MEETING NOTES

Iowa Advisory Council on Automated Transportation (ATC)

Policy & Legislation Subcommittee Meeting

Tuesday, January 19, 2021

1-2 pm central

Action Items:

- Interested stakeholders to provide feedback through appropriate channels to SSB 1058 (formerly HSB 25), which authorizes personal delivery devices to operate in Iowa.
- Policy and Legislation (P&L) subcommittee members are invited to contact Dylan Mullenix (dmullenix@dmampo.org) if they or someone they know would be interested in participating in a statewide subcommittee focused on local planning efforts for automated transportation

1. Welcome and introductions – Dylan Mullenix, Policy & Legislation Subcommittee Chair
    - Attendees – 25 people
        - Dylan Mullenix (Policy & Legislation Subcommittee Chair) – Des Moines Area Metropolitan Planning Organization
        - Colonel Nathan Fulk (Public Safety & Enforcement Chair) – Iowa State Patrol
        - Jordana Maisel – University at Buffalo
        - Commissioner Stephan Bayens – Iowa Department of Public Safety
        - Travis Grassel – Iowa Insurance Division
        - Rachel Bennett – Iowa County Engineers Association
        - Peter Rafferty, Lia Yakumithis – Gannett Fleming
        - Adam Shell, Mikel Derby, Joe Drahos, Brenda Freshour-Johnston, Kristin Haar, Jeremy Johnson-Miller, Peggi Knight, Mindi Nguyen, Garrett Pedersen, Sara Siedsma, Andy Lewis, Scott Marler – Iowa DOT
        - Dan McGehee, Omar Ahmad, Jacob Heiden – University of Iowa, National Advanced Driving Simulator
        - Two dialed in by phone

2. P&L Work Plan & Tactical Actions
    a. Monitor Legislation and Modify Administrative Rules
        - State Update - Sara Siedsma, Iowa DOT
            1. Sara Siedsma is a Compliance Officer with the Iowa DOT. She provided a status update of the administrative rulemaking for Driverless-Capable Vehicles in Iowa. Senate File 302 authorized the Iowa Department of Transportation to adopt administrative rules regulating driverless-capable vehicles. Sara has provided updates at the full council meetings in March and August.
            2. The rules were sent in September to DOT stakeholders, including the entire ATC. A few comments were received, but those comments didn't cause drastic changes to the rules. The rulemaking is now with the DOT legal counsel for review. After the review, the rules will be published publicly in the administrative bulletin that will kickoff the process with the legislative rules committee.
            3. SSB 1058 (formerly HSB 25) – Personal Delivery Devices (PDDs) – authorizes personal delivery devices to operate in Iowa. This statute would exempt these devices from the driverless-capable vehicles rules and would be exclusively regulated by new chapter. The bill has model language used in legislation in other states. Similar personal delivery devices from Starship have been deployed in Madison, WI, and Pennsylvania has similar language in their legislation. Stakeholders are encouraged to review the bill and provide feedback through appropriate channels.

4. PDD safety concerns were discussed, with initial bill details indicating the device can weigh up to 1000 pounds and travel 12 mph on the sidewalk. How will PDDs interact with pedestrians, including individuals with disabilities? Will the PDDs be used for "testing" or for "production?" The language of the bill should specify these details, and it's important to proactively consider and discuss possible safety consequences.

- Federal Update - Adam Shell, Iowa DOT
    1. Adam Shell is the Automated Transportation Program Manager with the Iowa DOT. He provided brief updates on various federal efforts related to automated vehicles (AVs). Specifics with links are below:
        a. Federal Communications Commission (FCC)
            i. Use of the of the 5.850-5.925 GHz Band (Link)
        b. Federal Highway Administration (FHWA)
            i. National Standards for Traffic Control Devices; MUTCD for Streets & Highways – Revision (Link)
        c. National Highway Traffic Safety Administration (NHTSA)
            i. Automated Driving System Safety Framework (Link)
            ii. Cybersecurity Best Practices for the Safety of Modern Vehicles (Link)
            iii. Occupant Protection for Vehicles With Automated Driving Systems (Link)
            iv. Exemptions for Domestically Produced Vehicles and Equipment for Research, Investigations, Demonstrations, or Training (Link)
        d. Office of the Secretary (OST), U.S. DOT
            i. Automated Vehicles Comprehensive Plan (AVCP) (AVCP Link | Rulemaking Link)

- Federal Delegation Coordination – Dylan Mullenix
    1. Following Adam's federal updates, Dylan reiterated federal legislative efforts across the state should work through national organizations, the DOT, and other established processes. Members of the P&L subcommittee can reach out to Dylan and Adam if a response is warranted from the ATC.

b. Ensuring CAT in Planning
- Iowa DOT state transportation plan - Garrett Pedersen, Iowa DOT
    1. Garrett Pedersen is the Planning Team Leader with Iowa DOT. The Iowa DOT is considering a few items in their long-range transportation plan update, which is a plan required by state and federal code. The plan is scheduled for adoption in May 2022 and considers the following:
        a. No-hype summary: current state of technology and estimated adoption/fleet integration timelines
        b. Rightsizing policy: statement regarding consideration of emerging technologies, risk of over/underestimating influence on intended benefit of improvements
        c. Travel demand model: potential "conservative adoption" scenario with lane capacity adjustments tied to conservative fleet integration

- Local Planning and Zoning – Dylan Mullenix, P&L Chair and President of the Iowa Chapter of American Planning Association
    1. Dylan shared his local planning perspective and stated DOT will lead Iowa's planning efforts in automated transportation having a more defined sense of what can be accomplished. However local actions now can prepare communities and align with state

plans. Dylan and Garrett are forming a diverse subcommittee outside of the ATC to sense how local municipalities should address AVs in comprehensive planning and zoning. This subcommittee is working on a checklist, similar to the Complete Streets policy, for local governments and planners to consider and address opportunities related to automated transportation. P&L subcommittee members can reach out to Dylan if they or someone they know would be interested in joining the separate subcommittee focused on local planning efforts for AVs.

3. Universal Design and Autonomous Vehicles – Dr. Jordana Maisel, University at Buffalo
    a. Jordana Maisel (jlmaisel@buffalo.edu) is the Director of Research at the Center for Inclusive Design and Environmental Access. She is also an Assistant Professor in the Department of Urban and Regional Planning at the University at Buffalo. Dr. Maisel has led research in the areas of public transportation, street infrastructure, post occupancy evaluations, and accessible housing policy. She is also a Principal Investigator and/or co-PI on other sponsored research projects related to wheelchair securement, autonomous vehicles, and ride-hailing.
    b. The IDEA Center is a multidisciplinary center focused on advancing equity and inclusion through universal design. Transportation plays an important role in creating an equitable society, but unfortunately millions of America experience transit barriers. Automated vehicles have the potential to reduce dependency for people that cannot drive themselves.
    c. Universal (inclusive) design is a process that enables and empowers a diverse population by improving human performance, health and wellness, and social participation. Universal design is not the same as accessibility. For example, accessible entrances that meet code are often in different places than the main entrance and therefore not universal. The 8 goals of universal design are listed below.
        - Body fit – (human performance) accommodating a wide range of body sizes and abilities
        - Comfort – (human performance) keeping demands within desirable limits of body function
        - Awareness – (human performance) ensuring the critical information for use is easily perceived
        - Understanding – (human performance) making methods of operation and use intuitive and clear
        - Wellness – (health and wellness) contributing to health promotion, avoidance of disease and hazards
        - Social Integration – (social participation) treating all groups with dignity and respect
        - Personalization – (social participation) incorporating opportunities for choice and expression of preferences
        - Cultural Appropriateness – (social participation) respecting and reinforcing social and environmental context
    d. These goals of Universal Design are being integrated into current AV policies and should be considered in Iowa. Auto Alliance published a report on AVs & Increased Accessibility that adopts universal design goals to organize existing user needs. Universal design principles are critical in all aspects of the travel chain including trip planning, first/last mile, transit stop, boarding, riding, first/late mile, destination.

4. Improve Equity & Accessibly Open Discussion - Mindi Nguyen, Iowa DOT
    a. Equity, inclusivity, and accessibility are on the forefront in the transportation world, with focuses being more proactive than reactive. Mid America Association of State Transportation Officials (MAASTO) Connected and Automated Vehicle (CAV) committee recently created an equity, access, and engagement working group. Mindi Nguyen with the Iowa DOT will co-lead this group and will provide updates as needed to the P&L subcommittee and council moving forward.

5. Open Discussion – All subcommittee members
    a. Daniel Yeh with the Iowa DOT provided additional updates on personal delivery devices related to current testing, production, and implementation across the country. Most pilot testing is limited in geography. Starship PDDs in Madison, WI operate on campus but are allowed by the city to cross public roadways. These PDDs operate autonomously with human supervision on campus and require remote human control when crossing a public road. Specific PDD testing details vary across states and cities. States and cities customize PDD legislation for their needs.

b. Garrett Pedersen expanded on the equity topic. Planning efforts should recognize traditional tendencies (i.e. overemphasizing usage but not access). Historically transportation officials have understood how commodities move through our system, but more work needs to be done to understand how users move through the system.

6. Information and key upcoming dates
    a. Iowa ATC Meeting: Tuesday, March 2, 2021 from 10 am - noon

ATC SUBCOMMITTEE MEETING

Policy & Legislation

January 19th, 2021

IOWA ADVISORY COUNCIL ON AUTOMATED TRANSPORTATION

WELCOME & INTRODUCTIONS

Dylan Mullenix –

Policy & Legislation Subcommittee Chair

POLICY & LEGISLATION WORK PLAN & TACTICAL ACTIONS

Monitor Legislation and Modify Administrative Rules

- State Update - Sara Siedsma
- Federal Update - Adam Shell
- Federal Delegation Coordination – Dylan Mullenix

POLICY & LEGISLATION WORK PLAN & TACTICAL ACTIONS

Monitor Legislation & Modify Administrative Rules

State Update – Sara Siedsma

- Status of Administrative Rulemaking – Driverless-Capable Vehicles
- HSB 25 – Personal Delivery Devices

POLICY & LEGISLATION WORK PLAN & TACTICAL ACTIONS

Monitor Legislation & Modify Administrative Rules

Federal Update - Adam Shell

Federal Communications Commission (FCC)

- Use of the 5.850-5.925 GHz Band (Link)

Federal Highway Administration (FHWA)

- National Standards for Traffic Control Devices; MUTCD for Streets & Highways – Revision (Link)

National Highway Traffic Safety Administration (NHTSA)

- Automated Driving System Safety Framework (Link)
- Cybersecurity Best Practices for the Safety of Modern Vehicles (Link)
- Occupant Protection for Vehicles With Automated Driving Systems (Link)
- Exemptions for Domestically Produced Vehicles and Equipment for Research, Investigations, Demonstrations, or Training (Link)

U.S. DOT, Office of the Secretary (OST)

- Automated Vehicles Comprehensive Plan (AVCP) (AVCP Link | Rulemaking Link)

POLICY & LEGISLATION WORK PLAN & TACTICAL ACTIONS

Monitor Legislation & Modify Administrative Rules

Federal Delegation Coordination – Dylan Mullenix

IOWA ADVISORY COUNCIL ON AUTOMATED TRANSPORTATION

POLICY & LEGISLATION WORK PLAN & TACTICAL ACTIONS

Ensuring CAT in planning

- Iowa DOT state transportation plan - Garrett Pedersen
- Local Planning and Zoning – Dylan Mullenix

POLICY & LEGISLATION WORK PLAN & TACTICAL ACTIONS

Ensuring CAT in planning

Iowa DOT state transportation plan - Garrett Pedersen

- **No-hype summary**: current state of technology and estimated adoption/fleet integration timelines
- **Rightsizing policy**: statement regarding consideration of emerging technologies, risk of over/underestimating influence on intended benefit of improvements
- **Travel Demand Model**: potential “conservative adoption” scenario with lane capacity adjustments tied to conservative fleet integration

IOWA ADVISORY COUNCIL ON AUTOMATED TRANSPORTATION

POLICY & LEGISLATION WORK PLAN & TACTICAL ACTIONS

Ensuring CAT in planning

Local Planning and Zoning – Dylan Mullenix

UNIVERSAL DESIGN & AUTONOMOUS VEHICLES

Dr. Jordana Maisel, University at Buffalo

UNIVERSAL DESIGN AND AUTONOMOUS VEHICLES

Jordana Maisel, PhD | January 19, 2021

Iowa Advisory Council on Automated Transportation

University at Buffalo
Center for Inclusive Design and Environmental Access
School of Architecture and Planning

The IDEA Center engages in research and design focused on advancing equity and inclusion.

- Research
- Product Development
- Usability Testing
- Design Consulting
- Accessibility Auditing
- Wayfinding Design
- Training & Education

Importance of Transportation

Transit Barriers

Vehicle Automation

WHY UNIVERSAL DESIGN?

University at Buffalo
Center for Inclusive Design and Environmental Access
School of Architecture and Planning

ACCESSIBILITY ≠ UNIVERSAL DESIGN

DEFINITION AND GOALS OF UNIVERSAL DESIGN

University at Buffalo
Center for Inclusive Design and Environmental Access
School of Architecture and Planning

A *process* that enables and empowers a diverse population by improving human performance, health and wellness, and social participation.

Steinfeld and Maisel (2012)

Goals of Universal Design

1. Body Fit
2. Comfort
3. Awareness
4. Understanding
5. Wellness
6. Social Integration
7. Personalization
8. Cultural Appropriateness

BODY FIT (human performance)

accommodating a wide range of body sizes and abilities

Image courtesy of Local Motors

COMFORT (human performance)

keeping demands within desirable limits of body function

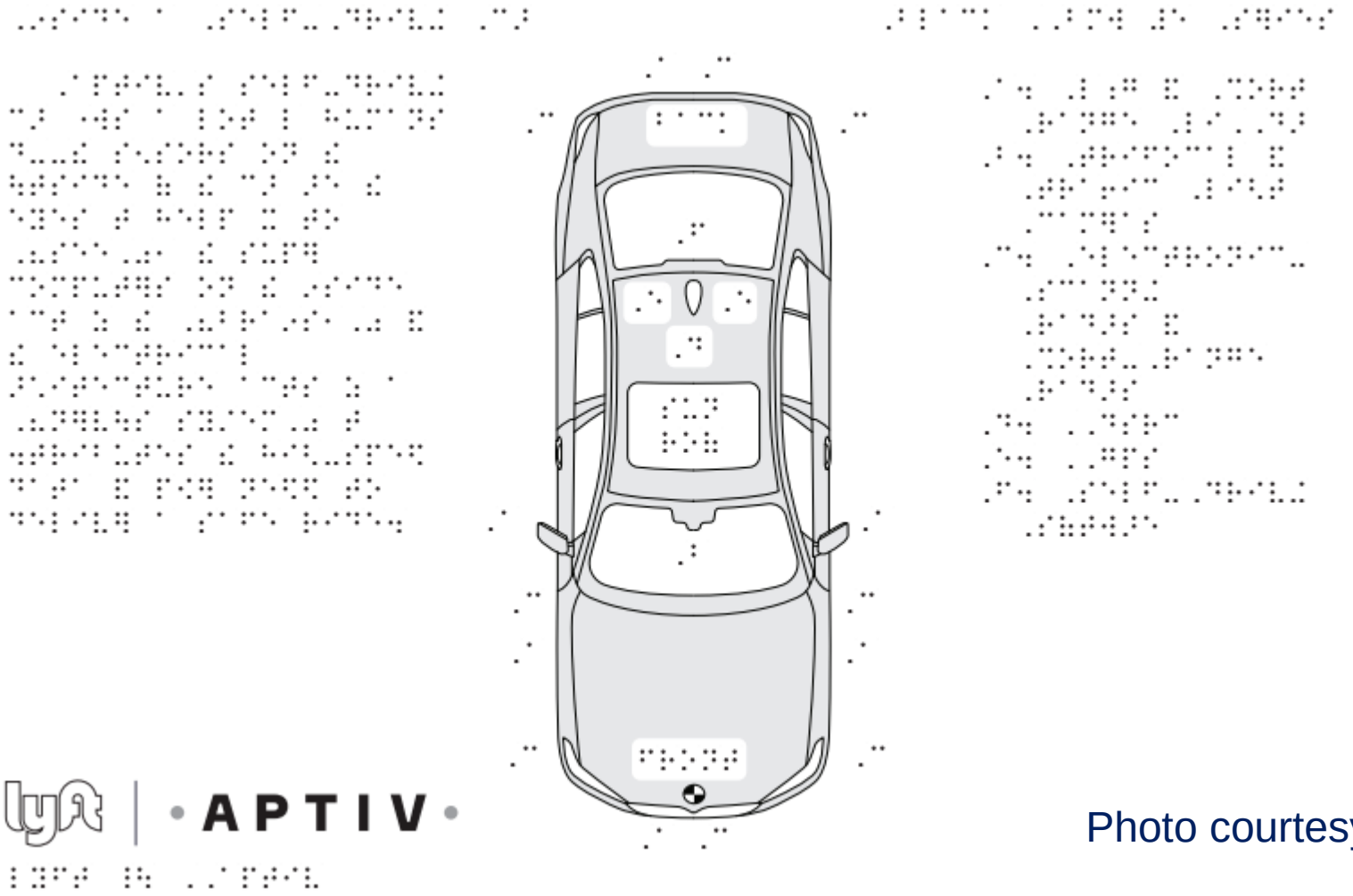

Photo courtesy of techcrunch

AWARENESS (human performance)

ensuring the critical information for use is easily perceived

UNDERSTANDING (human performance)

making methods of operation and use intuitive and clear

WELLNESS (health & wellness)

contributing to health promotion, avoidance of disease and hazard

PERSONALIZATION (social participation)

incorporating opportunities for choice and expression of preference

SOCIAL INTEGRATION (social participation)

treating all groups with dignity and respect

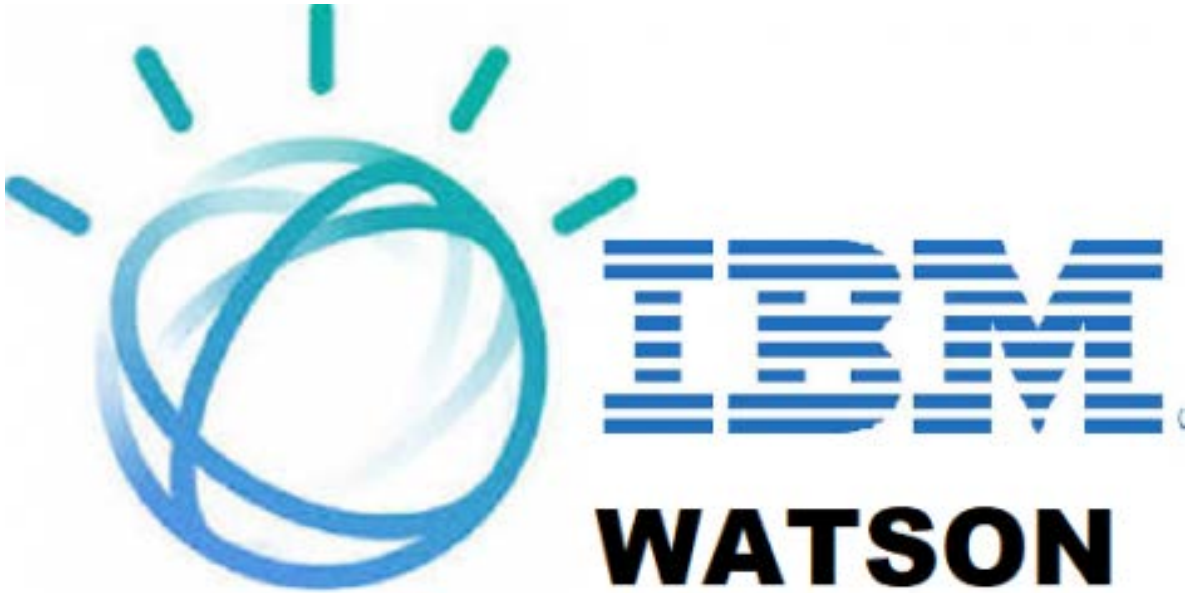

Image courtesy of IBM

CULTURAL APPROPRIATENESS (social participation)

respecting and reinforcing social and environmental context

Goals of UD Adopted by Industry

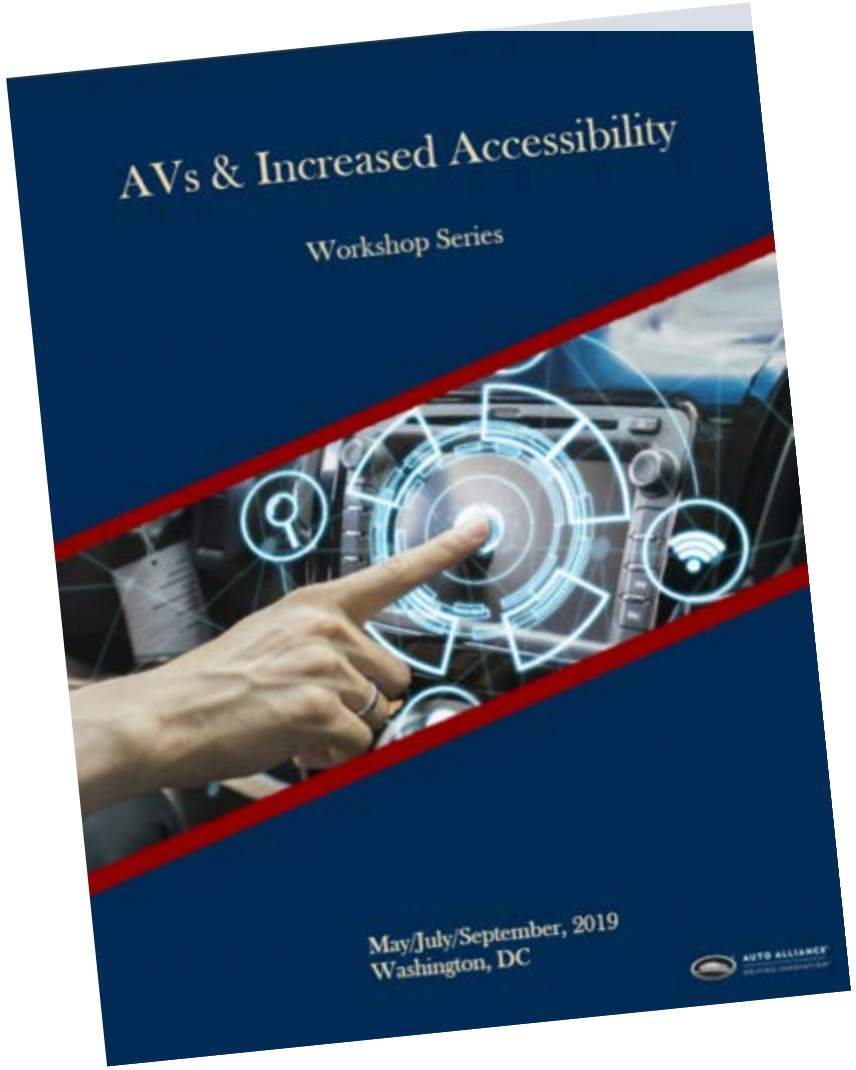

Table 1: Stakeholder Attendee Input on Potential Inclusive AV Design Considerations. A visually enhanced version of this table is available in *Appendix A: Technical Considerations Table, Enhanced Version* however this version may not be accessible to people with visual disabilities.

Accommodate service animals	Space and floor surface (flat preferred) to accommodate a range of service animals, e.g., chihuahuas to great Danes	Cognitive, Sensory	Body Fit	Crashworthiness
	Entry / Egress for animal	Cognitive, Sensory	Body Fit	Accessible Entry and Egress
	Passenger profiles include service-animal-related needs to customize experience	Cognitive, Sensory	Personalization	Ride Service
	Allergy and contamination concerns for those with allergies or fragile breathing	Cognitive, Sensory	Wellness	Ride Service
App is easy to navigate and understand for people with sensory disabilities	Non-visual interfaces for persons with visual disabilities (e.g., audio and tactical).	Sensory	Awareness, Cultural	In-Vehicle HMI, Ride Service
	Non-audio interfaces for persons with auditory disabilities (e.g., vision and tactical).	Sensory	Awareness	In-Vehicle HMI, Ride Service
	Multi-modal interface lag time (e.g., dynamic braille) can negatively impact trip comfort and response time	Sensory	Awareness	In-Vehicle HMI, Ride Service
	Passenger profiles include disability-related HMI needs to customize experience	Sensory	Awareness, Personalization	In-Vehicle HMI, Ride Service
App is easy to navigate and understand for people with cognitive disabilities	Tunable and multi-modal interfaces can improve comprehension for persons with cognitive disabilities ranging from short term memory loss to Autism, e.g., through reduced verbosity and adjusting stimulus intensity	Cognitive, Older Adults	Awareness, Personalization, Understanding	In-Vehicle HMI, Ride Service

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This report is a best faith effort to summarize the discussions of all attendees, which comprise of a variety of stakeholders. It is not a verbatim transcript and it does not reflect the views of the Alliance of Automobile Manufacturers or its member companies.

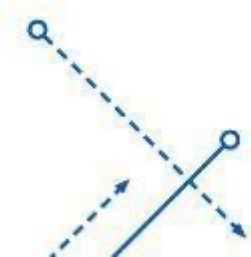
Proposed Needs Identified in Workshop 1	Technical Considerations Identified in Workshop 2	Relevant Stakeholder Groups	Relevant Universal Design Goals	Relevant System Design and Operations Considerations
Understand trip progress, including reminders and the possibility to communicate with remote persons	Tunable and multi-modal interfaces for persons with cognitive disabilities can reduce stress (and increase comfort) through trip progress communications	Cognitive, Older Adults	Awareness, Comfort, Personalization	In-Vehicle HMI, Ride Service
	Tunable and multi-modal interfaces for persons with sensory disabilities to receive trip progress communications	Sensory	Awareness, Comfort, Personalization	In-Vehicle HMI, Ride Service
	Line of sight issue for those in wheelchairs when seated in a vehicle which inhibits the passenger's ability to understand where they are going	Physical	Awareness, Comfort	In-Vehicle HMI, Ride Service
	Placement of screens with trip progress visible to all passengers	Older Adults, Physical	Awareness, Body Fit, Comfort	In-Vehicle HMI, Ride Service
	Tunable and multi-modal	Cognitive	Awareness,	In-Vehicle HMI

UNIVERSAL DESIGN AND AV RESEARCH

University at Buffalo
Center for Inclusive Design and Environmental Access
School of Architecture and Planning

Inclusive AV R&D Efforts

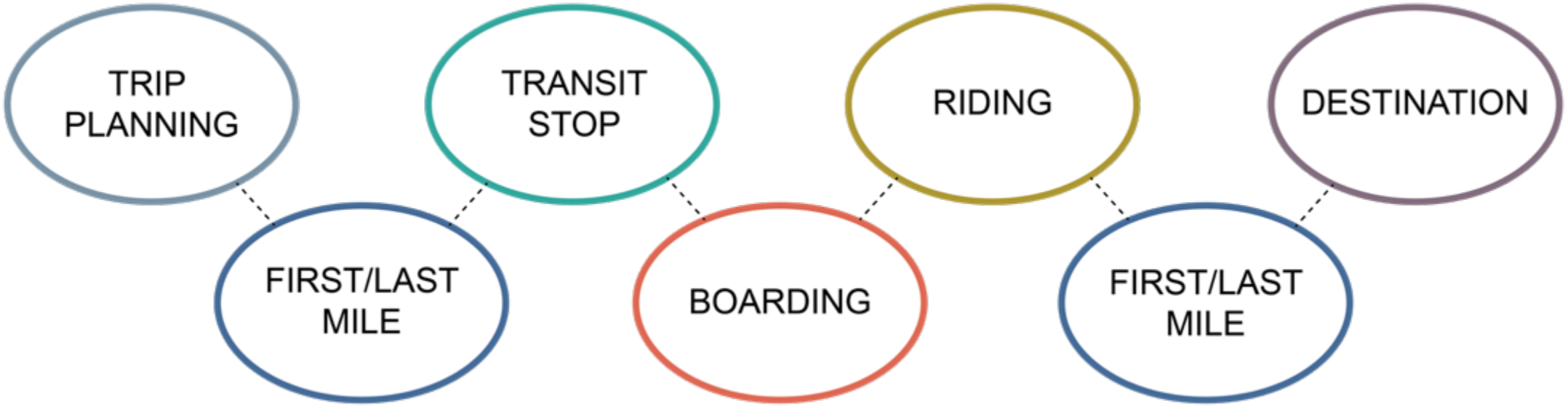
- Accessible Transportation Technologies Research Entitative (ATTRI)
- The Intelligent Transportations Society of America (ITS America)
- U.S. Department of Transportation: *Public Listening Summit on Automated Vehicle Policy*
- Auto Alliance, *AVs and Increased Accessibility Workshop Series*
- U.S. Department of Labor, Autonomous Vehicles: *Driving Employment for People with Disabilities*

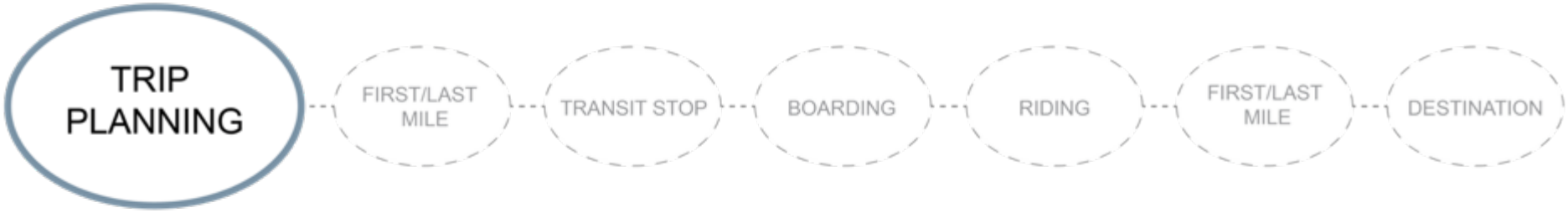


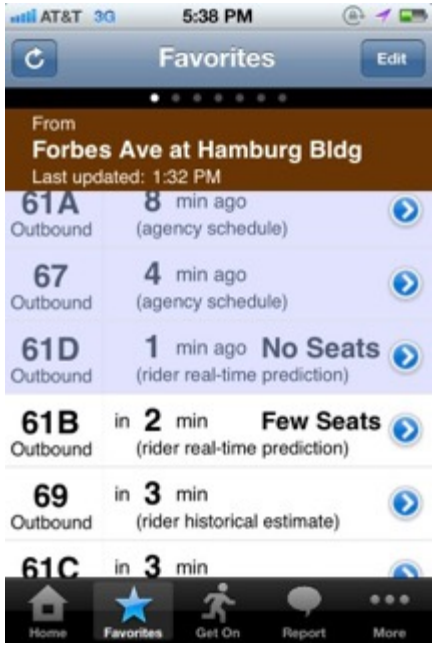
Transportation Research

Fixed-Route Large Bus	Rehabilitation Engineering Research Center on Accessible Public Transportation; NIDILRR (2008-2018)
Fixed-Route Large Bus; Paratransit	Optimizing Accessible Public Transportation; NIDILRR (2017-2020)
Ridehailing	Improving Demand Responsive Transportation for All; Toyota Social Mobility (2018-2019)
AVs/SAVs	RERC-APT; NIDILRR (2018-2023) toXcel, LLC; NHTSA (2019-2021)

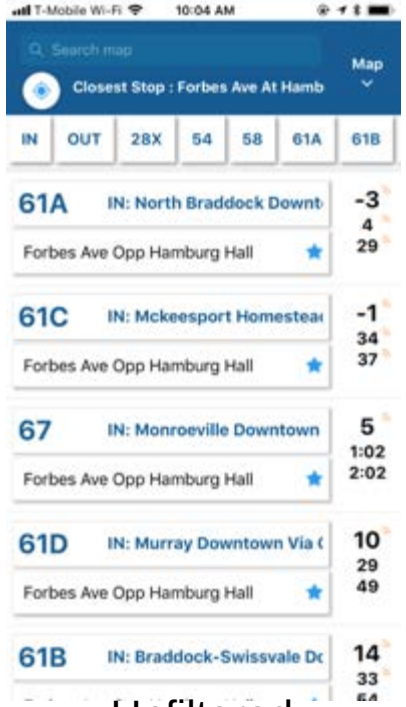
Travel Chain



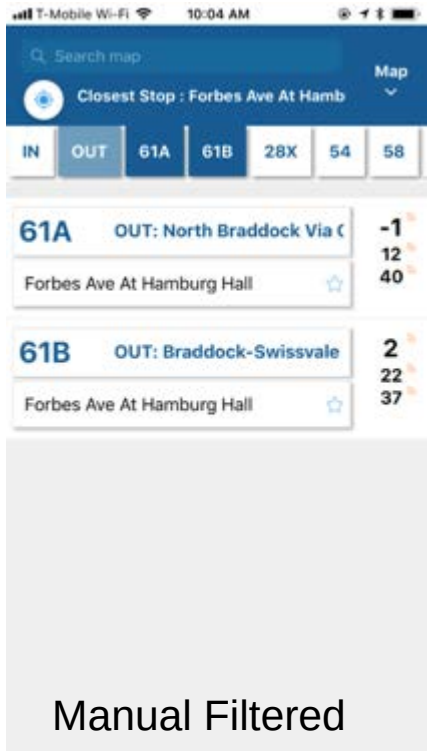




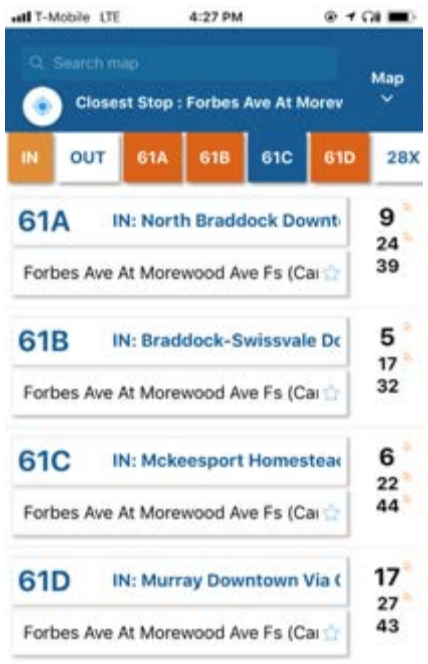
Version 1&2



Unfiltered

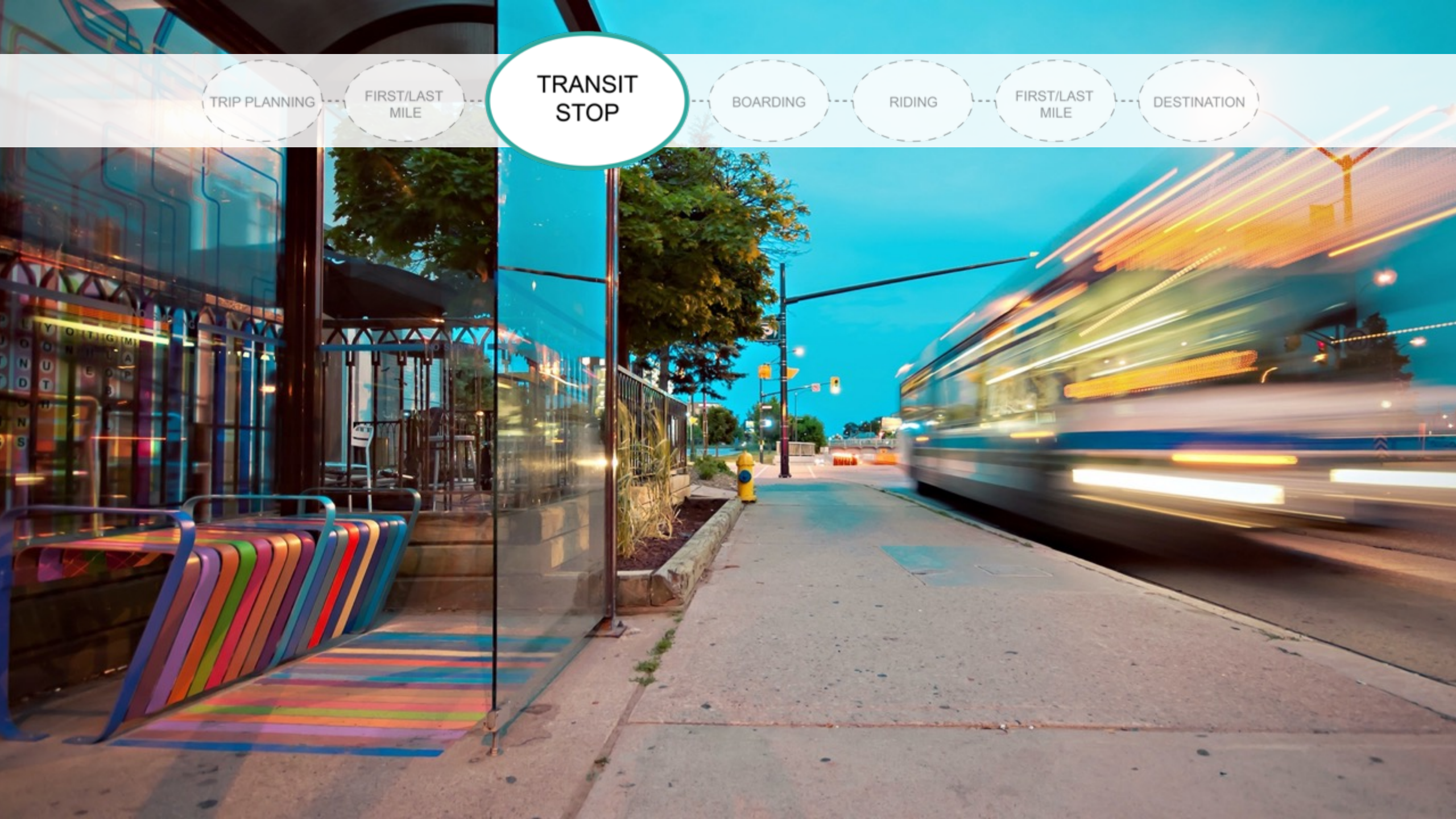


Manual Filtered



Pre & Manual Filtered


TRIP PLANNING
FIRST/LAST MILE
TRANSIT STOP
BOARDING
RIDING
FIRST/LAST MILE
DESTINATION
SIDEWALK
CLOSED


TRIP PLANNING
FIRST/LAST MILE
TRANSIT STOP
BOARDING
RIDING
FIRST/LAST MILE
DESTINATION

TRIP PLANNING

FIRST/LAST MILE

TRANSIT STOP

BOARDING

RIDING

FIRST/LAST MILE

DESTINATION

TRIP PLANNING

FIRST/LAST MILE

TRANSIT STOP

BOARDING

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DESTINATION

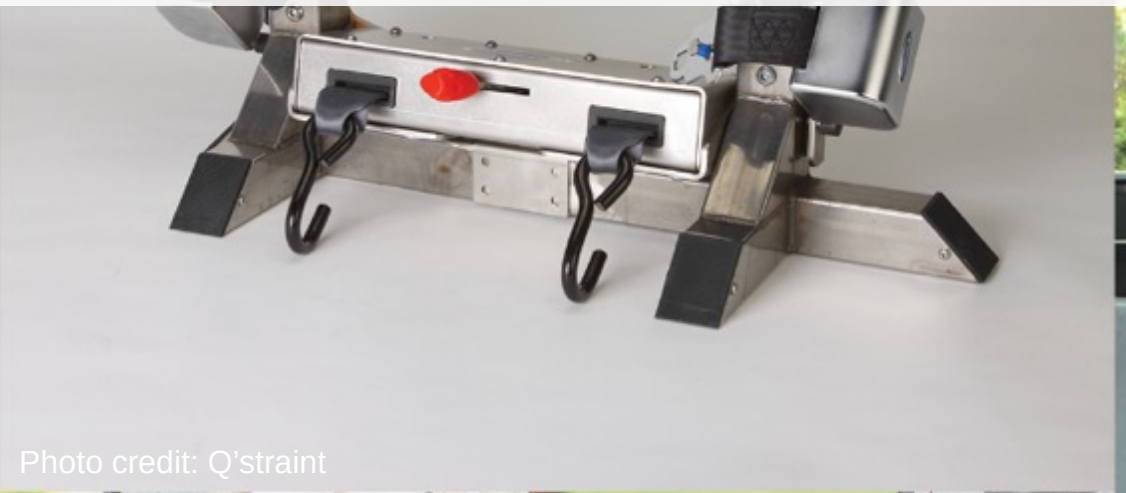


Photo credit: Q’straint

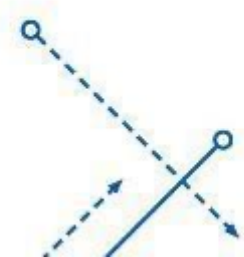
Photo credit: Q’straint

Photo credit: Q’straint

A Look to the Future

Next Generation of Automated Vehicles

- Research on needs and challenges
  - What factors/features would influence older adults and individuals with disabilities to use or avoid SAVs?
  - How are transit agencies preparing for SAV implementation?
  - What operating practices are needed to enable safe SAV use?
- Help create and evaluate designs for SAVs working with industry partners
- Develop universal design guidelines that can be applied to overcome community mobility and first/last mile travel challenges for all



Complex Problem

- Vehicle Accessibility
- Fleet Design (quantity, type)
- Street Infrastructure
- Connectivity of Users

SPONSOR

This presentation was funded in part by grants from the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR grant numbers 90REGE0007 and 90RE5011-01-00). NIDILRR is a Center within the Administration for Community Living (ACL), Department of Health and Human Services (HHS). The contents of this presentation do not necessarily represent the policy of NIDILRR, ACL, HHS, and you should not assume endorsement by the Federal Government.

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QUESTIONS / COMMENTS

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POLICY & LEGISLATION WORK PLAN & TACTICAL ACTIONS

Improve Equity & Accessibly Open Discussion

- Mindi Nguyen

OPEN DISCUSSION

All Subcommittee Members

INFORMATION AND KEY UPCOMING DATES

Next ATC Meeting

- Tuesday, March 2nd, 2021 – 10AM to 12PM

IOWA ADVISORY COUNCIL ON
AUTOMATED
TRANSPORTATION

THANK YOU