Wisconsin Automated Vehicle External (WAVE) Advisory Committee
Meeting Minutes
November 19, 2024 - 9:00 a.m. – 3:05 p.m.
Rm N108, Hill Farms state office building, 4822 Madison Yards Way, Madison, WI

Attendance

WAVE Members Present: Christopher Hiebert, Nick Jarmusz, Jeff Lewandowski, Raymond Mandli, Yang Tao, Patrick Vander Sanden, Alexander (Sandie) Pendleton

WAVE Member Organization Proxies Present: Andrea Bill (UW-Madison Traffic Operations and Safety Laboratory), Adele Edwards (City of Racine), Avrie Marsolek (Office of Sen. Jeff Smith), Tom Shi (UW-Milwaukee Institute for Physical Infrastructure and Transportation), Kurt Walker (Federal Highway Administration, Wisconsin Division)

Wisconsin Department of Transportation (WisDOT) Staff Present: Kristina Boardman, Joel Nilsestuen, Lea Collins-Worachek, June Coleman, Brad Basten, Carter Angelo, Mike Denruiter, Tracy Drager, Brian Elliot, Michael Kessenich, Chloe Kurkjian, Reed McGinn, Asadur Rahman, Ian Ritz, Benjamin Rouleau, Johanna Schmidt, Sarah Simonson, Todd Szymkowski, Kamden Stark, Maryne Taute, Charles Wade

Meeting discussion

Welcome and Opening Remarks - WisDOT Secretary Kristina Boardman thanked everyone for taking the time to join the November WAVE meeting to help shape the plans to better meet the needs of the industries and communities supported by Wisconsin's transportation system. Secretary Boardman noted that the complex process of creating a CAV (Connected and Automated Vehicle) Resource Guide will be valuable for our partners and stakeholders as they begin to create strategies customized to their unique communities when considering new technologies. CAV technology is here to stay and it will continue advancing as new innovations are developed. Information from a WisDOT sponsored survey led by the UW TOPS Lab to determine the public perception of CAV in Wisconsin will help guide our outreach to these communities. This is an exciting time as we look to how CAV can help us make our transportation system safer, but we must make sure we're ready for what's coming

Meeting Overview – WisDOT Division of Budget & Strategic Initiatives (DBSI) Administrator Lea Collins-Worachek explained how the guide will help stakeholders understand CAV solutions and understand approaches to planning for CAVs. In the small group discussions members reviewed current and emerging CAV technologies, then discussed common transportation problems in their assigned focus area (e.g., rural area, etc.). Groups matched CAV applications to the problems identified by the workgroup, and in the second workshop, the group built on this by exploring next steps to actually apply the solutions. This session should be considered a "part one," and we will build off this meeting for the spring meeting.

Purpose of the CAV Transportation Resource Guide – WisDOT's CAV lead Brad Basten described how the users of the resource guide, e.g., MPOs, legislators, business owners, and transportation advocates, can use it to learn about CAV technology, how accessible each application is and how the technologies may be applied to their transportation issues. Brad explained the workshop process and handouts for the meeting.

Summary of key points discussed during workshop sessions

Workshop Session #1

Workshop session #1 – Small groups were assigned one or two focus areas to discuss which top transportation issues could be most improved by CAV technology and the impacts or infrastructure needs of those applications. Focus areas included: *urban neighborhood/downtown, rural and small towns, healthcare facilities, entertainment districts, suburban areas, commercial districts.*

Group 1 focus area:

Urban Neighborhood/Downtown

Discussion outcomes included the following:

Key Issues Identified	*Technology Opportunities*
Safety and Operations	o Use CV (Connected Vehicle) data for travel demand management, adaptive traffic control and operational improvements. o Use near-miss data to identify potential hazards and locations for preventive actions.
Technology Implementation	o Connected traffic signals and vehicle to infrastructure technology. o Adapt the technology to fit transportation needs versus adapting technology.
Data Utilization	o Opportunities with big data for remote sensing and identifying bottlenecks. o CV data for signal timing adjustments. o Near-miss CV data analysis to enhance safety.
Equity Considerations	o Addressing affordability of vehicles and ensuring non-drivers are not adversely affected.

Group 2 focus area:

Rural and Small Towns

Discussion outcomes included the following:

Key Issues Identified	*Technology Opportunities*
Access to Services	o Solutions for non-drivers (e.g., seniors, people with disabilities) through ridesharing, automated delivery, and partial automation.
Safety	o Crash avoidance systems for higher-speed crashes, wildlife incidents, and agricultural equipment safety. o Better pavement markings and signage and ADAS (Advanced Driver Assist System), and school bus safety improvements (ADAS).

Education	o Emphasize ADAS performance differences in rural settings and local leader buy-in.
Commercial Applications	o Retaining jobs through automation in agriculture and logistics. o Private investment to support partial automation.

Group 3 focus area:

Healthcare

Discussion outcomes included the following:

Key Issues Identified	*Technology Opportunities*
Access to Care	o Exploring ADAS and automation to diversify transportation options beyond ambulances. o Centralized AV (automated vehicle) hubs for easier access to medical services.
Urgent and Preventative Care	o ADAS equipped vehicles and controlling traffic signals for urgent care response.
Regulatory and Funding Concerns.	o Incentives from medical establishments and federal grants to improve AV/ADAS transportation accessibility.

Group 3 focus area:

Entertainment District

Discussion outcomes included the following:

Key Issues Identified	*Technology Opportunities*
Access to events	o AV shuttle systems
Management of area transportation	o Partner with social media on traffic messages using CV data. o Messages to vehicle navigation systems.
Large events vs regular events	o Dynamic message signs advise on traffic data pulled from CVs at event.

Group 4 focus area:

Suburban Areas

Discussion outcomes included the following:

Key Issues Identified	*Technology Opportunities*
Public Transit Systems	o Creating pod systems for neighborhood pick-ups and transfers to large transit hubs. o Incentives like tax breaks to encourage use.

Vulnerable Road Users	o ADAS systems in transit vehicles, e.g., pedestrian detection, automatic emergency braking. o AV shuttles/taxis: Pre-scheduled rides and dynamic ridesharing.
Driving Habits and Commute Times	o Using AVs for other uses like deliveries during non-peak hours o Culture shift, especially for the private sector so start/end times are staggered to optimize use of AV shuttles.

Group 4 focus area:

Commercial Districts

Discussion outcomes included the following:

Key Issues Identified	*Technology Opportunities*
Roadway safety	**o** Redesigning road layouts to better accommodate pedestrians and freight.
Not pedestrian friendly	**o** Pedestrian sensors in freight depots or other areas with pedestrians.
Commercial districts layout	**o** Incorporating the logistics of commercial vehicles from the start. **o** Planning with human behavior in mind.

Workshop Session #2

Workshop session #2 – Small groups were asked to list **additional considerations** when planning for CAV projects, e.g., availability of new technology, identify benefits and risks, costs, useful community assets, and funding sources.

Group 1 focus area:

Urban Areas

Discussion outcomes included the following:

Key Considerations

- Piloting infrastructure improvements like signal optimization.
- Automated crash attenuators
- Guide for small/medium sized towns to implement transportation technology incrementally.

Group 2 focus area:

Rural and Small Towns

Discussion outcomes included the following:

Key Considerations

- Use pilot projects to test technology and educate.

- Proposals for public-private taxi services and AV construction vehicles for safety.
- V2X communication for hilly and curved roads.
- Smart cones for work zones.

Group 3 focus area:

Healthcare Facilities

Discussion outcomes included the following:

Key Considerations

- Needs assessment of users to focus efforts on appropriate solutions.
- Combining technology with existing infrastructure for cost-effective solutions.
- Funding opportunities from federal and private partners.
- Lessons learned from other healthcare facilities.

Group 3 focus area:

Entertainment Districts

Discussion outcomes included the following:

Key Considerations

- Partnering with major events for shuttle systems.
- Ensure benefits of technology are equitable.
- Shared revenue to fund transportation solutions for district visitors and residents.

Group 4 focus area:

Suburban Areas

Discussion outcomes included the following:

Key Considerations

- Manage phased adoption of AVs with human drivers.
- Pursue connected technology for safety benefits.
- Education and outreach to local governments on integrating CAV systems into existing road networks.

Group 4 focus area:

Commercial Districts

Discussion outcomes included the following:

Key Considerations

- Implement CV technology that is available now.
- Ask for input from community
- Review successful developments that are similar

Whole Group General Takeaways and Priorities:

- **Connected Technology:**
  - Scaling connected infrastructure, such as V2X, gradually to improve safety and efficiency.

- **Funding Challenges:**
  - Alternatives to gas tax to fund new technology and better subsidy models for AV/ADAS adoption.

- **Education and Outreach:**
  - Public and private sector collaboration to ensure technology adoption and community acceptance.

In addressing these issues systematically, the groups emphasized the need for equitable, sustainable, and innovative solutions to advance transportation systems with CAV technologies.

Meeting discussion

Closing Remarks – WisDOT Assistant Deputy Secretary Joel Nilsestuen thanked everyone for taking the time to participate in WisDOT's fall WAVE meeting noting how the creation of a CAV Resource Guide is so valuable. Commenting that with this new tool, we can share information to set our partners up for success as Wisconsin's transportation system grows and adapts with evolving technology. We must do everything we can to reduce the unacceptable number of fatal crashes across Wisconsin each year. Projects like the Work Zone Data Exchange to protect road workers and our pilot to equip State Patrol cruisers with radios to broadcast the location of crashes or traffic stops are part of our efforts to reduce fatalities on our roadways. These projects allow us to continue to look ahead to modernize our transportation system, but we can't do it without the WAVE members' collaboration. We look forward to the creation of this new CAV Resource Guide in 2025.