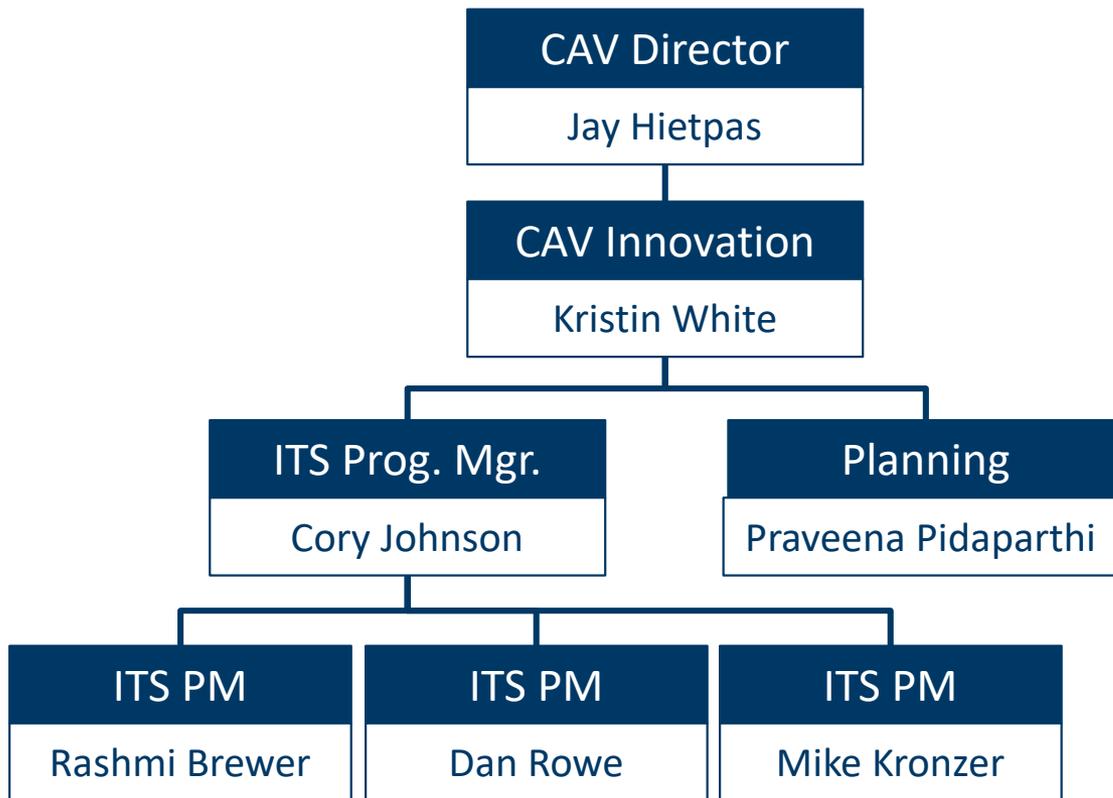


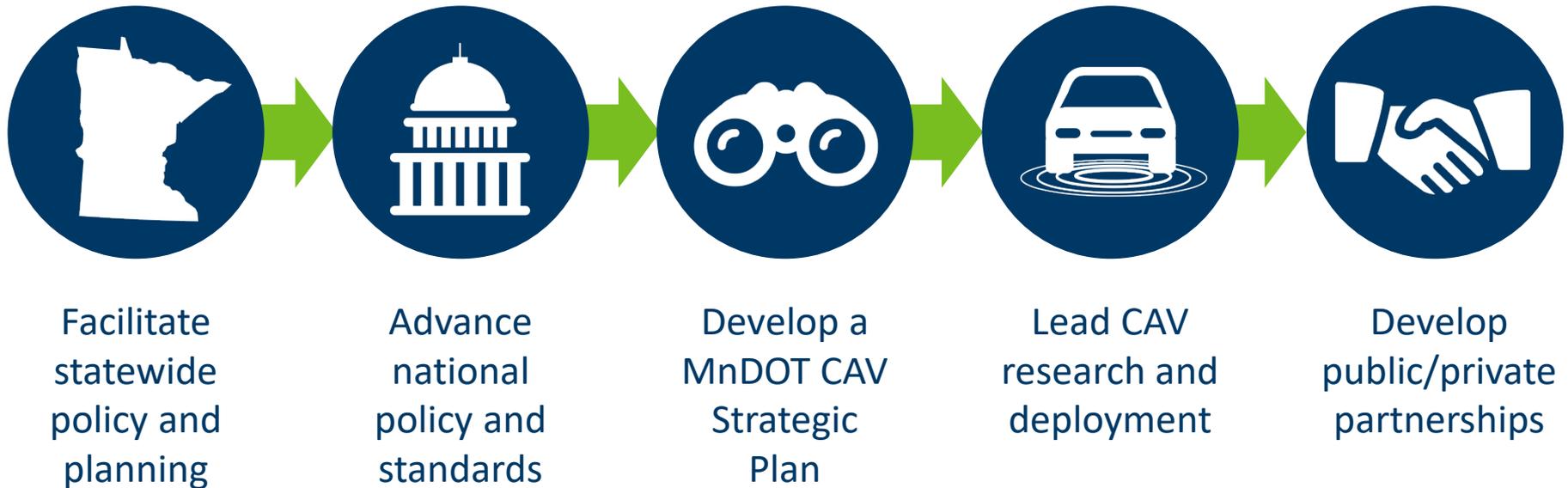


# Connected and Automated Vehicles *2018 Fall Statewide Work Zone Safety Committee*

# MnDOT CAV-X Office



# CAV-X Major Areas of Focus



# Executive Order 18-04

**ADVISORY  
COUNCIL**

**Report to Governor and Legislature by  
December 1, 2018**

**TESTING AND  
DEPLOYMENT**

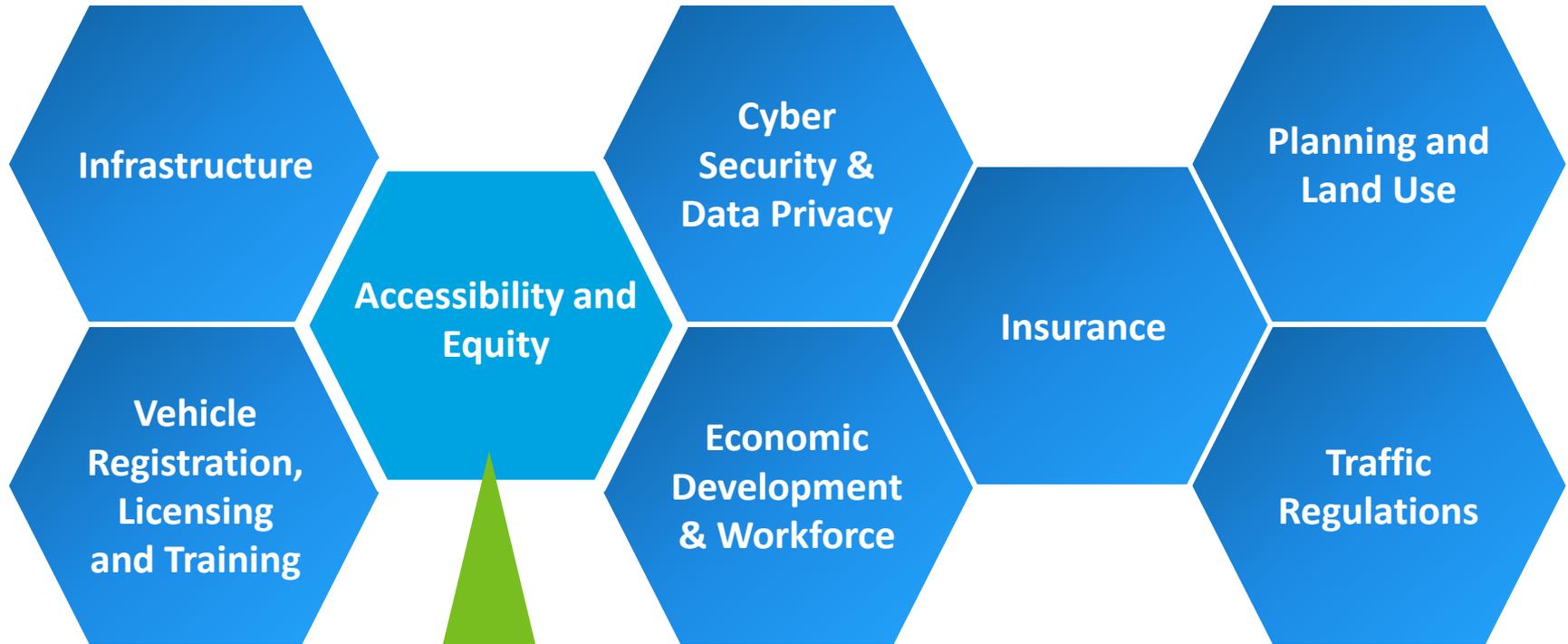
**Requires MnDOT and DPS to establish  
testing and deployment programs**

**COORDINATION**

**Establishes Interagency CAV team  
(I-CAV)**

# Advisory Council

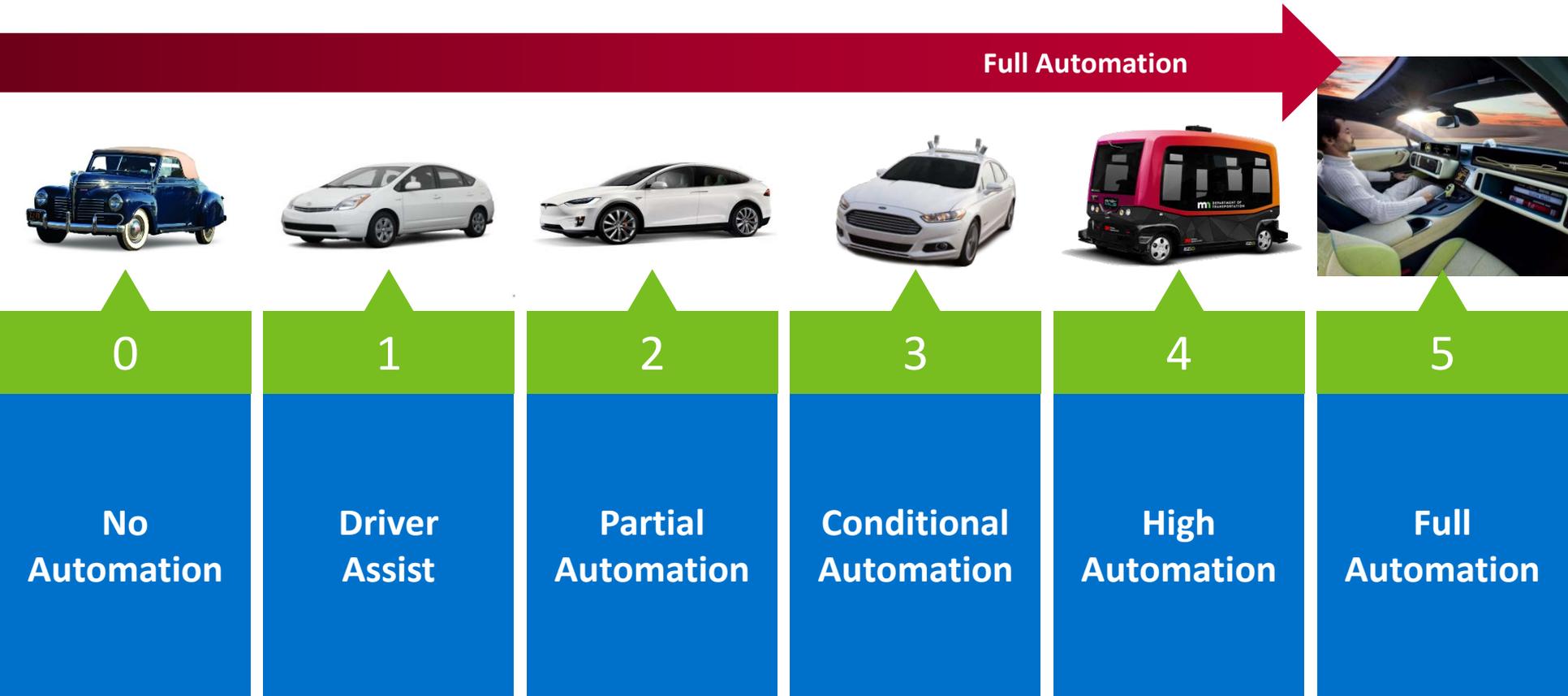
Report to Governor and Legislature by 12/01/18



## Emphasis Areas

- ✓ Rural Minnesota
- ✓ Disabled
- ✓ Low Income
- ✓ Tribal Nations
- ✓ Elderly
- ✓ Communities of Color

# Society of Automotive Engineers (SAE) Levels of Automation



# Types of Automated Vehicles

Available and Future **Automation**

## Today



### Levels of Automation:

Adaptive Cruise Control, Auto Emergency Braking, Automatic Lane Keeping, Partial "hands off"

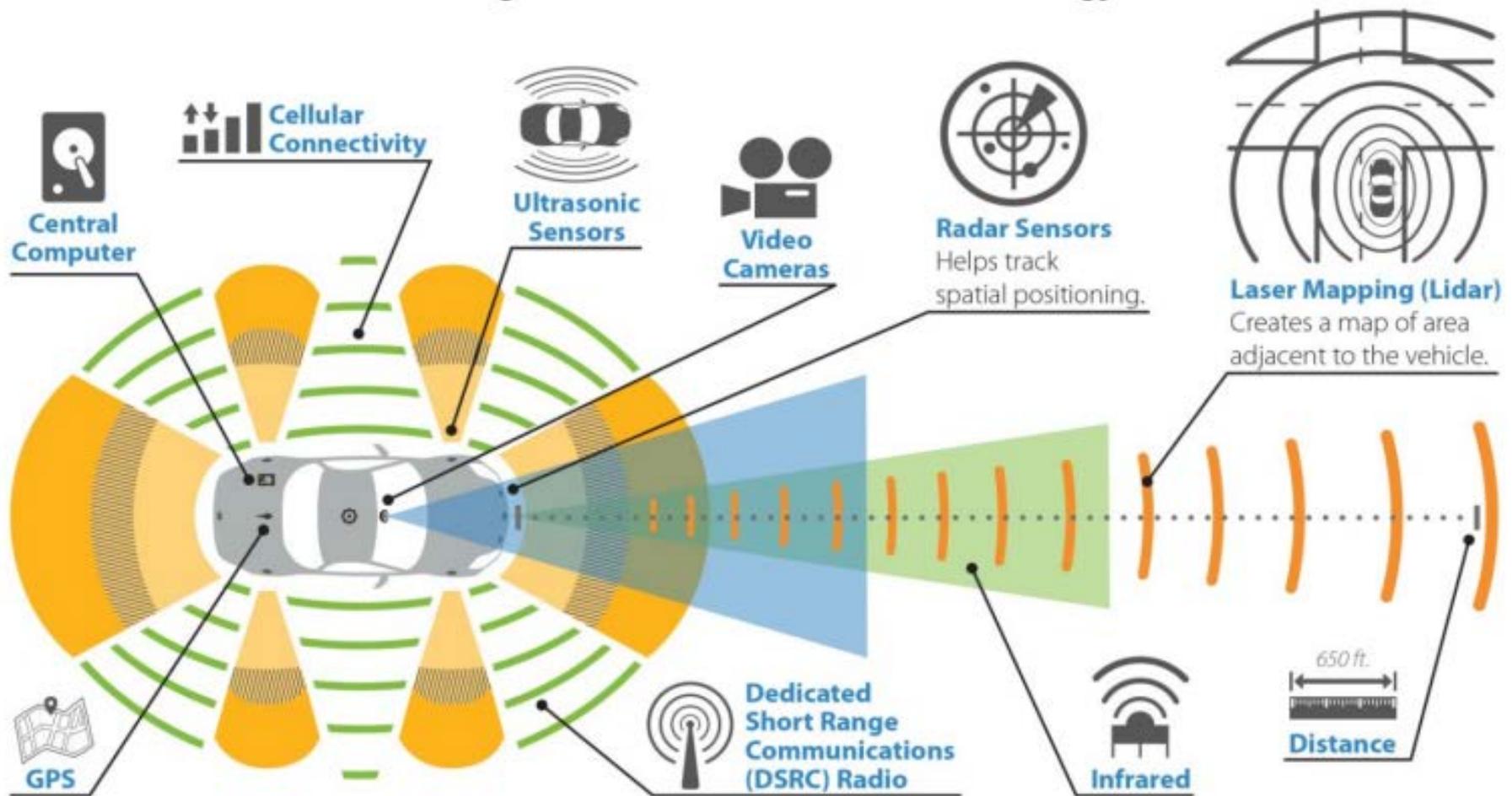
## Future



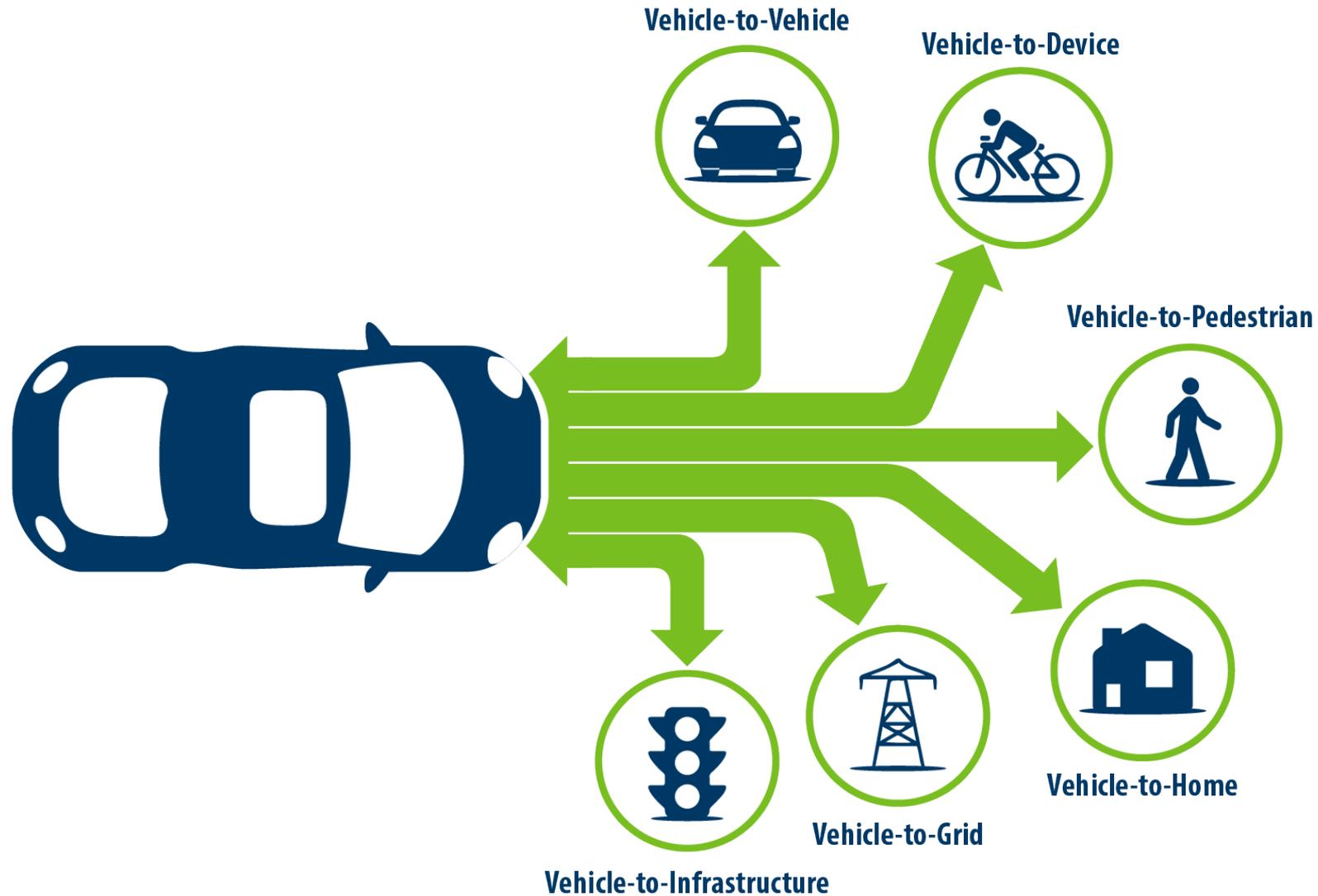
### Levels of Automation:

Possibly no steering wheel, hands off technology

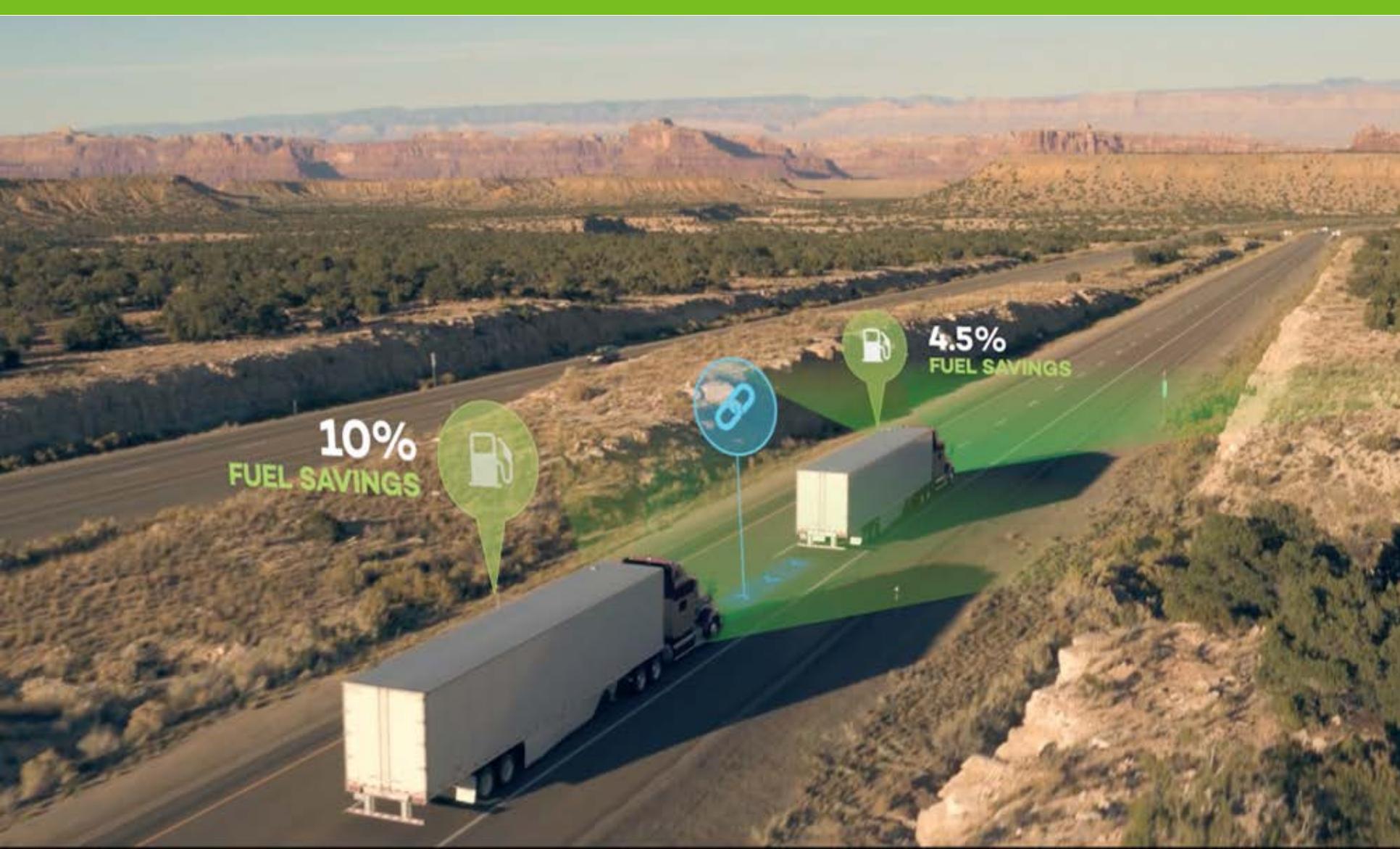
# How does it work?



# Connected Vehicles



# Truck Platooning



**10%**  
FUEL SAVINGS

**4.5%**  
FUEL SAVINGS

# Items Being Considered

## Automated delivery systems



# Items Being Considered

## Worker Safety



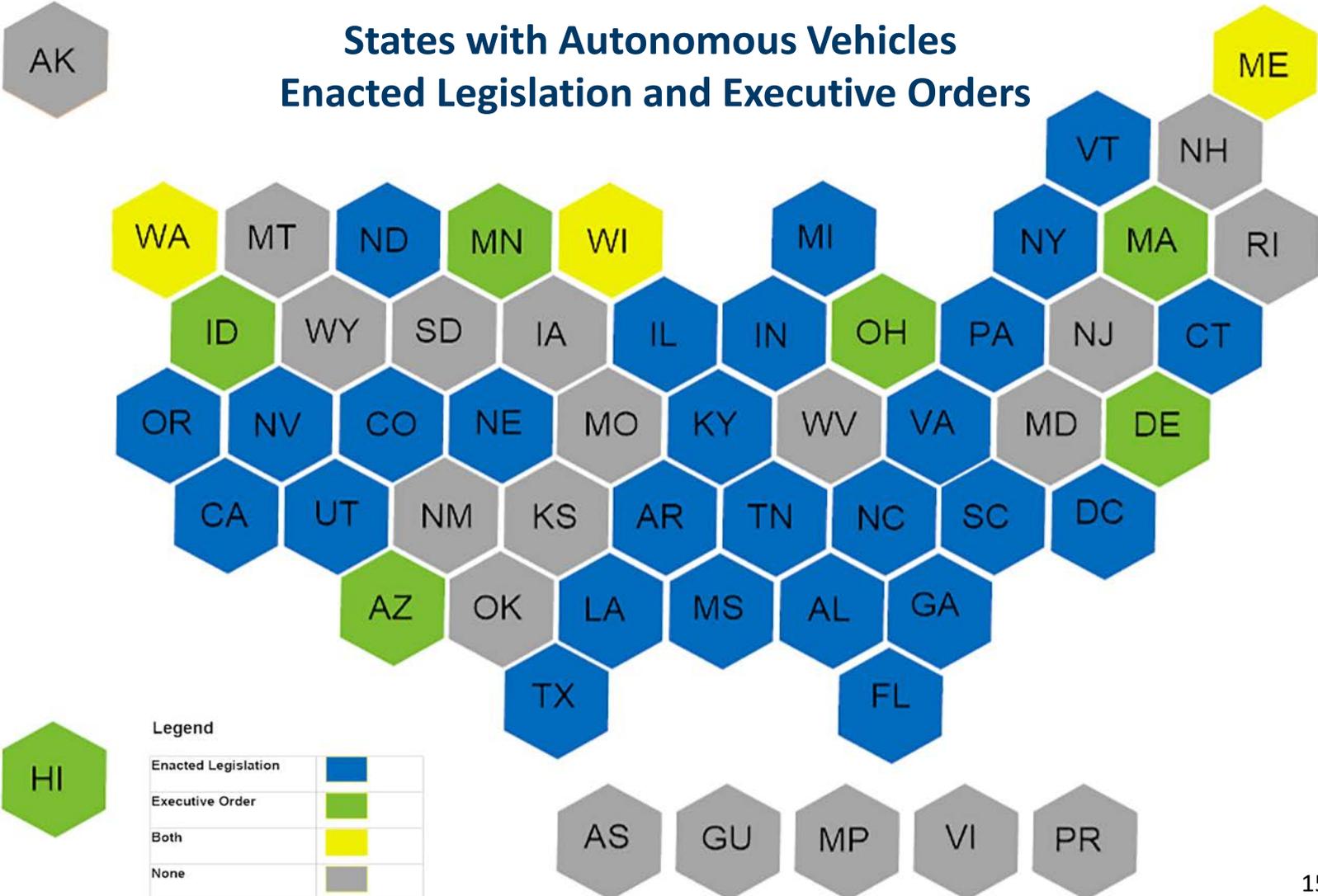
# ATMA Video



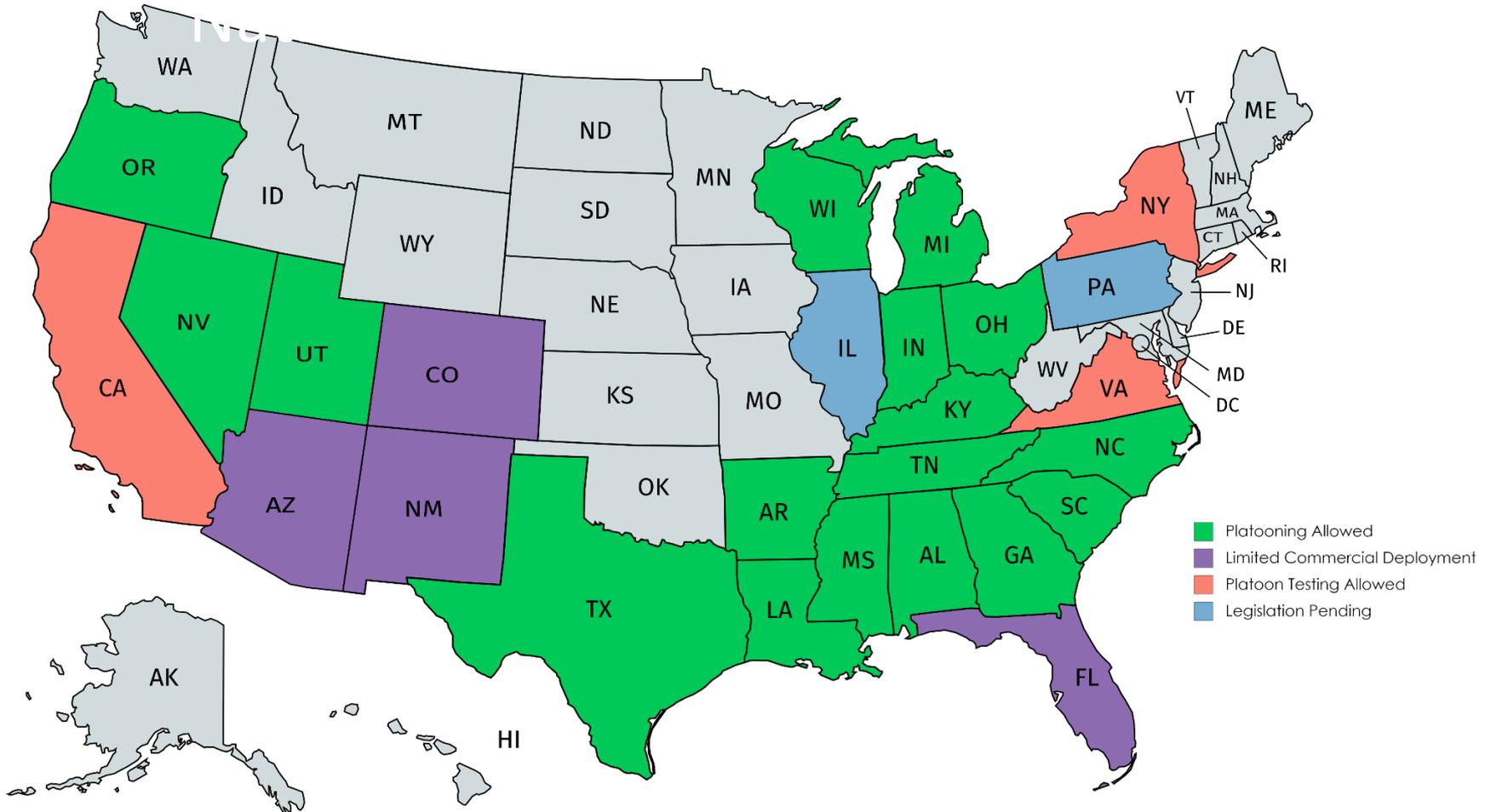
# Pieces of CV Already Available



# What is the Impact to MN? Regulations



# State Platooning Laws



# Minnesota's Challenges



# Minnesota's Challenges



# Tesla Work Zone Crash



# Tesla Crash - Impact

view.

Tesla crashes into concrete barrier....ON AUTO PILOT!

MORE VIDEOS

0:22 / 0:31

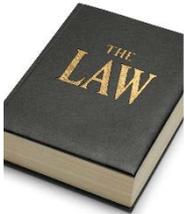
AAAAAAA 000M/H

YouTube

# They Are Here



# What Does Industry Want



Clear Laws for Testing



Where They Can Test



Uniformity in regulations and infrastructure



Better Pavement Markings



Real Time Data



Connectivity to Infrastructure

# Minnesota CAV Challenge

- ✓ Advance CAV technology in **winter weather** conditions
- ✓ **Develop corridors and test tracks** for industry to test and validate technology
- ✓ Utilize CAV technology to **improve mobility for those with transportation challenges** (e.g. person with disabilities, low income, elderly, rural Minnesota)

- ✓ Utilize CAV technology to improve the safety and operations of **work zones**

- ✓ **Build public trust** in CAV

- ✓ **Share data** between government and third parties who can advance CAV applications that improve safety and mobility

- ✓ **Utilize data** to help manage infrastructure and operations to support CAV

- ✓ Utilize CAV technology to **grow Minnesota businesses and attract new business** and talent

- ✓ Strategically plan for **policy**, infrastructure and operational risk

# Thank you!

**Jay Hietpas**

**[Jay.Hietpas@state.mn.us](mailto:Jay.Hietpas@state.mn.us)**