
The Federal Automated Vehicles Policy issued last year by the National Highway Traffic Safety Administration (NHTSA) included a model state policy that sought to provide a framework for states that want to regulate the testing and deployment of autonomous vehicles.

“Basically, the model state policy says it’s up to the state, but if you choose to regulate some of the testing and deployment of the vehicles, we recommend you use this framework to do so, so that there is consistency across the United States,” Cathie Curtis of the American Association of Motor Vehicle Administrators told policy academy attendees. “If you’ve spent any time talking to manufacturers you’ve heard that the worst
thing that could possibly happen is a patchwork of regulations and they’re very vocal about that and this framework is really designed to address that.”

As NHTSA see it, federal responsibilities include setting safety standards for new motor vehicles and equipment and enforcing compliance with safety standards; investigating and managing the recall and remedy of non-compliant and safety-related motor vehicle defects on a nationwide basis; communicating with and educating the public about motor vehicle safety issues; and, when necessary, issuing guidance to achieve national safety goals.

Among the state responsibilities the policy identified were licensing human drivers and registering motor vehicles in their jurisdictions; enacting and enforcing traffic laws and regulations; conducting safety inspections, when states choose to do so; and regulating motor vehicle insurance and liability.

One of the things the model framework says states should do first is assemble an administrative structure and processes to administer requirements regarding the use of public roads for testing and deployment of highly automated vehicles.

“We recommend that it include state agencies such as the (department of motor vehicles), the (department of transportation), State Police, the highway safety office, the office of technology within the state, insurance regulators, toll and transit authorities, the agencies representing the aging and the disabled,” Curtis said. “Also, it should include representatives from the governor’s office, the legislature and local government agencies as well. The committee should consult as appropriate with industry, research institutes, groups representing pedestrians, bicyclists and consumers, and any other interested parties.”

Curtis said this group should have some important goals to work towards.

“Understand the (highly automated vehicle) technology, understand the impact on highway safety, highway safety programs, infrastructure, enforcement, traffic laws, economic development and … the general public,” she said. “And then as the group becomes more knowledgeable, start forming a strategy for the state to address manufacturers testing on public roadways. … Review current state statutes and possibly draft proposed legislation. … Make sure there isn’t anything in the statutes right now that would prohibit some type of testing.”

AAMVA and NHTSA recommend that a lead agency from this group be appointed. In some states, the state department of motor vehicles has taken the lead, in others the department of transportation and in still others the state police.

“It’s recommended that the lead agency create an application for the manufacturers to test in their state that will … identify the testing entity, each vehicle that’s going to be used, identify the driver/operators and their driver’s license information,” Curtis said. “And that includes the manufacturer’s safety plan and their testing plan and what they have done for testing so far. Also, it should require a surety bond or proof of self-insurance for no less than $5 million and a summary of the training that the drivers and operators have received.”

The lead agency is charged with reviewing the applications to test. The agency consults with law enforcement agencies, communicates with the full committee and issues a letter of authorization to test and a vehicle permit once conditions are satisfied. Some states may choose to add limitations on where testing can take place, for example exempting school zones, construction zones and other high-risk areas.

Once automated vehicles are ready to deploy, the state agency will play its familiar role in
registration and titling. Curtis said it’s important to have a marker on each of these documents to indicate the vehicle is highly automated.

“For one thing, this data field would give law enforcement an indicator as they’re stopping the vehicle,” she said. “Consumers should know what type of technology is on that vehicle and we’re especially concerned about after-market components being added. There are start-up companies out there that are creating after-market autonomous vehicle technology that will be able to be added to a vehicle that is not highly automated and we feel there needs to be some kind of indication on the registration and title.”

Driver licensing, also the jurisdiction of states, is an area that’s likely to undergo considerable changes as autonomous vehicles come online. Curtis responded to concerns raised by automakers during an earlier policy academy session about how one state’s approach to licensing made things challenging for a company trying to test autonomous vehicles across state lines.

“Nevada authorized a license plate for autonomous vehicles (in its 2011 legislation),” Curtis said. “It was the only state to do that. At the time, it was a good approach but the manufacturers began saying ‘we don’t think every state ought to have their own plate because as we drive from California into Nevada, we don’t want to stop at the border and put a different license plate on the car.’ I think that’s a good example of, yes, there are leaders trying different approaches and learning from it and passing those best practices on to the other states. And I think the manufacturers ought to realize that states are testing the best approaches just as they’re testing the vehicles and to realize that it’s evolving.”

Curtis and others also have begun to contemplate how the test people take to attain a driver’s license may need to be redesigned to account for level 2 partial automation technologies that are already on the roads today. These are driver assistance systems for steering and acceleration/deceleration that still require the human driver to perform all remaining aspects of the driving task.

“A (driver education student) is about to cross the yellow line but now the technology warns the driver that (the car is) going to cross the yellow line and the driver brings it back (into the lane),” Curtis said. “Now did that kid pass his test or fail it? If the car hadn’t helped him, he would have gone right across the yellow line. … It’s a real dilemma that the states are working on right now. When the technology helps the student pass the test, did the student really pass?”

Curtis cited as another example the back-up camera that is becoming commonplace in many vehicles.
king was ‘we’re going to shut all the technology off’ and there were (DMVs) that actually took yellow sticky notes and put them on the back-up cameras before the (driver’s) test,” she said. “We want to know that you can back up yourself. Well now that NHTSA is requiring that a model year 2017 vehicle must have a back-up camera, should the state be putting a sticky note on the back-up camera and saying ‘no, you can’t use that?’ We don’t think so. We think we’re starting to turn towards not only should the student know how to operate the vehicle, they should know how to operate the technology and how to go between manual and assistance with the technology. So we’re starting to look at all the different ways those driver’s license tests need to be updated.”

As higher levels of automation [5] come online, the licensing process will face new challenges, Curtis said.

“Say it’s a level 3 [5] where you can go between (the vehicle) operating itself and (manual operation), we need to make sure the people can drive those vehicles,” she said. “And who’s responsible for that? Who’s going to train those drivers that are buying those vehicles (who are) 40 years old? They’re not going to go take driver’s ed again. Who’s going to train them to make sure they can safely operate the vehicle and they understand the limits of the technology so they don’t expect the vehicle to do something beyond what it should?”

Another question to ponder, Curtis said, is at what point will driver licenses no longer be required since the number of people actually performing the driving task will be greatly diminished. She said AAMVA is currently engaged in working on language that would define and differentiate between driver, operator and occupant of a vehicle.

In addition, traffic laws and rules of the road will have to be updated to reflect whether distracted
driving and impaired driving have any relevance in an autonomous vehicle universe. Curtis noted that the Virginia Tech Transportation Institute, Peloton Technology [6] and others are currently working on a National Cooperative Highway Research Program project [7] that will provide guidance and resources to state DOTs and DMVs to assist with legal changes that will result from the rollout of highly automated vehicles. The project is expected to be completed by Spring 2018.

Before that though, AAMVA hopes to issue another document.

“We are creating a guidance document to help the states implement the federal policy, providing more detail on what specifically recommendations are for the states to move forward,” Curtis said. “We expect that guidance document will be out around December. We also know it will have to be updated on an annual basis. It’s a starting point. But we know that as the technology emerges, as the states get more experience in addressing the vehicles, as we start to understand how the DMV and law enforcement will be impacted, we’ll update that guidance and get it out to the states annually.”

NHTSA’s Federal Automated Vehicle Policy itself is also expected to get an update this year. Curtis believes it’s likely to focus on the vehicle performance guidance for automated vehicles but it could include an update to the model state policy as well.

Traffic Laws & Enforcement, State Safety Inspections

of the New York State Police’s Traffic Services Section, has worked closely with AAMVA’s Autonomous Vehicles Working Group, serving as chairman of the Law Enforcement Subgroup. He spoke to policy academy attendees about how the NHTSA policy addresses two areas of state jurisdiction that are of keen interest to him and his counterparts around the country: traffic laws and enforcement and state safety inspections.
“(The) model state policy attempts to compartmentalize many of the issues relative to testing and ultimately deployment of highly automated vehicles,” McDonnell said. “But ... law enforcement concerns bleed over into almost all areas of the model state policy as well so it’s essential that the voice of the law enforcement community be solicited and made part of any state policy being permitted and put forth in your states.”

Subsection 7 of the model state policy concerns law enforcement considerations and reads as follows:

“There will be a growing need for the training and education of law enforcement regarding their interaction with drivers/operators in both the testing and deployment of these technologies. ... The states should work together to develop a consistent regulatory scheme to limit potential driver distraction. In addition, states should develop methodologies for enforcement to discourage hazardous vehicle operation. ... It is essential that first responders—including those in police, fire, emergency medical services, and tow and recovery services—receive information and training regarding the potential hazards they may face (in responding to crashes involving highly automated vehicles).”

McDonnell said while some might see training, standardization of laws across states and devising enforcement methods to ensure safety as relatively easy goals, plenty of challenges could lie ahead.

“If you look closer, beyond the mere policy and consider the mechanics of those suggestions, it becomes readily apparent that there exists no training body or standardized mechanism for training the nation’s law enforcement officers, much less training across professions to include the fire service, the EMS and the towing industry,” he noted. “Second, I don’t think I need to belabor the point ... of what a Herculean task it will be to unite all the vehicle codes of the nation.”

But the role of the law enforcement community is addressed or implied in many places throughout the model state policy, McDonnell explained:

- “Under the administrative section, law enforcement is to be included in the recommended automated safety technology committee ... and may be considered a lead agency. Each jurisdiction should examine its laws and regulations again in several areas including enforcement of traffic laws and regulations. I suggest that this examination would be lacking without input from those who actually enforce those laws and regulations.”
- “Under the jurisdictional permit to test section, each jurisdiction’s lead agency should involve the jurisdictional law enforcement agency before responding to a request from the manufacturer or other entity, which means state law enforcement agencies must establish procedures for involvement in the permitting process.”
- “Under the testing by manufacturer or other entity (section), state operators may be subjected to background checks and operators are responsible for all traffic violations and crashes must be reported consistent with state laws and each of these may directly involve your law enforcement agencies.”
- “Under the deployed vehicles: drivers section, it is recommended that with NHTSA assistance, states identify gaps in current regulations addressing a number of areas including law enforcement, emergency response, crash investigations and crash reporting, motor vehicle inspections and education and training. Each of these will impact law enforcement agencies.”
- “The deployed vehicles: registration and titling section regulations governing the labeling and identification (for highly automated vehicles) should be issued by NHTSA. But labeling and identification are critical to the ability of policy officers to perform numerous functions from determining a proper credentialing of drivers and operators to officer safety and training issues identified in the law enforcement considerations section.”
- “And finally, issues of liability and insurance will directly or indirectly impact law enforcement
because of the role police play in crash investigations and, in the more severe cases, collision reconstruction. While the section focuses on liability largely from an insurance standpoint, it would be naïve I believe to overlook the potential for criminal liability in car crashes as well.”

McDonnell noted that of the eight directive sections in the model state policy, seven of them have direct implications for law enforcement.

“And the eighth, directed toward the application and testing of the information provided by the testing entity while it does not directly impact law enforcement, information contained therein such as the operator’s license information may subsequently be used by law enforcement in their background investigations and such,” McDonnell said.

McDonnell’s home state of New York enacted autonomous vehicle legislation earlier this year that will rely heavily on he and his colleagues at the state police. As McDonnell describes the legislative process, the measure was slipped into a budget bill (SB 2005) with little fanfare.

“New York’s autonomous vehicle testing legislation is indeed unique,” he said. “In an effort to open the doors to autonomous vehicle testing without compromising public safety, the law authorizes the commissioner of motor vehicles to issue permits for autonomous vehicle testing and demonstration but only if such testing is approved by the superintendent of state police and occurs under the direct supervision of the New York State Police. That’s right: Our testing protocol essentially requires a police escort of every test. There could not be any more law enforcement involvement than that. And unlike the permitting processes in some states, commercial vehicles are not exempt from consideration so we’ll be dealing with those issues I’m sure in the future.”

As the policy academy was taking place in Detroit, Albany was hosting its first autonomous vehicle test at the state capitol. Audi demonstrated its prototype vehicle dubbed “Jack.”

McDonnell said he hopes that when AAMVA’s guidance document comes out later this year it will be more clear than the NHTSA policy in terms of the way it addresses the role of law enforcement.

McDonnell also addressed how state inspection programs might work in an autonomous vehicle future. He noted that only about 16 states currently have annual safety inspection processes that test vehicles for lighting, brakes, horn and other essential equipment. In most of those states, while police enforce the inspection program, the inspections themselves are performed by DMV-regulated authorized inspection stations.

“It is unclear what those inspections will look like in an autonomous vehicle or who will be qualified to perform them,” McDonnell said. “On the one hand, perhaps they will not need to change at all because the same mechanical elements are necessary to ensure safety. But on the other hand, questions are already emerging in the DMVs … (about) mandated equipment such as rear-view cameras. Should that become part of the inspection process? So taking that much further, will a fully autonomous vehicle be capable of reporting to a local garage or certified inspection station, where it will be put on a lift and subject itself to mechanical inspection? Obviously, we don’t know. This may be one area where the states could achieve some harmonization across the jurisdictions.”

But McDonnell said the inspection process could also play another role in the future: ensuring the cybersecurity of the vehicle.

“While only 16 states perform mechanical vehicle inspections as I mentioned, 33 states or local jurisdictions require EPA emissions testing via the onboard diagnostics (OBD) port of the car,” he said. “Instead of testing emissions only, the OBD port could access whether the manufacturer’s
software is up to date and the cyberhealth of the vehicle’s systems.”

**Insurance & Liability**

The last area of traditional state jurisdiction mentioned in NHTSA’s model state policy is insurance and liability. Robert Peterson, a law professor at Santa Clara University in California, told policy academy attendees that autonomous vehicles appear likely to dramatically change how insurance is structured.

Insurance companies currently use a number of rating factors to determine insurance rates, Peterson said, including driving experience, gender, credit ratings and information gathered by the insurance company about how the insured person is driving the vehicle. The rating factors are approved by the insurance commissioner in each state and weighted. The driving record is the factor weighted most heavily.

“Those are all very human-centric rating factors,” Peterson said. “Do they make a lot of sense when we’re rating a car that either drives itself all the time or drives itself most of the time? You’re also, in California, entitled if you have a good driving record to a 20 percent discount on your insurance rate. Well, everyone’s going to have a good driving record if they never drive the car. They’re never going to get any tickets and they’re never going to get in any accidents. So those are things I think that are going to have to be looked at at the state level.”

“More autonomous, liability will see a fundamental shift.

“The responsibility of the person behind the wheel—if there even is a wheel—is going to be less and less so your traditional automobile coverage, which really insures the driver with respect to their negligence and (whether they obeyed) traffic laws is going to become less and less relevant,” he said.
“If the responsibility is going to move to the manufacturer, you have less of a financial responsibility problem as long as your manufacturers remain solvent. ... At the policy level, you may want to start thinking about how you’re going to guarantee that there will be product liability coverage for automobiles, which (will be) standing in for what used to be private insurers coverage, when an automobile manufacturer is no longer available because it becomes insolvent. You deal with that at the insurance level with guarantee funds. Every state has a guarantee fund so if an insurer goes insolvent, you can go to that guarantee fund. But there’s no guarantee fund for manufacturers and their products.”

But Peterson also believes that while insurance and liability have long been the purview of states when it comes to cars and their drivers, that may not always be the case.

“In spite of what NHTSA has reserved to the states in their guidelines, the relationship between the states and the federal government when it comes to liability and also insurance is probably a more fluid one than those guidelines would suggest,” he said. “Only the future will tell us which way it goes.”

Portions of the policy academy focusing on insurance and liability issues were presented in collaboration with The Institutes Griffith Insurance Education Foundation. Peterson also participated in an extended session on these topics later in the program, which is summarized here.

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