

# THE STOCKTON MOBILITY COLLECTIVE

## *Bringing Low-Carbon Shared Mobility to Underinvested Communities*

The [Stockton Mobility Collective](#) (SMC) is a pilot project of the San Joaquin Council of Governments (SJCOC) funded by California's Sustainable Transportation Equity Project (STEP). The SMC seeks to meet the community's transportation needs by implementing e-carsharing and e-bikesharing and expanding an existing mobility-as-a-service, or MaaS, platform. This platform permits transit trip planning, mobile ticketing, e-carsharing, and e-bikesharing for reservations and payments. It also provides access to transit and shared mobility incentives by qualifying community members. The SMC supports a range of outreach activities to increase community participation in project design and implementation, as well as a workforce apprenticeship program to prepare a local workforce for full-time jobs and training to support e-carsharing and e-bikesharing services.

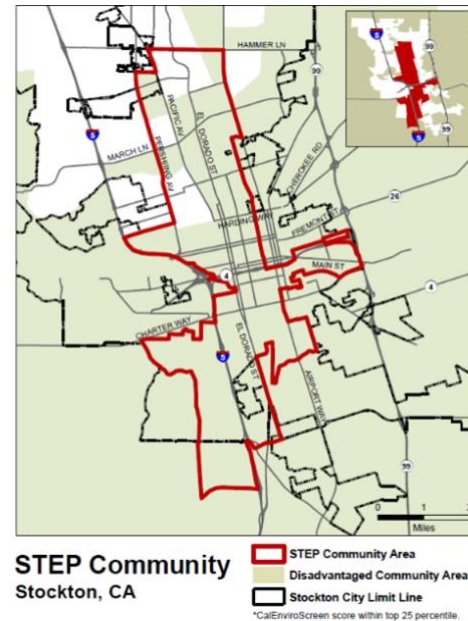
### BACKGROUND AND PROJECT OBJECTIVES

In the San Joaquin Valley, community-based organizations have long recognized the mobility challenges faced by residents and pressed for opportunities to address them. In 2017, a planning [study](#) summarized existing conditions and proposed a conceptual shared-mobility program.<sup>1</sup> That proposal became the basis of a California Air Resources Board (CARB) funded pilot known as the [Ecosystem of Shared Mobility in the San Joaquin Valley](#). That pilot included two major subprojects, as well as an extensive performance measurement effort that yielded important lessons—in short, a foundation upon which the SMC could grow.<sup>2</sup>

The Ecosystem had two important subprojects that have been incorporated into the SMC.

- **Míocar subproject.** Míocar was launched in August 2019 to serve the predominantly rural southern San Joaquin Valley with 27 battery electric vehicles (BEVs) stationed at eight affordable-housing complexes. Originally intended to transition to a commercially operated service, Míocar was

<sup>1</sup> Funded by a Sustainable Communities Grant from Caltrans (with additional support from the National Center for Sustainable Transportation and the U.S. Department of Transportation) and led by the University of California at Davis (UCD), the study highlighted the mobility challenges imposed on low-income households by long travel distances and low development densities, coupled with transit that is infrequent and hard to access.



Project Area Map, Stockton, CA in San Joaquin County

The Stockton, California, STEP community area (red outline.) State-designated disadvantaged communities are shaded green, and Stockton's city limits are outlined in bold black. (Map used with permission of San Joaquin Council of Governments. Interactive project map available at [www.sjcog.org/smc](http://www.sjcog.org/smc).)

unable to attract a commercial vendor to the area, with its dispersed population, long travel distances, infrequent transit service, and limited access to travel options commonly available in more populated areas. Míocar responded by becoming a nonprofit e-carsharing operator, with a community-based board of directors. While this preserved the service for the duration of the Ecosystem of Shared Mobility project, Míocar was unable to maintain more than a skeleton service in the south San Joaquin Valley until additional funding could be secured.

<sup>2</sup> The Ecosystem pilot also included Volunteers on the Go (VOGO), a volunteer rideshare program operated by the non-profit MOVE Stanislaus, which was accessed via the original MaaS app, Vamos (see following discussion). VOGO was a casualty of COVID-19 as the demand for travel to essential services plummeted along with the supply of volunteer drivers.



The nonprofit Míocar is the Stockton Mobility Collective's carshare provider. Residents can sign up to use an EV through the Míocar app. (Photo used with permission of San Joaquin Council of Governments.)

In August 2022, Míocar expanded to the northern part of the Valley as part of the SMC. The expansion focused on South Stockton, which has higher levels of poverty and higher percentages of people of color than the rest of the city and county. It also has a larger percentage of limited English-speaking households and residents who face disproportionate mobility challenges in navigating English-only transit schedules or being able to afford and maintain a personal vehicle. South Stockton also has twice the percentage of zero-vehicle households as all of Stockton.

- **Vamos subproject.** The Vamos app, launched in late 2019, provided information on bike routes, transit schedules, and bus payment options in the southern San Joaquin Valley. Under the SMC, Vamos is being expanded into an [all-inclusive MaaS platform](#), with the integration of EZHub for mobile ticketing (and access via a deep link with Míocar, Bike Stockton, and other mobility services) to communicate carshare, transit, ride-hail, and bikeshare service requests with available on-demand vehicles, routes, or drivers.

Míocar and Vamos were still ramping up their originally planned service when the COVID-19 pandemic struck. With regional lockdowns, Míocar suspended operations and Vamos saw limited use. When service resumed, Míocar was hit by supply-chain issues, which delayed vehicle acquisition, and recalls, which put several vehicles out of service for months at a time.

For Míocar's SMC expansion, 30 BEVs are being acquired, along with electric vehicle chargers (funded separately by the Housing Authority of the County of San Joaquin). As of June 2023, thirteen vehicles were in operation, eight were in various stages of commissioning, and another five were on order. After initial delays, Housing Authority activities—including selection of charging sites, permitting, financing, procuring equipment, and contracting with local installers—are now progressing. As with other complex, multi-partner projects, the SMC faced several hurdles in the initial stages of project implementation. Resolving these hurdles took time and effort and at times delayed subsequent elements of the project. Hurdles included:

- **Scheduling.** Once an electric charger service request is made, the utility (Pacific Gas and Electric, or PG&E) takes several months to bring it online. Thus, electric chargers installed for the SMC have sat idle for months awaiting PG&E inspection and commissioning. Upgrades for sites that require additional power can take a year or more.
- **Permitting.** Electric charger permitting is complicated for city-owned sites, which require formal agreements resolving issues such as allowable uses of public land and the collection and disposition of charging revenues. Negotiating and executing those agreements has been time-consuming, delaying permits, which in turn delays service requests.
- **Supply-chain issues.** For the e-bike part of the program, supply-chain delays for e-bike procurement and a change in contracting for hardware and back-end software were resolved by late 2022. However, selecting locations for bike racks and charging infrastructure has been difficult. Transit corridors in South Stockton, where high demand for first/last mile e-bike use may be anticipated, also tend to have a high incidence of truck traffic, homeless encampments, and incidents of vandalism. Locating bike racks in areas where users feel safe and bikes and racks can be monitored, and where there is high bike demand, is a continuing challenge. While several potential sites that lie just outside the project area have been identified, STEP stipulates that all funds be expended within the project perimeter. Thus, SMC is exploring the potential for site flexibility with CARB and looking to coordinate and co-locate with anchor institutions such as the San Joaquin Community Partnership for Families and local affordable housing developers.
- **Delays due to prior delays.** Delays in vehicle and infrastructure deployment, as well as uncertainties about funding levels and details about the various programs providing funds for e-mobility apprenticeships, have slowed the rollout of workforce development. The first apprentice was hired in mid-2023.
- **Contractual complexities.** While the application phase of the [mobility wallet/transit incentives program](#) has been launched, delays in confirming merchant IDs for eligible transportation services have delayed the provision of prepaid debit cards. As of July 2023, income-qualified residents can use these prepaid cards to purchase eligible transportation services and as a method of payment in the MaaS app. Ongoing administrative responsibility—for managing funds, monitoring use, and customer service—will be handled in-house by SJCOG staff. Given uncertain demand for this service, a major challenge is to ensure that SJCOG limits its risk of “overpaying” for the service by specifying the disposition of any funds remaining in the account at the project's conclusion (e.g., by requiring that 80% of those funds be returned to SJCOG).

## PROGRAM DESIGN

With STEP funding, the SMC is supported for four years (2021–2025). SJCOG is the official lead agency, or grantee, and heads a partnership including several community-based organizations (CBOs), shared mobility providers, and the University of California at Davis (UCD). Initially, the partnership was organized into working groups devoted to shared mobility, community engagement, and workforce development. Later, this structure was streamlined into a single steering committee combining membership across the original working groups and resident community advisors. These advisors represent social equity, environmental sustainability, and economic development interest groups and provide overall project coordination and alignment with community mobility needs within and beyond SMC project boundaries. Other entities—including site hosts for e-bike and e-car charging, software vendors and developers, and suppliers of BEVs, e-bikes, chargers, and other equipment—contract with SJCOG or individual subgrantees.

## COMMUNITY ENGAGEMENT STRATEGY

Before the STEP award, SJCOG and its partners engaged with stakeholders and residents in numerous planning efforts (e.g., 2018 Regional Transportation Plan and Sustainable Communities Strategy, SJCOG South Stockton Mobility Assessment, and several bikeshare and bikeway feasibility studies) in addition to the above-mentioned planning study and Ecosystem pilot to understand and respond to unmet travel needs. Study results revealed that in South Stockton the key challenges are access to key destinations, vehicle pollution, and access to transit. In addition, the experience gained by SMC partners in the southern portion of the Valley taught them that successful community engagement required continued, multilingual communication with trusted CBOs, reimbursement (in the form of stipends and/or gift cards) to community members for their time engaging with project staff, and concrete results. For example, Self-Help Enterprises—a major developer of affordable housing in the San Joaquin Valley and the community-based leader of Míocar outreach—brought “boots on the ground” knowledge of local needs, barriers, and options, as well as an established network of community relationships to facilitate community outreach.

Since August 2021, SMC has brought 50 community members together in small focus-group meetings, led numerous e-bike and e-carsharing demonstrations, and met with various CBOs. However, in early 2022, SJCOG realized that its resources were being stretched thin, both internally and externally. In response to “engagement fatigue,” working groups were consolidated into a single steering committee, and the community engagement strategy was intentionally designed to coordinate with and cross-promote other programs and resources within the project area. While this has reduced the number of solo SMC-sponsored events, it

has extended outreach. As of May 2023, the SMC has exhibited or demonstrated at public events reaching more than 2,000 attendees.

As a partner in both the SMC and the earlier Ecosystem of Shared Mobility, UCD has tracked utilization metrics for Míocar and Vamos over several years. This required operators of the two services to share data with the researchers, who then conducted surveys to characterize users and identify how the two services changed respondents’ travel choices. Over time, UCD tracked member characteristics, utilization (e.g., reservations, trips, downloads), transportation impacts, and other outcomes. Similar metrics associated with Míocar’s Stockton operations, the MaaS app, mobility incentives, and e-bikesharing are being tracked as part of the SMC.

According to the UCD 2022 [evaluation of Míocar and Vamos](#):

*“Míocar is improving mobility for lower income households. 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 during these additional trips were driven by members of low-, very low-, or extremely low-income households. . . . Of the 20% of Míocar trips that members reported would still have occurred in the absence of the service, nearly all would have involved a personal internal combustion engine vehicle.”*

In UCD’s evaluation, considerably less data were collected for Vamos than for Míocar. This reflected the pandemic, which reduced both travel demand in general and transit demand (hence, use of a transit-oriented app) in particular. Nevertheless, survey data indicate that in 2021–2022, Vamos users were, on average, younger, lower income, and had less vehicle availability (i.e., 75% of survey respondents were 20–44 years of age, 27% had incomes below \$25,000, and 21% were in households with no vehicle available as compared with 34%, 15%, and 5%, respectively, for the two-county project area).

Spanish is the primary language of many Vamos and Míocar users. Hence, websites, promotional materials, and the app itself are in English and Spanish, and project staff and/or CBOs often assist with translation at public events. SMC is providing mini-grants to compensate CBOs for their help in promoting the project with their constituents.

## RECOMMENDATIONS AND LESSONS LEARNED

The transition to e-mobility in rural and small urban communities is more challenging than in large cities. Even in affordable housing complexes where potential users may be clustered, trips tend to be long, and demand is often below the level needed to attract commercial providers. While costs can be reduced by procuring used vehicles, engaging a nonprofit provider, and/or teaming with partners to share equipment, revenues are likely to be insufficient to cover

costs. Although the economics for the private provision of e-mobility services are better in small cities and transit may be available on some corridors, e-mobility remains challenging. The SMC's experience suggests:

- Upfront coordination with utilities and local governments is critical to identify permitting requirements and necessary utility upgrades. Given potentially long lead times, partners must learn early what steps are required and how long they will take.
- Contract constraints may preclude some good electric charger sites. Sites outside of project boundaries may call for additional negotiation and/or potential replacement.
- Contracting and funding disbursement should have the flexibility to respond to changes in project details and payment needs.
- Integrating electronic platforms successfully and cost-effectively takes time. Launching a MaaS platform requires software integration and estimating tradeoffs between licensing fees and coverage.
- Multilingual digital and print materials are critical for reaching non-English speakers.
- Engagement with the disabled community is needed for the planning and development of user-facing software that is mindful of the needs and abilities of all users.
- Engagement must be respectful of community members' time and abilities, limiting requests to priority "asks" and reimbursing attendees for their time and expenses.
- "Engagement fatigue" can be averted by coordinating with CBOs, piggybacking onto recurring events, and cross-promoting opportunities.
- Deployment delays are common due to supply-chain issues (which may be temporary), legal uncertainties, and a backlog of service requests of local utilities. While switching equipment vendors can help, legal and utility constraints can remain a major challenge.
- Site selection must consider safety along with potential demand. Safety and security are critical both for giving shared mobility users a positive, safe experience and for preventing vandalism to vehicles and infrastructure.
- Attracting a commercial carsharing vendor can be challenging, especially in less populous areas.
- Pilot projects should be mindful of long-term viability. Many equity-focused projects have pilot funding and are likely to need ongoing support, much like public transit. Engagement with potential partners should begin well before the end of pilot support.

## ACKNOWLEDGMENTS

Christine Corrales, San Joaquin Council of Governments; Dr. Caroline Rodier, Urban Land Use and Transportation Center, UC Davis; Linda Urata, Kern Council of Governments; Creighton Randall, Mobility Development Group; and Leslie Baroody, CARB Sustainable Transportation and Communities Division, provided content for this case study.

*This work was authored by Argonne National Laboratory for the Joint Office of Energy and Transportation's JUST Lab Consortium. Argonne National Laboratory is a U.S. Department of Energy laboratory managed by UChicago Argonne, LLC, under contract DE-AC02-06CH11357.*