



February 10, 2016

Brian G. Soublet
Chief Counsel
California Department of Motor Vehicles
Legal Office M/S C-128
2415 1st Avenue
Sacramento, CA 95818

Dear Mr. Soublet,

This is an important *first* step, not a final one, in the effort to develop and deploy technology that offers the as-yet-unproven promise of improved transportation efficiency and safety, particularly to communities poorly served by the current capabilities of automotive technology, such as persons with disabilities. We believe that California's proposed, measured approach will speed, not deter the development and deployment of this important technology by creating the opportunity to gain practical experience testing and proving autonomous vehicle capabilities in the real world, particularly its capacity and limits in ensuring effective protection of public safety in the challenging environment of live traffic conditions. This is an environment in which human-operated and autonomous vehicles must share the public roadways and respond to the myriad of commonplace, constantly and rapidly changing, but highly unpredictable human, weather, road condition, situational and other factors that can instantly create hazardous conditions with zero-tolerance for a failed or delayed response.

In short: **rapid innovation, free of unproductive regulatory cost and delay is *not* mutually exclusive to fully addressing society's paramount concern for public health, safety and welfare. The balance the California Department of Motor Vehicles has struck in its initial proposed regulations is appropriate and sound.**

2. A Comprehensive and Informed Approach is Required

Moreover, the ground-breaking developments now occurring in California are not happening in a vacuum. Although it is beyond the scope of the California proceedings, NSPE strongly urges an open, comprehensive and coordinated effort involving industry, state and federal governments, and the public to ensure that implications for public health, safety and welfare are fully understood and addressed *before* the deployment of fully autonomous vehicles.

In the early 20th century, industry and government did not set out to intentionally build dangerous buildings, bridges, or water systems. But, in some instances, the need for such basic infrastructure and the pressure to meet the demand developed more rapidly than the necessary evaluations related to public safety could be performed. Failures, with tragic consequence, were the result. This history should not be allowed to repeat itself. The same expertise and ethical awareness that licensed professional engineers brought to the built infrastructure environment can make the difference between the success or failure of the current autonomous vehicle deployment.

Accordingly, autonomous vehicles and intelligent road systems are areas of innovation that require attention *now*, while the new technology is still emergent. And that attention should come from people with not only appropriate technical expertise, but also the ethical and safety accountabilities of licensed professional engineers.

A balkanized approach to the regulation of the deployment and operation of autonomous vehicles is in neither the manufacturers' nor the public's interest. Manufacturers need certainty and consistency in the regulatory requirements of the market and the public requires confidence in the effective protection of its health, safety and welfare.

Both of these interests demand a higher level of national and state coordination and a more open discussion of technology capabilities and limitations than has occurred to date. The U. S. Department of Transportation/National Highway Traffic Safety Administration's recent announcements of (and promise of significant resource investments in) autonomous vehicle safety initiatives are to be commended for their recognition of the importance of "a path to national consistency." However, there is already reason for concern over a potential and fundamental conflict between the various states, localities and federal regulatory diverse approaches to autonomous vehicles. For example, whether to require or rely upon smart road systems rather than entirely upon vehicle control software.

An open, transparent and collaborative federal/state/local approach is necessary not only to ensure the public interest is served through ethical innovation in technology, but to ensure such an approach will enhance, not diminish the economic performance and speed of deployment for manufacturers by increasing public awareness, understanding and acceptance of the new technology.

3. Vehicle Safety Certifications.

NSPE strongly believes that vehicle safety certification must include both safety certifications by the manufacturer *and* third-party testing by competent and independent third-party authorities. NSPE is concerned about the ability to test and confirm the competency of third-party testing authorities absent a requirement that such testing authorities hold professional engineering licenses. Professional engineers are licensed after a state licensing board has evaluated and confirmed that the individual has met certain educational and competency requirements.

a. Behavioral Competencies

NSPE participated in the January 19th workshop convened in Washington, DC, by the California PATH Program, University of California, Berkeley California (California PATH) to provide peer review feedback on proposed, draft “behavioral competencies” for autonomous vehicles. We have followed up with written comments, provided directly to California PATH¹, and we look forward to continuing to work with interested parties in this area.

b. Manufacturer Safety Certifications

We have been impressed by, and commend the seriousness of, the commitment to safety that manufactures and developers have demonstrated.

However, a century of experience demonstrates that protection of public safety is best served when there is someone in the decision chain who does *not* face pressure from shareholders or non-technical management to meet budget, project timeline or sales projections. The public is best served when there is someone in the decision chain who does not face competitive pressures to be first to market or surpass other manufacturers’ offerings, or even peer pressure to be a team player and not the department or group within the corporation whose legitimate safety concerns might delay a high-stakes project.

Because of the profound ramifications for public safety and welfare from the use of autonomous vehicles, the multiple engineering disciplines involved in autonomous vehicles systems, and the accountability of licensed professional engineers to act in the interests of the public, it is the position of NSPE that the manufacturer’s certification of their vehicle’s compliance with all relevant state and federal standards and regulations must be performed by licensed professional engineers.

c. Third-Party Testing

For many of the same reasons, there is a need for independent, third-party testing of vehicles prior to their deployment on public roads. Since such testing regimes fall within the practice of engineering in state licensure regulations, such tests should be performed under the supervision of licensed professional engineers.

This need is even more relevant and urgent to establishing public trust and acceptance of paradigm-busting new technology in an era in which at least one, major automotive manufacturer has been found to have designed and deployed into the market vehicles equipped with software designed for the specific purpose of circumventing mandated emissions control system standards.

¹ February 5, 2016 letter from NSPE President Timothy R. Austin, PE, F.NSPE, to Dr. Steven E. Shladover, PATH Program Manager.

Given that reality, a “trust us, we know best” approach on the part of manufacturers is simply not going to suffice.

4. Closing

The development and introduction of autonomous cars is as historic and epoch-making as the first introduction of motorized vehicles themselves in the 19th century. The technological, safety, quality of life, economic and commercial implications are profound. California’s initiative in tackling the regulation of autonomous vehicles is to be commended and is a matter with national implications.

Thank you for allowing us the opportunity to participate in the development of the rulemaking process. We offer the resources of the both NSPE and the California Society of Professional Engineers to assist you further.

Sincerely,

A handwritten signature in black ink, appearing to read "Tim Austin". The signature is fluid and cursive, with a long, sweeping underline that extends to the left.

Timothy R. Austin, P.E., F.NSPE
NSPE President

TRA:AES/mac

cc: Bernard C. Soriano, Ph.D., Deputy Director, California DMV
NSPE Board of Directors
California Society of Professional Engineers Board of Directors