

# Advanced Decision Support for Public Safety: Reducing Preventable Distracted Driving Incidents



Homeland  
Security

Science and Technology

## CHALLENGE: DISTRACTIONS IN LAW ENFORCEMENT PATROL VEHICLES

Due to the increasing number of technologies that have been integrated into law enforcement patrol vehicles, officer distraction is an inherent occupational risk. Most vehicles are fitted with mobile radios, computer-aided dispatch and navigation, an automatic license plate reader, cellphones, radar, and other equipment. Unfortunately, these tools, designed to assist officers in the performance of their job, may also compromise their safety and that of the communities they serve by increasing instances of distracted driving. To learn more, refer to our feature article, [S&T Launches New Initiative to Reduce Law Enforcement Driving Risks](#).

## PARTNERING TO ADDRESS THE NEED

In 2020, the Department of Homeland Security (DHS) Science and Technology Directorate (S&T) began working with the U.S. and Canadian governments, academia, public safety organizations, researchers, and federal law enforcement training centers to identify the major distractions that lead to officer-involved vehicle crashes. To help reduce these incidents, S&T partnered with the Johns Hopkins University Applied Physics Laboratory to apply a systems engineering approach to identify, understand, and reduce the contributing factors to distracted driving.

## THE SOLUTION: DRIVE-SAFE

Based on that research—and input from law enforcement agency leadership, patrol officers, and driving instructors—the project team is developing a prototype called Drive-Safe in partnership with Cole Engineering Services, Inc. (Orlando, FL). This advanced decision support driver training and assessment tool is specifically designed for law enforcement. Drive-Safe will use a gamification approach, using the [Enhanced Dynamic Geosocial Environment's \(EDGE\) Unreal engine](#), which provides driving scenarios designed to train and improve officer cognitive, manual, and visual skills, using low-cost, commercially available equipment. A low-cost (\$6,000 or less) solution will provide law enforcement a much-needed and affordable capability. The initial prototype includes a virtual driving environment displayed on large monitors, a cockpit with a seat, wheel, and pedals arranged similarly to a patrol SUV. The prototype's eye-tracking capability provides the opportunity to understand the user's visual and cognitive state while driving. The Drive-Safe simulator will evolve to include features that help identify and mitigate

behaviors related to distracted driving, such as haptic feedback or an audible alert when eyes are off-road for a set time, shut off of the mobile data screen when exceeding a set speed, and placement of dispatch alerts in a queue based on situational awareness resource constraints.



## IMPACT

The prototype simulation capability will include multiple scenarios in urban, rural, and highway driving environments and features that enable officers to hone perception skills in hazardous situations. While officer-involved shootings provide high-profile examples of the hazards of police work, more often than not officers lose their lives while driving patrol vehicles. It is expected that a multi-pronged approach including simulation will better prepare officers for the complex behind-the-wheel operating environment and mitigate distracted driving accidents during law enforcement operations. While this initiative focuses on the law enforcement community, it can also support other first responder communities as well as civilian drivers.

## MILESTONES

Testing and evaluation of the Drive-Safe prototype will begin in fall 2021 in cooperation with the International Association of Chiefs of Police, the National Sheriff's Association, and Public Safety Canada. This phase will identify enhancements needed to transition the software to law enforcement throughout the United States and Canada.

DHS S&T will also release a guide, *Independent Assessment: A Resource Guide of Technology for Mitigating Distracted Driving*, that describes various technologies that could reduce distractions or mitigate driving-related accidents and provides an overview of future network technologies that may distract drivers, such as smart cities, next-generation 911, fifth-generation mobility services, and autonomous driving.

