VIRGINIA DEPARTMENT OF TRANSPORTATION: CAV PROGRAM AND ACTIVITIES

Amanda Hamm, VDOT CAV Program Manager

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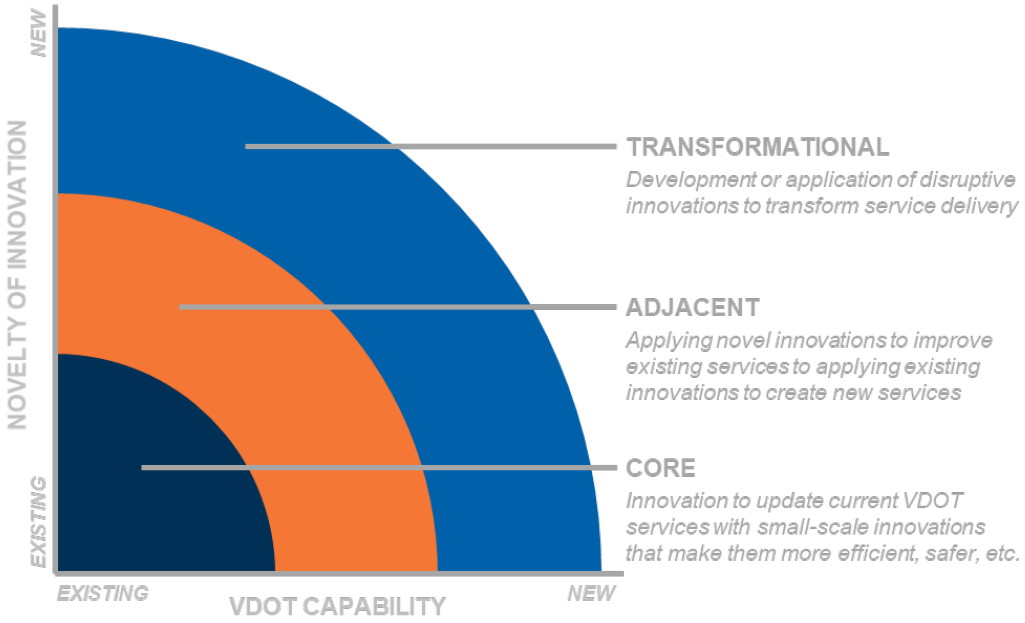
VDOT has developed a framework for innovation that is championed by the Office of Strategic Innovation

Office of Strategic Innovation Mission

- Champion the use of innovative approaches and tools and promote the culture of innovation in
- Promote the culture of innovation in VDOT in its mission to plan, deliver, operate, and maintain the transportation system efficiently



*VDOT's CAV Program sits within VDOT's Office of Strategic Innovation and is considered **transformational** innovation.*

The VDOT CAV Program's central focus is to begin preparing Virginia's roads for CAVs via four key workstreams:

Institutionalize Statewide CAV Strategy

- Partner with transportation agencies
- Collaborate with state agencies to draft & publish *2020 Virginia CAV Strategic Plan*

Lead and participate in Virginia-based CAV pilot programs

- Support C-V2X deployment (Audi/Qualcomm pilot)
- Support Fairfax County Automated Shuttle pilot
- Facilitate completion of VTTI two-way communications pilot, ATMA, ADS Truck Conops Grant
- Maintain & further operations of the Virginia Connected Corridor (North Virginia Test Bed & Smart Road Test Bed)
- Coordinate information concerning Daimler testing
- Support FHWA research and testing, i.e. CARMA and latency

Create an updated multi-year program plan for VDOT

- Draft & publish *2020 VDOT CAV Program Plan*
- Develop interactive CAV resource map
- Develop CAV ecosystem scenarios in partnership with colleges & universities

Build partnerships with private & public organizations at regional & national level

- Explore public-private partnership business model opportunities
- Lead the Connected Vehicle Pooled Fund Study
- Participate in ASHTO's CAV Community of Practice
- Participate in MWCOG CAV Forum Planning Committee
- Participate in I-95 Corridor Coalition CAV Working Group

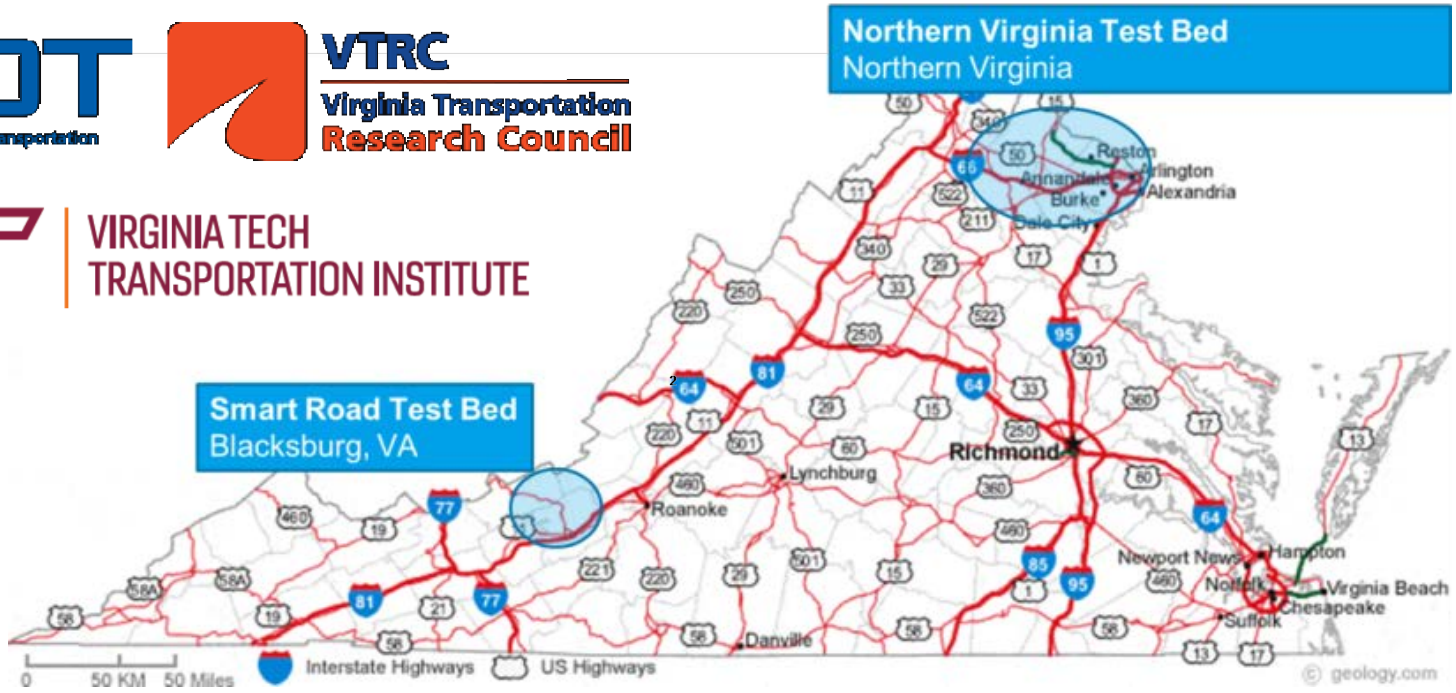
Virginia Connected Corridors Partnership

To facilitate Virginia's understanding of CV technology deployments, VDOT partnered with the Virginia Tech Transportation Institute to create the Virginia Connected Corridors.

VDOT Virginia Department of Transportation

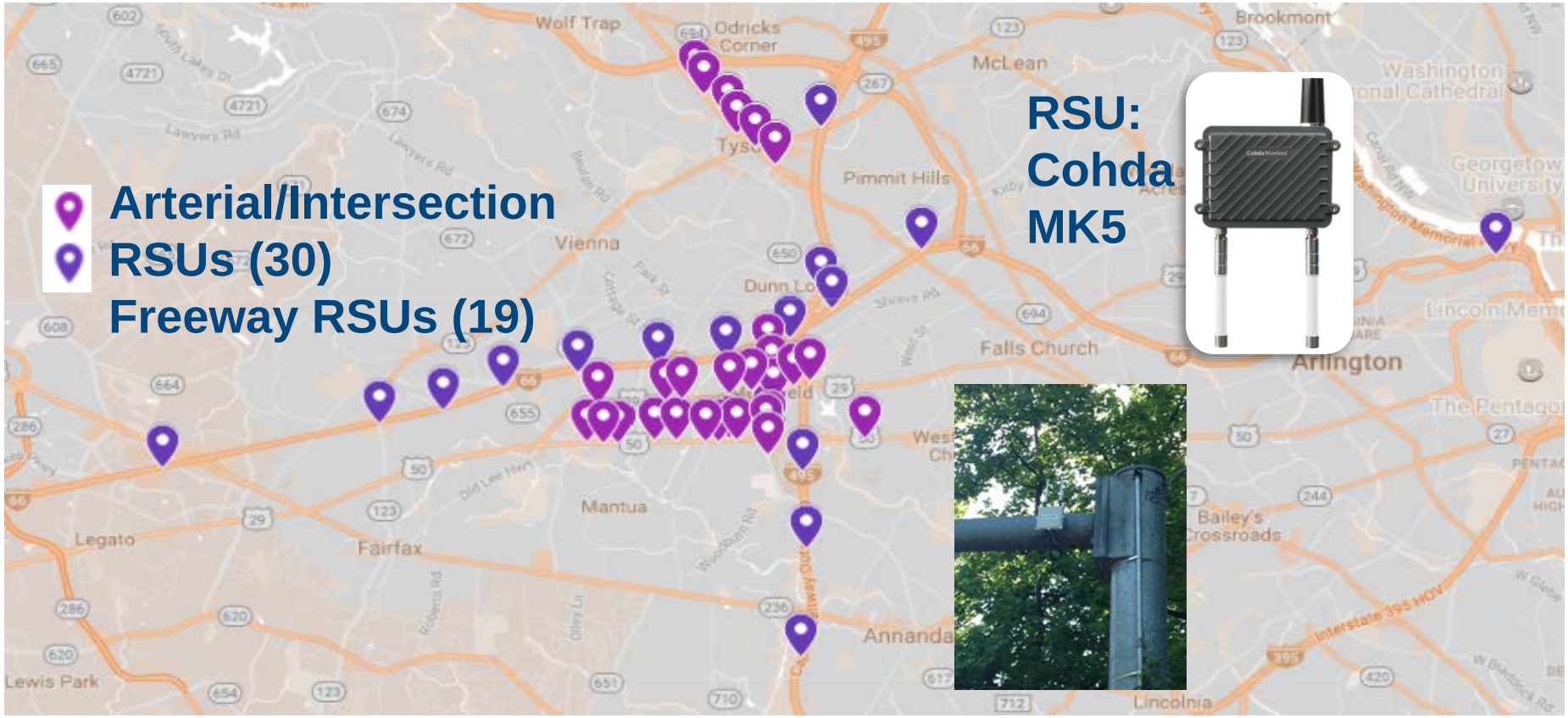
VTRC Virginia Transportation Research Council

VIRGINIA TECH TRANSPORTATION INSTITUTE



Virginia Connected Corridors Partnership: Smart Roads at Virginia Tech Transportation Institute

Virginia Connected Corridors Partnership: Northern Virginia Test Bed



Virginia Connected Corridors Partnership: Connected Ecosystem

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Virginia Tech Transportation Institute

Virginia CAV Activities: CV and CAV Pilots

CV2X Pilot

- VTTI is working with Audi and Qualcomm to test two use cases:
  - Work zone
  - Traffic Light Information (TLI)
- Demo likely to occur August/September 2020

Fairfax County Automated Shuttle

- EasyMile's EZ10 Generation 3 autonomous electric shuttle will transport up to 12 passengers along a fixed route between the Dunn Loring Metrorail Station (first stop) and Mosaic District in Merrifield (second stop)
- Operate at speeds less than 15 mph with a safety monitor on board
- Expected to be deployed for 12 months; pending COVID-19 status
- Will cross two signaled intersections during its route and is expected to use transit signal priority (TSP) and dedicated short-range communications (DSRC) to communicate with intersection signals

Virginia CAV Activities – USDOT ADS Grants

VTTI's ADS Trucking Fleet Concept of Operations (CONOPS) for Managing Mixed Fleets

- Will develop and demonstrate a CONOPS that documents and describes ADS characteristics from the viewpoint of truck fleets
- Will provide the trucking industry with clear information on how to safely implement and benefit from ADS-equipped trucks
- Will exhibit an autonomous truck (L4/L5) safely traveling the United States, coast-to-coast, and is the first demo of its kind

The starting point and route are currently being determined, and the destination will be Front Royal, VA

VTTI's Safely Operating ADS in Challenging Dynamic Scenarios - An Optimized Automated Driving Corridor Demonstration

- Will demonstrate how SAE L4 ADS-equipped vehicles can interact safely in challenging dynamic scenarios (e.g., encounters with public safety providers, public services)
- Will define solutions to key interactions between ADS-equipped vehicles and public services, build reference L4 ADS-equipped vehicles with the necessary technological solutions,
- Will demonstrate the ADS-equipped vehicles safely operating in dynamic scenarios on the I-95 Express Lanes and arterial roadways near Washington, D.C

Potential Routes: West Coast to East Coast

Virginia CAV Activities: Vehicle Testing

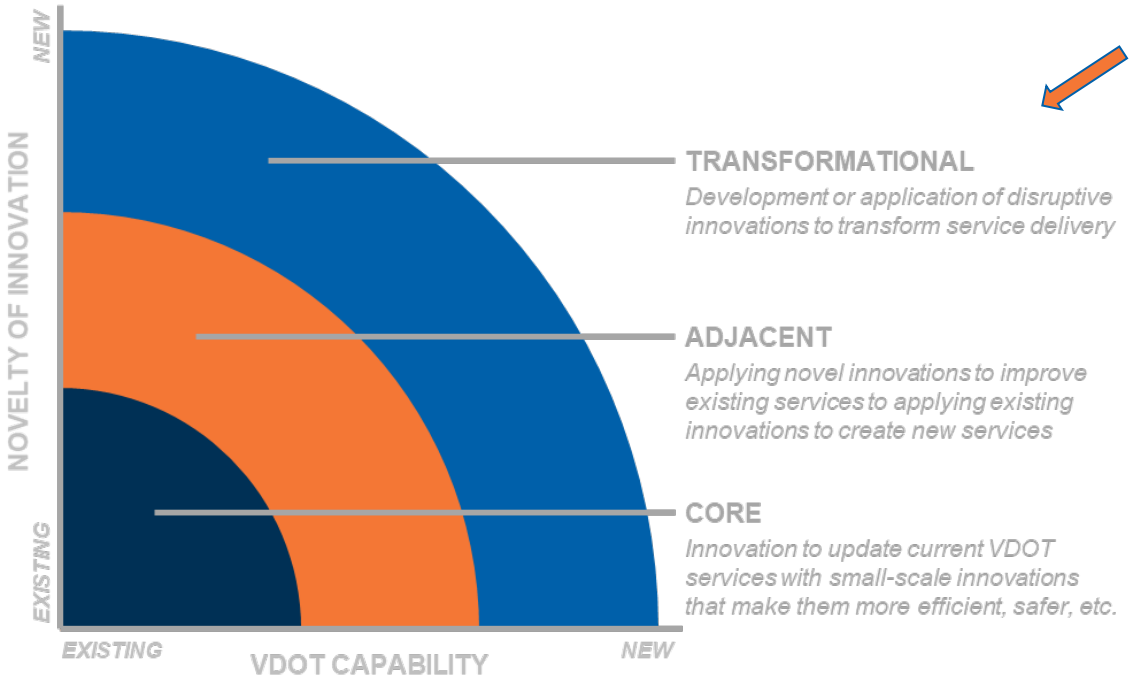
Daimler

- **Plan to resume testing automated trucks on I-81, pending COVID-19 status**
- **Safety drivers present in vehicles at all times; drivers are certified by Daimler and Torc**
- **Safety conductor present at all times in the passenger seat during the operation of these test trucks; conductor oversees the overall testing activities for the vehicle**

CARMA

- **FHWA's CARMA platform (which focuses on testing automated vehicle features and cooperative automated vehicle features) effort is based out of McLean, VA where they test their research vehicles and applications**
- **VDOT, Transurban and FHWA have had a MOU in place for a number of years to allow FHWA to test on Transurban's lanes**
- **FHWA has stated that they intend to test on Transurban's roads and public roads in VA sometime in the fall.**

Outlook – A Need for Collaboration



Fully connected and automated vehicles

Thanks for listening!

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