaps, vehicle manufacturers will have advance knowledge of the long-term safety opportunities/priorities and be able to invest in the technologies necessary to have vehicles in place that perform well in the ratings when they are implemented. Essentially, the safety goals of NCAP can be more efficiently achieved.

Implementing stable NCAP update procedures and rulemaking approaches will provide significant safety benefits by leveraging market incentives to accelerate the introduction of safety technologies into the market. Doing so will also lay out an efficient path to potential follow-on regulation where appropriate.



### HOW THESE PROCESS RECOMMENDATIONS WILL HELP REALIZE 21<sup>ST</sup> CENTURY NCAP BENEFITS

These process recommendations will:



Help better inform consumers on new and advanced safety features and technologies.



Keep the program current and stimulate efficient product development.



Help improve the ability of NCAP to leverage market forces to accelerate the investment, development, and deployment of advanced safety technologies and performance.



Facilitate an efficient pathway toward potential follow-on regulation, if appropriate, once market penetration and field experience become sufficient to support regulatory cost/benefit requirements.



Provide a vital long-term program “vision” that encourages consumers to pursue, and automakers to invest in, advanced safety technologies and performance over time.



Result in a “win-win-win” scenario for government, vehicle manufacturers, and especially consumers.