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Impacts of Shared Mobility: Pooling

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KEY TAKEAWAYS

Pooling can reduce vehicle miles traveled, auto reliance, fuel use, emissions, travel costs, and in many cases, travel time.

Extending the travel time and costs saving benefits of ridesharing and pooling services could increase their attractiveness to travelers.

“Consistent definitions across a suite of shared mobility service models can guide public policy and distinguish between types of services for users.”

TOPIC/ISSUE

Shared-ride services—transportation modes that allow riders to share a ride to a common destination—include various forms of ridesharing (carpooling and vanpooling); ridesplitting and taxisplitting; and microtransit. With the proliferation of smartphones and mobile Internet, it has become more convenient to share rides. Shared-ride services are having a transformative impact on many global cities by increasing vehicle occupancy through smartphone apps.

RESEARCH FINDINGS

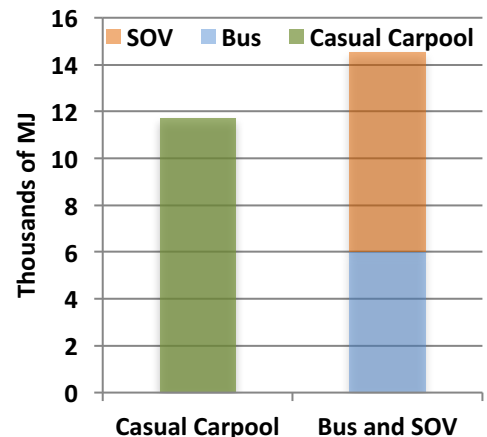
University of California, Berkeley researchers at the Transportation Sustainability Research Center (TSRC) have examined equity and shared mobility considerations in several primer projects for the US Department of Transportation (USDOT) and the California Department of Transportation (1-4).

Empirical and anecdotal evidence indicates that pooling provides numerous benefits, such as reductions in energy consumption and emissions, congestion mitigation, and reduced parking infrastructure demand; however, the precise magnitude of these impacts is not well understood (1-2).

Individually, shared-ride users benefit from shared travel costs, travel-time savings from high occupancy vehicle lanes, reduced commute stress, and often preferential parking and other incentives (1).

Common Types of Shared-Ride Services

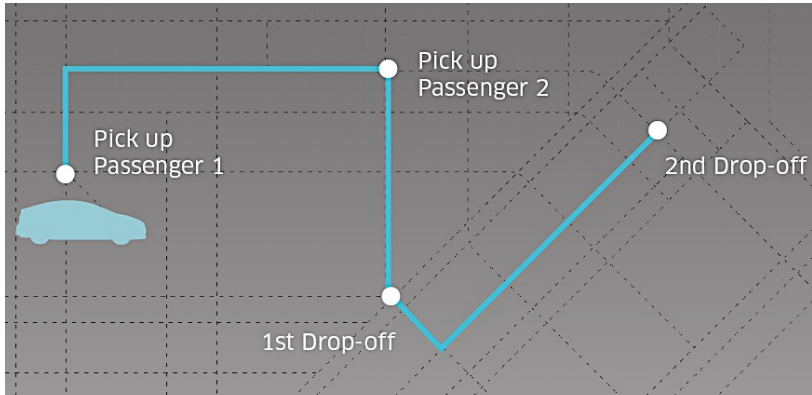
1. Ridesharing (Carpooling and Vanpooling): Ridesharing facilitates shared rides among drivers and passengers with similar origin-destination pairings. Ridesharing includes vanpooling (the grouping of seven to 15 persons commuting together in one van) and carpooling (groups less than seven passengers traveling together in one car). Services include Waze Carpool and Scoop.



MJ of energy per day for 600 people

Source: Minett and Pearce 2011

RESEARCH FINDINGS (continued)



2. Ridesourcing/Transportation Network Companies:

Increasingly, for-hire services are offering ridesplitting (e.g., Lyft Line and UberPOOL), which match riders with similar origins and destinations together. These services typically offer a discount to passengers who express their willingness to share a ride; however, not all rides will be shared if a suitable match cannot be identified.

3. Taxis: In 2013, contemporary taxisplitting (shared taxi rides) was introduced by Bandwagon offering shared rides from major transportation hubs (e.g., airports, train stations, and bus terminals) in New York City. To share a taxi, waiting passengers text Bandwagon their destination (using short message services). Bandwagon compares a user's requested route with other user requests. Passengers with similar routes and destinations are paired together. Paired passengers are permitted to advance to the front of a taxi line, get into their cab, and split the fare.

4. Microtransit: In recent years, innovative services typically comprised of vans and buses are re-emerging offering privately owned and operated shared transportation systems. Commonly referred to as microtransit, these services can include fixed-route or flexible-route services as well as offer fixed schedules or on-demand service. Operators include Chariot and Via.



APPROACHES IN SAN FRANCISCO BAY AREA

In the San Francisco Bay Area, commuters often use casual carpooling to get from the East Bay to downtown San Francisco during the morning commute. Using the high occupancy vehicle (HOV) lanes of the San Francisco-Oakland Bay Bridge allows travelers to take advantage of a toll discount and shorter waits at the toll plaza. According to a 1998 survey, approximately 6,000 riders and 3,000 drivers used casual carpooling each workday morning (3). Only about nine percent of these carpoolers used ridesharing for the reverse trip in the evening; the remainder used public transportation for their return journey.





APPROACHES (continued)

Another study estimates a reduction of 450,000 to 900,000 gallons of gasoline per year attributed to casual carpooling's congestion mitigation impact (4). A more recent study revealed that motivations to carpool include: convenience, time savings, and monetary savings, while environmental and community-based motivations ranked low (5). Shaheen et al. (2016) found that 75 percent of casual carpool users were former public transit riders compared to approximately 10 percent that previously drove alone. Casual carpooling competes with public transit due to reduced travel time (HOV lane access) and costs (typically much less expensive than comparable trips on public transit). Median wait times for casual carpooling were less than 2.0 minutes for drivers and 2.5 minutes for riders (5).

CONCLUSIONS & RECOMMENDATIONS

The California Legislature should consider the following public policies and legislative agenda pertaining to pooling systems:

Fill Empty Car Seats

While carpooling participation has stagnated in many parts of California, freeway congestion is at near historic highs and public transit ridership is declining in most major cities nationwide.

Given the constraints of public transit and highway infrastructure, filling empty seats in cars is the quickest and most cost-effective way to provide more capacity.

Enhance Ridematching

The private sector may be able to enhance ridematching by cultivating a larger match database (to establish a critical mass), integrating shared rides with other relevant traveler services.

The private sector can also provide a user-friendly interface via apps to remove barriers traditionally associated with carpool matching.

Encourage Pooled Rides

Leveraging private sector app-based services may be a cost-effective strategy for public agencies to encourage pooled rides.

To ensure faster travel times (a major incentive of pooling), regions/local governments and the State should consider expanding access to HOV and high occupancy toll (HOT) lanes for shared-ride services, as well as dedicated curb space for pickups/drop offs.

References

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