



Autonomous Vehicle Testing Standards

Safety concerns leaving states to go it alone for now

After a handful of accidents involving autonomous vehicles (AV) on public roads, Congress is torn on whether or not to proceed with legislation that would provide federal oversight to companies testing the technology. In the meantime, individual states have been forced to develop with their own standards, resulting in a patchwork regulatory environment.



- Executive Order, Limited Pilots, or Advisor Committee
- No AV Law or AV Law Under Consideration
- Enacted board piloting or testing laws
- Full AVs explicitly allowed

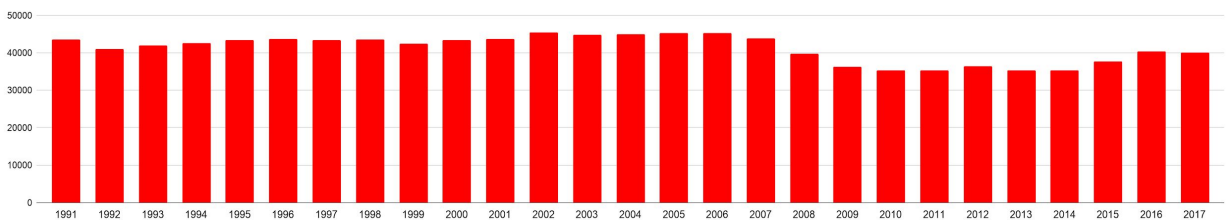
Source: National Conference of State Legislatures and individual state legislation¹⁷

Created by: Ann Henebery/Eno Center for Transportation

Source: EPA, NHTSA

U.S. Traffic Deaths (1990 – 2017)

According to the National Safety Council, there were 40,100 traffic related deaths in the U.S. in 2017. While this represents a slight year-over-year decrease of 1%, traffic deaths had been on the rise for each of the past three years.



Source: National Safety Council

Gridlock in Congress

Federal standards currently do not exist for testing autonomous vehicles (AVs) in the United States. The SELF DRIVE (Safely Ensuring Lives Future Deployment and Research in Vehicle Evolution) Act was unanimously passed by the U.S. House of Representatives in September 2017. A Senate version, the AV START (American Vision for Safer Transportation Through Advancement of Revolutionary Technologies) Act was subsequently introduced during the same month for debate.

However, several high profile AV crashes within the U.S. soon followed, which caused the Senate to reexamine the bill and assess the best course of action. Fierce debate on whether or not to include more stringent protocols within the bill has continued, with numerous lobbying groups on both sides voicing their concerns. No clear action is in sight, with little hope of anything being agreed upon until after the 116th Congress is seated.

Safety remains biggest issue

There were over 40,000 traffic deaths in 2017, compounded by analysis that has shown approximately 94 percent of crashes are due at least in part to driver error. This has led proponents of the bill to point to the urgent need to develop AVs and address the growing number of related fatalities.

Meanwhile, opposition to the bill largely revolves around the number of vehicles potentially allowed to test on roads that would be exempt from some federal safety standards. The bill also prohibits establishing data collection standards for three years while a technical working committee considers how to further develop policies and standards.

While each side has a differing view on how best to address safety, the sharing of data related to AV accidents and disengagements (when the safety driver assumes manual control) also remains a sensitive subject.

Some feel that full transparency should supersede any concerns over intellectual property. However, in an increasingly competitive environment companies are understandably concerned about sharing too much information about their technology.

California taking charge

In the meantime, as the number of companies testing AVs continues to increase, states need a solution. Having already issued nearly 60 permits to test AVs with safety drivers, in April 2018 the State of California began accepting applications that would allow AVs to be tested without drivers. Companies must prove that they have already tested the vehicles in controlled environments and meet SAE Level 4 or 5 autonomous vehicle requirements.

Furthermore, vehicles must be able to be controlled remotely by humans. To date, only one company has been approved to test fully autonomous vehicles on the road. While California's laws are seen as some of the most comprehensive and progressive in the country, other states have very little, if any, oversight in place. According to the National Conference of State Legislatures, to date 29 states have enacted legislation related to autonomous vehicles, and 10 have issued executive orders to address the issue (3 states have done both). 14 states have yet to address autonomous vehicle testing.

Therein lies the problem for many companies...they need to be able to test in multiple environments to ensure their technology can be deployed broadly. Having to adhere to multiple standards results in lost time, increased cost and confusion for all involved.

What's at stake?

Lack of federal oversight is creating an increasingly complicated environment in which to operate for companies testing AVs. Concerns are growing that as a result the billions of dollars earmarked for R&D in this technology will begin to flow elsewhere in the world.

Several countries are taking aggressive steps to create clearly defined regulations for AV developers and manufacturers. China, for example, passed new "National Rules" that took effect in May which lay out specific guidelines on the role of the country's various regulatory bodies, testing procedures, requirements for test drivers and vehicles, and protocols for handling accidents that the AVs are involved in. Germany and South Korea have recently passed similar legislation, which has put additional pressure on the U.S. to finalize a national standard of their own.

While many believe that a fully autonomous future is still many years off, the investments being made today and the framework to support it will go a long way in determining the pace of adoption. Companies need to be able to operate in an environment that allows for innovation while promoting safety as an overriding imperative. However, without clear guidance from regulatory bodies that innovation runs the likelihood of not only being limited, but lured away by global markets. If the U.S. hopes to maintain a leadership role in the development of AVs, it must take decisive action, and soon, or risk being left behind in the development of this hugely disruptive technology.

“ Time is running out. We want to make sure that the technology that is out there is U.S. technology and we're developing it here. If we don't do this, you're going to have 50 states and the District of Columbia doing their own thing. ”

– Rep. Bob Latta, Chairman,
Subcommittee on Digital Commerce and Consumer Protection

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