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May 7, 2018

The Honorable Elaine Chao
Secretary
U.S. Department of Transportation
1200 New Jersey Avenue SE
Washington, DC 20590

Re: Docket Numbers: NHTSA-2018-0009; FMCSA-2018-0037; PHMSA-2018-0001

Dear Secretary Chao:

I am writing to express Amazon's support for, and provide comments to, the Department of Transportation's (DOT) requests for comments on regulatory barriers to advancing autonomous vehicle (AV) technology. We appreciate DOT's focus on fostering innovation in AV technology and your outreach to innovators, inventors, and other stakeholders. These new technologies have great potential to enhance network-wide efficiency, reduce environmental impacts, and dramatically improve transportation safety.

Amazon seeks to be Earth's most customer-centric company. We are guided by four principles: customer obsession, passion for invention, commitment to operational excellence, and long term thinking. To serve our customers, we continue to focus on finding new transportation technologies that create new delivery options or improve our existing transportation network. As a pioneer in commercial drone (also known as unmanned aircraft systems or UAS) transportation, we are working with the Federal Aviation Administration (FAA) to develop a regulatory framework to ensure autonomous vehicles operate safely as UAS technology continues to evolve. We look forward to continuing to work with the Department to develop and promote the use of autonomous vehicles and supporting smart technologies across multiple modes.

AV technology is a part of the current and future generation of transportation. To encourage and accelerate the development and deployment of these technologies, policymakers should ensure that regulations prioritize safety, develop clear standards, and are flexible enough to keep up with the pace of innovation. The next iteration of the Department's AV voluntary guidance presents an opportunity to provide clear direction for the development of these technologies while allowing for innovation. As you develop the next round of guidance, we ask that you consider the following:

- *Promote performance-based standards.* Industry and government must work together to develop performance-based standards that focus on measurable outcomes rather than prescribed equipage or design requirements. Performance-based standards should focus on addressing risk and consequence factors associated with different operations, taking into account the design, capabilities, and the operational applications of those vehicles and supporting systems. Focusing on establishing performance-based safety requirements, rather than prioritizing specific technologies, will allow new and amended policies to address technologies not yet invented.

- *Develop a consistent multimodal regulatory system for surface AV technologies.* To the extent possible, there should be a consistent regulatory structure for AV design and operation. The development and testing requirements created under this common regulatory framework should ensure that each device type can operate safely in the operational domain for which it is designed.

- *Provide consistent design and operating requirements nationwide and globally.* A patchwork of state regulations will create barriers to adoption of AVs and impede the widespread deployment of

technologies that will have tremendous safety benefits. Federal performance-based design and operational requirements should be responsive to state, tribal, and local concerns, but at the same time should apply uniformly across the U.S. rather than inconsistent state-by-state approaches. In addition, to facilitate the widespread adoption of these technologies and their attendant benefits, DOT should partner with other countries to ensure these standards are harmonized internationally.

- *Develop federated, interoperable communications standards.* AV communications should be multimodal, standardized, and interoperable so different systems can interact seamlessly, sharing critical vehicle information to ensure safety of operations, irrespective of manufacturer, owner, or operator. The UAS Traffic Management (UTM) system being developed jointly by FAA, NASA, and industry partners is a great example of public/private partnerships underway to create a federated, distributed communications system. The UTM network will be scalable, cost efficient and safe, using solutions that leverage current and emerging technologies, and follow an internet-based architecture. DOT should ensure that additional spectrum options, such as those used by cellular networks, are available to support communications for safety-critical transportation uses in a manner that does not infringe on current safety protected spectrum requirements.

- *Promote Vehicle-to-Vehicle (V2V) and Vehicle-to-Infrastructure (V2I) technical interoperability and performance-based solutions for safe vehicle operation.* The Dedicated Short Range Communications (DSRC) standard, based on industry Wi-Fi standards and developed for automotive use, is one option that could be embraced for multimodal V2V based separation and collision avoidance. Other technology solutions should also be available to ensure V2V and V2I communications in a technology neutral fashion. In addition, separate performance-based standards should be established for safety systems that do not require communications between vehicles.

- *Modernize existing regulations and reject arbitrary requirements for AVs.* The Department should review and continuously update Federal Aviation Regulations, Federal Motor Vehicle Safety Standards, Federal Motor Carrier Safety Regulations, and Hazardous Materials Regulations to ensure regulatory requirements take into account the possibility of autonomous systems. In addition, we encourage the Department to avoid imposing additional or arbitrary requirements on AVs, including restrictions on cargo, regulated goods, or operations. In the short term, the Department should continue to use exemptions and special permits to enable testing and deployment while, in parallel, developing new performance standards where needed and amending existing regulations.

We look forward to working with you in promoting transportation policies that support safety, growth, and innovation for our customers. Please let us know how we can be a resource as you lead efforts to advance AV technologies. We would welcome the opportunity to discuss policies impacting transportation technology with you at any time.

Sincerely,

Brian Huseman
Vice President, Public Policy

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