Automated and Connected Vehicle Technology

*State of Minnesota Updates*

Jay Hietpas, PE
CAV-X Director
Why CAV is Important to Minnesota
The Number

380
Why CAV is Important

Greater Mobility & Equity

Workforce Impacts

Traffic Operations

Economic Development

Infrastructure

Health & Environment
State Automated Vehicle Laws

- **Enacted legislation**
- **Executive Order**
- **Both**
- **None**

Map showing states with various levels of legislation for automated vehicles.
State Connected Platooning Laws

- Limited use: None.
- Testing allowed: None.
- Laws pending: None.
- None: All other states.
4 Priorities: ACES

Connected

Automated

Electric

Shared Mobility
GM will focus on autonomous and electric vehicles

‘Platoons’ of autonomous Freightliner trucks will drive across Oregon

Waymo to Establish AV Manufacturing Facility in SE Michigan

Toyota and Lexus to introduce DSRC-based connected vehicles in the USA from 2021
CAV - When Will It Come?

Possible Future #1: Advancing Technology
Possible Future #2: Connected Infrastructure
Possible Future #3: Private Automation
Possible Future #4: Integrated Mobility

World in 2045

These are possible futures. Any of these could happen. Or none.
2
Policy & Planning
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)
Governor’s Advisory Council

Industry
Transit Providers
Tribal Nations
Local Government
Labor
Insurance
Energy
Persons with Disabilities
Transit Users
Public Policy
Interagency CAV Team

Minnesota Pollution Control Agency

Department of Public Safety

Minnesota State Council on Disability

Employment and Economic Development

Department of Revenue

Department of Agriculture

Department of Health

Iron Range Resources & Rehabilitation Board

Metropolitan Council

Minneapolis

Minnesota IT Services

Commerce Department
CAV Policy Subcommittees

- Transportation Infrastructure
- Vehicle Registration, Licensing and Training
- Accessibility
- Revenue
- Economic Development & Workforce
- Traffic Regulations and Safety
- Equity
- Insurance and Liability
- Cyber Security and Data Privacy
- Land Use and Planning
Key Themes

1. Modernize Policy
2. Equity
3. Proactive Leadership & Public Engagement
4. Education
5. Funding / Revenue
6. Partnerships
Council Recommendations

Modernize Policy

• MnDOT and DPS permit process to safely test automated vehicle

• MnDOT and DPS permit process for connected vehicle platooning
Leadership and public engagement

• Continue CAV Advisory Council work

• Create a public engagement plan

• Expand Interagency CAV team to include tribes, local government and universities
What is Next with Report?
Current Bills Under Consideration

• Vehicle Platoon (Truck Platoon)
  • HF 1995 / SF 2177

• Automated Vehicle Testing
  • HF 1996 / SF 2173
### Strategic Plan

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<tr>
<th>Minnesotan Connected &amp; Automated Vehicle Strategic Plan</th>
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**Topics Covered:**
- Long Range Planning
- Capital Needs
- Research
- Partners
- Regulation
- Operations
- Strategic Staffing
- Multi-Modal
- Outreach
Testing and Partnerships
Innovation

Minnesota CAV Challenge
Automated Bus
TH 55 Connected Corridor

- Signal Phasing and Timing
- Snow Plow Priority
- Signal Data to 3rd Parties
- Receive and Process Data
TH 52 Test Corridor
I-94 Enhanced Markings

6” v 4” Edge Lines

Chevron Style Gore (Thermoplastic)

10” v 8” Gore Markings

20’ Skip with 30’ Gap vs 10’/40’

6” v 4” Skip with 2” Contrast Tape Each Side

6” Skip through Ramps (380 All Weather Tape)
Public Engagement

Super Bowl

Minnesota State Fair
AV Technical Demonstrations
Thank you!

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