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The Autonomous Vehicle Legislative Survey

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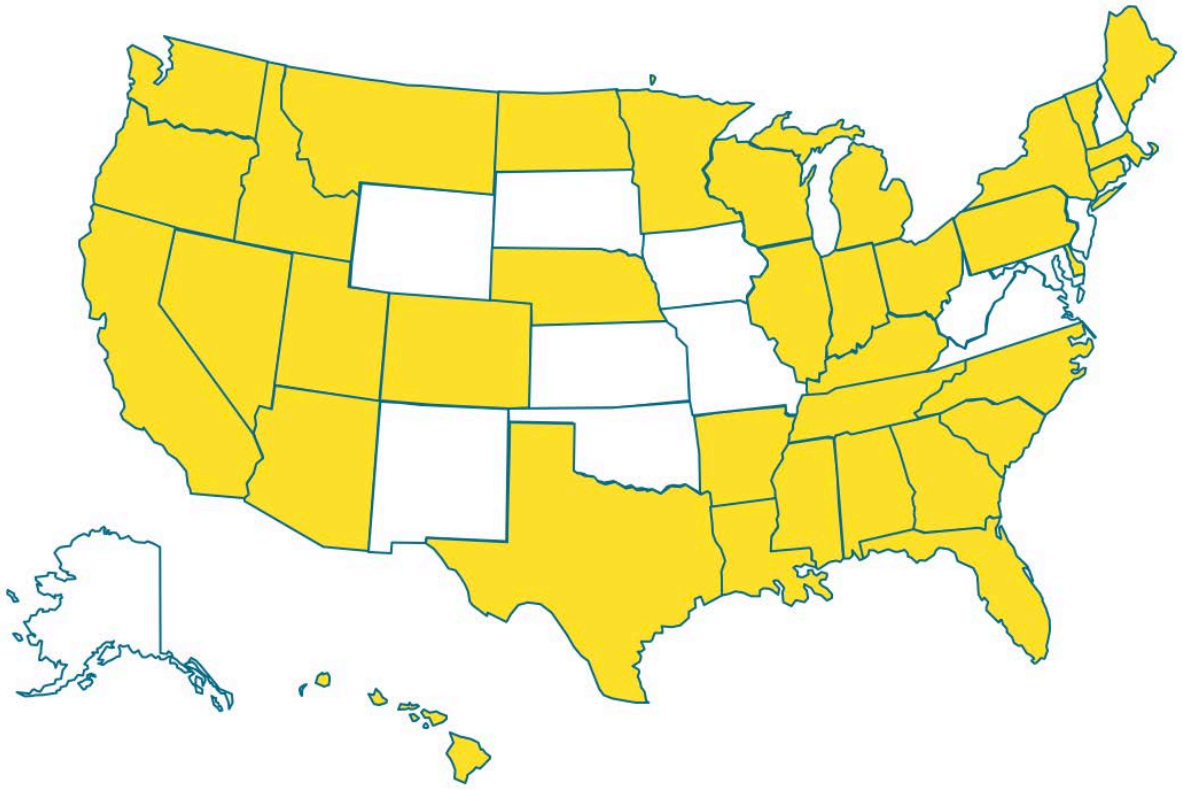
Introduction

This legislative survey is an evolving product of the law firm of Eckert Seamans Cherin & Mellott, LLC and is maintained on behalf of PLAC. This legislative survey provides an overview of laws, regulations, and research relating to Autonomous Vehicles ("AVs"). This Survey will be updated on a quarterly basis by its authors.

States with AV Laws

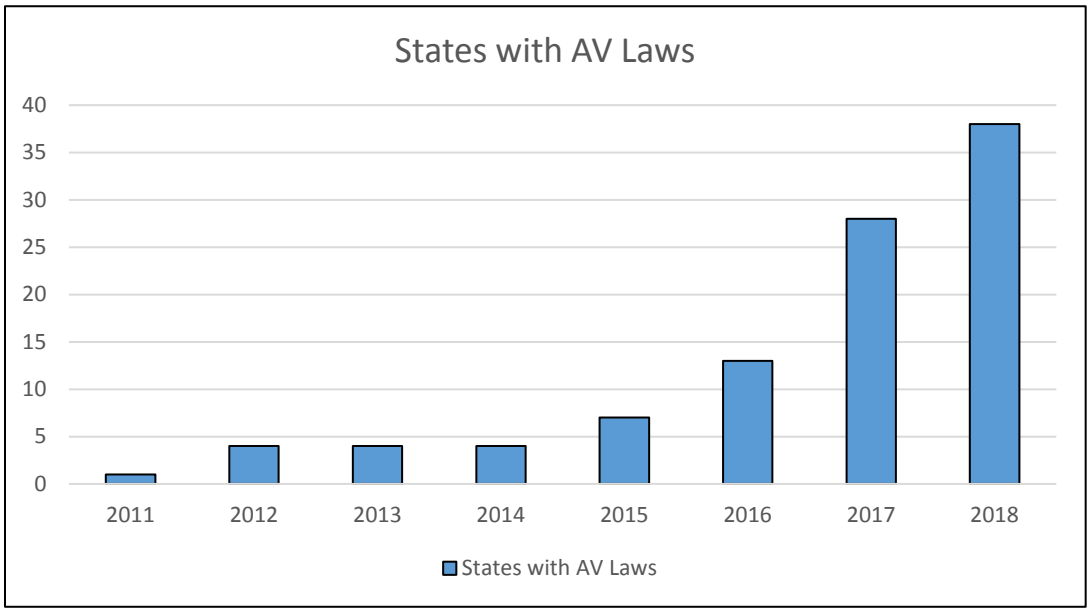


All of the highlighted states and the District of Columbia have passed some version of AV laws or pronouncements including: executive orders, legislation, or an act of a state legislature.[1] A wide degree of variance exists among the state laws in terms of the scope, clarity, and depth of topic coverage. However, one pattern is consistent - states are enacting new AV laws at an accelerating rate. Indeed, the transportation industry is rapidly changing and states are eager to develop robust regulatory models to address these new transportation technologies.

[1] *See* Appendix for a complete list of AV laws in the United States.

By the Numbers

States take a wide array of approaches to AV regulation.[2] The graph below displays the total number of states with AV laws including legislation, regulation, and executive orders for platooning and AV testing, deployment, and operation.



- 37 states have laws relating to AVs.
- 30 states have legislation relating to AVs.
- 12 states have executive orders relating to AVs.
- 24 states have laws regulating AV testing or operation.
- 17 states have laws relating to vehicle platooning.
- 11 states have laws including insurance requirements for AVs.
- 11 states have laws allocating liability for AVs in defined circumstances.
- 19 states have a committee, task force, or working group dedicated to AV technology.
- 20 states have or have had AV Pilot Programs.
- 4 states have laws including AV data recording requirements.
- 51 states have universities conducting AV research.

[2] States includes the District of Columbia for purposes of this analysis. Information for this analysis is derived from The Autonomous Vehicle Statutory Database (on file with Eckert Seamans).

Federal Legislative Actions

United States

The United States Government has yet to enact legislation relating to AVs leaving the decision to regulate AVs to respective state governments. Legislation. The Federal Government has proposed legislation in both the House and Senate relating to AV regulation. Indeed, the House passed the SELF Drive Act, H.R. No. 3388 in September 2017. Further, the Senate introduced the AV START Act in October of 2017. Unfortunately, in December of 2018, the Senate failed to pass the Act. Because neither proposed piece of legislation became law, it may be a while before we see any Federal legislation.

However, the United States Department of Transportation ("USDOT") provides guidance to states for the regulation of the AV industry. Indeed, in October of 2018 USDOT issued Federal AV guidance: Preparing for the Future of Transportation: Automated Vehicles 3.0. The guidance states:

> *"Preparing for the Future of Transportation: Automated Vehicles 3.0 advances U.S. DOT's commitment to supporting the safe, reliable, efficient, and cost-effective integration of automation into the broader multimodal surface transportation system."*

The guidance is designed to prioritize safety, encourage a consistent regulatory environment, prepare proactively for automation, and promote the modernization of regulatory frameworks.

Territories of the United States

None of the Territories of the United States ("Territories") have taken action toward adopting AV related legislation. The Territories are:

- American Samoa
- Guam
- Northern Mariana Islands
- Puerto Rico
- United States Virgin Islands

In terms of AV legislation, no information is available to suggest that AV legislation will be adopted in the Territories in the future. However, Puerto Rico appears to have the most promise to regulate AVs. Indeed, Puerto Rico recently announced its plans to collaborate with the Smart Cities Council to rebuild its infrastructure with innovative technologies. Further, Puerto Rico was a 2018 winner of the Smart Cities Council Humanitarian Grant.

State Legislative Actions

Alabama

Alabama has one active law relating to AV technology. Initially, SJR No. 81, was passed in 2016 and which established a Joint Legislative Committee to study self-driving vehicles. The Committee was required to report their findings to the Alabama legislature and dissolved in 2017.

Senate Bill No. 125, defines and allows for truck platooning in the state. According to the law, a truck platoon is:

> *a group of individual commercial trucks traveling in a unified manner at electronically coordinated speeds at following distances that are closer than would be reasonable and prudent without the electronic equipment.*

Further, the law explains the legislature's intent to provide research opportunities for truck platooning technology.

Alabama is also home to two major research institutions that receive State financial aid to study AV technology. Auburn University is home to a GPS and Vehicle Dynamics Laboratory, which partners with the American Center for Mobility. Additionally, the University of Alabama is home to the Center for Advanced Vehicle Technologies, which takes an interdisciplinary approach to developing innovative solutions for the automotive industry.

Alaska

Alaska has yet to enact AV legislation. However, in 2016 a State Legislature Joint Meeting was held between the House Transportation Standing Committee and the Senate Transportation Standing Committee. The Meeting involved discussions relating to the integration of driverless cars in Alaska. Additionally, the Meeting's participants discussed the issue of liability for AVs at a general level, as well as the difficulties associated with deploying AVs in cold weather environments.

Arizona

In 2015 Arizona Governor Doug Ducey, signed Executive Order No. 2015-09, directing various agencies to:

> *undertake any necessary steps to support the testing and operation of self-driving vehicles on public roads within Arizona.*

In response to the Executive Order, the Arizona Department of Transportation formed the Arizona Self-Driving Oversight Committee, which is designed to support Arizona in research and development of self-driving technology. In March 2018, Governor Ducey signed Executive Order No. 2018-04, which served as a general update to the 2015 Executive Order. Notably, the Executive Order requires any entity wishing to test an AV without a driver to first submit a written statement to the Arizona Department of Transportation certifying compliance with the rules of the Executive Order.

Lastly, in October of 2018, Governor Ducey signed Executive Order No. 2018-09, creating the Institute of Automated Mobility ("IAM"). The IAM seeks to unite global companies and Arizona Universities with partners from the public and private sectors by providing AV testing facilities and resources.

Phoenix

Further, the Executive Order allows the operation of self-driving vehicle pilot programs, where an operator may control an AV without being present in the vehicle. Indeed, Waymo operates a pilot program in Arizona and in December 2018, it launched the nation's first commercial self-driving taxi service in Phoenix, Arizona.

Arkansas

In 2017 Arkansas enacted House Bill No. 1754, which allows for the use of driver-assistive vehicle platooning. The law defines a driver-assistance truck platooning system as:

> *"technology that integrates sensor array, wireless communication, vehicle controls, and specialized software to synchronize acceleration and breaking between two or more vehicles while leaving each vehicle's steering control and systems monitoring and intervention in the control of its human operator."*

However, to operate a truck platooning system the operator must first file a plan for general platoon operations with the State Highway Commission.

California

California has the most comprehensive body of AV law. To date the laws cover testing, funding, removal, testing on public roads,

pilot projects, freight vehicles and more. California passed Senate Bill No. 1298 in 2012. The Bill authorizes AV testing on public roads. Additionally, California law includes Driverless Testing Regulations. Indeed, manufacturers must provide CalDOT with the following items in writing to conduct testing on an AV:

- the vehicle make;
- the vehicle model;
- the vehicle year;
- the vehicle's full identification number; and
- the vehicle license plate number.

Additionally, California AV law provides specific requirements for testing an AV without a human driver. Further, California's Application Requirements for the Driverless Autonomous Vehicle Tester Program, include: $5 million in insurance coverage, CalDOT compliance certification, and a testing permit.

A unique feature of California AV law is the inclusion of a data privacy clause which requires AV occupants to be informed about:

> *any information collected that is not necessary for the safe operation of the vehicle*.

Indeed, AVs must include a data recorder to capture and store all of the data the AV records. And, the recorder must store the data in an accessible manner.

Additionally, California AV law defines requirements manufacturers must meet to advertise a vehicle as *autonomous*. Further, in 2017 California passed Assembly Bill No. 669 allowing vehicle platoon testing in the State. The law states:

> *The department … may conduct testing on technologies that enable drivers to safely operate motor vehicles with less than 100 feet between each vehicle or combination of those vehicles.*

In 2018 California passed Assembly Bill No. 87, which allows California authorities to confiscate AVs operating on public roads without a proper permit.

San Francisco

Assembly Bill No. 1184, authorizes the city of San Francisco, by voter approval, to tax trips that occur in AVs that originate in San Francisco. The Silicon Valley is proving to be a hub for AV technology testing and development.

Colorado

In 2017 Colorado enacted Senate Bill No. 213, allowing AVs to operate in the State. The law states:

> *A person may use an automated driving system to drive a motor vehicle … if the system is capable of complying with every state and federal law that applies to the function that the system is operating.*

Further, Colorado law addresses liability for a crash involving an AV. The law states:

> *Liability for a crash involving an automated driving system driving a motor vehicle that is not under human control is determined in accordance with applicable state law, federal law, or common law.*

However, the law does not further specify how liability shall be allocated in such circumstances. Additionally, the Colorado Department of Transportation ("CDOT") has initiated the RoadX plan. The RoadX plan is a collaborative enterprise focusing on building partnerships between CDOT and businesses delivering innovative transportation solutions.

Connecticut

Connecticut enacted Senate Bill No. 260 in 2017, which establishes a Task Force to study AV technology and make recommendations related to AV regulation. However, Public Act No. 17-69 substituted SB 260. Additionally, the law lists multiple testing requirements for AVs. Three of the testing requirements are:

- an operator seated in the driver's seat;
- properly filed registration requirements; and
- proof of liability insurance.

Further, the law calls for the establishment of a Pilot Program allowing up to four municipalities to test AVs. The Office of Policy and Management is tasked with oversight of the Pilot Program in conjunction with the DMV, DOT and other relevant agencies. The task force was terminated following the submission of its final report. CODOT - Final Report.

Delaware

Delaware Governor John C. Carney signed Executive Order No. 14, in September 2017. The Executive

Order established an Advisory Council on AVs. The Council was tasked with developing recommendations for innovative tools and strategies to prepare Delaware's transportation network for connected and autonomous vehicles. Information and materials from Council's meeting may be found on Deldot.gov. The Advisory Council has since dissolved.

Additionally, the University of Delaware's Institute for Public Administration created a Report on AV technology, law, and policy. The Report discusses the issue of liability for AVs and notes:

> *To avoid some uncertainty and clarify the liability landscape that will evolve in U.S. courts, some manufacturers are announcing that they will simply accept responsibility if there are incidents involving their autonomously operated vehicles.*

The Report also discusses various cybersecurity and data privacy concerns, explaining citizens need clear and plain language to describe data collection, storage, and protection policies.

District of Columbia

Washington D.C. enacted Bill No. 19-0931 in 2012, which permits AVs to operate on public roads under three conditions: the AV has a manual override, a driver is in the control seat, and the AV is capable of operating in compliance with traffic laws. Further, the D.C. law expressly insulates manufacturers from liability if a conventional vehicle is converted to an AV and causes an accident. The only exception to this law is if the alleged defect was present in the vehicle when it was originally manufactured. The law defines Autonomous Vehicle as:

> *a vehicle capable of navigating District roadways and interpreting traffic-control devices without a driver actively operating any of the vehicle's control systems.*

Additionally, D.C. enacted Bill No. 22-0901 in 2018, which provides for the Department of Transportation to create a Working Group to conduct a comprehensive study on AV technology, policy, and law. The evaluative Autonomous Vehicle study is to be made available to the public by July 1, 2019.

Florida

The first legislation regarding autonomous vehicles was House Bill No. 1207 enacted in 2012. Later Florida enacted House Bill No. 7027 in 2016, which allows a person who possesses a valid driver license to operate an AV on public roads in the State.

Further, Florida law specifies that a person is the operator of an AV when the person causes the technology to engage, regardless of whether a person is present in the vehicle. Florida also enacted House Bill No. 7061, which allows for vehicle platoons to operate in the State. Additionally, Florida law addresses liability by establishing that the person who engages autonomous technology is the operator, and the original manufacturer is not liable for a defect in autonomous technology unless the defect was present when the vehicle was manufactured.

The Florida Department of Transportation created the Florida Automated Vehicles ("FAV") program to educate the public by engaging stakeholders, developing research and pilot programs, and creating awareness of AV technologies. And the Florida Department of Highway Safety and Motor Vehicles issued an Autonomous Vehicle Report, which discusses the impacts of AV technology in Florida.

Georgia

In 2017 Georgia enacted House Bill 472 which defined "coordinated platoon". Later, Senate Bill No. 219 was enacted, which allows a person to operate an AV on public roads. One requirement to operate an AV in Georgia is that the vehicle is capable of achieving a minimal risk condition in the event of a failure. The law defines minimal risk condition as:

> *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.*

Georgia law does not require the operator of an AV to have a valid driver's license. Lastly, the Georgia The House Autonomous Vehicle Technology Study Committee issued a Report, which addressed AV technology, law, and policy. The

Report identified privacy, cybersecurity, and radio frequency concerns as the most pressing issues related to AV deployment.

Hawaii

Hawaii Governor, David Y. Ige, signed Executive Order No. 17-07, directing the Hawaii Department of Transportation to develop testing mechanisms for autonomous vehicles in 2017. Further, the Executive Order establishes the position of Administrative Director in the Office of the Governor to serve as the AV contact for companies seeking to test self-driving vehicles in Hawaii. Most recently H.B. No. 1183 was introduced to authorize AV testing.

Additionally, the Hawaii AV Institute was created as a collaborative effort with the University of Hawaii's Manoa iLab to study and address all aspects of AVs including: technology, social impacts, economic impacts, law, and policy.

Idaho

In 2018 Idaho Governor, C.L. "Butch" Otter, signed Executive Order No. 2018-01, which called for the creation of a Committee devoted to AV testing. The Committee's stated mission includes:

- Identifying pertinent agencies to support the testing and deployment of AV technology;
- Coordinating identified agencies to develop strategies for law and policy development;
- Reviewing existing State law to identify laws that impede AV progress; and
- Identifying strategic partnerships to leverage the social, economic, and environmental benefits of AV technology.

Further, the Committee has four central focus areas: State/Federal Activity, Safety and Infrastructure, Security and Privacy, and Testing and Deployment. See the first Committee Report to the Governor, dated November 2018.

Illinois

Illinois enacted House Bill No. 0791 in 2017. The law defines Automated Driving System Equipped Vehicle as:

> *any vehicle equipped with an Automated Driving System of 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 domain."

House Bill 0791 also prohibits local government from prohibiting the use of autonomous vehicles on its roadways.

Additionally, the Illinois Center for Transportation ("ICT") is a premier transportation research center that involves a collaborative effort between the Illinois Department of Transportation ("IDOT") and several universities in Illinois. The ICT is developing the Illinois Automated and Connected Track ("I-ACT"). The I-ACT is a proposed test track facility to allow the State, universities, and the private sector to engage in a collaborative effort to research, test, and develop AV technology. In October of 2018, Governor Bruce Rauner signed Executive Order No. 2018-13, to support the Autonomous Illinois Initiative.

Indiana

In 2018 Indiana enacted House Bill No. 1290, which defines and allows for vehicle platooning. The law defines Vehicle Platoon as:

a group of motor vehicles that are traveling in a unified manner under electronic coordination at speeds and following distances that are faster and closer than would be reasonable and prudent without electronic coordination.

Additionally, the law specifies the filing system to obtain a platoon permit. Further, Representative Ed Soliday, of the Indiana House of Representatives Roads and Transportation Committee published a brief Report and overview of AV technology, law, and policy. The Report suggests the two main objectives for AV legislation should be to ensure public safety, and develop structure to encourage AV innovation, research, and development. Lastly, Indiana is home to the University of Notre Dame's Interdisciplinary Studies in Intelligent Systems Group, a pioneer in AV research and development.

Iowa

Iowa has yet to pass a law related to autonomous vehicles. However, in January 2017, the U.S. Department of Transportation named Iowa City and the University of Iowa's National Advanced Driving Simulator as one of ten designated automated vehicle proving ground sites. The Iowa

Automated Vehicle Proving Ground ("AVPG") facilitates: simulations, on-road testing, and closed-course testing of AVs.

Additionally, the State partners with Iowa State University and the University of Iowa. Indeed, the Iowa Department of Transportation and the two Universities are the authors of a comprehensive plan for accelerating AV progress in Iowa. The 2017 documented Plan generally:

> *sets out a comprehensive vision for the Iowa Department of Transportation's role in the future of transportation environment, and a plan for accelerating progress towards the future.*

Further, the Plan explains the key benefits of AV technology lie in its ability to enhance mobility, safety, and freight movement.

Kansas

Kansas has not yet introduced a law with respect to AVs. However, Mike Floberg, Director of Innovative Technologies for the Kansas Department of Transportation ("KDOT"), provided Testimony to the Kansas Senate Transportation Committee ("KSTC") in January 2018. According to Floberg's Testimony:

> *KDOT is developing the Division of Innovative Technologies, which will provide guidance on the rapidly evolving world of technology in transportation.*

Further, Captain Christopher Turner of the Kansas Highway Patrol provided Testimony to the KSTC in 2018. Captain Turner testified:

> *As this Committee moves forward with legislation setting a state framework to guide the deployment of autonomous vehicles … consideration must be given to the commercial motor vehicle industry.*

In September 2018, KDOT issued request for proposals to prepare a statewide AV project report, noting that information for the document will come from discussions within the Statewide Autonomous Vehicle Task Force, which was created by KDOT. Topics will include vision and goals, industry timelines, stakeholders, possible investments, public/private partnership concepts, high level direction on what the agencies should do to prepare for the future, and input on a draft executive order and legislative bill for testing AVs.

KDOT has signed an agreement with a consultant to complete this report, which is expected to be released in July 2019.

Kentucky

In 2018 Kentucky passed Senate Bill No. 116 (Act No. 33), which allows for vehicle platooning subject to specific requirements. For example, a platoon operator must provide notification and a general plan to the Kentucky State Police prior to operation. Further, vehicles in a platoon are required to display warnings for other motorists and law enforcement.

Additionally, the University of Kentucky issued a comprehensive Report on AV technology, law, and policy. The Report provides a review of all Kentucky laws and regulations relating to AVs and found an apparent need for future changes to laws respecting vehicle: licensing, registration, cell phone usage, and traffic enforcement. Additionally, the Report expresses a need for the legislature to develop a definition of operator, in the context of AVs. The Report also explains liability allocation is a major concern for manufacturers and the way in which liability is allocated could slow development and implementation of AVs in Kentucky.

Louisiana

Louisiana passed House Bill No. 1143 in 2016, which defines Autonomous Technology as:

> *technology installed on a motor vehicle that has the capability to drive the vehicle on which the technology is installed in high-or full-automation mode, without any supervision by a human operator… including the ability to automatically bring the motor vehicle into a minimal-risk condition in the event of a critical vehicle or system failure.*

Further, in response to a request of the State Legislature, the Department of Civil and Environmental Engineering at Louisiana State University ("LSU") developed a comprehensive Report on AV technology, policy, and law. LSU's Report made several recommendations to the legislature, as follows:

- AVs should be allowed on public roads for testing only;
- Operators of AVs should be required to obtain an AV license; and

- AVs should be required to have an Event Data Recorder capable of storing and recording data prior to a collision.

In 2018, Louisiana also enacted Act No. 310 authorizing platoon operations upon approval of a plan by the Department of Public Safety and Corrections and the Department of Transportation and Development. The focus of this law is to allow non-lead motor vehicles to closely follow other motor vehicles in a platoon.

Maine

Maine Governor Paul R. LePage executed Executive Order No. 2018-001 establishing the Maine Highly Automated Vehicles Advisory Committee in 2018. The Committee is designed to act as the State's official review and advisory board for AV testing, deployment, operation, and related infrastructure. Further, the Committee is tasked with monitoring compliance with Federal and State AV regulations. And, the Committee is tasked with making recommendations regarding existing and proposed State law that would govern AV testing, deployment, and operation. In addition, the Executive Order also directs the Committee to evaluate and make recommendations regarding AV pilot projects. Lastly, the Executive Order directs the Committee to consider safety as the most important factor in its evaluation of proposed pilot projects.

Additionally, in April 2018, the Maine Legislature passed H.P. 1204 – L.D. 1724, which creates the Commission on Autonomous Vehicles. The Commission is obligated to establish a process to allow AV testing and deployment in Maine. The Commission is also charged with reviewing current State laws, recommending new legislation, and monitoring State compliance with Federal regulations.

The Commissioner of Transportation is required to submit an initial report to the legislature by January 15, 2020 on the Commission's progress and to submit a final report with recommendations by January 15, 2022.

In January 2019, House Paper No. 135 was introduced to authorize general fund bond issues in the amount of $15 million to invest in Smart City Technology, including AV projects.

Maryland

Maryland has yet to pass a law with respect to AV technology. House Bill No. 1013, the Safe Autonomous Vehicles ("SAVE") Act was

introduced by the legislature in 2017, but the bill was not enacted as law. Interestingly, the University of Maryland is home to the Autonomous Vehicle Laboratory, which conducts research and development in the area of biologically inspired design and robotics.

Companies wishing to collaborate with Maryland in order to test AV technologies are required to complete an Expression of Interest with Maryland's Motor Vehicles Administration.

Maryland has established a Connected and Automated Vehicles Working Group to coordinate the development and deployment of AV technology in Maryland.

The Maryland Department of Transportation ("MDOT") has also established a number of Locations to Enable Testing Sites for AV technologies.

Massachusetts

Massachusetts Governor Charlie Baker executed Executive Order No. 572 in 2016, to promote AV testing and deployment. The Executive Order called for the establishment of a special working group on autonomous vehicles ("AV Working Group"), which was tasked with consulting with AV experts and developing guidance to allow for the safe testing of AVs and proposing any necessary legislation. During 2017, several bills to address AVs were introduced but no action was taken.

In January 2018, Governor Baker issued Executive Order No. 579, establishing the Commission on the Future of Transportation ("Commission") to provide advice on how to ensure that transportation planning, forecasting, operations and investments for the period from 2020 through 2040 can best account for changes in transportation needs and options. A specific focus of Executive Order No. 579 was on AV deployment.

The AV Working Group released a draft Report in September 2018, recommending regulations for testing including a requirement that a backup driver be present in AVs. The Report also recommended the \establishment of a committee comprised of members of the AV Working Group, municipalities, law enforcement agencies and first responders.

In December 2018, the newly-created Commission issued a Report- Volume 1 and Volume 2, as well as an Executive Summary. A key recommendation of the Commission is the development of a long-term strategy for supporting AVs.

Specifically, the Commission recommended that the Massachusetts Department of Transportation ("MassDOT") should continue to develop AV testing protocols and dedicate resources to the management of a committee that would provide regulatory oversight of such emerging technologies. The Commission also recommended that legislation should be passed to establish statutory and regulatory structures that enable the safe and reliable deployment of AVs.

Although a number of bills have been introduced in Massachusetts, many of which would have authorized AV use, all have failed due to adjournment. Currently, no bills are pending that would allow the operation of AVs.

Boston

In October 2016, Boston Mayor Walsh issued an Executive Order establishing a policy for AVs in the City. As part of a long term transportation plan called Go Boston 2030, the Executive Order recognized that AVs could help meet the City's goals for safer, more reliable and more accessible transportation options. The Mayor directed the Boston Transportation Commissioner to lead the oversight of AVs and ordered the Boston Transportation Department to publish guidelines for the testing of AVs and develop recommendations for regulation.

Companies wishing to test AVs in Boston are required to enter into a Memorandum of Understanding with the City and MassDOT, which includes the filing of an application detailing AV experience, a safety assessment, an initial driving plan, identification of vehicles, identification of operators, summary of training and insurance. The City also established Vehicle Testing Standards and Safety Protocols. nuTonomy, Optimus and Aptiv are the City's current partners for on-street testing, and a robust application process is available for potential future partners.

Michigan

In 2017 Michigan passed comprehensive AV legislation including, Senate Bill No. 995, Senate Bill No. 996, Senate Bill No. 997, and Senate Bill No. 998. Michigan law allows AV operation without a driver present. The central goal of Michigan's AV legislation is to stimulate Michigan businesses that develop AV technologies. Indeed, Senator Mike Kowall introduced the legislation:

> *To attract jobs stemming from this developing industry.*

Michigan law also allows for the operation of vehicle platoons. By Act No. 377 enacted in December 2018, vehicle platooning operations are exempt from the requirement that trucks and truck tractors leave sufficient space between themselves and other trucks.

Michigan law calls for the creation of the Michigan Council on Future Mobility within MDOT, to provide annual recommendations on AV technology. Michigan law also initiates the SAVE project, an initiative that authorizes eligible motor vehicle manufacturers to make available to the public on-demand AV networks. Further, manufacturers are not liable for AV incidents resulting from a modification made to an AV without the manufacturer's consent. Lastly, vehicle mechanics are not liable in products liability actions for faulty AV repairs, as long as repairs are made according to manufacture specifications.

Minnesota

Minnesota Governor Mark Dayton issued Executive Order No. 18-04 in March of 2018, establishing a Governor's Advisory Council on AVs. The Advisory Council provides advice and support to the Governor, the Department of Transportation, the Department of Public Safety, and other governmental entities to support AV testing and deployment. Additionally, the Executive Order directed the Advisory Council to submit a comprehensive report related to AV technology, policy, economics, and law.

The Advisory Council's Executive Report released in December 2018 includes recommendations in the following key areas:

- Safe Automated Vehicle Testing;
- Truck Platooning;
- Leadership
- Collaboration;
- Infrastructure;
- Vehicle Registration; Driver Training and Licensing;
- Accessibility and Equity;
- Revenue
- Traffic Regulations and Safety;
- Economic Development;
- Insurance/Liability;
- Cyber Security; Data Privacy;
- Land Use and Planning

Recognizing that many states have already passed AV legislation, the Advisory Council warned that if Minnesota does not take action to anticipate AV technology, it will miss

a critical opportunity to use technology for the benefit of its residents and businesses.

The Executive Order also called for the formation of the Interagency Connected and Automated Vehicle Team ("I-CAV Team"). The I-CAV Team is responsible for implementing the Executive Order, ensuring interagency coordination; and providing operational support to the Advisory Council.

Additionally, the University of Minnesota Transportation Policy and Economic Competitiveness ("TPEC") Program has been publishing research on AV policy issues in Minnesota since 2004. TPEC receives funding from the Minnesota Department of Transportation.

In January 2019, House File No. 242 was introduced to establish a micro transit rideshare pilot program. One facet of the pilot would explore the use of autonomous vehicles to deliver mass transit to the people of Minnesota. The bill also defines AV.

Mississippi

Mississippi passed House Bill No. 1343 in 2018, which allows vehicle platoons to operate in the State. However, the operation of vehicle platoons is conditional upon approval of a platoon application from the Mississippi Department of Transportation. And, the application must include a platoon plan. Further, the law calls for the Motor Carrier Division of the Department of Public Safety to develop the acceptable standards required for each portion of platoon plans.

Additionally, the Mississippi State University's Center for Advanced Vehicular Systems ("CAVS") hosted the 3rd annual Roundtable on the Purpose of Autonomous Driving ("ROAD"). ROAD is an international conference that discusses issues relating to advanced AV systems. CAVs is an interdisciplinary research center with a focus on off-road autonomous vehicles, pedestrian-vehicle interactions, and developing autonomous systems for industrial purposes.

Missouri

Missouri has yet to pass a law with respect to AV technology. However, the Missouri Department of Transportation ("MoDOT") identified assessing the infrastructure standards to interface with AVs as a 2019 Project of Priority. Additionally, MoDOT's Long Range Transportation Plan sets out a twenty-five-year vision for the State's transportation system.

MoDOT also released a Driverless TMA Initiative.

Despite the priority given by MoDOT, Senate Bill No. 811 which was introduced in January 2018 was not enacted and failed due to adjournment. Under the proposal, AVs would have been permitted to operate without a human driver in Missouri, as well as for being used to provide ridesharing services.

In January 2019, Senate Bill No. 186 was introduced to permit vehicle platooning on Missouri roads. This bill would exempt non-lead vehicles in a group of motor vehicles using vehicle-to-vehicle communications to travel in a unified manner at electronically coordinated speeds from certain requirements relating to minimum following distance.

Montana

In 2017, Montana passed Joint Resolution No. 40 to promote the study of AV technology, policy, and law. The Joint Resolution states:

> *More study is needed to determine whether laws need changing to accommodate autonomous vehicles.*

Further, the Joint Resolution calls for the establishment of a Passenger Transportation Commission dedicated to AV technology.

Additionally, Montana State University collaborates on research with the Western Transportation Institute to conduct research in the field of AVs through the Mobility and Public Transportation program. The Mobility and Public Transportation program is a collaborative effort focusing on rural AV and transportation research. The program facilitates mobility improvements in Montana for individuals of all ages and abilities by focusing on innovative transportation solutions.

Nebraska

Nebraska approved Legislative Bill No. 989 in April of 2018. The law is designed to allow AVs to operate in the state. First, the law allows for AVs to operate on public roads without a driver subject to certain conditions. The law states:

> *The operation on the public roads of this state of an automated-driving-system-equipped vehicle capable of performing the entire dynamic driving task within its operational design domain*

while a conventional driver is present is lawful.

And, Nebraska law also specifies AV operators must demonstrate satisfactory financial stability and compliance with state insurance requirements before operating the vehicle. In the event of an accident involving an AV, the owner of the AV is required to report the accident. Further, Nebraska law clearly states that no additional liability will be imposed on the manufacturers, developers, or AV owners beyond what the State already allows.

In December 2018, the Legislature's Transportation and Telecommunications Committee discussed how to implement this legislation. Recommendations for consideration by the 2019 Legislature are expected to be submitted in January 2019.

In January 2019, Legislative Bill No. 521 was introduced to allow AV operations, so long as a human driver is physically present in the vehicle and able to take control of the vehicle. Under the bill, the AV technology must be designed to operate in compliance with Nebraska Rules of the Road. Prior to operation of the AV, a person must submit evidence of insurance that satisfies the requirements of the Motor Vehicle Safety Responsibility Act.

Lincoln

Lincoln is launching an Autonomous Shuttle Project. In 2017, the City commissioned a study which resulted in the release of a Report called Lincoln Multimodal Technology Vision in February 2018. The genesis of the study was a small group of City transportation, technology and transit innovators, who saw an opportunity to leverage the City's "smart" traffic and high-speed data infrastructure to test new transportation technologies, such as autonomous shuttles. The study found that:

- Lincoln has state-of-the-art broadband and traffic management infrastructure to support "smart-vehicle" technologies;
- Downtown traffic was ripe for a shuttle system;
- Only Minor infrastructure improvements would be warranted to support AVs;
- A supportive and guiding regulatory framework was needed for a municipality to pursue an AV pilot project.

The passage of Legislative Bill No. 989 provided the framework

needed by the City of Lincoln. The goal is to operate a pilot project for two to three months in 2019.

Nevada

In 2011, Nevada passed Assembly Bill No. 511, and became the first state to authorize AV testing on public roads. Additionally, in 2013 Nevada passed Senate Bill No. 313, which provides that manufacturers are not liable for AV accidents if a third party converted the vehicle to an AV. Further, Nevada law requires that an entity must provide proof of $5 million in insurance coverage before testing an AV.

In 2017, Nevada enacted Assembly Bill No. 69, which changes the previous testing directives from 2011 by allowing manufacturers and developers to self-certify compliance with current testing requirements to the Nevada Department of Motor Vehicles ("NDMV"). Manufacturers and developers need to submit an Autonomous Vehicle Testing Registry Application to the NDMV to self-certify compliance for AV testing. Once the application is approved, the NDMV issues a certificate of compliance for testing along with license plates designated for AVs. Lastly, Nevada law allows for vehicle platooning.

New Hampshire

New Hampshire has yet to pass law regarding AVs. However, House Bill No. 314 passed both the House and Senate in July 2018. The Bill stated:

> *vehicles equipped with autonomous technology may be operated on roads in this state.*

But, Governor Chris Sununu vetoed the Bill. The Governor's Veto Message cited a lack of account for public safety in the Bill as the main reason for the veto. Indeed, the Veto Message stated:

> *House Bill No. 314 is a flawed bill that does not adequately account for public safety.*

The Veto Message warned as written, the Bill may attract less responsible actors to the State to develop AVs. Governor Sununu further stated the Bill was well intentioned, and expressed his desire for the House and Senate continue to work together to pass a bill encouraging the development of AV technologies.

In January 2019, House Bill No. 522 was introduced to establish a commission to study environmental

and health effects of evolving 5G technology. Recognizing that wireless technology is intended to greatly increase device capability and connectivity, the bill sets forth concerns about the risks that it may pose for humans, animals and the environment. The bill would require the commission to receive testimony from businesses working on the development of AV vehicles which will rely on 5G technology.

New Jersey

New Jersey has not passed a law relating to AVs. However, Senate Bill No. 2149 is currently pending in the New Jersey Legislature. The Bill is designed to permit AV testing and use in New Jersey, subject to certain circumstances. Indeed, the Bill states:

> *An autonomous vehicle may be operated on any public highway, road, or street within the State for testing purposes.*

Further, the Bill defines Autonomous Vehicle as:

> *A motor vehicle that uses autonomous technology… or any other technology to perform the mechanical operations of driving.*

The Bill also requires manufacturers performing testing to provide proof of insurance for at least $5,000,000. Lastly, the New Jersey Center for Autonomous Vehicle Research and Development pioneers research in AV technology as part of a collaborative effort between Princeton University and the Fort Monmouth Economic Revitalization Authority.

Other bills pending in New Jersey include Assembly Bill No. 4573, which would establish an AV pilot program, and Assembly Bill No. 4541, which would direct the Motor Vehicle Commission to establish driver's license endorsement for AVs.

On October 22, 2018, the Assembly Science, Innovation and Technology and the Transportation and Independent Authorities Committee held a joint hearing to consider whether AVs should be allowed to be operated and tested in the state. The combined committee recommended that the Legislature create a task force to further consider the issue.

In November 2018, Senate Joint Resolution No. 105 was introduced to establish the New Jersey Advanced Autonomous Vehicle Task Force, the purpose of which would be to conduct a study of AVs and make recommendations on laws that New Jersey may enact to safely integrate

AVs on the State's roads. The task force would be required to meet within 90 days after its creation and issue a report to the Governor within 180 days after the initial meeting. On January 17, 2019, the Senate Transportation Committee reported favorably, with amendments discussed by a Statement.

Also, in November 2018, Senate Bill No. 3165 was introduced to establish to provide funding for certain nonprofit partnerships to promote specific emerging technology businesses, including AV.

New Mexico

In February 2018, New Mexico's Legislature adopted a Joint Memorial (SJM-3) requesting the Department of Transportation to create a committee that includes relevant state agencies and private entities to review the current and developing state of AV technology and develop a proposal to allow AV use in New Mexico. The Joint Memorial called for the submission of a report to the Legislature by the end of 2018. Also, in 2018, the New Mexico Department of Transportation ("NMDOT") held a summit to discuss AVs. According to NMDOT Secretary, Tom Church:

> *By the time the industry hits us, even if we can participate in some of the test, we'll have laws in place.*

Further, the Intelligent Transportation Systems program is run under the direction of NMDOT. The Intelligent Transportation Systems program seeks to improve transportation safety and mobility through the use of advanced communications technologies and data collection.

In January 2019, Senate Bill No. 332 was introduced to authorize the use AVs and platooning. This bill contains numerous definitions related to AV technology, requires immediate notice of accidents involving AVs, mandates that AV meet federal standards and establishes insurance requirements.

New York

In 2017, New York enacted Senate Bill No. 2005 (Act No. 55), which allows for the State Commissioner of Motor Vehicles to approve AV testing. Indeed, the law states:

> *The New York state commissioner of motor vehicles may approve demonstrations and tests consisting of the operation of a motor vehicle equipped*

with autonomous vehicle technology.

The law also specifies certain AV application requirements. For example, to receive approval for testing, AVs must comply with federal and state safety standards; have a person with a valid driver's license seated in the driver's seat; and have at least $5 million in insurance coverage.

Further, the law specifies that tests and demonstrations must be conducted under the supervision of the New York State Police. Lastly, the New York Department of Motor Vehicles accepts Applications for Testing of AV technology.

In January 2019, Assembly Bill No. 1554 was introduced to establish the New York State Autonomous Vehicle Task Force to study AV usage on the roads located within the State of New York. Also introduced in January 2019 is Senate Bill No. 1159 to create an AV committee to guide the enactment of a study to assess the future of AV technology. Another bill offered in January 2019 is Assembly Bill No. 301, which would require the Department of Labor to conduct a study on the potential impact of driverless vehicles on occupations and employment.

Senate Bill No. 1779, which was introduced in January 2019, defines autonomous technology and sets forth the drivers' license requirements for operating an AV upon a public highway. Under this bill, persons holding drivers' permits would be allowed to operate the AV, with the supervision of a person at least 18 years old, except in the event of a medical emergency.

Finally, in January 2019, Assembly Bill No. 1808 was offered to authorize the Commissioner of the Department of Transportation to enroll New York in any federal pilot program for the collection of transportation data, including AV projects.

North Carolina

In 2017, North Carolina passed House Bill No. 469, titled *An Act to Regulate the Operation of Fully Autonomous Motor Vehicles on the Public Highways of this State*. The North Carolina law established the AV Committee within the Department of Transportation to provide insight, analysis, and recommendations related to AV deployment. AVs are permitted to operate in North Carolina if they satisfy the following requirements:

- compliance with state and federal motor vehicle standards;

- the vehicle is capable of stopping at the scene if involved in an accident;
- the vehicle is capable of stopping if the automated system fails;
- the vehicle is covered by a vehicle liability policy; and
- the vehicle is lawfully registered.

Interestingly, the operator of a fully autonomous AV is not required to be licensed to drive, however the operator must be at least 12 years old to travel unsupervised in an AV. Further, the owner of an AV is responsible if an AV commits any traffic violations. Lastly, in 2017 North Carolina also enacted House Bill No. 716, allowing vehicle platooning in the State.

North Dakota

In 2015 North Dakota enacted House Bill No. 1065, which called for a legislative management study to analyze whether laws needed to be put in place for AV deployment. It was also enacted to allow for the review of current laws dealing with licensing, registration, insurance, data ownership and inspections of vehicle and how they relate to autonomous vehicles. The law defines Automated Motor Vehicle as:

> *a vehicle capable of operating in a full automation mode where full automation mode is defined… as the unconditional, full-time performance by an automated driving system of all aspects of the dynamic driving task."*

Further, in 2017 North Dakota passed House Bill No. 1202, which called for the Department of Transportation to conduct a study in conjunction with the AV industry. The purpose of the proposed study is to analyze AV technology and report findings with legislative proposals to the State legislature. No reports have been issued to date.

House Bill 1394 was introduced in 2017 to address autonomous vehicle data ownership. While the data is deemed owned by the owner of the autonomous vehicle (defined here as *"a motor vehicle using autonomous technology, as a means to eliminate the human operator*." However, if the data maintains "nonidentifying" data a manufacturer, insurer, or seller of autonomous vehicles or autonomous vehicular technology may share, release, or distribute nonidentifying aggregate vehicle data collected and stored by the autonomous vehicle without prior approval by the vehicle's owner. "Nonidentifying" "means nonpersonalized information or data

about the owner, operator, or the autonomous vehicle." After a second reading, 1394 failed to pass, with a vote of yeas 0, nays 45.

Early in 2018, the city of Bismarck announced that it may take part in a driverless bus fleet Pilot Program. If Bismarck opts into this Program, the driverless bus fleet will run from March through October 2019.

At the beginning of the 2019 legislative session, numerous bills have been introduced dealing with autonomous vehicles.

House Bill 1418 – introduced to create and enact chapter 8-12 and section 39-01-01.2 of the North Dakota Century Code relating to automated vehicle network companies and autonomous vehicle operations in the state.

Chapter 8 – 12 defines the following:

> *"Autonomous vehicle" means a vehicle equipped with an automated driving system.*
>
> *"On-demand autonomous vehicle network" means a transportation service network that uses a software application or other digital means to dispatch or otherwise enable the prearrangement of transportation with autonomous vehicles for purposes of transporting persons or goods, including for-hire transportation, transportation for compensation, and public transportation*

Chapter 39-01-01.2, further defines

> "*Automated driving system*" *means hardware and software collectively capable of performing the entire dynamic driving task for the vehicle on a sustained basis when installed on a motor vehicle and engaged regardless of whether it is limited to a specific operational design domain.*

This Chapter, if enacted, would allow autonomous vehicles to operate in the state without a human driver present.

In an attempt to readdress the data ownership issue from 2017, House Bill 1197 was introduced for the 2019 legislative session. When compared to the previously defeated bill 1394, the only change is the addition of third clause:

A manufacturer, insurer, or seller of autonomous vehicles or autonomous vehicular technology may share, release, or distribute identifying or personalized information or data collected and stored by the autonomous vehicle, with the consent of the owner of the autonomous vehicle or by order of a court.

House Bill 1543 was also introduced to address requirements of having insurance, surety bond, a human driver and ability to engage and disengage the autonomous mode required to test autonomous vehicles. It also addresses the liability of a manufacturer of a vehicle modified by a third party and driver license endorsement creation by the Department of Transportation.

Ohio

In 2018, Ohio Governor John Kasich signed Executive Order No. 2018-01K, which established the DriveOhio plan. DriveOhio is designed to allow for intelligent technologies to be incorporated in Ohio transportation vehicles and infrastructure. Indeed, the DriveOhio program calls for the creation of an Expert Advisory Board ("Board") to review progress in technological advancements in smart mobility, data analytics, data security, workforce development, funding and research opportunities, and regulatory developments.

Further, the Board is tasked with reporting its findings and making recommendations on regulatory policies to help integrate smart mobility technologies in Ohio. And, Governor Kasich signed Executive Order 2018-04K, which authorizes testing and pilot programs for AVs on any public road in Ohio.

Companies need to provide the Ohio Department of Transportation with the following information: business name and address, vehicle make, model, and license plate number, contact information for the operator, proof of insurance, the municipalities where the vehicle will be tested, and safety certification to operate an AV in Ohio. Additionally, companies may enter into the DriveOhio Pilot Program, to test AVs to meet State requirements. Ultimately, testing on public roads and highways in Ohio is permitted, regardless of participation in the pilot program.

In November 2018, four Ohio cities signed agreements to open their streets to testing of connected and autonomous vehicles: Columbus, Athens, Dublin and Marysville.

In December 2018, the Ohio House Transportation and Public Safety Committee, today released a report on autonomous and connected vehicles. The Report consists of the chairman's findings during the committee's 14-month study, which completed hearings and stakeholder meetings earlier this year. During the committee hearings and stakeholder meetings, more than 50 industry leaders, policy think tanks, and other stakeholders from around the country participated to inform this report.

The key recommendations of the report:

- Oppose a patchwork of state and local laws regarding this vehicle technology;
- Make basic transportation infrastructure maintenance a top priority;
- Establish a Joint House-Senate Commission on transportation infrastructure funding;
- Establish an Autonomous and Connected Vehicle Task Force that is comprised of a broad range of disciplines and organizations;
- Identify occupations most at risk of labor displacement from ADS technology, as well as what new skill sets displaced Ohioans will need to quickly transition back into workforce;

Oklahoma

The Oklahoma DOT recently published a Freight Transportation Plan. The Plan seeks to provide a framework for a safe, reliable, and productive freight transportation system. The Glossary of the plan defines autonomous vehicle technology as a:

> *Robotic vehicle that is designed to travel between destinations without a human operator. To qualify as fully autonomous, a vehicle must be able to navigate without human intervention to a predetermined destination over roads that have not been adapted for its use.*

Further, the plan discusses the importance of incorporating both AVs and vehicle platoon systems in the future of freight transportation.

For the first time, Oklahoma's lawmakers are putting for legislations regarding autonomous vehicles for the first legislative session in 2019, including, what is seen as the most important, Senate Bill 365, to create the Oklahoma Driving Automation System Uniformity Act, which would give the legislature the final say on autonomous laws in the state.

Oregon

In 2018, Oregon enacted House Bill No. 4063, which establishes a Task Force dedicated to the coordination of AV programs and policies. In September of 2018, the Task Force issued a comprehensive Report, which makes certain recommendations to the Oregon Legislature. The Report recommends a permitting process for testing AVs in Oregon. The proposed permitting process would:

- collect information about vehicles and drivers involved in testing;
- set minimum insurance requirements;
- require safety assurances; and
- direct testing entities to engage with law enforcement.

Currently, Oregon has a Voluntary Testing Notification Process. The testing process is voluntary, but allows companies to work with the Oregon Department of Transportation to provide feedback and establish working relationships. Additionally, Oregon enacted House Bill No. 4059 in 2018, allowing vehicle platooning in the State.

Pennsylvania

Pennsylvania passed Senate Bill No. 1267 in 2016. The law allows for the allocation of up to $40 million in state funds to local governments for upgrading and implementing intelligent transportation system applications. Additionally, the Pennsylvania Department of Transportation ("PennDOT") issued Guidance for AV Safety. The Guidance recommends PennDOT collect mandatory data from all AV testers. However, Pennsylvania testing requirements are currently voluntary. To comply with the voluntary procedures to conduct testing, entities must complete a Notice of Testing Form and if necessary, a Notice of Testing Supplement.

Further, Pennsylvania created a Task Force, which issued a Report on Autonomous Vehicle Policy. The Report suggests minimum approval requirements for AV testing. In 2018, Pennsylvania passed House Bill No. 1958, (now Act 117 and takes effect on April 22, 2019), which allows establishes a number of guidelines and practices for the use of automated vehicles in work zones and allowing certain vehicle platoons to operate in the Commonwealth.

Pittsburgh

Carnegie Mellon University ("CMU") in Pittsburgh, Pennsylvania is the birthplace of AV technology. Indeed, the CMU Robotics Institute is home to the General Motors-Carnegie Mellon Autonomous Driving Collaborative Research Lab.

Pittsburgh is home to Uber's autonomous vehicle development center. In 2016, the mayor of Pittsburgh, Bill Peduto, agreed to allow Uber to test its autonomous vehicles within the city. Since that time, several other autonomous vehicle companies have also begun testing their vehicles within the city, including, Aurora and Argo.

Pittsburgh officials can't legally prevent testing, but they are in safety talks with Uber and four other entities that have permits to test autonomous vehicles, said Karina Ricks, the city's director of the Department of Mobility and Infrastructure. For instance, the city wants to limit self-driving vehicle speeds to 25 miles per hour in urban settings, even if the posted speed is higher.

In 2016, Pittsburgh applied for a $50 million grant through the U.S. Department of Transportation's Smart City Challenge for future-minded transportation infrastructure research, but the grant was awarded to Columbus, Ohio. As a result of the application, Pittsburgh created SmartPGH, with the goal of making Pittsburgh a leader in "transportation, innovation to address Pittsburgh's challenges and make all residents' lives better." One of the programs created by SmartPGH includes launching an autonomous shuttle network in the city.

Rhode Island

Senate Bill No. 2514 was introduced in 2016 and defined *autonomous vehicle* as:

> *Any vehicle equipped with autonomous technology.*

The bill would have allowed AVs to operate in the state. Additionally, the bill included a provision that required the Division of Motor Vehicles to prepare an AV report to the State Legislature. However, the Bill did not become law.

The Rhode Island Department of Transportation ("RIDOT") recently released a request for proposals to test AVs. RIDOT Chief Operating Officer Shoshana Lew stated:

> *We at the department are very focused on managing the assets that we have for now, but we want to have*

> *our eye on the future, recognizing that there are a lot of changes that are coming fast.*

RIDOT's efforts are part of the Rhode Island Transportation Innovation Partnership ("TRIP") program. TRIP is designed to improve mobility and safe transportation in Rhode Island.

The Rhode Island Department of Transportation announced at the end of 2018 that it has chosen Michigan-based May Mobility's self-driving bus to run a one-year autonomous vehicle pilot program. May Mobility is anticipated to begin testing its six-passenger driverless shuttle buses at the Quonset Business Park in North Kingstown in February 2019 with the intention of launching its Providence service in "late spring," according to DOT spokesman Charles St. Martin.

South Carolina

South Carolina passed House Bill No. 3289 in 2017, allowing vehicle platooning systems on public roads. Additionally, in 2017 South Carolina received a $4 million grant from the Federal Highway Administration. The Award was made to Greenville County to deploy an automated transit system. County Officials will allocate funds to deploy a system of taxi-shuttles called A-Taxis providing shuttle services for residents. Further, the South Carolina Department of Transportation ("SCDOT") issued a Report on the structural efficiencies of South Carolina transportation. The Report defines Autonomous Vehicles as:

> *Vehicles in which operation occurs without direct driver input to control the steering, acceleration, and braking and are designed so that the driver is not expected to constantly monitor the roadway while operating in the self-driving mode.*

Further, the Report discusses AVs and other innovative technologies as part of a South Carolina's strategic plan to rebuild transportation infrastructure and provide adequate, safe, and efficient transportation services to the people of the State.

South Dakota

South Dakota has yet to pass law relating to AVs. Senate Bill No. 139 was introduced in 2014. Interestingly, the Bill defined o*perator* to mean:

> *Any individual seated in the driver's seat, or, alternately, the person who causes the*

technology of an autonomous motor vehicle to engage.

Further, the Bill proposed fees and application requirements for manufactures wishing to test AVs. Additionally, the Bill included operational requirements for AV testing. However, the bill did not become law.

Tennessee

In 2015, Tennessee passed Senate Bill No. 598, which prohibits local governments from banning the use of AVs. Further, in 2017 Tennessee enacted Senate Bill No. 151, which is titled the Automated Vehicles Act ("AV Act"). The AV Act defines Automated Driving System ("ADS") as:

> *Technology installed on a motor vehicle that has the capability to drive the vehicle on which the technology is installed in high or full automation mode, without any supervision by a human operator… including the ability to automatically bring the motor vehicle into a minimal risk condition in the event of a critical vehicle or system failure or other emergency event*

Interestingly, the AV Act allows an ADS to operate on the streets and highways of Tennessee without a human driver physically present in the vehicle. However, to operate without a driver present an AV must meet certain requirements:

- the vehicle is capable of compliance with Federal and State law;
- the vehicle is capable achieving a minimal risk condition in the event of ADS failure;
- the vehicle is registered; and
- the vehicle has insurance coverage.

Finally, the AV Act explains liability for accidents involving an AV is determined in accordance with product liability law, common law, or other applicable federal or state law.

Texas

Toward the end of 2016, cities and regions across Texas are partnered with the Texas A&M Transportation Institute (TTI), the University of Texas at Austin's Center for Transportation Research (CTR), and Southwest Research Institute (SwRI) to form the Texas Automated Vehicle (AV) Proving Ground Partnership. The statewide partnership was created put

Texas on the path to becoming the nation's first "Smart State," which aims to create a platform for innovation to address community challenges.

Texas passed Senate Bill No. 2205 in 2017, which allows for AV operation in the State. The Texas law concisely defines automated motor vehicle:

> *a motor vehicle on which an automated driving system is installed.*

Further, the Texas law allows an AV to operate regardless of whether someone is present in the vehicle. However, an unmanned AV must:

- be in compliance with traffic laws;
- include a recording device for vehicle data;
- be registered and titled in the state; and
- be covered by liability insurance.

Additionally, Texas enacted House Bill No. 1791, which allows for vehicle platooning through the use of connected braking systems.

Two bills have been filed at the beginning of the 2019 legislative session to address Texas' self-driving car laws. The first, House Bill 119, would increase liability of manufacturers in the event of a crash involving an automated vehicle. The second, House Bill 113, another would require providers to equip vehicles with a failure alert system and the latest software.

Austin

Austin joined select cities and transportation agencies around the world to pilot a new autonomous vehicle deployment platform called INRIX AV Road Rules. The INRIX platform can be used as a foundation for cities and road authorities to communicate with operators for the safe and effective deployment of highly automated vehicles on public roads. It enables cities and road authorities to assign, validate and manage traffic rules and restrictions for autonomous vehicles operating on public roads. The platform also leverages highly automated vehicle data from roads to report infrastructure improvement needs, making the roads safer for all users.

Austin has also formed a Smart Mobility Program. The Program seeks to foster creative, mutually beneficial partnerships to carry out real-world testing of smart mobility technology, such as shared, autonomous, connected and electric vehicles.

Google began testing its autonomous vehicles in Austin in 2016, which included the first-ever trip where someone took a ride on public roads without a legal driver in an autonomous car.

In the fall of 2018, Austin began allowing autonomous shuttles to operate within the city, launching the nation's largest autonomous bus pilot program. In the beginning phase, the city and its partners, Capital Metro and RATP Dev USA, evaluate the performance of six 15-passenger buses for up to 60 days. Meanwhile, the city will begin accepting proposals from autonomous vehicle makers to lease driverless buses for a year while it monitors for safety and reliability.

San Antonio

In July 2018, San Antonio sought a Request for Information to develop an Autonomous Vehicle Pilot Program. Although San Antonio's Fredericksburg Road-Medical Drive corridor is formally listed as part of the Texas Automated Vehicle Proving Ground Partnership, self-driving cars have not been seen driving along city streets. The Medical District, Brooks, and downtown were chosen as areas of the city to be used as proving grounds for future initiatives that would be eventually be rolled out citywide. Proposals were due at the end of August 2018.

Following the receipt of responses, the city announced that it will soon issue a request for proposals (RFP) for autonomous vehicle testing. Further, The city's Office of Innovation intends to hold a smart city vendor summit this year and has identified three zones well-suited for testing so-called smart city technologies.

Utah

Utah has enacted three laws with respect to AVs. First, in 2015 operation of AV technology. Pursuant to the passing of HB No. 280, a Report to the Utah Legislature establishes best practices for AV regulation. The Report states:

> *The primary recommendation of this report is that the State continue studying the issues landscape continues to rapidly evolve.*

Further, the Report suggests that implementing new policies or legislation now would be premature. Lastly, in 2018 Utah enacted Senate Bill No. 56, which allows for the operation of vehicle platooning systems in the State. Utah passed House Bill No. 373, which authorizes the Department of Transportation to conduct a connected vehicle testing program. Second, in 2016 Utah

enacted House Bill No. 280, which requires each agency in the State with regulatory authority impacting AVs to facilitate and encourage the responsible testing.

Vermont

In 2017 Vermont enacted House Bill No. 494, which calls for the Secretary of Transportation to convene a meeting of public and private stakeholders with AV expertise. Subsequently, in 2018 a Report to the Vermont General Assembly was prepared regarding policy and planning for AV development. The Report recommends a focus on facilitating the transition to AVs for Vermonters in a safe and efficient way by:

- providing the statutory authority for a permit process that allows and regulates AV testing in Vermont; and
- providing authority to explicitly accommodate and regulate automated driving on public roads in Vermont by the general public.

Currently, there are no laws in Vermont that explicitly prohibit or allow the testing of AVs. Indeed, an AV can legally travel on a road in VT if it complies with current state law, VSA Title 23, which regulates:

- vehicle registration;
- driver licensing;
- vehicle on the road operation;
- insurance requirements; and
- vehicle inspection.

Lastly, the Report recommends assigning a legal obligation for compliance with Title 23.

Virginia

Virginia has yet to pass legislation relating to AVs. Right now, the only requirement that affects autonomous vehicles states that a driver must be behind the wheel.

In 2015, Governor Terry McAuliffe announced the opening of the Virginia Automated Corridors ("AVCs"), a 70-mile network of highways and arterial roads in Northern Virginia. The AVCs are outfitted with high-definition mapping and data acquisition systems to support AV testing. The AVCs are operated and maintained by the Virginia DOT, Department of Motor Vehicles and Virginia Tech. Further, Virginia established the Connected and Autonomous Vehicle Program to

guide the Department in the deployment of AV technologies.

In 2016, House Bill 1372, was proposed relating to autonomous vehicles, defining such vehicles as

> *a vehicle, as defined by Levels 4 and 5 of SAE J3016 that utilizes an automated driving system that handles all aspects of the dynamic driving task, and does not require the involvement of a driver at any time for its safe operation.*

The bill was referred to and remains in the Committee on Transportation

Washington

In 2017 Washington Governor Jay Inslee enacted Executive Order 17-02, calling for the establishment of an AV Work Group to advance AV technology and policy within the State. According to the Executive Order, entities conducting AV testing with a human present in the vehicle must self-certify compliance to Department of Labor ("DOL") with testing requirements, including:

- possessing a valid driver's license;
- proof of financial responsibility; and
- the operator's ability to direct the vehicle.

Entities conducting AV testing without a human present in the vehicle must self-certify compliance to the DOL with additional testing requirements. For example, the automated driving system must have the ability to bring the AV to a safe condition in the event of failure. After providing certification to the DOL, entities may immediately begin testing pilot programs.

Subsequent to the Executive Order, Washington enacted House Bill No. 2970, establishing an AV Work Group. The AV Work Group has three primary responsibilities. First, the Work Group serves as the central clearing house for all AV related issues. Second, the Work Group is tasked with following developments in AV technology, law, and policy and identifying potential improvements. Third, it is tasked with making recommendations to WSTC.

In March, 2018, Washington Governor Insle, proclaimed that the future of transportation would be in Seattle, including autonomous vehicles. Governor Insle stated that there were more than 24 companies working on self-driving technology in the state. However no other bills have been proposed before the state's legislature.

West Virginia

West Virginia has yet to pass legislation related to AVs. House Bill 2910 was introduced in 2017. The Bill was designed to allow AV operation in West Virginia. Indeed, the Bill stated:

> *A person who possesses a valid driver license may operate an autonomous vehicle in autonomous mode on roads and highways in this state.*

This Bill has been pending in the House Roads and Transportation Committee since March 17, 2017.

A second bill introduced in 2017, House Bill 2881, to establish minimum safety standards for the design of or operation of robotic technology within the state. The bill includes autonomous vehicles within the scope of robotic technology. It defines an autonomous vehicle as

> *A vehicle that is technologically enabled to be operated without the active physical control or monitoring of a human being*

This bill is also still pending within the House Energy, Industry and Labor, Economic Development and Small Business Committee since March 9, 2018.

Wisconsin

Wisconsin is home to one of ten U.S. Department of Transportation Proving Grounds. Indeed, the University of Wisconsin Madison is a major research and development center for AV technology. Governor Scott Walker signed Executive Order No. 245 in May 2017, which created the Governor's Steering Committee on AVs. The Committee is tasked with advising the Governor on how to best advance AV testing and operation in Wisconsin. In response to the Executive Order, the Governor's Steering Committee (which is deemed disbanded upon issuance of this report, per the Executive Order) issued a comprehensive AV Report on June 29, 2018, which states:

> *The ongoing deployment of … AVs has the potential to provide Wisconsin residents, visitors and businesses with enhanced mobility, safer travel and economic opportunities.*

The Report makes two primary recommendations. First, the Report recommends the removal or modification of all Wisconsin laws that are barriers to safe AV testing and

deployment. Further, the Report stresses the importance of writing clear laws allowing Wisconsin residents and businesses to realize the potential and advantages of AV technology.

Second, the Report recommends the State continue to monitor AV technologies by establishing an AV working group.

Wisconsin also enacted Senate Bill No. 695 in 2018, which defines Vehicle Platoon as:

> *a group of individual motor vehicles traveling in a unified manner at electronically coordinated speeds.*

Further, the law allows vehicle platoons to operate in the State.

Wyoming

The state of Wyoming has not yet enacted law relating to AVs. However in March of 2018, the Wyoming DOT issued a Report, which discusses AV technology, policy, and law. The DOT indicated in the Report that it would recommend focusing on infrastructure before adding any laws.

Additionally, Wyoming has a Pilot Program dedicated to advancing connected vehicle technology. The Pilot Program seeks to improve the Wyoming DOT's monitoring and reporting of road conditions to vehicles with vehicle-to-vehicle, vehicle-to-infrastructure, and infrastructure-to-vehicle communications.

Appendix

Laws by State

State	Law	Year
Alabama	SJR No. 81	2016
	Senate Bill No. 125	2018
Arkansas	House Bill No. 1754	2017
Arizona	Executive Order No. 2015-09	2015
	Executive Order No. 2018-04	2018
	Executive Order No. 2018-09	2018
California	Senate Bill No. 1298	2012
	Assembly Bill No. 669	2017
	Assembly Bill No. 87	2018
Colorado	Senate Bill No. 213	2017
Connecticut	Senate Bill No. 260	2017
Delaware	Executive Order No. 14	2017
District of Columbia	Bill No. 19-0931	2012
	Bill No. 22-0901	2018
Florida	House Bill No. 7027	2016
	House Bill No. 7061	2016
Georgia	Senate Bill No. 219	2017
Hawaii	Executive Order No. 17-07	2017
	House Bill No. 2253	2018
Idaho	Executive Order No. 2018-01	2018

Illinois	House Bill No. 0791 Executive Order No. 2018-13	2017 2018
Indiana	House Bill No. 1290	2018
Kentucky	Senate Bill No. 116	2018
Louisiana	House Bill No. 1143	2016
Maine	Executive Order No. 2018-001 H.P. 1204 – L.D. 1724	2018 2018
Massachusetts	Executive Order No. 572	2016
Michigan	Senate Bill No. 995 Senate Bill No. 996 Senate Bill No. 997 Senate Bill No. 998	2016 2016 2016 2016
Minnesota	Executive Order No. 18-04	2018
Mississippi	House Bill No. 1343	2018
Montana	Joint Resolution No. 40	2017
Nebraska	Legislative Bill No. 989	2018
Nevada	Assembly Bill No. 511 Senate Bill No. 313 Assembly Bill No. 69	2011 2013 2017
New York	Senate Bill No. 2005	2017
North Carolina	House Bill No. 469 House Bill No. 716	2017 2017

North Dakota	House Bill No. 1065 House Bill No. 1202	2015 2017
Ohio	Executive Order No. 2018-01K Executive Order No. 2018-04K	2018 2018
Oregon	House Bill No. 4059 House Bill No. 4063	2018 2018
Pennsylvania	Senate Bill No. 1267 House Bill No. 1958	2016 2018
South Carolina	House Bill No. 3289	2017
Tennessee	Senate Bill No. 598 Senate Bill No. 151	2015 2017
Texas	House Bill No. 1791 Senate Bill No. 2205	2017 2017
Utah	House Bill No. 373 House Bill No. 280 Senate Bill No. 56	2015 2016 2018
Vermont	House Bill No. 494	2017
Washington	Executive Order 17-02 House Bill No. 2970	2017 2018
Wisconsin	Executive Order No. 245 Senate Bill No. 695	2017 2018

Laws by Year

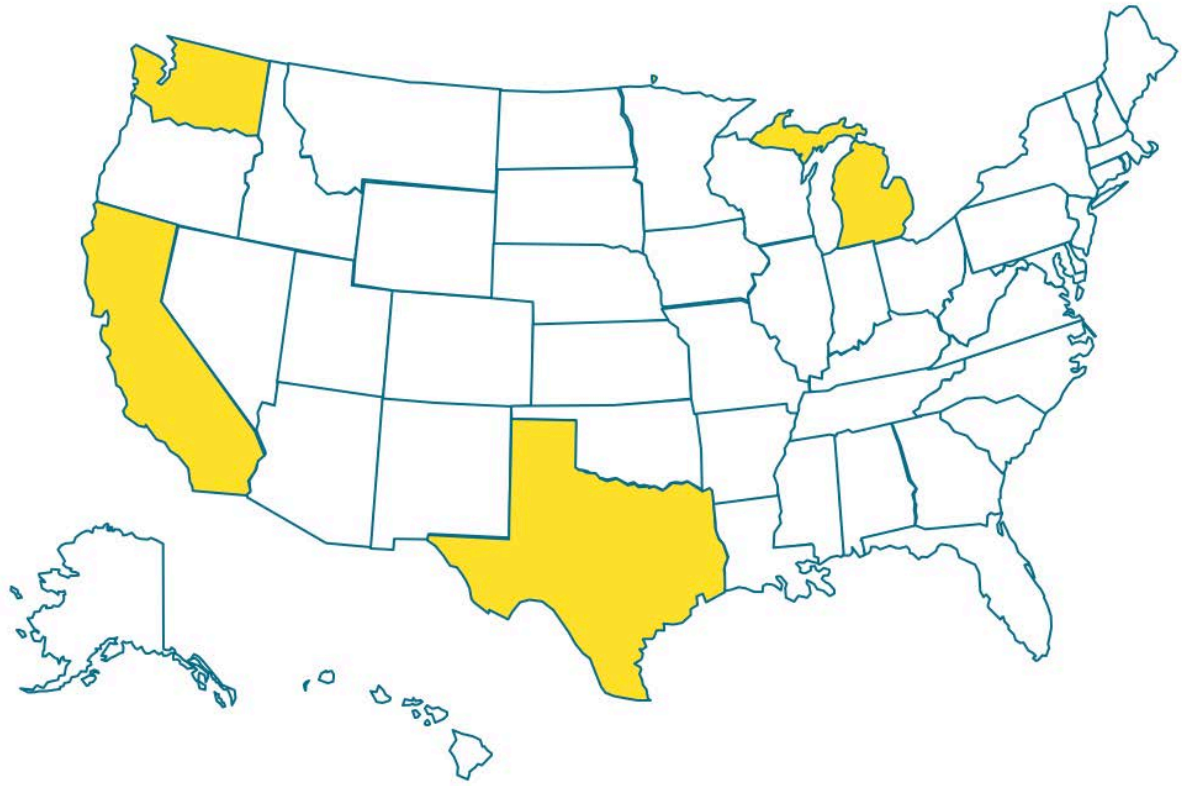
Year	State	Law
2011	Nevada	Assembly Bill No. 511
2012	California	Senate Bill No. 1298
	District of Columbia	Bill No. 19-0931
2013	Nevada	Senate Bill No. 313
2014	N/A	N/A
2015	Arizona	Executive Order No. 2015-09
	North Dakota	House Bill No. 1065
	Tennessee	Senate Bill No. 598
	Utah	House Bill No. 373
2016	Alabama	SJR No. 81
	Florida	House Bill No. 7027
	Florida	House Bill No. 7061
	Louisiana	House Bill No. 1143
	Massachusetts	Executive Order No. 572
	Michigan	Senate Bill No. 995
	Michigan	Senate Bill No. 996
	Michigan	Senate Bill No. 997
	Michigan	Senate Bill No. 998
	Pennsylvania	Senate Bill No. 1267
	Utah	House Bill No. 280

2017	Arkansas	House Bill No. 1754
	Arkansas	House Bill No. 1754
	California	Assembly Bill No. 669
	Colorado	Senate Bill No. 213
	Connecticut	Senate Bill No. 260
	Delaware	Executive Order No. 14
	Georgia	Senate Bill No. 219
	Hawaii	Executive Order No. 17-07
	Illinois	House Bill No. 0791
	Montana	Joint Resolution No. 40
	Nevada	Assembly Bill No. 69
	New York	Senate Bill No. 2005
	North Carolina	House Bill No. 469
	North Carolina	House Bill No. 716
	North Dakota	House Bill No. 1202
	South Carolina	House Bill No. 3289
	Tennessee	Senate Bill No. 151
	Texas	House Bill No. 1791
	Texas	Senate Bill No. 2205
	Vermont	House Bill No. 494
	Wisconsin	Executive Order No. 245
2018	Alabama	Senate Bill No. 125
	Arizona	Executive Order No. 2018-04

	Arizona	Executive Order No. 2018-09
	California	Assembly Bill No. 87
	District of Columbia	Bill No. 22-0901
	Hawaii	House Bill No. 2253
	Idaho	Executive Order No. 2018-01
	Illinois	Executive Order No. 2018-13
	Indiana	House Bill No. 1290
	Kentucky	Senate Bill No. 116
	Maine	Executive Order No. 2018-001
	Maine	H.P. 1204 – L.D. 1724
	Minnesota	Executive Order No. 18-04
	Mississippi	House Bill No. 1343
	Nebraska	Legislative Bill No. 989
	Ohio	Executive Order No. 2018-01K
	Ohio	Executive Order No. 2018-04K
	Oregon	House Bill No. 4059
	Oregon	House Bill No. 4063
	Pennsylvania	House Bill No. 1958
	Utah	Senate Bill No. 56
	Washington	House Bill No. 2970
	Wisconsin	Senate Bill No. 695

Data Recording, Privacy & Security

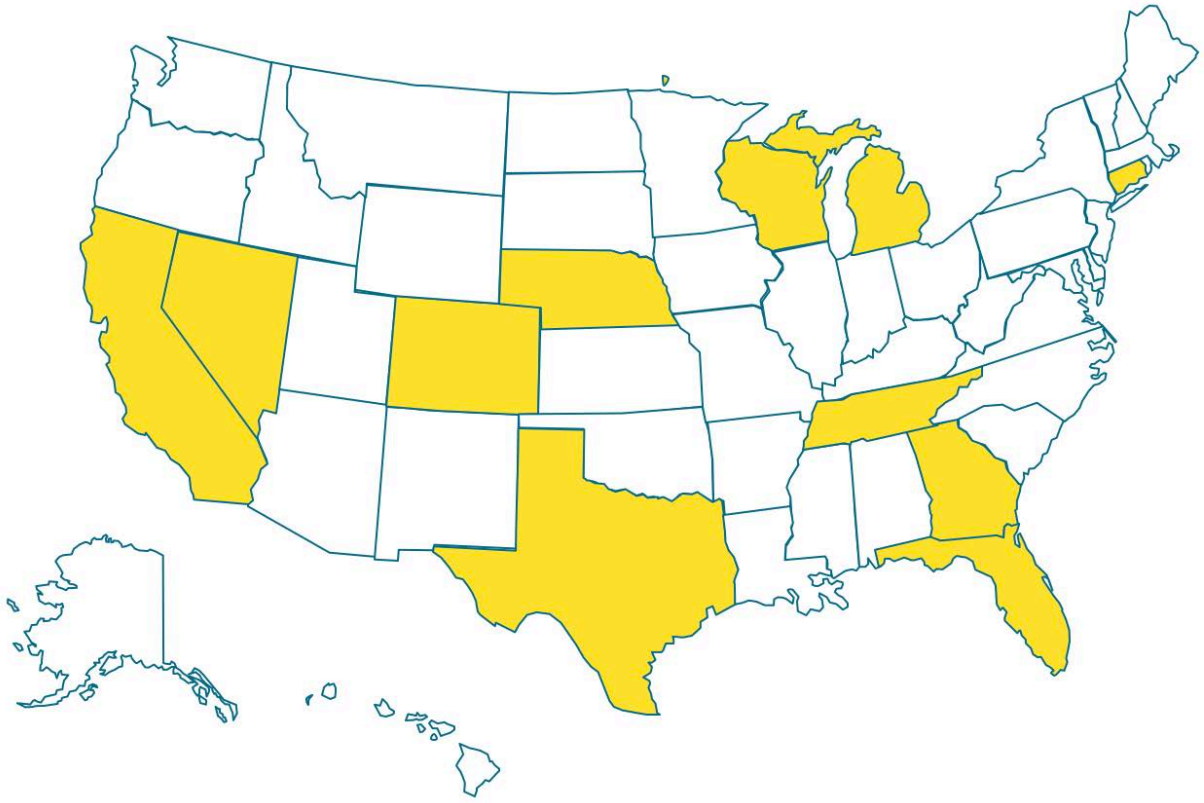
States have also begun to recognize the increasing need to develop regulatory frameworks for the data recording, privacy, and security issues surrounding AV technology. The map below includes the four states with laws relating to AV data recording, privacy, and security.



Interestingly, there are a wide diversity of approaches to regulating AV data. For example, California requires AV occupants to be informed of any information collected not necessary for the safe operation of the vehicle. However, the scope of what data are necessary for the safe operation of the vehicle is not further explained.

Liability Allocation

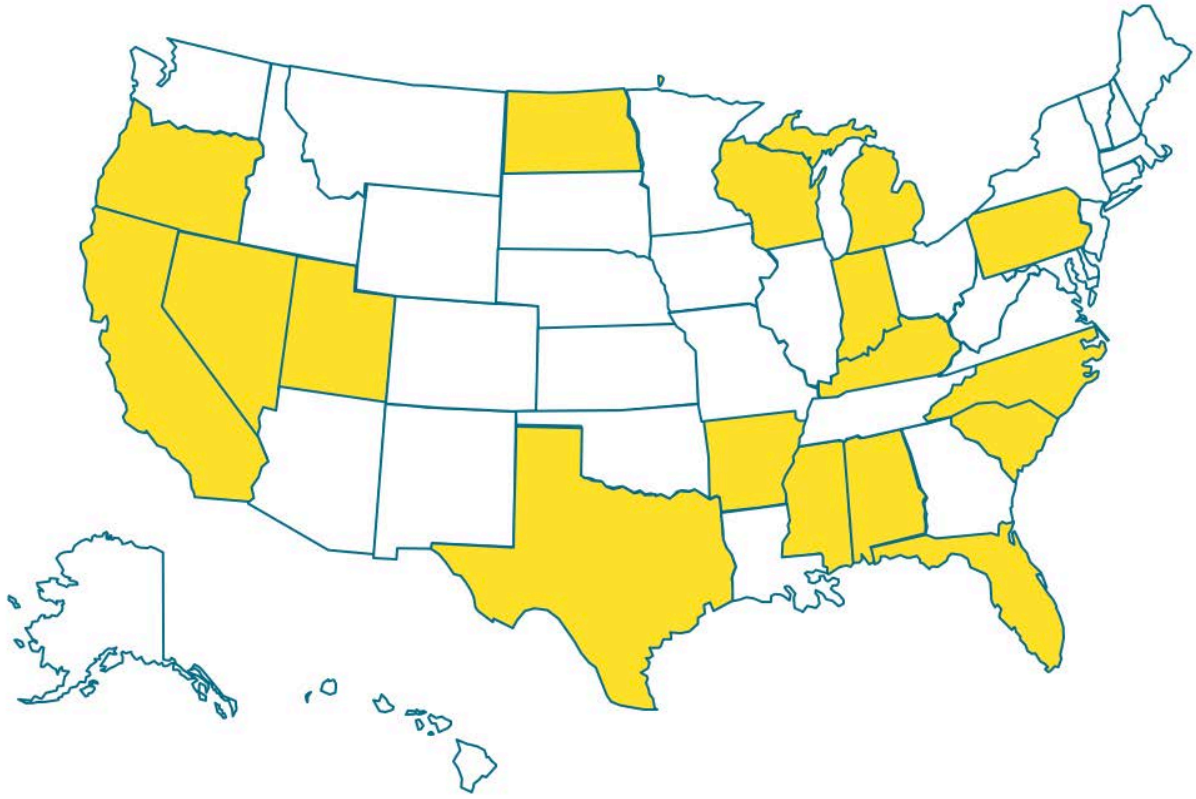
Several states have passed laws including clauses allocating liability in certain circumstances pertaining to AVs. Indeed, the map below includes all states that have passed such law.



Liability allocation for AV collisions and defects is a hot topic in state legislatures across the country. State laws allocating liability are generally narrow in scope. Indeed, most liability clauses have the effect of insulating auto manufactures from liability if a third party converts a conventional vehicle to an AV causing an accident. Additionally, some states require AV testers purchase liability insurance as a prerequisite to testing.

Vehicle Platooning

Vehicle platooning is an emerging technology in the AV space. Indeed, trucking companies use platoons to automate portions of the driving process. Platooning technology allows a lead car or truck to wirelessly guide and control cars or trucks following behind it, similar to the way in which a locomotive pulls railcars. The map below shows states with legislation relating to vehicle platooning.



Generally, state platooning laws provide an exemption from otherwise applicable traffic laws. Indeed, most states have laws that require a minimum distance between vehicles. Thus, states provide an exemption to such laws for platoons, allowing platoon operation in the state.