

AUTOMATION AND ACCESSIBILITY FOR UNDERSERVED PEOPLE & COMMUNITIES: SETTING THE STAGE

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SAV Impacts: Opportunities & Challenges

Opportunities

- Multi-modal platforms
- Increase vehicle occupancies; right sizing
- More efficient routing
- Reduce per mile cost (over privately owned vehicles)
- Unlock urban space dedicated to parking
- Downsize number of privately owned household vehicles
- Reduce GHGs & local emissions

Challenges

- Social equity issues
- Increased VMT / induced demand
- Increased congestion
- Modal shifts away from public transit
- Will people pool & give up private ownership?
- Increased urban sprawl/mismatch
- Labor/workforce
- Safety and security
- Data privacy and access



Accessibility



- Accessibility = ease with which persons can reach places/opportunities from a given location; understood as interplay among people, transport systems, and land use (i.e., benefits) and barriers to accessibility (i.e., harms)
- Goes beyond a utilitarian view typically found in transportation planning, linked closely to cost-benefit analysis in determining infrastructure investments (efficiency)
- When transport emphasizes *efficient* movement, it becomes disconnected from wider meaning of streets, neighborhoods, communities; it ignores valuing diverse persons' livelihood, well-being, and health
- Go beyond principle of fairness and include mobility justice

Sheller, 2018

Six Common Equity Challenges

- *Affordability*: “It’s too expensive.”
- *Predictability*: “Will dynamic or surge pricing make it too expensive?”
- *Availability*: “The services aren’t available in my neighborhood.”
- *Payability*: “I don’t have an acceptable payment method.”
- *Accessibility*: “The service isn’t accessible for my medical condition.”
- *Techno-ability*: “I don’t have a smartphone or a data plan.”

Shaheen and Cohen, 2018



Equity and Access Considerations for SAVs

- SAVs should be equally accessible and available to everyone. For example, policies are needed to ensure access for:
 - People with disabilities,
 - Un- and under-banked households,
 - Low-income communities,
 - Households without access to smartphones or mobile data, and
 - Others
- Policies should ensure driverless vehicles preserve and enhance access to jobs, healthcare, healthy foods, and other critical services for all users
- Prevent discrimination and bias from machine learning and other systems that impact or guide the operations of driverless vehicles (e.g., reinforcing historic bias and discrimination)
- Carefully consider business models that may exchange free services for personal data
- Impacts on public transit – complement or competition?



How Could Spatial Differences Impact SAV Access and Mobility?

- SAVs may be able to address spatial inequality in areas with limited alternatives to private vehicle ownership
- Strategic placement of SAVs in communities underserved by public transit could reduce inequities by providing additional mobility options that have greater coverage and service availability than existing options
- Not all users have access to a smartphone or debit/credit cards that are commonly required for payment as part of app-based and on-demand mobility services.
- Broadband issues
- Curb access for ADA communities



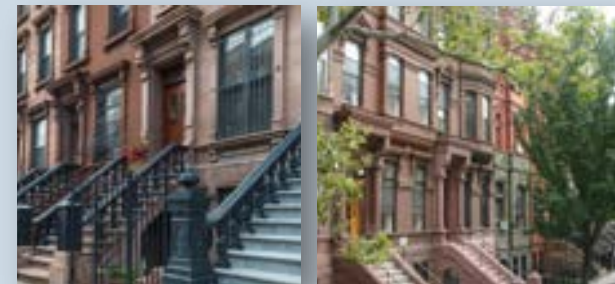
Public & Private Sectors Collaborating to Enhance Accessibility



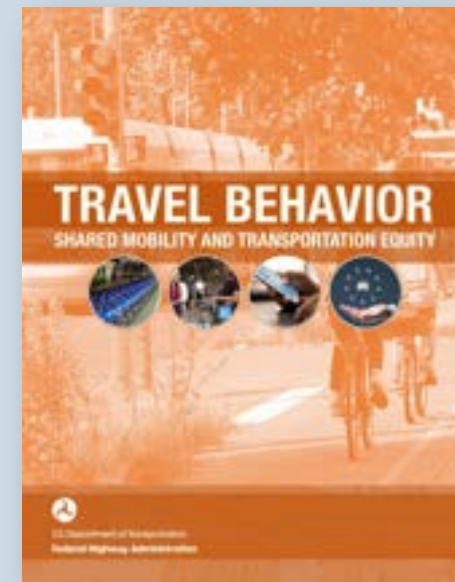
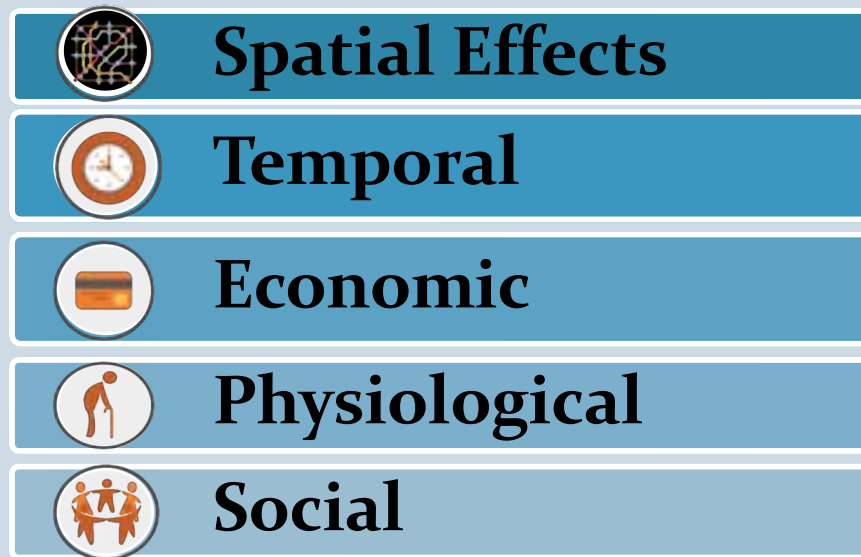
- Provide alternative methods of service access for people without smartphones or credit/debit cards (e.g., digital kiosks; cash payment; partnerships enabling the billing of mobility services on other bills, such as utilities)
- Implement policies and services that target, overcome, and mitigate equity concerns (e.g., ADA access, service accessibility issues, and services that help to cross the digital and income divide).
- For example, New York City has deployed LinkNYC, a network of ADA-compliant digital kiosks that offer free Wi-Fi, free calling in the U.S., maps, navigation, public transit information, and other digital information services. Kiosks reduce need to own a smartphone or maintain a data plan.

Meaningful Access & Equivalent Service for Underserved People

- Encourage mobility applications that improve access to jobs, healthcare, and education for all members of society
- Ensure equivalent level of service for special populations and users with special needs (e.g., low-income communities, minority neighborhoods, people with disabilities, etc.)
- Equivalent level of service means level of service (e.g., availability, frequency, wait time, journey time) for special populations (e.g., people with disabilities) is equivalent to level of service with non-special needs users (e.g., individuals without disabilities)



STEPS to Transportation Equity Framework



Shaheen et al., 2017

https://www.fhwa.dot.gov/policy/otps/shared_use_mobility_equity_final.pdf

Other Resources



<https://www.nap.edu/catalog/25359/socioeconomic-impacts-of-automated-and-connected-vehicles>

The policy brief is titled 'Equity and Shared Mobility' and is authored by Susan Shaheen, PhD and Adam Cohen. It is published by ITS Berkeley, University of Transportation Studies. The document is divided into sections: KEY TAKEAWAYS, TOPIC/ISSUE, and RESEARCH FINDINGS. It discusses issues like equitable access to shared mobility, particularly for vulnerable populations, and mentions research findings from the University of California, Berkeley and UC Berkeley TDR studies.

KEY TAKEAWAYS

- Shared mobility impacts everyone, not just users.
- Because of its impacts on the transportation network and the environment, shared mobility affects an entire community, particularly at the local and regional level.
- Transportation should be accessible and equitable.
- Public agencies should ensure social, informational, and informational equity to meet the basic transportation needs of all users.

TOPIC/ISSUE

Ensuring equal access to preferred classes impacted by shared mobility services is critical. In California, this can include provisions mandating access for individuals with disabilities, as well as prohibitions in discrimination against other preferred classes. Many of these laws not only prohibit discrimination against the end user but also shared mobility employees. In addition to prohibiting discrimination, it is imperative to ensure shared mobility is accessible to all. Equitable treatment of shared mobility providers (e.g., data, insurance, licensing) is also a key consideration.

RESEARCH FINDINGS

University of California, Berkeley researchers at the Transportation Sustainability Research Center (TSRC) have examined equity and shared mobility considerations in several prior projects for the US Department of Transportation (USDOT) and the California Department of Transportation (Caltrans).

UC Berkeley TDR studies of shared mobility and equity revealed three primary areas of focus for agencies (although additional equity areas may also need to be addressed):

- Developing the Digital Divide: Mobility consumers are becoming increasingly dependent on smartphone hardware and applications, but the data packages required are often expensive. Further, apps can be challenging to use for some adults and others that have not adopted smartphones.
- Underbanked and Unbanked Users: Smartphone apps with a payment component may not serve the needs of unbanked users (especially lower-income households). Many smartphone apps generally require payments facilitated through credit/debit cards or mobile Internet banking. If a user is unbanked (does not have a bank account or a credit/debit card), app-based services with a payment component (e.g., electronic fares and licensing) may be difficult or impossible to use. This can exclude households that do not have credit cards or bank accounts due to insufficient funds, bad credit history, etc.

Network Estimates, Household Banking Status by Year

Year	Number of Households (Millions)	Included (Percent)	Unbanked (Percent)
2011	125.4	8.2	20.1
2013	126.7	1.7	20.0
2015	127.9	7.6	19.9

Source: Federal Reserve Economic Cooperative

<https://escholarship.org/uc/item/1k71f2vv>

Thank you



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