November 6, 2017

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


On behalf of the more than 31,000 members of the National Society of Professional Engineers, these comments are submitted in response to the National Highway Traffic Safety Administration’s Guidance: Automated Driving Systems-A Vision for Safety.

NSPE has consistently and proactively engaged and advocated for the need to ensure that major technological, safety, and ethical implications are considered before testing and deploying autonomous vehicles on public roads. In 2016, NSPE urged NHTSA to revise its initial guidance document, the Federal Automated Vehicles Policy. Unfortunately, rather than strengthening the guidelines, this new version explicitly focuses on enabling manufacturers to accelerate deployment rather than addressing NSPE’s critical concerns.

Recognizing the promise of autonomous vehicles, NSPE has been a leading advocate on the need to place the public health, safety, and welfare first, and to require a licensed professional engineer to play a key role in the development, testing, and safety certification of autonomous vehicles. NSPE and the professional engineers it represents have a foremost responsibility to protect the public health, safety, and welfare—and to make others aware of ways that safety may be jeopardized.

Given the unique technical and ethical expertise that professional engineers possess, NSPE strongly believes professional engineers can play a key role in addressing the ethical and technological challenges raised by autonomous vehicles.

NSPE strongly urges NHTSA to revise its policy in 2018 to address the following key issues:

- Current guidelines allow manufacturers and suppliers to self-certify, eliminating a critical third-party safety check. We recommend a requirement
for third-party certification of autonomous vehicles and technologies by someone in the decision chain who has a duty that puts public safety first and overrides competitive pressures—i.e., a professional engineer. Violations of the public trust that have endangered safety and welfare, such as ignition switches, emissions falsifications, and airbag recalls show the necessity of an impartial third-party to ensure safety.

- Significant work remains before human-operated and autonomous vehicles can safely share public roadways. Many factors—weather, pedestrians, road conditions—are common, rapidly changing, and highly unpredictable. Current guidelines assume these hurdles will be easily overcome. However, much about the application of the technology and the resulting effects remain unknown, and major concerns need to be addressed before deployment in uncontrolled environments. For example:

  ✓ In a recent University of Michigan study, post-it notes were placed on stop signs, causing the software to interpret the sign as a speed limit sign. A human driver would recognize the sign by its shape and color with a high degree of accuracy, regardless of whether the sign was partially defaced.

  ✓ In March of 2016, Tempe, Arizona, police cited a driver for making an illegal left turn and hitting one of Uber’s test Volvos while in self-driving mode. While the autonomous vehicle involved in the accident was obeying the traffic laws, a human driver would most likely have avoided the accident under the same circumstances. Some (but not all) manufacturers recognize that strict adherence to road regulations can be a contributing factor to accidents.

- AV technology should match or exceed the same degree of accuracy as human drivers in terms of cognitive recognition and decision making in real-world driving conditions. NSPE believes that NHTSA should develop and set performance criteria for AV technology. These performance standards can be monitored, evaluated, and/or certified through simulation testing to assist in the development of benchmarking criteria.

- In a recent survey conducted by AAA, more than 75% of Americans fear the idea of traveling in a self-driving car. NHTSA policy adjustments will provide an opportunity to strengthen thoughtful discussion about public health, safety, and welfare and will likely provide for improved public understanding and acceptance of self-driving cars.
The enormous ethical implications of deploying autonomous vehicles are simply not addressed in current guidelines, which is perplexing. No proposed methods for addressing life-and-death decisions are provided, leaving these critical considerations solely up to manufacturers which, despite industry initiatives to establish best practices in artificial intelligence, have yet to establish guidelines prior to deployment of this technology. A third party incorporating the input of all stakeholders should play a key role in this evaluation. These third parties should be legally obligated to place the public health, safety, and welfare above all other considerations.

The risks posed by failing to adequately address public safety protections are too great to ignore. For NHTSA to achieve its mission to “Save lives, prevent injuries, and reduce economic costs due to road traffic crashes, through education, research, safety standards, and enforcement activity,” these proposed recommendations must be incorporated into the next version, slated for release in 2018.

NSPE greatly appreciates this opportunity to comment on the guidelines set forth in the Automated Driving Systems: A Vision for Safety. Please contact Arielle Eiser, associate director of government relations and advocacy, with questions or comments at aeiser@nspe.org.

Sincerely,

Tom C. Roberts, P.E., F.NSPE
President, 2017–18

Cc: NSPE Board of Directors
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