MDOT’s CAV Working Group

- Connected and Automated Vehicles (CAV) Working Group created by Maryland Department of Transportation Secretary Pete Rahn in December 2015
  - CAV Technical SubGroup (MDOT, MSP, other agencies as necessary)
  - CAV Policy SubGroup (includes external partners)
    - Develop / Modify CAV Permit Process (includes external partners)
    - Policy/Planning Coordination (MDOT)
  - CAV Freight SubGroup (includes external partners)
    - Triage Team for CAV Applications (MDOT, MSP, other agencies as necessary)
    - Technical/Project Coordination (MDOT)
MDOT’s CAV Working Group

- Open discussions on CAV with TBUs, private sector, academia, law enforcement, and legislators – sharing knowledge and discussing issues, concerns, and ideas
- AV Proving Ground application to US DOT - 2016
- Permitting process for HAV testing - 2017
- CAV Plan being developed by The Secretary’s Office – 2018
- Individual TBU activities
The Maryland Department of Transportation (MDOT) is an organization comprised of six business units and one Authority.

- The Secretary’s Office
- State Highway Administration
- Maryland Transit Administration
- Motor Vehicle Administration
- Maryland Port Administration
- Maryland Aviation Administration
- Maryland Transportation Authority
MDOT SHA – Internal CAV Group

• Multi-Disciplinary Engagement
  • Representation from planning, engineering, operations, IT, maintenance, policy, and administration

• Subject Matter Experts
  • University of Maryland Center for Advanced Transportation Technology
  • Consultant experts

• First Project: We Need a Plan!
  • Developed a Strategic Action Plan
  • Needed balance of strategic and tactical in the face of fast evolving space
  • Living document
1. Baseline: What is CAV?

2. Planning Activities

3. Take Action: Pilot CAV Programs

4. Enabling Actions: Build a Support Program
“Embrace technology and next generation mobility trends to provide safe & reliable travel for people and goods within Maryland.”
GOAL 1:
• be an attractive partner; Maryland is “open for business.”

GOAL 2:
• begin deploying CAV technology to gain experience through pilot projects.

GOAL 3:
• Establish foundational systems to support future CAV deployment.

GOAL 4:
• Enable CAV benefits for customers.

GOAL 5:
• Look for opportunities to leverage CAV technologies to support existing business processes.
# Vision for CAV Strategies to Achieve

<table>
<thead>
<tr>
<th>Vision for CAV</th>
<th>Strategies to Achieve</th>
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<tr>
<td><strong>The US 1 Innovative Tech Deployment Corridor</strong></td>
<td>Arterial traffic management needs and CAV readiness efforts, while gaining lessons learned.</td>
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<tr>
<td><strong>Future Innovative Technology Deployment Corridors</strong></td>
<td>Additional corridors present opportunity for CAV pilots and additional ITS deployment.</td>
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<tr>
<td><strong>Coordinate with Ongoing Major Projects</strong></td>
<td>Keep dialogue open with major projects (e.g., I-270 Innovative Congestion Management project)</td>
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<tr>
<td><strong>Pursue Federal Grant Opportunities</strong></td>
<td>Federal money available through annual grant requests = have project proposals on-the-shelf.</td>
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<tr>
<td><strong>Partner with the Aberdeen Proving Ground</strong></td>
<td>Keep dialogue open with Aberdeen Test Center, looking for opportunities to partner.</td>
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<td><strong>Partner with the U.S. DOT</strong></td>
<td>FHWA has shown interest in CAV testing on some of MD’s roadways and facilities.</td>
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<tr>
<td><strong>Leverage our Relationship with Maryland Academic Institutions</strong></td>
<td>The University of Maryland is a national leader in developing transportation technology, and is already an MDOT SHA partner.</td>
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<td><strong>Robust Telecommunications Infrastructure</strong></td>
<td>A comprehensive telecommunications plan should be mapped out with CAV in mind.</td>
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<tr>
<td><strong>Enhance Road Markings and Signage</strong></td>
<td>Monitor national research and lessons learned from other states, and periodically discuss.</td>
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<tr>
<td><strong>Track and Influence Policy &amp; Legislation</strong></td>
<td>Education on CAV, testing opportunities, and the impacts on economic development.</td>
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<tr>
<td><strong>Develop a Robust Data Governance Plan</strong></td>
<td>Address privacy and security, storing data, sharing policies, public information requests, and other data-related issues.</td>
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<tr>
<td><strong>Pay Attention to Staffing &amp; Skills Development</strong></td>
<td>Staff training and skills for a rapidly evolving CAV ecosystem.</td>
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<tr>
<td><strong>Internal Awareness of CAV</strong></td>
<td>Awareness within MDOT SHA, and across the transportation business units (TBUs). One MDOT.</td>
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<tr>
<td><strong>External Outreach &amp; Education</strong></td>
<td>Maryland is “open for business” and wants to attract CAV development.</td>
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<tr>
<td><strong>Involvement/Visibility in National Activities</strong></td>
<td>Stay engaged in the CV Pooled Fund Study and other national activities, and share the experiences internally.</td>
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<tr>
<td><strong>MDOT SHA Offices and Engagement in CAV</strong></td>
<td>Maintain internal MDOT SHA CAV Working Group as a clearinghouse, a coordination point, and an opportunity for everyone to contribute.</td>
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<tr>
<td><strong>Support the MDOT SHA CAV Working Group</strong></td>
<td>A great opportunity to garner feedback from other sectors of the industry, impact legislative activity, and connect with other TBUs.</td>
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2018 Actions – Implementing the Plan

• Prioritize the Recommendations
• Begin a Connected Vehicle Pilot Demonstration Project
• Draft an Outreach Plan
• Work with Other TBU’s on CAV Plans
• Telecommunications Strategic Plan
• Pursue Federal Grants
• Explore Workforce Needs
US 1 Pilot Project

- Adaptive Signal Control for congestion management
- ITS Devices for incident management
- DSRC Pilot Deployment for CV testing
CV Pilot Objectives

→ **Signal Shop**: Meet the National SPaT Challenge
  - Deploy 20 intersections with Signal Phase and Timing broadcast from DSRC radios via Connected Vehicle Roadside Units.

→ **CHART**: Become an early adopter of CV Technology to pave the way for future CAV Readiness
  - Meet the National SPaT Challenge
  - Test and evaluate DSRC RSUs data capture, analysis and storage.
  - Implement best practices to own, operate, and maintain DSRC RSUs within one or more corridors, within five years.
  - Provide a mechanism for supporting business partnerships for CAV firms in MD and utilize the demonstration for testing corridors.
No Shortage of “ToDo” Actions

- MDOT CAV Working Group
- Data Governance Plan
- Staffing and Skill Development
- Internal Awareness of CAV
- External Outreach and Education
- Grant Applications
- Awareness of National Activities
# Advice to State DOT’s in AV 3.0

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<tr>
<th>AV 3.0 Guidance to States</th>
<th>MDOT and SHA</th>
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<tr>
<td>Adopt terminology defined through voluntary technical standards.</td>
<td>The need to address terminology and be consistent and is discussed in the SHA CAV Strategic Action Plan</td>
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<tr>
<td>Assess State roadway readiness.</td>
<td>One of the key outcomes of the CAV Strategic Action Plan and driver for many of the strategies</td>
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<tr>
<td>Consider test driver training and licensing procedures for test vehicles.</td>
<td>MVA currently managing the licensing procedures for test vehicles</td>
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<tr>
<td>Support safe testing and operations of AVs on public roadways.</td>
<td>MDOT CAV Working Group considers this a high priority</td>
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<td>Learn from testing and pilots to support highway system readiness.</td>
<td>Addressed heavily in the CAV Strategic Action Plan, and the emphasis in doing the US 1 pilot project</td>
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<tr>
<td>Build organizational capacity to prepare for AVs in communities.</td>
<td>Addressed heavily in the CAV Strategic Action Plan, and reflected in recent organizational changes made to Office of CHART</td>
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<tr>
<td>Identify data needs and opportunities to exchange data.</td>
<td>Addressed heavily in the CAV Strategic Action Plan, and one of the projects OPPE is currently leading</td>
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<tr>
<td>Support scenario development and transportation planning for automation</td>
<td>A component of OPPE planning already, and will increase with time</td>
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CAV Activities Are Growing...

- Our approach builds on lessons learned from others but is also reasonably aggressive.
- Now that the plan is done – it’s time to “operationalize” our actions.
- Regular updates of the plan will be initiated.
- Future issues will arise (e.g., procurement), and we fully intend to stay on top of national activities.
Contact Information

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