



National Transportation Safety Board

Washington, DC 20594

Office of the Chairman

January 15, 2020

Docket Management Facility
US Department of Transportation
1200 New Jersey Avenue SE
West Building, Ground Level
Room W12-140
Washington, DC 20590-0001

Attention: Docket No. NHTSA-2019-0102

Dear Sir or Madam:

The National Transportation Safety Board (NTSB) has reviewed the National Highway Traffic Safety Administration (NHTSA) request for comments (RFC) titled “Advanced Driver Assistance Systems Draft Research Test Procedures,” published at 84 *Federal Register* 64405 on November 21, 2019. In its request, NHTSA presents testing procedures for nine advanced driver assistance systems (ADASs), with the goal of assessing the adequacy of the procedures. The agency emphasizes that the testing procedures are intended “for research purposes only” and are not developed to support rulemaking or the New Car Assessment Program (NCAP).

The NTSB recognizes NHTSA’s research efforts; however, we urge rapid incorporation of the test procedures into NCAP for passenger vehicles and the adoption of testing protocols and associated requirements for commercial vehicles. We are concerned that limiting the application of the testing procedures will further delay the expansion of NCAP. Additionally, based on our crash investigations and examination of various collision avoidance and other safety technologies, we offer the following comments in the general areas of ADASs in passenger (light) and commercial (heavy) vehicles.

ADASs in Passenger Vehicles

The NTSB has a long history of advocating for crash avoidance technologies. Since 1995, our investigations have led to the issuance of more than 25 recommendations in this area, many of which have been directed to NHTSA.¹ The recommendations have asked NHTSA to research, develop, or improve performance standards for the technologies; inform consumers about their benefits; encourage vehicle manufacturers to install them as standard equipment; and require them on all new vehicles.

¹ In 1995, the NTSB issued Safety Recommendation H-95-44 to the Department of Transportation, asking it to begin testing collision warning systems in commercial fleets. Because of a lack of progress, the recommendation was classified “Closed—Unacceptable Action” in August 1999.

Collision avoidance technologies, especially forward collision warning and automatic emergency braking systems, have shown safety benefits in reducing the frequency and severity of crashes.² Although the effectiveness of the technologies has been demonstrated, their incorporation into vehicle fleets remains slow. As a result, in May 2015, the NTSB issued recommendations to vehicle manufacturers to install the systems as standard equipment in all new vehicles (Safety Recommendations H-15-8 and -9).³ In the same report, the NTSB issued recommendations to NHTSA to incorporate a rating system into NCAP for forward collision avoidance systems and to include those ratings on the Monroney label (Safety Recommendations H-15-6 and -7).⁴

In December 2015, Congress mandated that NHTSA promulgate a rule within a year to require that crash avoidance information be placed alongside crashworthiness information on the Monroney labels of new vehicles.⁵ As part of the mandate, in December 2015, NHTSA initiated a request for comments titled “New Car Assessment Program,” in which the agency proposed expanding NCAP to include 5-star safety ratings for crashworthiness, crash avoidance technologies, and pedestrian protection systems. In our response to that RFC, we noted that the proposed NCAP would not only address Safety Recommendation H-15-6 but would also incorporate other safety technologies. Since the 2015 RFC, there has been no significant progress in the expansion of NCAP.

Concurrent with the 2015 RFC, plans were developed for accelerated deployment of collision avoidance systems. In March 2016, NHTSA and the Insurance Institute for Highway Safety (IIHS) came to an agreement with nearly all passenger vehicle manufacturers in the United States to equip all their new vehicles with forward collision warning and automatic emergency braking systems by model year 2022. The NTSB supported the agreement as a means of accelerating the deployment of those technologies in vehicles. However, as testing conducted by the IIHS and Euro NCAP, among others, has shown, the systems differ greatly in performance. To give manufacturers an incentive for improving performance and for informing the public about the effectiveness of the systems, a ratings system is essential. Moreover, a rating system should regularly increase the criteria for achieving a top score.

Safety Systems for Vulnerable Road Users

In our response to the December 2015 RFC, we expressed strong support for NHTSA’s proposed inclusion of pedestrian safety systems into NCAP. With the expected changes in mind, and the increase in the number of pedestrian fatalities across the nation, the NTSB began investigating fatal pedestrian crashes. In 2018, we published a special investigation report pertaining to pedestrian safety and issued numerous recommendations to NHTSA, including to develop performance tests for evaluating automatic pedestrian safety systems and to incorporate

² (a) The NTSB typically uses the term “autonomous (automatic) emergency braking” in its recommendations rather than “crash imminent braking,” the term NHTSA uses in its RFC. We view the terms as synonymous. (b) The NTSB discussed the safety benefits of collision avoidance technologies in a special investigation report published in May 2015 (*The Use of Forward Collision Avoidance Systems to Prevent and Mitigate Rear-End Crashes*, Special Investigation Report NTSB/SIR-15/01 [Washington, DC: NTSB]).

³ See NTSB/SIR-15/01. Safety Recommendations H-15-8 and -9 are classified “Open–Acceptable Response.”

⁴ Safety Recommendations H-15-6 and -7 are classified “Open–Acceptable Response.”

⁵ Public Law 114-94.

such systems into NCAP (Safety Recommendations H-18-42 and -43).⁶ Recently, in November 2019, we published a safety report on bicyclist safety that included a recommendation to incorporate into NCAP tests to evaluate a car’s ability to avoid crashes with bicycles (Safety Recommendation H-19-36).⁷

Although the NTSB has made specific recommendations for only some collision avoidance systems—forward collision warning, automatic emergency braking, and automatic pedestrian and bicycle detection—we also support other driver assistance systems that show a safety benefit. While we fully support the development of testing procedures for other ADASs, we have specific concerns pertaining to the current RFC.

Additional Concerns Regarding NCAP

The NTSB’s primary concern regarding NCAP relates to the lack of progress on its expansion. In September 2018, NHTSA held a public meeting to obtain further input from stakeholders regarding the expansion of NCAP. While we recognize this effort, incorporating ratings of collision avoidance technologies into NCAP has been exceedingly slow, particularly when considering the existing mandate from Congress. We are concerned that the multiple statements in the current RFC about the testing procedures being developed for “research purposes only,” and an emphasis that they are not “developed to support identified rulemaking efforts,” indicate further delay. Four years after issuing an RFC with proposals for expanding NCAP, the assessment program still does not include ratings for the performance of crash avoidance technologies or vulnerable road user protection systems. The NCAP website includes icons indicating the presence of certain ADASs on a vehicle (even if a system is optional equipment), but they are not rated for performance. Moreover, even this limited information is not included on the Monroney label.

Another of our concerns relates to the lack of pass/fail criteria. We recognize that the limitation is due to the research-only purpose, yet the lack of assessment criteria limits the usefulness of the proposed testing protocols. In its December 2015 RFC, NHTSA proposed using various Euro NCAP testing protocols as a basis for assessing the performance of pedestrian automatic emergency braking systems. The proposed protocols in the current RFC largely resemble those from Euro NCAP, which suggests that NHTSA’s delay is not warranted.

⁶ See *Pedestrian Safety*, Special Investigation Report NTSB/SIR-18/03 (Washington, DC: NTSB). Safety Recommendations H-18-42 and -43 are classified “Open–Acceptable Response.”

⁷ See *Bicyclist Safety on US Roadways: Crash Risks and Countermeasures*, Safety Study NTSB/SS-19/01 (Washington, DC: NTSB). Safety Recommendation H-19-36 is classified “Open–Await Response.”

ADASs in Commercial Vehicles

Many of the initial recommendations that the NTSB issued pertaining to collision avoidance systems related to their use in commercial vehicles.⁸ In 2015, we issued a recommendation to NHTSA to complete the development of performance standards and protocols for the assessment of forward collision avoidance systems in commercial vehicles (Safety Recommendation H-15-5).⁹ In 2018, as a result of school bus crashes in Baltimore, Maryland, and Chattanooga, Tennessee, we issued a recommendation to NHTSA to require all new school buses to be equipped with collision avoidance systems and automatic emergency braking technologies (Safety Recommendation H-18-8).¹⁰

The NTSB recognizes the proposed testing procedures for collision warning systems and automatic emergency braking in commercial vehicles, as described in this RFC; however, we still have three main concerns. The first parallels the one expressed earlier pertaining to testing procedures for pedestrian automatic emergency braking—the rate of progress in the development is unacceptably slow. It has been almost 5 years since the NTSB issued Safety Recommendation H-15-5 and 25 years since the original recommendation was issued; moreover, forward collision warning systems have been available in commercial vehicles for more than two decades. Slow progress is further demonstrated by the continued absence of pass/fail criteria, as well as the limited application of the testing protocols.

Our second concern pertains to the proposed testing velocities. The NTSB has investigated many crashes involving a commercial vehicle approaching a slow or stopped traffic queue on a highway and striking the rear of the queue. This is a common crash scenario that, considering the weight of the striking vehicle and highway speeds, is almost always fatal. Moreover, because commercial vehicles are more likely to travel on high-speed roads, it is reasonable that collision avoidance test protocols for those vehicles would include higher speeds. While the NTSB recognizes the limitations of collision avoidance systems (the perceptual capabilities of the sensors and the braking capabilities of heavy vehicles), we strongly believe that it is important to strive for the performance we want the systems to be able to reach, not merely to test to the current capabilities of the systems.

Our third concern is that several of the technologies being assessed for passenger vehicles would be beneficial for commercial vehicles. For example, the use of intersection assistance systems for heavy vehicles was addressed in our investigation of an intersection collision between

⁸ For example, see *Vehicle- and Infrastructure-Based Technology for the Prevention of Rear-End Collisions*, Special Investigation Report NTSB/SIR-01/01 (Washington, DC: NTSB). Safety Recommendation H-01-6 recommended that NHTSA complete rulemaking on adaptive cruise control and collision warning system performance standards for new commercial vehicles. At a minimum, those standards should address obstacle detection distance, timing of alerts, and human factors guidelines, such as the mode and type of warning. Safety Recommendation H-01-6 was classified “Closed–Unacceptable Action” in June 2015 and superseded by Safety Recommendation H-15-5.

⁹ See NTSB/SIR-15/01. Safety Recommendation H-15-5 is classified “Open–Acceptable Response.”

¹⁰ See *Selective Issues in School Bus Transportation Safety: Crashes in Baltimore, Maryland, and Chattanooga, Tennessee*, Special Investigation Report NTSB/SIR-18/02 (Washington, DC: NTSB). Safety Recommendation H-18-8 is classified “Open–Acceptable Response.”

a school bus and a truck in Chesterfield, New Jersey, in 2012.¹¹ In addition, we recommended the use of technology on heavy vehicles to protect vulnerable road users, including pedestrians, in our safety report on single-unit truck crashes.¹²

To conclude, the NTSB appreciates the opportunity to provide comments and recognizes the crucial safety role that NCAP has—*and could have*—in educating consumers and providing incentives to manufacturers to improve safety. We also recognize the vast volume of research that NHTSA has done, and continues to do, in the area of collision avoidance technologies and in working with manufacturers to speed the deployment of those life-saving technologies. However, the US NCAP has fallen behind its counterparts with respect to the safety information it provides to consumers. The NTSB urges NHTSA to again become a leader by (1) incorporating ADASs and other safety performance measures in its NCAP, and (2) adopting testing protocols for collision avoidance systems in commercial vehicles and then requiring them on all new heavy vehicles.

Sincerely,

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Chairman

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¹¹ See *School Bus and Truck Collision at Intersection Near Chesterfield, New Jersey, February 16, 2012*, Highway Accident Report NTSB/HAR-13/01 (Washington, DC: NTSB).

¹² See *Crashes Involving Single-Unit Trucks that Resulted in Injuries and Deaths*, Safety Study NTSB/SS-13/01 (Washington, DC: NTSB).