



Earlier this year, General Motors filed a petition with the federal government requesting that the National Highway Traffic Safety Administration (NHTSA) allow us to deploy fully self-driving vehicles – vehicles without human controls, such as a steering wheel and brake pedals – that still meet the safety purposes of federal motor vehicle standards through alternative means, designs, and systems.

We also published our first Self-Driving Vehicle Safety Report, based on NHTSA's Voluntary Safety Self-Assessment, which explains GM's self-driving vehicle program to the public. And with the report, we also shared a photo of our fourth generation Cruise AV – our first fully driverless vehicle for which we are requesting NHTSA's approval in the safety petition.

Recently, we published a supplement to that Report that explains how we hire and train the safety drivers who operate our test autonomous vehicles. Because those drivers are well-trained, alert and conscientious, they further enhance the safety of our AVs.

You may be thinking, "I read about this in a GM press release, but what does it really mean?"

Current Regulatory Environment:

- Federal Motor Vehicle Safety Standards (FMVSS) establish performance standards for vehicles and detail how manufacturers should test for compliance with those standards.
- Many of the FMVSS were written at a time when AVs were not contemplated and therefore are based on the assumption that all vehicles have a human driver, and have steering wheels, brake pedals, gas pedal, etc. We call these standards and requirements, "human driver-based standards."
- The Safety Act, which established the FMVSS, created a petition process that allows manufacturers to request to use an alternative to certify for FMVSS-compliance. In such a petition, manufacturers must prove that the vehicle is as safe as a traditionally compliant vehicle.
- The Secretary of Transportation, Elaine Chao, like her predecessor, understands the challenge that outdated FMVSS pose for the deployment of AVs, and NHTSA is now seeking feedback on how to begin updating the standards.

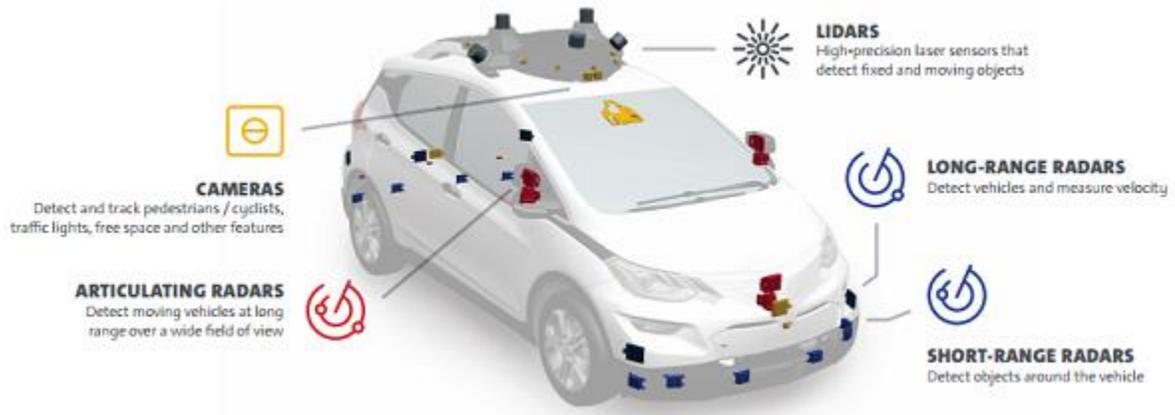
- Until that reform happens, manufacturers will need to petition NHTSA in order to obtain authorization to use alternative methods and deploy driverless AVs.

GM's Safety Petition:

- Seeks approval to advance safety and low-emission technology by introducing into commerce a limited number – 2,500 – of our driverless, zero-emission autonomous vehicles.
- These vehicles are designed to be fully self-driving – Level 4 technology – without a human driver and without human driver controls. Engineered with safety as the top priority, the GM/Cruise AV directly complies with the vast majority of FMVSS. For the remaining standards, it meets their safety purpose through alternate means.
- The Petition discusses human driver-based standards or controls and addresses our plan to satisfy the safety purpose and intent of those standards through different designs and systems.
- For example, because there is no longer a steering wheel or driver, we requested permission to replace the "driver seat" occupant protection system with a "passenger seat" protection system.

GM 2018 Safety Report:

- In the report, we note the importance of public acceptance and understanding to the ultimate success of AV technology.
- The report describes GM's integrated system safety approach – building the entire vehicle from the ground up in GM's Lake Orion Assembly plant – and the Company's application of its century of experience in safely designing, manufacturing, validating, and deploying vehicles.
- The report also addresses NHTSA's Voluntary Safety Self-Assessment process and its 12 safety elements, which the Agency advised companies to address when developing automated driving technologies.
- The report walks through the technical features of our self-driving vehicles, including 5 LIDARs, 21 radars, 16 cameras, and numerous other sensors on the vehicle (see image below).
- Redundancy is also an important feature of the vehicle's design. Most important systems, including the sensor and controls systems have built-in redundancies to allow the vehicle to continue to operate safely even if there is a component or system failure.



The Safety Petition will soon enter an open comment period where people can submit comments either in favor or against the proposed request. We may need your help during this period – so be on the lookout for updates from us!

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