

Attachment #12

Bibliography of Car Share Data

Carsharing Programs Result in Reduced Need for Parking Spots

- University of California, Berkeley research found that the availability of car sharing in their campus allowed 30 percent of students who lived on campus to leave their personal cars at home.ⁱ
- Universities have been enthusiastic to partner with carsharing services for multiple reasons, including the reduction in on-campus parking demand (Zheng et al., 2009).ⁱⁱ
- *Caltrans* (California Transportation Plan 2040) notes that shared-use mobility has the capability to improve road capacity and parking.ⁱⁱⁱ
- The presence of dedicated carshare vehicles is associated with reduced vehicle ownership and parking demand at the building level.^{iv}
- Limiting requirements for parking space allows for construction of denser urban areas, which in turn, reduces vehicle miles traveled (VMT).^v

User surveys suggest carsharing removes cars from the road, and recent research shows vehicle ownership is significantly lower in buildings with both carsharing nearby and unbundled parking.^{vi}

Reduction in Car Ownership

There is widespread research that links carsharing to the reduction in both VMT and overall car ownership:

- A North American carsharing member survey demonstrates that carsharing facilitates a substantial reduction in household vehicle holdings, despite the fact that 60% of all households joining carsharing are carless.^{vii}
- Round trip carsharing has been documented as a strategy to reduce car ownership and VMT in urban areas, and is suggested as an efficient tool to achieve the reductions in VMT and greenhouse (GHG) emissions targeted in California State by 2040,^{viii} which forecasts that a 5% increase in the adoption of carsharing can reduce statewide VMT by 1.1%.^{ix}
- Researchers attest that by reducing the importance of car ownership among users (i.e., those that already own one or more vehicles), carsharing may help to reduce vehicle ownership, allowing, at least, a portion of their users to get rid of one (or all) of their vehicles.^x

- Research^{xi} found that 30% of the members of carsharing programs were willing to sell one or more of their vehicles, while other members postponed the purchase of an additional vehicle for about two years.^{xii}
- A study of car2go,^{xiii} a car sharing program, shows that the program reduced the net number of vehicles on the road in five cities studied within North America. Approximately 2% to 5% of members sold a vehicle due to the availability of car2go, and another seven percent to ten percent suppressed or avoided a vehicle purchase due to car2go.^{xiv}
- A survey of car sharing programs suggests that adding another vehicle to the fleet of shared cars would replace nine to thirteen privately-owned vehicles among members of carsharing services, and would contribute to a 27-43 percent reduction in VMT as well as a 34-41 percent reduction in GHG.^{xv}
- Recent research found that users of two popular car sharing platforms reported reduced vehicle ownership after joining carsharing services. Round-trip service users were close to five times more likely to shed a car, and mean car ownership dropped from 44% to 22%.^{xvi}
- As a result of this shift to diverse mobility solutions, one out of three new cars sold could potentially be a shared vehicle as soon as 2050.^{xvii}

ⁱ <https://www.universityofcalifornia.edu/news/car-sharing-campus-improves-quality-life-takes-cars-road>;
<https://www.zipcar.com/press/releases/universitystudy>;

ⁱⁱ Stocker, A., Lazarus, J., Becker, S., & Shaheen, S. (2016). North American College/University; Market Carsharing Impacts: Results from Zipcar's College Travel; Study 2015; Transportation Sustainability Research Center. Website Access: <http://innovativemobility.org/wp-content/uploads/Zipcar-College-Market-Study-2015.pdf>

ⁱⁱⁱ <http://www.dot.ca.gov/hq/tpp/californiatransportationplan2040/Final%20CTP/FINALCTP2040-Report-WebReady.pdf>

^{iv} Carsharing and Car Ownership at the Building Scale; Examining the Potential for Flexible Parking Requirements; Website Access: <https://www.tandfonline.com/doi/full/10.1080/01944363.2013.790588?scroll=top&needAccess=true>

^v The Adoption of Shared Mobility in California and Its Relationship with Other Components of Travel Behavior; A National Center for Sustainable Transportation Research Report; March 2018; Website Access: <https://rosap.nrl.bts.gov/view/dot/35032>

^{vi} Napolitan, Francesa. Cumulative impacts of carsharing and unbundled parking on vehicle ownership and mode choice; Website Access: <https://trjournalonline.trb.org/doi/abs/10.3141/2319-11> .

^{vii} http://sfpark.org/wp-content/uploads/carshare/Impact_of_Carsharing_on_Household_Vehicle_Holdings.pdf

^{viii} See: Caltrans California Transportation Plan 2040, 2015.

-
- ^{ix} The Adoption of Shared Mobility in California and Its Relationship with Other Components of Travel Behavior; A National Center for Sustainable Transportation Research Report; March 2018; Website Access: <https://rosap.ntl.bts.gov/view/dot/35032>
- ^x The Adoption of Shared Mobility in California and Its Relationship with Other Components of Travel Behavior; A National Center for Sustainable Transportation Research Report; March 2018; Website Access: <https://rosap.ntl.bts.gov/view/dot/35032>
- ^{xi} Cervero and Tsai (2004)
- ^{xii} The Adoption of Shared Mobility in California and Its Relationship with Other Components of Travel Behavior; A National Center for Sustainable Transportation Research Report; March 2018; Website Access: <https://rosap.ntl.bts.gov/view/dot/35032>
- ^{xiii} Results of a study of car2go (Shaheen et al)
- ^{xiv} E. Martin and S. Shaheen. Working Paper. July 2016; The Impacts of Car2go on Vehicle Ownership, Modal Shift, Vehicle Miles Traveled, and Greenhouse Gas Emissions: An Analysis of Five North American Cities; Website Access: http://innovativemobility.org/wp-content/uploads/2016/07/Impactsofcar2go_FiveCities_2016.pdf
- ^{xv} Martin and Shaheen (2011) surveyed more than 6,000 members of carsharing programs in the United States and Canada, and arrived at this conclusion; The Adoption of Shared Mobility in California and Its Relationship with Other Components of Travel Behavior; A National Center for Sustainable Transportation Research Report; March 2018; Website Access: <https://rosap.ntl.bts.gov/view/dot/35032>.
- ^{xvi} Namazu, Michiko; Dowlatabadi, Hadi; Vehicle Ownership Reduction: A Comparison Of One-Way And Two-Way Carsharing Systems; Website Access: <http://dx.doi.org/10.1016/j.tranpol.2017.11.001>
- ^{xvii} McKinsey&Company. (2016, January). Automotive revolution- perspective towards 2030. Website Access: <https://www.mckinsey.com/~media/mckinsey/industries/high%20tech/our%20insights/disruptive%20trends%20that%20will%20transform%20the%20auto%20industry/auto%202030%20report%20jan%202016.ashx>