



PREPARING FOR AN AT-READY IOWA

Joint MPO & RPA
Quarterly Meeting

Wednesday, September 23rd, 2020



AGENDA

What is AT & CAT?

What is the AT Council?

What is the AT Council
doing to be AT-Ready?

Ensure CAT in Planning



WHAT IS AUTOMATED TRANSPORTATION (AT)?

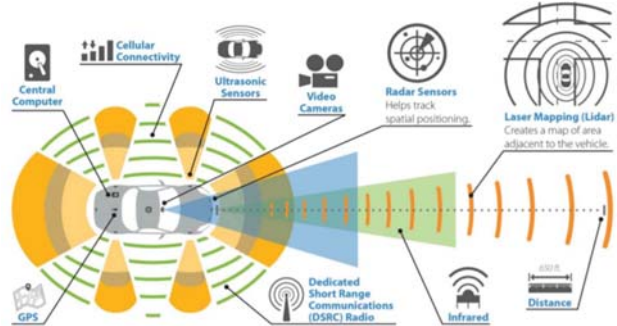


SAE J3016™ LEVELS OF DRIVING AUTOMATION

	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".		
What do these features do?	These are driver support features. These features are needed to providing warning and momentary assistance.			These are automated driving features. These features can drive the vehicle under limited conditions and will not operate unless all required conditions are met.		
Example Features	• automatic emergency braking • blind spot warning • lane departure warning	• lane centering, DS • adaptive cruise control	• lane centering, AND • adaptive cruise control at the same time	• traffic jam chauffeur	• local driverless taxi • pedestrian steering wheel may or may not be installed	• same as level 4, but features 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/

Automated Vehicle Technology



Source: Iowa DOT I-80 Planning Study

WHAT IS AUTOMATED TRANSPORTATION (AT)?

VEHICLES WITH AUTOMATION

LEVEL	0 None	1 Assistance	2 Partial	3 Conditional	4 High	5 Full
What car does 	Nothing	Assists; Accelerate, brake <u>or</u> steer	Assists; Accelerate, brake <u>and</u> steer	Everything for short periods of time	Everything restricted operating environment	Everything
What driver does 	Everything	Everything with some assistance	Everything with more assistance	Remain alert ready to resume control	Nothing restricted operating environment	Nothing

Source: Johanna Zmud, Texas A&M Transportation Institute

Advanced Driver Assistance Systems (ADAS) & Automated Driving Systems (ADS)



WHAT IS AUTOMATED TRANSPORTATION (AT)?

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 ConOps

WHAT IS AUTOMATED TRANSPORTATION (AT)?

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

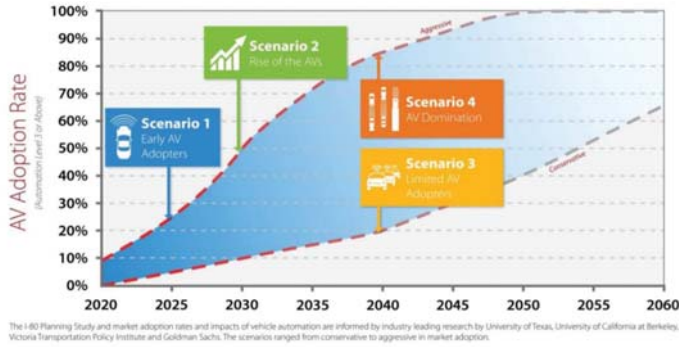
- Automated Ride for Hire
- Automated Personal Vehicles

Agency Operations

- Automation of Fleet Vehicles

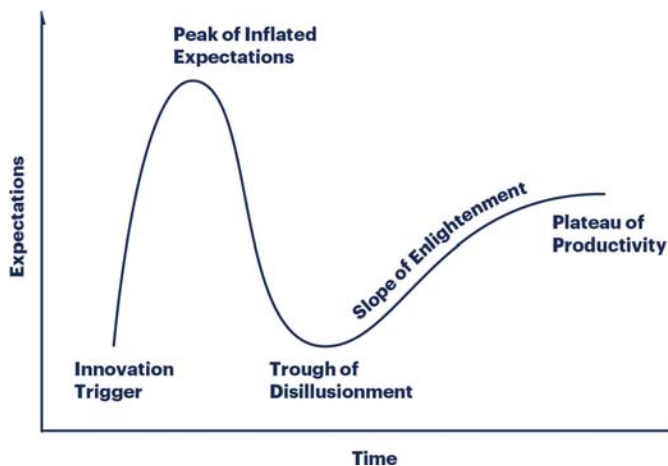


MARKET ADOPTION



Source: Iowa DOT I-80 Planning Study

MARKET ADOPTION/PENETRATION

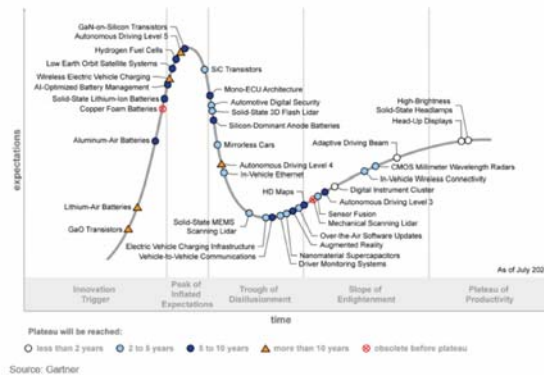


Gartner Hype Cycle

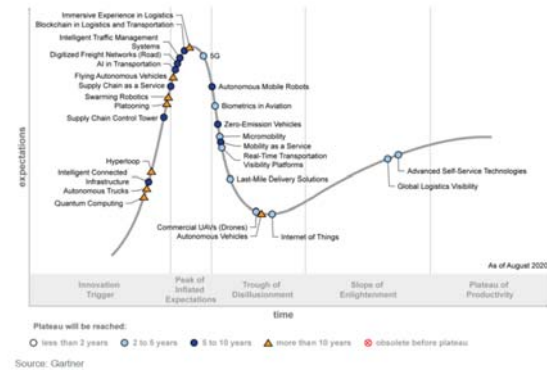
Source: Gartner

MARKET ADOPTION/PENETRATION

Hype Cycle for Automotive Technologies, 2020



Hype Cycle for Transportation Industry, 2020



What is the motivating factor to expand AT?

[Pathways To Adoption For Autonomous Driving Infrastructure](#)

[Trucking Is Leading The Race To Commercialize AV Technology](#)

WHAT IS THE AT COUNCIL?



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/>



ATC STAKEHOLDERS

Stakeholder	Role(s)
Associated General Contractors of Iowa	ATC member, transportation infrastructure
Federal Highway Administration (FHWA), Iowa Division	ATC ex officio member, infrastructure, policy, Stewardship / Oversight Agreement
Federal Motor Carrier Safety Administration	ATC ex officio member, freight movement safety and policy
Freight Advisory Council	ATC member, freight and commerce
Iowa City Area Chamber of Commerce	ATC member, economic development
Iowa Department of Agriculture and Land Stewardship	ATC member, agriculture and rural transportation
Iowa Department of Public Safety (DPS)	ATC member, public safety
Iowa Department of Transportation (DOT)	ATC member, lead agency and chair of the ATC
Iowa DOT Motor Vehicle Division	ATC member, licensing, regulation, and enforcement
Iowa DOT Research and Analytics Bureau	Implications of AT on assets and data
Iowa DOT Strategic Communications and Policy Bureau	ATC member, communications
Iowa DOT Systems Planning Bureau	Planning for advanced mobility
Iowa DOT Traffic Operations Bureau	Lead Bureau for AT
Iowa Economic Development Authority	ATC member, economic development
Iowa Insurance Division	ATC member, liability and insurance
Iowa League of Cities	ATC member, local governance
Iowa Legislature, House of Representatives	ATC ex officio member
Iowa Legislature, Senate	ATC ex officio member
Iowa Motor Truck Association	ATC member, freight and commerce
Iowa State Association of Counties	ATC member, local governance
Iowa State Patrol	ATC member, enforcement and public safety
Iowa State University	Expertise in AT, AV, infrastructure, and operations
Iowa Transportation Commission	Policy, program determinations, administrative rules
Iowa Transportation System Users	All system users, e.g., motorists, freight movers, transit riders, bicyclists, pedestrians
Metropolitan Planning Organizations	Responsible for a range of transportation and land use issues
National Highway Traffic Safety Administration (NHTSA)	ATC ex officio member, policy and vehicle regulation
Technology Association of Iowa (TAI)	ATC member, economic and workforce development
University of Iowa	ATC co-chair for management and logistics, AV expertise

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WHAT IS THE AT COUNCIL?



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WHAT IS THE AT COUNCIL DOING TO BE AT-READY?



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WHAT IS THE AT COUNCIL DOING TO BE AT-READY?



Figure 3. AT Plan Three-Prong Framework

- ATC Goals
 - Function as a catalyst and forum for AT systems and AV technologies
 - Discuss policy and strategies to further effective and successful research, development, testing, operation, and implementation of AVs in the state of Iowa
 - Provide coordinated feedback on AVs to both public and private entities
 - Promote testing and deployment and remove barriers
 - Provide a forum for education and outreach on AT systems and AVs

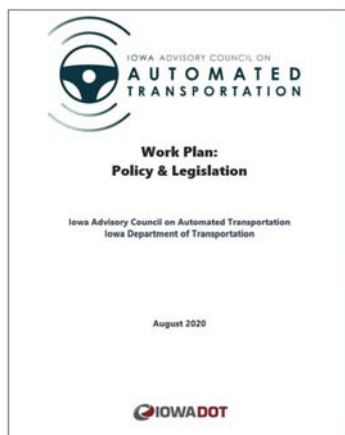
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WHAT IS THE AT COUNCIL DOING TO BE AT- READY? TACTICS

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 5. Implement Pilot Program*
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

WHAT IS THE AT COUNCIL DOING TO BE AT-READY?



- **Monitor Legislation** – maintain awareness, assess needs, provide direction
- **Implement Pilot Program** – develop and implement the *Iowa CAT Challenge*, led by the Economic Development (EcDev) Subcommittee
- **Ensure Cooperative and Automated Transportation (CAT) in Planning** – policy and programming at all levels for all users
- **Bolster State Leadership** – targeted outreach, information sharing, engagement, in collaboration with the Communication, Outreach, & Education working group
- **Modify Administrative Rules** – with legislation, regulatory changes, and shifting technology
- **Improve Equity & Accessibility** – community readiness for all users, including stakeholder outreach with the Communication, Outreach, & Education working group
- **ODD Compliance** – addressing adherence to operational design domains (ODDs), i.e., the when, where, and under what conditions an ADS is designed to operate safely; this cross-cuts with the PS&E subcommittee as lead, so refer to that work plan for details
- **Address VRU Safety** – also cross-cutting with PS&E with the detail maintained in that work plan; addressing AV risks to vulnerable road users (VRUs) and advancing mitigation strategies

2.1 Tactics Summary Table

	Deliverables	Lead(s)	Resources	Scenarios	Timeline
Monitor Legislation	Tracking and feedback on Iowa, other states, and federal activity	Renee Jerman & Adam Shell	Staff time and engagement	N/A	Follows annual cycle
Implement Pilot Program	(led by Economic Development – refer to that work plan for details)				
Ensure CAT in Planning	Incorporation of CAT into various plans and programs	Garrett Pedersen, Iowa DOT	Staff awareness and follow-up with in/outreach	In/outreach materials, organizational meetings	With planning and conference cycles
Bolster State Leadership	Specific engagement and general education opportunities	Dylan Mullenix, Des Moines Area MPO	Staff time, collaboration with Communications working group	Visits, tours, presentations, meetings, etc.	Ongoing
Modify Administrative Rules	Stakeholder meetings, research, draft and final recommendations	Sara Siedsma, Iowa DOT	Staff time, consultant support	Subject to rulemaking needs that arise	
Improve Equity & Accessibility	Recommendations and outreach	Mindi Nguyen, Iowa DOT	Staff time	Focus on a specific disadvantaged community	TBD

ENSURE COOPERATIVE AND AUTOMATED TRANSPORTATION (CAT) IN PLANNING

Topics for consideration and discussion:

- Data (Security, Governance,...etc.)
- Engagement/Participation
- Long Range Planning
- Travel Demand Modeling
- Zoning
- Jurisdictional considerations
- Rural and Urban impacts
- Asset Management
- ITS Architecture
- Policy & Rulemaking
- Education
- Mobility
- Accessibility
- Equity
- MaaS/MOD
- Urban Design
- Transit
- Trucking
- Freight
- Vulnerable Road Users (VRUs)
- Infrastructure Owner Operator (IOO)
- Scenario planning
- Market Adoption
- Funding Implications
- Operational Design Domain (ODD)
- Pavement Markings
- Work zones

What do you need or want to see from the ATC?

THANK YOU

Dylan Mullenix

Assistant Director, Des Moines Area MPO
ATC Policy & Legislation Subcommittee Chair

Adam Shell

Automated Transportation Program Manager
Traffic Operations Bureau – Iowa DOT