**Connected and Automated Vehicle (CAV) Integration for Local Governments**

BMC Technical Committee Meeting
**August 1, 2023**

# CAVs are here now

Over 140 automated vehicle pilots have been completed or are planned across 29 states.[1]

Existing Maryland CAV Plans include:

- *MDOT SHA CAV 2021-2025 Implementation Plan*

- *MDTA 2020 Planning for CAV Readiness*

- *MDTA 2018 CAV Strategic Plan*

- *MDOT CAV Toolkit for Local Jurisdictions*



AV shuttle tested at National Harbor, MD (*Source: Olli*)



AVs tested in parking lots of Odenton and Dorsey MARC stations (*Source: MDOT*)



Westminster's Autonomous Corridor Project Planning (*Source: Magic*)



Personal Delivery Devices at Morgan State University (*Source: WBAL-TV*)

[1] National Highway Traffic Safety Administration

# Project Need

Provide guidance on planning for Connected and Automated Vehicles (CAVs) specific to the Baltimore region

**Impacts of CAVs**
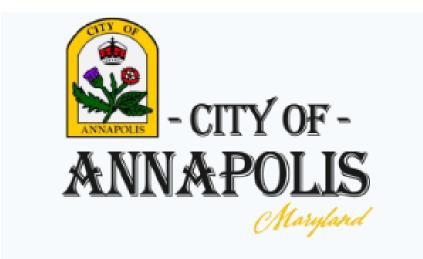
**Best practices in CAV planning**

**Actionable recommendations for local agencies to prepare**

# Stakeholder Input

- Steering Committee meetings, reviews, and input

- Interviews with local, regional, state, and industry partners

# Local Role in CAV Planning

Set and enforce traffic laws as permitted by state

Update land use plans, codes, and land development regulations

Update building codes

Update local street design standards

Operate and maintain infrastructure

Proactively prepare for CAV impacts and use public policy to steer adoption to support local goals

# New CAV Resources

**Literature Review**

**CAV Planning Guide: Recommended Actions for Local Agencies to Prepare for CAVs**

**User Guide for CAV Planning**

**Executive Summary for Leadership**

# CAV Planning Guide

**BALTIMORE METROPOLITAN COUNCIL**

Connected and
Automated Vehicle
(CAV) Planning Guide:
Recommended Actions
for Local Agencies
to Prepare for CAVs

May 2023

**Available for download on the BMC website:**

https://baltometro.org/transportation/planning-areas/multi-modal-planning/emerging-technologies

# CAV Planning Guide Outline

- CAV Definitions

- CAV Impacts

- Roles of Government and Industry in CAV Planning

- Recommended Actions for Local Agencies

# Key Near-Term Local Agency Actions

- Coordination

- Safety

- Freight & Goods Delivery

- Organizational Readiness

- Equity & Accessibility

- Planning & Land Use

- Funding, Financing, & Fiscal Health

- Travel & Mobility

- Workforce & Education

- Physical Infrastructure

- Data Privacy & Security

**Proactive planning will help agencies maximize the potential benefits of CAV technology and minimize the potential negative impacts.**

# CAV Planning Guide

# Examples of Impacts

| Impact Area | Opportunities | Challenges |
|---|---|---|
| **Safety** | • Faster reaction times than humans<br><br>• Not distracted, impaired, or drowsy<br><br>• Additional safety features with low-level automation features like Advanced Driver Assistance Systems | • Crash exposure risks might increase if Vehicles Miles Traveled (VMT) and travel distances increase due to reduced driver stress and value of time<br><br>• Drivers and other travelers might not understand capabilities and limitations of technology<br><br>• CAVs might not detect vulnerable road users |
| **Travel & Mobility** | • Increased roadway capacity and throughput (reduced following distances, harmonized speed, and increased intersection efficiency)<br><br>• Reduced delay from crashes if crashes decrease | • Potential for reduced capacity if AVs cannot communicate with other vehicles and are more conservative or leave more space between vehicles than human drivers<br><br>• Traffic and safety risks from unresponsive CAVs in rights-of-way<br><br>• Increased competition for limited curb space |
| **Equity & Accessibility** | • Opportunities to meet transportation needs of people who do not drive, people with disabilities and older adults<br><br>• Increase transit connections by reducing first/last mile costs or increasing accessibility in areas with gaps in the transit network | • Availability and costs of CAVs sufficiently equipped to aid older adults and people with disabilities<br><br>• Competitions with high-occupancy transit<br><br>• Service areas may not include underserved communities or have lengthy wait times |

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# Policy Approach

| **Reactive** | **Policy** | **High-Investment** |
|:---:|:---:|:---:|
| No agency intervention | State or municipal policy to incentivize CAVs to meet agency goals | Public infrastructure investment to support CAVs |
| What does a reactive scenario look like? | What are reasonable policy levers? (CAV use, land use, etc.) | What are reasonable investment levers? (CV communications, striping, etc.) |

# Recommended Near-Term Actions

Coordinate with State and BMC

Identify safety partners and define safety goals

Plan for the different needs of automated freight or goods delivery.

Define your agency's vision and nominate a champion

Include equity and accessibility partners in all projects and require service to underserved communities

Integrate CAVs and other emerging technologies into land use and transportation plans, travel demand models, codes, and design manuals

Plan for impacts on local fiscal health

Prioritize multimodal mobility and Complete/Slow Streets

Invest in people and the future of the workforce

Maintain infrastructure in State of Good Repair

Follow industry guidance on data collection, storage, and security

# How to use the User Guide

For each topic area, the **User Guide for CAV Planning** includes:

The near-term recommendation

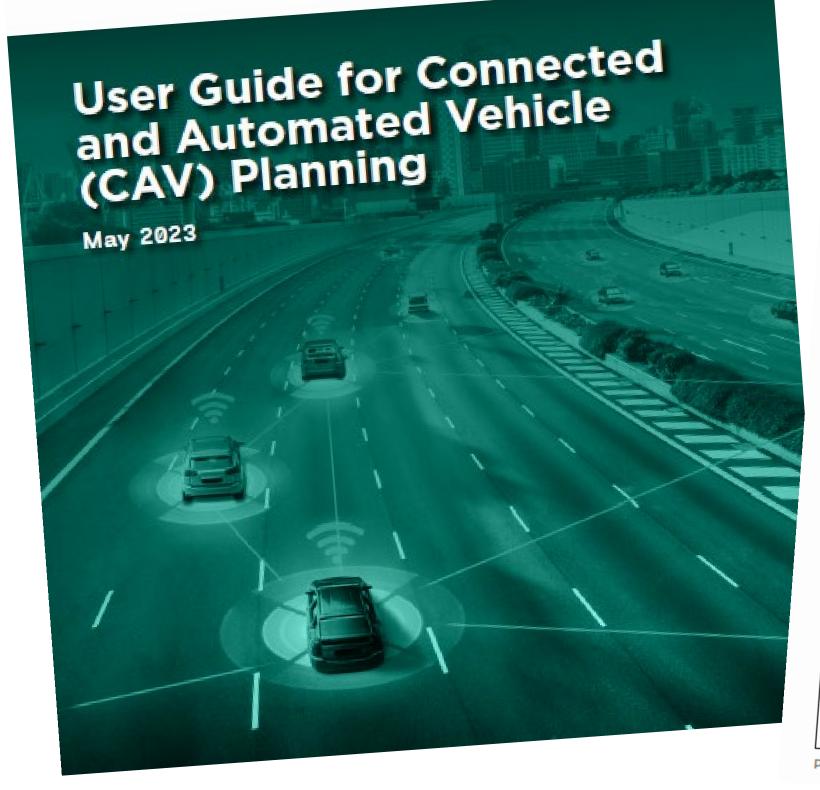Why is the action needed?

Who is the lead agency or department?
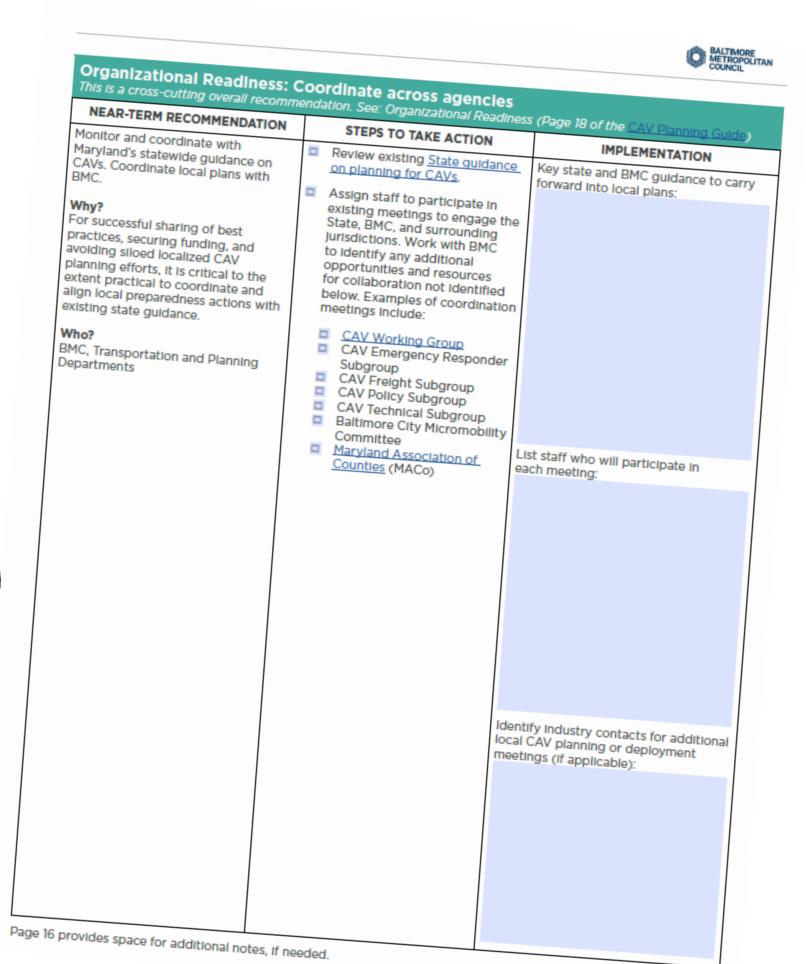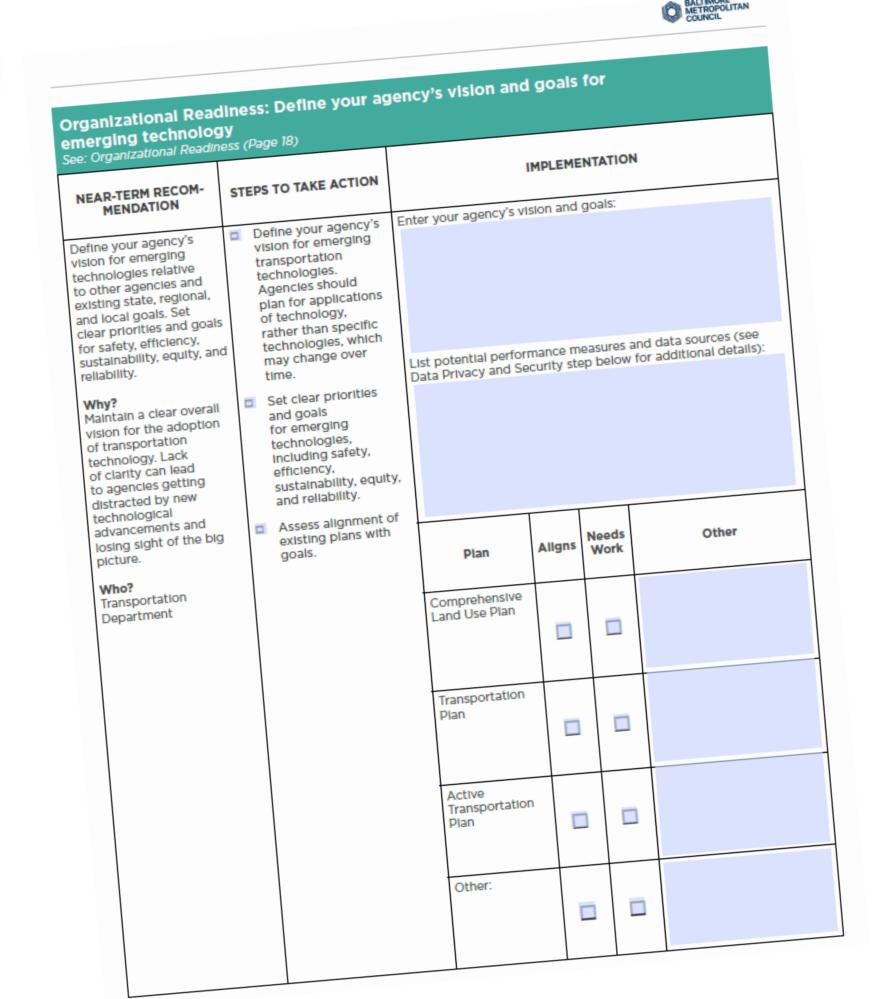
A checklist of steps to take action

An editable worksheet to document and track progress
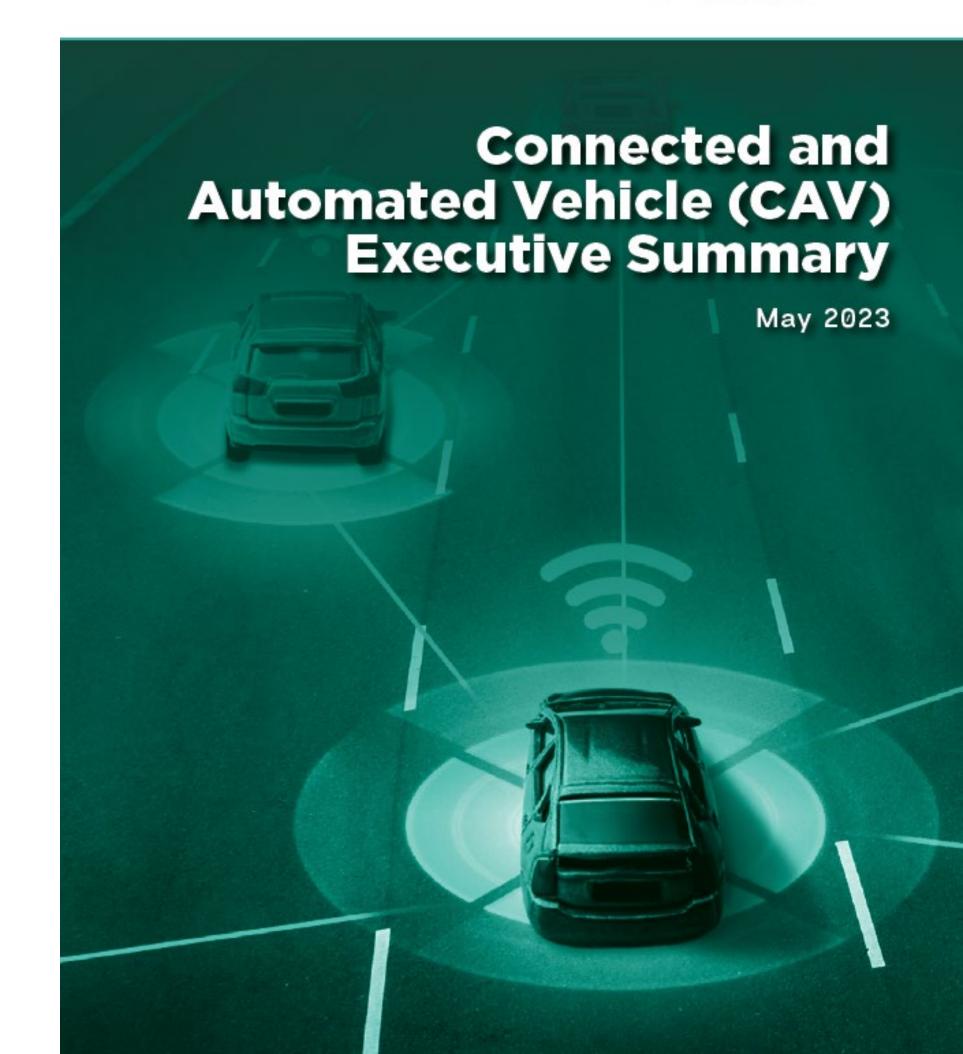
# User Guide for CAV Planning

# Executive Summary

- High-level talking points for agency staff and decision makers on the region's CAV planning efforts and needs

- Recommendations to proactively prepare for the impacts of CAVs

# Where should you begin?

☑ Share the **Executive Summary** with leadership

☑ Read the **CAV Planning Guide**

☑ Use the **User Guide for CAV Planning** to collaborate within your local agencies, BMC, and the State

☑ Join **Maryland CAV Working Group**

# Questions?

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