

Connected and Automated Vehicles: Opportunity for Equity, Accessibility, and Safety

As momentum for connected and automated vehicles (CAVs) continues to build in Minnesota, TPEC researchers are working to understand how CAV technology could serve transportation-disadvantaged communities. CAVs offer the potential to provide greater mobility and equity for many people, but public engagement is essential to ensure all user needs are understood and addressed.

Previous TPEC efforts gathered input from local officials, stakeholders, and community members in Grand Rapids, St. Cloud, Mankato, and Fergus Falls. Building on this work, a new project sought to uncover the needs of transportation-disadvantaged communities in the Twin Cities East Metro area and determine whether CAV could be an appropriate solution.

DISCOVERY INTERVIEWS

Researchers began by conducting interviews with human service providers and transportation practitioners to gain an understanding of transportation challenges and opportunities, as well as potential CAV implications. Some of the insights gleaned from these interviews include:

“There is a disconnect between existing transportation needs and the services that are currently provided. For example, people who go to a food shelf are often given six bags of groceries; however, [paratransit] vehicles only allow two bags on board per person.”

“Language is a common barrier to transportation, particularly for the region’s immigrant and refugee communities. It is not uncommon for an immigrant new to the Twin Cities to have a job lined up but miss a training or orientation due to transportation limitations and lose the employment opportunity as a result. Making language a key consideration in CAV technology development could help.”

Interview Participants

- Metropolitan Council
- Philanthropic leader
- Minnesota Department of Human Services – Aging and Adult Services Division
- Hmong American Partnership
- Hmong Elders Center
- Metro Transit
- Mobility4All
- Casa de Esperanza

Interview Themes

- Reliability/reliance
- Equity
- Accessibility
- Vehicle ownership
- Safety

MULTI-SECTOR ROUNDTABLE

Most recently, TPEC researchers hosted a virtual roundtable with transportation program staff from a variety of organizations in the East Metro to discuss the potential implications of CAVs in urban contexts, with an emphasis on equity. The roundtable included an interactive activity that built on the insights and themes from the interviews to further the discussion of CAVs and equity.

KEY FINDINGS

Together, the interviews and roundtable produced a number of key findings surrounding access issues, CAV deployment considerations, and policy opportunities. While this research is ongoing, these are the key findings to date.

ACCESS ISSUES

- Limited access to personal vehicles, combined with [transit service limitations](#) (in terms of network coverage and service hours), inhibit transportation accessibility in the East Metro area.
- Social barriers to transportation include [limited income](#), ability level, language barriers, driver's license documentation restrictions, and policing.
- Physical and technological accessibility transportation challenges include a [spatial mismatch](#) of jobs and residences and a lack of access to smartphones and banks.

DEPLOYMENT CONSIDERATIONS

- CAVs should also be [deployed in delivery, maintenance](#), and other services—not just passenger services—to improve the quality of life for those who do not drive.
- Safety concerns extend beyond the general doubts about driverless technology; many riders may need additional assistance—now provided by drivers—and require a [caregiver](#) to accompany them.
- CAV investment should be weighed in the context of all transportation decisions made within the public right-of-way.

POLICY OPPORTUNITIES

- Public policy needs to guide private development to address [equity issues](#) as CAV technology develops.
- Equity must be a priority in discussions about CAV technology.
- CAV service models and equitable cost structures must be part of the discussion.
- CAVs offer opportunities to improve equity and accessibility, supplement rural transit, and provide affordable transportation options.
- The private sector is interested in the [economic implications](#) and opportunities.
- There is particular interest in the implications for the [freight industry](#): Are there opportunities to improve supply chains, address driver shortages, and help encourage businesses to consider locating in Greater Minnesota?
- A [shared mobility](#) model like that used by Uber and Lyft could be a business model for CAV implementation.
- It's important to get CAVs in front of the general public and show people that this technology is real and viable in their communities. Options could include a shuttle in community parades or use of CAVs as shuttles at the State Fair.

East Metro Study Area

The research was conducted in the East Metro, with particular focus given to the east side of Saint Paul, downtown, and the Frogtown areas.

For more information and additional analyses:

TPEC welcomes public engagement and encourages you to contact us with your questions, comments, and research needs.

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