



CAV Activities

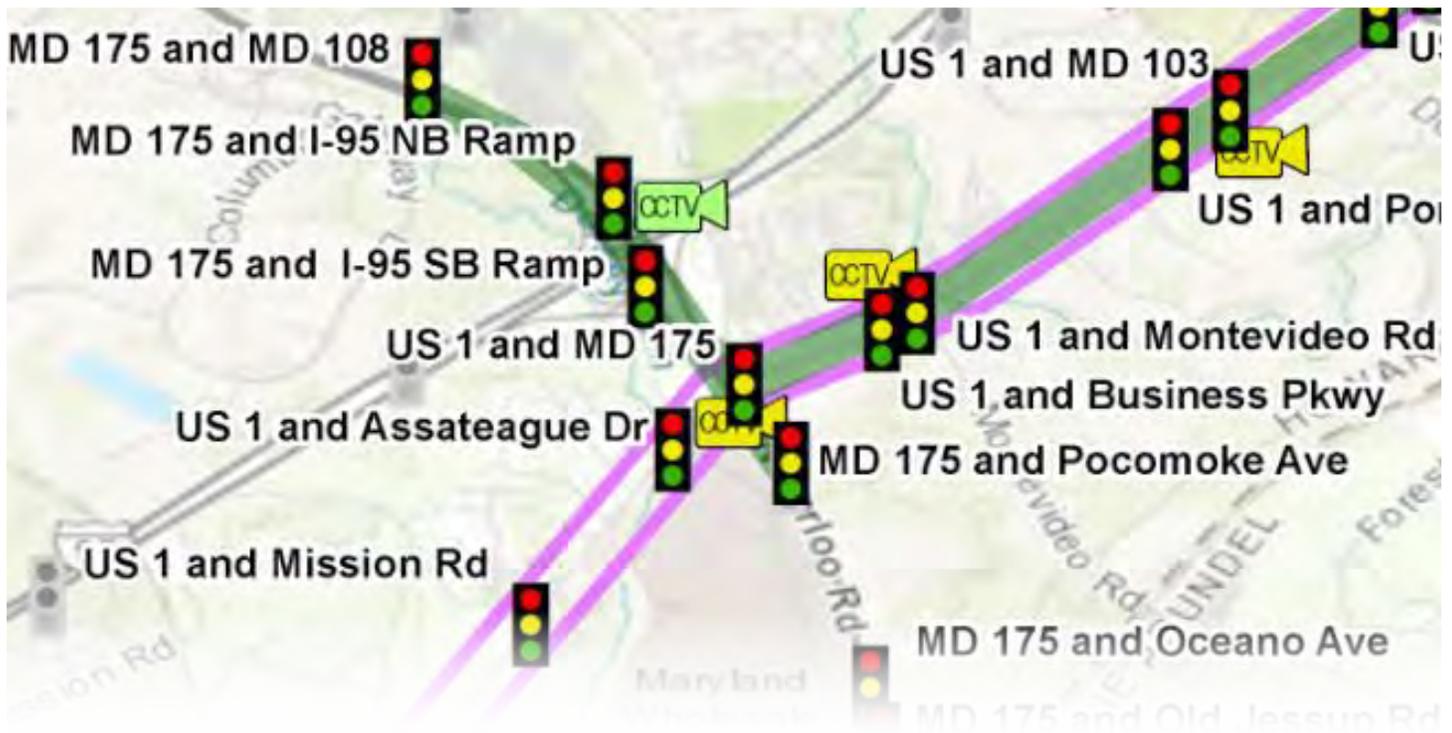
- **The Aberdeen Test Center has been recognized as a federally designated AV proving ground.**
- **MDOT is part of an FHWA program to support the development of Connected Vehicle Application study.**
- **US 1 in Central Maryland has been chosen as the pilot for an Innovative Technology Deployment Corridor.**
- **MDOT SHA is working with ATC in a community of interest for DSRC to develop standards and lessons learned.**
- **Participation in a FHWA pool funded study which includes development of a multi-modal intelligent traffic signal system.**
- **MDOT SHA continues to look for opportunities to partner with the University of Maryland, Johns Hopkins University Applied Physics Lab, and the National Transportation Center at Morgan State University for research into CAV.**

6. CONNECTED VEHICLES/AUTOMATED VEHICLES

Technology has rapidly advanced in the area of connected vehicles and automated vehicles through automakers, mobility service providers, and major technology corporations. Connected Vehicles (CV) are vehicles that are capable of interpreting and relaying information over one or more channels of communication. The technology for connected vehicles is based on wireless communication between two or more vehicles or between a vehicle and the structural infrastructure surrounding it. Communication is split into two different forms; Vehicle-to-Vehicle (V2V) and Vehicle-to-Infrastructure (V2I). Both forms of communication will rely greatly on wireless technology - especially cellular networks, and Dedicated Short Range Communications (DSRC). Automated vehicles (AV) are vehicles that can perform at least one aspect of a safety-critical control function without direct driver input.

In 2015, Maryland Transportation Secretary Pete Rahn established the Autonomous and Connected Vehicle Working Group as the central point of coordination for the development and deployment of emerging automated and connected vehicle technologies in Maryland. The Working Group handles strategic planning for MDOT concerning automated and connected vehicles, and includes two subcommittees - the Policy Subcommittee responsible for legislative and policy issues and testing permits, and the Technical Subcommittee led by MDOT SHA, which is responsible for technical and operational issues, and test oversight.

In 2016, Maryland submitted and supported two USDOT applications for test sites to be part of a “federally designated AV proving ground” network - the I-95 Automated Vehicle Research and Production Corridor and the US Army Aberdeen Test Center (ATC) at Aberdeen Proving Ground. The ATC was selected as a designated site on January 19, 2017 and MDOT is currently engaged with ATC and exploring ways to collaborate on this exciting opportunity for Maryland. While the I-95 Corridor was not officially selected as an AV proving ground, MDOT is continuing to move forward with many of the resources, partnerships, and initiatives proposed in the application. In addition, all MDOT Transportation Business Units have been tasked with developing Strategic Plans in preparation for Connected and Automated Vehicles (CAV) in Maryland.



MDOT SHA’s CAV vision is to “embrace technology and next generation mobility trends to provide safe and reliable travel for people and goods within Maryland”. To support this vision, MDOT SHA is developing its CAV Strategic Plan which will address the following goals:

- GOAL 1: Make Maryland an attractive partner for CAV development, testing and production
- GOAL 2: Begin deploying CAV technology and engaging in national activities
- GOAL 3: Establish foundational systems to support future CAV deployment
- GOAL 4: Enable CAV benefits for customers
- GOAL 5: Explore opportunities to leverage CAV technologies to support MDOT SHA business processes and objectives

The following CAV initiatives are either funded or in progress in 2017:

- Automated Vehicle Testing Activities are being developed.
- MDOT is coordinating the possible use of several different transportation facilities for testing highly automated and connected vehicles, providing for a variety of different scenarios and conditions. MDOT MVA has established an online permitting system to accept and review expressions of interest and applications, and issue permits for testing.

- US 1 Innovative Technology Deployment was selected as a Corridor Pilot.

The goal of the US 1 Corridor Pilot is to develop a plan on US 1 between MD 32 and MD 100 that would integrate freeway and arterial traffic management. The pilot is expected to demonstrate CAV readiness to the private industry and be used to gain experience in multidisciplinary projects. Key elements include:

- Arterial CCTV to support incident and traffic management.
- Additional detection to support arterial travel times.
- Upgraded signal controllers to support future CAV applications.
- DSRC deployment at intersections in support of national Signal Phase and Timing (SMaT) Challenge.
- Fiber Optic communication connectivity (with redundancy) to support this and future needs.
- Other communication to support field equipment (e.g., point/multi-point or cellular).
- Additional exploration (arterial DMS, localized Road Weather Information System deployment, mid-block detection).