Uniform Law Commission
111 N Wabash Ave #1010
Chicago, IL 60602

July 19, 2018

Dear Uniform Law Commissioners:

The Self-Driving Coalition for Safer Streets was formed by Ford, Lyft, Volvo Cars, Uber, and Waymo (formerly Google's Self-Driving Car Project). The Coalition is comprised of companies with technical expertise and experience in the technology, automobile, and transportation network sectors. Despite their different backgrounds, the companies formed the Coalition to bring the tremendous potential safety benefits of autonomous vehicle (AV) technology to consumers as safely and quickly as possible.

We appreciate the opportunity to share our thoughts on the draft Highly Automated Vehicles Act. Our comments are informed by years of experience developing this technology and collaborating with policymakers in legislative and regulatory processes at the federal, state, and local levels. In particular, we offer three suggestions for the Commission to consider:

First, the current draft Highly Automated Vehicles Act would create a registration process for "automated driving providers," in addition to the existing vehicle registration. To limit unnecessary complexity, we encourage the Commission to consider an approach that relies on the existing vehicle registration process. Seven states have taken this approach: Texas, Georgia, Michigan, Florida, Tennessee, Colorado, and North Carolina. These states enacted statutes that authorize operation of automated vehicles on public roads without human drivers and did not create any additional or parallel administrative process.

Consistent with the legislation enacted in these states, the attached Coalition model bill provides an example of how a bill can rely on the existing vehicle registration process, while also ensuring that automated vehicles operate safely. Under Section 2 of the attached model bill, an automated vehicle without a human driver must (i) comply with traffic and motor vehicle laws, (ii) comply with applicable federal safety standards, and (iii) in the event of a system failure, be capable of automatically bringing itself to a safe state (e.g., safely pulling over).

Second, we suggest revising the definition of "automated operation." In the current draft, this definition attempts to delineate responsibility in "hand off" or "takeover" situations, when a human driver intervenes to take over the driving task. In doing so, the draft introduces the possibility that a vehicle could sometimes be under "automated operation" even if a human driver is manually driving the vehicle, which is technologically inaccurate and could create confusion about what constitutes automated driving. This definition would also fundamentally diverge from related definitions adopted in SAE J3016,[1] National Highway Traffic Safety Administration (NHTSA) guidance, a number of state statutes, and the federal bills before Congress.

[1] SAE J 3016. *Taxonomy and Definitions for Terms Related to On-Road Motor Vehicle Automated Driving Systems*.

The following revision would align this definition with related terms used in SAE J3016, NHTSA guidance, state statutes across the country, and the federal bills before Congress:

> "Automated operation" means the performance of the entire dynamic driving task by an automated driving system. ~~Automated operation begins upon the performance of the entire dynamic driving task by an automated driving system and continues until a human driver or operator terminates the performance, but if a human driver or operator terminates the performance to mitigate a crash hazard caused by the automated driving system, automated operation continues until the crash hazard is no longer present.~~

Third, as we understand it, Section 9 of the draft Highly Automated Vehicles Act is intended to address concerns that an insurance policy for an automated vehicle may only cover human operation and not automated operation (either through an explicit exclusion or implicitly). To the extent this is a valid concern, there are a number of ways to address the potential issue. Adding another party as a permissive driver is just one example, among others. Instead of favoring one solution over another at this juncture, we suggest the approach in Section 4 of the attached Coalition model bill, which seeks to avoid creating any conflicts with existing state insurance frameworks. As NAMIC's comments indicate, it is premature to prescribe a specific alternative approach for automated vehicles given the realities of the evolving insurance market.

We appreciate your interest in this area and would welcome further collaboration moving forward.

Sincerely yours,

David Strickland
Counsel
Self-Driving Coalition for Safer Streets

Model Legislation for Autonomous Vehicles (2018)

What is the Self-Driving Coalition for Safer Streets? The Self-Driving Coalition for Safer Streets was formed by **Ford, Lyft, Volvo Cars, Uber, and Waymo** (formerly Google's self-driving car project). The Coalition is comprised of companies with technical expertise and experience in the technology, automobile, and transportation network sectors. Despite their different backgrounds, the companies formed the Coalition to bring the tremendous potential safety benefits of autonomous vehicle (AV) technology to consumers in the safest and swiftest manner possible.

Coalition Position on the State Role for Autonomous Vehicles. The Coalition believes states will play a critical role in the deployment of AV technology, and we are encouraged that state legislators recognize its significance. Given the Coalition's enthusiasm for fully autonomous vehicles and our strongly held view that they have the potential to change the country for the better, we support efforts at the state level to facilitate the rapid testing and deployment of fully autonomous vehicles. Fortunately, the majority of states already have existing statutory and regulatory motor vehicle frameworks that permit the testing and deployment of fully autonomous vehicles. At the same time, we have concerns with legislation in any state that unduly limits or impedes the advancement and public use of this technology.

What does the Model Legislation Do? The attached model legislation would provide for the deployment of AV technology in a way that would promote safety while allowing innovation to flourish, promote competition, and avoid needless restrictions on AV technology. The model legislation addresses key issues including safety, insurance, accident reporting, registration, and titling. Specifically, the model legislation would:

- Authorize the operation of AV technology without a human driver in vehicles designed for such operation, subject to conditions related to safety and compliance with the Federal Motor Vehicle Safety Standards;
- Require the submission of proof of insurance in compliance with state law as a precondition to the operation of AV technology;
- Require the submission of accident and collision reports, and proper registration and titling for AVs in accordance with state law, as a condition of AV technology deployment; and
- Authorize the operation of on-demand AV networks, including for ride-sharing purposes.

How is this different than other proposals? The Model Legislation:

- Does not limit AV technology development to one kind of company, allowing technology companies, auto manufacturers, transportation network companies, and others to manufacture and safely deploy AV technology; and
- Does not needlessly restrict AV testing and deployment to "projects," but rather provides the flexibility to test and safely deploy as needed, important for making this technology available for more residents of a state.

[Version Final as of January 12, 2018]

SECTION 1. Definitions

AUTOMATED DRIVING SYSTEM. The hardware and software that are collectively capable of performing the entire *dynamic driving task* on a sustained basis, regardless of whether it is limited to a specific *operational design domain*.

DYNAMIC DRIVING TASK (DDT). All of the real-time operational and tactical functions required to operate a vehicle in on-road traffic, excluding the strategic functions such as trip scheduling and selection of destinations and waypoints, and including without limitation:

(A) Lateral vehicle motion control via steering;
(B) Longitudinal motion control via acceleration and deceleration;
(C) Monitoring the driving environment via object and event detection, recognition, classification, and response preparation;
(D) Object and event response execution;
(E) Maneuver planning; and
(F) Enhancing conspicuity via lighting, signaling, and gesturing.

FULLY AUTONOMOUS VEHICLE. A vehicle equipped with an automated driving system designed to function without a human driver as a level 4 or 5 system under SAE J3016.

HUMAN DRIVER. A natural person in the vehicle with a valid license to operate a motor vehicle who controls all or part of the dynamic driving task.

MINIMAL RISK CONDITION. A low-risk operating mode in which a fully autonomous vehicle operating without a human driver achieves a reasonably safe state, such as bringing the vehicle to a complete stop, upon experiencing a failure of the vehicle's automated driving system that renders the vehicle unable to perform the entire dynamic driving task.

ON-DEMAND AUTONOMOUS VEHICLE NETWORK. A transportation service network that uses a software application or other digital means to dispatch or otherwise enable the pre arrangement of transportation with fully autonomous vehicles for purposes of transporting persons or goods, including for-hire transportation and transportation for compensation.

OPERATIONAL DESIGN DOMAIN (ODD). A description of the specific operating domain(s) in which an automated driving system is designed to properly operate, including but not limited to roadway types, speed range, environmental conditions (weather, daytime/nighttime, etc.), and other domain constraints.

[[PERSON. A natural person, corporation, business trust, estate, trust, partnership, limited liability company, association, joint venture, governmental agency, public corporation, or any other legal or commercial entity.]] [[Note: Definition only needed if not already addressed in the vehicle code.]]

REQUEST TO INTERVENE. Notification by an automated driving system to a human driver, that the human driver should promptly begin or resume performance of part or all of the dynamic driving task.

SAE J3016. The *Taxonomy and Definitions for Terms Related to Driving Automation Systems for On-Road Motor Vehicles* published by SAE International in September 2016.

SECTION 2. Operation of Fully Autonomous Vehicles Without a Human Driver

A person [as defined in (INSERT cross-reference to state definition if appropriate)] may operate a fully autonomous vehicle on the public roads of this state without a human driver provided that the automated driving system is engaged and the vehicle meets the following conditions:

(1) if a failure of the automated driving system occurs that renders that system unable to perform the entire dynamic driving task relevant to its intended operational design domain, the fully autonomous vehicle will achieve a minimal risk condition;

(2) the fully autonomous vehicle is capable of operating in compliance with the applicable traffic and motor vehicle safety laws and regulations of this state when reasonable to do so, unless an exemption has been granted by [RELEVANT AGENCY]*; and*

(3) the vehicle bears the required manufacturer's certification label indicating that at the time of its manufacture it has been certified to be in compliance with all applicable Federal Motor Vehicle Safety Standards.

SECTION 3. Licensing

[INSERT cross-reference to state licensing section] Is amended as follows:
When an automated driving system installed on a motor vehicle is engaged:

(1) The automated driving system is considered the driver or operator, for the purpose of assessing compliance with applicable traffic or motor vehicle laws and shall be deemed to satisfy electronically all physical acts required by a driver or operator of the vehicle; and
(2) The automated driving system is considered to be licensed to operate the vehicle.

SECTION 4. Insurance.

Before operating a fully autonomous vehicle on public roads in this state without a human driver, a person shall submit proof of financial responsibility satisfactory to the [RELEVANT AGENCY] that the fully autonomous vehicle is covered by insurance or proof of self-insurance that satisfies the requirements of applicable [INSERT cross-reference to state motor vehicle financial responsibility laws, (e.g. the respective state laws for personal vehicle ownership, transportation network companies, leasing, vehicle rental, vehicle-for-hire, etc.)].

SECTION 5. Duties following crashes involving fully autonomous vehicles.

In the event of a crash:

1. The fully autonomous vehicle shall remain on the scene of the crash when required by [cross-reference to state laws pertaining to duties following crashes], consistent with its capability under Section 2(1).
2. The owner of the fully autonomous vehicle, or a person on behalf of the vehicle owner, shall report any crashes or collisions consistent with [cross-reference to state laws pertaining to crash reporting].

SECTION 6. On-demand autonomous vehicle network.

An on-demand autonomous vehicle network shall be permitted to operate pursuant to state laws governing the operation of transportation network companies, taxis, or any other ground transportation for-hire of passengers [or other relevant law governing transportation of goods, etc.], with the exception that any provision of [the cross-referenced state laws] that reasonably applies only to a human driver would not apply to the operation of fully autonomous vehicles with the automated driving system engaged on an on-demand autonomous vehicle network.

SECTION 7. Registration and title.

(a) A fully autonomous vehicle shall be properly registered in accordance with [INSERT cross-reference to background laws re: vehicle registration]. If a fully autonomous vehicle is registered in this state, the vehicle shall be identified on the registration as a fully autonomous vehicle.

(b) A fully autonomous vehicle shall be properly titled in accordance with [INSERT cross-reference to background law re: vehicle titles]. If a fully autonomous vehicle is titled in this state, the vehicle shall be identified on the title as a fully autonomous vehicle.

SECTION 8. Controlling authority.

(a) Unless otherwise provided in this chapter and notwithstanding any other provision of law, fully autonomous vehicles and automated driving systems are governed exclusively by this [Act]. [RELEVANT AGENCY] is the sole and exclusive state agency that may implement the provisions of this [Act].

(b) No state agency, political subdivision, municipality, or local entity may prohibit the operation of fully autonomous vehicles, automated driving systems, or on-demand autonomous vehicle networks, or otherwise enact or keep in force rules or ordinances that would impose taxes, fees, or other requirements (including performance standards), specific to the operation of fully autonomous vehicles, automated driving systems, or on-demand autonomous vehicle networks in addition to the requirements of this [Act].

SECTION 9. Operation of a motor vehicle with an automated driving system by a human driver.

(a) A human driver may operate a motor vehicle equipped with an automated driving system capable of performing the entire dynamic driving task but that is not a fully autonomous vehicle if --

(i) such automated driving system is designed with the expectation that the human driver will respond appropriately to a request to intervene and to issue such a request whenever the automated driving system is not capable of performing the entire dynamic driving task; and

(ii) the automated driving system is capable of being operated in compliance with [INSERT cross-reference to background law re: rules of the road] when reasonable to do so unless an exemption has been granted by [relevant Agency].

(b) Nothing in this Act prohibits or restricts a human driver from operating a fully autonomous vehicle equipped with controls that allow for the human driver to control all or part of the dynamic driving task.