

UTC Spotlight

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Implementing and Evaluating a Rural Electric Mobility Program: *National Center for Sustainable Transportation*

Rural residents face unique transportation challenges due to long travel distances, infrequent transit service, the high cost of car ownership, and limited access to app-based rideshare services that are common in more populated urban centers. These barriers are particularly significant for lower-income residents, who may struggle to afford a personal vehicle but have few alternatives to get to work, school, medical appointments, and other important destinations.

Researchers at the National Center for Sustainable Transportation, headquartered at the University of California, Davis, worked with government and non-profit partners to plan, launch, and evaluate an innovative transportation program for rural residents: a non-profit, electric carsharing service to provide affordable, clean mobility to communities in California's San Joaquin Valley.

A Long-Standing Partnership

Beginning in 2014, researchers at UC Davis partnered with Caltrans and San Joaquin Valley Metropolitan Planning Organizations to explore opportunities for shared-use travel alternatives in rural marginalized communities that might reduce transit costs, increase travel access, and reduce greenhouse gas emissions. The team carried out surveys and focus groups, exploring the need for and interest in various potential services. Based on the findings from this study, project partners applied for and received funding to support several small-scale pilot concepts. One of these pilots is a non-profit, electric vehicle carsharing service now known as [Míocar](#).

Míocar launched in August 2019 with round-trip electric vehicle carsharing hubs at affordable housing complexes in the southern San Joaquin Valley. Míocar members can reserve vehicles for short trips using hourly reservations or longer trips using 24-hour reservations, and must return the vehicle to its hub at the completion of the reservation. Míocar seeks to provide carsharing at a price point that is more affordable than owning a personal vehicle to



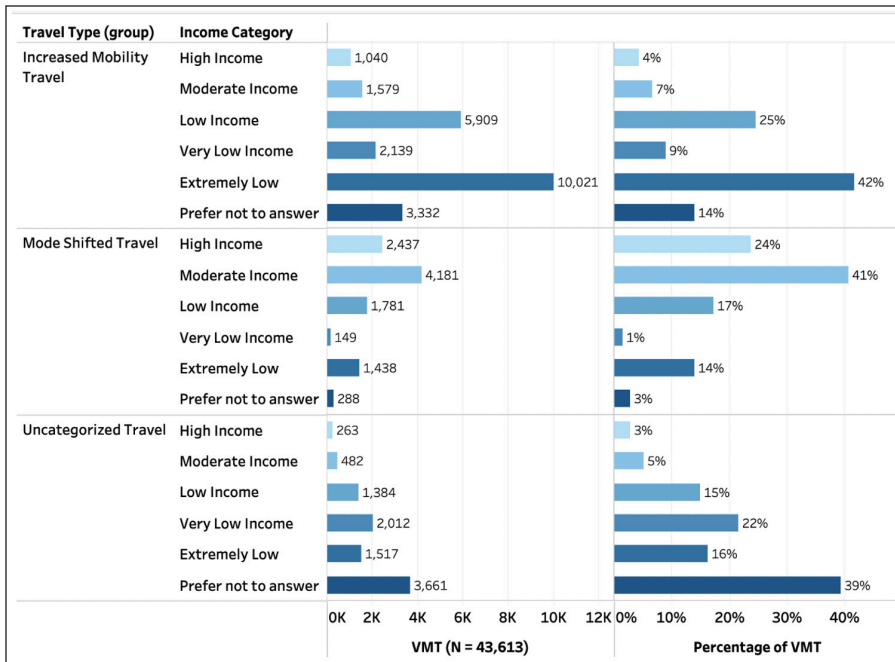
Image courtesy of Míocar

An electric vehicle available to members of Míocar, a rural, all-electric, affordable carsharing service serving the San Joaquin Valley in California.

price-sensitive populations with low transit access. The pricing for Míocar includes a \$20 member processing fee, a \$4 hourly rental rate, a \$35 daily weekday rental rate, and a \$45 daily weekend rate. Drivers are charged a 35-cent-per-mile fee after traveling 150 miles during one reservation. The system now offers 27 vehicles located in eight affordable housing complexes in six Tulare and Kern county communities.

Early Evaluation Results

Throughout pilot development and following the service launch in 2019, UC Davis researchers worked with Míocar to collect data on how the service is being used, as well as travel decisions related to individual Míocar reservations. None of the data used by the research team contain personally identifiable information in order to ensure anonymity, which is in accordance with the project's data management plan. Results to date show that the service offers multiple benefits, including:



Vehicle miles traveled (VMT) with Míocar by income category. Increased Mobility Travel includes trips that would not have occurred in the absence of Míocar. Mode Shifted Travel refers to trips that would have been taken using another mode of transportation in the absence of Míocar. Uncategorized Travel refers to trips that could not be categorized due to incomplete or inconclusive survey responses.

- Providing new opportunities to travel, especially for lower-income travelers.** Based on member surveys, 63% of trips taken with Míocar would not have occurred in the absence of the service. Three quarters of the vehicle miles traveled on these “new” trips were driven by members of low- (less than \$55,900/year for a household of four), very low- (less than \$34,950/year), or extremely low-income (less than \$26,500/year) households. These trips include destinations such as work, school, medical appointments, and other essential activities. Most high-frequency users had an income of less than \$15,000 annually per adult in the household.
- Serving as a lifeline for households lacking adequate vehicle access.** Research in a forthcoming report is showing that many Míocar users report having less than one reliable vehicle per household adult. Members who used Míocar with high frequency are less likely to have at least as many vehicles as adults

in their household. Members who live within walking distance of hubs use the service most often, although many members drive or get dropped off in personal vehicles to access the Míocar vehicles, some from more than five miles away. This indicates that the service is fulfilling a vital need for community members who lack transportation alternatives.

- Reducing environmental impacts.** Míocar’s electric fleet reduces greenhouse gas emissions and local air pollutants from long-distance rural travel, which is especially important given the poor air quality experienced by San Joaquin Valley residents. Of the 20% of Míocar trips that would still have occurred in the absence of the service, nearly all of these trips would have otherwise been made with an internal combustion engine vehicle.

Looking to the Future

Thanks in part to feedback collected through UC Davis research, Míocar is growing to serve more customers. The service is in the midst of expanding to Stockton, Richmond, and Kern County, and it is growing its fleet of electric vehicles from an initial 27 vehicles to more than 100, enabling it to provide affordable, clean transportation for more people around the state. The UC Davis research team continues to evaluate the use of the carsharing program, and the team is preparing to highlight lessons learned and best practices for other communities interested in developing non-profit carsharing programs through a newly awarded National Center for Sustainable Transportation project.

For more information, see the research team’s recently completed NCST project, “[A Before and After Evaluation of Shared Mobility Projects in the San Joaquin Valley](#),” or a previously published report, “[Early Results from an Electric Vehicle Carsharing Service in Rural Disadvantaged Communities in the San Joaquin Valley](#).”

About This Project

The National Center for Sustainable Transportation (NCST) provides national leadership in advancing environmentally sustainable transportation through cutting-edge research, direct policy engagement, and education of our future leaders. The Institute of Transportation Studies at the University of California, Davis leads the NCST in partnership with California State University, Long Beach; the University of California, Riverside; the University of Southern California; Georgia Institute of Technology; and the University of Vermont. For more information about the NCST, please visit <https://ncst.ucdavis.edu/>.

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