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Understanding AV Regulation

Alabama Transportation Policy Research Center



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ABOUT

THE ALABAMA TRANSPORTATION POLICY RESEARCH CENTER

The TPRC plays a central role in the Alabama Transportation Institute, helping to generate and interpret research findings to the general public and policy-makers. The Center focuses on transportation holistically, engaging infrastructural, environmental, safety, law enforcement, and legal issues to meet the needs of the State of Alabama.

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Understanding AV Regulation

As more companies work to develop autonomous vehicle (AV) technology, the threat of great disruption looms over the transportation industry. Particularly in regard to regulatory schemes, the complications of disharmonized governmental oversight plague manufacturers and lawmakers alike.

States appear to have taken the lead when it comes to regulating the operation of AVs, but that decision has left a legal patchwork of little uniformity across the nation. Arising from this lack in uniformity is the question of whether AVs are allowed or prohibited absent express authorization. While the answer is still unsettled, it is probable that, in the absence of legislation to the contrary, AVs are legal. However, even in states that have opted to expressly address AVs, there still exists many inconsistencies in how the technology is regulated. For example, some states legalize AVs generally while others only legalize commercial AVs. In addition, discrepancies across states exist in whether AVs are permitted for deployment or only for testing purposes, whether an operator must be physically inside the vehicle, and whether local governments are preempted from regulating the operation of AVs.

Beyond the issue of whether AVs are legal without specific authorization or prohibition, states are likely to see other issues arise from the inaction of expressly regulating AVs. Some of the areas of concern include unattended vehicle prohibitions, accident requirements for the driver/operator, and child seat requirements.

While states typically regulate the operation of motor vehicles, the federal government sets the minimum vehicle safety standards for motor vehicles and motor vehicle equipment. These federal standards may come in the form of agency regulation or congressional action. The agency with the potential authority to govern AV technology is the National Highway Traffic Safety Administration (NHTSA), but, to date, these agencies have only issued voluntary guidance documents. Congress has not enacted any legislation that expressly governs AVs despite having seen such bills introduced in both chambers.

One final concern surrounding the adoption of AVs involves their intersection with criminal law and law enforcement. As more AVs proliferate on roadways, the traditional motivations for traffic stops, like deterring future violations, may become frustrated without traditional drivers, which could require law enforcement to reconsider traffic stop policies. Other criminal law implications that arise from the adoption of AVs include the application of strict liability to traffic violations, ambiguity surrounding the culpability in offenses like reckless driving, and location or possession-based offenses when the passenger has minimal control over the route the AV operator takes.










































DEFINITIONS

Classifying Motor Vehicles

Most states apply the term “motor vehicle” to a wide variety of transportation mechanisms. For example, Alabama defines a motor vehicle as one that is “self-propelled [or] propelled by electric power obtained from overhead trolley wires, but not operated upon rails, except for electric personal assistive mobility devices and electric bicycles.”¹ Florida considers a “vehicle” as any “device in, upon, or by which any person or property is or may be transported or drawn upon a highway, except personal delivery devices, mobile carriers, and devices used exclusively upon stationary rails or tracks.”²

As a subset of motor vehicle classifications, state codes specify which vehicles are considered “commercial” based on weight, capacity, or hazardous transport functionality. For example, Alabama defines a commercial motor vehicle as either a vehicle that “has a gross weight rating or combination weight of more than 10,000 pounds,” a vehicle that “is designed to transport more than 15 passengers,” or a vehicle that “is used to transport hazardous materials in a quantity requiring placards under regulation of the U.S. Department of Transportation.”³ Like the general qualifications for motor vehicles, most states apply some version of this scope of characteristics to classify commercial vehicles. It’s worth noting that most states do not classify ride-sharing vehicles as commercial vehicles, although they are used for business purposes.⁴

But when it comes to AVs, states take widely inconsistent approaches with the type of vehicle classifications their statutes address. For instance, Alabama⁵ and Louisiana⁶ only regulate “automated commercial motor vehicles,” while Arizona⁷ regulates the operation of all “fully autonomous vehicles” and “fully autonomous vehicle that is also a commercial motor vehicle,” and West Virginia and Mississippi have no statutes that expressly govern AVs at all. The present variance in how state jurisdictions address AV regulation has led to considerable insecurity in the industry on how to fully incorporate AV technology on the nation’s roads.

Class One: 6,000 lbs. or less							
 Full Size Pickup	 Mini Pickup	 Minivan	 SUV	 Utility Van			
Class Two: 6,001 to 10,000 lbs.							
 Crew Size Pickup	 Full Size Pickup	 Mini Bus	 Minivan	 Step Van	 Utility Van		
Class Three: 10,001 to 14,000 lbs.							
 City Delivery	 Mini Bus	 Walk In					
Class Four: 14,001 to 16,000 lbs.							
 City Delivery	 Conventional Van	 Landscape Utility	 Large Walk In				
Class Five: 16,001 to 19,500 lbs.							
 Bucket	 City Delivery	 Large Walk In					
Class Six: 19,501 to 26,000 lbs.							
 Beverage	 Rack	 School Bus	 Single Axle Van	 Stake Body			
Class Seven: 26,001 to 33,000 lbs.							
 City Transit Bus	 Furniture	 High Profile Semi	 Home Fuel				
 Medium Semi Tractor	 Refuse	 Tow					
Class Eight: 33,001 lbs. & over							
 Cement Mixer	 Dump	 Fire Truck	 Fuel				
 Heavy Semi Tractor	 Refrigerated Van	 Semi Sleeper	 Tour Bus				

Source <https://afdc.energy.gov/data/10381>

What is an AV?

In order to understand how states have begun to regulate AVs, it helps to know a bit about the technology involved in a self-driving machine. AVs are vehicles that have at least some spectrum of their safety-critical control functions (like steering or braking) operated without direct driver input.⁸ Most AVs use either a sensor-based or connectivity-based system. Sensor-based solutions (also called “Advanced Driver Assist Systems”) use combinations of advanced sensors, actuators, control units, and integrating software to enable cars to monitor and respond to the surrounding environment. Connected-vehicle solutions use wireless technology to communicate in real time from vehicle to vehicle (V2V) and from vehicle to infrastructure (V2I).⁹

The level at which the driving process is controlled by the vehicle instead of the human driver determines the degree to which a vehicle is considered “automated.” In 2016, the NHTSA adopted the levels of distinct automation capacity used by the Society of Automotive Engineers International (SAE).¹⁰ As indicated, the automated driving system (ADS) is considered to be in control of monitoring the driving environment at level 3 – in other words, this is where we start to see human intervention drop off significantly. But while these levels of automation are nationally recognized, they are also used entirely voluntarily. Many states do not refer

ence “levels” of automation in how they categorize AVs, and those that do face other complications.

For instance, the AV laws of a state like Colorado (which only regulates level 4 or 5 AV technology) may not apply to level 3 drivers that are traveling through the state, even though the vehicle would be regulated if it entered New Mexico.¹¹ Alabama’s state code defines an AV as a “commercial motor vehicle equipped with an automated driving system”¹² which includes, “hardware and software that are collectively capable of performing the entire dynamic driving task on a sustained basis.”¹³ But while New Mexico also defines an AV as a vehicle controlled by an ADS,¹⁴ it defines an ADS as classified by a “level 3, 4 or 5 driving automation system” under the SAE standard.¹⁵ Connecticut defines an AV as controlled by a system “classified as level four or five” by the SAE.¹⁶

In sum, there is very little consensus on what constitutes an AV under existing state laws. It’s safe to say that an AV traveling across the country would experience a spectrum of regulation impossible to harmonize. In fact, it’s worth noting that some have challenged whether AVs are legal at all under international traffic laws which have been in effect for decades.

SAE INTERNATIONAL

SAE J3016™ LEVELS OF DRIVING AUTOMATION

	SAE LEVEL 0	SAE LEVEL 1	SAE LEVEL 2	SAE LEVEL 3	SAE LEVEL 4	SAE LEVEL 5
What does the human in the driver's seat have to do?	You are driving whenever these driver support features are engaged – even if your feet are off the pedals and you are not steering			You are not driving when these automated driving features are engaged – even if you are seated in “the driver's seat”		
	You must constantly supervise these support features; you must steer, brake or accelerate as needed to maintain safety			When the feature requests, you must drive	These automated driving features will not require you to take over driving	
What do these features do?	These are driver support features			These are automated driving features		
	These features are limited to providing warnings and momentary assistance	These features provide steering OR brake/acceleration support to the driver	These features provide steering AND brake/acceleration support to the driver	These features can drive the vehicle under limited conditions and will not operate unless all required conditions are met	This feature can drive the vehicle under all conditions	
Example Features	<ul style="list-style-type: none"> • automatic emergency braking • blind spot warning • lane departure warning 	<ul style="list-style-type: none"> • lane centering OR • adaptive cruise control 	<ul style="list-style-type: none"> • lane centering AND • adaptive cruise control at the same time 	<ul style="list-style-type: none"> • traffic jam chauffeur 	<ul style="list-style-type: none"> • local driverless taxi • pedals/steering wheel may or may not be installed 	<ul style="list-style-type: none"> • same as level 4, but feature can drive everywhere in all conditions

For a more complete description, please download a free copy of SAE J3016: https://www.sae.org/standards/content/J3016_201806/

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Are AVs Legal?

IMPLICIT PERMISSION VS. PROHIBITION

The lack of uniformity in how states have addressed AV regulation has led to an extraordinary amount of speculation over whether AVs are inherently allowed or prohibited in the absence of specific authorization.¹⁷ In 2011, the New York Times published an article arguing that driverless cars are illegal in all 50 states.¹⁸ That position was based on the legal premise that, absent express permission, autonomous vehicles are, by nature, prohibited. But that supposition is far from established. In fact, only three years later, automated-driving expert Bryant Walker Smith came to the opposite conclusion based on his assessment of three legal regulatory schemes at play in the United States: the 1949 Geneva Convention on Road Traffic, regulations from the NHTSA, and vehicle codes of the fifty states.¹⁹

Under the western common law system, a general guiding principle exists that what is not prohibited is permitted.²⁰ In other words, unregulated actions enjoy a presumption of legality rather than a presumption of illegality. This is especially true regarding criminal behavior and sanctions in the U.S.²¹ While this principle provides only limited clarification on the issues of AV authorization, it is a helpful backdrop for interpreting the relevant legal constructs in play.

Article 8 of the 1949 Geneva Convention on Road Traffic (the “Convention”), to which the United States is a party, requires that every vehicle have a driver who is “at all times . . . able to control” it.²² Article 4 defines a driver as “any person who drives a vehicle . . . or who is in actual physical control of the same.”²³ In addition, other provisions of the Convention appear to presume that drivers will be physically proximate to the vehicles they are controlling, as they mention “moving,” “turning,” “approaching other users,” and “see[ing] ahead” as possible appropriate actions.²⁴ These portions, however, are not necessarily included as an attempt to mandatorily define who²⁵ or where a driver might be.

The obligations imposed on a driver have much more to do with the concept of control and how a vehicle is operated. Those who interpret the Convention’s requirements in this light advocate that, in the context of automated driving systems, control is a functional rather than a material or mechanical component of vehicle maneuvering.²⁶ Hence, there would be less (and arguably, no) minimum physical proximity between the driver and the vehicle over which he or she exhibits control. Instead, the requirements for the control of vehicles in Article 8 of the Convention can be read in light of their clear priority: safety. It stands to reason that technologies which provide increasingly safer driving environments would be encouraged, rather than restricted.²⁷ In short, companies which design, manufacture, or operate AVs on an ongoing basis may satisfy the Geneva Convention’s requirements for “drivers” if they are able to efficiently and more safely “control” vehicles.²⁸

NHTSA Oversight

Domestically, the NHTSA regulates motor vehicles through performance-based standards imposed on manufacturers, importers, and distributors.²⁹ The Vehicle Safety Act³⁰ establishes a self-certification system in which automotive manufacturers label their new vehicles and attest to compliance with the NHTSA's Federal Motor Vehicle Safety Standards (FMVSS). FMVSS set the minimum requirements for motor vehicle safety performance.

While FMVSS do appear to assume the presence of a driver in a vehicle being operated on public roadways,³¹ there is no explicit requirement for such.³² Moreover, communications from the NHTSA have suggested that the agency does not consider the term "driver" to mean a human controller. In response to a request from Google asking the NHTSA to interpret whether an ADS could be deemed the "driver" of a vehicle, the agency affirmed that it could with respect to FMVSS.³³ The NHTSA did note,

however, that Google might not be capable of certifying compliance with other FMVSS that were developed and designed to apply to a vehicle with a human driver.

For example, some equipment requirements, such as manual controls, would be unnecessary for AVs operating at SAE level 4 or 5.³⁴ Under the current legal framework, manufacturers who wished to exclude such features must go through an exemption request process. The NHTSA may issue exemptions from compliance with FMVSS for temporary testing of a limited number of vehicles.³⁵ A manufacturer may receive a two-year exemption for the purpose of testing a new safety feature of up to 2,500 vehicles.³⁶ Furthermore, the NHTSA has expressly encouraged automated driving adoption in its January 2016 Policy Statement Concerning Automated Vehicles (the "Policy Statement").³⁷ The Policy Statement set the foundation for federal regulatory framework for

AVs, but legal theorists have persistently criticized it for the gaps and inconsistencies it created.³⁸

For instance, the policy indicates that the NHTSA will only regulate level 3 and above AVs, despite the fact that no such vehicles are being driven by consumers to date.³⁹ The Policy Statement also does not require a premarket approval process when manufacturers introduce new forms of automation into their vehicles. Instead, NHTSA requests that manufacturers "voluntarily provide" safety assessments on their compliance with the Policy.⁴⁰ And, while FMVSS rules preempt state legislative authority,⁴¹ the law clearly states that in an absence of direct FMVSS regulation, states may establish their own safety standards.⁴² Importantly, the Policy Statement made clear that no change was anticipated for the current division of responsibility for regulations between federal and state governments.⁴³





State Authorization

Individual state codes in the U.S. also contain no requirement that a vehicle have a “driver.” Instead, there are three main descriptors used to impose liability – individuals who are “drivers,” “operators,” or are “in actual physical control” of a vehicle.⁴⁴ Most state codes discuss these terms in ways which suggest that a person who is not physically proximate to the vehicle may still operate, drive, or control it.⁴⁵ In fact, many vehicle codes would not require that the owners or operators of vehicles be individuals at all. The law has long recognized that corporations, partnerships, and other legal entities are “persons” who may be assigned liability.⁴⁶ This fact may be particularly important if states continue to impose regulations on “owners” of vehicles, as well as operators.⁴⁷

In short, while there are existing regulations that may complicate how AVs are operated on public roads, there is no consensus over whether AVs are inherently prohibited or allowed without express legislation. The sources of law that govern the operation of conventional motor vehicles might be applied to AVs by certain jurisdictions, but a court is just as likely to interpret prior legislation to be consistent with remote AV operation or take a state’s silence as intent not to regulate. Unfortunately, even setting aside the issue of implicit authorization or prohibition, a host of other complications await the development of AV legislation.

Implications of State Inaction

Unattended Vehicles

If states fail to pass AV specific regulation, there may be more than passive permission at stake. Existing laws in state vehicle codes hold minefields of potential issues for AV developers. One such area that is ripe for conflict involves “unattended vehicle” laws. Utah has implemented laws attempting to address the fact that there may be scenarios where a vehicle does not have a person physically in the vehicle while it is on the roadway.⁴⁹ While the state has laws that prohibit leaving a vehicle unattended on the roadway, it has expressly excluded vehicles that are “being operated by an ADS or a remote driver.”⁵⁰ State codes without these provisions may be at odds with ADS technology.

Accident Requirements of Driver/Operator

All states currently impose duties on individuals when they are involved in traffic accidents. Those duties may include remaining at the scene, giving information, or rendering aid.⁵¹ But how are AVs expected to behave in the event of a traffic incident? Some states have enacted legislation that intends to provide clarity as to who bears the responsibility to take action and what those responsibilities involve.

In Alabama, when there is an accident involving an “automated commercial motor vehicle,” either the “vehicle, owner, a person on behalf of the owner, or operator” must contact law enforcement and communicate the relevant information.⁵² However, when an accident occurs in Texas that involves an AV, the vehicle or human operator must comply with traditional laws involving motor vehicles and accidents.⁵³ Under Texas law, the “operator of a vehicle” that is involved in an accident is required to provide “any person injured in the accident reasonable assistance, including transporting or making arrangements for transporting the person to a physician or hospital for medical treatment if it is apparent that treatment is necessary.”⁵⁴ If there is no human operator in the vehicle at the time of the accident, both determining whether medical attention is “apparent that treatment is necessary” and complying with such may be problematic.

Child Car Seat Responsibility

An area that has not been directly addressed by state AV laws involves who is responsible for ensuring a child is properly secured in a car seat when traveling in an autonomous vehicle. While state AV laws address how the “operator” or “driver” is defined for AV purposes, those definitions may not sufficiently clarify who is responsible for ensuring child car seat laws are properly followed when there is not a conventional driver. For example, Arkansas places the responsibility on “a driver who transports a child” to ensure that child car seat laws are followed.⁴⁸ However, in an AV, a scenario may arise where there is only a remote driver or operator and a passenger that is transporting a child. It is difficult to know whether, in Arkansas, the remote driver or operator would be responsible for ensuring the passenger complies with child car seat laws before the trip starts or whether the onus would be on the passenger who is transporting the child.

FEDERAL LEGISLATIVE ACTIVITY

To date, neither NHTSA nor the USDOT has departed from their commitment to **voluntary standards and compliance for AVs.**

SELF DRIVE Act

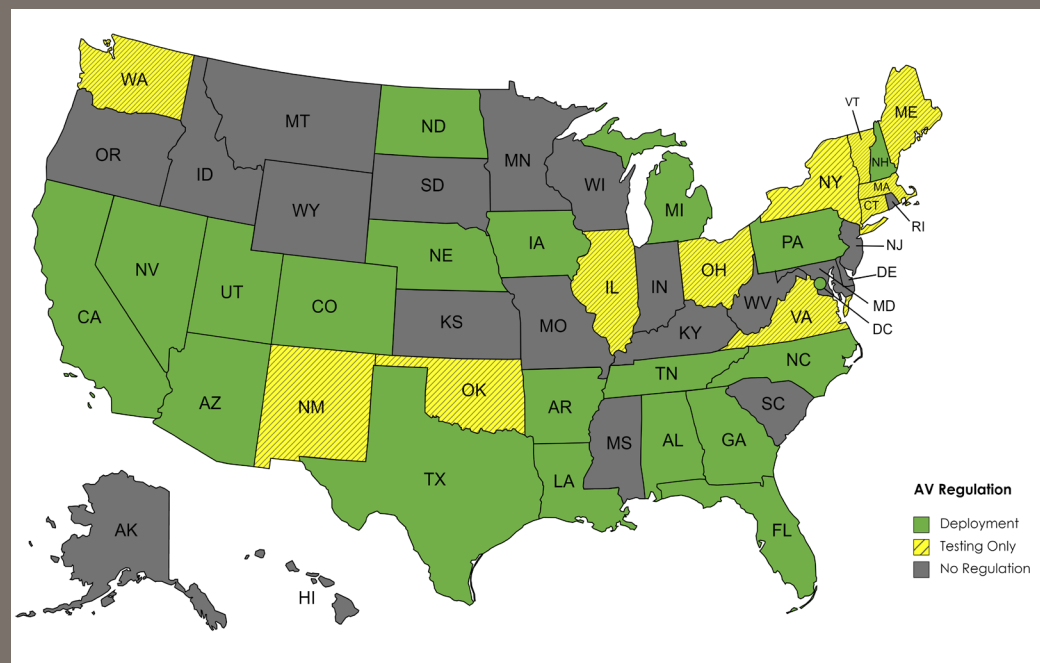
The NHTSA and the USDOT have issued a preliminary statement of policy and four guidance documents regarding the development of AVs and ADS and the scope of intended agency oversight.⁵⁵ The original 2013 Policy Statement asked that entities developing ADSs submit “Safety Assessment Letters” explaining whether and how the ADS complies with the guidance areas contained in the Policy Statement.⁵⁶ The 2016 Policy Statement (which superseded the 2013 version), changed the name of these letters to “Voluntary Safety Self-Assessments” and emphasized that entities need not delay testing to submit the assessment.⁵⁷ To date, neither the NHTSA nor the USDOT has departed from their commitment to voluntary standards and compliance for AVs.⁵⁸

In 2017, both chambers of Congress saw the introduction of federal legislation to regulate AVs. Representative Bob Latta introduced H.R. 3388, the SELF DRIVE Act in July,⁵⁹ and Senator John Thune introduced S. 1885, the AV START Act in September.⁶⁰ Neither bill was signed into law, but both included certain policy positions which are still informing federal decision-making processes. The bills both adopted SAE levels of vehicle autonomy and attempted to regulate AVs with levels 3-5 ADS. Both also require the NHTSA to update FMVSS to address AVs and expand NHTSA’s authority to grant exemptions for up to 100,000 vehicles per manufacturer over time.⁶¹

The SELF DRIVE Act preempts all state and local laws pertaining to the “design, construction, or performance” of AVs⁶² and states that, while localities may regulate traditional areas (like registration, safety and emissions inspections, and congestion management), these areas may be preempted if they are an “unreasonable restriction on the design, construction or performance of highly automated vehicles.”⁶³ The Act also requires manufacturers to submit safety assessment certifications regarding the safety areas identified in the NHTSA’s rule.⁶⁴ Although the SELF DRIVE Act was able to pass the House of Representatives in September of 2017, it stalled in the Senate.⁶⁵ It has, however, already been reintroduced in the 117th Congress.⁶⁶

AV START Act

The AV START Act preempts only state or local laws that fall under nine distinct subject areas regulated in the bill: system safety, data recording, cybersecurity, human-machine interface, crashworthiness, capabilities, post-crash behavior, account for applicable laws, and automation function.⁶⁷ Manufacturers must also submit safety evaluation reports on each of the nine subject areas to the NHTSA and may be penalized for false or misleading reports.⁶⁸ The AV START Act was never brought for a floor vote in the Senate, in large part due to critics who both had misgivings about AV technology on public roads all together and others who argued the Act was a giveaway to the automotive industry.⁶⁹



“... a patchwork of proliferating, unsynchronized regulatory schemes.”

Local Government Preemption

With minimal AV regulation having been successful at the federal level, it has been up to states to deal with the challenges of incorporating emerging technology into their existing transportation systems. This scenario has resulted in a patchwork of proliferating, unsynchronized regulatory schemes. To prevent the further lapses in uniformity with AV laws, some states have taken steps to preempt local municipalities from regulating AVs. At least 16 of the 32 states that have AV laws have expressly preempted local governments from taking certain actions regarding AVs. The remaining states have not expressly addressed preemption within their AV statutes.

Deployment or Testing

According to the Insurance Institute for Highway Safety (IIHS), 20 of the 32 states that have AV laws permit the deployment of AVs on public roads. The other 12 states only permit some form of AV testing on public roads.⁷⁰

Physical Proximity to Vehicles

According to the IIHS, 18 states do not require an operator to be in the vehicle for at least certain levels of AVs. Five states do not address whether an operator is required to be in the AV. Eight states require the operator to be physically in the vehicle.⁷¹

AV Maintenance and Liability

Inevitably, AVs will require both hardware and software maintenance, just like conventional motor vehicles. Determining who is responsible for and who is capable of maintaining the performance requirements of AVs is likely to prove difficult, however.⁷² At least two states and the District of Columbia have attempted to address these potential issues with legislation.

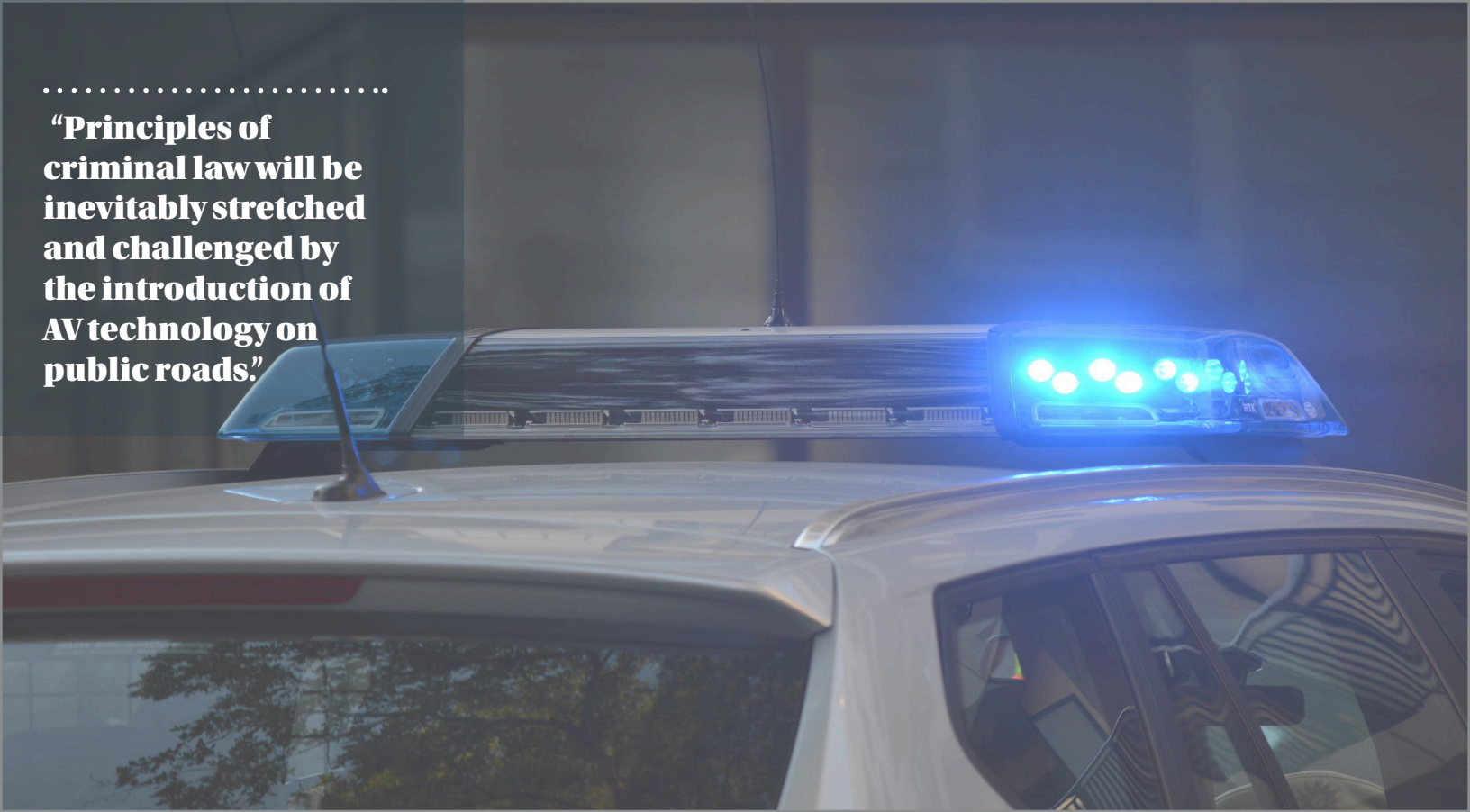
Under Florida law, if someone other than the

vehicle manufacturer converts a vehicle “into an autonomous vehicle,” the manufacturer will not be liable for any legal action arising from defects caused by the conversion of the vehicle unless the defect was present in the vehicle when it was originally manufactured.⁷³ The District of Columbia also protects the original manufacturer of a vehicle from liability if it is converted “into an autonomous vehicle” by a third party, unless the defect existed when the vehicle was originally manufactured.⁷⁴ Additionally, the District of Columbia limits the conversion of conventional vehicles to AVs to “model years 2009 or later or vehicles built within 4 years of conversion, whichever vehicle is newer.”⁷⁵ In Michigan, a manufacturer is “immune from civil liability for damages that arise” from the modification of an “automated motor vehicle” or to “automated technology.”⁷⁶

Law Enforcement Interaction

Another concern that arises with the advent of AVs is the potential for ambiguity in how law enforcement interacts with the “operator” of an AV that is not physically in the vehicle. At least one state has attempted to proactively address issues that can arise for law enforcement when attempting to interact with an AV. Arizona only permits an AV to operate without a human driver on public roads if “a person submits a law enforcement interaction plan to the department of transportation and the department of public safety.”⁷⁷ The law enforcement interaction plan must address all of the elements in the law enforcement protocol issued by the department of public safety.⁷⁸ Among the items included in the law enforcement protocol are procedures for traffic collisions and disabled vehicles and what the vehicle owner’s obligations are in those scenarios.⁷⁹ In addition, the person operating the AV must include instructions to first responders detailing how to interact with the fully autonomous vehicle in emergency and traffic enforcement situations.⁸⁰

.....
“Principles of criminal law will be inevitably stretched and challenged by the introduction of AV technology on public roads.”



Criminal Law Implications

Beyond updating protocol for law enforcement officers and emergency responders, other criminal and traffic law complications arise under the AV technology umbrella. The NHTSA states that the purpose of a traffic stop includes: 1) to stop a violation of a traffic law, 2) to deter other drivers from committing the same violation, and 3) to change future driving behavior of the driver.⁸¹ But these purposes become more difficult to pursue when there is not a classic “driver” in the offending vehicle.

Most traffic violations are also considered strict liability offenses, which means that the driver’s culpability is irrelevant.⁸² Some states have even begun applying a strict liability standard to more serious traffic crimes, like vehicular manslaughter and DUI-related deaths.⁸³ These types of crimes will make it easier to prosecute AV offenses, but states that apply traditional mental culpability requirements may see a sharp downturn in vehicular manslaughter convictions.⁸⁴ At the very least, there will likely be a need for statutory language to clarify what it means to “drive recklessly” while riding in an AV.

These and other principles of criminal law will be inevitably stretched and challenged by the introduction of AV technology on public

roads. One problem may be simply locating the party responsible for an AV’s traffic infraction. Will it be the manufacturer? The owner? The passenger? Furthermore, how will intoxicated passengers be treated if they are inside of an AV which has a manual override feature? For example, in Nevada, there is no exemption for AVs under the state’s drinking and driving prohibition.⁸⁵ Some have argued that so long as an AV has an override feature, intoxicated passengers can be held criminally liable for traffic accidents, even if an ADS was in control of the vehicle at the time of the incident.⁸⁶

Other issues naturally follow these watershed complications. In time, states will need to develop criminal penalties for physical and virtual interference with the operation of AVs (i.e., “hacking”).⁸⁷ Location and possession offenses are likely to become problematic as well. For instance, many states have heightened criminal penalties for certain prohibited acts that occur within the vicinity of a specific area, whether in relation to an individual (protection orders) or a place (school zones).⁸⁸ If an AV diverts a travel path automatically and consequently brings a passenger who is in possession of a controlled substance or firearm or a passenger who is a convicted sex offender within a restricted area, there may be unintended legal consequences.⁸⁹

THE FUTURE OF THE AV INDUSTRY

Given the inconsistencies in AV regulations from state to state, there are a number of practical implications involved for someone wishing to travel via AV across the nation. For example, if someone wanted to travel from Texas to Florida in an AV, he or she would run into a variety of issues. Assuming a person traveling from Texas to Florida drives through Louisiana, Mississippi, and Alabama, they would encounter variations on the types of AVs regulated, liability insurance requirements, and whether AVs were regulated at all. Texas and Florida regulate AVs, generally, Alabama and Louisiana regulate only commercial AVs, and Mississippi has no AV regulations at all.

In the same scenario mentioned above, the operator of a commercial AV would need liability insurance in every state, but the amounts of insurance needed would vary. In Alabama and Louisiana, a commercial AV is required to have \$2,000,000 in liability insurance, but in Florida an AV is only required to have \$1,000,000⁹⁰ in liability insurance. Texas has no specific insurance requirements for AVs and only requires insurance in an “amount equal to the amount of coverage required under the laws of this state,”⁹¹ while Mississippi, again, has no AV insurance regulation.

The inescapable conclusion remains that, while AV technology may still be in the future for most consumers, regulators cannot afford to postpone their efforts to streamline and coordinate legal policies. The vast discrepancies that exist today have the potential to not only frustrate compliance efforts but also handicap the industry as it continues to push forward toward an autonomous world.



Appendix A

The following is a list of states with laws that allow for the deployment of AVs and the corresponding code sections:

State	Code Sections
Alabama	§§ 32-9B-1 — 32-9B-8
Arizona	§ 28-101; §§ 28-661 - 28-666; §§28-907 - 28-909; §§ 28-9601 — 28-9608
Arkansas	§§ 27-51-2001 - 27-51-2002
California	Cal Veh Code §§ 38750 - 38756
Colorado	§ 42-1-102; § 42-4-242
District of Columbia	§§ 50-2351 — 50-2354
Florida	§ 316.003; §§ 316.85 - 316.86; § 627.749
Georgia	§ 40-1-1; § 40-5-21; § 40-6-279; § 40-8-11
Iowa	§§ 321.514 - 321.519
Louisiana	§§ 32:400.1 — 32:400.8
Michigan	§ 257.2b; § 257.35a; § 257.244; § 257.606b; §§ 257.665 – 257.666; § 600.2949b
Nebraska	§§ 60-3301 — 60-3311
Nevada	§§ 482A.010 — 482A.220
New Hampshire	§ 242:1; § 265:72
North Carolina	§§ 20-400 - 20-403
North Dakota	§§ 8-12-01 – 8-12-02; § 39-01-01.2
Pennsylvania	§ 8502 — 8503
Tennessee	§§ 55-30-102 - 55-30-108
Texas	§§ 545.451 — 545.456
Utah	§§ 41-26-101 — 41-26-108

Appendix B

The following is a list of states that require an AV company to submit certain information before AVs are allowed to operate or have expressly retained some regulatory control of AVs with a state agency:

State	Requirements
Arizona	requires an AV without a human driver to submit law enforcement interaction plan and written statement acknowledging AV meets all requirements under law
Arkansas	permits AVs under an autonomous vehicle program approved by the State Highway Commission
California	requires DOT approval to test vehicles and retains ability to regulate AVs
Colorado	requires AVs to gain approval from state patrol and DOT before testing and DOT must report to the transportation legislation review committee
Iowa	DOT may adopt rules to administer AV laws
Michigan	requires an AV company planning to operate a platoon to file a plan with the DOT and state police
Nevada	DOT may adopt regulations relating to the operation, testing of AVs if they do not impose additional requirements upon the operation, and testing of AVs
New Hampshire	requires any entity testing AVs to provide notice to the DOT and must approve the company before testing is allowed

Endnotes

- 1 Code of Ala. § 32-1-1.1(34).
- 2 Fla. Stat. § 316.003(103).
- 3 Code of Ala. § 32-9A-1(2).
- 4 New Hampshire, which does regulate ride-sharing AVs, amended its code in July 2021 to include the following:
X.(a) A person may operate an on-demand driverless capable vehicle network, provided that driverless vehicles utilized in such a network comply with the requirements of paragraph IX. Such a network may provide transportation of persons or goods, including:
 - (1) For-hire transportation;
 - (2) Public transportation; and
 - (3) Transportation for multiple passengers who agree to share the ride in whole or in part.(b) An on-demand driverless capable vehicle network may connect passengers to driverless capable vehicles either exclusively or as part of a digital network that also connects passengers to human drivers who provide transportation services, consistent with applicable law, in vehicles that are not driverless capable vehicles.
RSA § 242:1. *See also* N.D. Cent. Code § 8-12-02. State code provisions like Alabama’s, which regulates only “commercial autonomous vehicles,” would not apply to ride-sharing AVs.
- 5 Code of Ala. §§ 32-9B-1—32-9B-8.
- 6 La. R.S. §§ 32:400.1—32:400.8.
- 7 A.R.S. § 28-9602.
- 8 NHTSA, “Preliminary Statement of Policy Concerning Automated Vehicles,” 3 (2013).
- 9 KPMG & Ctr. for Auto. Research, *Self-Driving Cars: The Next Revolution* 10 (2012), available at <http://www.kpmg.com/US/en/IssuesAndInsights/ArticlesPublications/Documents/self-driving-cars-next-revolution.pdf>.
- 10 <http://cyberlaw.stanford.edu/blog/2013/12/sae-levels-driving-automation> (image source). This was a departure from the previous categorization in NHTSA’s 2013 Preliminary Policy Statement, which settled on five levels of automation 0-4. *See* 2013 Preliminary Statement at 4–5.
- 11 Matthew L. Roth, *NOTE: Regulating the Future: Autonomous Vehicles and the Role of Government*, 105 IOWA L. REV. 1411, *1429 (2020).
- 12 Code of Ala. § 32-9B-1(1).
- 13 Code of Ala. § 32-9B-1(2).
- 14 N.M. Stat. Ann. § 66-1-4.1(J).
- 15 N.M. Stat. Ann. § 66-1-4.1(H).
- 16 Conn. Gen. Stat. § 13a-260(a)(1).
- 17 This debate is ongoing both here at home and internationally. Foreign nations party to the Convention on Road Traffic signed in Vienna in 1968 have been vehemently contesting the application of the agreement’s requirement for driver assistance systems for the last decade. *See* Bryant Walker Smith, *Automated Vehicles Are Probably Legal in the United States*, 1 TEX. A&M L. REV. 411, 431–32 (2014).
- 18 Tyler Cowen, “Can I See Your License, Registration, and C.P.U.?” N.Y. TIMES (Mar. 28, 2011) <https://www.nytimes.com/2011/05/29/business/economy/29view.html>.
- 19 *See* Smith, *Automated Vehicles Are Probably Legal in the United States*.
- 20 *See* *United States v. Gourde*, 440 F.3d 1065, 1081 (9th Cir. 2006).
- 21 *See* *United States v. Davis*, 576 F.2d 1065, 1069 (3d Cir. 1978) (“Although proper judicial interpretation of any federal statute is always important, proper judicial interpretation of a criminal statute is critical. The maxim *nullum crimen sine lege, nulla poena sine lege* [no crime without law, no punishment without law] reminds us that the courts may not punish conduct as criminal unless that conduct has transgressed the clear, plain, or fair meaning of the defined offense.”).
- 22 Convention on Road Traffic, Geneva, Sept. 19, 1949, 3 U.S.T. 3008, 125 U.N.T.S. 3, art. 8, https://treaties.un.org/doc/Treaties/1952/03/19520326%2003-36%20PM/Ch_XI_B_1_2_3.pdf [hereinafter “Geneva Convention”]. Because the United States is a party to the Convention, it is required by international law to “take appropriate measures to ensure the observance” within its territory of the Convention’s rules. *Id.* at art. 6.
- 23 *Id.* at art. 4. Smith argues that the terminology of both Articles 4 and 8 of the Geneva Convention were drafted with the intention of addressing unsupervised animals and animal-powered vehicles, rather than unsupervised automobiles. This history, he states, is probably to blame for the brief and unimaginative language granted to defining drivers and the impossibility of driverless automobiles. *See* Smith, *Automated Vehicles Are Probably Legal*, *supra* n. 17 at 428–29.
- 24 Geneva Convention, *supra* n. 22 at arts. 8, 12, and annex 6.
- 25 The Convention’s language “any person” does not foreclose many options as possible drivers. American jurisprudence has long recognized corporations as “persons” under the law, as has the European Court of Human Rights. *See* European Convention for the Protection of Human Rights and Fundamental Freedoms at art. 1(1), art. 34.
- 26 *See* Smith, *Automated Vehicles Are Probably Legal in the United States*, *supra* n. 17 at 436–37. Smith’s linguistic analysis draws heavily on both the English and French versions of the Geneva Convention’s final treatise. Many of his interpretations are arguably enhanced by the French vocabulary used in equivalent English portions of text. For the purposes of this analysis, only the English version of the Conven-

tion is quoted.

27 Geneva Convention, *supra* n. 22 art. 8.

28 Smith’s arguments also point out that, in the event this interpretation is rejected by relevant authorities, objecting nations would have the option to seek to formally amend the Convention so that it is consistent with the use of AVs or to withdraw from the Convention altogether – a process provided for in Article 32 which requires only one year’s notice. Smith, *Automated Vehicles Are Probably Legal in the United States*, *supra* n. 17 at 445–46.

29 See 49 U.S.C. §§ 30112(a)(1) (“Except as [otherwise provided], a person may not manufacture for sale, sell, offer for sale, introduce or deliver for introduction in interstate commerce, or import into the United States, any motor vehicle or motor vehicle equipment manufactured on or after the date an applicable motor vehicle safety standard prescribed under this chapter takes effect unless the vehicle or equipment complies with the standard and is covered by a certification issued under section 30115 of this title.”), 30115(a) (“A manufacturer or distributor of a motor vehicle or motor vehicle equipment shall certify to the distributor or dealer at delivery that the vehicle or equipment complies with applicable motor vehicle safety standards prescribed under this chapter. A person may not issue the certificate if, in exercising reasonable care, the person has reason to know the certificate is false or misleading in a material respect. Certification of a vehicle must be shown by a label or tag permanently fixed to the vehicle. Certification of equipment may be shown by a label or tag on the equipment or on the outside of the container in which the equipment is delivered.”), 30126 (requiring the promulgation of “uniform motor vehicle safety standards applicable to all used motor vehicles”).

30 See 49 U.S.C. § 30115 (“A manufacturer or distributor of a motor vehicle or motor vehicle equipment shall certify to the distributor or dealer at delivery that the vehicle or equipment complies with applicable motor vehicle safety standards prescribed under this chapter.”).

31 The “driver” is defined as “the occupant of a motor vehicle seated immediately behind the steering control system.” 49 C.F.R. § 571.3(b)(2).

32 See *e.g.*, 49 C.F.R. § 571.101 (setting accessibility and visibility requirements for controls and indicators to “reduce the safety hazards caused by the diversion of the driver’s attention from the driving task”). *Cf.* 49 C.F.R. § 571.108 tbls. I, III, (requiring that vehicles contain a “driver controlled device” to signal vehicular hazards). Smith notes the problems with these types of requirements for driver-operated mechanics, but maintains that they are easily remedied. Smith, *Automated Vehicles Are Probably Legal in the United States*, *supra* n. 17 at 461–62.

33 See “Letter from Chris Urmson, Dir., Self-Driving Car Project, Google, Inc., to Paul A. Hemmersbaugh, Chief Counsel, Nat’l Highway Traffic Safety Admin.” At 7-8 (Nov. 12, 2015), https://www.autosafety.org/sites/default/files/imce_staff_uploads/Google%20NHTSA%20letter%2012%20Nov%202016.pdf. NHTSA ultimately encouraged Google to seek an exemption for their vehicle testing. *Id.*

34 See Anita Kin et al., Review of Federal Motor Vehicle Safety Standards for Automated Vehicles: Identifying Potential Barriers and Challenges for the Certification of Automated Vehicles Using Existing FMVSS, at viii-ix (2016) (commenting that AVs which “begin to push the boundaries of conventional design (e.g., alternative cabin layouts, omission of manual controls) would be constrained by the current FMVSS or may conflict with policy objectives of the FMVSS”).

35 NHTSA, “Understanding NHTSA’s Regulatory Tools: Instructions, Practical Guidance, and Assistance for Entities Seeking to Employ NHTSA’s Regulatory Tools,” 8 (2017) https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/understanding_nhtsas_current_regulatory_tools-tag.pdf.

36 *Id.* at 9.

37 <http://www.nhtsa.gov/staticfiles/rulemaking/pdf/Autonomous-Vehicles-Policy-Update-2016.pdf>.

38 See Tracy Pearl, Hands on the Wheel: A Call for Greater Regulation of Semi-Autonomous Cars, 93 Ind. L.J. 713 (2018).

39 See *id.* at 731. Only one car to date has officially achieved the rank of level 3 autonomy – the 2018 Audi A8.

40 NHTSA, “Federal Automated Vehicles Policy,” at 11 (2016), <https://www.transportation.gov/sites/dot.gov/files/docs/AV%20policy%20guidance%20PDF.pdf> [<https://perma.cc/KYP8-G4LW>].

41 See 15 U.S.C. § 1392(d).

42 See *Freightliner Corp. v. Myrick*, 514 U.S. 280, 286 (1995).

43 NHTSA, “Federal Automated Vehicles Policy,” at 38.

44 For a comprehensive breakdown of state code provisions which use these descriptors, see Smith, *Automated Vehicles Are Probably Legal in the United States*, *supra* n. 17 at 464 n.307.

45 See *id.* at 470–73. There are, however, several types of rules which make physical presence impliedly required because of the nature of the regulation: unattended or abandoned vehicles, crash obligations, seat belts, etc. These code provisions undeniably complicate AV adoption. See *e.g.*, N.Y. Veh. & Traf. Law § 375 (requiring drivers to keep one hand on the steering wheel at all times).

46 *But see*, Germany’s express rejection of computer systems as “persons” for traffic control purposes under the Vienna Convention. See Smith, *Automated Vehicles Are Probably Legal in the United States*, *supra* n. 17 at 434.

47 In the state of Washington, “both a person operating a vehicle with the express or implied permission of the owner and the owner of the vehicle are responsible for any act or omission that is declared unlawful in this chapter. The primary responsibility is the owner’s.” Wash. Rev. Code Ann. § 46.16A.500 (emphasis added).

48 Utah Code Ann. § 41-6a-1403.

49 Utah Code Ann. § 41-26-103(3).

50 See generally KRS § 189.580.

51 Code of Ala. § 32-9B-5.

52 Tex. Transp. Code § 545.455.

53 Tex. Transp. Code § 550.023.

54 A.C.A. § 27-34-104.

55 See NHTSA, “Preliminary Statement of Policy Concerning Automated Vehicles” (2013) (superseded by 2016 Policy Statement) http://www.nhtsa.gov/staticfiles/rulemaking/pdf/Automated_Vehicles_Policy.pdf; NHTSA, Federal Automated Vehicles Policy (2016) <https://www.transportation.gov/sites/dot.gov/files/docs/AV%20policy%20guidance%20PDF.pdf>; NHTSA, “Automated Driving Systems 2.0: A Vision for Safety” (2017) https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/13069a-ads2.0_090617_v9a_tag.pdf; U.S. Dep’t of Transp., “Preparing for the Future of Transportation: Automated Vehicles 3.0 (2018) <https://www.transportation.gov/sites/dot.gov/files/docs/policy-initiatives/automatedvehicles/320711/preparing-future-transportation-automated-vehicle-30.pdf>; U.S. Dep’t of Transp., “Ensuring American Leadership in Automated Vehicle Technologies: Automated Vehicles 4.0” (2020) <https://www.transportation.gov/sites/dot.gov/files/docs/policy-initiatives/automatedvehicles/360956/ensuringamericanleadershipav4.pdf>.

56 See Preliminary Policy Statement at 15–16.

57 2016 Policy Statement at 16.

58 See Spencer Matthews, *When Rubber Meets the Road: Balancing Innovation and Public Safety in the Regulation of Self-Driving Cars*, 61 B.C. L. REV. 295 (2020).

59 Safely Ensuring Lives Future Deployment and Research In Vehicle Evolution Act, H.R. 3388, 115th Cong. (2017) (as introduced, July 25, 2017).

60 See Press Release, Sen. John Thune, Thune Introduces Bipartisan Autonomous Vehicle Legislation (Sept. 28, 2017), <https://www.thune.senate.gov/public/index.cfm/2017/9/thune-introduces-bipartisan-autonomous-vehicle-legislation>.

61 See AV START Act §§ 3, 6; SELF DRIVE Act §§ 3, 6.

62 SELF DRIVE Act § 3.

63 *Id.*

64 SELF DRIVE Act § 4.

65 See Cecilia Kang, Self-Driving Cars’ Prospects Rise with Vote by House, N.Y. TIMES, Sept. 7, 2017, at B4.

66 H.R.3711 - 117th Congress (2021 – 2022). <https://www.congress.gov/bill/117th-congress/house-bill/3711/text?r=1&s=7>.

67 AV START Act § 3.

68 AV START Act § 9.

69 See Shaun Courtney, Senate Won’t Vote on Self-Driving Car Bill in 2017: Thune, BLOOMBERG BNA (Dec. 20, 2017), <https://bit.ly/2Rmv65G> [<https://perma.cc/3WDF-9HS9>]; Joan Claybrook, Don’t Let Congress Put Dangerous Self-Driving Cars on the Road at the Cost of Human Lives, USA TODAY (Aug. 7, 2018), <https://www.iihs.org/topics/advanced-driver-assistance/autonomous-vehicle-laws> (June 29, 2021).

70 <https://www.iihs.org/topics/advanced-driver-assistance/autonomous-vehicle-laws> (June 29, 2021).

71 *Id.*

72 See Matthew L. Roth, *NOTE: Regulating the Future*, *supra* n. 11 at *1429 (2020).

73 Fla. Stat. § 316.86.

74 D.C. Code § 50-2353.

75 *Id.*

76 MCLS § 257.817.

77 A.R.S. § 28-9602(C)(1).

78 *Id.*

79 Law Enforcement Protocol for Fully Autonomous Vehicles, <https://azdot.gov/sites/default/files/2019/07/law-enforcement-protocol.pdf>, (2018).

80 *Id.*

81 See Jeffrey Gurney, *Driving into the Unknown: Examining the Crossroads of Criminal Law and Autonomous Vehicles*, 5 WAKE FOREST J.L. & POL’Y 393 (2015).

82 See Alan Michaels, *Constitutional Innocence*, 112 HARV. L. REV. 828, 830 (1999).

83 See *e.g.*, Del Code Ann. tit. 21, § 417A(a) (2013) (“A person is guilty of operation of a vehicle causing death when, in the course of driving or operating a motor vehicle or OHV in violation of any provision of this chapter other than § 4177 of this title, the person’s driving or operation of the vehicle or OHV causes the death of another person.”); Mich. Comp. Laws § 257.601c(2) (2010) (“A person who commits a moving violation that has criminal penalties and as a result causes death to a person operating an implement of husbandry on a highway in compliance with this act is guilty of a felony punishable by imprisonment for not more than 15 years or a fine of not more than \$ 7,500.00, or both.”); 625 Ill. Comp. Stat. 5/11-501(d) (2014); Colo. Rev. Stat. § 18-3-106(1)(b)(1) (2014) (“If a person operates or drives a motor vehicle while under the influence of alcohol or one or more drugs, or a combination of both alcohol and one or more drugs, and such conduct is the proximate cause of the death of another, such person commits vehicular homicide. This is a strict liability crime.”).

84 See Gurney, *Driving into the Unknown* *supra* n. 81 at 426.

85 Sarah Jacobsson Purewal, “Nevada Approves Self-Driving Cars After Google Lobbying Push,” PC WORLD (Feb. 17, 2012), http://www.techhive.com/article/250179/nevada_approves_self_driving_cars_after_google_lobbying_push.html.

86 See Gurney, *Driving into the Unknown*, *supra* n. 81 at 420.

87 See Susan W. Brenner, *State Cybercrime Legislation in the United States of America: A Survey*, 7 RICH. J.L. & TECH. 28 P 15 (2001).

88 See Drug-Free Zone Laws: An Overview of State Policies, THE SENTENCING PROJECT, http://sentencingproject.org/doc/publications/sen_Drug-Free%20Zone%20Laws.pdf.

89 See Gurney, *Driving into the Unknown*, *supra* n. 81 at 430-432.

90 Fla. Stat. § 627.749.

91 Tex. Transp. Code § 545.454.

