



ACCESSIBLE AND BARRIER-FREE RESEARCH

BACKGROUND

The Autonomous Vehicle Alliance (AVA), with its research partners the Intelligent Transportation Society of America (**ITS America**) and **AARP**, recently conducted a study focused on accessible vehicle design and enabling infrastructure. The research included in-depth interviews with key stakeholders and end users, a literature review of existing accessible/barrier-free research, and surveys. It also considered previous AVA research conducted over the last five years with U.S. cities, healthcare providers, and the aging ecosystem.

OVERVIEW

An accessible and barrier-free vehicle has been a commonly cited need across municipal, aging, and healthcare ecosystems. What sets this research apart is that it looks at barrier-free mobility beyond just the vehicle. While accessibility of the vehicle is critical for people with an impairment, so are the immediate surroundings when they enter and exit. This research identifies needs among the three ecosystems and how people of various abilities could interact with these vehicles and infrastructure.

It outlines three opportunities areas to increase mobility options:

Merging the physical world with digital wayfinding tools.

If the vehicle and infrastructure are designated as the physical world how could they seamlessly merge with digital tools, software, and an enabling backend? Doing so would facilitate more personalized journeys for everyone, eliminating the stress of mobility challenges for all and ensuring a complete trip from point of origin to destination.

Understanding how Universal Design language could impact automated vehicles.

Building vehicles and infrastructure that meet the needs of 85% of the public is feasible and attainable. Leveraging universal design (UD) will allow shifting the focus to Zero Entry, High Head

Clearance, and interior vehicle features that meet the needs of all. UD should be considered when creating digital mobility tools, creating vehicle management systems that can serve up relevant and real-time information on a more personal level.

Coordinating vehicle design language with infrastructure.

Thinking holistically about the entire mobility experience allowed researchers to identify a new opportunity. Design language for developing new vehicles should be coordinated with design language for building the infrastructure they interact with. This approach maximizes the efficiency of both and allows the end user to seamlessly navigate the journey, with the potential for the vehicle to create its own infrastructure if needed.

The research also includes journey maps detailing how people with varied ability levels (prosthetic limb; white cane; hearing loss; etc.) would navigate various journeys that include an accessible vehicle.

Although this research does not suggest a specific vehicle type, the findings point to a Shuttle Autonomous Vehicle (SAV). Many of the findings also suggest applying common functionality and design language to other vehicles in the mobility mix, such as buses and streetcars, will lead to a more holistic approach to mobility and better serve people of all abilities. In addition, coordinating design language between the vehicle and infrastructure would help maximize the efficiency and effectiveness of the journey.