

CONNECTED AND AUTOMATED VEHICLES:  
REGULATING THE UNKNOWN:  
BALANCING SAFETY AND PROMOTING  
INNOVATION

September 26, 2019

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# Webcast and Audio Information

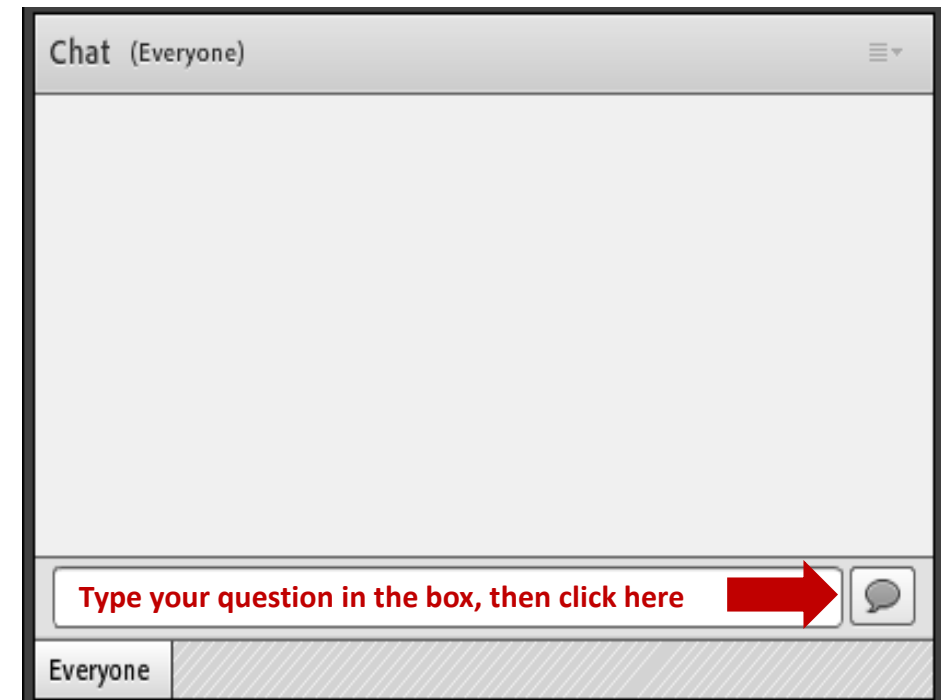
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- Participants will be in “Listen Only” mode throughout the webinar
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- Please call Justin Ferri for difficulties with the web or audio application
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# Asking Questions



- Please pose your questions using the chat box
- Questions will be monitored then answered by the speakers either following the presentation or at the end of the webinar



# Welcome & Introductions

Ginna Reeder, I-95 Corridor Coalition



# Agenda

10:30 am - 10:35 am	Welcome & Introductions	Ginna Reeder I-95 Corridor Coalition
10:35 am - 10:55 am	Regulating the Unknown: Balancing Safety and Promoting Innovation	Gregory Rodriguez Stantec
10:55 am - 11:15 am	Vermont's Automated Vehicle Testing Act	Joe Segale Vermont Agency of Transportation
11:15 am - 11:45 am	Agency updates on Regulatory & Legislative efforts	Connecticut DOT, Massachusetts DPU, Maryland DOT, Virginia DOT
11:45 pm - 12:00 pm	Remaining Questions & Wrap Up	Ginna Reeder I-95 Corridor Coalition



# Participants

Agencies			
Adirondack/Glens Falls Transp. Council	Florida DOT	Maryland Transit Authority	PANYNJ
Baltimore Metropolitan Council	Genessee Transportation Council	Massachusetts DOT	Pennsylvania DOT
CDTC	Georgia DOT	Minnesota DOT	Rhode Island Div of Statewide Planning
Charlotte, North Carolina	I-81 Corridor Coalition	Montgomery County Planning Commission	Rhode Island DOT
City of Norwalk	I-95 Corridor Coalition	MWCOG	SEMTOC
Connecticut DOT	MA DPU	New Jersey DOT	SJTPO
Delaware DOT	Maine DOT	New York State DOT	SMTC
District DOT	Maine Turnpike	NJTPA	South Carolina DOT
Dutchess County Planning	Manatee County	North Carolina DOT	US DOT
DVRPC	Maryland DOT – SHA, MVA	NYMTC	Vermont AOT
FHWA	Maryland Environmental Service	NREL	Virginia DOT
Other Participants			
AECOM	INRIX	Pennoni	VHB
Atkins	Jacobs	Stantec	Volvo Group North America
IBI Group	JMT	Transcom	Wolverton



# Coalition CAV Events

## *Previous:*

- November 2018 Webinar: Agency Roadmap Showcase and CMM for CAV

## *Upcoming:*

- Mid-Atlantic CAV group official kick-off meeting in early November
- New England CAV group peer exchange on October 16, 2019
- Coalition CAV workshop – *coming spring 2020 (date TBD)*



# Speakers



**Greg Rodriguez, Esq**

**Stantec**

*Mobility Policy Principal*



**Joe Segale, PE, PTP**

**Vermont AOT**

*Policy, Planning & Research  
Bureau Director*





# Regulating the Unknown: Balancing Safety and Promoting Innovation

Greg Rodriguez, Stantec





Greg Rodriguez  
Mobility Policy Principal

Regulating the Unknown:  
Balancing Safety and  
Promoting Innovation



## FEDERAL UPDATE

- USDOT
  - AV 4.0 Release
  - ADS Grant Announcements
- New Bill in Congress
  - Safety / Updating FMVSS
  - Equity and Accessibility
  - Local / State Roles
  - Consumer Education
  - Data
  - USDOT Resources

# SYNCING LAWS / STATUTORY AUDITS

Where to start?

- Review and Update vs. Start Over
- Some “simple” issues:
  - Definition of “driver”
  - Definition of “tailgating”
  - “Design immunity” protections
  - Public records exemptions
- More complicated:
  - “Dynamic Driving Task?”
  - Insurance
  - Use Fees
  - Consumer Rights / Data Ownership



**Key Word: “PERFORMANCE”**

# “THINGS ARE ONLY IMPOSSIBLE UNTIL THEY’RE NOT”

## **Safe Integration** – What is safe enough?

- Updating FMVSS

- Mitigating risks **collaboratively**

- Role of cities and states

- Law enforcement

## **Use of Public Infrastructure**

- Managing Use of Right-of-Way

- Connection to wireless deployment

## **Interoperability**

## **Revenue and Use Fees**

- Paying for infrastructure

- Congestion / Curb Management Fees

## **Terms of Use** (i.e. mandatory arbitration)

- MaaS Partnerships

- Public Trust and Transparency

## **Equity and Access**

- “**Public Transportation**” and use of federal funding

- Urban and Rural Connections / “Mega-Regions”





# CAPTURING VALUE



# NATIONAL ISSUES TO BE TRACKING



- States / Cities
- Data Sharing
- Freight / Corridors
- Testing Partnerships
- Alternative Fees
- Affordable Housing

# THOUGHTS FOR MOVING FORWARD

## **Develop a mobility vision**

- Be realistic, but also future focused – “futureproofing”
- Start the conversation – how to keep balanced?

## **Have a technology integration plan**

- Complete an audit of applicable codes
  - What are policy issues?
  - What are legal issues?
- Identify barriers and potential speedbumps – think about broader vision (see above)

## **Understand what resources are needed**

- New era with many untested legal and policy issues
  - Ex. Data and Privacy
- Opportunity to look within as public agencies

## **Track and stay involved**

- Engagement and information sharing – Corridors
- Be aware: **No one size fits all approach**



# LET'S KEEP TALKING

GREG RODRIGUEZ  
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# Vermont's Automated Vehicle Testing Act

Joe Segale, Vermont Agency of Transportation



# VERMONT'S AUTOMATED VEHICLE TESTING ACT

**Connected and Automated Vehicles:**

**Regulating the Unknown: Balancing Safety and Promoting Innovation.**

I-95 Corridor Coalition Webinar

September 26, 2019

Joe Segale, P.E./PTP.

Policy, Planning & Research Bureau Director



# PRESENTATION



- VT Context & Background
- Overview of Automated Vehicle Testing Act
- Next Steps and Lessons Learned – So Far

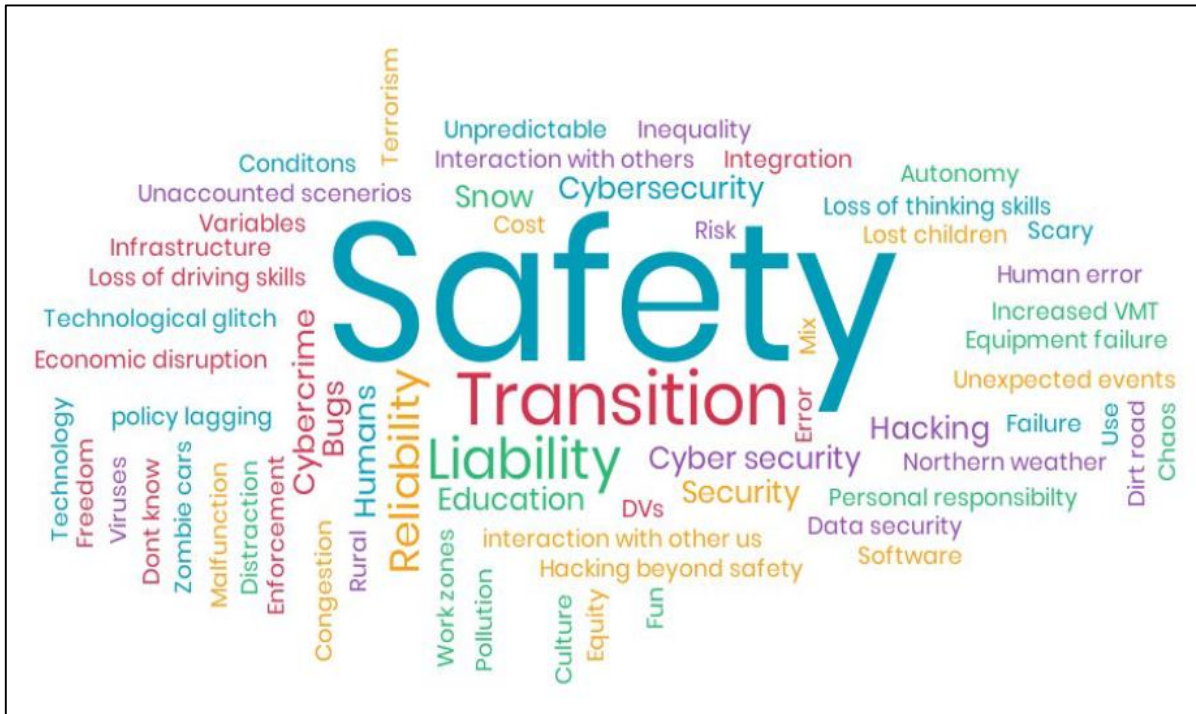


# VERMONT CONTEXT

- 14,171 Total Miles
  - 3,103 State Managed by VTrans
  - 11,068 Town Highways
- ~ 250 Municipalities
- ~ 8,000 Miles Gravel Surface
- Serves motor vehicles, bicyclists, pedestrians and transit users



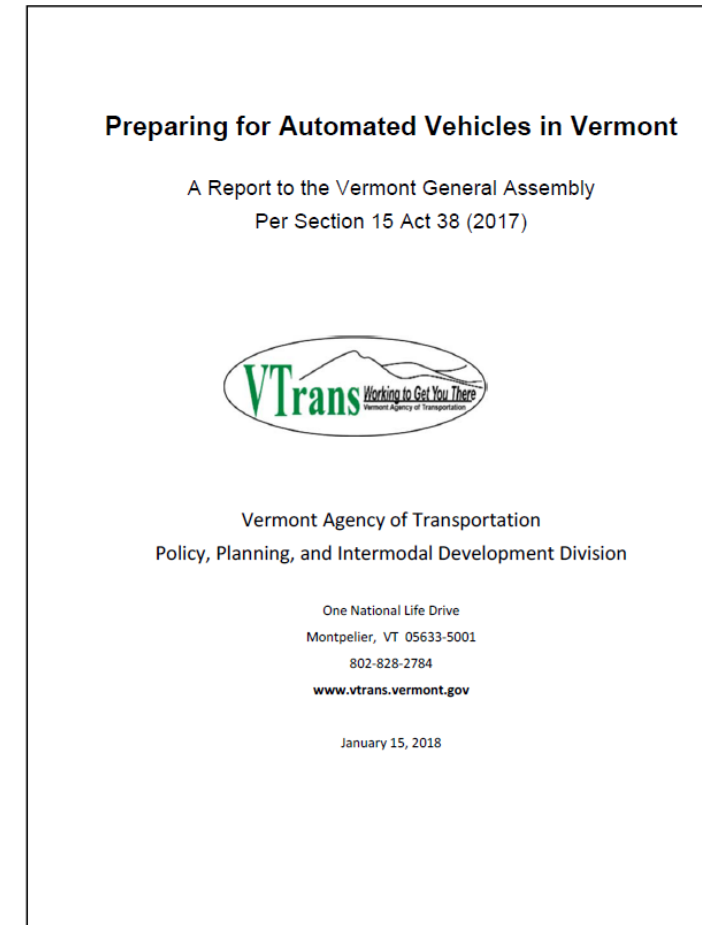
# VT STAKEHOLDER FEEDBACK



- Managing safety through the transition
- Most agree VT should require a permit for testing AVs on public roads
- AVs will be important to VT's economy
- VT should actively prepare for AVs

# LEGISLATIVE REPORT: PREPARING FOR AUTOMATED VEHICLES IN VT

- Recommends Developing Legislation in 2019 to:
  - Allow and regulate testing of AVs in VT
  - Explicitly Allow and Regulate Deployment of AVs in VT
- Continue to monitor evolution of technology and longer-term implications



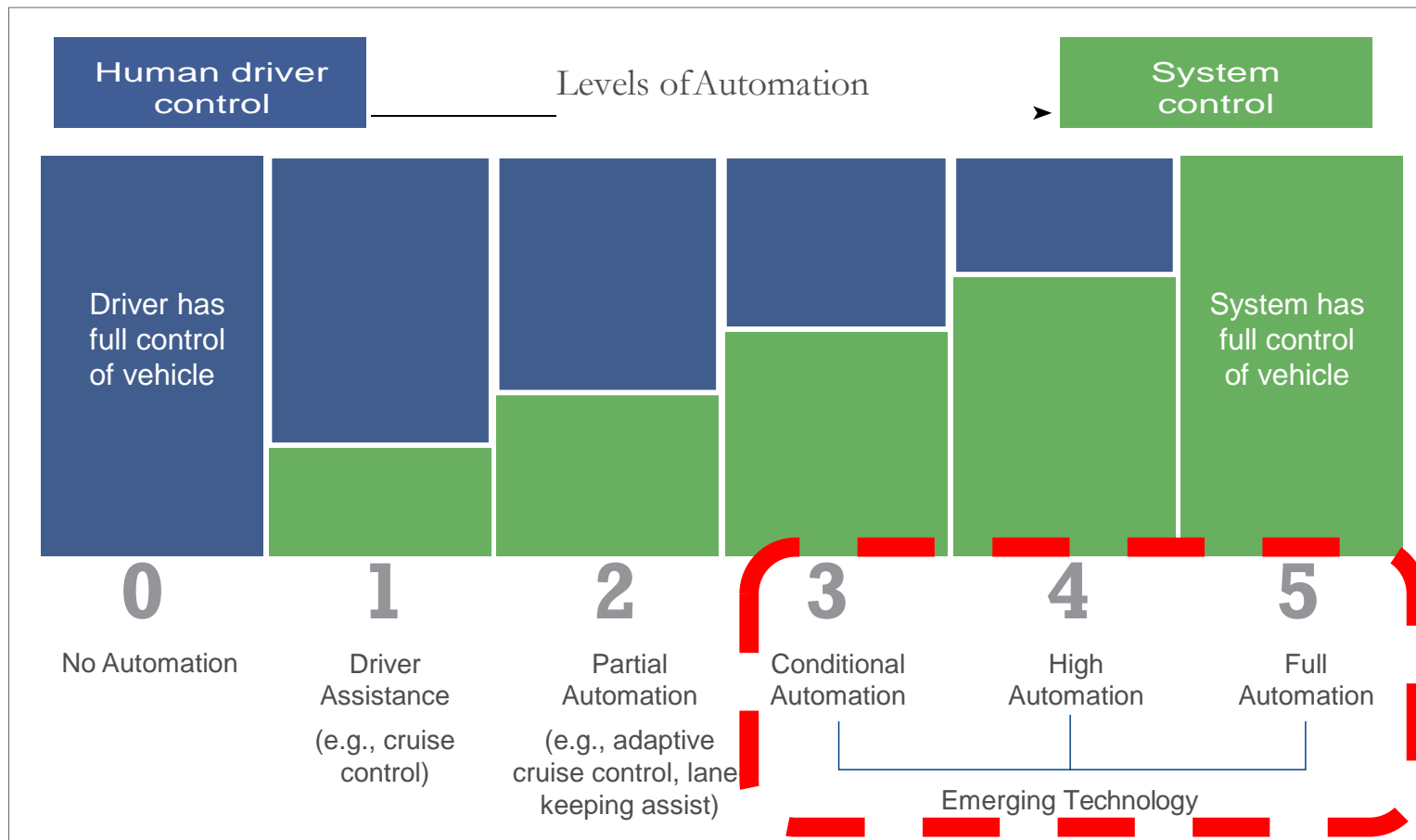
# INTERNAL BILL DRAFTING WORKING GROUP

Joe Segale	VTrans	Policy, Planning and Research Bureau Director
Colonel Jake Elovirta	DMV	Enforcement and Safety Director
Tom McCormick, Esq	DMV	Senior Assistant Attorney General
Mike Smith	DMV	Operations Director
Lieutenant John Flannigan	VT State Police	Commander, Safety Programs
Sergeant Owen D. Ballinger	VT State Police	Crash Reconstruction Team Leader





# AUTOMATED VEHICLE TESTING ACT



**AV TEST PERMIT REQUIRED  
FOR VEHICLES WITH  
LEVEL 3-5  
AUTOMATED DRIVING  
SYSTEMS**

SOURCE: Liberty Mutual "Automated Vehicles: Changing Role of the Driver"

# UTILIZES GENERALIZED DEFINITION OF ADS

23 V.S.A. § 4202 (1): “**Automated driving system**” means the hardware and software that are collectively capable of performing the **entire dynamic driving task** on a **sustained basis** within its **operational design domain**, if any, including achieving a **minimal risk condition**, without any intervention or supervision by a conventional human driver, **where applicable**.

# ACT 60 AV TESTING APPROVAL PROCESS

TRAFFIC COMMITTEE HAS SOLE AUTHORITY TO APPROVE, MODIFY OR REVOKE AV TESTING PERMITS

## State Roles and Responsibilities

- State can approve testing on all state highways and Class 1 Town Highways
- VTrans must develop testing application guide by January 2021
- **In consultation with RPCs**, VTrans must identify municipalities that have “pre-approved” testing
- VTrans must maintain list of municipalities that have pre-approved testing in testing application guide

## Municipal Roles and Responsibilities

- Municipal approval required if testing involves Class 2, 3 and 4 Town Highways
- Municipalities will be asked to pre-approve testing
- Municipalities can withdraw approval at any time
- Municipal approval of specific testing permits not required
- Municipalities can not approve testing on Town Highways without Traffic Committee approval

- Any state or local law enforcement officer may stop a specific AV test vehicle due to permit condition violation or if there are safety concerns

# ACT 60 AV TESTER REQUIREMENTS

- Human operator required in driver seat and must be able to take physical control of the test vehicle
  - Operator must be at least 21 years old
  - Operator must pass a background check
  - Blood alcohol content less 0.02
- \$5 Million Liability Insurance
- Vehicle must be able to comply with all state and local traffic laws
- AV Testing Vehicle must be clearly identifiable



## NEXT STEPS

- **Recruit AV Testing Municipalities**

- Develop Municipal Approval Form Template
- Meet with RPC TACs/Commissions to Spread Word
- Follow-up with Interested Municipalities

- **Develop AV Testing Guidance and Permit Application**

- **Publish AV Testing Guidance and Permit Application by January 2021 with list of pre-approved testing municipalities**

- **In partnership with interested stakeholders, explore AOT Lead AV Pilot**



# LESSONS LEARNED



INVOLVE INDUSTRY EARLY



STEEP LEARNING CURVE FOR  
LEGISLATORS



INCORPORATING MUNICIPAL  
APPROVAL IS ESSENTIAL BUT  
CHALLENGING

# QUESTIONS?

Joe Segale, PE, PTP

Vermont AOT

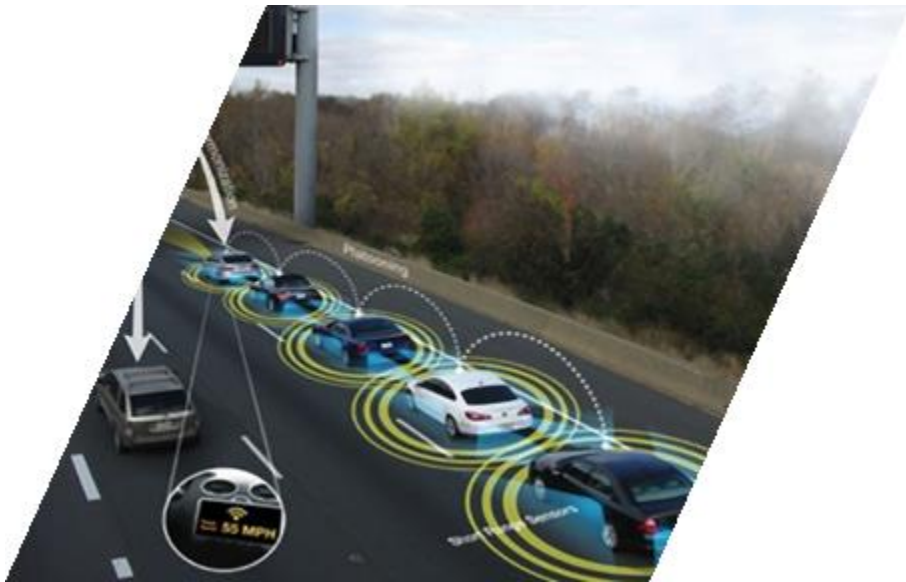
*Policy, Planning & Research Bureau Director*

[joe.segale@vermont.gov](mailto:joe.segale@vermont.gov)



# Agency Roundtable discussion on CAV Regulations – *What is your agency doing?*

Participating Agency Members  
Facilitated by Ginna Reeder



- What have you done so far?
- What is your greatest obstacle?
- Lessons learned for the other agencies
- What are your next steps?





# Participating Agencies

Agency	Speaker
Connecticut DOT	Peter Calcaterra
Massachusetts DPU	Katherine Lubitz / Ryan Hawkins
Maryland DOT	Christine Nizer / Nanette Schieke
Virginia DOT	Amanda Hamm



# Connecticut Update



**Peter Calcaterra**

Connecticut Department of Transportation (CTDOT)

Office of Strategic Planning and Projects

[Peter.Calcaterra@ct.gov](mailto:Peter.Calcaterra@ct.gov)

860-594-2166

# Potential CAV Benefits



**Improved Safety**



**Enhanced Mobility & Accessibility**



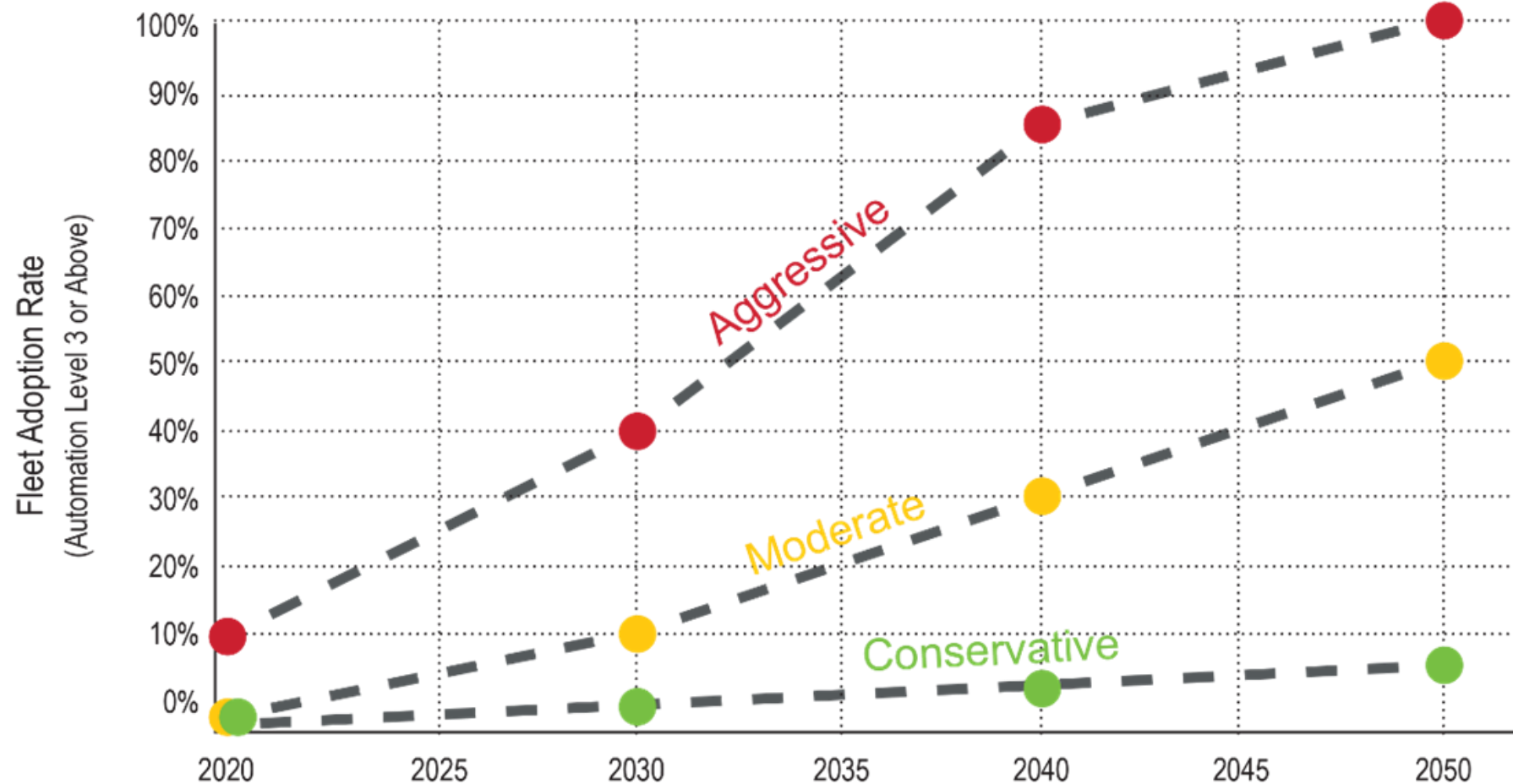
**Reduced Emissions**



**Greater Efficiencies for Transportation Services**

# Greatest CAV Challenges

## Planning for Uncertain Future



The fleet adoption rates are informed by industry-leading research as aggregated by HDR. Research was conducted by Goldman Sachs, Kockelman, Litman, Milakis, SAFE and Tromer.

# CT CAV Activities

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**Passed State AV Law**



**Hosted Northeast CAV Summits**



**Participate in CAV Working Groups, Pooled Funds & Consortia**

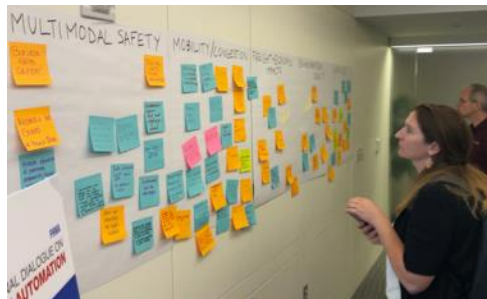
# CT CAV Activities



**Applying for Grants to Fund AV Pilot Projects**



**Designing CV V2I Project Near CTDOT Headquarters**



**Drafting CTDOT CAV Plan**

# Next Steps & Lessons Learned

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## **Next Steps:**

- Finish CTDOT CAV Plan
- Work with CT AV Task Force to Update CT AV Law

## **Lessons Learned for Other Agencies**

- Start somewhere
- Stay involved
- Build partnerships



# Proposed Legislation: TNC Data in Massachusetts

**Katherine Lubitz**

Director

Transportation Network Company Division

Department of Public Utilities

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**Ryan Hawkins**

Assistant General Counsel

Transportation Network Company Division

Department of Public Utilities

[Ryan.m.hawkins@mass.gov](mailto:Ryan.m.hawkins@mass.gov)








# Current Statutory and Regulatory Requirements on Data

## **Session Law**

St. 2016, ch. 187 § 8(b): Annually, TNCs are required to submit to the Division, the number of rides from the previous calendar year that originated within each city or town and a per-ride assessment of \$0.20. On or before June 30, the Division Director is required to post number of rides from the previous calendar year originating within each city or town, aggregated across all TNCs.

## **Regulations**


220 CMR 274.12(2)(a): Annually, TNCs are also required to report to the Division the following: the number of Rides from the previous calendar year, including: (1) City or town where each Ride originated; (2) City or town where each Ride ended; (3) Aggregated and anonymized trip route and length (miles and minutes); and (4) Location of Vehicle accidents.



# Proposed Legislation TNC Data Filed July 10, 2019

- Would enable the Division to obtain much more granular information on rides and driver behavior including but not limited to:
  - For non-shared rides and shared rides: latitude and longitude of start and end points; cost paid by the rider; driver's city/town of residence; whether the ride accommodated a person with special needs; whether the ride was provided by a WAV; total miles and time spent driven en route to pick up; total time and miles driven while actually providing the ride; total number of riders in the vehicle.
  - More detailed information on accidents or crashes involving TNC Drivers, including the exact location, time of day and UUID of driver.
  - Detailed information for the purposes of congestion management: number of drivers using the network in certain areas, during certain times of day; dwell time behavior in certain areas during certain times of day.
  - LINK:  
<https://www.mass.gov/files/documents/2019/07/10/An%20Act%20Relative%20To%20Public%20Safety%20And%20Transparency%20By%20Transportation%20Network%20Companies.pdf>





## Greatest Obstacle and Lessons Learned

### **Greatest obstacle:**

Technology companies guard data closely and for good reason. Most will not provide data unless required to by law. It is important to recognize the importance of obtaining the data in order to make good policy decisions, but it is equally important to build in safeguards for the data, acknowledging its sensitivity from a competitive standpoint and from a consumer privacy standpoint.

### **Lessons Learned:**

In coming up with legal and regulatory framework around data in this sector, be sure to include all of the stakeholders, in the critical areas: public safety, environmental affairs; transportation and major transportation hubs, like airports. Their input is critical.

# I-95 CORRIDOR COALITION CAV TASK FORCE **MARYLAND UPDATE**

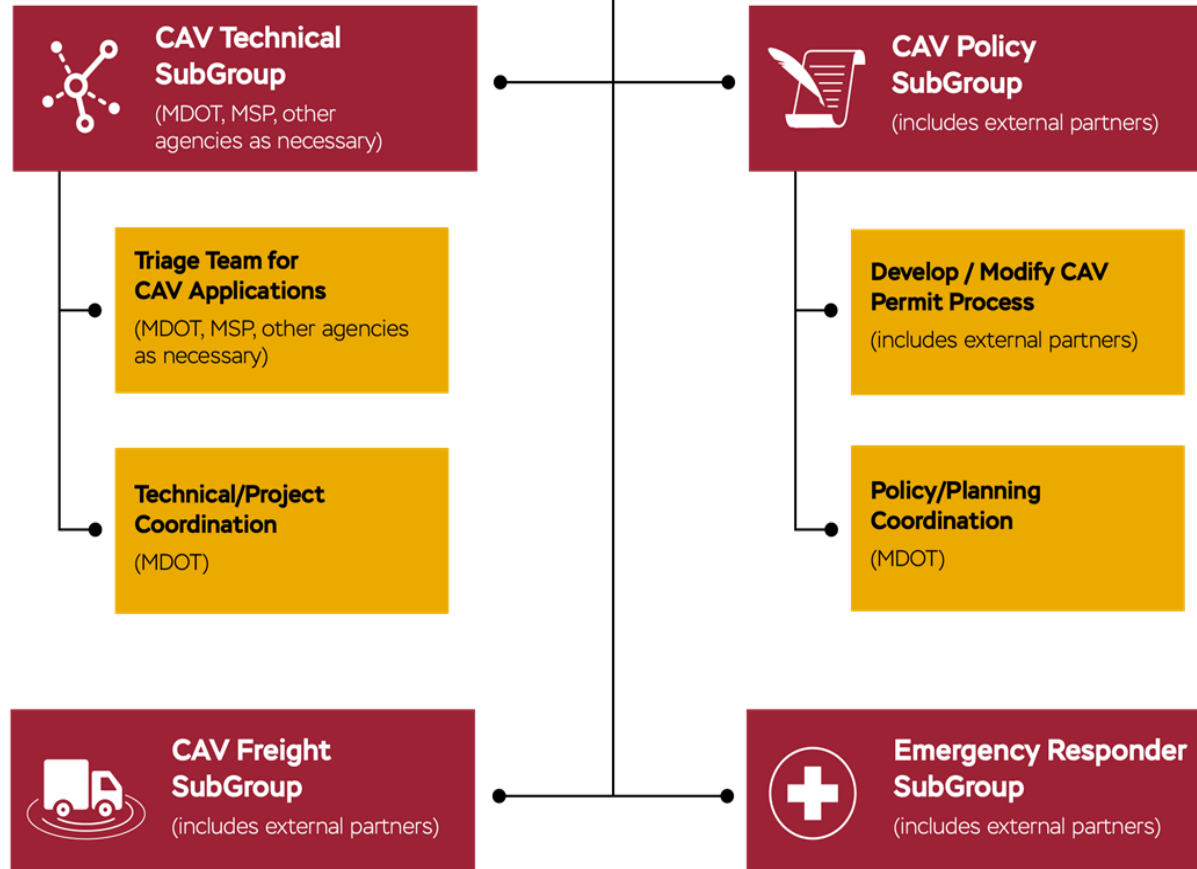
SEPTEMBER 26, 2019

Christine Nizer, MDOT MVA Administrator  
and Co-Chair, Maryland CAV Working Group



## Connected and Automated Vehicles (CAV) Working Group

Created by Maryland Department of Transportation Secretary Pete Rahn  
in December 2015



**Maryland CAV Vision:** 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.

# MARYLAND'S RECENT MILESTONES

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- MDOT MTA awarded first-ever CAV pilot under the TRB IDEA Transit program;
- MDOT SHA advancing SPaT challenge along US 1
- MDTA continuing DSRC pilot testing - OBUs & RSUs
- Fostering workforce education internal to MDOT
- Initiated Mid-Atlantic I-95 CC CAV coordination
- Managing 21 EOIs for collaborative CAV efforts
- Currently 3 companies issued permits for HAV demonstration testing on public roadways

# TECHNICAL / PROJECT SHARING

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- Outreach to local governments via meetings, MPOs and engineering associations
- Collaborative CV Knowledge Sharing – MDOT & Local Govts; Sharing lessons learned on:
  - Smart City and project descriptions
  - Data management and data streams
  - Ease of availability, conveyance of safety and traffic info
  - Infrastructure readiness and interoperability
  - Administrative management decisions / processes



# **MDOT** MARYLAND DEPARTMENT OF TRANSPORTATION

## **MOTOR VEHICLE ADMINISTRATION**

### ***Christine Nizer, MDOT MVA Administrator***

*Maryland Department of Transportation*

*Motor Vehicle Administration*

*cnizer@mdot.Maryland.gov*

*410-787-7830*





# AGENCY ROUNDTABLE: VIRGINIA UPDATE

AMANDA HAMM

CONNECTED AND AUTOMATED VEHICLE PROGRAM MANAGER

OFFICE OF STRATEGIC INNOVATION

VIRGINIA DEPARTMENT OF TRANSPORTATION

# CURRENT REGULATORY STATUS

- Virginia has not passed legislation specifically addressing automated vehicles
- Current traffic laws apply
- Owner/operators are responsible for determining whether or not the vehicle's operation is in compliance with Virginia's laws
- Received multiple research requests concerning regulation from other DOTs and universities
- Reviewing national regulatory trends, i.e. the Uniform Law Commission's Model Legislation

# OBSTACLES AND LESSONS LEARNED:

- Lack of legislation has allowed for flexibility, but requires agencies to be very adaptable
- Good communication between government entities, research institutions, and industry is essential for testing and deployment

## NEXT STEPS:

- Continued development of Virginia's connected corridors
- Developing a CAV Strategic Plan
- Preparing for and managing CAV data
- Utilizing CAVs to improve safety and mobility
- Supporting regional pilots (trucking and transit)
- Increasing public awareness and dialogue



# THANK YOU!

## Amanda Hamm

Connected and Automated Vehicle  
Program Manager

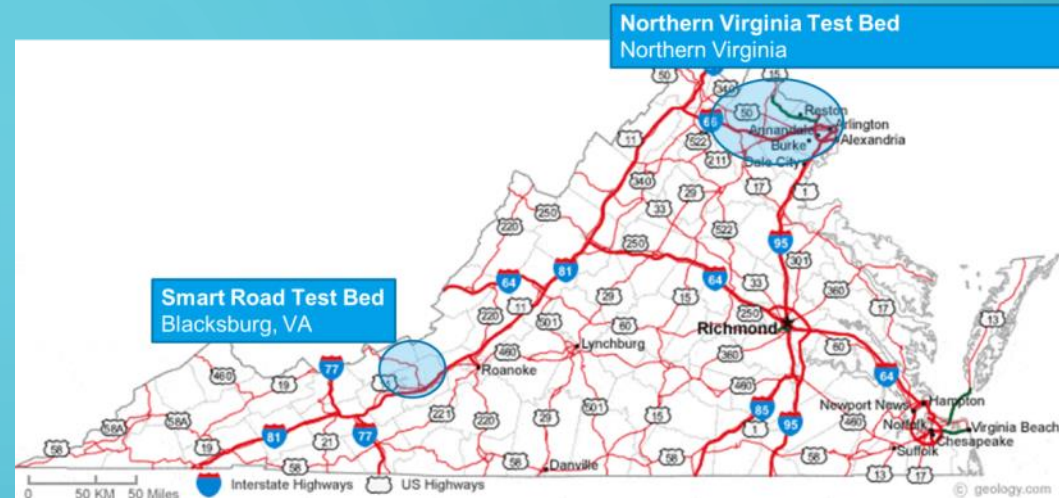
Office of Strategic Innovation

Virginia Department of Transportation

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# Agency Roundtable Questions



# Polling Question #1

- How could the Coalition best help support your state with regulatory and legislative issues? (please pick all that apply)
  - Webinars on specific regulatory topics
  - Conduct multi-state regulatory assessment
  - Facilitate peer-exchange through hosting events
  - Other
- If you answered other, please provide details in the chat box



# Polling Question #2

- The Coalition is planning an in-person workshop in Spring of 2020. What topics would be most valuable to you at this regional event? (Please check all that apply)
  - Data Sharing and Requirements
  - Freight and CAV
  - Testing Partnerships
  - Alternative Fees
  - Equity Considerations
  - Infrastructure
  - Other
- If you answered other, please provide details in the chat box



# Remaining Questions & Wrap Up

Ginna Reeder, I-95 Corridor Coalition



# In Closing....



## Thank you for joining today

For Additional Information, please contact:

**Ginna Reeder**

Innovations in Transportation Program Associate

I-95 Corridor Coalition

617-529-9072

[vreeder@i95coalition.org](mailto:vreeder@i95coalition.org)

# Speaker Contact Information

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- Greg Rodriguez, Stantec  
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- Joe Segale, Vermont Agency of Transportation  
[joe.segale@vermont.gov](mailto:joe.segale@vermont.gov)

