

Choosing A Road To Autonomous Vehicle Compliance

By **Adam Raviv and Leena Dai** (May 15, 2025)

Autonomous vehicles have transitioned from a futuristic vision to a present-day reality, rapidly transforming the transportation sector. Many companies are eager to put AVs on the road, whether as fleets of robotaxis, public transportation, delivery vehicles, trucks or personal cars.

Some AVs are already carrying paying passengers, or will be soon, in U.S. cities like San Francisco, Phoenix and Washington, D.C. In the last week of April, driverless trucks began commercial operations in Texas. And autonomous buses have already been deployed in various locations.

These and other AVs have attracted attention for reducing accidents and enhancing mobility. And on April 24, the U.S. Department of Transportation announced efforts to promote innovation in autonomous operations.

But AVs also face skepticism and safety concerns. Because of their novelty, AV operations receive public scrutiny out of proportion to their current prevalence on American roads.

Incidents like crashes and malfunctions, when captured on camera, can go viral and attract attention from the media and government authorities — far more so than incidents of equal or greater severity that befall human-driven vehicles every day.

Accordingly, deploying and scaling AVs involves more than just technology and innovation. It also requires careful communication to the public about the safety of this new technology. Providing that reassurance is complicated by the complex, evolving and in many ways uncertain regulatory landscape on multiple levels of government.

This article provides an overview of that landscape, and some of the key choices that AV operators must make in navigating it. Although there are varying levels of vehicle automation, we focus here on the operation of vehicles that are fully capable of handling the vast majority of driving tasks without a human driver — so-called Level 4 and Level 5 AVs.

As AV manufacturers and operators navigate the regulatory process, they have key choices to make between different approaches to compliance with federal, state and local rules and laws. And they may be well served by joining the push for a single set of national standards for AVs.

Federal Motor Vehicle Safety Standards

The National Highway Traffic Safety Administration is the primary federal agency responsible for regulating road vehicle safety in the U.S. Pursuant to its authority under the National Traffic and Motor Vehicle Safety Act, NHTSA issues and enforces the Federal Motor Vehicle Safety Standards, or FMVSS.

The FMVSS impose performance requirements for various aspects of vehicle design,



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including brakes, lights, airbags and seat belts. Under the federal vehicle safety regime, NHTSA does not provide advance approval for the deployment of vehicles on public roads, whether autonomous or otherwise. Rather, vehicle manufacturers typically self-certify their compliance with applicable regulations.

Developed over decades with human drivers in mind, the FMVSS do not always account for the unique features and challenges of AVs. In 2022, NHTSA amended certain of the FMVSS to accommodate driverless operations, such as by allowing for rearview cameras instead of mirrors, and clarifying the definitions of terms such as "driver" and "occupant."

Moreover, NHTSA has issued a standing general order that requires manufacturers and operators to promptly report certain crashes involving AVs. However, a comprehensive federal regulatory scheme for AVs is still in the future.

As things stand now, federal regulations do not generally set safety standards for AVs that differ from those that apply to vehicles with drivers. The FMVSS are silent on how effective AV technology must be to be safe enough within the meaning of the Safety Act.

In particular, federal standards do not require an AV company to establish a safety case for its vehicles. Consequently, autonomous operators seeking to deploy their vehicles in the near future must choose an approach to federal regulatory compliance. The primary approaches and their advantages and drawbacks are summarized below.

1. Self-Certify an FMVSS-Compliant Vehicle with Autonomous Capabilities

The vast majority of vehicles currently operating on public roads in the U.S. have been self-certified by their manufacturers as compliant with all applicable FMVSS. Under the FMVSS, whether a vehicle can operate without a driver does not, by itself, affect its compliance obligations.

Rather, federal standards allow AV operators to take compliant vehicles and augment them with autonomous features such as sensors, mapping and decision-making technology.

Advantages

This approach is the simplest and most efficient in terms of regulatory compliance. AV operators can effectively take vehicles off the assembly line or purpose-build vehicles that the manufacturer certifies as compliant, add the requisite features that allow for autonomous operation, and deploy their vehicles without undergoing additional regulatory processes.

Drawbacks

This approach may limit the flexibility of vehicle design, and hinder the innovation that is possible once a driver is no longer assumed to be an essential part of the driving task.

Many of the FMVSS — such as the requirements for brake and gas pedals, mirrors, and windshield wipers — were designed with human drivers in mind. The standards may accordingly impose unnecessary or redundant requirements when the driver is removed from the equation.

2. Seek an Exemption From Federal Standards

Under several regulatory and statutory provisions, including Title 49 of the Code of Federal Regulations, Section 555, NHTSA can grant manufacturers limited exemptions from the FMVSS.

To be eligible for such an exemption, a manufacturer must demonstrate to the agency's satisfaction that the noncompliant vehicle provides the same level of safety as a compliant vehicle would. NHTSA has considered, or is considering, exemption requests from autonomous companies.

However, NHTSA's exemption authority under Section 555 is limited. The agency may grant a manufacturer an exemption for no more than 2,500 vehicles per year.

The exemption is also temporary, lasting a maximum of three years, though renewal is possible. And NHTSA may modify or terminate the exemption, if it determines that the exemption is no longer consistent with the public interest or the National Traffic and Motor Vehicle Safety Act.

Advantages

The opportunity to get an exemption from the strictures of the FMVSS potentially encourages greater innovation and efficiency in AVs. This approach allows for more flexible vehicle design, by relaxing some FMVSS requirements if the manufacturer can demonstrate the vehicle still achieves a requisite level of safety.

Moreover, NHTSA's proposed AV STEP program, among other things, seeks to make the exemption process more efficient and attractive, though the future of that rulemaking is an open question.

Drawbacks

The exemption application process is lengthy and resource-intensive, involving extensive interaction with regulators. NHTSA recently established an Office of Automation Safety, including a unit that focuses on reviewing requests for regulatory exemptions and works closely with applicants.

The exemption process is also very public, including a notice-and-comment period that allows members of the public — such as advocacy organizations and commercial competitors — to opine on, and raise objections to, a requested exemption. Other interested parties may also petition NHTSA to modify or terminate an exemption.

There is also the possibility that, at the end of a very long day, an exemption request will be unsuccessful — although NHTSA has yet to deny an exemption sought by an AV manufacturer.

AV Technology Defect Investigations

In addition to complying with the FMVSS, the Safety Act requires manufacturers to monitor their vehicles and equipment and determine when a safety-related defect is present. Such a determination generally requires filing a so-called Part 573 defect report with NHTSA, which will often trigger a recall of the affected vehicles or equipment.

Alternatively, NHTSA may investigate safety-related defects and order a recall. Compliance with the FMVSS, or a valid exemption, is not a defense to NHTSA's authority to remedy safety-related defects.

NHTSA's Office of Defects Investigation typically investigates potential safety-related defects on a case-by-case basis, examining factors such as the incident rate, the consequences of the defect and the severity of the risk.

Applying this open-ended investigative framework to new technologies such as AVs can be challenging. For one thing, an investigation of one company may be somewhat opaque to the rest of the industry, as manufacturers often claim confidentiality over technologies out of the concern that competitors could glean information from a NHTSA investigation.

For another, NHTSA has not set a specific safety standard that AV technology must meet — and, in particular, has not used the average level of human error in driving as a benchmark to determine whether an AV has a defect.

These factors make it difficult for AV companies to determine whether an autonomous technology has a "defect" as defined by the Safety Act. It remains to be seen what NHTSA will do going forward to clarify when an AV poses a safety risk.

State and Local Regulation and Litigation

In the absence of a comprehensive and exclusive federal regulatory framework for AVs, state and local governments have stepped in to establish their own rules and requirements for this emerging technology.

Jurisdictions have created a patchwork of rules and requirements that vary widely across the country, creating a complex legal framework for AV companies seeking to deploy their vehicles. While some states have explicitly authorized autonomous operations, other states have remained silent on the issue.

In jurisdictions that have allowed AVs to operate on public roads, some, like California, impose strict requirements like permitting, data preservation, insurance and safety defect reporting requirements.

The District of Columbia likewise prohibits autonomous operations without an AV testing permit. And New York allows testing of an AV only when a human driver is sitting behind the wheel and ready to take over.

Other jurisdictions have taken a more laissez-faire approach. Florida, for example, expressly allows an AV to operate without a human driver in the vehicle. And Texas has barred local governments in the state from imposing additional restrictions or regulations on autonomous operations.

In most cases, companies that seek to deploy AVs will benefit from interfacing closely with the relevant state and local authorities before initiating operations in a given jurisdiction.

While many state and local transportation authorities have become increasingly experienced in working with AV operators, others may require, and indeed may welcome, basic education about the technology and the opportunities it creates.

Unless the jurisdiction has laws that unambiguously permit AVs on its roads without

advance approval, adopting a "seek forgiveness, not permission" approach may pose risks.

Even in places where AVs are clearly allowed, developing positive relations with local officials and being transparent about intended operations can bear fruit and avert problems down the road. Otherwise, a company may find itself targeted if something goes wrong with a vehicle.

Apart from express state and local regulation, private litigation over automotive safety can also hinge on state law. When one or more of vehicles that a company manufactures or operates experiences a crash or other problem, and a lawsuit ensues, state tort and product liability law will come into play.

If — and when — such incidents lead to class actions and other lawsuits, state standards, as set by local judges and juries, can effectively establish the safety standard for AV technology in a jurisdiction.

Without a clear nationwide safety standard, or even a federal regulatory floor that states and localities can rely on, AV companies may effectively face wildly divergent legal risks in different jurisdictions.

Takeaways

Navigating the complex and changing regulatory regime of AVs requires diligence and experience. Depending on the AV's type, purpose and design, different pathways may be more or less suitable in balancing the tradeoffs among innovation, compliance and speed of deployment.

As the AV sector continues to grow and evolve, so, too, will the regulatory picture. And as in other areas of vehicle regulation, it may benefit industry participants to push for uniform nationwide standards.

Players in the AV industry have already made a variety of policy recommendations at the federal level. Stakeholders should closely monitor state and federal regulatory activity and litigation. AV companies can continue to play an important role in shaping the regulatory picture by advocating for forward-thinking regulation at all levels of government.

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