

Maryland Connected & Automated Vehicles -Planning Initiatives-

Transportation Planning Board

→ June 25, 2020 ←

Carole Delion, P.E.

MDOT SHA

→ TODAY'S TOPICS

- Maryland Department of Transportation: Planning Initiatives
- Partnerships and Collaboration
- Planning Recommendations
- Outlook



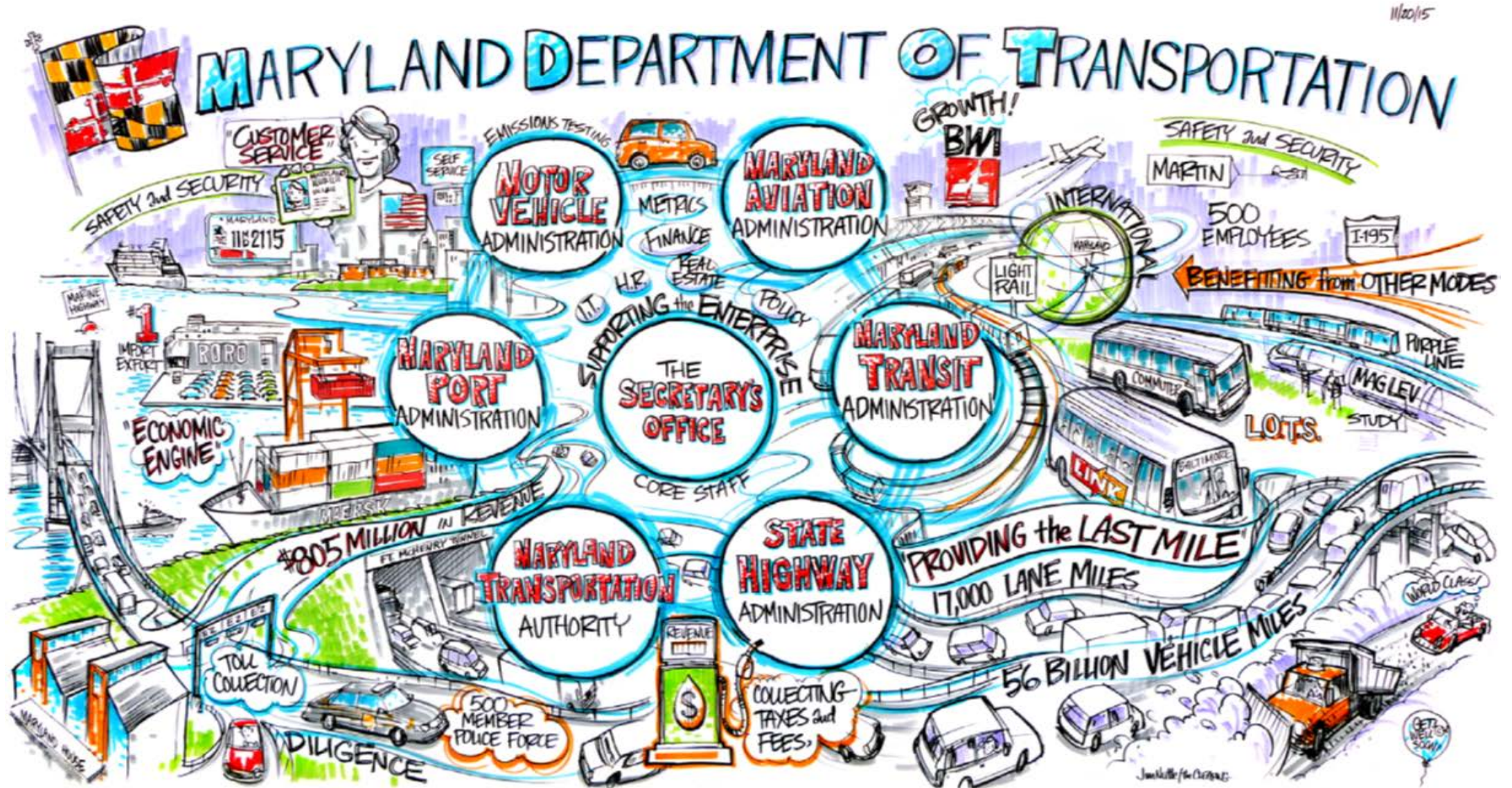
MARYLAND
DEPARTMENT OF
TRANSPORTATION:

CAV PLANNING
INITIATIVES

A goal without a plan is just a wish.

- Antoine de Saint-Exupéry

MARYLAND DEPARTMENT OF TRANSPORTATION



A TIMELINE OF MDOT CAV ACTIVITIES

2015

- + The Maryland Connected and Automated Vehicles (CAV) Working Group is formed by the Secretary of Transportation

2017

- + MDOT MVA establishes Expression of Interest process ([Link](#))
- + MDOT MVA permits 1st private firm to perform autonomous parking in a controlled environment using HAV permit
- + MDOT SHA releases a CAV Strategic Action Plan ([Link](#)) & commits to national SPaT challenge

2019

- + MDOT helps establish new Mid-Atlantic CAV Group within the I-95 Corridor Coalition that includes MD, DC, VA, DE, PA, NJ, and NY
- + MDOT MTA wins TRB transit IDEA grant and begins testing autonomous vehicle parking at a MARC commuter rail park and ride lot
- + MDOT SHA wins STIC grant to deploy connected vehicle technology for pedestrian safety
- + MDOT MAA releases an RFP that includes autonomous parking technology as a requirement

2016

- + MDOT MVA establishes Highly Automated Vehicle permit process ([Link](#))
- + MDOT SHA includes CAV in its TSMO Strategic Action Plan ([Link](#))

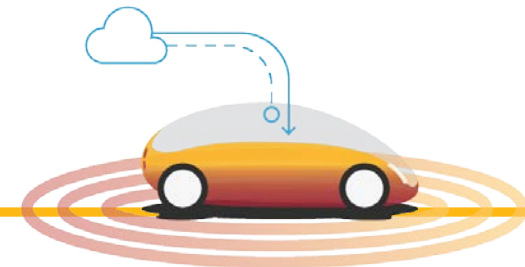
2018

- + MDOT releases a statewide CAV Vision Statement
- + MDOT begins CAV Strategic Plan development
- + MDTA releases a CAV Strategic Action Plan ([Link](#))
- + MDOT "Locations to Enable Testing Sites" (LETS) application is released to the public ([Link](#))

2020

- + MDOT MTA begins conversations with business park on possible autonomous shuttle pilot
- + MDOT SHA hosts educational STEM workshops as part of the AASHTO TRAC program

- + MDOT TSO & MDOT SHA issue outreach survey on needs relating to emerging technologies to local jurisdictions ([Link](#))
- + MDOT to release CAV Strategic Plan (soon!)



MDOT CAV STRATEGIC PLAN (2020)

1. Prioritize safety in all CAV activities
2. Communicate CAV progress and opportunities broadly and openly
3. Ensure transportation policies and regulations support the MD CAV Vision
4. Continue CAV pilot development and deployment activities
5. Make CAV a part of near- and long-term planning efforts
6. Ensure CAV plans and actions are coordinated and transparent
7. Maintain strong and clear mechanisms for CAV partnerships
8. Support CAV research activities
9. Strengthen MDOT knowledge and capabilities in CAV



SPECIFIC PLANNING INITIATIVES

- Maryland Statewide Model regional demand modeling CAV sensitivity runs
- Investigating micro-simulation (VISSIM) modeling of CAV
- ITS planning dashboard for CV technologies ([Link](#))
- ITS Communications Plan
- CV solutions matrix and accompanying one pager summaries
- March 2020 Emerging Technology Survey to Maryland local jurisdictions ([Link](#))

LOCAL JURISDICTION RESULTS

Emerging Technology Survey for Maryland Local Jurisdictions

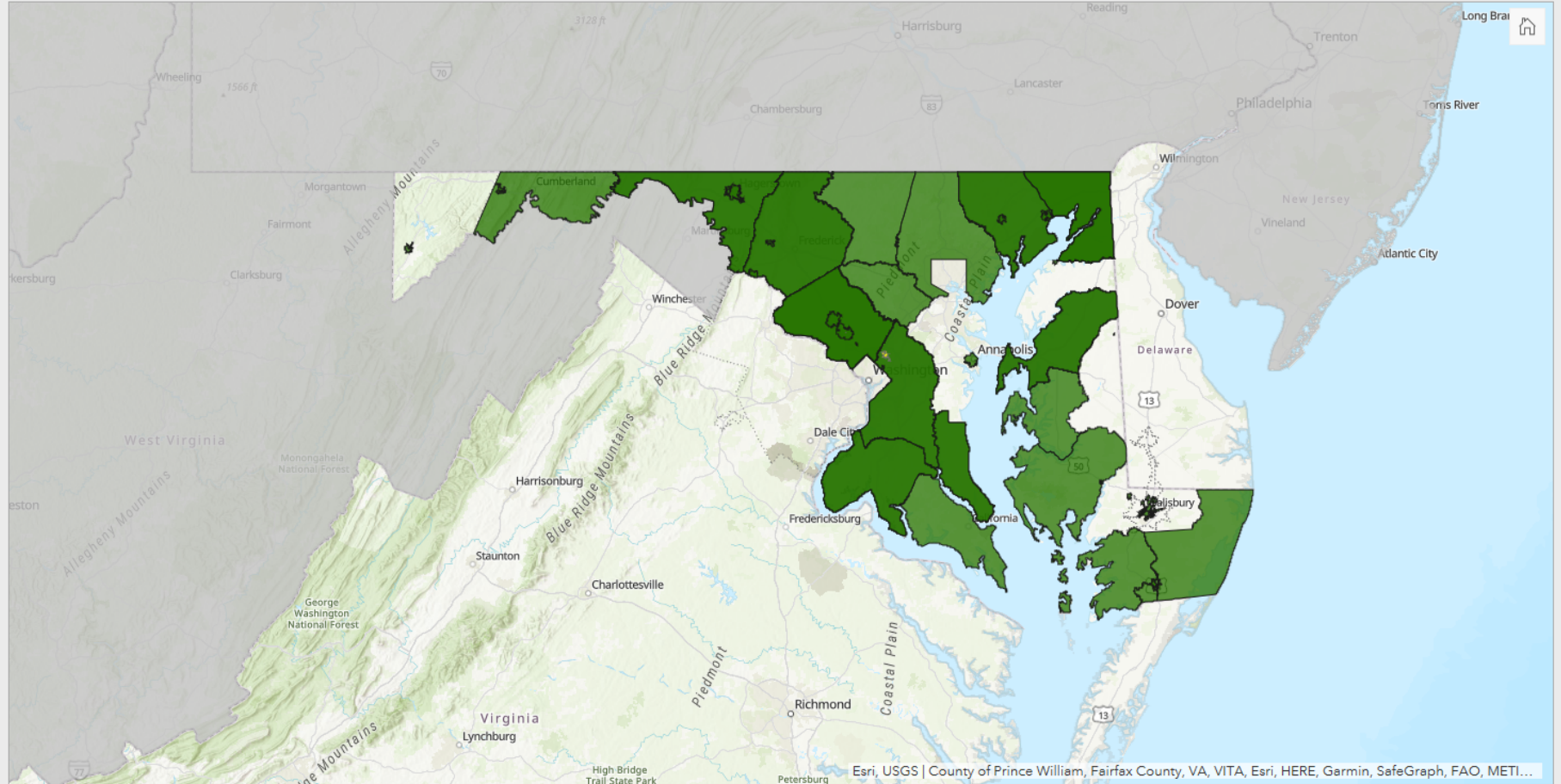
Select One

- Allegany County
- Baltimore County
- Calvert County
- Carroll County
- Cecil County
- Charles County
- City of Annapolis
- City of Brunswick
- City of Frostburg
- City of Gaithersburg
- City of Hagerstown
- City of Havre de Grace
- City of Pocomoke
- City of Rockville
- City of Salisbury

◀ 1 of 56 ▶

Allegany County's Top Priority

Having a better understanding of how your jurisdictions fits within an automated, connected, electric and shared statewide ecosystem



DISCLAIMER: The information provided herein are direct responses from respondents of the [Emerging Technology survey](#) gained through a March 2020 outreach effort by the Maryland Department of Transportation (MDOT) and Maryland Department of Planning (MDP). MDOT State Highway Administration (MDOT SHA) created this application to display the results of the survey verbatim. If you have any questions please contact the MDOT SHA CAV Program Manager at shacav@mdot.maryland.gov.





PARTNERSHIPS & COLLABORATION

*None of us, including me, ever do great things.
But we can all do small things, with great love,
and together we can do something wonderful.*

– Mother Teresa

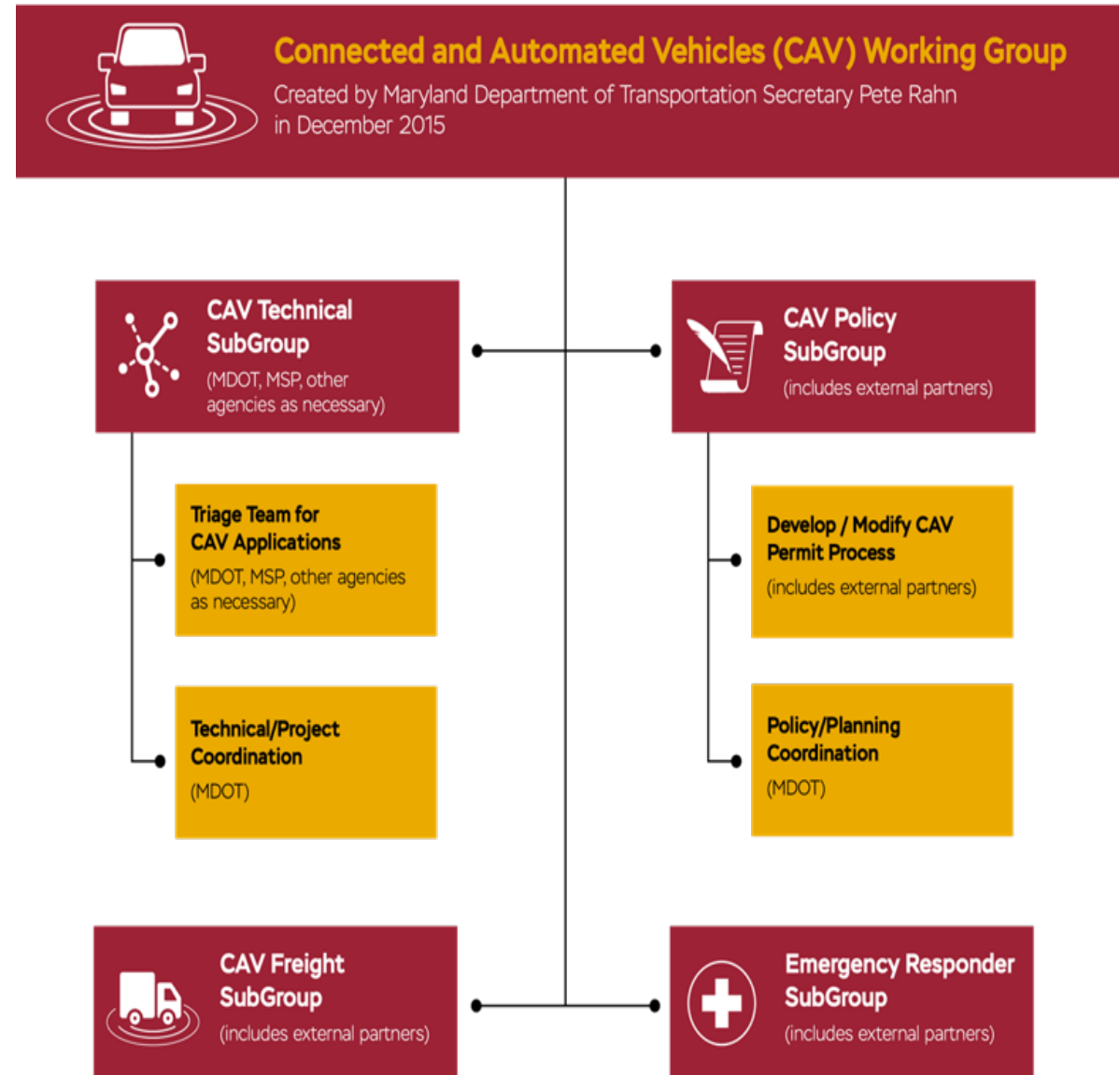
MARYLAND VISION & STATEWIDE CAV WORKING GROUP

“Uphold & enhance a **Safe, Efficient, and Equitable** transportation future by delivering collaborative and leading-edge CAV solutions.

Maryland is open for business and eager to realize the life-saving and economic benefits of CAV technology, while ensuring safety for all.

We are embracing CAV technology and innovation through continuing collaboration with partners interested in researching testing, and implementing CAVs in MD.”

[CAV Actions in Maryland](#) 



PRIVATE COMPANY PILOTS



Local Motor's autonomous shuttle, Olli, National Harbor, MD



STEER autonomous parking, multi-county deployments

ACADEMIC AND LOCAL EFFORTS

- University of Maryland CATT Lab ([link](#))
- Morgan State University Urban Mobility & Equity Center research ([Link](#))
- Frostburg University and Allegany County work force center and testing
- Montgomery County DOT Connected vehicle pilot
- Prince George's County DOT 'Smart Cities' initiative
- Howard County Fleet Upgrades to use autonomous parking

MPO EFFORTS THAT INCLUDE CAV STRATEGIES



Congestion Management Strategy Guide



ANNOUNCEMENT

**TRANSPORTATION PLANNING BOARD
CONNECTED AND AUTONOMOUS VEHICLES (CAV)
WEBINAR SERIES**



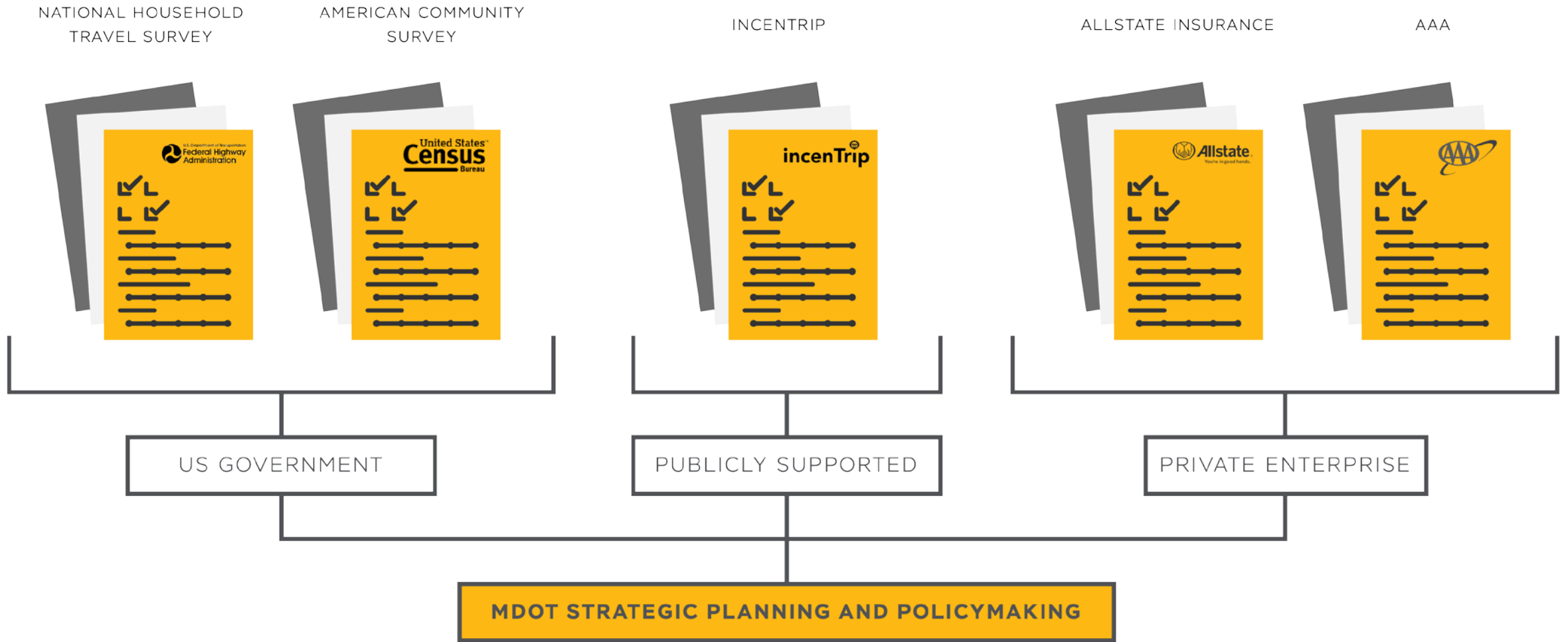


PLANNING RECOMMENDATIONS

*Success consists of going from failure to failure
without loss of enthusiasm.*

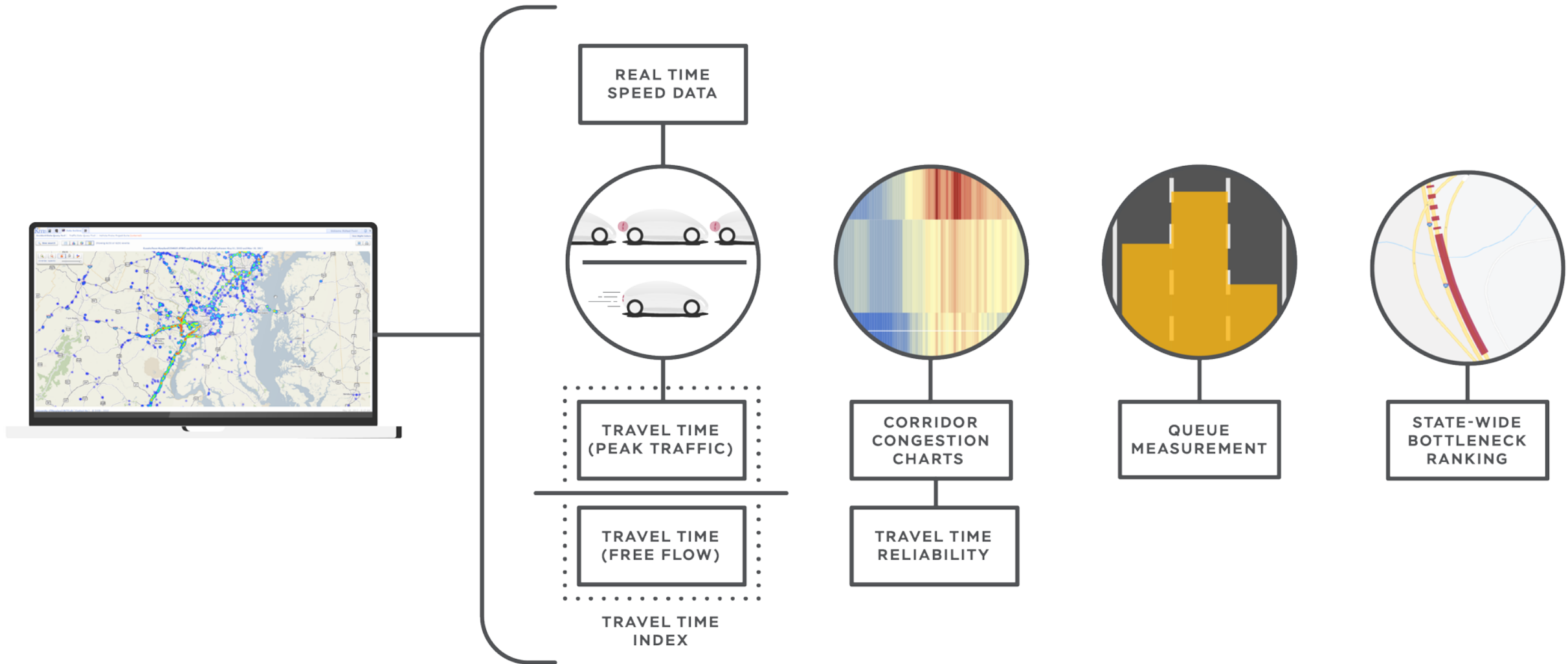
– Winston Churchill

TRAVEL SURVEYS



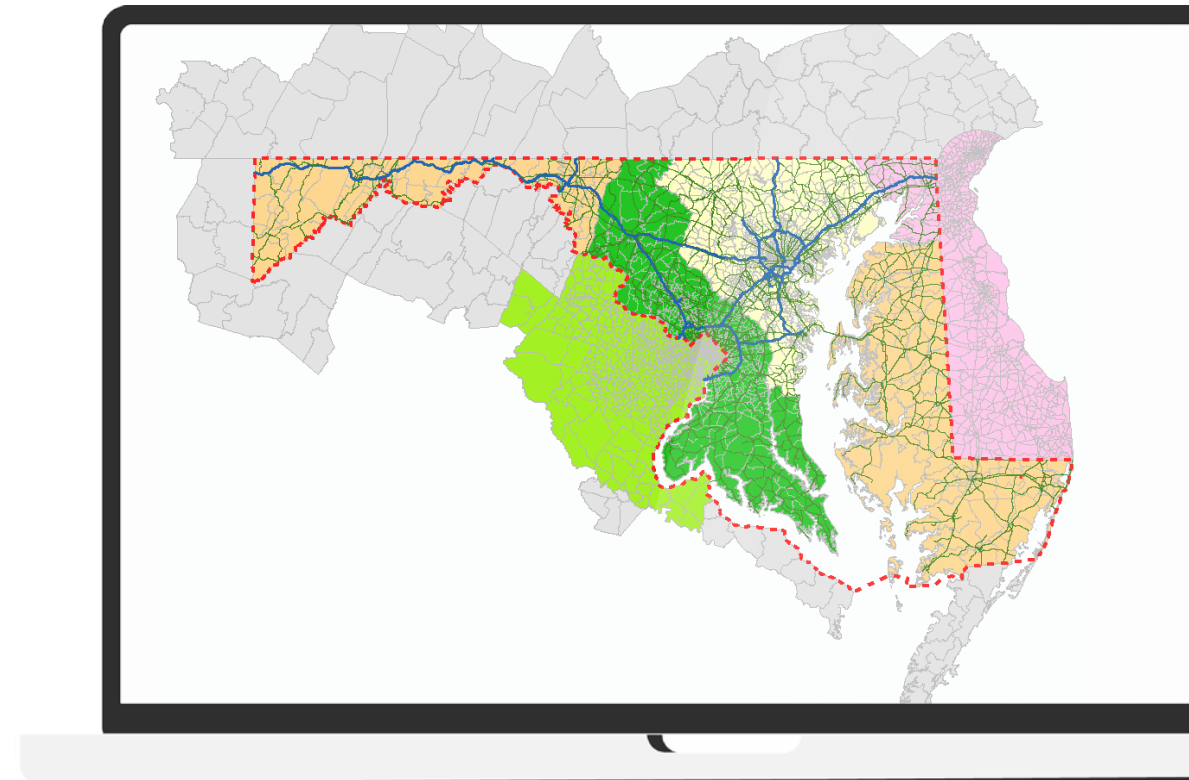
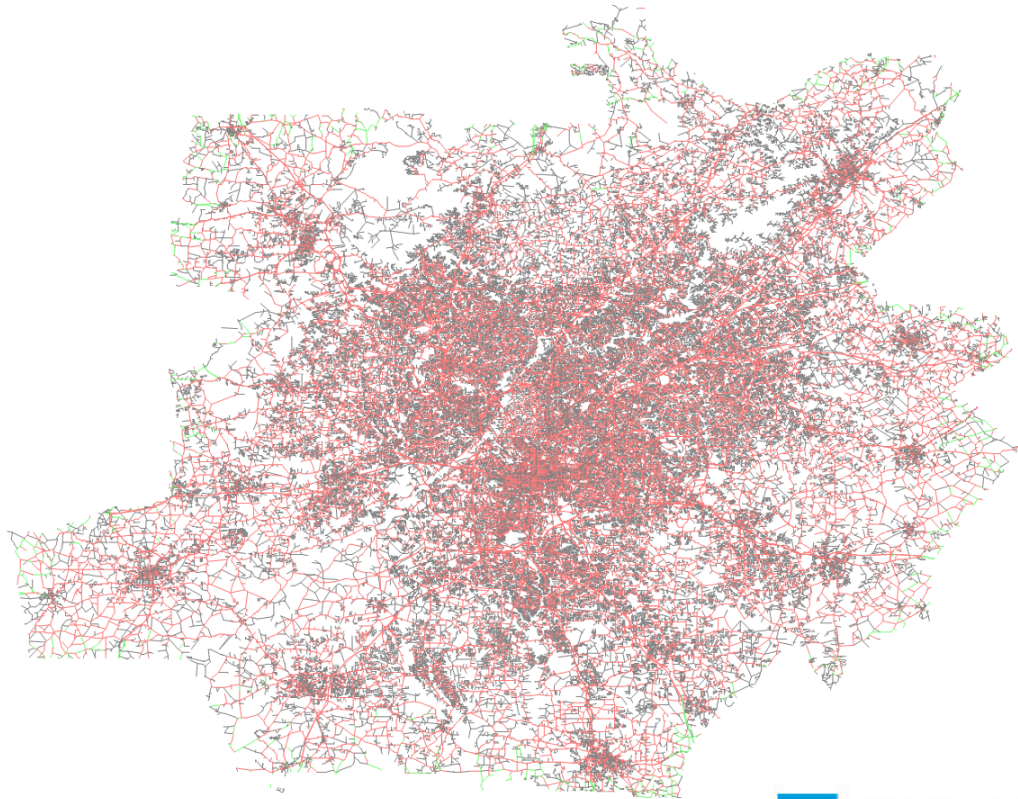
SURVEYS CITED FOR EXAMPLE ONLY

PROBE DATA

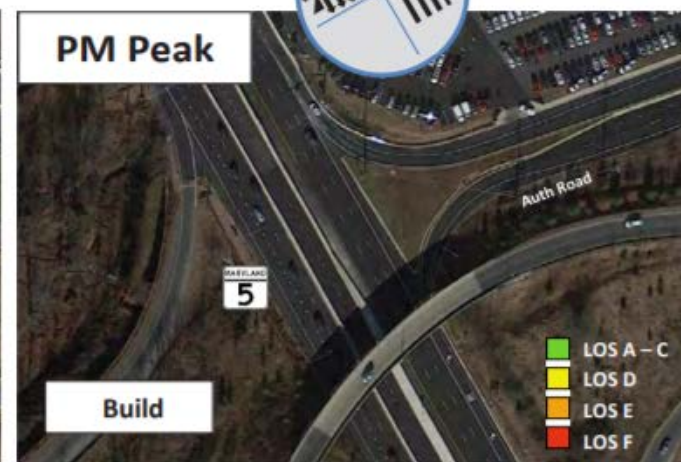
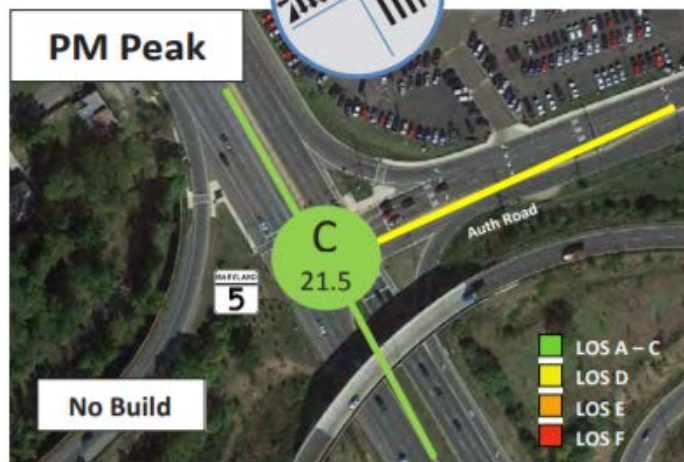
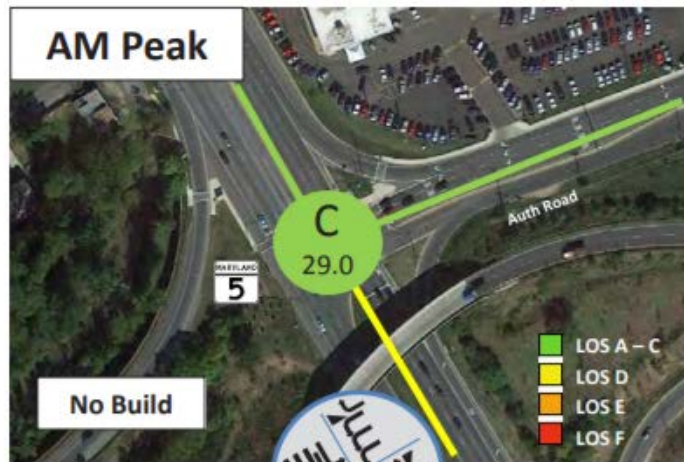


REGIONAL DEMAND MODELS

Automated Vehicles Share: 10%



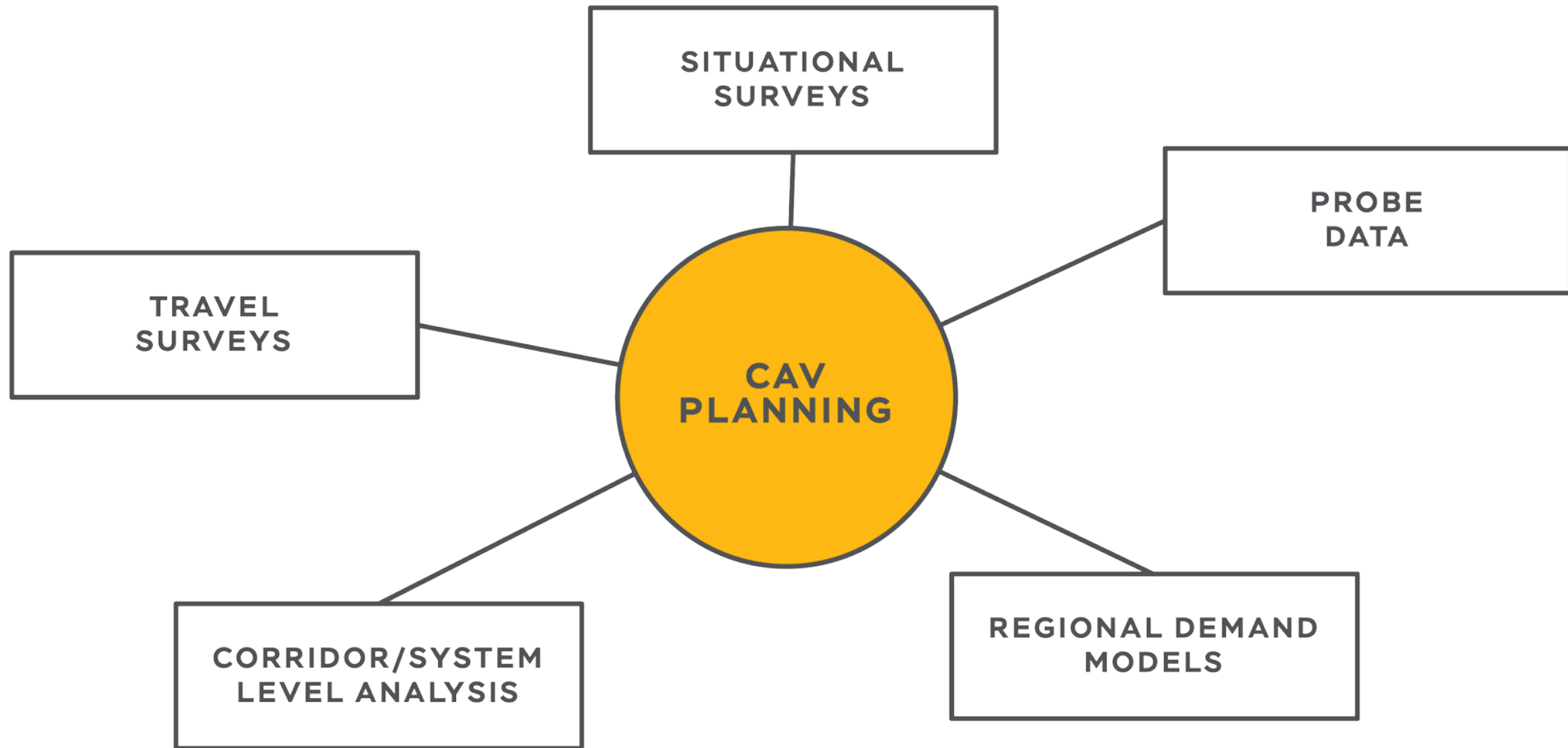
CORRIDOR OR SYSTEM LEVEL ANALYSIS



Intersection at MD 5 and Auth Road



HOW IT ALL COMES TOGETHER



→ SUMMARY OF RECOMMENDATIONS

- Develop partnerships or create surveys for your specific regions
- Ideally – collaborate those surveys with your neighboring jurisdictions
- Ensure you have a strong handle on data analytics, or you won't know what to do with CV data when it comes in at 1Gb per vehicle per hour (!)
- Understand the capabilities and limitations of your modeling software
- Use measures that make sense to meet what you define as success



OUTLOOK

*The best way to predict your future
is to create it.*

– Abraham Lincoln

LESSONS LEARNED...SO FAR



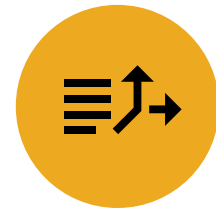
You need to be a **champion**; do not let this opportunity go by.



Use **measurable goals** and track progress **regularly**.



Outreach is key. Collaborate with stakeholders from as **many disciplines** as possible.



The technology landscape is **always evolving**- maintain flexible policies & living documents.

→ WHAT IS STILL NEEDED

- There is no publicly available travel survey data for Maryland only drivers that reflects travel behaviors given an automated, connected, shared, and electrified vehicle ecosystem
- More involvement from local jurisdictions & public input to ensure vision of the future is being developed to fit the needs
- Clear strategies for local jurisdictions to include in their long-range plans
- Modeling scenario runs to better represent impacts that lead to better data driven decision making
- CV data exchange platform for the consistent and normalized exchange of data across jurisdictions and vendors



COMING OUT SOON

- MDOT CAV Strategic Plan Implementation
- More MDOT TBU efforts
- 2021-2025 Maryland Strategic Highway Safety Plan (with CAV initiatives)
- Many new partnerships in the works!

→ SOME RESOURCES FOR CONSIDERATION

- US DOT ([Link](#))
- CAT Coalition ([Link](#))
- Connected Vehicle Pooled Fund Study Findings ([Link](#))
- NACo CAV toolkit – a primer for counties ([Link](#))
- NACTO Blueprint for Autonomous Urbanism (2nd edition)([Link](#))
- APA AV Resources ([Link](#))
- NHI CAV training course ([Link](#))
- ITS America ([Link](#))
- TSAG ([Link](#))

THANK YOU!

CONTACT INFORMATION

CAROLE DELION, P.E. *(today's speaker)*

Chief, Connected & Automated
Transportation Systems (CATS) Division
Maryland DOT State Highway Administration

cdelion@mdot.maryland.gov

KARI SNYDER

Regional Planner for TPB region
Maryland DOT

ksnyder3@mdot.maryland.gov