

GENERAL MOTORS

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The Honorable Haley Stevens
Chairwoman, Subcommittee on Research and Technology
Committee on Science, Space and Technology
U.S. House of Representatives
227 Cannon House Office Building
Washington, DC 20515

Dear Chairwoman Stevens,

General Motors (GM) is pleased to support your field hearing on “Smart Transportation and Mobility in Suburban Communities.” As you know, the automobile industry is going through significant changes to the way we do business. Traditional models of new vehicle sales are being challenged by self-driving vehicles, electric vehicles, ridesharing, carsharing and many other new exciting opportunities. We thank you for your attention to this timely topic and welcome the opportunity to submit this letter for the record outlining GM’s vision for the future.

At GM, we are guided by our vision of a future with zero crashes, zero emissions, and zero congestion. As you know, smart transportation and smart transportation technology play an important role in moving towards this future state. The continued research and deployment of intelligent transportation technologies, including in suburban communities, will help to save lives, improve mobility, increase transportation efficiency, and provide more accessibility for underserved communities. GM has been an industry leader in these technologies, particularly in the areas of advanced safety features, self-driving vehicles, electric vehicles and connected cars.

Advanced Safety Features

The National Highway Traffic Safety Administration (NHTSA) has found that human choice or error is a factor in approximately 94% of all motor vehicle crashes on U.S. roads – crashes that took the lives of over 37,000 men, women, and children in 2017. General Motors has systems in place designed to help protect passengers before, during and after a crash and has developed various driver assistance features that help warn drivers to mitigate the risk of an accident occurring. As the Committee explores Smart Transportation and Mobility, we welcome the opportunity to highlight some of the technology in our vehicles today that go beyond helping to protect occupants before, during and after a crash – these advanced driver assistance systems can

help drivers to mitigate the risk of a crash happening by reducing driver distraction and promoting driver engagement. Specifically, they include:

- **Front Pedestrian Braking** - If the system detects that a pedestrian is directly ahead, a collision is imminent, and the driver has not already applied the brakes, the system can alert the driver and may even automatically apply the brakes to help the driver avoid or reduce the harm caused by the collision.
- **Forward Automatic Braking** - If the system detects that a front-end collision situation is imminent while following a detected vehicle and the driver has not already applied the brakes, the system can automatically apply the brakes to help reduce the collision's severity. The system may even help avoid a collision at very low speeds.
- **Adaptive Cruise Control Camera** - This feature enhances regular cruise control. The cruise control speed is automatically adapted to maintain a driver-selected gap between the vehicle and vehicles detected ahead while the driver steers, reducing the need for the driver to frequently brake and accelerate.
- **Rear Vision Camera** - When in reverse, this feature provides the driver with a view of the scene directly behind the vehicle on a center stack or inside rearview mirror display to help them park and mitigate the risk of crashing into nearby objects during low-speed maneuvering.
- **Lane Change Alert with Side Blind Zone Alert** - This available feature can provide side mirror alerts to help the driver mitigate the risk of crashing into a moving vehicle detected in their side blind zone or a vehicle that is rapidly approaching their side blind zone during a lane change maneuver.
- **Lane Keep Assist with Lane Departure Warning** - Provides gentle steering wheel turns (and Lane Departure Warning alerts if necessary) to help drivers mitigate the risk of a crash due to unintentionally drifting out of their lane when they are not actively steering, and their turn signal is not activated.
- **Side Blind Zone Alert** - Provides side mirror alerts to help the driver mitigate the risk of crashing into a moving vehicle detected in their side blind zone during a lane change maneuver.
- **Forward Collision Alert** - If the system detects that a front-end collision situation is imminent while following a detected vehicle, the system can alert the driver to a potential crash. It also can provide an alert if the driver following a detected vehicle too closely.
- **Rear Cross Traffic Alert** - When in Reverse, this feature can provide alerts to help the driver mitigate the risk of crashing into approaching detected left- or right-traveling cross traffic or pedestrians (e.g., out of a crowded parking space or driveway with side obstructions).
- **Call Me Out** - This is an innovative app that lets friends remind each other that when driving they should keep their eyes on the road and hands off their phones.
- **Teen Driver** - Teen Driver offers several safety functionalities, from the available industry-first Buckle to Drive¹ feature, to muting audio until front-seat occupants are buckled to automatically turning on available active safety technologies. Plus, the in-

¹<https://media.chevrolet.com/media/us/en/chevrolet/home.detail.html/content/Pages/news/us/en/2019/may/0521-btd.html>

vehicle report card shows information about your teen's driving, to help you identify potential problem areas and coach your new driver on improvements.

- **Rear Seat Reminder** - Rear Seat Reminder works by monitoring the vehicle's rear doors. If either rear door is opened and closed within ten minutes before the vehicle is started, or if they are opened and closed while the vehicle is running, the feature is intended to activate an audible chime and visual alert reminding the driver to check the rear seat.
- **Front and Rear Park Assist** - When traveling below 5 mph (8 km/h), available Front and Rear Park Assist can provide distance-to-object alerts to help the driver park and mitigate the risk of crashing into nearby detected objects directly ahead or behind the vehicle during low-speed maneuvering.
- **Following Distance Indicator** - Available Following Distance Indicator can provide drivers with the following (or headway) time to a moving vehicle detected in front of them to help alert them if they are following too closely.
- **Safety Alert Seat** - The available Safety Alert Seat provides the driver the option of getting haptic seat-bottom vibration pulses instead of audible crash avoidance alerts. The Safety Alert Seat pulses on the left, right or both sides of the seat to alert you to the direction of the possible danger.

Self-Driving Vehicles

Fully self-driving vehicles have the potential to eliminate human error and behavior. Self-driving may help prevent crashes from happening and reduce injuries and fatalities on our roadways. Safety is our number one priority for this technology, and we believe that a safe self-driving vehicle must be built from the ground up with seamless integration with the self-driving system. When it comes to self-driving vehicles, General Motors is in a unique leadership position with everything from design, engineering, validation and testing all under one roof. Building our test AVs in a factory such as Orion Assembly and using mass production methods allows us to meet the same strict standards for safety and quality that we build into all our vehicles. General Motors is also partnering with Cruise Holdings LLC ("Cruise") to bring everything from design, engineering, validation and testing all under one roof.

General Motors and Cruise are currently testing 180 self-driving vehicles in San Francisco, Phoenix and metro Detroit. These test self-driving cars have human driver controls and human safety drivers. Our AVs are specifically designed from the ground up to incorporate safety and redundancy systems to help ensure the safe operation of the vehicle when in self-driving mode. While our early versions were based on the Bolt Electric Vehicle (EV) platform, 40% of the content in the current test vehicles are new or significantly updated compared to a retail Bolt EV.

A legal and regulatory framework that ensures safety and provides a path for the deployment of self-driving vehicles will play an important part in the rollout of this exciting technology and unlock the many benefits to society. We encourage Congress to consider Federal self-driving vehicle legislation to create a safe, expeditious and scalable path to deploy this potentially life-saving technology. Last Congress, both the House of Representatives and the Senate recognized the importance of providing a federal framework for self-driving cars and moved critical legislation from key committees in both Chambers. The House of Representatives passed a self-driving vehicle bill by voice vote.

We recognize the potential of this technology to positively impact millions of Americans and strongly encourage Congress to pass legislation this year that allows self-driving technology innovation to move forward in the United States. The U.S. has been a leader in the automotive industry for over 100 years. We need a smart legal and regulatory framework to safely facilitate the deployment of this innovative technology thus maintaining our American tradition of automotive leadership.

Electric Vehicles

GM believes in an all-electric future and is committed to driving increased usage and acceptance of electric vehicles that meet our customers' needs. We remain the only manufacturer in the market to offer a truly affordable, long-range electric vehicle—the Chevrolet Bolt—that will now offer 259 miles of EPA-estimated range in Model Year 2020, a 9 percent improvement over the existing model. The Bolt also provides the platform for our cutting-edge autonomous vehicles, all of which will be electrified to ensure that our shared and autonomous future is also a part of the climate solution.

The Chevrolet Bolt EV is a prime example of our unwavering commitment: we were the first automaker to invest in and launch a truly affordable, mass-market, long-range EV. It has been widely praised and represents just the first step on our path to an all-electric future, with more EV models to debut in the coming years, including entries in the truck segment. GM also stands out in front as the only automaker calling for a comprehensive National Zero Emissions Vehicle (NZEV) Program. We estimate that the NZEV program could place more than 7 million long-range EVs on the road by 2030.

US policy on EVs has lagged behind, while China and Europe have moved ahead. Despite our significant investments in EVs, the current US market adoption rate for EVs is less than two percent. Since battery prices remain a significant cost barrier to market entry, we urge Congress to update the current EV tax credit by lifting the per manufacturer cap on available customer tax credits. This adjustment is key to making EVs cost-competitive with internal combustion engines (ICEs) until more EVs are deployed at scale and costs come down. GM believes the “Driving America Forward Act,” of which you are a cosponsor, is a good solution to this problem, and we thank you for your support.

In addition, we urge Congress to allocate federal funding to build out EV charging infrastructure. Even though most charging currently takes place at home or at the workplace, range anxiety remains a barrier to consumer adoption of EVs. Building a nationwide fast charging infrastructure would provide the necessary consumer confidence to ensure they have the freedom to drive coast to coast with their EV. These policies are critical to maintaining our competitiveness and ensuring that the US leads the world in electric vehicle battery technology.

Connected Vehicles

GM is committed to Vehicle-to-Vehicle (V2V) and Vehicle-to-Infrastructure (V2I), collectively known as Vehicle-to-Everything (V2X), as a key technology for improving transportation safety and mobility. GM deployed V2X capabilities in the U.S. market in 2017 on the Cadillac CTS, and we announced plans to eventually expand the deployment to other Cadillac models. This planned expansion of V2X communications to all Cadillac vehicles underscores the importance

of ensuring that automakers retain access to spectrum to support their growing connected vehicle safety needs.

Congress can support the continued deployment of connected vehicle technologies by ensuring that the 5.9 GHz band remains dedicated to auto safety and is not opened for unlicensed use unless there are enough test results that demonstrate that unlicensed devices would not interfere with critical life-saving systems.

Michigan is a leader in Smart Transportation and Mobility

Perhaps no location showcases our commitment to zero, zero, zero more than GM's 90-year-old Milford Proving Grounds, located in your district. With our GM headquarters in Michigan, we have strong roots throughout the state and are partnering with key stakeholders on smart transportation and mobility projects. Specifically:

- **Vehicle Connectivity** - GM has worked with Macomb County and the Michigan Department of Transportation to test a Connected Vehicle safety feature that warn drivers when traffic signals are about to turn red. The system, which works up to 1,000 feet from a traffic light, does not brake the car. The alert can help prevent drivers from having to stop abruptly or from speeding through an intersection to beat the light change.
- **Car Sharing** - GM is also exploring how new models of shared use can contribute to a zero, zero, zero future. The future of car ownership is changing, but the need for cars is not diminishing. Cars continue to serve a greater number of purposes, making owning and using them more efficient. Through its Maven brand, GM recognizes the need to actively participate with cities and other stakeholders to design next-generation transportation systems. This year, through a unique public-private partnership with the City of Detroit, we offered unique insights and shared business frameworks to design, implement and invest in these types of systems in places where Maven members live and play. We also believe that when the sharing economy is coupled with smart technology and accessibility, social and economic opportunities arise for those communities with whom we have partnered. Cities are focused on accessibility for all residents. Understanding the unique needs of individual communities will help the City, Maven, and other stakeholders create mobility options that enable such accessibility to community members.

Thank you for holding this very important and timely hearing. General Motors looks forward to continuing to collaborate with you and your colleagues in Congress on policy solutions to move towards a zero, zero, zero future.

Sincerely,



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