



December 10, 2018

Via Federal eRulemaking Portal: <http://www.regulations.gov>

The Honorable Heidi King
Deputy Administrator
National Highway Traffic Safety Administration
United States Department of Transportation
1200 New Jersey Avenue, SE
West Building, Ground Floor, Room W12-140
Washington, D.C. 20590-0001

RE: Comments of Drive.ai Regarding “Pilot Program for Collaborative Research on Motor Vehicles with High or Full Driving Automation,” Docket ID No. NHTSA-2018-0092

Dear Deputy Administrator King,

Drive.ai submits these comments regarding the National Highway Traffic Safety Administration’s (“NHTSA”) advance notice of proposed rulemaking titled “Pilot Program for Collaborative Research on Motor Vehicles with High or Full Driving Automation” (“Proposed Pilot Program”).

Drive.ai is a self-driving vehicle software company offering scalable and adaptable technology to advance the autonomous vehicle (“AV”) industry. Drive.ai has worked closely with public and private partners to deploy geo-fenced Level 4 self-driving solutions that address local transportation challenges. Drive.ai’s ultimate goal is to make AV technology as safe and accessible as possible. As such, Drive.ai supports NHTSA’s effort to incorporate real-world testing opportunities for AV technology through the Proposed Pilot Program. Drive.ai also appreciates the opportunity to offer comments on certain aspects of the program.

Drive.ai strongly supports NHTSA’s proposal to develop a national pilot program for testing and deploying AV technology. Drive.ai encourages NHTSA to design the program in a way that allows for participation by a range of entities and ensures that the data collected is reliable and meaningful. Further, Drive.ai urges NHTSA to emphasize transparency through data sharing obligations and encouraging community engagement. Drive.ai supports NHTSA’s plan to use existing statutory and regulatory exemptions to facilitate the program, and to expand the scope of these exemptions where necessary to further the development of AV technology. Above all, Drive.ai shares NHTSA’s commitment to safety for AV users, other drivers, and pedestrians alike, and supports a program that is designed to deploy this technology as safely as possible.

I. Background

Founded in 2015 out of Stanford University's Artificial Intelligence Lab, Drive.ai uses artificial intelligence to improve the state of mobility through AVs. Drive.ai is headquartered in Mountain View, California and currently employs approximately 175 people and is growing. Its technology uses a deep-learning-first approach to develop an integrated software and hardware solution that is both scalable and adaptable to a variety of vehicles and environments. The result is a turnkey mobility solution through self-driving cars for partners and communities with every day and unique transportation needs.

In 2018, Drive.ai entered into partnerships with the Transportation Management Association ("TMA") of Frisco, Texas and the City of Arlington, Texas to deploy its technology on the ground, offering one of the nation's first on-demand Level 4 self-driving ride services to the public. These deployments were preceded by community outreach and incorporated education efforts as well as data-sharing to ensure transparency and accountability with the public and local regulators. Drive.ai is fully committed to putting people and safety first for drivers, riders, and pedestrians alike in Texas and in all future deployments. As an industry leader in real-world testing of AV technology, Drive.ai has a direct and distinct interest in the Proposed Pilot Program.

II. Pilot Program Design Features That Emphasize Both Opportunity and Safety

Drive.ai supports NHTSA's plan for a pilot program that both enables testing and deployment of high level and fully autonomous technology under real-world conditions and ensures the safety and reliability of this technology. Drive.ai encourages NHTSA to include in the Proposed Pilot Program features that ensure both of these goals are met. For example:

- **Appropriate Duration.** Drive.ai supports a pilot program that is sufficiently long in duration to allow both NHTSA and program participants to collect meaningful data. A longer testing period will ensure that the data produced accurately depict the vehicles' and users' experience. Moreover, a pilot program that spans several months (at least) would enable participants to test the technology under a variety of weather, traffic, and road conditions. The pilot program must be of sufficient duration to generate enough data to ensure the vehicles will operate reliably and safely under the wide array of real-world circumstances in which users will ultimately drive their vehicles. Drive.ai therefore urges NHTSA to administer the Proposed Pilot Program for at least one (1) year.
- **Reasonable Minimum Vehicle Requirements.** Drive.ai encourages NHTSA to ensure that smaller companies with a limited number of vehicles on the road can participate in the Proposed Pilot Program alongside larger, more established manufacturers. As such, Drive.ai suggests that if NHTSA requires program participants to deploy a certain minimum number of vehicles, that minimum should account for the participants' individual production rates. For example, NHTSA could determine an appropriate number of vehicles on a case-by-case basis after consultation with each participant. Alternatively, NHTSA could set minimums based on a percentage of an

applicant's total AV production or availability. If NHTSA chooses to set a standard minimum number of vehicles applicable to all program participants, Drive.ai suggests that the minimum be set at ten (10) vehicles to ensure that smaller companies with equally innovative and useful technology can participate.

- **Adequate Performance Measures.** In order for the Proposed Pilot Program to be useful for both NHTSA and participating companies, Drive.ai recommends NHTSA look at a variety of both quantitative and qualitative performance measures. Specifically, Drive.ai recommends NHTSA consider:
 - Number of simulated miles driven
 - Number of on-road miles driven
 - Miles per intervention (“MPI”) of human safety driver
 - Use and experience of teleoperators (*i.e.*, human operators capable of controlling vehicles remotely, as needed)
 - Independent or third party assessment of the vehicle's security system

Moreover, in order to ensure these performance measures are meaningful and results and data can be compared across participants and platforms, Drive.ai encourages NHTSA to adopt standardized definitions of relevant terms. For example, Drive.ai encourages NHTSA to create a standard definition of a “disengagement” event such that critical MPI data can be meaningfully compared across program participants and also to not incentivize companies to rack up “easy miles” or create a safety policy discouraging disengagement.

- **Data Sharing Requirements.** Increasing consumer adoption of AVs and their corresponding safety benefits requires improving public understanding of AV technology. Drive.ai supports NHTSA's commitment to making the AV industry more transparent. As such, Drive.ai encourages NHTSA to require pilot program participants to share certain data with federal, state, and local regulators and, to the extent that information is not confidential or proprietary, with members of the public. For example, Drive.ai currently shares certain program information with the City of Arlington, Texas on a weekly and monthly basis as part of its on-going partnership, including aggregate ridership information, average travel time and estimated time of arrival (“ETA”), number of miles driven, vehicle utilization rates, and more. Drive.ai supports sharing this type of data with NHTSA in the context of a national pilot program. At the same time, Drive.ai supports NHTSA's longstanding commitment to protecting vehicle manufacturers' and equipment suppliers' confidential business information (“CBI”). Therefore, Drive.ai encourages NHTSA to ensure that information and data pertaining to proprietary technology and CBI are protected within the context of the Proposed Pilot Program and not disclosed to the public.
- **Community Outreach.** Public education and understanding of the technology is critical to widespread consumer confidence in and adoption of AVs. Drive.ai is committed to public education and community outreach regarding AV technology and its safety benefits. For example, in its Frisco and Arlington deployments, Drive.ai personnel met with local police, fire,

and traffic operations and engineering staff to discuss logistics for the vehicle deployments and to review how to safely interact with the vehicles in emergency and non-emergency circumstances. Drive.ai staff also held community events both inside and outside the vehicles' operational design domain ("ODD") to explain the services provided, introduce the public to the technology, and answer questions and receive feedback from the community. Drive.ai encourages NHTSA to incorporate public outreach into the Proposed Pilot Program to the extent possible, including by urging or requiring participants to engage with the communities in which their vehicles or technology operate.

- **Safety Drivers as Employees.** Drive.ai encourages NHTSA to require participants to treat safety drivers as company employees rather than as contractors. Doing so may impose an additional cost on participating companies, but it also strengthens the ties between the safety drivers and the companies they represent, incentivizing additional safety measures and accountability for both drivers and their employers.

III. Use of Current Statutory and Regulatory Exemptions

Drive.ai strongly supports NHTSA's proposal to use and/or expand the interpretation of existing statutory and regulatory exemptions to facilitate the Proposed Pilot Program. Drive.ai addresses the exemptions in Sections 30113, 30114, and 30122 in turn below.

- **49 U.S.C. § 30113(b): General Exemptions.** Section 30113 allows the Secretary of Transportation to exempt motor vehicles from safety standards if doing so is in the public interest, and:
 - (1) compliance with the standard would impose a substantial economic burden on a manufacturer who has tried in good faith to comply,
 - (2) an exemption would facilitate the development or field testing of a new safety feature that is at least as safe as the standard,
 - (3) an exemption would facilitate the development or field testing of a low-emission vehicle and would not unreasonably lower the safety level of the vehicle, or
 - (4) compliance with the standard would prevent the manufacturer from selling a motor vehicle with an overall safety level at least equal to that of a non-exempt vehicle.

Drive.ai supports NHTSA's proposal to increase the proportion of exemptions issued on grounds other than substantial economic burden, and agrees that these exemptions will become increasingly important until AV-specific safety standards can be developed. Participation in the Proposed Pilot Program would assist manufacturers and technology developers in evaluating and demonstrating new motor vehicle safety features that provide a safety level at least equal to the safety level of the FMVSS, allowing them to test and perfect their technology in real-world settings while simultaneously gathering safety and use data that will be critical to the safe adoption of AVs on a national scale. As a technology and software developer, Drive.ai would appreciate the opportunity to partner with vehicle manufacturers who apply for and receive these exemptions going forward.

- **49 U.S.C. § 30114(a): Special Exemptions.** Section 30114 allows the Secretary of Transportation to exempt a motor vehicle or item of motor vehicle equipment from compliance with a safety standard if necessary to further “research, investigations, demonstrations, training, competitive racing events, show, or display.” While NHTSA regulations currently allow vehicle importers to benefit from this exemption, Drive.ai strongly supports NHTSA’s suggestion to extend the same benefits to domestic manufacturers. The language of the statute is broad enough to encompass domestic vehicles and equipment, and the Proposed Pilot Program will further the statutory goals of “research, investigations, demonstrations [and] training” with respect to AV technology. As such, Drive.ai encourages NHTSA to exercise its authority to level the playing field between domestic and foreign companies by broadening the applicability of special exemptions, particularly for participants in the Proposed Pilot Program.
- **49 U.S.C. § 30122(c): “Make Inoperative” Exemptions.** Section 30122(b) prohibits manufacturers, distributors, dealers, and motor vehicle repair businesses from knowingly making inoperative any device or element of design installed on or in a motor vehicle or motor vehicle equipment in compliance with an applicable FMVSS, unless they reasonably believe the vehicle or equipment will not be used (except for testing or a similar purpose during maintenance or repair) when the device or element is inoperative. Under Section 30122(c), the Secretary of Transportation may exempt a manufacturer from this prohibition if doing so is consistent with the goals of increasing vehicle safety and reducing traffic accidents. NHTSA has used this authority to exempt motor vehicle manufacturers and repair businesses that modify vehicles for disabled operators and passengers. Drive.ai supports NHTSA’s proposal to use its exemption authority to facilitate the testing and development of AV technology as well, specifically as applied to certain “dual mode” vehicles. Moreover, Drive.ai encourages NHTSA to think broadly about how a Section 30122(c) exemption could be applied in the AV context. Such an exemption could be used not only in the context of dual mode AVs and equipment traditionally associated with the driving function which might be “switched off” by an AV system (*e.g.*, pedals and steering wheels), but could extend to other vehicle technology as well. For example, the exemption could be applied to external communications panels which would communicate with pedestrians the way human drivers routinely do today.

Drive.ai appreciates the opportunity to comment on the Proposed Pilot Program. Drive.ai strongly supports NHTSA’s efforts to integrate AVs into the U.S. transportation landscape and to work with vehicle and technology manufacturers as they continue to develop these systems in a safe and reliable manner. Drive.ai encourages NHTSA to structure the Proposed Pilot Program in such a way that enables both large and small entities to participate over a robust testing period, and to incorporate standard, well-defined performance metrics in order to yield meaningful and comparable data. Drive.ai further encourages NHTSA to make use of existing statutory and regulatory tools and broaden their application where

possible as it develops the Proposed Pilot Program, including its exemption authority under Sections 30113(b), 30114(a), and 30122(c).

Drive.ai is committed to creating safe and accessible mobility solutions through the use of AVs, and looks forward to working with NHTSA further as AV technology and the legal structure that supports it continue to develop.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Bijit Halder', is written over a solid horizontal line. The signature is fluid and cursive.

Bijit Halder
Drive.ai CEO