



General Motors Company
300 Renaissance Center
Detroit, Michigan 48265

October 19, 2018

Torine Creppy
Chair, Blue Ribbon Panel on Children in Autonomous Vehicles
President, Safe Kids Worldwide

President Creppy,

Thank you for your recent Blue Ribbon panel report and recommendations addressing child passenger safety in autonomous vehicles. As you know, safety is General Motors' first and highest priority. We share your goal of keeping children safe on the road, and believe self-driving vehicles will help us achieve our vision for a future of zero crashes, zero emissions, and zero congestion. We welcome the opportunity to share more about how we are working to protect children and teens in and around our vehicles as we continue to develop technology that will help achieve our vision.

Safety is the cornerstone of our approach to all our vehicles, including those that are self-driving. We believe self-driving technology has tremendous potential to help reduce human driver errors, which cause more than 90 percent of vehicle crashes. Our mission with the Cruise AV is to remove the driver from the vehicle and launch our self-driving vehicles at scale so we can help create a safer world.

This is an important time in the development of self-driving vehicles and transparency is crucial. We believe it is the responsibility of every company intending to deploy self-driving vehicles to publicly outline its processes and technologies to better explain how these vehicles navigate the road while helping to protect both occupants and pedestrians, including children.

We are pleased to report that General Motors' autonomous vehicles offer technologies and solutions that address the topics identified in the "Children and Autonomous Vehicles" report. Below, we summarize some of our key child safety measures.

History. For two decades, General Motors has supported the [Safe Kids Worldwide Buckle Up™](#) program. Since the Buckle Up™ program began, we've seen a 55 percent decline in child deaths and 53 percent decline in child injuries. In addition, we've educated more than 28 million parents and caregivers about child safety, checked more than 2.2 million car seats and booster seats and distributed 758,440 car seats and booster seats to underserved communities.

Fifty years ago, General Motors was a pioneer of the original car seat, also known as a child restraint, and today, we continue developing ways to help keep children safe. Our vehicles incorporate technologies that prioritize children's safety, including:

- [Rear Seat Reminder™](#): General Motors' Rear Seat Reminder™ is an industry-first feature, reminding drivers to check the rear seat before exiting the vehicle. Rear Seat Reminder™ is based on usage of the rear doors as an indication that there may be something in the rear seat. Rear Seat Reminder™ debuted on the 2017 GMC Acadia and is standard on many 2019 models.
- [Surround Vision](#): Surround Vision uses front, side and rear cameras to display the areas around your vehicle. This technology provides a bird's-eye view that helps with parking and avoiding nearby objects, including children. Surround Vision debuted on the 2016 Cadillac CT6 and is available on select 2019 models.
- [Family Link™](#): When customers enroll in Family Link™, they gain unique access to the location of OnStar-equipped vehicles, along with the option to receive email or text message alerts about those vehicles. It's a tool that can be used to provide peace of mind to customers, enabling them to stay in touch with those who are dropping off children at childcare, school or elsewhere.
- [Smart Slide™ Seat](#): The current generation Chevrolet Traverse, GMC Acadia and Buick Enclave are equipped with Smart Slide™ seat, a feature that allows the second-row seat to easily slide forward with a single hand. If a car seat or booster seat is installed using LATCH (Lower Anchors & Tethers for CHildren), Smart Slide™ can function without first removing the forward-facing car or booster seat.

Child Safety in Cruise AVs. The Cruise AV builds on the foundational safety of the cars we already have on the road today. For example, the Cruise AV is based on our Chevrolet Bolt EV platform. The Cruise AV incorporates additional safety technologies and communications features for children and other passengers, including in-cabin cameras to monitor whether any object – or person, such as a child – is left in the vehicle after a ride, microphones and airbag suppression pads in the front seats.

Safety Standards. We believe that a safe self-driving car must be built from the ground up, seamlessly integrating the self-driving system into the vehicle. The Cruise AV is built from the New Car Assessment Program (NCAP) five-star Chevrolet Bolt EV platform, which meets applicable Federal Motor Vehicle Safety Standards (FMVSS). It includes both foundational and added protections for child passengers, including:

- Both front passenger seats have an airbag suppression system.
- Seat belt reminder mats that detect a young occupant are added in the rear seating positions.
- Both front passenger seats and the rear seats will have automatic locking retractors.
- Rear seats will remain equipped with child seat LATCH anchors in the two outboard seating positions and top tethers in all rear seating positions.

We also plan to equip the self-driving vehicle with enhanced seat belt reminders in all seating positions and make the seat belt reminder tone more engaging. These are just a few examples of how we will build safety into our vehicle systems.

Usability Testing. General Motors subjects the Cruise AV to rigorous usability and crash tests. For example, as part of our internal vehicle performance testing for the fully electric Bolt EV, we conduct crashworthiness evaluations utilizing the adult and child sized Hybrid-III Anthropomorphic Devices (ATDs). Additionally, we consider how families with more than one child would use the vehicle and provide accommodations for the child restraints in our designs and evaluations. The rear seats accommodate certified infant, convertible and forward-facing car seats and booster seats.

Inclusive Design. As we design mobility solutions, we actively examine the needs and safety of children in our design considerations and user experience journey mapping. In our development process, we have already implemented many of the Blue Ribbon Panel's recommendations, as well as additional practices, including:

- Our advanced design team uses real-world studies with children and parents as part of early research to place safety at the center of their vision of AV user journeys.
- The engineering team built the Cruise AV with the safety features and redundant systems necessary to allow it to operate so that, if one system or piece of equipment fails, there is a redundant system to take over. The Cruise AV engineering team has focused intently on helping to deliver a seamless and safe customer experience that can be customized for families.

Such usability testing and research informs our thinking about user journeys and the overall experience we want to provide for passengers of all ages. It also helps to create inclusive designs that serve the needs and safety of all passengers. For example, we are exploring ways to make a parent's ride safer and more convenient by giving them more time to load their family into the vehicle and ensuring that the parent can control when – and which – doors are unlocked, so that a child cannot exit the vehicle into an unsafe situation.

Appropriate Supervision. Another General Motors design concept addresses children that are traveling alone. While enabling children to ride alone in self-driving vehicles will be up to the families and the local communities in which the vehicles operate, we are already thinking about ways the Cruise AV could help to provide a safe ride for the children and deliver peace of mind for the families. The technologies integrated into the Cruise AV could enable a number of features for parents allowing children to travel alone, including receiving updates on the location of the vehicle and the status of the ride, selecting and limiting destinations, and providing remote communications between parents and children in the vehicle.

Marketing Standards. Our commitment to safety and a future of zero crashes extends to how we talk about our technologies. We clearly and accurately explain new technologies so that they are safe for customer use. We will continue to follow this practice for future products. For example, we are exploring ways to include a “Child Restraint” section within the ride-share application for Cruise AVs. This section would include an explanation of where to locate the LATCH anchors and how to install child restraints using LATCH or the vehicle seat belt.

Regulation, Legislation and Policy. Our public policy team works with federal, state and local lawmakers and regulators to develop and support policies that promote innovation and safety. We appreciate continued dialogue on the local level about these policy considerations and the shared goal of roadway and child safety. Specifically, assigning responsibility for children in a car to a specific adult is a matter best determined by state and local jurisdictions according to the needs and desires of their community. We welcome opportunities to participate in discussions with the appropriate groups about these issues.

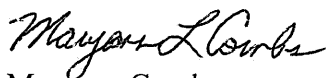
Education and Outreach. We fully understand the importance of consumer education as we introduce new technology into communities. In January 2018, General Motors published our [Self-Driving Safety Report](#). The report is a public document that explains in everyday terms how our vehicles operate. We also published an [Appendix](#) to our Safety Report outlining how we train our human

operators to safely monitor our self-driving test vehicles. The Safety Report and Appendix aim to educate the public about the development and operation of automated driving systems. We provide these materials in the spirit of transparency.

Further, our teams meet with law enforcement and city officials in the communities where our self-driving vehicles are testing. We have a long history of working with law enforcement through OnStar, and this work will continue as we develop appropriate procedures and best practices to protect the safety of autonomous vehicle occupants and those sharing the road with our vehicles.

Again, thank you for convening vehicle safety thought leaders and facilitating this discussion focused on child passenger safety in and around AVs. At General Motors, we will continue to work with the industry, families, safety groups and policymakers to help provide safe travel to all passengers – including children – as we work toward a future of zero crashes, zero emissions and zero congestion.

Sincerely,

A handwritten signature in cursive script that reads "Maryann Combs".

Maryann Combs
Vice President, Global Vehicle Safety
General Motors