



# **Connected and Automated Vehicle Program Plan**

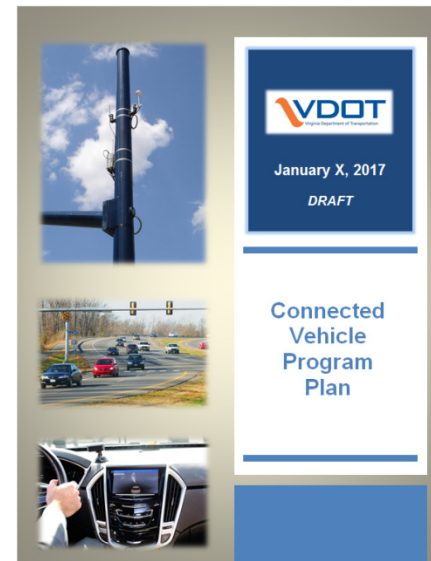
**January 10, 2018**

**Robert Cary, PE, LS**

**Chief of Innovation**

# Overview of Connected and Automated Vehicle Program Plan

- **Vision**
- **Goals and Objectives**
- **Engagement in National Initiatives**
- **VDOT's CAV Deployment Work Program**





## Connected and Automated Program Vision

VDOT's vision for CAV's is to **capitalize on the safety and operational benefits** of CAV technologies to meet its goals and objectives.

VDOT also has the vision to position Virginia as **the most attractive state** for industry to deploy, test, operate and evolve CAV products and services.

# Virginia's Strengths in CAV

- No Regulations
- Consistent Highway System
- Focus on State of Good Repair
- Leading Implementation/Proven Innovation Leader
- Extremely Capable and Knowledge-based workforce
- University Expertise
- World-Class Testing Facilities
- Leader in Cybersecurity
- Cloud-Based Data Portal – SmarterROADS.org
- Enhanced Traveler Information
- Dedicated ITTF Funding



**VDOT Live Traffic Information**

**Tysons Corner Metro Bus Bays**

BUS	ROUTE	DESTINATION	BAY	ARRIVING
462	Dunn Loring Metro	E	5:45 PM	6:10 PM
402	Franconia-Springfield Metro	F	5:27 PM	5:42 PM
28A	KING STREET - OLD TOWN STATION	G	11 min	23 min
4400	...	A	5:40 PM	...

**SV Wiehle-Reston East** 11 min • 14 min • 27 min

**Largo Town Center** 8 min

**INNOVATION FUNDING**

**511** Visit [511virginia.org](http://511virginia.org) for more info

By: **redmon group inc** [www.redmon.com](http://www.redmon.com)

# CAV Program Goals

- **Increased Safety by reducing crash potential**
- **Improved Mobility by managing system performance**
- **Reduced roadside Infrastructure Investments**
- **Enhanced Traveler Information about surrounding traffic conditions**

## **VDOT is engaged in National Dialogue**

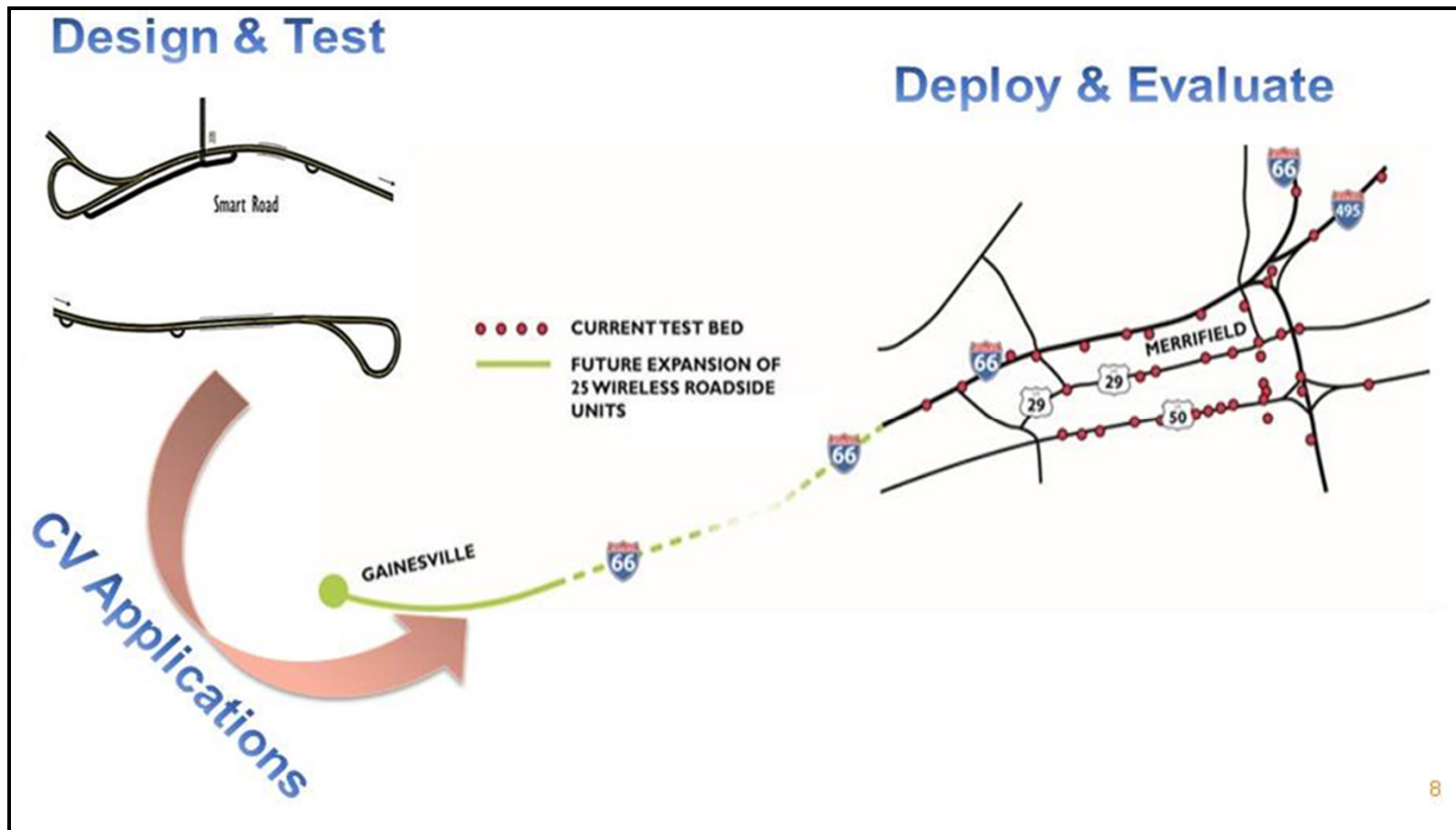
- **USDOT CV Research Program**
- **CV Pooled Fund Study (CV PFS) Chair**
- **NCHRP CAV Research Program**
- **AASHTO Committee on TSO, CAV Working Group**
- **Vehicle to Infrastructure Deployment Coalition (V2I DC)**
- **Interstate 95 Corridor Coalition (I-95 CC)**



## VDOT has developed an open for business and research approach

- **Virginia Connected Corridor (VCC)** partnership with Virginia Tech Transportation Institute (VTTI), UVA, Morgan State to provide an open and live environment for CAV Research, Testing, and Development.
- **Virginia Smart Road** provide ability to test CAV applications under different weather conditions.
- **Virginia Transportation Research Council (VTRC)** coordinates VDOT research with universities, VDOT staff, and business interests.
- **SmarterRoads.org** cloud data portal provides access to VDOT data for 3<sup>rd</sup> party application developers.

# Virginia Connected Corridor encourages application deployment





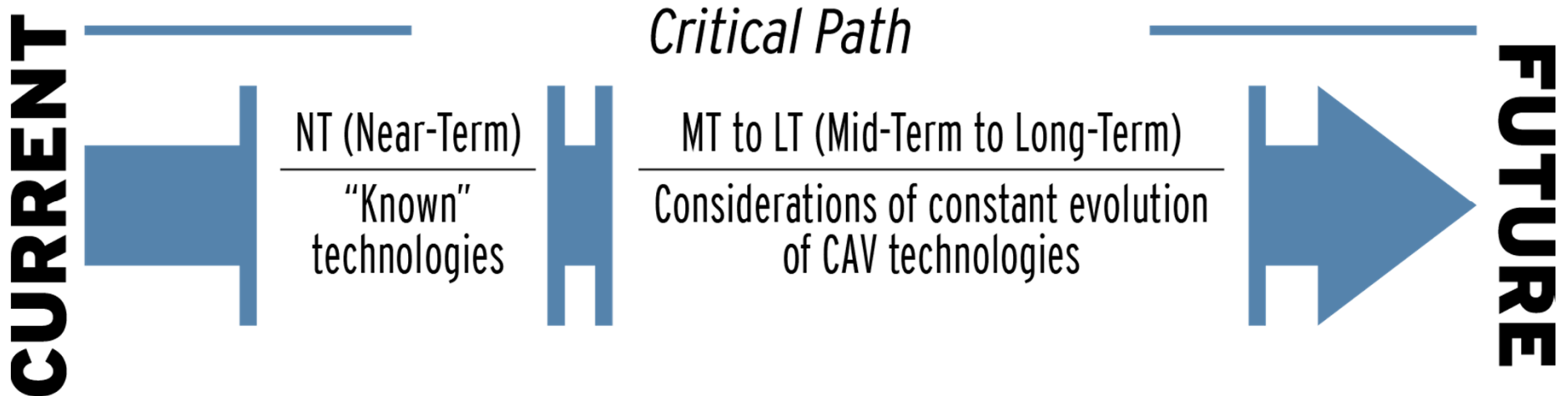
# CV applications prioritized based on need

Transportation Needs	VDOT Performance Measures & Goals	CV Applications (Priority indicated within parenthesis)
<b>Reduce recurring congestion</b> I-66 corridor currently experiences average travel speeds of approximately 40 mph during the peak periods	<b>Delay</b> Vehicle Hours of Delay GOAL: Limit growth to no more than 5% per year	
<b>Increase travel reliability</b> I-66 has a PTI value over 3 during both the morning and evening peak periods	<b>Reliability</b> Planning Time Index GOAL: Reduce PTI by 5% per year	
<b>Reduce non-recurring congestion</b> Incident duration in the Northern Region has averaged 52 minutes over the last year	<b>Duration</b> Incident Duration GOAL: Reduce Incident duration by 5 min in 5 years	
<b>Reduce crashes</b> Facilities within the VCC experienced 2961 crashes (5 fatal and 70 severe injury crashes) in 2014	<b>Safety</b> Number of crashes GOAL: Reduce fatal & injury crashes by 3% per year (from 2010 baseline)	

(1)  Advanced Traveler Information	(2)  Work Zone Alerts for Drivers and Workers	(3)  Incident Scene Alerts for Drivers	(4)  Red Light Violation Warning System	(5)  Queue Warning	(6)  V2V – Forward Collision Warning
(7)  V2V – Emergency Electronic Brake Light	(8)  Parking Availability	(9)  Probe Enabled Traffic Monitoring	(10)  Integrated Traffic Signal System	(11)  Transit Signal Priority	(12)  Emergency Vehicle Preemption

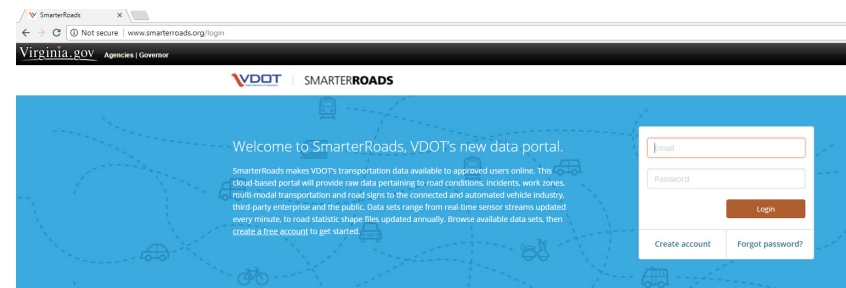
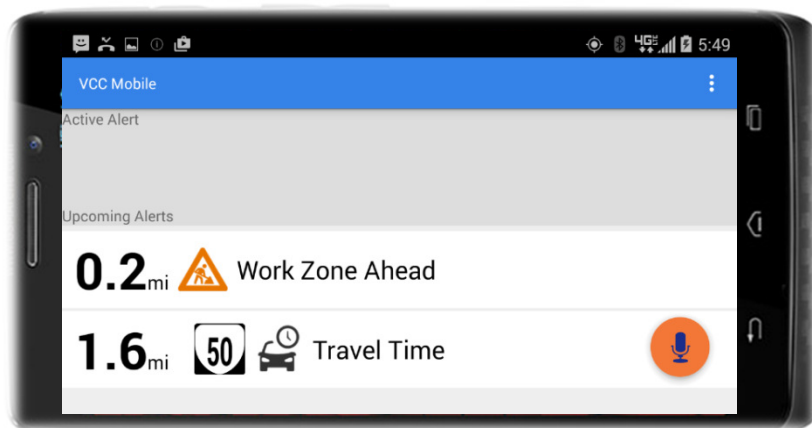
# VDOT's CAV Deployment Work Program

- Near-Term Actions
  - Near-Term Development of Foundational Elements
  - Improvements to Signs and Markings
- Mid- and Long-Term Actions
  - Mid- and Long-Term Implementation Plan
  - Establish Deployment Guidance for Stakeholders
  - Develop CAV Standards and Specifications



# Near-Term Foundational Elements

- VCC Monitoring Application and Tools
- VCC Traffic Information Message Generator, Server and Mobile app
- SmarterRoads.org cloud data portal



## About SmarterRoads

The data sets on this portal are all available to approved users. Create a free account to sign the required data sharing use agreement. Once approved, will receive an email with login instructions. When you are logged into the SmarterRoads data portal, you can customize your settings to subscribe to specific data sets. Additional logins may be required for some data sets.





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