TRAFFIC MANAGEMENT ADVISORY COMMITTEE

Zoom Meeting

Wednesday November 4, 2020
Agenda

• Introductions
• Incident Response and Connected/Autonomous Vehicles
• Community Updates
  – Des Moines ICM Freeway Solutions Working Group Invitation
  – MPO Regional ITS Architecture Update – ITS Services
Introductions

Please briefly introduce yourself through audio or the Chat Box with your:

– Name
– Organization
Automated Transportation Activities to support TIM

Wednesday, November 4th, 2020
Automated Transportation Activities to support TIM

- CAT & CAV? Why, What, Where and When
- Iowa Advisory Council on Automated Transportation
- Policy & Legislation
- Updated AAMVA Guidance
- Resources & Items to Monitor
Automated Transportation Activities to support TIM

Driver error contributes to 94% of driver crashes

80% Potential Reduction in Crashes
Transportation System Management and Operations (TSMO)
Automated Transportation Activities to support TIM

COOPERATIVE AUTOMATED TRANSPORTATION

All modes of transportation working together to improve safety, mobility, equity, and operations efficiency through interdependent vehicle and systems automation and information exchange.

Source: FHWA National Roadway Integration of ADS Concept of Operations (in-progress)
Automated Transportation Activities to support TIM

**What are CAVs?**

**Connected Vehicles and Automated Vehicles Belong Together...**

**Connected Vehicles**
- Connected vehicle technologies allow vehicles to communicate with each other and the world around them.
- Examples:
  - Intersection Systems & Mobile Applications
  - Vehicle-to-Vehicle Communication (V2V)
  - Vehicle-to-Vehicle Communication (V2I)
  - Vehicle-to-Infrastructure Communication (V2N)

**Automated Vehicles**
- A fully autonomous vehicle does not require a human driver; its actions are computer driven.
- Examples:
  - Cameras, radars perform at least critical driving functions and monitor customer conditions

Source: Maryland DOT
What are CAVs?
Key Terms

Advanced Driver Assistance Systems (ADAS)
Systems designed to help drivers with certain driving tasks (e.g., staying in the lane, parking, avoiding crashes, reducing blind spots, and maintaining a safe headway). ADAS are designed to improve safety or reduce the workload on the driver.

Automated Driving Systems (ADS)
The hardware and software that are collectively capable of performing the entire DDT on a sustained basis, regardless of whether it is limited to a specific ODD; this term is used specifically to describe a Level 3, 4, or 5 driving automation system.

Dynamic Driving Task (DDT)
All of the real-time operational and tactical functions required to operate a vehicle in on-road traffic.

Minimal Risk Condition (MRC)
A condition to which a user or ADS may bring a vehicle to after performing the DDT in order to reduce the risk of a crash when a trip cannot or should not be completed.

Operational Design Domain (ODD)
The specific conditions (e.g., time of day, road specific, weather related) under which a given driving automation system or feature is designed to function.
ADAS Resources
Automated Transportation Activities to support TIM

Market Adoption

**ADS Integration Cases**

**Freight and Packages**
- Automated Long-Haul Freight
- Automated Local Freight Delivery
- Automated Home Package and Goods Delivery

**Transit**
- Automated Fixed Route Transit
- Automated On Demand Transit

**Individual Commuting & Travel**
- Automated Ride for Hire
- Automated Personal Vehicles

**Agency Operations**
- Automation of Fleet Vehicles
Automated Transportation Activities to support TIM

When will this happen?

Source: Iowa DOT I-80 Planning Study

What is the motivating factor to expand AT?

Pathways To Adoption For Autonomous Driving Infrastructure
Trucking Is Leading The Race To Commercialize AV Technology
Automated Transportation Activities to support TIM

IOWA ADVISORY COUNCIL ON AUTOMATED TRANSPORTATION

The Iowa Advisory Council on Automated Transportation is intended to increase roadway safety, personal mobility, and freight movement within the state of Iowa by advancing highly automated vehicle technologies. The Council shall provide guidance, recommendations, and strategic oversight of automated transportation activities in the state.

VISION STATEMENT
To create an AV-ready driving environment in Iowa for the safe movement of people and freight for a thriving Iowa economy.

MISSION STATEMENT
Lead, coordinate, and enable the advancement of automated transportation systems in Iowa.

https://iowadrivingav.org/
Iowa Advisory Council on Automated Transportation

1. Infrastructure Readiness
   - Digital
   - Energy
   - Electrification
   - Planning
   - Land Use
   - Freight
   - Security
   - Institutional
   - Workforce

2. Policy & Legislation
   - Administration
   - Liability
   - Insurance
   - Finance
   - Privacy
   - Land Use Planning

3. Economic Development
   - Workforce
   - Development
   - Employment
   - Entrepreneurship
   - Freight
   - Commerce
   - Efficiency
   - Reliability
   - Industry
   - Manufacturing

4. Public Safety & Enforcement
   - Regulations
   - First Responder Safety
   - Operator Responsibilities
   - Safe Deployment
   - Vulnerable Road Users

5. Communication, Outreach, & Education (crosscutting)

6. Research, Development, Testing, & Evaluation (crosscutting)
Iowa Advisory Council on Automated Transportation

Table 2. Summary of Objectives and Tactics

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<th>Objective Areas</th>
<th>Outcomes</th>
<th>Tactics</th>
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<td>Infrastructure Readiness</td>
<td>A. Accelerate Infrastructure Readiness</td>
<td>1. Assess &amp; Advance AT Readiness</td>
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<td>B. Implement National Guidance</td>
<td>2. Improve Pavement Marking</td>
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<td>C. Improve Traffic Control Assets</td>
<td>3. Build Out Fiber Backbone</td>
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<td>D. Leverage Communications Infrastructure</td>
<td>4. Implement Pilot Program</td>
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<td>E. Develop Agency Workforce</td>
<td>5. Define Data Systems Architecture</td>
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<td></td>
<td>B. Address Liability &amp; Insurance</td>
<td>2. Monitor Legislation</td>
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<td>C. Advise on Legislation</td>
<td>3. Modify Administrative Rules</td>
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<td>D. Policymaker Outreach</td>
<td>4. Ensure CAT in Planning</td>
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<td>E. Community Readiness</td>
<td>5. Improve Equity &amp; Accessibility</td>
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<td>Economic Development</td>
<td>A. Outreach to Business</td>
<td>1. Assess Planning Corridors</td>
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<td>B. Foster Business Growth</td>
<td>2. Initiate Planning Study</td>
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<td>C. Improve Freight Movement</td>
<td>3. Engage with Iowa Businesses</td>
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<td>D. Workforce Development</td>
<td>4. Engage with Iowa Community Colleges</td>
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Public Safety & Enforcement:
A. Adopt to Changing Laws
B. Explore Vehicle Automation Indications
C. Promote Crash Data & Investigation
D. Ensure Safe Incident Management

Communications, Outreach, & Education:
1. Active Coordination
2. Public Outreach
3. Response Planning

Assessment, Evaluation:
1. Risk & Cost
2. ROI & Engagement

* The pilot program is intentionally repeated in three areas.

Policy & Legislation

Following Distance *(HF387 – 2019)*

- Removed the following distance requirements
  - 300' for motor trucks or a motor vehicle drawing another vehicle
  - 500' for motor vehicles following another in convoy or caravan

- Maintained reasonable and prudent statute

- Clears the way for truck platooning – related legislation only introduced
Policy & Legislation

AV Framework ([SF302 - 2019](#))
- Based on model legislation
- Passenger & Commercial MVs
- New code sections:
  - Definitions
  - Operation
  - Insurance
  - Accidents
  - On-demand driverless-capable vehicle network
  - Authority
Policy & Legislation

AV Framework (cont.)

- Iowa DOT AV Policy Working Group
- Draft Rulemaking
  - Additional Definitions (SAE levels)
  - Identification in Vehicle Registration
  - Operational Restrictions (e.g. ODD)
  - Testing Permit
- Stakeholder Engagement
- Goal: Finalize this year
Founded in 1933, the American Association of Motor Vehicle Administrators (AAMVA) represents to Motor Vehicle Administrators of all 69 states, provinces and territories of the U.S. and Canada

- Support uniformity and reciprocity among jurisdictions
- Provide guidance and best practices on emerging issues.
Established fall 2014 - 20 US and Canadian jurisdictional members and AAMVA staff with wide range of expertise in:

Vehicle and driver programs
Law enforcement
Legal and policy

Provides voluntary recommended guidelines.

Edition 1 Published May 2018

Purpose:

Provide recommendations to jurisdictions that facilitate a consistent regulatory framework to balance current public safety with the advancement of vehicle innovations, to reduce crashes, fatalities, injuries, and property damage.
Developed Edition 2 over the last 2 years

Published September 2020
Replaces Edition 1

https://www.aamva.org/SafeTestingandDeploymentOfVehiclesEquippedwithADSGuidelines/
Global Changes In Edition 2:

• The term “Highly Automated Vehicles” been retired and replaced by the term “ADS-equipped vehicles”

• Several chapters now include information related to Advanced Driver-Assistance Systems (ADAS)

• The Autonomous Vehicles Working Group (AVWG) was renamed the Automated Vehicles Subcommittee
8 Chapters

1. Executive Summary
2. Definitions and Acronyms
3. Administrative Considerations
4. Vehicle Considerations
5. Driver Licensing Considerations
6. Law Enforcement Considerations
7. Other Considerations
8. Next Steps
Edition 2 reorganizes the chapter, includes 36 recommendations (some new) and added 2 new subsections*

1. Vehicle Identification

2. Crash/Incident Reporting

3. Criminal Activity
4. Distracted Driving

5. Establishing Operational Responsibility and Law Enforcement Implications

6. Law Enforcement/First Responder Interaction Plans (LEIP)

7. Law Enforcement Protocols for Level 4 and 5 Vehicles
8. Law Enforcement/First Responder Safety and Training

9. Adherence to Traffic Laws

10. Vehicle Response to Emergency Vehicles, Manual Traffic Controls and Atypical Road Conditions

11. System Misuse and Abuse
New chapter, includes 41 recommendations

1. Cybersecurity for Vehicles with Automated Driving Systems
2. Data Collection
3. Low-Speed Automated Shuttles
4. Connected Vehicles
5. Platooning
7.3 – Low-Speed Automated Shuttles
The subcommittee will be developing whitepapers over the next year

Automated Delivery Vehicles

Updating Distracted Driving Laws
Iowa Advisory Council on Automated Transportation

• Public Safety & Enforcement Subcommittee Meeting
  – December 8th, 2020

  – Brian Ursino – AAMVA’s Law Enforcement Program Director

https://iowadrivingav.org/
Automated Transportation Activities to support TIM

Resources & Items to Monitor

Automated Transportation Activities to support TIM

Resources & Items to Monitor

http://www.tsag-its.org/

Virtual Panel: October 28th: How First Responders Are Preparing for Autonomous Vehicles (Recordings on PAVE YouTube Channel)
https://pavecampaign.org/
Automated Transportation Activities to support TIM

Resources & Items to Monitor

NCHRP 20-102(16): Preparing TIM Responders for CAVs

U.S. Department of Transportation

Automated Driving System Demonstration Grants

https://www.transportation.gov/av/grants
THANK YOU!

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Adam Shell
Automated Transportation Program Manager
Traffic Operations Bureau – Iowa DOT
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GENERAL DISCUSSIONS
General Discussion Topics

• Community Updates
  – News, projects, events, constructions, incidents, etc.
    • Des Moines ICM Freeway Solutions Working Group Invitation
    • Des Moines Area Regional ITS Architecture Update – ITS Services Phase

• Next Meeting
ICM Freeway Solutions Working Group Invitation

- Iowa DOT’s Integrated Corridor Management (ICM) Project
  - Framework for regional coordination and integration of the transportation network

- Three working groups
  - **Freeway Solutions**
    - Freeway solutions for safety and freight
    - Intended for Emergency Responders and related professionals
  - **Personal Mobility**
    - Des Moines Area ICM Travelers’ App
  - **Green Light**
    - Traffic signal projects
ICM Freeway Solutions Working Group Invitation

• First virtual meeting on November 19, 2020 from 1 PM – 2:30 PM

• Agenda
  – Welcome and Introduction
  – Partner Presentation #1 (CDOT)
  – Partner Presentation #2 (IDOT - TRIP)
  – Small Group Breakout discussions/Brainstorming
  – Large Group Facilitated Discussion/Develop Partner Action Plan
  – Conclusion

• RSVP by emailing Julie Molacek (Julie.Molacek@hdrinc.com)
  – Please share and distribute invitation to anyone interested

• For questions, contact Neal Fobian (Neal.Fobian@iowadot.us) or Jon Markt (Jonathan.Markt@hdrinc.com)
Regional ITS Architecture Update – ITS Services

- ITS Services
  - Second phase of ITS Architecture Update

- ITS Services Survey
  - Connect ITS Services with ITS Inventory
  - Indicate “Regional Interest”
Regional ITS Architecture Update – ITS Services

Service Package Areas
- ITS Service Areas in ARC-IT
  - Traffic Management
  - Traveler Information
  - Support
  - Commercial Vehicle Operations
  - Sustainable Travel
  - Maintenance and Construction
  - Public Transportation
  - Vehicle Safety
  - Parking Management
  - Weather
  - Data Management

Service Packages and a Regional ITS Architecture
- Service Packages provide a menu of ITS services
  - Select Service Packages of interest
  - Map to your inventory and tailor

Transit Vehicle Tracking
Transit Fixed-Route Operations
Dynamic Transit Operations
Transit Fare Collection Management
Transit Security
Regional ITS Architecture Update – ITS Services

- ITS Services Survey Example

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<thead>
<tr>
<th>ITS Service Area</th>
<th>ITS Service</th>
<th>Status (Existing, Planned, Future)</th>
<th>Description/Comments</th>
<th>Associated ITS Elements/Item(s)</th>
<th>Regional Interest</th>
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<td>Commercial Vehicle Operations</td>
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<td>Freight-Specific Dynamic Travel Planning</td>
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<td>Real-Time Information for Freight Centers</td>
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<td>Freight Lane Optimization</td>
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<td>CV Driver Security Authentication</td>
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<td>Fleet and Freight Security</td>
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<td>ITS Data Warehouse Performance Modeling</td>
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- Existing, Planned, or Future
- Maint/Constr Center
- Maint/Constr Vehicle
- Maint/Const Center Personnel
- Regional Interest
### 2020 TMAC Topics

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<td>• Best Practices</td>
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<td>• Distracted Driving and Countermeasures</td>
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<td>• Develop a Metro-wide Training Handout (Services Book) on Available Training to Provide to Metro Departments</td>
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<td>• Construction within the MPO Area and Continuous Construction Updates</td>
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<td>• Workzone Safety Initiatives</td>
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<td>• Information on Planned Safety Improvements on Major Roadways</td>
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<td>• Quick Clearance</td>
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<td>• Better Local Agency Access to Traffic Cameras</td>
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<td>• Sharing Resources for Incidents</td>
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<td>• Lane Closure Management Across the Metro</td>
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<td>• Connected Vehicles</td>
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<td>• FirstNet</td>
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<td>• Towing Company Safety</td>
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<td>• Towing Recovery Incentive Program (TRIP)</td>
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<td>• Information and Sharing with Towing Companies</td>
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Next Meeting

Winter Break 2020
(No TMAC December Meeting)

Look out for email for TMAC feedback and to schedule 2021 meetings and topics!