



July 22, 2021

Submitted via Regulations.gov

The Honorable Pete Buttigieg, Secretary
U.S. Department of Transportation
1200 New Jersey Avenue SE
Washington, D.C. 20590

Re: Request for Information on Transportation Equity Data, Docket No. DOT-OST-2021-0056

Dear Secretary Buttigieg,

The Center for Auto Safety (CAS) fully supports the Department of Transportation (DOT) in its efforts to ensure better data is acquired to advance transportation policy, and particularly transportation safety initiatives. The DOT's Request for Information on Transportation Equity Data¹ is an important initial step in the administration's efforts to ensure that all Americans have safe and equitable access to multiple modes of transportation.

There is little question that there are disparate impacts on underserved communities when it comes to motor vehicle crash deaths. Socioeconomic status as well as race and ethnicity are too often predictors as to who is most likely to be among the almost 40,000 crash fatalities on U.S. roads every year. The first step in addressing this problem is to be sure that useful data is collected, which in turn enables policymakers to understand the scope of the issues and create solutions to improve road safety for everyone.

To that end, the Center provides responses below to pertinent areas of the Department's request.

(20) How should the Department engage industry on gathering more detailed data on advanced safety features in vehicles for evaluating if technologies and their benefits are disproportionately distributed among different income and demographic groups and whether such technologies have equitable predictive performance to improve safety for all citizens?

Data needs to be recorded and analyzed to determine if AV technology or components are responsive to human needs, characteristics, and activities and perform equitably with regards to underserved communities, persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality. Safety technologies that are only

¹ <https://www.govinfo.gov/content/pkg/FR-2021-05-25/pdf/2021-10436.pdf>

offered to the public as part of premium options inherently discriminate against people with lower incomes, creating disproportional impact on lower income motorists and their communities. Automakers have continued to market and sell available crash avoidance features as “add-ons” which can add thousands of dollars to the purchase of a new car. The best way to ensure safety is by getting advanced technology that works into vehicles as fast as possible – not as an option. The Department should collect data to ensure that these advances benefit all consumers and road users, and bring safety results quickly, with an eye towards eliminating historic inequalities when it comes to vehicle safety.

Emerging automatic driving systems (ADS) and automated driver assistance systems (ADAS) may rely on artificial intelligence (AI) for routine operations as well as safety-specific features. Unfortunately, AI may reflect the biases of its developers and data input. Both gender biases and racial biases have been seen in AI.² Data collection used for validation of such ADS/ADAS components and systems must have sufficient scope and granularity to identify and allow resolution of any gender or racial biases that affect safety or operations. Such collection should include use by the public of ADS-enabled for-hire vehicles. The data can then be utilized to remove residual biases from the systems.

The New Car Assessment Program (NCAP) is an example of a program that potentially leads to unintended inequities. The destructive tests employed by NCAP use only 50% adult male and 5% adult female anthropometric test devices (ATD) as per NHTSA’s current practice. Vehicle restraint designs based on only two body types inherently discriminate against every other body type. This situation has significance for several underrepresented groups, especially women and seniors who have notably different body types and reactions to impact loads than the typical males and small women represented by the ATD’s currently used for design evaluation and test.³

Advanced feature technologies may be grouped primarily into those that are internal or occupant-oriented, and those that are external or vulnerable road user (VRU)-oriented. Occupant-oriented technologies include those related to ingress/egress, seating, restraint systems, and supplemental restraint systems. Currently, there is a regulatory void for exceptional body types and especially for individuals with disabilities who cannot or may not benefit from vehicle features designed based on standard body types. Obese persons and seniors are common body types not represented in NCAP testing, despite the existence

² Artificial Intelligence Has a Problem With Gender and Racial Bias. Here’s How to Solve It, TIME, <https://time.com/5520558/artificial-intelligence-racial-gender-bias/>

³ It is worth noting that even the 50% male ATD and the 5% female ATD are not representative. See, e.g. Riley Beggin, *No Crash Test Dummy Represents Average Women. What’s That Mean for Safety?*, The Detroit News, Mar. 19, 2021 at: https://www.stltoday.com/news/national/no-crash-test-dummy-represents-average-women-what-s-that-mean-for-safety/article_965ec5c2-ae0-5ff3-914e-1beb252e5b5a.html: “The dummy represents the 5th percentile of women in the 1970s, meaning 95% of women were larger than it. It is 4-foot-11 and clocks in at 108 pounds — slightly smaller, by today’s standards, than the average 12-year-old girl. The average American woman, meanwhile, now is just under 5-foot-4 and weighs around 171 pounds, according to the Centers for Disease Control and Prevention. The male dummy, representing the 50th percentile of men in the 1970s, is the same height as the average man of today but is around 15% lighter. The female dummy is 8% shorter and 45% lighter.”

of representative ATDs.⁴ Seniors are both an increasing share of drivers, and more fragile than younger people.⁵ People with these common exceptional body types can respond significantly differently to crash loads than the standard body types used in NCAP tests.⁶

NHTSA can and should expand its NCAP test data collection and vehicle star ratings systems to accommodate additional common body types. NHTSA should also modify its rating system to provide the public with differential test results illustrating relative benefits for applicable population segments, as recommended by CAS in its response to NHTSA's request for comment on its 5-Star Rating System.⁷ Collecting data by crash testing using exceptional body types and using it in the 5-star rating system will motivate improved vehicle design and reward OEMs investing in vehicle safety, ultimately resulting in improved safety for currently underrepresented but common body types.

Another concern is adaptability of command technologies including options such as touch screen use that require technical sophistication for all users and presents special challenges for people with certain disabilities. If vehicles, including potentially ADS/ADAS-equipped vehicles, include voice command technology it must be sufficiently robust for people with speech difficulties and the wide variety of languages, accents, and dialects spoken by Americans. Data collection to validate these technologies should be designed to assure detection of any biases, enabling their elimination.

Industry must develop appropriate metrics and to collect metrics data tracking these various parameters and report those data to demonstrate equitable technology development. NHTSA should attempt to protect as large a slice of the population as it can through standards development and rulemaking. The agency should make sure that rules, practices, and test protocols are based on not the smallest population slice that is convenient but the largest cohort, including the full range of different income and demographic groups that available advanced safety technology can protect.

VRU-oriented advanced safety technologies, especially those relying on machine vision, must be robust and reliable with respect to human presence. Such technology must be able to detect a wide number of categories including: pedestrians, people in wheelchairs, people using walkers or canes, bicyclists, roller skaters, skateboarders, people pushing perambulators, people leading animals or on horseback, without regard to gender, skin hue, body type, or clothing. Additionally, to create an environment for widespread adoption of the technology, it is critical that advanced safety technologies can detect VRUs in

⁴ Crash-test dummies are older and fatter – just like many Americans, CNN, February 11, 2017, <https://www.cnn.com/2017/02/10/health/crash-test-dummies-obese-trnd/index.html>

⁵ Older Drivers, IIHS, <https://www.iihs.org/topics/older-drivers>

⁶ The Effect of Obesity on the Restraint of Automobile Occupants, Forman et al., University of Virginia Center for Applied Biomechanics, Oct, 5, 2009, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3256798/>; Crash test dummies based on older bodies could reduce road fatalities, Phys.org, <https://phys.org/news/2018-06-dummies-based-older-bodies-road.html>

⁷ Center for Auto Safety Formal Comment on Government 5-Star Safety Ratings Label, June 29, 2020, <https://www.govinfo.gov/content/pkg/FR-2016-09-01/pdf/2016-20926.pdf>

environments where vehicle crashes lead to a disproportionate number of deaths, such as traditionally underserved communities, be they urban or rural.⁸

The European Commission UDRIVE large scale naturalistic driving study collected data to improve understanding of road user behavior and its relationship to safety, including collisions involving VRUs.⁹ Data collected were used to develop Euro NCAP standards for VRU protection vehicle evaluations. American vehicles have fallen behind their international competitors when it comes to crashworthiness designs specifically intended to protect VRUs. Vehicle mass and size can have profound effects on VRU collision consequences. Advanced safety technology can benefit VRUs, but only if implemented, which must be encouraged the inclusion of VRU safety features in NCAP ratings as has been done in Europe.¹⁰ But encouraging voluntary design changes to save VRU lives is clearly insufficient on its own. Pedestrian deaths from collisions increased 20% in 2020 compared with 2019.¹¹ NHTSA must develop rules to assure safety of vulnerable road users without bias for or against any group including VRUs and should modify NCAP to include evaluation of the relative safety of the different vehicles available today. The first step is data collection that establishes relationships between vehicle design and operation with VRU death and injury, especially for ADS/ADAS-equipped vehicles, where supervised test operations have caused pedestrian death.¹²

In addition to the collection of equity data on advanced safety features, the Center also recommends that appropriate data be collected on equity outcomes due to a not-so-advanced safety feature overseen by the Department – the vehicle recall system. Despite years of study, NHTSA has been unable to implement even the simplest of recall notification rules such as the requirement that manufacturers send emails to owners notifying them of a recall on their vehicle, in addition to sending this notice by mail.¹³ Recall completion rates remain poor, particularly in the older vehicles relied upon by many in disadvantaged populations, and better notifications in addition to other potential improvements to the recall program remain necessary. Data collection on barriers to recall notification and repairs is critical to ensuring equitable outcomes in safety defect repair and avoidance, and may provide new strategies to reach owners and support increased recall completion rates.

⁸ Harper, et al., Trends in Socioeconomic Inequalities in Motor Vehicle Accident Deaths in the United States, 1995-2010, *Am J Epidemiol*, 2015, at: <https://pubmed.ncbi.nlm.nih.gov/26354899/>

⁹ Final Report Summary - UDRIVE (European naturalistic Driving and Riding for Infrastructure & Vehicle safety and Environment), <https://cordis.europa.eu/project/id/314050>

¹⁰ Vulnerable Road User (VRU) Protection, <https://www.euroncap.com/en/vehicle-safety/the-ratings-explained/vulnerable-road-user-vru-protection/>

¹¹ U.S. Pedestrian Deaths Rose in 2020, Even Though Driving Declined, *US News and World Report*, 23 March 2021, <https://www.usnews.com/news/health-news/articles/2021-03-23/us-pedestrian-deaths-rose-in-2020-even-though-driving-declined>

¹² Uber Backup Driver Indicted in 2018 Self-Driving Crash That Killed Woman, September 15, 2020, <https://www.phoenixnewtimes.com/news/uber-backup-driver-in-phoenix-indicted-over-fatal-self-driving-car-crash-in-18-11494111>

¹³ A notification requirement which NHTSA was required to promulgate by law under Section 24014 of the FAST Act. While rulemaking was commenced on this Congressional mandate, there has been no progress for five years on rule completion or implementation. <https://www.govinfo.gov/content/pkg/FR-2016-09-01/pdf/2016-20926.pdf>

Thank you for the opportunity to provide our views on this portion of the Department's Request For Information.