TRAFFIC MANAGEMENT ADVISORY COMMITTEE

Zoom Meeting

Wednesday November 4, 2020

DES MOINES AREA MPO METROPOLITAN PLANNING ORGANIZATION

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

Adam Shell and Daniel Yeh

INCIDENT RESPONSE AND CONNECTED/AUTONOMOUS VEHICLES

Traffic Management Advisory Committee

Automated Transportation Activities to support TIM

Wednesday, November 4th, 2020

IOWA DOT
GETTING YOU THERE

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**

IOWA DOT
GETTING YOU THERE

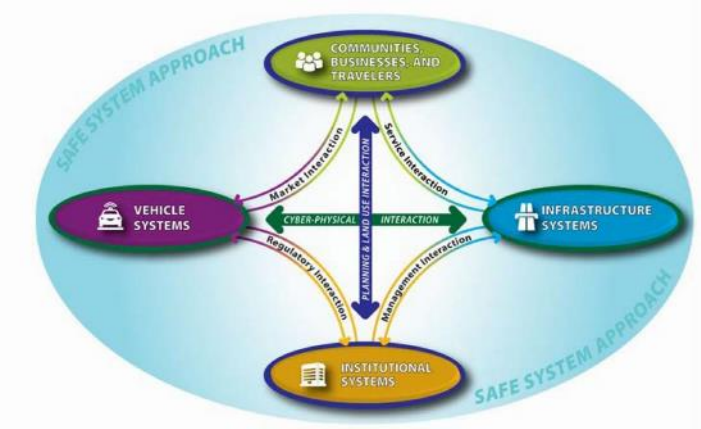
Automated Transportation Activities to support TIM

Transportation System Management and Operations (TSMO)

Traffic Management Center	Intelligent Transportation Systems (ITS) & Communications	Traveler Information	Traffic Incident Management
Emergency Management	Work Zone Management	Active Transportation and Demand Management	Cooperative Automated Transportation

COOPERATIVE AUTOMATED TRANSPORTATION

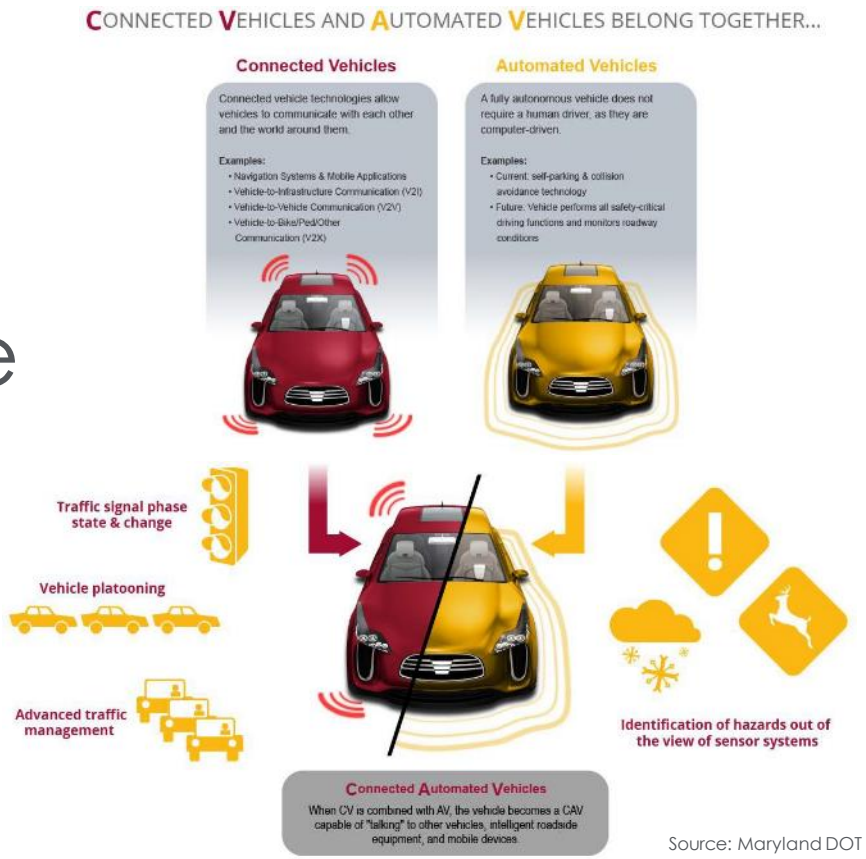
All modes of transportation working together to improve safety, mobility, equity, and operations efficiency through interdependent vehicle and systems automation and information exchange



Source: FHWA National Roadway Integration of ADS Concept of Operations (in-progress)

Automated Transportation Activities to support TIM

What are CAVs?



Source: Maryland DOT

What are CAVs?

SAE J3016™ LEVELS OF DRIVING AUTOMATION

	SAE LEVEL 0	SAE LEVEL 1	SAE LEVEL 2	SAE LEVEL 3	SAE LEVEL 4	SAE LEVEL 5
What does the human in the driver's seat have to do?	You are driving whenever these driver support features are engaged – even if your feet are off the pedals and you are not steering			You are not driving when these automated driving features are engaged – even if you are seated in "the driver's seat"		
	You must constantly supervise these support features; you must steer, brake or accelerate as needed to maintain safety			When the feature requests, you must drive	These automated driving features will not require you to take over driving	
	These are driver support features			These are automated driving features		
What do these features do?	These features are limited to providing warnings and momentary assistance	These features provide steering OR brake/ acceleration support to the driver	These features provide steering AND brake/ acceleration support to the driver	These features can drive the vehicle under limited conditions and will not operate unless all required conditions are met		This feature can drive the vehicle under all conditions
Example Features	• automatic emergency braking • blind spot warning • lane departure warning	• lane centering OR • adaptive cruise control	• lane centering AND • adaptive cruise control at the same time	• traffic jam chauffeur	• local driverless taxi • pedals/ steering wheel may or may not be installed	• same as level 4, but feature can drive everywhere in all conditions

For a more complete description, please download a free copy of SAE J3016: https://www.sae.org/standards/content/j3016_201806/

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

MyCarDoesWhat.org
Know More. Drive Safer.

Market Adoption

ADS Integration Cases

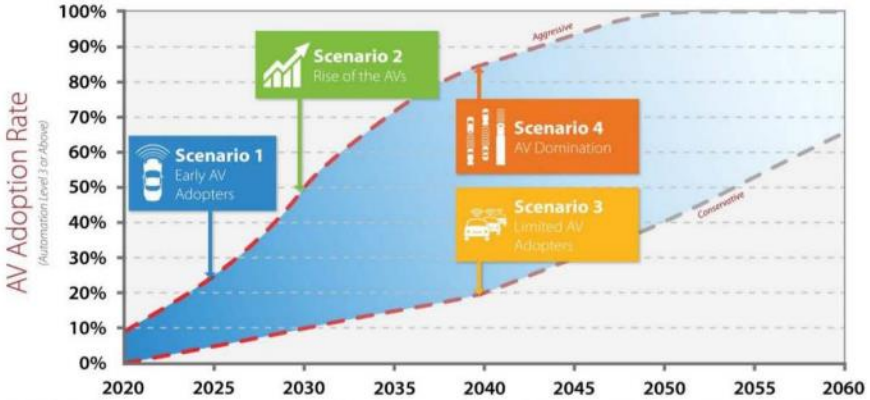
Freight and Packages
- Automated Long-Haul Freight
- Automated Local Freight Delivery
- Automated Home Package and Goods Delivery

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

When will this happen?



The I-80 Planning Study and market adoption rates and impacts of vehicle automation are informed by industry leading research by University of Texas, University of California at Berkeley, Victoria Transportation Policy Institute and Goldman Sachs. The scenarios ranged from conservative to aggressive in market adoption.

Source: Iowa DOT I-80 PlanningStudy

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

https://iowadrivingav.org/

IOWA ADVISORY COUNCIL ON AUTOMATED TRANSPORTATION

IOWA DOT GETTING YOU THERE

Automated Transportation Activities to support TIM

Iowa Advisory Council on Automated Transportation

1 Infrastructure Readiness

- Digital
- Energy
- Electrification
- Planning
- Land Use
- Freight
- Security
- Institutional
- Workforce

Associated Subcommittee

2 Policy & Legislation

- Administration
- Liability
- Insurance
- Finance
- Privacy
- Land Use Planning

Associated Subcommittee

3 Economic Development

- Workforce Development
- Employment
- Entrepreneurship
- Freight
- Commerce
- Efficiency
- Reliability
- Industry
- Manufacturing

Associated Subcommittee

4 Public Safety & Enforcement

- Regulations
- First Responder Safety
- Operator Responsibilities
- Safe Deployment
- Vulnerable Road Users

Associated Subcommittee

5 Communication, Outreach, & Education (crosscutting)

6 Research, Development, Testing, & Evaluation (crosscutting)

Iowa Advisory Council on Automated Transportation

Table 2. Summary of Objectives and Tactics

Objective Areas	Outcomes	Tactics
Infrastructure Readiness	A. Accelerate Infrastructure Readiness B. Implement National Guidance C. Improve Traffic Control Assets D. Leverage Communications Infrastructure E. Develop Agency Workforce	1. Assess & Advance AT Readiness 2. Improve Pavement Marking 3. Build Out Fiber Backbone 4. Implement Pilot Program* 5. Define Data Systems Architecture
Policy & Legislation	A. Evolve Administrative Rules B. Address Liability & Insurance C. Advise on Legislation D. Policymaker Outreach E. Community Readiness	1. Bolster State Leadership 2. Monitor Legislation 3. Modify Administrative Rules 4. Ensure CAT in Planning 5. Improve Equity & Accessibility 6. Implement Pilot Program*
Economic Development	A. Outreach to Business B. Foster Business Growth C. Improve Freight Movement D. Workforce Development	1. Assess Platooning Corridors 2. Initiate Platooning Study 3. Engage with Iowa Businesses 4. Engage with Iowa Community Colleges
Public Safety & Enforcement	A. Adapt to Changing Laws B. Explore Vehicle Automation Indications C. Promote Crash Data & Investigation D. Ensure Safe Incident Management	1. Develop Following Distance Guidelines 2. Explore Vehicle Automation Indications 3. Capture AV Crash Data 4. Inform TIM & Safety Community 5. Address VRU Safety
Communications, Outreach, & Education	Crosscutting	1. Active Coordination 2. Public Outreach 3. Response Planning
Research, Development, Testing, & Evaluation	Crosscutting	1. RDT&E Coordination 2. RDT&E Engagement

* the pilot program is intentionally repeated in three areas

https://iowadrivingav.org/pdf/ATC-Vision.pdf

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

American Association of
Motor Vehicle Administrators

Safe Testing and Deployment of Vehicles Equipped with Automated Driving Systems Guidelines - Edition 2

OUR VISION

Safe drivers
Safe vehicles
Secure identities
Saving lives!

AAMVA Mission and Vision

OUR MISSION

serve North American motor vehicle & law enforcement agencies to accomplish their missions

OUR VISION

safe drivers
safe vehicles
secure identities
saving lives!

- 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

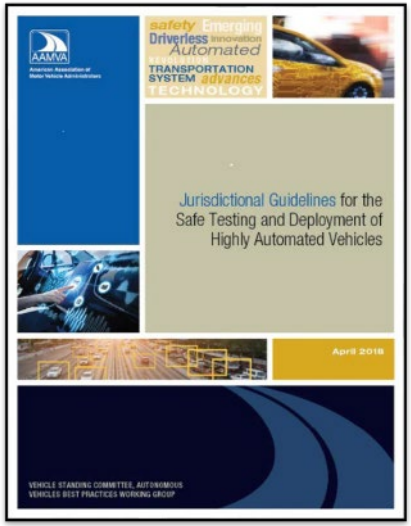
- Provide guidance and best practices on emerging issues.

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

Edition 1

Report: “Jurisdictional Guidelines for the Safe Testing and Deployment of Highly Automated Vehicles”



Provides voluntary recommended guidelines.

Edition 1 Published May 2018

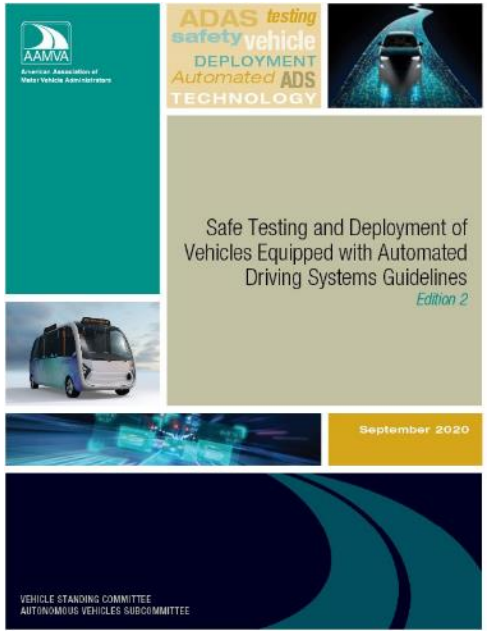
https://www.aamva.org/GuidelinesTestingDeploymentHAVs-May2018/

Edition 2 Overview

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.

Edition 2 Overview



Developed Edition 2 over the last 2 years

Published September 2020

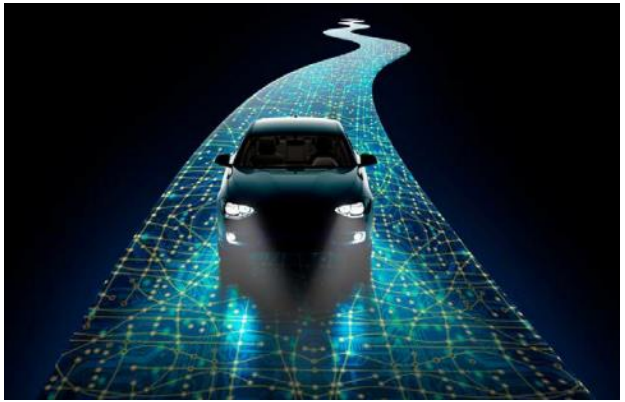
Replaces Edition 1

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

Chapter 7. Other Considerations

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

Next Steps

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

AAMVA
American Association of Motor Vehicle Administrators

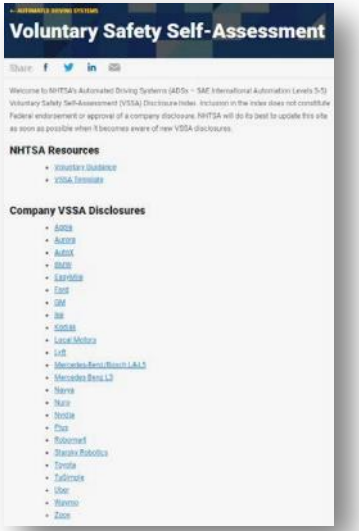
IOWA ADVISORY COUNCIL ON AUTOMATED TRANSPORTATION

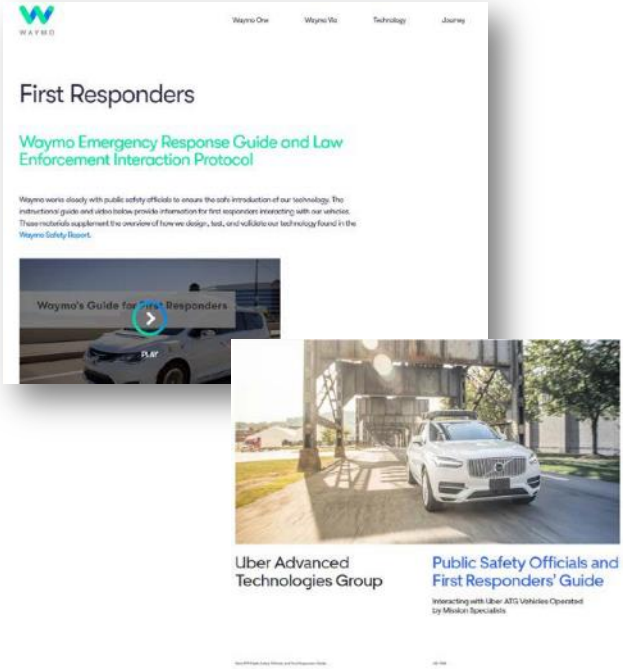
https://iowadrivingav.org/

Resources & Items to Monitor

NHTSA
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

https://www.nhtsa.gov/automated-driving-systems/voluntary-safety-self-assessment





Resources & Items to Monitor

CV/AV Needs Specific to Emergency Response – White Paper – May 2020

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/

Resources & Items to Monitor

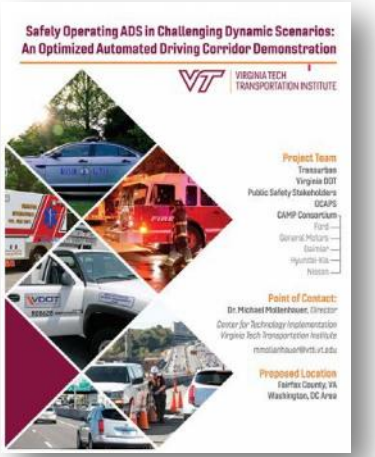
NCHRP NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

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

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INTEGRATED CORRIDOR MANAGEMENT
DES MOINES METRO AREA

You're invited to attend the first Freeway Solutions Working Group Meeting for Des Moines ICM

As part of the Des Moines Integrated Corridor Management (ICM) process, three different working groups have been formed to help fine tune needed solutions in the area, and to help meet the engagement goals of this project. The three working groups are:

- **Freeway Solutions Working Group** – focused on developing solutions to keep freeways safe and freight moving
- **Personal Mobility Working Group** – focused on coordination and planning for development of a Des Moines Area ICM Traveler App.
- **Green Light Working Group** – focused on coordination and efforts related to ICM traffic signal projects.

You are invited to join the **Freeway Solutions Working Group**, which will be hosting its first virtual meeting on **November 19, 2020 from 1:00 – 2:30 PM.**
As mentioned above, the Freeway Solutions Working Group is primarily focused on developing solutions to keep freeways safe and keep freight moving. This working group will collaborate to focus on near-term system operation and safety, and will identify and develop solutions that are low cost, but high impact.
This working group consists of different stakeholders including emergency responders and others involved with freeway innovation and safety. The first meeting will last approximately 90 minutes, will include presentations from our leaders and breakout sessions for additional, small-group brainstorming.
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

To RSVP For the Virtual Meeting, please send an email to Julie Molacek (Julie.Molacek@dbgnc.com), and she will forward you the official calendar invite and link to the Webex Virtual Meeting.

Are you new to the ICM project? Iowa DOT has several useful resources on their Des Moines ICM project page (https://iowadot.gov/dsmonnsicm). Be sure to click on "About ICM" and watch the **What is Integrated Corridor Management (ICM)** video.

If you have any questions, please contact Neal Fobian (Neal.Fobian@iowadot.us) or Jon Markt (Jonathan.Markt@dbgnc.com).

DES MOINES AREA MPO
METROPOLITAN PLANNING ORGANIZATION

ICM Freeway Solutions Working Group Invitation

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

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- **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)

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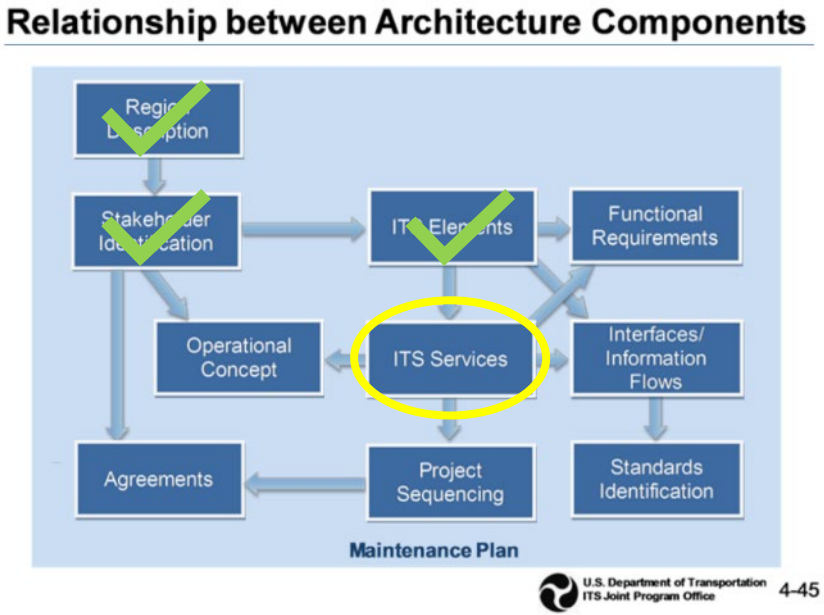
DES MOINES AREA MPO
METROPOLITAN PLANNING ORGANIZATION

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

U.S. Department of Transportation
ITS Joint Program Office

4-20

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	✔

⋮

U.S. Department of Transportation
ITS Joint Program Office

4-21

DES MOINES AREA MPO METROPOLITAN PLANNING ORGANIZATION

Regional ITS Architecture Update – ITS Services

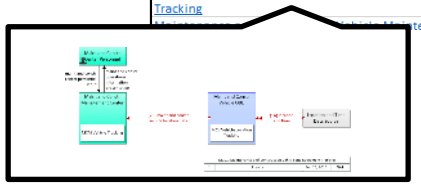
- ITS Services Survey Example

Associated ITS Element/Item(s)					
Element	Name		Element Description		
ITS Service Area	ITS Service	Status (Existing, Planned, Future)	Description/Comments	Associated ITS Elements/Item(s)	Regional Interest
Commercial Vehicle Operations	Carrier Operations and Fleet Management				
	Freight Administration				
	Electronic Clearance				
	CV Administrative Processes				
	International Border Electronic Clearance				
	Freight Signal Priority				
	Roadside CVO Safety				
	Smart Roadside and Virtual WIM				
	Freight-Specific Dynamic Travel Planning				
	Road Weather Information for Freight Carriers				
	Freight Drayage Optimization				
	HAZMAT Management				
	Roadside HAZMAT Security Detection and Mitigation				
	CV Driver Security Authentication				
	Fleet and Freight Security				
Data Management	ITS Data Warehouse				
	Performance Monitoring				
	Maintenance and Construction Vehicle and Equipment Tracking				
	[illegible] Maintenance				

Existing, Planned, or Future

Maint/Constr Center
Maint/Constr Vehicle
Maint/Const Center Personnel

Regional Interest



2020 TMAC Topics

~~Best Practices~~

- ~~Emergency Vehicles Warning Best Practices~~
- ~~Distracted Driving and Countermeasures~~
- Develop a Metro-wide Training Handout (Services Book) on Available Training to Provide to Metro Departments

~~Construction~~

- ~~Construction within the MPO Area and Continu~~ ~~onstruction Updates~~
- ~~Workzone Safety Initiatives~~
- ~~Information on Planned Safety Improvements o~~ ~~ior Roadways~~

~~Incident Response and Management~~

- ~~Quick Clearance~~
- ~~Better Local Agency Access to Traffic Cameras~~
- ~~Sharing Resources for Incidents~~
- ~~Lane Closure Management Across the Metro~~

~~Infrastructure and Technology~~

- Outdated Infrastructure
- ~~Connected Vehicles~~
- ~~FirstNet~~

~~Towing~~

- ~~Towing Company Safety~~
- ~~Towing Recovery Incentive Program (TRIP)~~
- ~~Information and Sharing with Towing Companies~~

Next Meeting

Winter Break 2020

(No TMAC December Meeting)

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