

To: New Jersey Law Revision Commission
From: Samuel M. Silver, Counsel¹
Re: Autonomous Motor Vehicles
Date: October 8, 2018

MEMORANDUM

Executive Summary

Contemporary technological advances are beginning to revolutionize the transportation industry.² Equipping cars and light vehicles with autonomous vehicle (AV) technology may one day reduce crashes, energy consumption, pollution and congestion.³ In order to maximize the benefits of this technology, while minimizing the disadvantages, legislators must carefully examine this area of law.

On August 20, 2017, Staff was asked by one of our Commissioners to review the status of New Jersey's position on autonomous vehicles to determine whether, and if, the State is employing the "best practices" in this area of law.

Information from the National Highway Traffic Safety Administration ("NHTSA") on this topic was collected by Staff. In addition, Staff reviewed each state's statutes and pending legislation in this area to gauge New Jersey's place in this burgeoning field of law. Finally, Staff reviewed New Jersey's pending legislation and the Uniform Law Commission's work in this area.

To determine whether this request might give rise to a project for the Commission, Staff examined the background and the current state of this area of law. The following pages outline Staff's preliminary findings to this point.

Background

When discussing automobiles, the terms "self-driving" and "autonomous" encompass a wide array of features. Presently, several automobile companies are working on developing "autonomous" vehicles that can perform certain driving functions.⁴ Many cars, for example, have automated transmissions, automatic emergency breaking, parking assist technology, or adaptive cruise control. In the future, however, vehicles may be available to consumers that can complete a journey with little to no human intervention. The lack of human intervention has led to concerns about the safety of such a mode of transportation.

¹ Assistance with legal research and the collection of information included in this Memorandum was provided by Nicholas Tharney, Legal Intern.

² JAMES M. ANDERSON ET AL., *AUTONOMOUS VEHICLE TECHNOLOGY – A GUIDE FOR POLICYMAKERS*, xiii (1st ed. 2016).

³ *Id.*

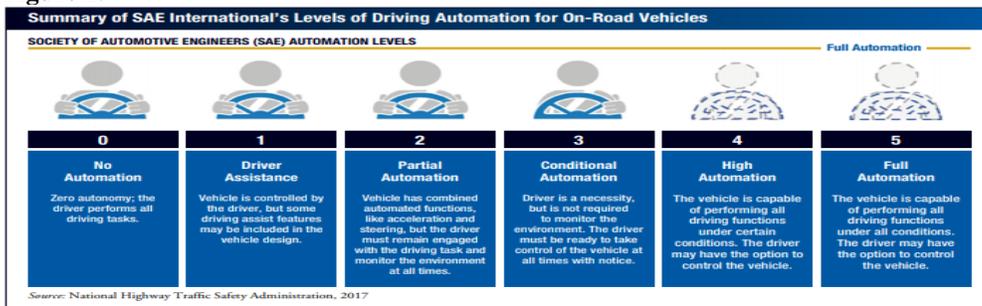
⁴ NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION. *PRELIMINARY STMT. OF POLICY CONCERNING AUTOMATED VEH.* 3 (2016). *See* https://www.nhtsa.gov/staticfiles/rulemaking/pdf/Automated_Vehicles_Policy.pdf (last visited Sept. 8, 2018).

In 2016, the NHTSA determined that “[...] the feasibility of producing a vehicle that can safely operate in a fully automated (or “driverless”) mode in all driving environments and traffic scenarios” was premature.⁵ The NHTSA however made a decision to monitor developing information regarding the full range of potential risks and benefits that accompanied vehicle automation.⁶ One year later, the NHTSA reiterated its, “... commit[ment] to supporting the safety of these emerging and evolutionary technological advancements, which have the potential to significantly improve roadway safety.”⁷ To achieve the goal of improving roadway safety, the NHTSA has agreed to “assist States with the challenges they face regarding ADSs now and in the pivotal years ahead.”⁸

The NHTSA and other Department of Transportation agencies, in conjunction with the automobile industry, have been conducting in-depth research and testing of AV safety technology.⁹ According to the NHTSA, technological changes and developments in this field are not occurring independently from one another.¹⁰ These emerging technologies serve as the foundation for what may one day lead to a driverless automobile.¹¹ The level of automation can vary significantly from vehicle to vehicle. In order to determine whether a vehicle would, or should be, subject to AV legislation it is necessary to categorize vehicle’s level of autonomy.

In 2017, the NHTSA adopted the six different levels to classify vehicle automation developed by the Society of Automotive Engineers (“SAE”).¹² These levels range from no automation, “Level 0,” to “Level 5” full self-driving automation.¹³ In 2018, the American Association of Motor Vehicle Administrators (“AAMVA”) also adopted the SAE’s six-tier vehicle classification nomenclature.¹⁴

Figure 1.



⁵ U.S. DEPT. TRANSP., NAT’L HIGHWAY TRAFFIC SAFETY ADMIN. PRELIMINARY STMT. OF POLICY CONCERNING AUTOMATED VEH. 3 (2016).

⁶ *Id.*

⁷ U.S. DEPT. TRANSP., NAT’L HIGHWAY TRAFFIC SAFETY ADMIN., AUTOMATED DRIVING SYSTEMS – A VISION FOR SAFETY 2.0 25 (2017).

⁸ *Id.*

⁹ *Id.* at 3.

¹⁰ *Id.*

¹¹ *Id.*

¹² *Id.*

¹³ *Id.* at 4-5.

¹⁴ AMERICAN ASS’N OF MOTOR VEH. ADMIN., JURISDICTIONAL GUIDELINES FOR THE STATE TESTING AND DEPLOYMENT OF HIGHLY AUTOMATED VEHICLES 8 (2018). *See* Figure 1.

Categorizing the different levels of automation was a logical first step in defining the types of vehicles that will eventually occupy the roadways. There are, however, technological and human performance issues that should be addressed in order for each state to adequately legislate this expanding area of law. The NHTSA continues to provide updates to stakeholders regarding evolving issues in this area of law.¹⁵ Numerous state legislatures, including the New Jersey Legislature, as well as the Uniform Law Commission, have begun to address autonomous vehicle technology. The result of Staff's review of these areas follows.

Status of Automated Vehicle Legislation - Nationally

• Federal Legislation

The federal government has yet to enact autonomous vehicle legislation.¹⁶ On September 28, 2017, Senator John Thune introduced S.1885, the AV START Act – Vision for Safer Transportation through Advancement of Revolutionary Technologies Act.¹⁷ This legislation will permit 100,000 autonomous vehicles to operate on public roads throughout the United States.¹⁸ Additionally, it would override state laws governing self-driving vehicles.¹⁹ The bill would "...bar[] states from imposing restrictions on autonomous vehicle safety performance and development..."²⁰ On January 24, 2018, amid safety and security concerns about this emerging technology, a "Senatorial hold" was placed on further consideration of this bill.²¹ The absence of meaningful, federal AV legislation has required each state to begin to examine this issue.

• State Legislation

Less than a decade ago, legislation concerning the testing of driverless vehicles on public roadways did not exist. In 2011, Nevada became the first to legislate the testing of autonomous vehicles on public roadways.²² The number of states contemplating autonomous vehicle legislation has increased steadily since 2011.²³ The dearth of federal law in this area has led to what has been described as a, "patchwork of regional rules that vary widely in intention and

¹⁵ *Id.*

¹⁶ Bridget Clerkin, *The State of State-by-State Autonomous Car regulation* (Apr. 23, 2018),

<https://www.dmv.org/articles/vast-differences-in-state-self-driving-vehicle-regulations>. (Last visited Sept. 11, 2018).

¹⁷ S. 1885, 115th Congress (2017-2018).

¹⁸ *Id.*

¹⁹ Justin Hughes, *Federal Autonomous Car Legislation Blocked in Senate*, (Jan. 25, 2018),

<http://www.thedrive.com/sheetmetal/17962/federal-autonomous-car-legislation-blocked-in-senate>. (Last visited Sept. 11, 2018).

²⁰ Eric Kulisch, *Handful of Senate Democrats Block Progress on Self-Driving Legislation, Thune Says*, (Jan. 24, 2018, 4:09 PM), <http://www.autonews.com/article/20180124/MOBILITY/180129873/autonomous-vehicle-senate-legislation-politics>. (Last visited Sept. 11, 2018).

²¹ *Id.*

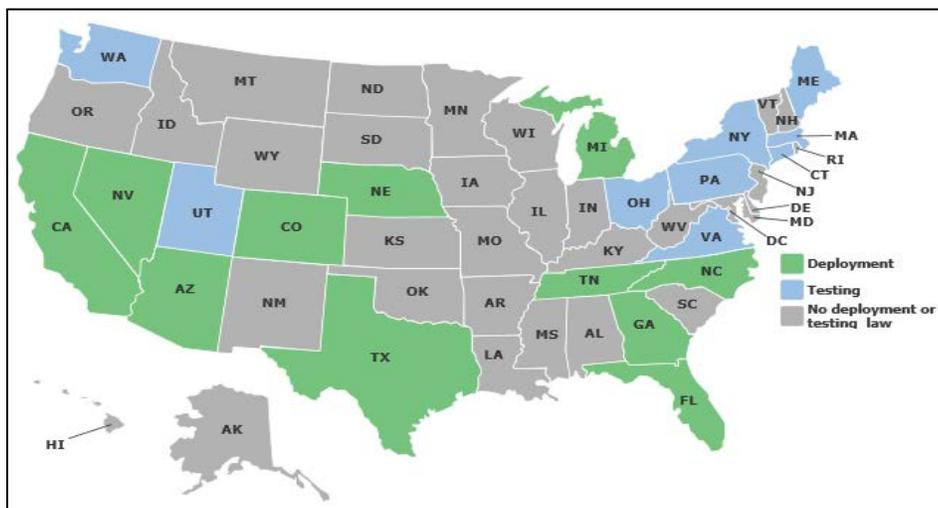
²² *Automation and Crash Avoidance*, Insurance Institute for Highway Safety – Highway Loss Data Institute, (Sept. 2018), <https://www.iihs.org/iihs/topics/laws/driving-automation/driving-automation-map?topicName=Automation%20and%20crash%20avoidance>. (Last visited Sept. 11, 2018).

²³ *Autonomous Vehicles – Self-Driving Vehicles – Enacted Legislation*, National Conference of State Legislatures (Aug. 27, 2018), <http://www.ncsl.org/research/transportation/autonomous-vehicles-self-driving-vehicles-enacted-legislation.aspx>. (Last visited Sept. 9, 2018).

implementation.”²⁴ To better understand New Jersey’s place in this field of law, it is necessary to examine what legislative action each state has taken concerning automated vehicles.

Automated vehicle legislation can be broken down into three categories: deployment, testing, and neither.²⁵ As of September 2018, thirty-one (31) states and the District of Columbia have enacted some form of legislation to address this autonomous vehicle technology.²⁶ Eleven states (Alabama, Delaware, Idaho, Illinois, Louisiana, Minnesota, New Mexico, North Dakota, Oregon, Vermont and Wisconsin) have authorized a committee, commission or task force to “...study, define key terms or authorize funding.”²⁷ The testing of this technology has been authorized in nine states (Connecticut, Maine, Massachusetts, New York, Ohio, Pennsylvania, Utah, Virginia and Washington).²⁸ The full deployment of automated vehicles has been authorized in eleven states (Arizona, California, Colorado, Florida, Georgia, Michigan, Nebraska, North Carolina, Tennessee, Texas and the District of Columbia).²⁹

Figure 2.



Presently, thirty (30) states (Alabama, Alaska, Arkansas, Delaware, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Minnesota, Mississippi, Missouri, Montana, New Hampshire, **New Jersey**, New Mexico, North Dakota, Oklahoma, Oregon, Rhode Island, South Carolina, South Dakota, Vermont, West Virginia, Wisconsin, Wyoming) and the District of Columbia have not enacted any law regarding the deployment or testing laws of autonomous vehicles.³⁰

²⁴ Bridget Clerkin, *The State of State-by-State Autonomous Car regulation* (Apr. 23, 2018), <https://www.dmv.org/articles/vast-differences-in-state-self-driving-vehicle-regulations>. (Last visited Sept. 11, 2018).

²⁵ *Automation and Crash Avoidance*, Insurance Institute for Highway Safety – Highway Loss Data Institute, (Sept. 2018), <https://www.iihs.org/iihs/topics/laws/driving-automation/driving-automation-map?topicName=Automation%20and%20crash%20avoidance>. (Last visited Sept. 11, 2018).

²⁶ *Id.*

²⁷ *Id.*

²⁸ *Id.*

²⁹ *Id.*

³⁰ *Id.*

Figure 3.

State	What type of driving automation on public roads does the law/provision permit?	Does the driving automation law/provision...		
		Require an operator to be licensed?	Require an operator to be in the vehicle?	Require liability insurance?
Arizona	deployment	yes	depends on level of vehicle automation ¹	yes
California	deployment	not addressed	no	yes; \$5,000,000
Colorado	deployment	no	not addressed	no
Connecticut	testing	yes	yes	yes; \$5,000,000
District of Columbia	deployment	yes	yes	no
Florida	deployment	yes	no	no
Georgia	deployment	depends on level of vehicle automation ²	depends on level of vehicle automation ³	yes ⁴
Maine	testing	not addressed	not addressed	yes
Massachusetts	testing	no	yes	no
Michigan	depends on vehicle ⁵	yes	no	yes
Nebraska	deployment	depends on level of vehicle automation ⁶	depends on level of vehicle automation ⁷	yes
Nevada	deployment	depends on level of vehicle automation ⁸	depends on level of vehicle automation ⁹	yes ¹⁰
New York	testing	yes	yes	yes; \$5,000,000
North Carolina	deployment	depends on level of vehicle automation ¹¹	no	yes
Ohio	testing	yes	no	yes
Pennsylvania	testing ¹²	yes	yes	no
Tennessee	deployment	no	no	yes; \$5,000,000
Texas	deployment	no	no	yes
Utah	testing	not addressed	not addressed	not addressed
Virginia	testing	not addressed	not addressed	no
Washington	testing	depends on whether operator present in vehicle	no	yes

Figure 3 (cont.).

- ¹ Arizona does not require the operator to be in a "fully autonomous vehicle" if the vehicle can achieve "a minimal risk condition" in the event of a failure and if the operator certifies that the "fully autonomous vehicle" can meet applicable laws.
- ² Georgia does not require a licensed operator for a "fully autonomous vehicle" when the "automated driving system" is engaged.
- ³ Georgia does not require the operator to be in a "fully autonomous vehicle" when the "automated driving system" is engaged.
- ⁴ The amount of liability insurance must be equivalent to 250 percent of what is required under existing insurance law until December 31, 2019. On and after January 1, 2020, the amount of liability insurance must be equivalent to the minimum required under existing insurance law.
- ⁵ Michigan authorizes testing of any "automated motor vehicle" and deployment of "on-demand automated motor vehicle networks."
- ⁶ Nebraska requires a licensed operator for "automated-driving-system-equipped vehicle" but does not require an operator for a "driverless-capable vehicle" if the vehicle can achieve "a minimal risk condition" in the event of a failure.
- ⁷ Nebraska does not require the operator to be in a "driverless-capable vehicle" if the vehicle can achieve "a minimal risk condition" in the event of a failure.
- ⁸ Nevada does not require a licensed operator for a "fully autonomous vehicle" if the vehicle can achieve "a minimal risk condition" in the event of a failure.
- ⁹ Nevada does not require the operator to be in a "fully autonomous vehicle" if the vehicle can achieve "a minimal risk condition" in the event of a failure.
- ¹⁰ A company or person seeking to test must have \$5,000,000 of liability insurance; an "autonomous vehicle network company" must have \$1,500,000.
- ¹¹ North Carolina does not require the operator to be licensed to operate a "fully autonomous vehicle" when the "automated driving system" is engaged.
- ¹² Testing is authorized under voluntary guidance from PennDOT.

Pending New Jersey Legislation

On March 05, 2018, Senator Declan J. O'Scanlon, Jr., and Senator Robert M. Gordon introduced, "An Act Concerning the Testing and Use of Autonomous Vehicles."³¹ Upon the passage of this, or similar legislation, New Jersey would join the nine states (Connecticut, Maine, Massachusetts, New York, Ohio, Pennsylvania, Utah, Virginia and Washington) that currently authorize the testing of autonomous vehicles on the public highways, roads and streets of their states.³²

The pending New Jersey legislation would permit autonomous vehicles to "...be operated on any public highway, road, or street within the State **for testing purposes....**" once certain conditions precedent have been met.³³ The requirements that must be satisfied before this technology may be tested relate to: licensure, simultaneous on-board human monitoring, insurance³⁴ and safety protocols.³⁵ Of the nine states that currently permit the testing of

³¹ S2149, 218th Leg. (N.J. 2018).

³² *Id.* at 4.

³³ *Id.* at 4. Emphasis added.

³⁴ S2149 requires a manufacturer performing the tests to obtain an instrument of insurance, surety bond, or proof of self-insurance in the amount of \$5,000,000. It is unclear whether the quantum of insurance required is per autonomous vehicle or per manufacturer.

³⁵ S2149, 218th Leg. (N.J. 2018).

autonomous vehicles, New Jersey would join Connecticut and New York in requiring: that the operator of an autonomous vehicle to be licensed; that the operator actually be inside the vehicle while it is being tested; and, that prior to the start of testing in New Jersey, the manufacturer maintain liability insurance in the amount of five million dollars.³⁶

Uniform Law

Presently, the Uniform Law Commission is in the process of drafting a uniform law to address the “**deployment**” of automated driving systems.³⁷ The driving systems covered under the uniform law include conditional automation, high automation and full automation as defined by the Society of Automotive Engineers (“SAE”).³⁸ The draft uniform law may also include the following legal and policy issues: driver licensing, vehicle registration, insurance, vehicle equipment, and rules of the road.³⁹

Additional Considerations

The current New Jersey legislation regarding autonomous vehicles focuses on “testing” this emerging technology in a safe and responsible manner. In the absence of federal law on this topic, the protection of the individuals who use New Jersey’s public roadways is paramount. As this technology continues to develop and testing has begun, the legislature may wish to consider the impact of automated vehicles on additional areas of law prior to enacting legislation that concentrates on the “deployment” of this technology.

The existence of automated vehicles presents an opportunity to examine how this technology may impact other areas of the law. The use of automated vehicles may have effect on the following: interstate commerce; full faith and credit; land use; road and infrastructure design; public transit; cyber-security; privacy; law enforcement; accident reporting; parking permits; meter revenue; insurance requirements; post-production vehicle modification; traffic safety laws (i.e. tailgating); commercial use of automated vehicles; licensing; registration and vehicle inspections to name a few.

Conclusion

Crafting revised statutory language in a field where the technological advancements are constantly evolving may result in language that could quickly become antiquated. Additionally, given the existence of pending Federal and State legislation, the Commission may wish to authorize Staff to monitor this area of the law to determine whether statutory modifications become appropriate in the future. Additionally, the Commission may wish to authorize Staff to contact the sponsors of the New Jersey automated vehicle legislation to ascertain whether it would be beneficial to share with them the information gathered by the Commission on this topic.

³⁶ *Automation and Crash Avoidance*, Insurance Institute for Highway Safety – Highway Loss Data Institute, (Sept. 2018) , <https://www.iihs.org/iihs/topics/laws/driving-automation/driving-automation-map?topicName=Automation%20and%20crash%20avoidance>. (Last visited Sept. 10, 2018).

³⁷ *Highly Automated Vehicles*, Uniform Law Commission, <http://www.uniformlaws.org/Committee.aspx?title=Highly%20Automated%20Vehicles> (2018).

³⁸ *Id.* See also Figure 1, *supra*.

³⁹ *Id.*