RESEARCH REPORT

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Retrospective User Survey for a Rural Electric Vehicle Carsharing Pilot in California's Central Valley

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16. Abstract

Rural areas in California present unique transportation challenges associated with long travel distances, infrequent transit service, the cost of car ownership, and limited access to app-based rideshare services that are common to more populated urban centers. Researchers at the University of California, Davis, partnered with the eight San Joaquin Valley Metropolitan Planning Organizations to identify and support the development of innovative regional mobility pilot concepts, including an electric vehicle carsharing service known as Míocar. Míocar launched in August 2019 with round-trip EV carsharing hubs in affordable housing complexes in the southern San Joaquin Valley. This study summarizes the data collected through a telephone survey with current Míocar users from January 2022 through March 2022. The survey asks users to reflect on their use of the service since they enrolled, and it builds upon past data collection efforts for this program by gathering detailed information on member characteristics, transportation needs and capabilities, and Míocar's role as a transportation option for the users' households. The results provide qualitative insights into members' mobility challenges and considerations and the service's impacts on user travel. Comparisons to existing carsharing programs suggest that Míocar is achieving similar impacts as other programs in some areas, such as reducing personal vehicle use, ownership, and associated greenhouse gas emissions. However, respondents emphasize its role in improving mobility within the rural region. The evaluation provides information for researchers to enhance future evaluations of rural carsharing, and findings may inform member recruitment, training, program design, and other efforts conducted by rural carsharing operators.

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Disclaimer

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Executive Summary

Executive Summary

Marginalized rural areas in California present unique transportation challenges associated with long travel distances, infrequent transit service, the cost of car ownership, and limited access to app-based rideshare services that are common to more populated urban centers. Researchers at the University of California, Davis) and the San Joaquin Valley Metropolitan Planning Organizations engaged with stakeholders to identify and support the development of innovative mobility pilots for the region, including an electric vehicle carsharing service known as Míocar.

Míocar launched in August 2019 with round-trip EV carsharing hubs in 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 price-sensitive populations with limited 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-weekend daily rate. There is a 35 cent per mile fee after the vehicle travels 150 miles during one reservation.

In this evaluation, we summarize the data collected through a telephone survey with current Míocar users from January 2022 through March 2022. This survey gathered detailed information on member characteristics, transportation needs and capabilities, and the role of Míocar as a transportation option for respondents and their households. The survey builds upon past data collection efforts for Míocar by addressing key topics identified in past surveys and by allowing users to provide open-ended comments to share their transportation challenges and experiences with EV carsharing. The results are based on a sample of 57 respondents, representing a 39% response rate for members who used the service at least once as of January 2022.

The survey allowed for comparisons in demographic attributes between Míocar users and the regional population. Respondents have larger household sizes on average than the regional population, with a median of four individuals per household in the respondent group as compared to three individuals per household in the regional population. Regarding income, respondents tend to have median or moderate income levels as defined by California state income categorizations, but 39% of respondents were categorized as extremely low, very low, or low income households. Respondents tend to be younger on average (61% under the age of 40) than the regional population (58% over the age of 40), with somewhat higher levels of education on average. The proportion of individuals of Hispanic, Latino, or other Spanish origin is greater within the respondent sample (79%) than in the population of counties where Míocar members live (54% to 66%).

To assess user transportation capabilities and challenges, the survey asked respondents whether their household would be able to use a variety of modes other than Míocar to complete all, some, or none of the trips they need to make. Personal vehicles appeared to be the most viable alternative mode of the four options presented (Figure ES-1). Most respondents reported that their household could make all of its trips with

personal vehicles (53% of respondents), and 44% of respondents indicated that they could use personal vehicles to make some of their trips but not others. In contrast, only 2 respondents (4%) reported that they could make all of their trips with transit, and 35% of respondents reported that their household could not use transit to make any of the trips it needed to make. No respondents indicate that their household could make all of its necessary trips by walking. Overall, 46% of respondents selected “Some” or “None” for all four alternative modes, suggesting that no single mode among these options would allow their household to make all of its necessary trips.

Users explained the challenges associated with each alternative mode, commonly mentioning that it would be difficult to complete long-distance trips with their personal vehicles, public transit, or active transportation, and that it would be difficult to reliably travel to time-sensitive destinations such as medical appointments, work, or school.

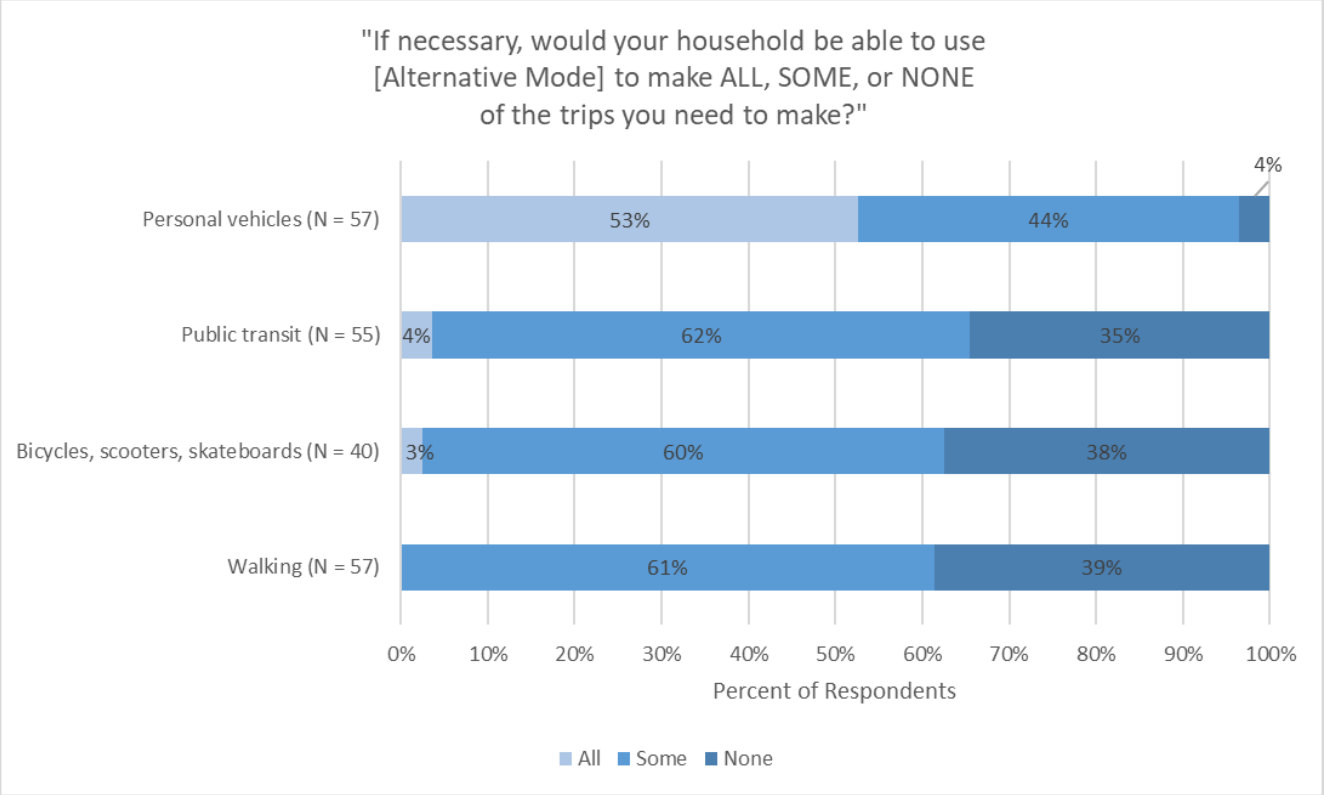

Figure ES-1. Member Household Ability to Make Trips Using Modes other than Míocar

Survey questions about users’ personal vehicles and access to other modes provide insight into their transportation capabilities and challenges. Compared to the regional population (based on census data), Míocar users reported similar levels of personal vehicle access , but greater numbers of personal vehicles per household resident households of more than three individuals. However, respondents rated the reliability of their vehicles, and 49% of respondents reported that they have less than one reliable vehicle per adult over 18

years old. About one-third of respondents from households that commute to work reported that they have less than one reliable vehicle per employed household resident.

The survey included questions about the types of trips users made with Míocar, and whether they had taken these trips for themselves or driven others in the vehicle to complete them. Respondents reported using Míocar for a wide range of trip purposes, and most respondents (89%) stated that they had used Míocar to drive others to where they needed to go for at least one trip purpose. Respondents with 0.50 or fewer personal vehicles per resident were more likely to have used Míocar to drive others, suggesting that members may be using Míocar to fill transportation gaps for others in their households in addition to themselves.

A key objective of Míocar is to increase transportation equity by improving the mobility of individuals and households in marginalized communities. Overall, 37 of 57 respondents (65%) reported that Míocar had increased their household's total number of trips. Míocar impacts on total household trips showed a correlation with income in the respondent sample (Figure ES-2). Respondents in the lowest three income categories were more likely to report that Míocar had increased their total trips than respondents in the highest three income categories. Users in the higher income categories may be more likely to use Míocar to replace trips they would have taken with another mode. In comparison, users in the lower-income categories may be more likely to use Míocar to travel to destinations that they would not have otherwise traveled to. However, each income category represents a limited sample size, and this trend should be considered exploratory.

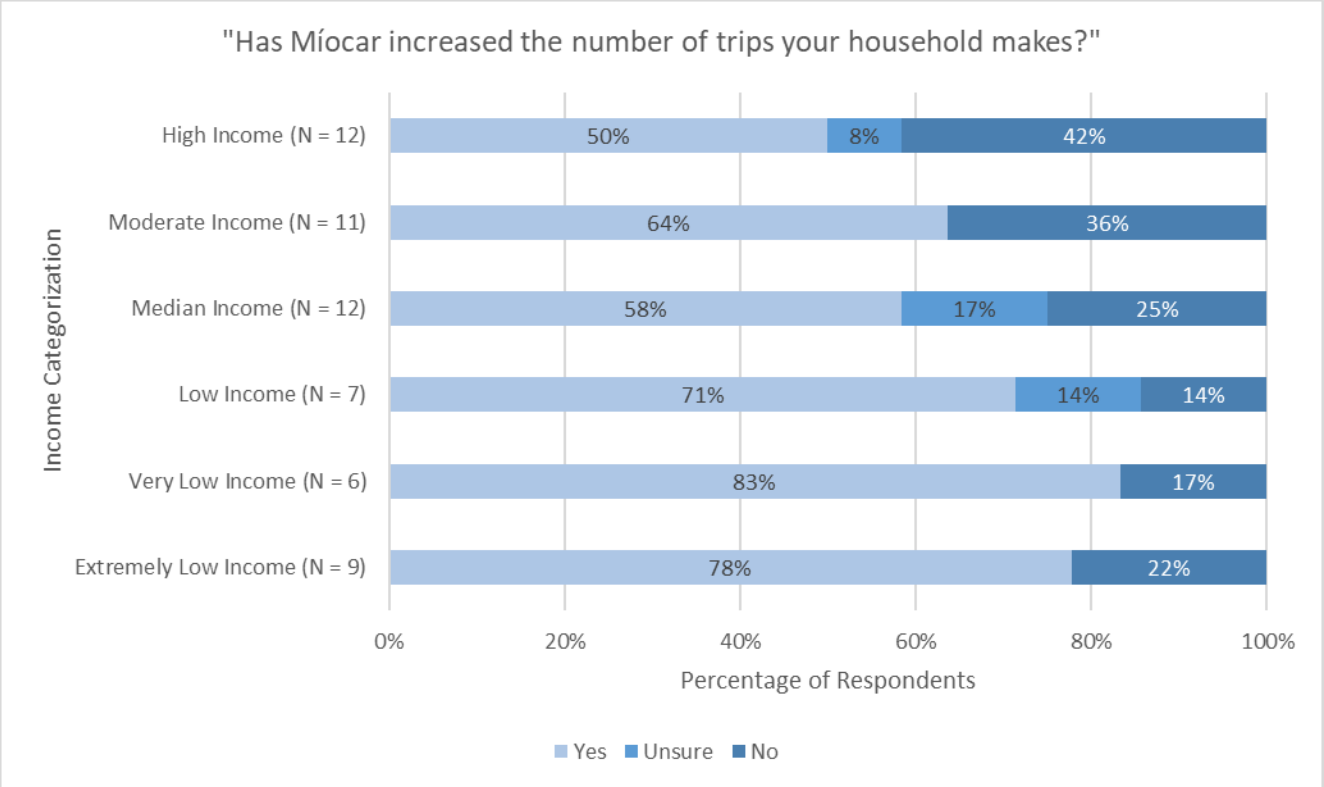

Figure ES-2. Whether Míocar has Increased Household Trips, by Income Categorization

Most respondents (60%) reported an increased ability to travel to where they needed to go since joining Míocar as compared to before joining Míocar, and 72% of respondents reported that they are now always able to travel to where they need to go (as compared to 26% when asked about the period before they joined Míocar).

Míocar is also designed to provide members with a flexible, reliable, and low-cost transportation option that helps to reduce their reliance on traditional personal vehicles. By reducing personal vehicle use, Míocar aims to contribute to reducing greenhouse gas emissions and saving costs for its members. To qualitatively assess these effects, the survey asked respondents whether Míocar has affected how much their household has used its personal vehicles. No respondents indicated that Míocar had caused their household to use its personal vehicles more often, and 65% of respondents indicated that Míocar had caused their household to use its personal vehicles less.

The use of personal vehicles appears to be correlated with income within the respondent sample (Figure ES-3), although due to limited sample sizes in each income category these findings are not intended to be representative of each income category within the member population. Most respondents within the lowest two income categories indicated that Míocar had not affected their personal vehicle use, while most respondents in each of the higher income categories indicated that Míocar had decreased their personal vehicle use. This suggests that users within higher income categories may be more likely to use Míocar as a replacement for personal vehicle travel, whereas users from lower income households may be more likely to use Míocar for trips they would not have taken with personal vehicles.

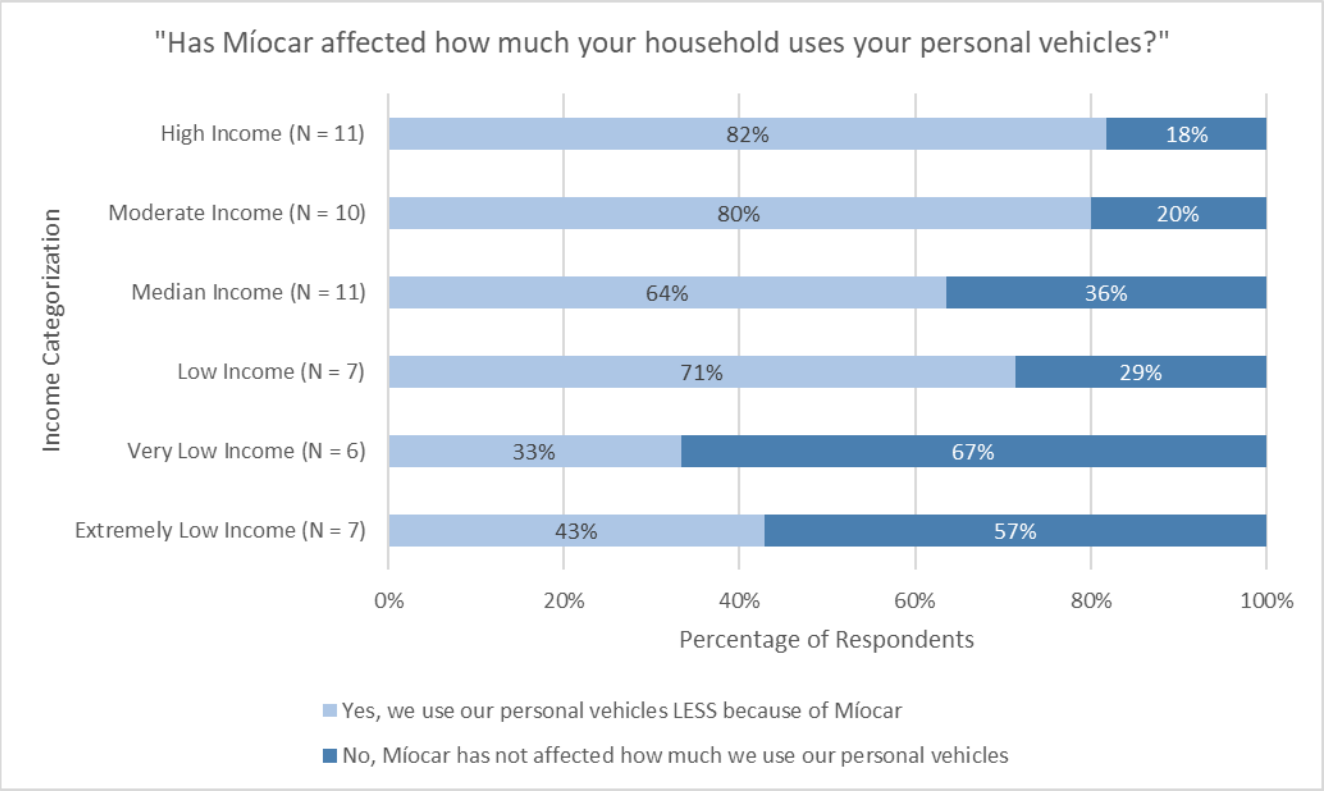

Figure ES-3. Whether Míocar has Affected Personal Vehicle Use, by Income Categorization

When asked how they had previously traveled to essential destinations including work, school, and medical appointments prior to joining Míocar, most respondents reported that these trips had involved private vehicles, either in the form of their own personal vehicles, or asking for a ride or borrowing a vehicle from someone else. However, respondent comments suggested that use of private vehicles to travel to these destinations was not always reliable, and that they may have had to delay or reschedule trips depending on vehicle availability. Overall, responses suggested that users predominantly relied on private vehicles to complete these types of essential trips before joining Míocar, but that there were challenges to using shared household vehicles or finding a ride from others. Additionally, responses to these questions and the questions regarding the viability of alternative modes suggest that respondents do not view public transit as a reliable alternative to private vehicles, and that few respondents are using Míocar to replace transit for these trips.

To assess the effect of carsharing on personal vehicle ownership, the survey included a series of questions to assess whether Míocar members had shed any personal vehicles or deferred the lease or purchase of personal vehicles due to the availability of the service. The results indicate that 3 of 57 respondents had shed a vehicle due to the availability of Míocar, and that 8 of 57 respondents had delayed the purchase of one or more vehicles due to the availability of Míocar. The 57 survey respondents reported having access to a total of 120 personal household vehicles at the time of the survey. According to the results of this analysis, respondents would have retained an additional three vehicles, and would have purchased or leased an additional 10 vehicles

in the absence of Míocar. This suggests that respondents would have had a total of 133 personal vehicles, or about 11% more vehicles, than they currently do as members of the carsharing service.

Regarding program satisfaction, respondents provided high satisfaction ratings for the cost of Míocar and the overall service (Figure ES-4). Respondents were relatively less satisfied with their travel distance to Míocar hubs, which is consistent with past research, which showed that the average distance from member homes to the nearest Míocar hub is 7 miles, with a median of 2 miles (Rodier, Harold, and Zhang 2021).

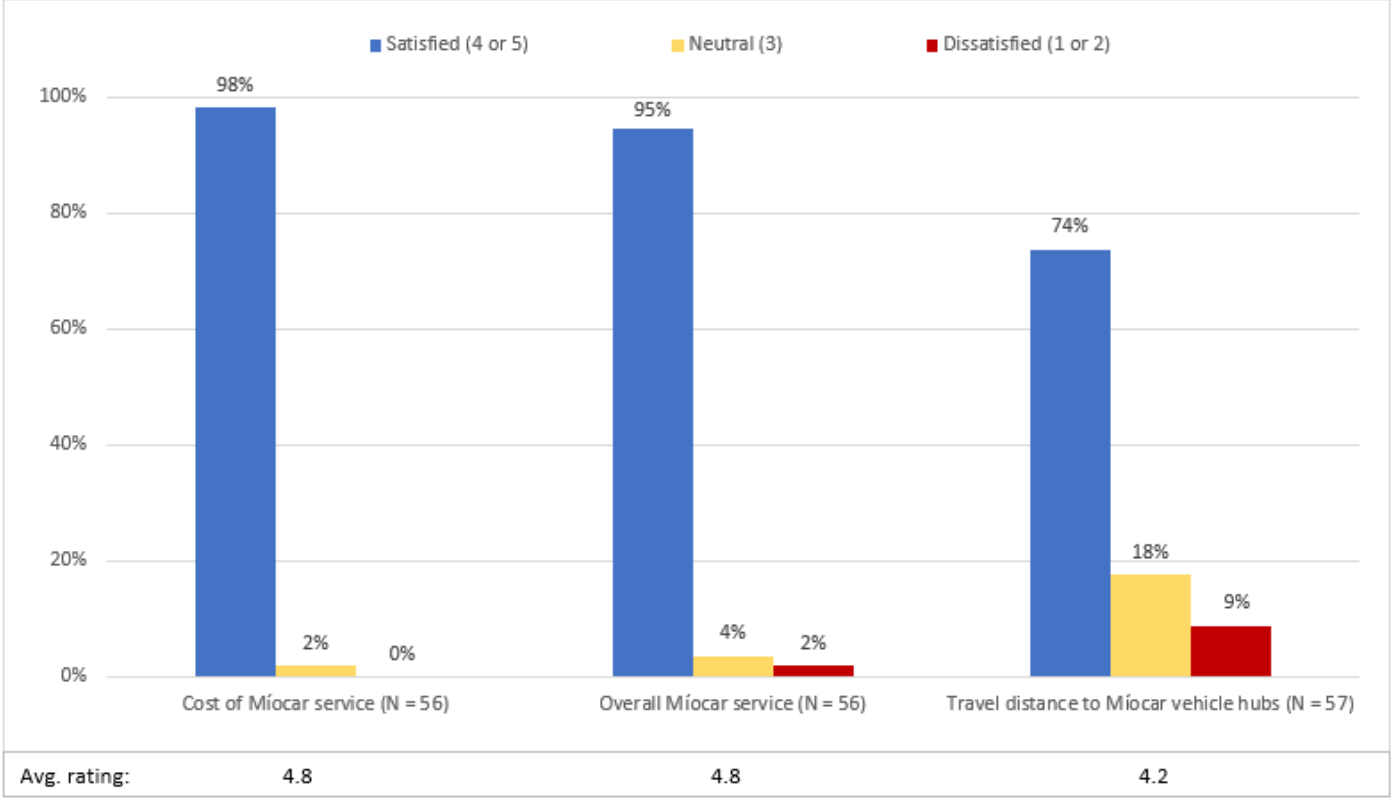

Figure ES-4. Satisfaction Ratings for Key Program Elements

When asked to provide suggestions for improving the service, respondents commonly suggested expanding the Míocar service to add more vehicles or hubs, and several respondents cited their long distance from the nearest Míocar hub when making this suggestion. Additionally, respondents explained that parking spaces were not always available when returning Míocar vehicles, or that hubs did not always have spaces for parking personal vehicles when picking up a Míocar vehicle. Some respondents also suggested improving the cleaning or maintenance procedures for Míocar vehicles. These results suggest that there is demand within the existing membership base for expansion of the service with additional hubs or vehicles, and that increased vehicle availability would allow some members to use Míocar more often. Additionally, there may be opportunities to enhance the convenience of using Míocar through on-site attention to topics such as vehicle parking, cleaning

and maintenance, and charging. However, given the high program satisfaction ratings, these opportunities may represent minor incremental improvements rather than major problem areas.

Overall, the survey results suggest that Míocar improves the ease, efficiency, and reliability of household travel while filling transportation gaps and reducing reliance on personal vehicles. Comparisons to research on existing carsharing programs, which are mainly operated in urban settings, suggest that Míocar is achieving similar results related to some travel effects, such as reducing personal vehicle use, ownership, and associated GHG emissions (e.g. Martin et al. 2021; Randall 2020; Martin and Shaheen 2016; Martin and Shaheen 2011; Randall 2011; Lane 2005; Cervero and Tsai 2004). However, the demographics and socio-economic metrics for the Míocar user base vary from the predominantly white, middle-income, smaller households associated with urban carsharing services examined in other studies (e.g. Martin et al. 2021; Shaheen, Martin, and Totte 2020; Martin and Shaheen 2011; Lane 2005; Cervero and Tsai 2004). Respondent commentary highlights the specific transportation challenges associated with the rural San Joaquin Valley in the form of long travel distances, limited transit, and shared personal vehicles, which amplify Míocar's role in improving mobility.

These current survey results provide information for researchers to enhance future program evaluations, as well as insights that may inform program recruitment, training, design, and other efforts conducted by Míocar or other carsharing operators. Regarding further research in this area, commentary provided by users regarding alternative modes of travel and decision-making in the absence of Míocar suggests opportunities for researchers to enhance the post-reservation surveys that are administered to users following individual reservations. Specifically, in addition to assessing whether trips would have occurred at all in the absence of Míocar, it may be useful to explore the extent to which the absence of Míocar would affect the timing or level of difficulty in completing individual trips. Additionally, analyses of survey results in conjunction with data collected from Míocar post-reservation surveys and vehicle utilization data may allow for further conclusions and quantitative estimates of the effects of rural carsharing on GHG emissions, VMT, and transportation access.

Contents

Introduction

Rural areas in California present unique transportation challenges associated with long travel distances, infrequent transit service, the cost of car ownership, and limited access to app-based rideshare services that are common to more populated urban centers.

We partnered with the San Joaquin Valley Metropolitan Planning Organizations to engage community stakeholders in the identification and development of innovative mobility pilot concepts for the region. One of these pilots is an electric vehicle (EV) carsharing service known as Míocar, which has 27 vehicles located in affordable housing complexes in six Tulare and Kern county communities.

Throughout pilot development and following the service launch in 2019, we have worked with Míocar to collect data on who is using the service and how they are using it, and travel decisions related to individual Míocar reservations (Rodier, Harold, and Zhang 2021; Rodier, Harold, and Zhang 2022). Past studies have focused on characterizing member demographics and home location relative to the nearest Míocar hub, assessing the purpose of individual trips, and estimating the number of trips taken with Míocar that would not have occurred or would have been taken with conventional vehicles in the absence of the service. In this evaluation, summarize the data collected through a telephone survey with current Míocar users from January 2022 through March 2022. This survey expanded upon past data collected for the Míocar pilot by filling information gaps about household composition and travel needs, transportation capabilities and challenges, and the role of Míocar as a transportation option to improve mobility and reduce reliance on personal vehicles.

The results provide insights into member mobility challenges and considerations, as well as qualitative information about Míocar's contributions to changes in travel behavior, greenhouse gas emissions, and equity outcomes. Findings from the evaluation are also intended to guide further scaling and marketing efforts for Míocar, and to provide exploratory observations to inform further study of EV carsharing in rural areas.

Background

Beginning in 2014, we partnered with Caltrans and San Joaquin Valley MPOs to explore opportunities for shared-use alternatives in rural marginalized communities that might reduce transit costs, increase travel access, and reduce greenhouse gas (GHG) emissions. These partners worked to gain regional consensus on the most promising shared-use mobility concepts and pilot locations. We implemented surveys and focus groups exploring the need and interest for pilot services and undertook extensive stakeholder outreach to understand study-related concerns, goals, and analyses. Based on the findings from this study, project partners applied to the California Air Resources Board's (CARB's) Clean Mobility Options funding program to support small-scale

pilot implementations. One of the proposed pilots, later known as Míocar, was a round-trip electric vehicle (EV) carsharing service with hubs located in affordable housing developments.

Study Background

We have conducted several past and concurrent research projects to understand and evaluate the performance and outcomes of the Míocar EV carsharing program in the San Joaquin Valley. These projects include conducting initial member surveys, post-reservation surveys, and analyzing results in combination with carsharing telematics data to estimate Míocar impacts on member transportation patterns and GHG emissions, and developing user profiles to assess the characteristics of high-frequency carsharing users as a way to inform program expansion and scalability (Rodier, Harold, and Zhang 2021; Rodier, Harold, and Zhang 2022).

Based on findings from these efforts, we identified the need for additional detailed data collection to better understand how and why individuals and households use Míocar, how it has impacted their choice of travel modes, and the extent to which it has provided access to new opportunities and helped to overcome transportation barriers. To accomplish this, we developed a survey to administer to existing Míocar users. The survey was designed to build upon past data collection efforts through the use of detailed travel questions and open-ended questions to gather qualitative narratives from respondents. Rather than focusing on individual trip characteristics, the survey asked users to reflect on their overall use of the service since they joined Míocar, and to provide both structured and unstructured feedback about their travel experiences.

Table 1 displays a comparison of metrics collected with the initial Míocar member survey and post-reservation surveys which were administered as part of past studies, and the retrospective telephone survey that is the focus of this study. A *"Yes"* indicates that the metric was collected in the survey, and clarifying notes are added where applicable. The retrospective telephone survey collected additional details in several of the displayed categories and addressed a wider variety of topics than previous surveys.

Table 1. Comparison of Data Collected in Past Studies and Current Study

Category	Metric	Initial Survey	Post-Reservation Survey	Retrospective Telephone Survey (Current study)
Member attributes	Income, education level, age	Yes		Yes
	Ethnicity and origin			Yes
Household composition	Household size and number of adults	Yes		Yes
	Age ranges of each household resident and relation to member			Yes
	# of employed/student residents and whether household commutes			Yes
Mode choice	Modes used to access Míocar hubs	Yes	Yes, for individual reservations	Yes
	Alternative transportation modes			Yes
	Modes used for essential trips before Míocar			Yes
Míocar use	Number of passengers in Míocar vehicle		Yes	
	Purposes of trips taken with Míocar		Yes, for primary destinations	Yes, overall for duration of membership, for self and others
Personal vehicles	Duration of access to vehicles			Yes
	Make, model, year	Yes		
	Miles driven in past 12 months	Yes		Yes
	Number available	Yes		Yes
	Reliability			Yes
Transportation impacts	Míocar impacts on number of household trips	Yes, expected		Yes, actual
	Míocar impact, and COVID-19 impact, on personal vehicle use			Yes
	Overall transportation access pre- and post-Míocar			Yes
	Vehicles shed and/or suppressed due to Míocar			Yes
	Counterfactual travel decisions		Yes, for primary destinations	
Program outreach	Why members joined Míocar	Yes		
	How members learned of Míocar	Yes		
Satisfaction and feedback	Satisfaction with vehicle cleanliness		Yes	
	Satisfaction with overall service, cost of service, distance traveled to Míocar hubs, vehicle charging			Yes
	Unstructured suggestions for program improvement		Yes	Yes

In this report, we summarize the survey method, data collected, key results, and conclusions from the evaluation. The results provide detailed insights into Míocar member characteristics, household travel needs and preferences, the role of Míocar in improving mobility and reducing personal vehicle travel, and other pilot outcomes.

Pilot Description

Míocar launched in August 2019 and currently has eight vehicle hubs in six communities in Tulare and Kern counties. Míocar currently has 27 vehicles in its fleet, including BMW i3s, Chevy Bolts, and three hybrid Chrysler Pacifica minivans. Míocar hubs are located within and near affordable housing developments to provide efficient vehicle access to residents; however, there is no residence requirement for membership.

Residents apply or reserve vehicles by the smartphone app, website, or phone call. Members must have a clean driving record (i.e., no major violations, excessive speeding, reckless driving, multiple moving violations, or driving without a license) and be 21 years of age or older. The pricing for Míocar includes a $20 member processing fee, a $4 hourly rental rate, a $35 daily weekday rental rate, and a $45-weekend daily rate. There is a 35 cent per mile fee after the vehicle travels 150 miles during one reservation. The price of the rental includes insurance, roadside assistance, and electricity. Míocar seeks to provide carsharing at a price point that is more affordable than owning a personal vehicle to price-sensitive populations with low transit access.

Methods of Data Collection and Analysis

This evaluation involved conducting a telephone survey with current Míocar carsharing members. This section defines the sources of data and the survey approach, summarizes the data collected, and describes key analyses conducted for the collected survey dataset.

Survey Approach

We programmed the survey into the Qualtrics survey platform and used a computer-assisted telephone interviewing approach for administering the survey. To facilitate survey recruitment, Míocar provided us with an export of enrollment data collected for Míocar members from May 2019 through January 2022, which included member name, email address, telephone number, and member status. Member status is separated into three categories: 1) Active members, who are still able to use the service; 2) Inactive members, who used the service at least once but are not recent users; 3) Canceled members who used the service at least once but are no longer members now.

We called Míocar members by telephone, and upon receiving consent to administer the survey, followed a telephone script within Qualtrics to ask questions and enter member responses. The survey and all recruiting efforts were offered in both English and Spanish. One member of the research team, who is bilingual in English and Spanish, administered all telephone surveys.

Before and during the survey recruiting effort, Míocar staff coordinated with us to distribute information about the survey to Míocar members through newsletters and mass email notifications. These notifications explained the purpose of the survey, identified the available incentives, described the telephone outreach approach, and provided members with the option to contact us to schedule a time to take the survey. We offered a $50 gift card and one hour of Míocar driving credit to each member who completed the survey.

Data Collected

We administered the survey from January 2022 through March 2022.[1] During this period, we collected 57 responses to this survey from Míocar members. All members who completed the survey had used Míocar at least once (we classified these members as “users”). The member list provided by Míocar included 148 user members. The user response rate, calculated as the ratio of people who completed the survey to the total number of users in the member list, is 39% (57/148).

[1] We continued survey outreach beyond this period to collect additional responses in support of future research projects for this program.

The survey was designed to collect detailed information regarding member characteristics, use of carsharing, transportation capabilities and challenges, transportation outcomes attributable to carsharing, and qualitative perspectives on Míocar (see Appendix: Telephone Survey Instrument for a list of the questions and response options used in the survey). The survey collected the following information to assess these topics:

- Demographics and socio-economic metrics
    - Member education level, age, ethnicity
    - Annual household income
- Household composition
    - Number and age ranges of household residents
    - Relationships of household residents to member
    - Number of employed individuals/students in household
    - Whether residents typically travel to school/work or attend school/work from home
- Personal vehicle characteristics
    - Number and reliability of personal vehicles available to household
    - Estimated miles driven with each vehicle in past 12 months
    - COVID-19 effects on personal vehicle usage
- Míocar usage characteristics
    - How member has used Míocar to take trips for themselves or others (i.e. trip types)
    - How member made individual trip types before joining Míocar
    - Mode used to access Míocar pick-up locations
- Míocar impacts on transportation
    - Whether Míocar has increased the number of trips made by member's household
    - Whether Míocar has affected use of member's personal vehicles
    - Overall member transportation access before joining Míocar vs. after joining Míocar
- Transportation alternatives
    - Alternative modes available to member (e.g. biking, transit, walking)
    - Viability of using alternative modes to complete necessary trips
- Vehicle shed and suppression
    - Whether member's household has shed vehicles due to Míocar
    - Make, model, and year of vehicles shed
    - Whether household has suppressed the purchase/lease of vehicle(s) due to Míocar
- Satisfaction and feedback
    - Satisfaction with ease of vehicle charging during trips and upon return
    - Satisfaction with cost of Míocar service
    - Satisfaction with distance from Míocar hubs
    - Satisfaction with overall Míocar service
    - Suggestions and open-ended feedback on the service

The telephone-based survey administration approach allowed us to ask respondents open-ended questions about their transportation decision-making and the effects of Míocar as a transportation option. Several of the above topics were asked in an open-ended format to gather qualitative narratives and anecdotes from members. We transcribed these open-ended responses and examined the results to develop findings; in some cases, we were able to create categories of common themes within respondent comments to enhance the analysis, as described throughout the Results sections.

Analysis Approaches

We exported the survey results from Qualtrics as a comma-separated values (CSV) file and analyzed the data using Microsoft Excel. The analysis included the following areas, as detailed below: income categorization, personal vehicle availability, and program-attributable shedding or suppression of vehicles.

Income Categorization

As Míocar seeks to improve transportation equity in low-income and disadvantaged areas, the evaluation involved analyzing survey results by respondent income categories to assess possible differences between higher income and lower income members. Survey respondents were asked to state their household's annual income level using the following telephone-based question script:

> *"This question is about your household's approximate annual income level. I'll read a list of options. Please tell me when I reach your household's annual income level. Less than $10,000; Less than $25,000; Less than $50,000; Less than $100,000; Less than $150,000; Less than $200,000."*

We converted the responses for this question to income level ranges as shown in Table 2:

Table 2. Conversion of Household Income Survey Response to Income Range

Annual Household Income Response	Converted to Range
Less than $10,000	Less than $10,000
Less than $25,000	$10,001 to $24,999
Less than $50,000	$25,000 to $49,999
Less than $100,000	$50,000 to $99,999
Less than $150,000	$100,000 to $149,999
Less than $200,000	$150,000 to $199,999
At least $200,001	$200,000 or more

This conversion allowed for alignment with statewide income categories and comparison with regional population data for Fresno, Kern, and Tulare counties. We assigned income categories of *extremely low income*,

very low income, low income, median income, moderate income, and high income to Míocar survey respondents based on 2021 State Income Limits and as prescribed by the Department of Housing and Urban Development (HUD).[2] The correspondence table for classifying respondents' income categories is shown in Table 3.

Table 3. Correspondence Table for Income Limits and Income Categorization

		Household Size (Number of Individuals)					
What is your household's income level?	**Midpoint Value**	**1**	**2**	**3**	**4**	**5**	**6 or More**
LESS THAN $10,000	5000	Extremely Low	Extremely Low	Extremely Low	Extremely Low	Extremely Low	Extremely Low
$10,000 TO $24,999	17,500	Very Low	Very Low	Extremely Low	Extremely Low	Extremely Low	Extremely Low
$25,000 TO $49,999	37,500	Low	Low	Low	Low	Very Low	Very Low
$50,000 TO $99,999	75,000	High	High	Moderate	Moderate	Median	Median
$100,000 TO $199,999	150,000	High	High	High	High	High	High

Personal Vehicle Availability

The survey asked respondents about the number of personal vehicles available to their households. To further assess vehicle availability within member households, we calculated and compared the number of personal vehicles per household resident for each of the following categories:

- **Personal vehicles per household resident:** Calculated for each respondent as their household's total number of personal vehicles, divided by the total number of household residents.
- **Personal vehicles per adult household resident:** Calculated for each respondent as their household's total number of personal household vehicles, divided by the number of household residents over the age of 18 (based on the age categories used in the survey).
- **Personal vehicles per employed resident of commuting households:** For respondents who reported that their households usually travel to work rather than work from home, calculated as their household's total number of personal vehicles, divided by the total number of employed household residents.

We also considered the reliability of personal vehicles when analyzing the number of vehicles per resident. The survey asked respondents to rate the reliability of their personal vehicles on a scale of *1* to *5*, where *1* represents "Very unreliable" and *5* represents "Very reliable". We categorized vehicle reliability as follows:

[2] The 2021 State Income Limits are on the Department of Housing and Community Development (HCD) website at https://www.hcd.ca.gov/grants-funding/income-limits/state-and-federal-income-limits.shtml.

- **Vehicles receiving a reliability rating of *1* or *2:*** Categorized as "Unreliable"
- **Vehicles receiving a reliability rating of *3, 4,* or *5:*** Categorized as "Reliable"

We used this categorization along with the three categories of household residents above to calculate the following metrics:

- Personal vehicles per household resident (All vehicles)
- Personal vehicles per household resident (Reliable vehicles only)
- Personal vehicles per adult household resident (All vehicles)
- Personal vehicles per adult household resident (Reliable vehicles only)
- Personal vehicles per employed resident of commuting households (All vehicles)
- Personal vehicles per employed resident of commuting households (Reliable vehicles only)

For each metric, we grouped the vehicles-per-resident values into categories of *0 vehicles per resident; >0 to 0.50 vehicles per resident; 0.51 to 0.99 vehicles per resident;* and *1 or more vehicles per resident*. We used these categories to observe trends in member survey responses by vehicle availability status, as discussed in the Results sections.

Program-Attributable Shedding and Suppression of Vehicles

To assess the effect of carsharing on personal vehicle ownership, the survey included a series of questions to assess whether Míocar members had shed any personal vehicles or suppressed vehicles—i.e., deferred the lease or purchase of personal vehicles due to the availability of the service. We developed a method to identify program-attributable vehicle shedding and suppression based on an existing method used to assess these impacts for carsharing programs, as described in Martin, Pan, and Shaheen (2020).

Figure 5 displays the questions used to assess the number of vehicles shed per respondent, with the analysis logic used to determine whether the vehicle shed is attributable to Míocar. Respondents were first asked the following question:

> *Shed_1: "Has your household gotten rid of any personal vehicles since you joined Míocar? By "gotten rid of", I mean vehicles that you have sold, scrapped, or stopped the lease on."*

Respondents indicating "Yes" to this question were then asked the following question:

> *Shed_2: "Has your household gotten rid of any personal vehicles because of the availability of Míocar as a transportation option?"*

Respondents indicating "Yes" to the above question were then asked how many personal vehicles they had sold, scrapped, or stopped the lease on due to Míocar, as well as the following question:

> *Shed_3: "If Míocar were not available, would your household still have gotten rid of this vehicle?"*

For each vehicle, if a respondent answered "No" to the above question, the vehicle would be categorized as having been shed due to the availability of Míocar.

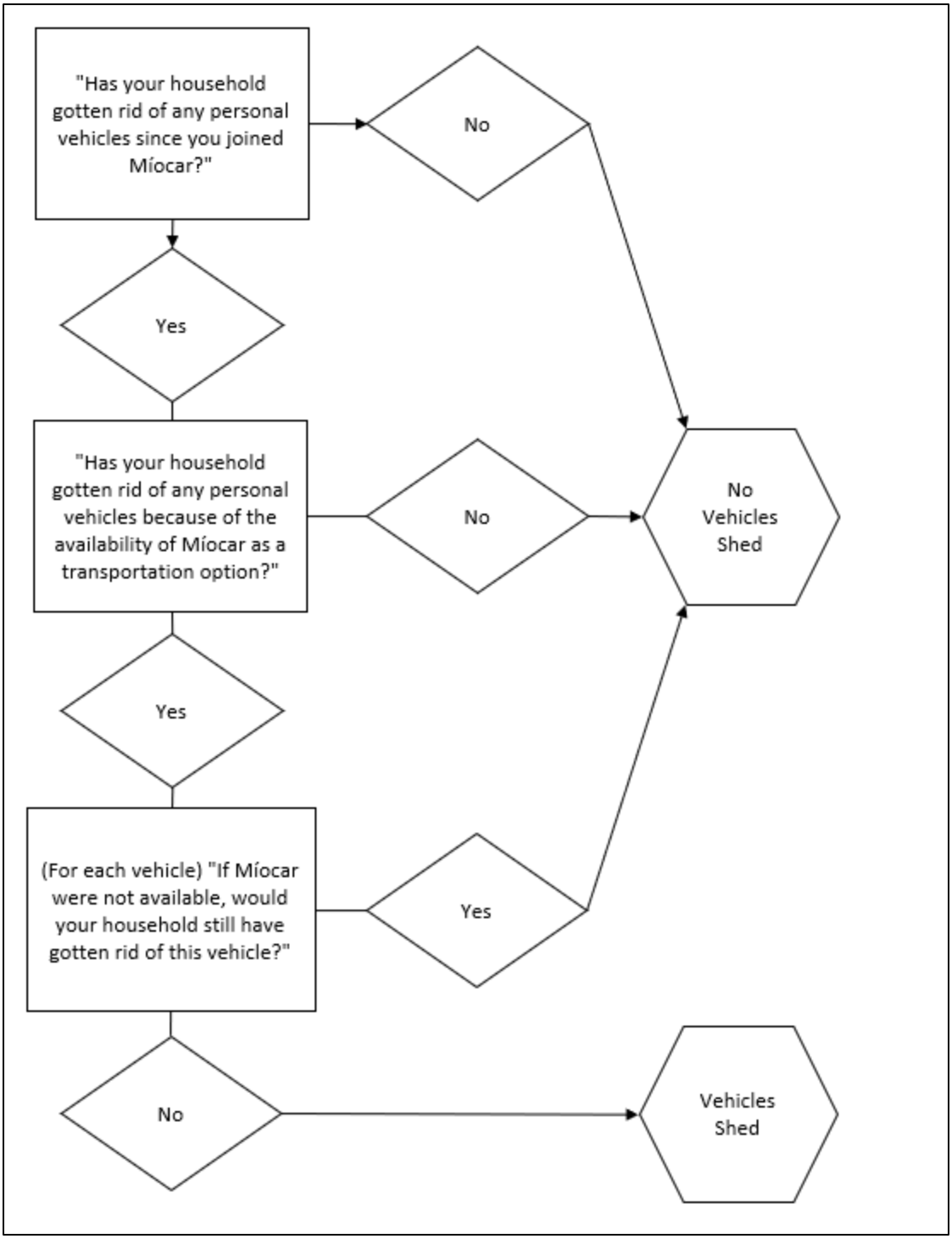

Figure 5. Vehicle Shed Analysis Logic

Similarly, the After Survey included a series of questions to assess program-attributable vehicle suppression, meaning delays in the purchase or lease of personal vehicles due to program availability. Figure 6 displays the

questions and analysis logic used to assess program-attributable vehicle suppression. Respondents were first asked the following question:

> *Suppression_1: "Does your household plan to buy or start a lease on a motor vehicle within the next two years?"*

Respondents answering "No" to this question were then asked:

> *Suppression_2: "If you had not joined Míocar, do you think your household would have bought or started the lease on a motor vehicle?"*

Respondents answering "Yes" to this question were then asked:

> *Suppression_3: "If Míocar were no longer available to you, do you think you would have to buy or start the lease on a new or used vehicle?"*

Respondents answering "Yes" to this question were then asked how many vehicles they would have to buy or start the lease on in the absence of Míocar. As a final check, if the respondent qualified for vehicle shed through the analysis in Figure 6, they would not be eligible for program-attributable vehicle suppression, to avoid double-counting program effects on vehicle ownership.

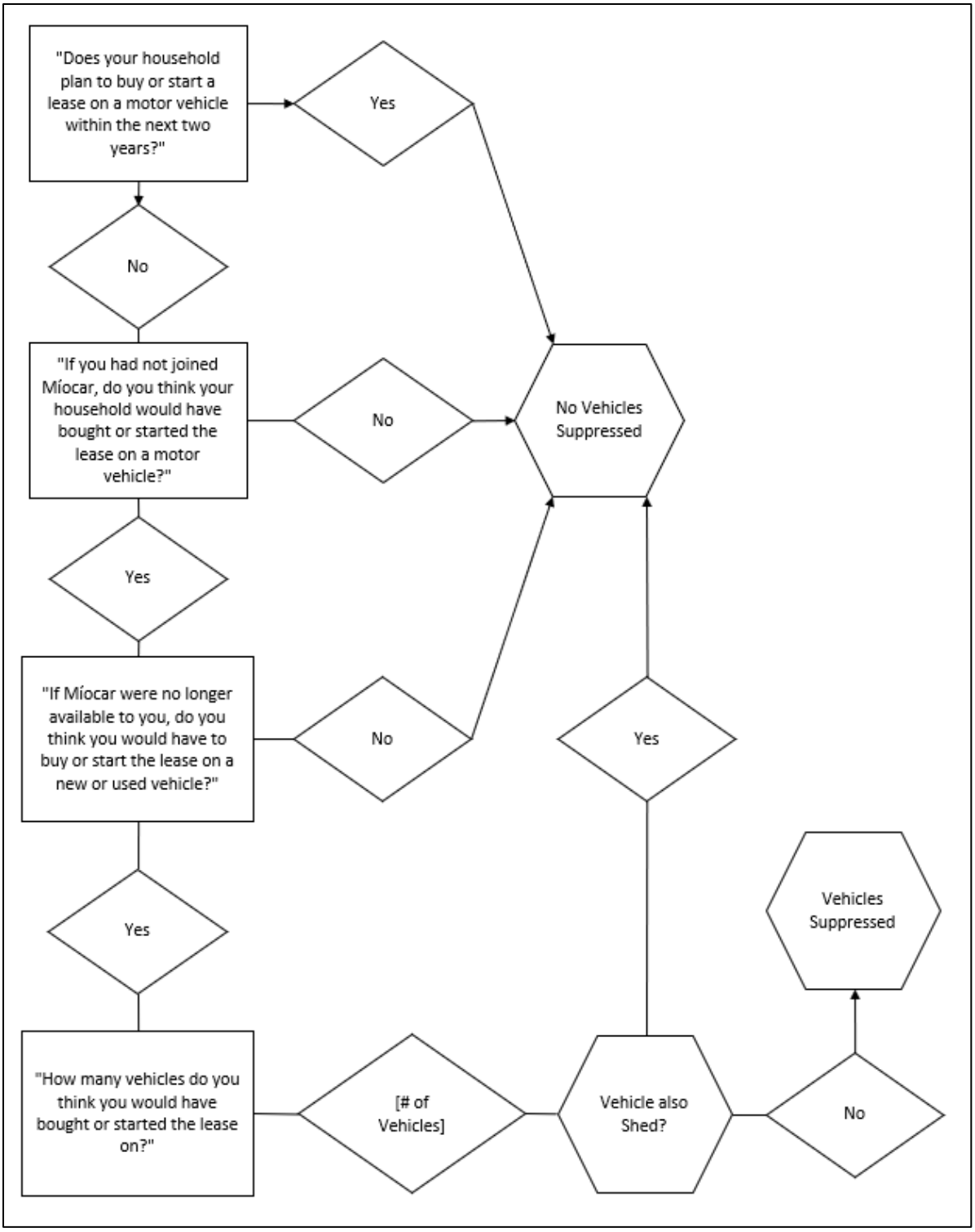

Figure 6. Vehicle Suppression Analysis Logic

Results

We used the collected survey data to evaluate member perspectives and program outcomes. The evaluation focused on characterizing detailed member household and vehicle information; understanding transportation capabilities, needs, and challenges; assessing program effects on mobility and mode choice; and gathering qualitative member transportation perspectives, sentiments, and program feedback. This section presents the evaluation results of the survey, which was administered between January and March of 2022.

Respondent Attributes

Members who responded to the survey provided information about their household size and demographic metrics. We compared the summary statistics of demographic variables between respondents and the regional population. This involved developing a single weighted average of county-level results for the Míocar service areas of Kern County, Fresno County, Tulare County, and Kings County using the population of each county. We determined the weights using the frequency of Míocar members living in those counties, based on member enrollment data provided by Míocar.

The telephone survey results suggest differences in some user attributes, such as higher average income levels, between this study and past data gathered through initial surveys of Míocar members (Rodier, Harold, and Zhang 2022). Further research, such as cross-analysis of the initial survey datasets and retrospective telephone survey datasets, is needed to assess the reasons for these differences and whether they can be attributed to changes in individual member attributes over time, differences in the respondent sample between the two data collection efforts, or other factors.

Table 4 displays respondent member attributes and weighted county population results.

Household Size

Míocar member respondents have larger household sizes on average than the weighted regional population. Most survey respondents (60%) have a household size of 4 or more individuals, in contrast to the weighted population where most households (66%) have 3 or fewer individuals. Survey respondents reported an average household size of 3.8 individuals, and a median of 4.0 individuals.

Household Income

No survey respondents reported a household income of less than $10,000, in contrast to 6.4% of households within the weighted regional population. Survey respondents most commonly reported a household income of between $50,000 and $99,999 (47% of respondents). However, fewer respondents (14%) reported being in the highest income category of $100,000 to $199,999 or more, as compared to 25% for the regional average.

In terms of income categorization using 2021 State Income Limits, most respondent households (61%) are categorized as median income or higher, and the remaining respondent households (39%) are categorized as extremely low, very low, or low income households. This contrasts with results from initial member surveys collected through past research, where most respondent households were categorized as extremely low income.

Age

Míocar members must be 21 years of age or older. The regional data shown in Table 4 are weighted to exclude individuals under the age of 21. Míocar member respondents tend to be younger on average than the overall regional population. Most respondents (61%) reported being under 40 years of age, and only two respondents reported being 60 years old or older.

Education

Survey respondents reported higher levels of education on average than the regional population. Seventy-seven percent (77%) of respondents reported having obtained a college degree, attended some college, or attended a trade or vocational school, in contrast to 51% of individuals in the weighted regional population. No survey respondents reported having obtained above a master's degree, as compared to about two percent of the regional population.

Table 4. Respondent Demographic Attributes vs. Regional Weighted Attributes

Demographic Attribute	Percentage of Respondents	Population
Household Size	**N = 57**	**N = 777,732**
1-person	10.5%	21.5%
2-person	14.0%	27.3%
3-person	15.8%	16.8%
4-person	22.8%	16.2%
5-person	26.3%	9.5%
6-or-more person	10.5%	8.6%
Total	100.0%	100.0%
Household Income	**N = 57**	**N = 777,732**
Less than $10,000	0.0%	6.4%
$10,000 to $24,999	21.1%	15.7%
$25,000 to $49,999	17.5%	22.9%
$50,000 to $99,999	47.4%	29.6%
$100,000 to $199,999	14.0%	25.3%
Total	100.0%	100.0%
Income Category	**N = 57**	
Extremely Low	15.8%	
Very Low Income	10.5%	
Low Income	12.3%	
Median Income	21.1%	
Moderate Income	19.3%	
High Income	21.1%	
Total	100.0%	
Age	**N = 56**	**N = 1,688,279**
21 to 29 years	25.0%	20.5%
30 to 39 years	35.7%	21.3%
40 to 49 years	26.8%	17.2%
50 to 59 years	8.9%	15.9%
60 to 69 years	1.8%	13.3%
70 to 79 years	1.8%	7.8%
80 years and over	0.0%	3.9%
Total	100.0%	100.0%
Education Level	**N = 57**	**N = 1,545,936**
Above Master's degree	0.0%	1.9%
Master's degree	7.0%	4.1%
Bachelor's degree in college (4-year)	31.6%	12.5%
Associate degree in college (2-year)	15.8%	9.1%
Some college but no degree	17.5%	23.3%
Trade or vocational	5.3%	0.0%
High school graduate (including GED)	19.3%	24.8%
Less than high school	3.5%	20.4%
No schooling completed	0.0%	3.8%
Total	100.0%	100.0%

Ethnicity and Origin

The ethnicity and origin questions appearing in the survey are based on the 2020 United States Census, with minor modifications to simplify the questions for telephone survey administration.[3] As shown in Table 5, about three-quarters of respondents (79%) reported being of Hispanic, Latino, or Spanish origin. The Míocar operating area has a high proportion of Hispanic or Latino residents; approximately 55% of residents in Kern County, 54% of residents in Fresno County, 66% of residents in Tulare County, and 55% of residents in Kings County identify as being of Hispanic or Latino origin.[4] When asked about ethnicity, nearly half of the respondents selected a response of "Other," and most of these did not provide a specific ethnicity. All of the respondents who selected "Other" for ethnicity also indicated that they were of Hispanic, Latino, or Spanish origin.

Table 5. Respondent Ethnicity and Origin

Demographic Attribute	Percentage of Respondents
Hispanic or Latino Origin	**N = 57**
Hispanic, Latino, or Spanish origin	78.9%
Not Hispanic, Latino, or Spanish origin	21.1%
Total	100%
Ethnicity	**N = 56**
American Indian or Alaska Native	8.9%
Asian	8.9%
Black or African American	3.6%
Native Hawaiian or Other Pacific Islander	1.8%
White	33.9%
Other – Unspecified	41.1%
Other – Chicano	1.8%
Other – Hispanic	1.8%
Other – Mexican-American	1.8%
Total	>100.0%

[3] Description of questions used in United States Census: "Improvements to the 2020 Census Race and Hispanic Origin Question Designs, Data Processing, and Coding Procedures," The United States Census Bureau, https://www.census.gov/newsroom/blogs/random-samplings/2021/08/improvements-to-2020-census-race-hispanic-origin-question-designs.html.

[4] Data from United States Census QuickFacts: https://www.census.gov/quickfacts/US

Household and Vehicle Characteristics

The survey included several questions to gain insight into respondent household characteristics and as part of understanding member and household transportation needs.

Household Composition

When asked about total members of their households, six respondents (11%) reported that they live alone. The remaining respondents were asked to indicate their relationships to the other members in their households, and the number of individuals in each relationship category.

As shown in Table 6, most respondents indicated that they live with children or grandchildren (61%), and most respondents indicated that they live with a spouse (54%). In terms of all household residents within respondent households, children or grandchildren account for the largest portion of residents at about 43%.

Table 6. Household Composition by Relationship to Míocar Members

Household Resident Category (Relationship to Member)	Percentage of Households (N = 57)	Percentage of All Household Residents (N = 214)
Míocar member	100.0%	26.6%
Children or grandchildren	61.4%	42.5%
Spouse	54.4%	14.5%
Another type of relative	15.8%	8.4%
Parents	14.0%	7.0%
Grandparents	3.5%	0.9%
Total	>100.0%	100.0%

We also asked respondents about the age ranges of individuals in their households, as age can affect transportation capabilities and needs in several ways. Individuals must be 21 years old or older to become members of Míocar, and children under driving age may need to rely on adult drivers for transportation. Finally, young children may require car seats in accordance with state requirements, which may limit the viability of other transportation modes such as bicycles and scooters.[5] The survey asked respondents to indicate how many of their household members are under the age of 21, and to provide the age ranges of these individuals according to the following categories: *Under 5 years old; 5 to 12 years old; 13 to 18 years old; 19 to 20 years old.* Using these data, we created household composition categories as shown in Table 7. Respondents most commonly reported that at least one household resident is 12 years old or younger (53%), and ten respondents (18%) reported that one or more household residents is under the age of 5. About 37% of respondents

[5] Míocar members who use the vehicles to travel with young children are asked to install and use their own child safety seats: https://Míocar.org/faq/

indicated that all members of their household are at least 21 years of age, which is the minimum age requirement for Míocar and many car rental companies.

Table 7. Household Composition by Age

Household Composition	Percentage of Respondents (N = 57)
All residents 21 years old or older	36.8%
All residents over 18 years old	40.4%
One or more residents 12 years old or younger	52.6%
One or more residents under 5 years old	17.5%

Employment and Student Characteristics

The survey included a series of questions to assess whether Míocar members and their other household members typically commute to school or work. When asked how many individuals in their household, including themselves, are employed or students in school, most respondents (81%) reported that either 1 or 2 people in their household are employed, and 70% of respondents reported that at least one person in their household is a student in school (Table 8). Respondents reported having a median of 2 employed individuals and 1 student in their home.

Table 8. Number of Employed Individuals and Students in Respondent Households

"How many people in your household, if any, are [Employed/Students in school]?"	Percentage of Respondents (N = 57)	
Number of Household Residents	Employed	Students
0	3.5%	29.8%
1	42.1%	24.6%
2	38.6%	17.5%
3	5.3%	17.5%
4	8.8%	8.8%
5	1.8%	1.8%
Total	100.0%	100.0%
Median	1.8	1.6
Mean	2.0	1.0

Following this, the survey asked respondents to state whether employed individuals in their home typically travel to work or work from home, and whether students in their home typically travel to school or attend school from home. As some individuals' schedules may involve a combination of traveling to work or school

and working or attending school from home, we asked respondents to consider what members of their household do most of the time. Key results from these questions include:

- **Travel to work:** 44 of the 47 respondents (94%) who provided an answer to the question about work indicated that people in their household typically travel to work.
- **Travel to school:** 33 of the 38 respondents (87%) who provided an answer to the question about school indicated that people in their household typically travel to school.
- **Overall commuting:** 51 of 54 respondents (94%) reported that their household has one or more employed individuals or students who typically travels to work or to attend school.

These results suggest that nearly all member households include individuals who regularly travel to work and/or school. We used these results to further assess household transportation characteristics in the context of vehicle availability, as described in the following section.

Household Personal Vehicle Availability

Respondents were asked to indicate how many personal vehicles are available for use by their household.

Table 9 presents the results of this question along with the weighted averages for the regional population, as well as the number of personal vehicles by household size.

Respondents reported similar personal vehicle availability to the regional population overall, though only 2% of respondents reported having no personal vehicles available, in contrast to about 7% of the regional population. About two-thirds of respondents (67%) reported having 2 or more personal vehicles available to their household, and the median number of personal vehicles was 2.

Larger respondent households of 4 or more individuals reported greater personal vehicle availability than the regional population, with half of these respondents reporting that their households have access to 3 or more vehicles.

Table 9. Respondent Vehicle Availability by Household Size, Respondents vs. Regional Population

Attribute	Míocar Respondents	Population
Vehicles Available	**N = 57**	**N = 461,758**
No vehicle available	1.8%	6.8%
1 vehicle available	31.6%	30.9%
2 vehicles available	33.3%	36.2%
3 vehicles available	22.8%	16.2%
4 or more vehicles available	10.5%	9.9%
Total	100.0%	100.0%
Household Size by Vehicles	**N = 57**	**N = 777,732**
1-person household:	10.5%	8.9%
No vehicle available	0.0%	2.0%
1 vehicle available	7.0%	4.0%
2 vehicles available	3.5%	2.0%
3 vehicles available	0.0%	1.0%
4 or more vehicles available	0.0%	0.0%
2-person household:	15.8%	17.8%
No vehicle available	0.0%	1.0%
1 vehicle available	3.5%	4.0%
2 vehicles available	10.5%	11.9%
3 vehicles available	1.8%	0.0%
4 or more vehicles available	0.0%	1.0%
3-person household:	15.8%	14.9%
No vehicle available	1.8%	3.0%
1 vehicle available	7.0%	5.0%
2 vehicles available	3.5%	5.9%
3 vehicles available	0.0%	1.0%
4 or more vehicles available	1.8%	0.0%
4-or-more-person household:	57.9%	58.4%
No vehicle available	0.0%	5.0%
1 vehicle available	12.3%	17.8%
2 vehicles available	15.8%	21.8%
3 vehicles available	19.3%	10.9%
4 or more vehicles available	8.8%	3.0%
Total	100.0%	100.0%

To further assess vehicle availability within member households, we compared personal vehicle availability per household resident, personal vehicle availability per adult resident over 18 years old, and personal vehicle availability per employed resident of commuting households. We also incorporated self-reported reliability ratings for each vehicle to calculate the number of reliable personal vehicles per resident in each of these three categories, as displayed in Figure 7.

Total personal vehicle availability was fairly high within respondent households for each category. Most respondents (65%) reported having at least one personal vehicle per household resident over the age of 18. Similarly, 86% of respondents whose households typically travel to work reported having at least one personal vehicle per employed resident.

Reliability ratings were provided on a scale of *1* to *5*, where *1* represents "Very unreliable" and *5* represents "Very reliable". Excluding unreliable vehicles (rated *1* or *2*) somewhat reduces per-resident vehicle availability in each category. While most respondents reported having more than 0.5 vehicles per resident overall, most respondents (61%) indicated that they have 0.5 or fewer *reliable* vehicles per resident. In terms of residents over 18 years old, 49% of respondents reported that they have less than one *reliable* vehicle per adult over 18. Finally, about one-third (32%) of respondents from households that usually commute to work reported having less than one *reliable* vehicle per employed resident.

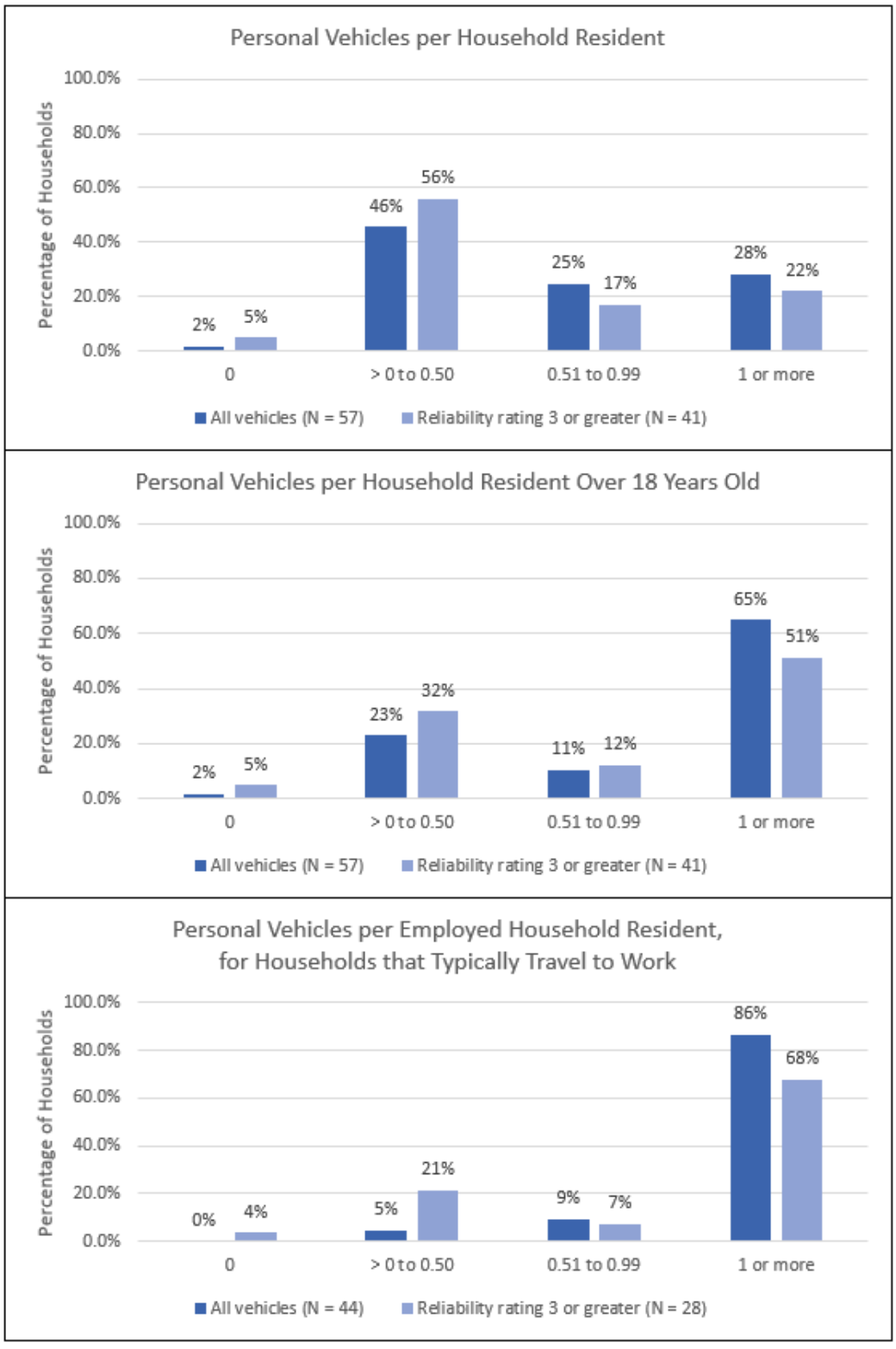

Figure 7. Personal Vehicles per Household Resident

Additional key findings regarding vehicle reliability within the respondent population are as follows:

- Overall, respondents rated 21 of 104 personal vehicles (20%) with reliability 1 or 2, and the average reliability rating of all personal vehicles was 3.9. The most common reliability rating was 5, cited for 55 of 104 vehicles (53%).
- Twenty-seven of the 43 respondents (63%) who provided vehicle reliability ratings indicated a reliability rating of 3 or greater for all of their household's personal vehicles.
- One respondent (2%) reported a reliability rating of 2 or less for all of their household's personal vehicles.

These results suggest that vehicle availability and vehicle reliability is fairly high for most respondents. However, the 49% of respondents who reported having less than one reliable vehicle per individual over 18 and 32% of respondents from commuting households who reported having less than one reliable vehicle per employed resident may face limitations to using personal vehicles for all of the household's travel needs. We further explored personal vehicle sufficiency using survey questions about the viability of various transportation modes, as described in the section titled Viability of Alternative Modes (page 31).

Transportation Capabilities and Challenges

Míocar is intended to fill transportation gaps in rural areas by providing a mode that is more versatile than existing transit options and lower cost than personal vehicle travel, and that provides better accessibility to long-distance destinations than active modes such as biking and walking. Past Míocar research has collected data about members' counterfactual travel options (i.e., how members would have traveled in the absence of the service) for individual reservations. However, detailed information about household access to individual modes and the specific transportation gaps addressed by Míocar are not yet well understood. The survey provided an opportunity to characterize Míocar's role in the rural transportation landscape by assessing the viability of alternative modes to meet household travel needs, and by gaining insight into the transportation challenges that members faced before joining Míocar.

Viability of Alternative Modes

The survey included a series of questions to assess the extent to which members would be able to use modes other than Míocar to meet their household's travel needs. The alternative modes assessed through these questions included: *Personal vehicles; Public transit; Bicycles, scooters, and skateboards;* and *Walking.* Each question was structured as follows:

> "*If necessary, would your household be able to use [Alternative Mode] to make ALL, SOME, or NONE of the trips you need to make?*"

As shown in Figure 8, personal vehicles appeared to be the most viable alternative mode of these four options. Most respondents reported that their household could make all of its trips with personal vehicles (53% of respondents), and 44% of respondents indicated that they could use personal vehicles to make some of their

trips but not others. In contrast, only 2 respondents (4%) reported that they could make all of their trips with transit, and 35% of respondents reported that their household could not use transit to make any of the trips it needed to make.

Active transportation modes were the least viable of these options. For the question about bicycles, scooters, or skateboards, respondents were first asked whether their household has access to at least one personally owned or shared bicycle, scooter, or skateboard. Seventeen respondents (30%) reported that they do not have access to this mode. These respondents were not asked about the viability of this mode and therefore are not included in Figure 8, although it can be inferred that this is not currently a viable option without making a purchase of one or more active transportation vehicles. The remaining 40 respondents predominantly reported that they would be able to make some of their trips but not others with bicycles, scooters, or skateboards, (60%) and one respondent reported that their household could use these to make all of their trips. No respondents indicated that their household could make all of its necessary trips by walking. Thirty-nine percent (39%) of respondents stated that they could not make any trips by walking, representing the lowest viability among all four modes assessed.

Overall, 26 of 57 (46%) of respondents selected “Some” or “None” for all four alternative modes, suggesting that no single mode among these options would allow their household to make all of its necessary trips.

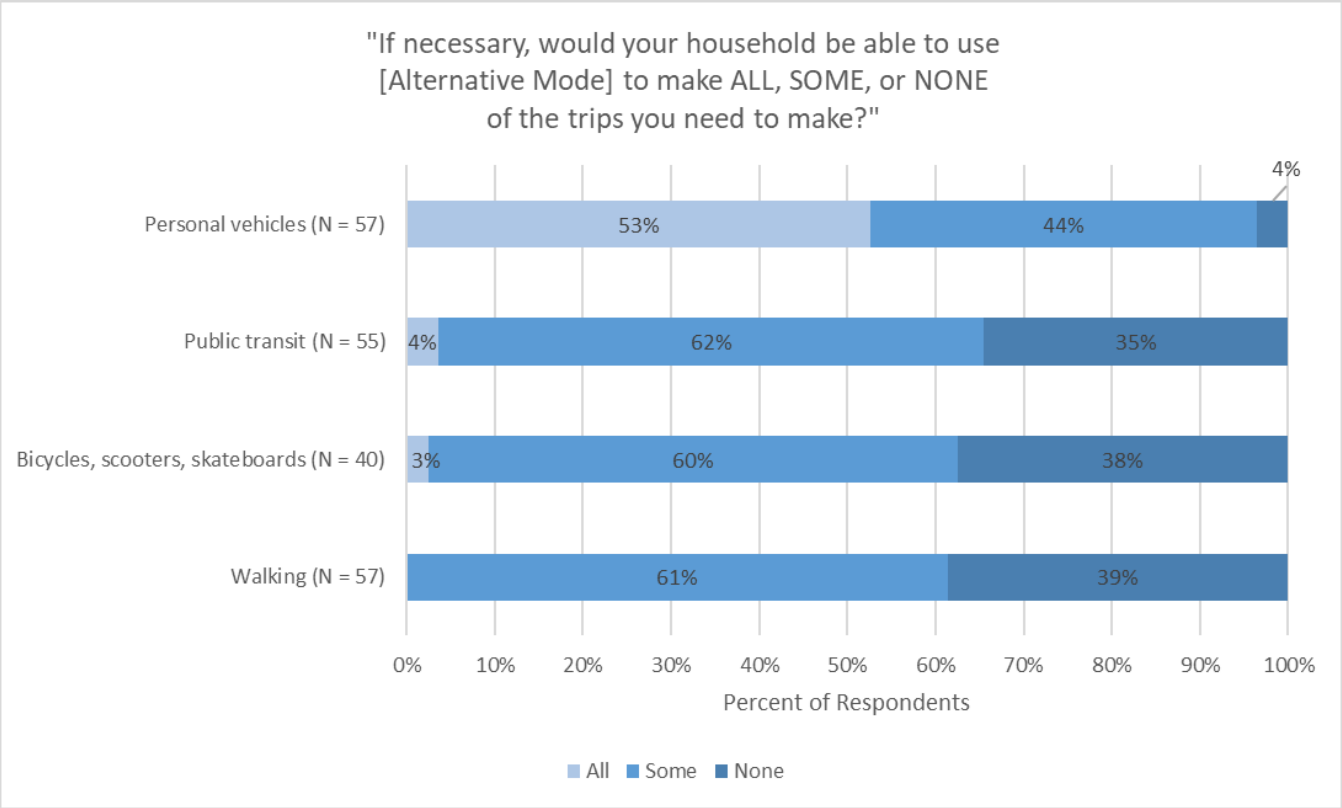

Figure 8. Member Household Ability to Make Trips Using Modes other than Míocar

Challenges Associated with Alternative Modes

For each mode, respondents who reported that their household would be able to make some trips but not others were asked what types of trips they would have difficulty making. These were presented as open-ended questions to allow respondents to describe the challenges associated with each mode. We examined the open-ended responses and developed categories to characterize common themes among respondents.

Some respondents identified individual trip purposes that would be difficult to complete using these alternative modes, such as medical trips or shopping trips, while other respondents provided comments about the trip characteristics that would create challenges for each mode, such as longer trips or time-sensitive trips. This section describes the most frequently mentioned themes for each alternative mode.

Personal Vehicles

Twenty-five (25/57) respondents indicated that their household would be able to make some trips, but not others, using personal vehicles. When describing the types of trips they would have difficulty making with personal vehicles, the most commonly mentioned themes included:

- **Long-distance trips (11 respondents):** Respondents noted that it would be difficult to travel long distances with their personal vehicles, such as traveling out of town or driving for multiple hours. One respondent noted that their car does not go long distances, and that it may not be available if it is being used by another member of the household. Another respondent stated that the high fuel consumption of their car had previously made it inconvenient to regularly use personal vehicles.
- **Time-sensitive trips (4 respondents) and Medical-related trips (4 responses):** Respondents explained that while it would be possible to complete trips with personal vehicles, there could be difficulties in reaching destinations at particular times, such as for medical appointments. One respondent noted that it would be difficult to travel to doctor's appointments on time if other people in their household are using the personal vehicles.

Other topics mentioned by individual respondents included not being able to rely on their own car to travel to work, having difficulty finding personal vehicles that can fit multiple passengers, and having a general preference for using Míocar because it is better for the environment.

Public Transit

Thirty-four (34/57) respondents indicated that their household would be able to make some trips, but not others, using public transit. These respondents commonly mentioned the following difficulties with using this mode:

- **Trips far from a transit stop (9 respondents):** Respondents stated that some of their trips involve destinations that are not close to a transit stop, or that their home is not close to a transit stop. Two respondents mentioned that they would not be able to travel to work using transit, as the stops are not close to their workplace. One respondent noted that transit is not a viable option for traveling to local stores because the nearest bus stop is far away from their house.

- **Long-distance trips (8 respondents):** Respondents reported that long-distance trips, such as those out of town or to major metropolitan areas such as Los Angeles, would be difficult to make with existing transit options.
- **Time-sensitive trips (6 respondents):** Respondents explained that the public transit schedule is not conducive to making time-sensitive trips such as traveling to medical appointments, picking up children from school, or emergency trips. One respondent noted that if they were to take transit to a destination, they would likely need to find another ride back to arrive at their desired time. One respondent explained that they would have to plan ahead for any transit trips due to the limited bus schedule near their home.

Other difficulties mentioned by individual respondents included using public transit at night, using a bus for laundry trips, and using transit for trips that involve multiple destinations.

Bicycles, Scooters, and Skateboards

Twenty-four (24/57) respondents indicated that their household would be able to make some trips, but not others, using bicycles, scooters, or skateboards. These respondents commonly mentioned the following difficulties with using these modes:

- **Long-distance trips (10 respondents):** Respondents reported that they would have difficulty traveling long distances with bicycles, skateboards, or scooters. One respondent mentioned that any trips longer than five miles would be difficult to complete. Respondents noted that it would be difficult to use these modes to travel out of town, such as to Fresno or Wasco.
- **Grocery shopping (7 respondents)/Trips requiring cargo (5 respondents):** Respondents explained that it would be difficult to use bicycles, scooters, or skateboards to go grocery shopping or to complete other types of trips that involve carrying cargo, such as delivering packages or doing laundry. One respondent mentioned that they would be able to use a bicycle for light grocery shopping, but that larger shopping trips would be difficult.

Other difficulties mentioned by individual respondents included biking to destinations that do not have bicycle storage or locks, and using scooters at night or during rainy weather.

Walking

Thirty-five (35/57) respondents indicated that their household would be able to make some trips, but not others, by walking. These respondents commonly mentioned the following difficulties with walking trips:

- **Long-distance trips (13 respondents):** Respondents reported that it would be difficult to walk the long distances required for some trips. One respondent explained that they live 10 miles from work, and that no one in their household would be able to walk to work. Three respondents noted that they have a grocery store within walking distance of their home, but that other destinations are too far to walk.

- **Grocery shopping (12 respondents)/Trips requiring cargo (4 respondents):** As with bicycles, scooters, and skateboards, respondents noted that it would be difficult to walk to the store and back for shopping trips or to complete other tasks that require carrying large loads.
- **Medical trips (7 respondents):** Several respondents specifically noted that it would be difficult to walk to medical appointments, which may be due to long travel distances between respondent homes and their medical provider.

Other difficulties mentioned by individual respondents included walking during hot or rainy weather, walking to destinations with small children, and walking to entertainment destinations.

Overall, the most commonly mentioned difficulties associated with alternative modes were related to long-distance and time-sensitive trips. As many members live in rural areas, long travel distances and infrequent transit options create challenges in using modes other than personal vehicles for many travel purposes. However, respondent commentary suggests that there are limitations to using personal vehicle travel for long-distance and time-sensitive trips, due to issues such as fuel cost, reliability, and vehicles being shared among multiple household residents.

Modes Used for Essential Trips Prior to Míocar

To further assess mode choice and Míocar's role in filling transportation gaps, the survey included open-ended questions asking respondents how their household had completed work-related, school-related, and medical-related trips before they joined Míocar:

> *"Thinking about the [work-related/school-related/medical-related] trips you have made with Míocar, how, if at all, were these trips made before you joined Míocar?"*

We consider work, school, and medical trips to be three types of essential travel and decided to ask about these specific trip purposes based on early results of post-reservation surveys that Míocar members completed earlier in the pilot period. In these surveys, some respondents had reported that they would have been unable to complete school, work, or medical trips in the absence of the service (Rodier, Harold, and Zhang 2021). However, the post-reservation surveys did not collect further details about how members had been traveling to these destinations before joining the service, or whether Míocar had allowed them to begin attending work, school, or medical appointments that they were previously unable to attend.

As these questions were open-ended, respondents provided a wide range of comments about how they had made the selected trip types before joining Míocar. We examined the open-ended responses and organized them into categories to summarize common themes, as displayed in Table 10. In cases where respondents provided comments that aligned with more than one of these categories, we counted their response towards all applicable categories.

Respondents commonly reported that they had previously completed these types of trips with personal vehicles (55% for work-related, 39% for school-related, 65% for medical-related). Respondents also commonly indicated that they previously had to ask for rides from others or borrow a vehicle to complete these trips (40%

for work-related, 50% for school-related, 38% for medical-related). Open-ended commentary from some respondents suggested that it was previously difficult to ask for rides or borrow vehicles, or that this was not necessarily a reliable option (e.g., "I would have to try to find a ride," or "I hoped the car worked"). Several respondents mentioned that they would have changed the time of their travel, such as waiting until a household vehicle was available or delaying their travel so a friend or family member could give them a ride, to complete these trips.

Relatively few respondents reported that their household's work-related or medical-related trips had previously involved transit (5% and 9% respectively), in contrast with 23% of respondents for school-related trips, which may refer to children taking the bus to school.

A few respondents provided open-ended comments suggesting that they had not made these types of trips at all before joining Míocar (8% for work-related, 8% for school-related, 3% for medical-related), either because they had not needed to or were not able to make the trips.

Table 10. Mode Used to Complete Specific Trips Before Joining Míocar[6]

How respondents previously made trips before Míocar (Categorized open-ended responses)	Percentage of Respondents		
Transportation Mode	**Work-related trips (N = 38)**	**School-related trips (N = 26)**	**Medical-related trips (N = 34)**
Used a personal vehicle	55.3%	38.5%	64.7%
Asked for a ride from someone else	23.7%	34.6%	26.5%
Borrowed or rented a vehicle	15.8%	15.4%	11.8%
Used transit	5.3%	23.1%	8.8%
Did not make these trips	7.9%	7.7%	2.9%
Walked	5.3%	7.7%	8.8%
Biked	2.6%	0.0%	0.0%
Total	>100.0%	>100.0%	>100.0%

These results suggest that respondents predominantly relied on private vehicles to complete these essential trips before joining Míocar, but that there were challenges to using shared household vehicles or finding a ride from others. Additionally, qualitative comments suggest that few respondents are using Míocar as a replacement for transit for these types of trips.

[6] Some individual responses applied to more than one of these categories. The percentages in the table represent percentages of respondents rather than percentages of responses, and therefore the totals exceed 100%.

Accessing and Using Míocar

Accessing Míocar

The survey asked respondents how they usually travel to pick up vehicles from Míocar hubs. Past data collected from Míocar members through post-reservation surveys found that 71% of respondents accessed Míocar hubs using a private vehicle, and this current question collects more detailed information by distinguishing between driving to the hub and being dropped off by someone else. Respondents were able to select multiple transportation modes.

Respondents to the survey continued to report using private vehicles to access hubs; respondents most commonly reported that they either get dropped off in a private vehicle (40%) or drive a private vehicle (40%) to access Míocar (Table 11). Overall, 46 of 57 unique respondents (81%) selected one of these two options. Very few respondents indicated that they use transit, ridehailing, or bicycles to travel to Míocar hubs. Seventeen of 57 respondents (30%) selected more than one response to this question, indicating that they often use multiple modes to access Míocar.

While the survey did not ask respondents to elaborate on why they choose to drive their own cars to pick up Míocar rather than using their own cars to complete trips, differences between member personal vehicles and the EVs offered by Míocar, such as fuel cost, vehicle size or features, reliability, and other factors, may contribute to this trend.

Table 11. How Respondents Access Míocar

When picking up a Míocar vehicle, what form of transportation do you usually use to get to Míocar pick-up locations?	Percentage of Respondents (N = 57)
Get dropped off in a private vehicle	40.4%
Drive a private vehicle	40.4%
Walk	29.8%
Travel by public transit bus	5.3%
Travel by Taxi, Uber, or Lyft	5.3%
Travel by bicycle	3.5%
Other	1.8%
Total	>100.0%

Trip Purposes and Providing Trips for Others

Past data collected from post-reservation surveys have shown that Míocar members have used the service to complete a variety of trip purposes, including traveling to school or work, completing errands, attending social events, traveling to medical appointments, and others (Rodier, Harold, and Zhang 2021). Results from the survey indicate that members often use Míocar to complete more than one type of trip per reservation, with

70% of survey respondents reporting that they typically travel to multiple destinations before returning the Míocar vehicle.

As Míocar members are able to have passengers in their vehicles, we included questions in the survey to gain a more detailed understanding of how members use the service to help others complete trips in addition to themselves. The survey prompted respondents with a list of trip purposes and asked them to indicate whether they had used Míocar at least once to 1) complete the trip purpose for themselves, or 2) drive to help others complete the trip purpose (Figure 9).

In terms of trips completed for themselves, family or personal errands and shopping trips were the most commonly cited trip purpose, at 75% and 72% of respondents, respectively. Regarding work-related trips, the survey distinguished between traveling to or from work vs. conducting work activities, because feedback from Míocar staff suggested that some members had used the service to conduct deliveries or other work-related tasks. While traveling to and from work was a common trip purpose completed by respondents for themselves (61%), conducting work activities was the least common trip purpose (16%).

In terms of trips completed for others, 51 of 57 respondents (89%) reported having used Míocar to drive other people for one or more types of trips. Respondents most commonly reported that they had driven others for family or personal errands (72%), followed by medical-related trips (54%). Respondents reported taking a median of four types of trips for themselves and reported driving others to complete a median of three types of trips.

Fourteen respondents (25%) reported driving others for more types of trips than they drove themselves, and 29 respondents (51%) reported driving others for a trip type that they had not taken for themselves. School-related trips were the most common type of trip that respondents had taken for others and not themselves (15 respondents), though a small number of respondents reported that they had driven others but not themselves for medical-related trips (5 respondents), family or personal errands (4 respondents), social or recreational trips (5 respondents), traveling to or from work (4 respondents), and shopping trips (2 respondents).

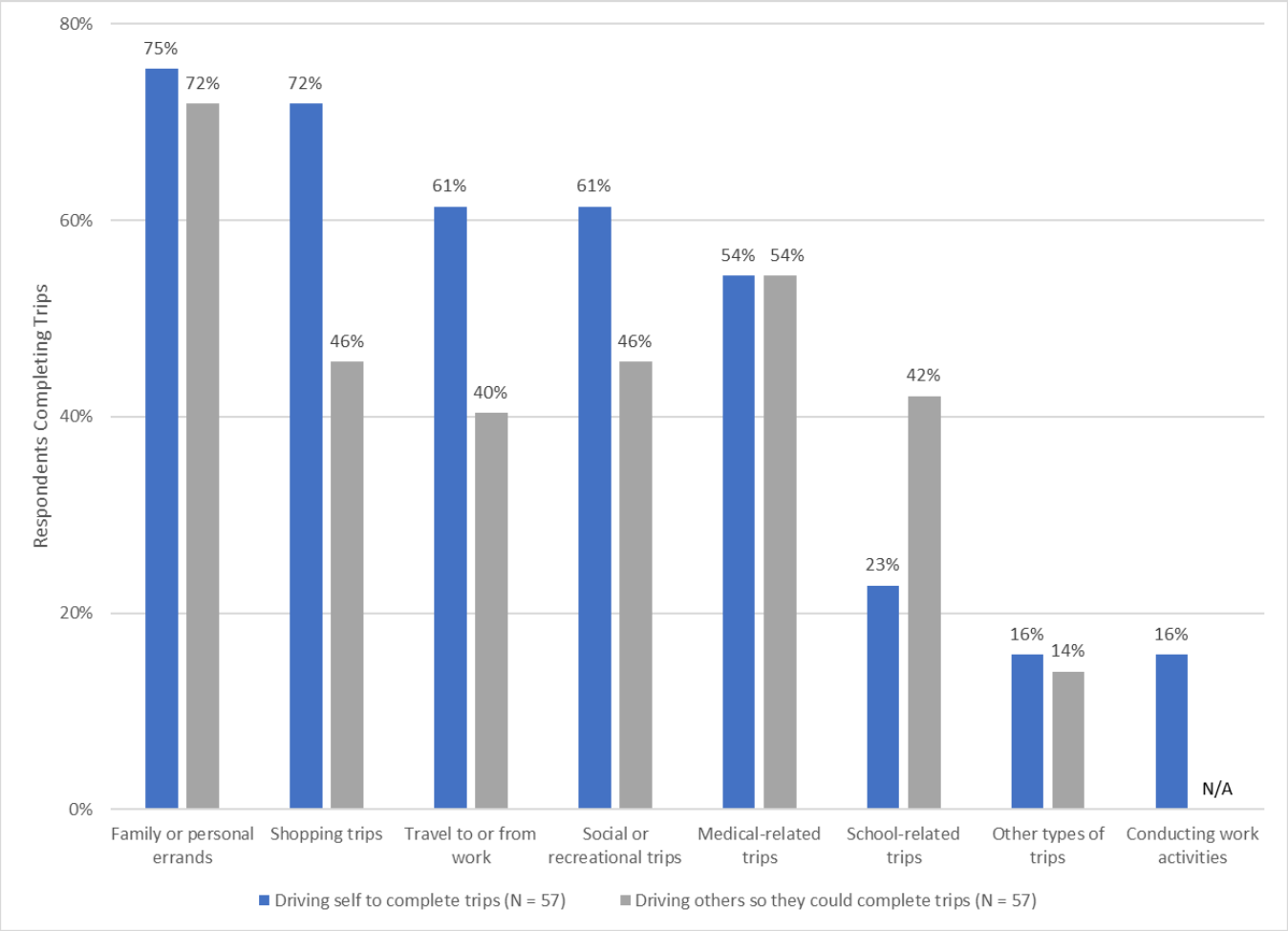

Figure 9. Míocar Trips Completed Once or More for Self or Others

To assess how personal vehicle availability may influence members' use of Míocar to help others complete trips, we separated respondents into two categories based on the number of personal vehicles available per household resident. The first category is comprised of respondents who reported having 0.50 or fewer personal vehicles per household resident (N = 27), and the second category is comprised of respondents who reported having 0.51 or more personal vehicles per household resident (N = 30). We then compared member responses about trip purposes completed for others between these two categories (Figure 10).

For each trip purpose, respondents with 0.50 or fewer personal vehicles per resident were more likely to have used Míocar to drive others. For all trip purposes other than family or personal errands, most respondents with 0.51 or more personal vehicles per household resident had not used Míocar to help others complete trips. These results suggest that in addition to a member's own personal vehicle availability, vehicle availability for other residents may be a significant factor affecting how members use Míocar to fill transportation gaps for their household.

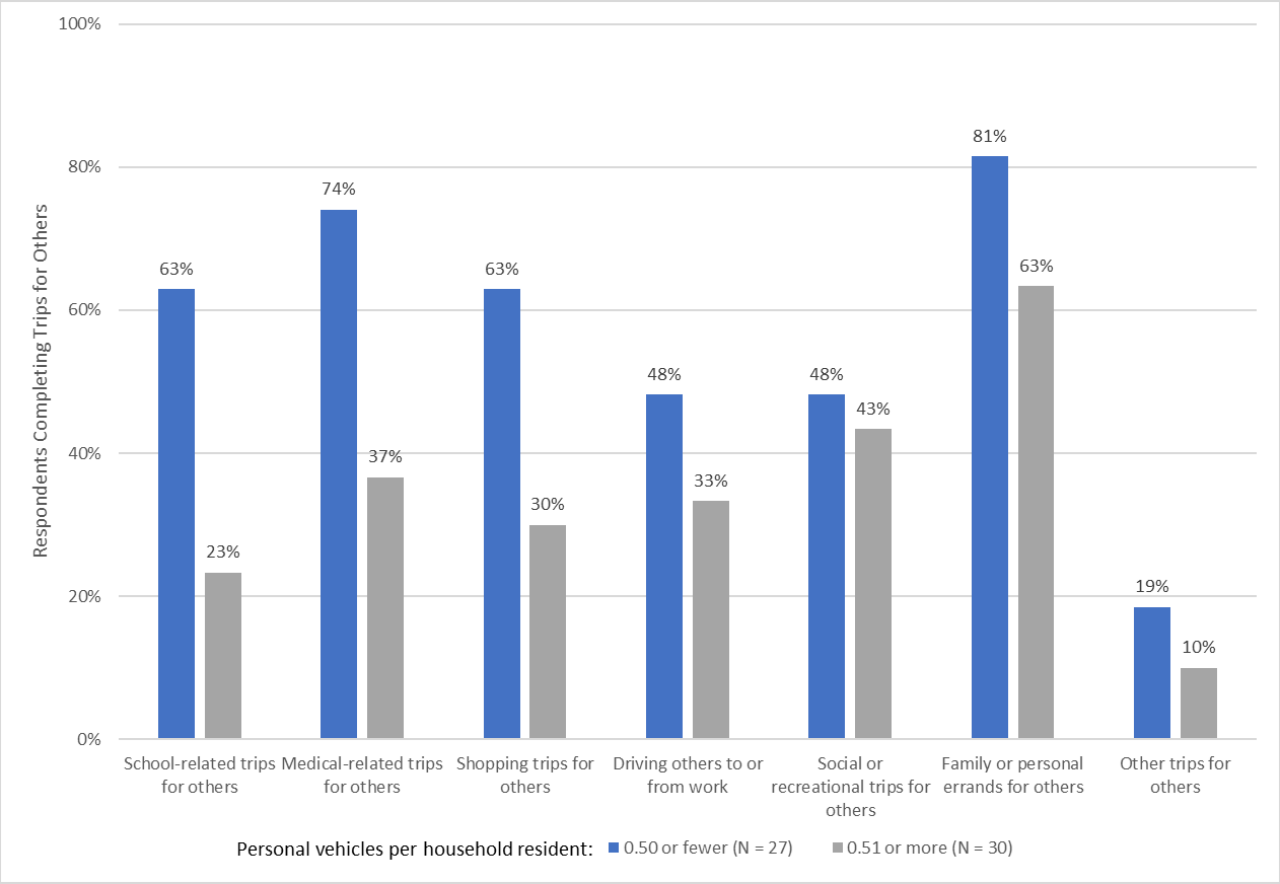

Figure 10. Available Personal Vehicles and Míocar Trips Completed Once or More for Others

Míocar Impacts on Transportation

Increased Mobility

A key objective of Míocar is to increase transportation equity by improving the mobility of individuals and households in disadvantaged communities. For members who face transportation limitations or challenges related to personal vehicles, transit, or other modes, Míocar vehicles may allow their households to travel to more destinations or make more frequent trips than they would otherwise be able to make.

As an initial estimate of these effects, the survey asked respondents whether Míocar had increased the number of trips that their household makes. Overall, 37 of 57 respondents (65%) reported that Míocar had increased their household's total number of trips. We cross-tabulated these results with respondent income categories, and found that while these results include small sample sizes and are exploratory, Míocar impacts on the total number of household trips may be correlated with income (Figure 10).

Respondents in the lowest three income categories *(Extremely Low Income, Very Low Income, Low Income)* were more likely to report that Míocar had increased their total trips as compared to respondents in the highest three income categories *(Median Income, Moderate Income, High Income)*. This suggests that respondents in the higher income categories may be more likely to use Míocar to replace trips that they would have taken with conventional vehicles, while respondents in the lower income categories may be more likely to use Míocar to travel to destinations that they would not have otherwise traveled to. Additional respondents in each income category, potentially to be collected in future iterations of this survey, would allow for further analysis of the significance of this trend.

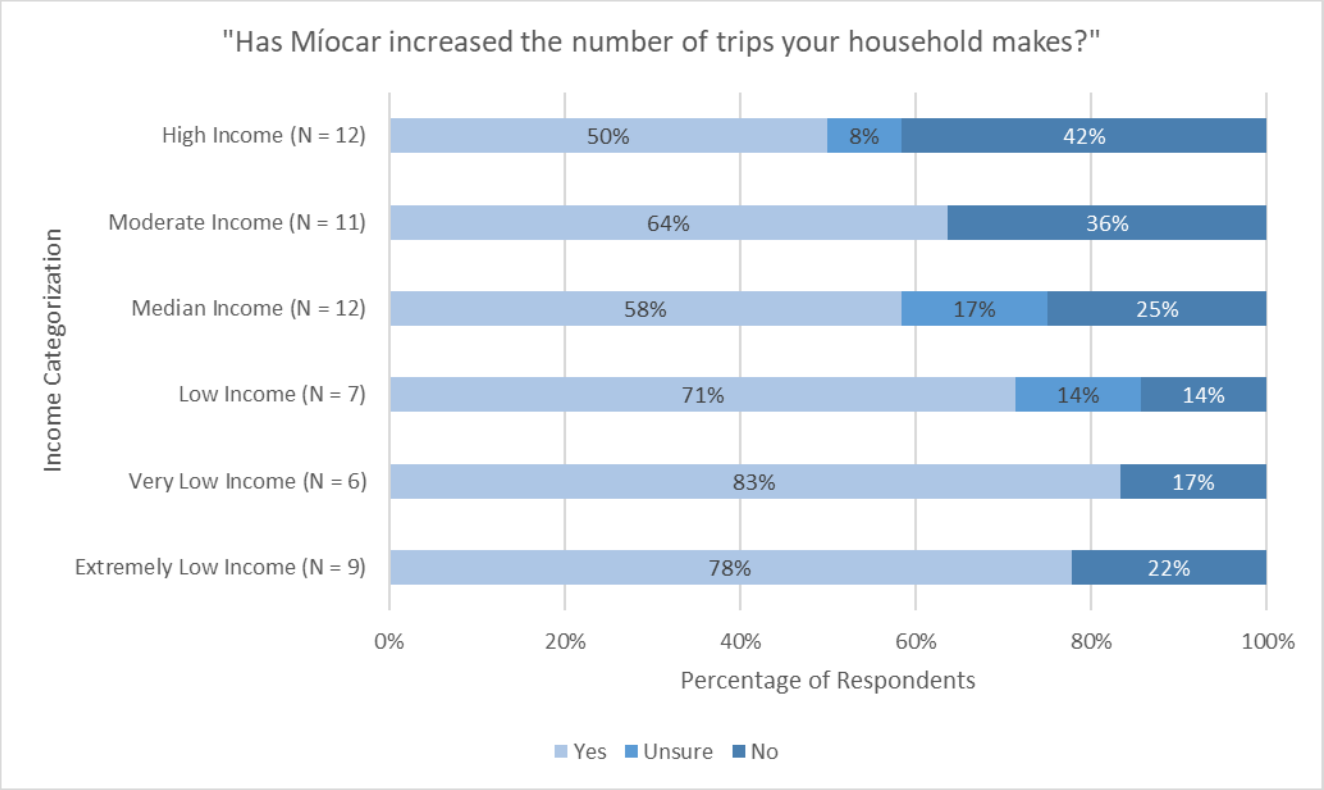

Figure 11. Whether Míocar has Increased Household Trips, by Income Categorization

Ability to Travel Before and After Joining Míocar

To further explore the role of Míocar in increasing mobility, the survey included questions related to members' ability to travel both before and after joining Míocar. These questions allowed for a comparison between travel access between these two time periods, as displayed in Figure 12.

Most respondents (72%) reported that they are now "Always" able to travel to where they need to go since joining Míocar, in contrast to 26% of respondents for the period before joining Míocar. No respondents reported that they are now "Rarely" or "Never" able to travel to where they need to go.

An analysis of individual responses shows that most respondents (60%) reported an increased ability to travel to where they need to go since joining Míocar. Thirty-nine percent of respondents selected the same response for both questions, suggesting that their ability to travel has not changed, and one respondent reported a lower ability to travel since joining Míocar as compared to before joining Míocar.

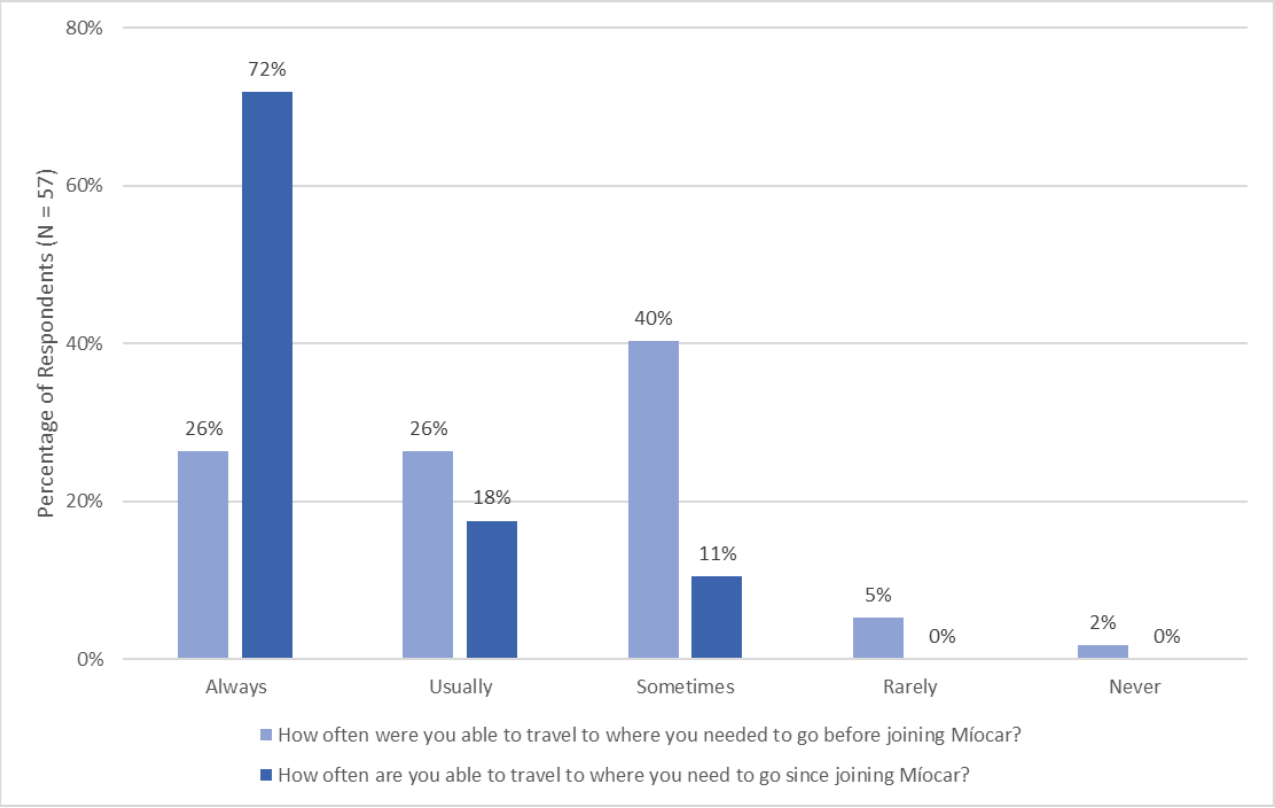

Figure 12. Respondent Ability to Travel Before and Since Joining Míocar

While these questions did not ask respondents to attribute their increased ability to travel to a specific factor, the results show that respondents perceive themselves as having a high level of transportation access, and that this level of access has improved for many members since they joined the service.

Change in Personal Vehicle Use

Míocar is designed to provide members with a flexible, reliable, and low-cost transportation option that helps to reduce their reliance on traditional personal vehicles. By reducing personal vehicle use, Míocar aims to contribute to greenhouse gas emissions reductions and cost savings for its members. However, given that many members live several miles from the nearest Míocar hub and frequently use personal vehicles to travel to hubs when picking up a Míocar vehicle, it is possible for the service to increase personal vehicle use in certain cases. The survey explored this relationship between decreased, and potentially increased, personal vehicle usage, by asking respondents whether Míocar has affected how much their household has used its personal vehicles.

This question allowed respondents to indicate whether Míocar had caused their household to use its personal vehicles more, less, or the same amount. No respondents indicated that Míocar had caused their household to use its personal vehicles more often. Overall, 34 of 52 respondents (65%) who provided a response to this question indicated that Míocar had caused their household to use its personal vehicles less.

We cross-tabulated these results with respondent income categories, as shown in Figure 13. The results appear to be correlated with income within the respondent sample, although due to limited sample sizes in each income category these findings are not intended to be representative of each income category within the member population. Most respondents within the lowest two income categories indicated that Míocar had not affected their personal vehicle use, while most respondents in each of the higher income categories indicated that Míocar had decreased their personal vehicle use. These results are consistent with previous Míocar research, where results from post-reservation surveys showed that members within higher income categories were more likely to use Míocar as a replacement for personal vehicle travel, and members within lower income categories were more likely to use Míocar for trips they would not have taken with personal vehicles or other modes (Rodier, Harold, and Zhang 2022).

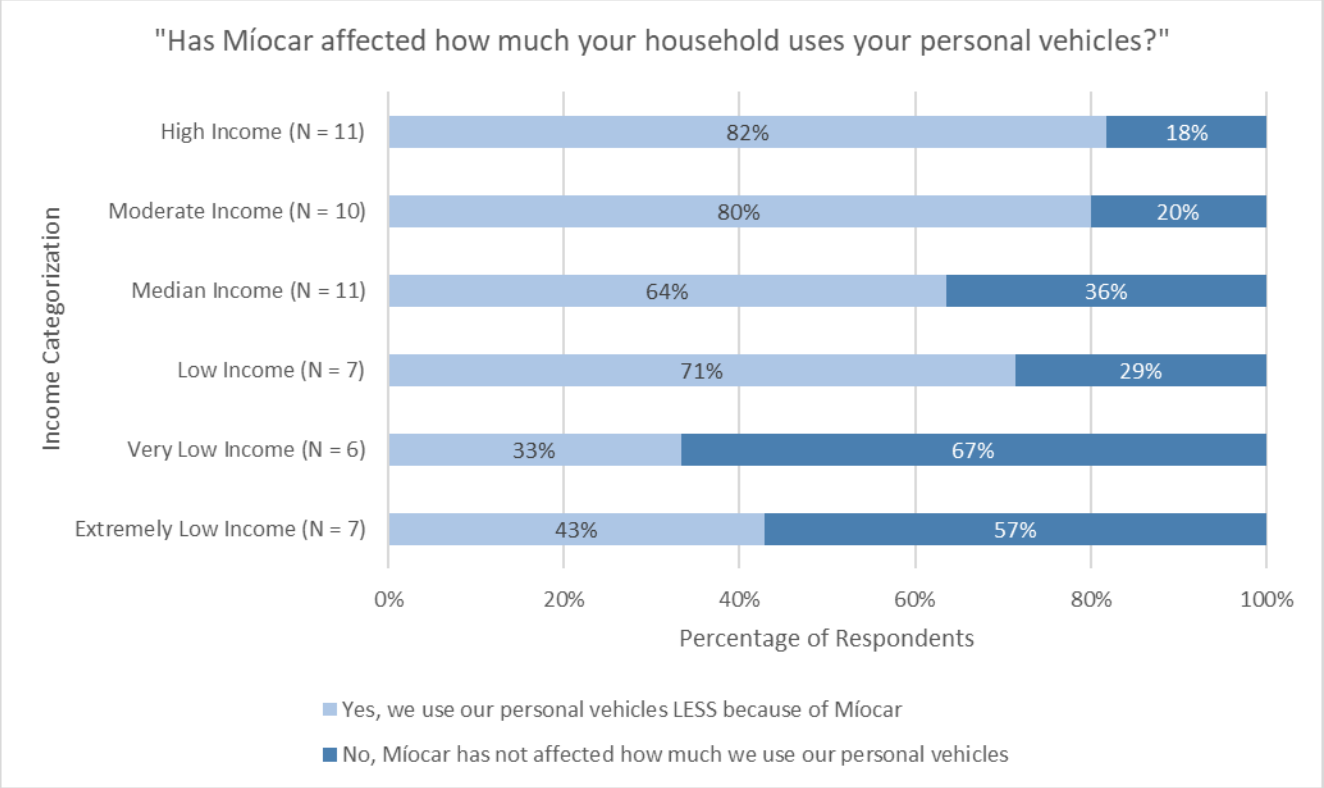

Figure 13. Whether Míocar has Affected Personal Vehicle Use, by Income Categorization

COVID-19 and Personal Vehicle Use

Both the Míocar operational period and the study period for this evaluation overlapped substantially with the onset and continued effects of the COVID-19 pandemic, which significantly affected regional transportation patterns and individual travel decisions. While Míocar seeks to reduce member reliance on and use of personal vehicles, external effects of COVID-19 on mode choice create challenges in measuring this type of impact. To obtain a general indicator of how the pandemic may have also influenced personal vehicle usage, the survey included a question about whether members have used their household's personal vehicles more or less since the onset of COVID-19. As the survey was administered in early 2022, and the initial effects of COVID-19 in California occurred in early 2020, this question was asked for each vehicle that respondents reported having had access to for 2 or more years. This resulted in responses for 69 of 120 personal vehicles, as shown in Table 12.

Respondents reported that they use about half of the vehicles (49%) about the same amount as before COVID-19, and that they use 45% of the vehicles less than they did before COVID-19. Few respondents reported that they had used any vehicles more than they did before COVID-19 (6% of all vehicles).

Table 12. Change in Respondent Personal Vehicle Usage since COVID-19

Personal vehicle usage compared to before COVID-19 pandemic	Percentage of Vehicles (N = 69)
Use MORE than before COVID-19	5.8%
Use ABOUT THE SAME as before COVID-19	49.3%
Use LESS than before COVID-19	44.9%
Total	100.0%

The Míocar enrollment date for respondents varies; 46 of 57 respondents (81%) had enrolled prior to March 19, 2020, when California issued a mandatory stay-at-home order that led to ongoing travel restrictions.[7] The remaining 11 respondents enrolled in the program between September 2020 and August 2021.

We cross-tabulated the results from Figure 13 and Table 12, along with respondents' enrollment dates, to examine the relationship between Míocar effects on personal vehicle use and COVID-19 effects on personal vehicle use (Table 13):

- Of the 34 respondents reporting that Míocar had caused them to use personal vehicles *less*, 21 respondents had enrolled in Míocar before COVID-19 restrictions and reported on COVID-19 effects on their personal vehicle use. These respondents account for 38 vehicles in Table 13.

[7] March 2020 travel restrictions for California residents: State of California, "Governor Gavin Newsom Issues Stay at Home Order," California Governor, March 20, 2020, https://www.gov.ca.gov/2020/03/19/governor-gavin-newsom-issues-stay-at-home-order/.

- Of the 18 respondents reporting that Míocar had *not* affected their personal vehicle use, 10 respondents had enrolled in Míocar before COVID-19 restrictions and reported on COVID-19 effects on their personal vehicle use. These respondents account for 12 vehicles in Table 13.

The subset of respondents who stated that Míocar has not affected their personal vehicle use reported that they use 5 of 12 vehicles (42%) less since COVID-19. This suggests that a comparison of pre-Míocar and post-Míocar personal vehicle mileage would not accurately reflect program impacts on personal vehicle usage for these vehicles, as reductions in VMT for this subset are likely attributable to COVID-19 precautions or other external effects rather than to Míocar. In the absence of a control group or robust travel model, quantification of program-attributable VMT reductions for member personal vehicles was outside the scope of this study. However, these qualitative survey findings suggest that most respondents, particularly those in higher income categories, perceive Míocar as having reduced their personal vehicle travel to some extent.

Table 13. Change in Respondent Personal Vehicle Usage since COVID-19

Personal vehicles for respondents enrolled in Míocar prior to COVID-19 effects	Yes, we use our personal vehicles LESS because of Míocar	No, Míocar has not affected how much we use our personal vehicles
Vehicles used MORE since COVID-19	5.3%	8.3%
Vehicles used ABOUT THE SAME as before COVID-19	50.0%	50.0%
Vehicles used LESS since COVID-19	44.7%	41.7%
Total	100.0%	100.0%
N (Vehicles)	38	12

Program-Attributable Vehicle Shed and Suppression

As described in the methods section under *Program-Attributable Shedding and Suppression (p*age 15), respondents answered a series of questions about whether they had sold, scrapped, or stopped the lease on any personal vehicles due to the availability of Míocar, and whether they had delayed the purchase or lease of any personal vehicles due to the availability of Míocar.

Figure 14 and Figure 15 display the results of the vehicle shed and vehicle suppression assessments, with the number of applicable responses or vehicles shown in parentheses for each step of the assessments.

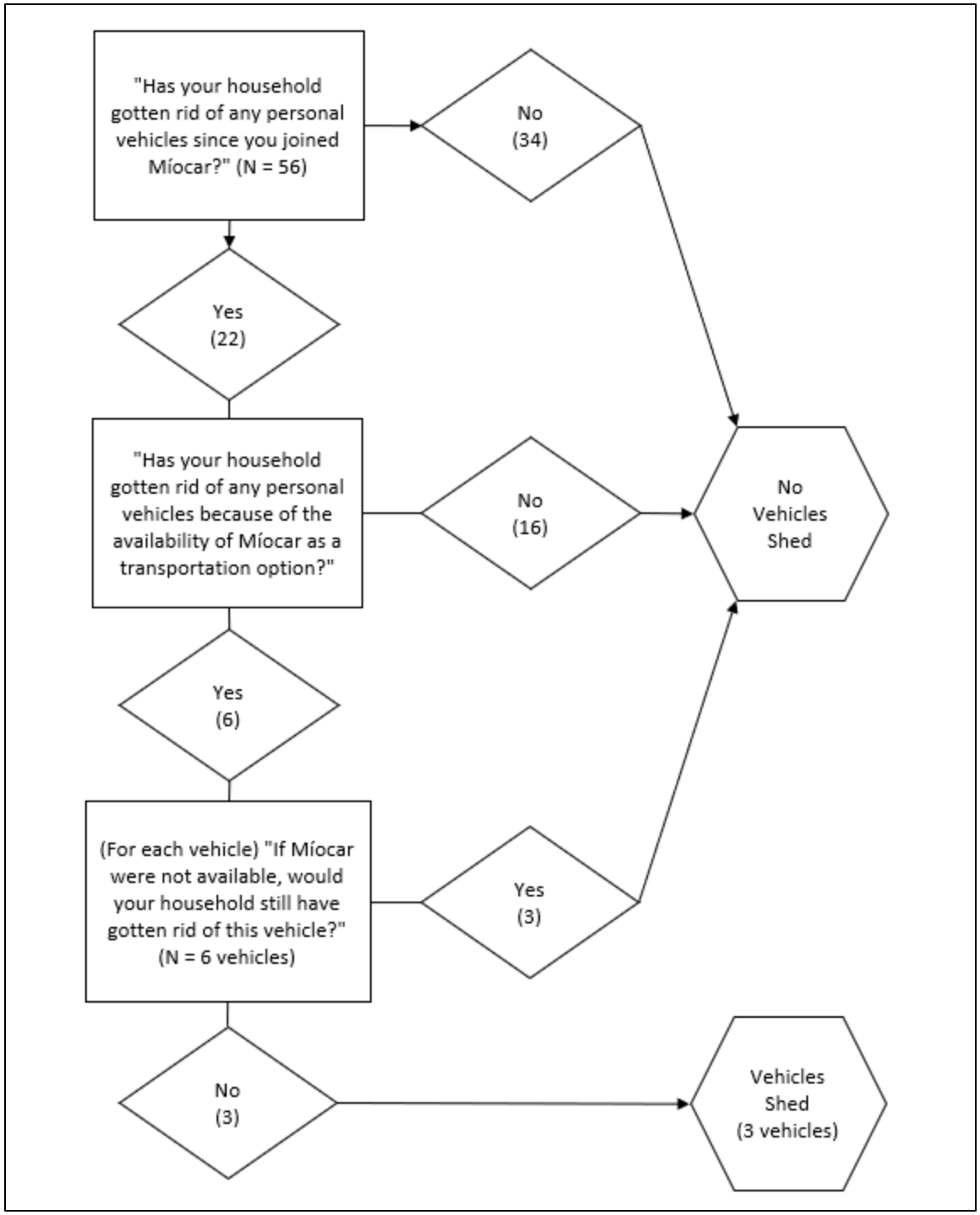

Figure 14. Vehicle Shed Results

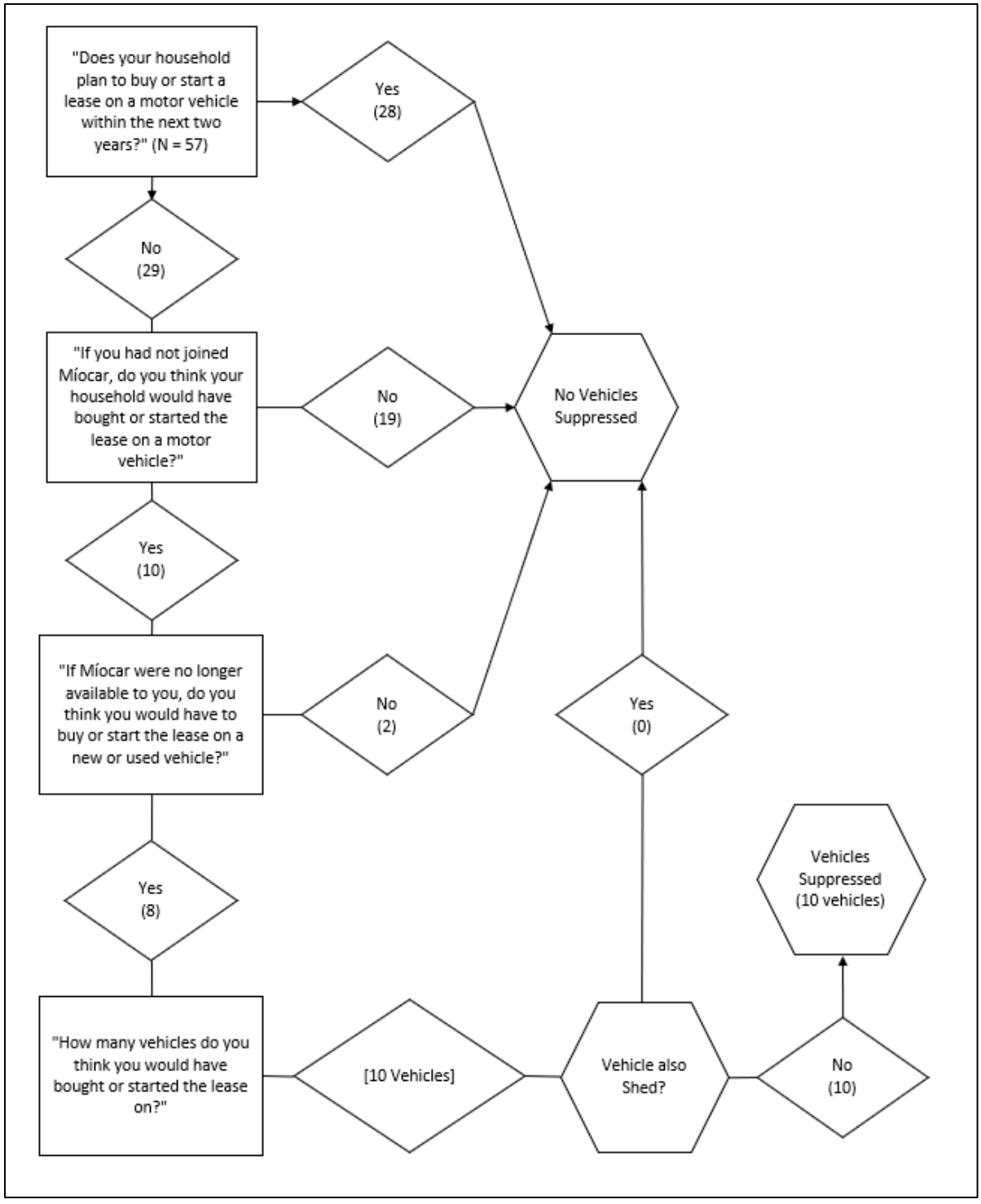

Figure 15. Vehicle Suppression Results

Based on this method, about five percent of respondents (3 of 57) had shed a vehicle due to the availability of Míocar, and about 14% of respondents (8 of 57) had delayed the purchase of one or more vehicles due to the availability of Míocar (Table 14).

Table 14. Vehicle Shed and Suppression Results

Category	Respondents Meeting Criteria	Vehicles Meeting Criteria
Vehicle Shed	3	3
Vehicle Suppression	8	10

The 57 respondents to the survey reported having access to a total of 120 personal household vehicles at the time of the survey. According to the results of the vehicle shed and suppression assessment, respondents would have retained an additional three vehicles, and would have purchased or leased an additional 10 vehicles in the absence of Míocar. This suggests that respondents would have had 133 vehicles, or about 11% more personal vehicles, than they currently do as members of the carsharing service.

Satisfaction and Feedback

Satisfaction with Key Program Elements

The survey included a series of questions to assess member satisfaction with key elements of Míocar, including cost, distance to Míocar hubs, and the overall service. Responses were provided on a scale of *1* to *5*, where *1* represents "Very dissatisfied" and *5* represents "Very satisfied". For data visualization purposes, we grouped responses into three categories:

- Responses of *4* or *5* are categorized as "Satisfied";
- Responses of *3* are categorized as "Neutral"; and
- Responses of *1* or *2* are categorized as "Dissatisfied".

As shown in Figure 16, respondents reported the greatest satisfaction with cost of Míocar (98% satisfied), followed by the overall service (95% satisfied). Respondents were relatively less satisfied with their travel distance to Míocar hubs (71% satisfied, 10% dissatisfied). This is consistent with findings from past research for this program, which showed that many members live several miles or more from the nearest Míocar hub (Rodier and Harold 2021).

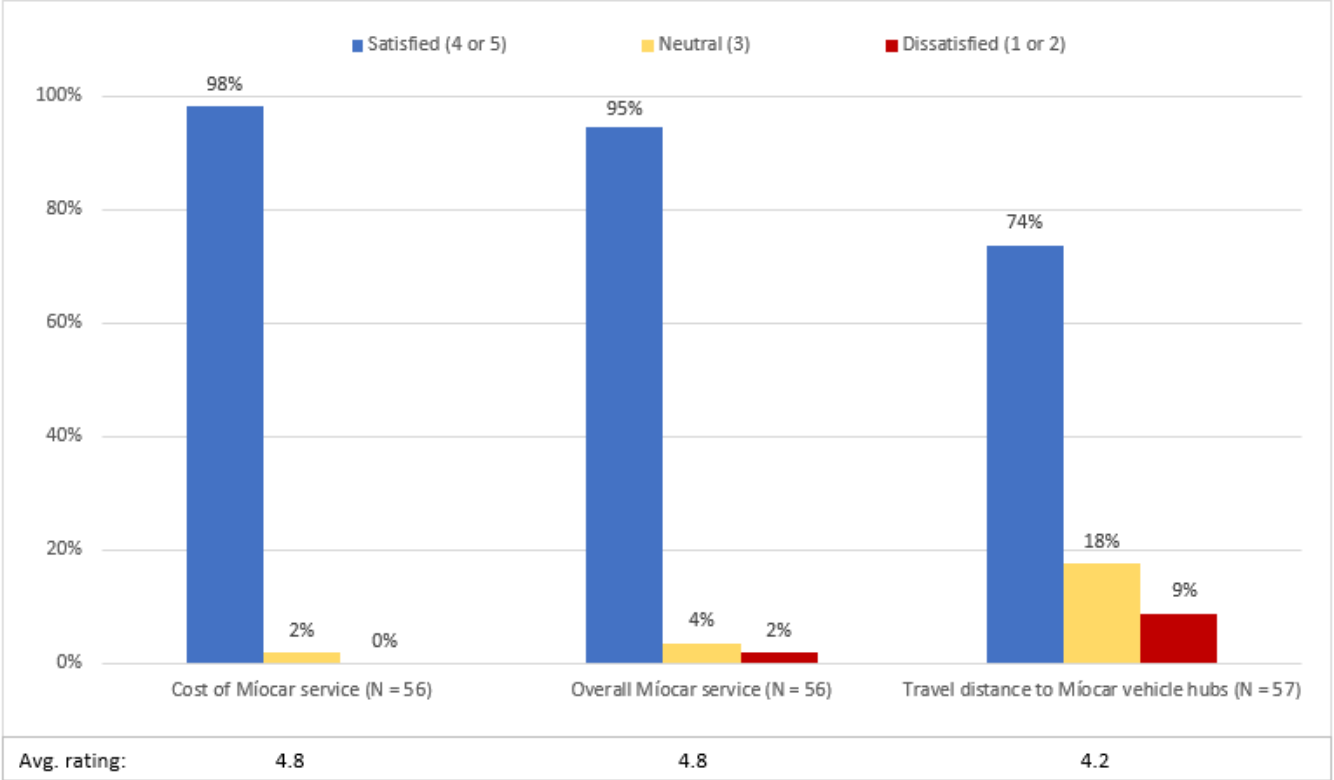

Figure 16. Satisfaction Ratings for Key Program Elements

Respondents who selected a response of *1* or *2* for the question about travel distance to Míocar hubs were asked to elaborate on why they chose this rating. These five respondents explained that they have to travel a long distance to access the vehicles; two of these respondents stated that it is about a 30-minute drive to access the vehicles, and one respondent reported that it is about a 15-mile drive. One respondent suggested adding a Míocar hub within Fresno county, closer to their home.

The survey asked all respondents to elaborate on their satisfaction rating for the overall Míocar service. The one respondent who indicated that they were dissatisfied with the overall Míocar service, with a rating of *2*, noted that the manufacturer recall of Chevy Bolts had reduced the number of available vehicles, which meant that cars were not always available.

Of the two respondents who selected a rating of *3* for overall satisfaction, one stated that Míocar could make improvements related to its fees, and the other stated that they had encountered issues with vehicle availability. Of the seven respondents who selected a rating of *4* for overall satisfaction, comments related to technical issues with reservations or vehicles (2 respondents), issues with the timing of maintenance (1 respondent), issues with vehicle availability (1 respondent), vehicle size being too small (1 respondent), and the long travel distance to Míocar hubs (1 respondent).

Forty-six respondents (81%) provided a rating of *5* ("Very Satisfied") for satisfaction with the overall Míocar service. When asked to elaborate on this rating, many respondents praised the service's ease of use, low cost, and value in providing access to a needed personal vehicle. Responses were generally complimentary of the program and its value, such as:

- A respondent stated that Míocar had allowed them to finish school and travel to work, and noted that Míocar is the reason they currently have a job.
- A respondent stated that the vehicle access provided by Míocar had been life-changing, and noted that Míocar's close proximity to their home made the service useful for completing short trips and errands.
- A respondent, who had used Míocar to conduct work activities, stated that using Míocar was easier for them than using Uber or Lyft, and that it had been the quickest way for them to access a car when they needed it.

We examined the open-ended responses and developed common categories to summarize the reasons for respondent satisfaction with the program. Table 15 lists the five most common reasons for satisfaction mentioned by respondents, with the percentage of comments referencing each reason. Nineteen respondents mentioned more than one of these reasons for their satisfaction, and four respondents provided general praise of the program that did not align with a particular category.

Most respondents (62%) referenced the convenience of using Míocar as a reason for their satisfaction, and 38% referenced the low cost of using the service. Nineteen percent of respondents suggested that Míocar had provided them or others with access to a vehicle, or had allowed them to travel to places that they may not otherwise be able to travel to. Respondents also complimented Míocar's customer service (19%) and the cleanliness of the vehicles (14%).

Table 15. Reasons for "Very Satisfied" Rating of Míocar Service

Reason for Satisfaction (Categorized open-ended responses)	Percentage of Respondents Referencing Reason (N = 42)
Convenience of use	61.9%
Low cost	38.1%
Provides access to a vehicle or access to new destinations	19.0%
Good customer service	19.0%
Cleanliness	14.3%
Total	>100%

Ease of Vehicle Charging

The survey included two questions to assess respondent perceptions of the electric vehicle charging process. Míocar users are asked to plug vehicles in for recharging upon returning to hubs, and may also need to charge vehicles during long-distance trips or reservations. The service provides users with instructions for vehicle charging, and Míocar staff are available by telephone to assist with any charging issues. The survey asked

respondents to rate the level of difficulty associated with 1) charging vehicles during Míocar trips, and 2) charging vehicles at Míocar hubs upon returning from trips. Responses were provided on a scale of *1* to *5*, where *1* represents "Very difficult" and *5* represents "Very easy". We grouped responses for each question into categories for data visualization purposes:

- Responses of *4* or *5* are categorized as "Easy";
- Responses of *3* are categorized as "Neutral"; and
- Responses of *1* or *2* are categorized as "Difficult".

As shown in Figure 17, most respondents provided a rating of *4* or *5* for both of these questions, but respondents reported a greater level of ease with charging vehicles at Míocar hubs upon returning from trips (91% rated as easy) as compared to recharging during trips (73% rated as easy).

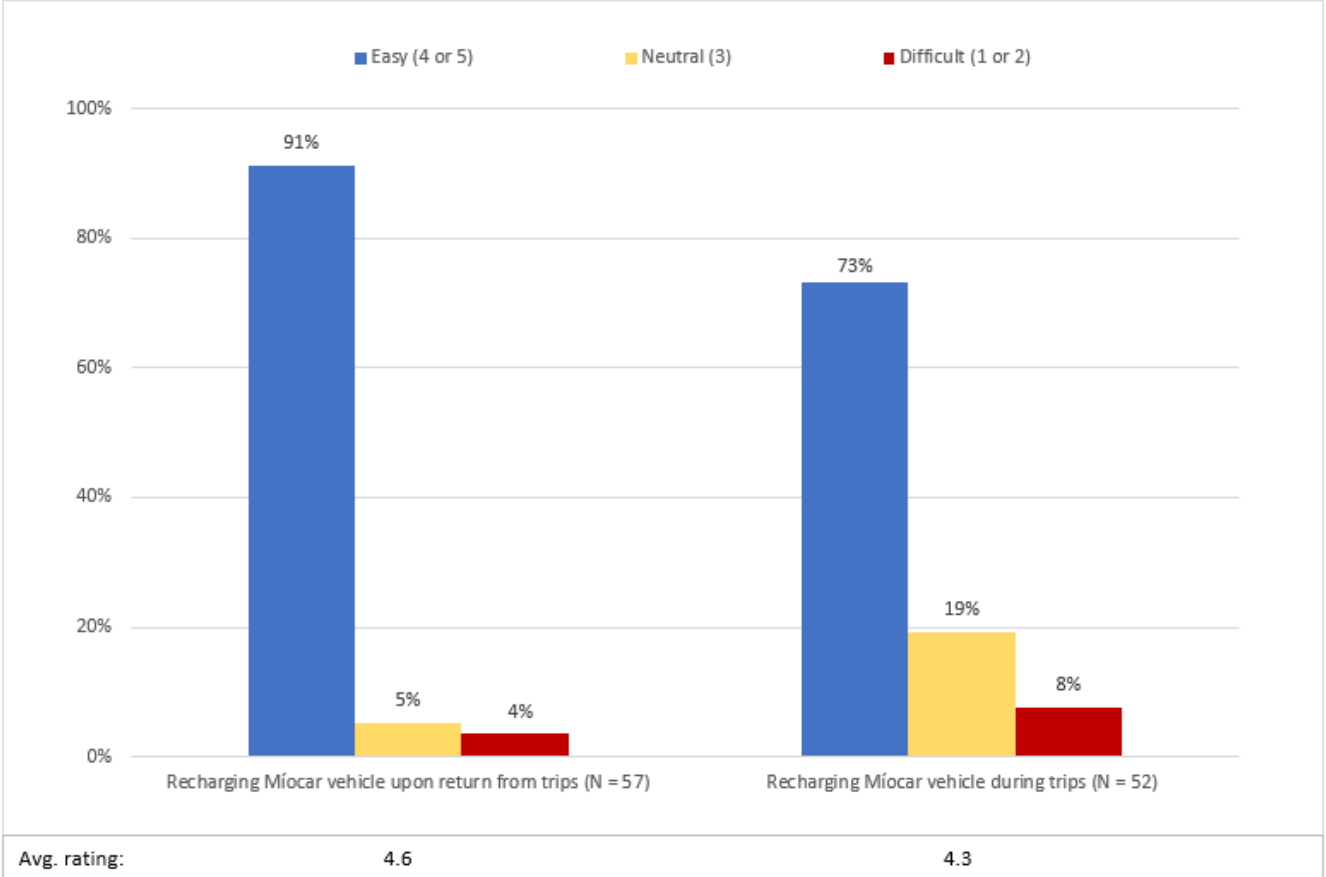

Figure 17. Ease of Vehicle Charging

Respondents who provided a response of *1* or *2* to these questions were asked to elaborate on their reasons for their ratings. Of the two respondents who reported difficulty with recharging vehicles upon returning to Míocar hubs, one stated that they had to call for customer support to help them figure out how to use the

charging station, and the other stated that it can be difficult to align the charging cords with the vehicle ports, particularly when someone else at their residence's parking lot is parked in a Míocar parking space.

Each of the three respondents who reported difficulty with recharging vehicles during Míocar trips mentioned that it had been difficult to learn how to use charging stations and that they had needed to contact Míocar customer service to ensure that they were using the stations properly. One of these respondents noted that they had used Míocar less often due to this difficulty with the charging stations.

Additional Feedback and Suggestions

Following the series of questions regarding program satisfaction, the survey asked respondents to share any suggestions for improving the Míocar service. This question was presented in an open-ended format, and respondents provided a wide variety of feedback. We examined the open-ended responses to develop common recommendation categories, which are presented below in Table 15. The most common types of recommendations received from respondents were as follows:

- **Expand the service with additional hub locations or charging stations:** Fourteen respondents recommended expanding Míocar to new locations, or adding more charging stations to existing hubs. Several of these respondents explained that they live far away from the nearest hub, or that having hubs or chargers in destination areas would help them charge vehicles during trips. Two respondents suggested adding hubs to more public areas such as parks or city centers.
- **Add vehicles or improve vehicle availability:** Twelve respondents made recommendations related to vehicle availability, either asking for Míocar to add vehicles to existing hubs or to take steps to improve the availability of existing vehicles. Two respondents noted that vehicles are not always available at the specific time of day or window of time that they need them. One respondent suggested adding a wider variety of vehicles, such as larger EVs with more seating. The manufacturer recall of Chevy Bolt vehicles substantially affected the availability of Míocar vehicles beginning in July 2021, with 17 of 27 vehicles being temporarily removed from the fleet.
- **Improve vehicle parking space availability:** Eight respondents made recommendations related to vehicle parking, such as suggesting that Míocar ensure that non-Míocar vehicles do not park in charging spaces, or suggesting that there could be parking spaces reserved for members' personal vehicles that they park at the hubs when picking up a Míocar vehicle. Several respondents noted that they have had issues with returning EVs due to another resident's vehicle being parked in the Míocar parking space.
- **Improve the vehicle cleanliness/maintenance process:** Seven respondents recommended improving the cleanliness of Míocar vehicles or improving the vehicle maintenance or cleaning schedules. Four of these respondents noted that sometimes the vehicles are dirty when they pick them up for a reservation, and one respondent asked for Míocar to include cleaning tools within the vehicles so that they can clean up after themselves.

In addition to the above categories, respondents made suggestions related to increasing member training for EV use and charging (7%), extending the driving range of the EVs (7%), improving aspects of Míocar payment

functionality or payment structure (7%), ensuring that vehicles have a full charge when they are picked up for a reservation (5%), or extending the maximum vehicle rental time to allow members to take longer, multi-day trips (5%).

Seven respondents (12%) indicated that they did not have any recommendations, and the recommendations categorized as "Other" included suggestions such as improving the Míocar app, improving hub signage, lowering the service cost, and increasing awareness of the service in the community.

Table 16. Respondent Recommendations for Improving Míocar

Recommendation (Categorized open-ended responses)	Percentage of Respondents Referencing Recommendation (N = 57)
Expand the service with additional hub locations or charging stations	24.6%
Add vehicles or improve vehicle availability	21.1%
Improve parking space availability	14.0%
Improve the vehicle cleanliness/maintenance process	12.3%
Increase training for members	7.0%
Improve the range of vehicles	7.0%
Improve payment system or options	7.0%
Ensure full vehicle charge	5.3%
Extend the maximum rental time	5.3%
No recommendations	12.3%
Other	10.5%
Total	>100%

These results suggest that there is demand within the existing membership base for expansion of the service with additional hubs or vehicles, and that increased vehicle availability would allow some members to use Míocar more often. Additionally, there may be opportunities to enhance the convenience of using Míocar through on-site attention to topics such as vehicle parking, cleaning and maintenance, and charging. However, given the high program satisfaction ratings, these opportunities may represent minor incremental improvements rather than major problem areas.

Conclusion

This study presents results from retrospective telephone survey of Míocar users. The survey results provided extensive insight into the role of rural carsharing in participants' travel decisions and transportation access. These results are based on a sample size of 57 respondents, representing a 39% response rate for members who had used the service at least once as of January 2022.

User survey responses suggest that Míocar improves the ease, efficiency, and reliability of household travel. While many users reported that they would be able to use alternative modes such as personal vehicles to make some types of trips, users noted that it would still be difficult to travel long distances or reliably reach time-sensitive destinations such as appointments, work, or school. Users reported a fairly high level of personal vehicle availability within their households overall, though this level of availability decreased when considering the number of vehicles available per employed resident and the number of reliable vehicles available per resident. About half of the respondents reported having less than one reliable personal vehicle per resident over the age of 18, and one-third of respondents from households that typically commute to work reported having less than one reliable personal vehicle per employed resident. Users commonly mentioned that before Míocar, they had to rely on finding rides from others such as friends or family, or asking to borrow vehicles, which were not always reliable options. Users who share personal vehicles with other members of their households noted that they may have to delay trips until their vehicle was available, or wait until someone else was available to give them a ride to where they needed to go. Aside from personal vehicles, few users reported that other modes such as public transit, biking, or walking were realistic options to complete the variety of trips their household needs to make.

Given that very few respondents considered transit to be a viable mode for completing all of their household's trips, and that most respondents (65%) reported that Míocar had reduced their personal vehicle use, the mode shift effects of the service appear to tend towards replacing personal vehicle travel with EV travel rather than replacing public transit. Míocar has also resulted in potentially longer-term shifts away from personal vehicle use in the form of vehicle shed and suppression. Based on the methods used to assess vehicle shed and suppression, Míocar has caused five percent of respondents to shed a personal vehicle, and fourteen percent of respondents to delay the purchase or lease of a vehicle. Overall, the results suggest that the respondent sample would need to have about 11% more personal vehicles if the service were not available.

Comparisons to existing carsharing program research suggest that Míocar is achieving similar results related to travel effects in some areas, such as reducing personal vehicle use, ownership, and associated GHG emissions (e.g. Martin et al. 2021; Randall 2020; Martin and Shaheen 2016; Martin and Shaheen 2011; Randall 2011; Lane 2005; Cervero and Tsai 2004). However, the demographics and socio-economic metrics for the Míocar user base vary from the predominantly white, middle-income, smaller households associated with urban carsharing services (e.g. Martin et al. 2021; Shaheen, Martin, and Totte 2020; Martin and Shaheen 2011; Lane 2005; Cervero and Tsai 2004).

Respondent commentary highlights the specific transportation challenges associated with the rural San Joaquin Valley in the form of long travel distances, limited transit, and shared personal vehicles, which amplify Míocar's role as a method for improving mobility. Less than one-third of respondents stated that they were always able to travel to where they needed to go before joining Míocar, as compared to more than three-quarters of respondents for the period since joining Míocar.

Respondents reported high satisfaction levels related to the overall service and its cost. While a portion of general feedback suggests that there are some opportunities to improve the convenience of the user experience, overall comments emphasize the value of Míocar in users' households and the ease of using the service. As indicated through past analyses of member data, some users continued to note the long driving distances between their home location and the nearest Míocar hub, suggesting that additional hubs in key areas could increase service use and decrease the personal vehicle VMT required to access Míocar.

These current survey results provide information for researchers to enhance future program evaluations, as well as insights that may inform program recruitment, training, design, and other efforts conducted by Míocar or other carsharing operators. Regarding further research in this area, commentary provided by users regarding alternative modes of travel and decision-making in the absence of Míocar suggests opportunities for researchers to enhance the post-reservation surveys that are administered to users following individual reservations. Specifically, in addition to assessing whether trips would have occurred at all in the absence of Míocar, it may be useful to explore the extent to which the absence of Míocar would affect the timing or level of difficulty in completing individual trips. Additionally, analyses of survey results in conjunction with data collected from post-reservation surveys and vehicle utilization data may allow for further conclusions and quantitative estimates of the effects of rural carsharing on GHG emissions, VMT, and transportation access.

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Appendix: Telephone Survey Instrument

This Appendix includes an English-language version of the list of questions and response options used for the retrospective telephone survey. The survey was also translated to Spanish to accommodate Spanish-speaking respondents. The survey was hosted within Qualtrics and used question skip and display logic, some of which was omitted from this document for the purposes of length and readability.

Míocar Retrospective Telephone Survey

Q1
Telephone Intro Q1

"Hello, may I please speak with [Member Name]?" (Do not read response options. If needed, read "This is [Caller First Name] on behalf of the Míocar carsharing service.")

- Yes
- Not Available (Ask to schedule a time to call back, if possible: "Is there a better time that I could call back to speak with [Member Name]?")

Q208 **Telephone Intro Q2**
"Hello, this is [Caller First Name] on behalf of the Míocar carsharing service. We are calling to ask Míocar members to complete a one-time in-depth research survey about their experience with the service and their use of transportation. This survey may take up to 30 minutes to complete, and once you complete the survey, we will send you a $50 Walmart gift card and you will receive a credit for one free hour of Míocar use. May I continue with some more information about the research survey?" (Do not read response options)

- Yes
- Not at this time (Ask to schedule a time to call back, if possible: "Is there a better time that would work for you?")
- No (Ask to confirm, "Is there a better time that would work for you?")

Q244 "This survey is part of a research study being conducted by University of California researchers. This survey goes into more detail than previous Míocar surveys you may have completed. Your participation in this research is completely voluntary but is important in helping to understand how to improve and expand the Míocar service. Your personal information will not be shared with anyone outside of the research team, and the results of the survey will be linked to your Míocar service use in a way that does not personally identify you or your travel. If you have any questions, I can provide you with the contact information for the lead researcher, Caroline Rodier. (Follow-up: "Caroline Rodier can be reached at the email address [Email Address]").

Do you agree to participate in this research survey? If so, please say "Yes, I agree" and I will begin the survey." (Do not read response options)

- ○ Yes
- ○ Not at this time (Ask to schedule a time to call back, if possible: "Is there a better time that would work for you?")
- ○ No

Q209 [Administrative notes regarding the call or call-back time]

- ☐ [SELECT THIS OPTION TO END THE SURVEY] Administrative Notes: _____

End of Block: Introduction

Start of Block: Introduction 2

Q31 "Thank you for agreeing to participate in this research survey. I'll note that some of the questions in this survey are similar to questions you may have answered during a previous Míocar survey. This is intentional, and helps us understand Míocar member characteristics and transportation use over time."

End of Block: Introduction 2

Start of Block: Household

Q32 "First, I would like to ask you about your family and household. By household, I mean the people living with you in your current residence."

Q282 "Including yourself, how many people live in your household?" (Do not read response options)

- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5
- ○ 6 or more
- ○ [Prefer not to answer/No response] (DO NOT READ)

Q2 "This next set of questions is about who you live with in your household." (Read each response option. Respondent may select multiple responses.)

- ☐ "Do you live with a spouse, partner, or significant other?"
- ☐ "Do you live with children or grandchildren?" (If yes, "How many children or grandchildren do you live with?") _____
- ☐ "Do you live with parents?" (If yes, "How many parents do you live with?") _____
- ☐ "Do you live with grandparents?" (If yes, "How many grandparents do you live with?") _____
- ☐ "Do you live with another type of relative?" (If yes, "What other type of relatives do you live with, and how many?") _____
- ☐ "Do you live with roommates or friends?" (If yes, "How many roommates or friends do you live with?") _____
- ☐ "Do you live with anyone else?" (If yes, "Can you please describe how many other people you live with, and who they are?") _____
- ☐ [Prefer not to answer/No response] (DO NOT READ)

Q283 "Are you employed?" (Do not read response options)

- ○ Yes
- ○ No
- ○ [Prefer not to answer/No response] (DO NOT READ)

Q284 "Which of the following best describes how you access your place of work most of the time? I will read two options. Do you **usually**..." (Read response options)

- ○ Travel to work,
- ○ Or work from home?
- ○ [Prefer not to answer/No response] (DO NOT READ)

Q285 Are you a student in school?" (Do not read response options)

- ○ Yes
- ○ No
- ○ [Prefer not to answer/No response] (DO NOT READ)

Q286 "Which of the following best describes how you attend school most of the time? I will read two options. Do you **usually**..." (Read response options)

- Travel to school,
- Or Attend school from home?
- [Prefer not to answer/No response] (DO NOT READ)

Q277 "How many people in your household, if any, are employed?" (Do not read response options)

- Number _____
- [Prefer not to answer/No response] (DO NOT READ)

Q278 "Which of the following best describes how people in your household access their places of work most of the time? I will read two options. Do people in your household **usually**..." (Read response options)

- Travel to work,
- Or Work from home?
- [Prefer not to answer/No response] (DO NOT READ)

Q279 "How many people in your household, if any, are students in school?" (Do not read response options)

- Number _____
- [Prefer not to answer/No response] (DO NOT READ)

Q280 "Which of the following best describes how people in your household attend school most of the time? I will read two options. Do people in your household **usually**..." (Read response options)

- Travel to school,
- Or Attend school from home?
- [Prefer not to answer/No response] (DO NOT READ)

Q287 "Next, I would like to ask about the age ranges for individuals in your household."

Q186 "How many people in your household, if any, are under 21 years old?"

_____

Q296 "What are the ages of the individuals in your household who are under 21 years old?" (Do not read response options unless necessary. Add appropriate numeric values based on response)

- 19 to 20 (Number of individuals):
- 13 to 18 (Number of individuals):
- 5 to 12 (Number of individuals):
- Under 5 years old (Number of individuals
- [Prefer not to answer/No Response]

End of Block: Household

Start of Block: Number of Vehicles

Q83 "Next, I have some questions about the personal vehicles available to your household. By personal vehicles, I mean cars or trucks that your household owns, leases, or that you regularly borrow from friends or family."

Q5 "How many personal vehicles are available for use by your household?" (Do not read response options)

- ○ 0
- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5
- ○ 6 or more
- ○ [Prefer not to answer/No response] (DO NOT READ)

Q7 "How long have you had access to this vehicle?" (Do not read response options unless requested. Select the best response.)

- ○ Less than one year
- ○ Between 1 and 2 years
- ○ 2 years or more
- ○ [Prefer not to answer/No response] (DO NOT READ)

Q8 "About how many miles has this vehicle been driven over the past 12 months?"

_____

Q173 "Do you currently use this vehicle MORE, LESS, or ABOUT THE SAME as you did before the COVID-19 pandemic?" (Do not read response options)

- ○ More
- ○ Less
- ○ About the same
- ○ [Prefer not to answer/No response] (DO NOT READ)

Q38 "How would you rate the reliability of this vehicle on a scale of 1 to 5, where 1 is "Very unreliable" and 5 is "Very reliable"?" (Do not read response options)

- 1
- 2
- 3
- 4
- 5
- [Prefer not to answer/No response] (DO NOT READ)

Q9 "Do you use 1 of the ${Q5/ChoiceGroup/SelectedChoices} vehicles available to your household more than the other(s)?" (Do not read response options)

- Yes
- No
- Unsure
- [Prefer not to answer/No response] (DO NOT READ)

End of Block: Number of Vehicles

Start of Block: Ranked Vehicles

Q11 "For the vehicle that you use **${lm://Field/2} most frequently**, how long have you had access to this vehicle?" (Do not read response options unless requested. Select the best response.)

- Less than 1 year
- Between 1 and 2 years
- 2 years or more
- [Prefer not to answer/No response] (DO NOT READ)

Q12 "For the vehicle that you use **${lm://Field/2} most frequently**, about how many miles has this vehicle been driven over the past 12 months?"

_____

Q174 "For the vehicle that you use **${lm://Field/2} most frequently**, do you currently use this vehicle MORE, LESS, or ABOUT THE SAME as you did before the COVID-19 pandemic?" (Do not read response options)

- More
- Less
- About the same
- [Prefer not to answer/No response] (DO NOT READ)

Q34 "For the vehicle that you use **${lm://Field/2} most frequently**, how would you rate the reliability of this vehicle on a scale of 1 to 5, where 1 is "Very unreliable" and 5 is "Very reliable"?" (Do not read response options)

- 1
- 2
- 3
- 4
- 5
- [Prefer not to answer/No response] (DO NOT READ)

End of Block: Ranked Vehicles

Start of Block: Randomly Used Vehicles

Q14 "Please choose one of the **${lm://Field/2}** vehicles available to your household. How long have you had access to this vehicle?" (Do not read response options unless requested. Select the best response.)

- Less than 1 year
- Between 1 and 2 years
- 2 years or more
- [Prefer not to answer/No response] (DO NOT READ)

Q15 "About how many miles has this vehicle been driven over the past 12 months?"

_____

Q175 "Do you currently use this vehicle MORE, LESS, or ABOUT THE SAME as you did before the COVID-19 pandemic?" (Do not read response options)

- More
- Less
- About the same
- [Prefer not to answer/No response] (DO NOT READ)

Q35 "How would you rate the reliability of this vehicle on a scale of 1 to 5, where 1 is "Very unreliable" and 5 is "Very reliable"?" (Do not read response options)

- 1
- 2
- 3
- 4
- 5
- [Prefer not to answer/No response] (DO NOT READ)

End of Block: Randomly Used Vehicles

Start of Block: Míocar Effects on Vehicle Acquisition/Shed

Q260 "Has your household gotten rid of any personal vehicles since you joined Míocar? By "gotten rid of", I mean vehicles that you have sold, scrapped, or stopped the lease on." (Do not read response options)

- Yes
- No
- [Prefer not to answer/No response] (DO NOT READ)

Q261 "Has your household gotten rid of any personal vehicles **because** of the availability of Míocar as a transportation option?" (Do not read response options)

- Yes
- No
- [Prefer not to answer/No response] (DO NOT READ)

Q188 "How many vehicles has your household gotten rid of, at least in part, due to Míocar?" (Do not read response options)

- 1
- 2
- 3
- 4
- 5
- 6
- [Prefer not to answer/No response] (DO NOT READ)

Q262 "What is the make, model, and year, to the best of your knowledge, of the vehicle your household has gotten rid of due to Míocar?" (Do not read categories. Read examples if needed.)

- Make (IF NEEDED: "An example would be Honda") _____
- Model (IF NEEDED: "An example would be Civic") _____
- Year (IF NEEDED: "An example would be 2012") _____

Q264 "If Míocar were not available, would your household still have gotten rid of this vehicle?" (Do not read response options)

- Yes
- No
- [Prefer not to answer/No Response] (DO NOT READ)

[REPEAT Q262 and Q264 for each additional vehicle based on quantity indicated in Q188]

Q272 "Does your household plan to buy or start a lease on a motor vehicle within the next two years?" (Do not read response options)

- Yes
- No
- [Prefer not to answer/No response] (DO NOT READ)

Q271 "Before you joined Míocar, did your household already have plans to buy or start the lease on a motor vehicle?" (Do not read response options)

- Yes
- No
- [Prefer not to answer/No response] (DO NOT READ)

Q274 "Is your household considering buying or leasing an electric vehicle in the next two years?" (Do not read response options)

- Yes
- No
- [Prefer not to answer/No response] (DO NOT READ)

Q273 "If you had not joined Míocar, do you think your household would have bought or started the lease on a motor vehicle?" (Do not read response options)

- Yes
- No
- [Prefer not to answer/No response] (DO NOT READ)

Q275 "How many vehicles do you think you would have bought or started the lease on?" (Do not read response options)

- 1
- 2
- 3
- 4
- 5
- 6
- [Prefer not to answer/No response] (DO NOT READ)

Q276 "If Míocar were no longer available to you, do you think you would have to buy or start the lease on a new or used vehicle?" (Do not read response options)

- Yes
- No
- [Prefer not to answer/No response] (DO NOT READ)

End of Block: Míocar Effects on Vehicle Acquisition/Shed

Start of Block: Míocar Operations

Q230 "This next section of the survey is about how, if at all, Míocar has affected your transportation decisions and ability to travel."

Q18 "Has Míocar increased the number of trips your household makes?" (Do not read response options)

- Yes
- No
- Unsure
- [Prefer not to answer/No response] (DO NOT READ)

Q130 "Has Míocar affected how much your household uses your personal vehicles? I will read a list of options, please select one." (Read response options)

- No, Míocar has not affected how much we use our personal vehicles
- Yes, we use our personal vehicles LESS because of Míocar
- Yes, we use our personal vehicles MORE because of Míocar
- [Prefer not to answer/No response] (DO NOT READ)

Q187 "To make sure I understand, it sounds like Míocar has caused you to use your household's personal vehicles MORE often. Is that correct?" (Do not read response options)

- ○ Yes ("Can you please explain how Míocar has caused you to use your household's personal vehicles more?") _____
- ○ No
- ○ [Prefer not to answer/No response] (DO NOT READ)

Q241 "For this next set of questions, we are interested in how, if at all, you have used Míocar to drive **other people** to where they need to go. For each of the following options, please respond with Yes or No. Have you used Míocar to drive **other people** so they could complete..." (Read each response option)

	(Check if YES)
School-related trips?	☐
Medical-related trips?	☐
Shopping trips?	☐
Trips to or from their place of work?	☐
Social or Recreational trips?	☐
Other Family or Personal Errands?	☐
Any other types of trips? (If Yes, "What other types of trips?")	☐
[Prefer not to answer/No response] (DO NOT READ)	☐

Q71 "We would also like to know about the types of trips you have taken **for yourself** using Míocar. For each of the following options, please respond with Yes or No. Have you used Míocar to complete..." (Read each response option)

	(Check if YES)
Work activities, such as delivering food or giving rides to paying customers?	☐
Trips to or from your place of work?	☐
School-related trips for yourself?	☐
Medical-related trips for yourself?	☐
Your Shopping trips?	☐
Your Social or Recreational trips?	☐
Your Other Family or Personal errands?	☐
Any other types of trips for yourself?	☐
[Prefer not to answer/No response] (DO NOT READ)	☐

Q149 "Thinking about the work-related trips you have made with Míocar, how, if at all, were these trips made before you joined Míocar?"

_____

Q150 "Thinking about the school-related trips you have made with Míocar, how, if at all, were these trips made before you joined Míocar?"

_____

Q151 "Thinking about the medical-related trips you have made with Míocar, how, if at all, were these trips made before you joined Míocar?"

_____

Q152 "Which of the following describes how you typically use Míocar during a single reservation? I will read two options, please select the response that matches how you use Míocar most of the time." (Read response options)

- ○ Traveling to a single destination and then returning the vehicle
- ○ Traveling to multiple destinations before returning the vehicle
- ○ [Prefer not to answer/No response] (DO NOT READ)

Q20 "When picking up a Míocar vehicle, what form of transportation do you usually use to get to Míocar pick-up locations?" (Do not read response options. Respondent may select multiple responses.)

- ☐ Walk
- ☐ **Drive** a private vehicle (car or truck)
- ☐ **Get dropped off** in a private vehicle (car or truck)
- ☐ Public transit bus
- ☐ Bicycle
- ☐ Taxi, Uber, or Lyft
- ☐ Scooter or skateboard
- ☐ Motorcycle
- ☐ Unsure
- ☐ Other _____
- ☐ [Prefer not to answer/No response] (DO NOT READ)

Q56 "Next, we would like to understand how you use other forms of transportation and how well these other forms of transportation meet your travel needs."

End of Block: Míocar Operations

Start of Block: Alternative Transportation Options

Q255 "I'd like to ask about the other forms of transportation your household might be able to use to complete certain types of trips."

Q247 "The first form of transportation is personal vehicles. If necessary, would your household be able to use personal vehicles to make ALL, SOME, or NONE of the trips you need to make?" (Do not read response options)

- ○ All
- ○ Some
- ○ None
- ○ [Prefer not to answer/No response] (DO NOT READ)

Q248 "In your own words, what types of trips would you have trouble making using your personal vehicles?"

_____

Q249 "The next form of transportation is public transit such as bus, shuttle, or train. If necessary, would your household be able to use public transit to make ALL, SOME, or NONE of the trips you need to make?" (Do not read response options)

- ○ All
- ○ Some
- ○ None
- ○ [Prefer not to answer/No response] (DO NOT READ)

Q250 "In your own words, what types of trips would you have trouble making using public transit?"

_____

Q297 "The next form of transportation is bicycles, scooters, or skateboards. Does your household have access to at least one bicycle, scooter, or skateboard (either personally owned or shared)?" (Do not read response options)

- Yes
- No
- [Prefer not to answer/No response] (DO NOT READ)

Q251 "If necessary, would your household be able to use bicycles, scooters, or skateboards to make ALL, SOME, or NONE of the trips you need to make?" (Do not read response options)

- All
- Some
- None
- [Prefer not to answer/No response] (DO NOT READ)

Q252 "In your own words, what types of trips would you have trouble making using bicycles, scooters, or skateboards?"

_____

Q253 "The last form of transportation is walking. If necessary, would your household be able to walk to make ALL, SOME, or NONE of the trips you need to make?" (Do not read response options)

- All
- Some
- None
- [Prefer not to answer/No response] (DO NOT READ)

Q254 "In your own words, what types of trips would you have trouble making by walking?"

_____

End of Block: Alternative Transportation Options

Start of Block: General Mobility

Q62 "How often were you able to travel to where you needed to go before joining Míocar? I will read a list of options." (Read response options)

- Always
- Usually
- Sometimes
- Rarely
- Never
- [Prefer not to answer/No response] (DO NOT READ)

Q63 "How often are you able to travel to where you need to go since joining Míocar? I will read the same list of options." (Read response options)

- Always
- Usually
- Sometimes
- Rarely
- Never
- [Prefer not to answer/No response] (DO NOT READ)

End of Block: General Mobility

Start of Block: Satisfaction

Q132 "The next set of questions relates to your satisfaction with the Míocar service."

Q180 "On a scale of 1 to 5, where 1 is "very difficult" and 5 is "very easy", how difficult or easy was it for you to recharge your vehicle during your Míocar trips?" (Do not read response options)

- 1 (Very difficult)
- 2
- 3
- 4
- 5 (Very easy)
- [Prefer not to answer/No response] (DO NOT READ)

Q181 "Can you please tell me more about why you chose that rating?"

_____

Q182 "Did this difficulty with the charging stations cause you to use Míocar less often?" (Do not read response options)

- No
- Yes
- Unsure
- [Prefer not to answer/No response] (DO NOT READ)

Q137 "On a scale of 1 to 5, where 1 is "very difficult" and 5 is "very easy", how difficult or easy was it for you to use the vehicle charging stations when you returned the Míocar vehicle?" (Do not read response options)

- 1 (Very difficult)
- 2
- 3
- 4
- 5 (Very easy)
- [Prefer not to answer/No response] (DO NOT READ)

Q138 "Can you please tell me more about why you chose that rating?"

_____

Q139 "Did this difficulty with the charging stations cause you to use Míocar less often?" (Do not read response options)

- No
- Yes
- Unsure
- [Prefer not to answer/No response] (DO NOT READ)

Q133 "On a scale of 1 to 5, where 1 is "very dissatisfied" and 5 is "very satisfied", how satisfied are you with the cost of the Míocar service?" (Do not read response options)

- 1 (Very dissatisfied)
- 2
- 3
- 4
- 5 (Very satisfied)
- [Prefer not to answer/No response] (DO NOT READ)

Q134 "Can you please tell me more about why you chose that rating?"

_____

Q184 "On a scale of 1 to 5, where 1 is "very dissatisfied" and 5 is "very satisfied", how satisfied are you with the distance that you need to travel to access Míocar vehicles?" (Do not read response options)

- 1 (Very dissatisfied)
- 2
- 3
- 4
- 5 (Very satisfied)
- [Prefer not to answer/No response] (DO NOT READ)

Q185 "Can you please tell me more about why you chose that rating?"

_____

Q135 "On a scale of 1 to 5, where 1 is "very dissatisfied" and 5 is "very satisfied", how satisfied are you with the Míocar service overall?" (Do not read response options)

- 1 (Very dissatisfied)
- 2
- 3
- 4
- 5 (Very satisfied)
- [Prefer not to answer/No response] (DO NOT READ)

Q136 "Can you please tell me more about why you chose that rating?"

_____

Q140 "Do you have any suggestions for improving the Míocar service?"

_____

End of Block: Satisfaction

Start of Block: Demographics

Q227 "Finally, I would like to ask a few questions about you to help categorize our responses to this survey."

Q22 "What is your highest level of education?" (Do not read options, select closest response. Offer to read options if respondent is unsure.)

- ○ No schooling completed
- ○ Less than high school
- ○ High school graduate
- ○ Trade or vocational
- ○ Some college but no degree
- ○ Associate degree in college
- ○ Bachelor's degree in college
- ○ Master's degree
- ○ Above Master's degree
- ○ [Prefer not to answer/No response] (DO NOT READ)

Q23 "This question is about your household's approximate annual income level. I'll read a list of options. Please tell me when I reach your household's annual income level." (Begin reading response options)

- ○ Less than $10,000
- ○ Less than $25,000
- ○ Less than $50,000
- ○ Less than $100,000
- ○ Less than $150,000
- ○ Less than $200,000
- ○ At least $200,001
- ○ [Prefer not to answer/No response] (DO NOT READ)

Q190 "This next question is about health-related difficulties and helps us understand the transportation needs of individuals and families who are using Míocar. I will list and describe several types of health-related difficulties. For each one, please tell me if any individuals in your household have the health-related difficulty." (Read response options)

- ☐ Hearing difficulty, meaning people who are deaf or have serious difficulty hearing (if yes, how many individuals) _____
- ☐ Vision difficulty, meaning people who are blind or have serious difficulty seeing, even when wearing glasses (if yes, how many individuals) _____
- ☐ Cognitive difficulty, meaning people who have difficulty remembering, concentrating, or making decisions because of a physical, mental, or emotional challenge (if yes, how many individuals) _____
- ☐ Ambulatory difficulty, meaning people who have serious difficulty walking or climbing stairs (if yes, how many individuals) _____
- ☐ Self-care difficulty, meaning people who have difficulty bathing or dressing (if yes, how many individuals) _____

- ☐ Independent living difficulty, meaning people who have difficulty doing errands alone such as visiting a doctor's office or shopping because of a physical, mental, or emotional challenge (if yes, how many individuals) _____
- ☐ [Prefer not to answer/No response] (DO NOT READ)

Q259 "What is your age?"

_____

Q29 "Are you of Hispanic, Latino, or Spanish origin?" (Do not read response options)

- ○ Yes
- ○ No
- ○ [Prefer not to answer/No response] (DO NOT READ)

Q30 "Which of the following best describes you? I will read a list of options, and you may select multiple responses." (Read response options)

- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Black or African American
- ☐ Native Hawaiian or Other Pacific Islander
- ☐ White
- ☐ Other _____
- ☐ [Prefer not to answer/No response] (DO NOT READ)

Q191 "To thank you for completing this survey, we will send you a $50 Walmart gift card by email and you will receive a credit for one free hour of Míocar use. Would you like this card to be sent to the email address that is associated with your Míocar account, or to a different email address?" (Do not read response options)

- ○ Míocar account email address
- ○ Different email address: _____
- ○ I do not wish to receive a gift card
- ○ [Prefer not to answer/No response] (DO NOT READ)

End of Block: Demographics

Start of Block: Survey End

Q228 "This completes the in-depth Míocar survey. Thank you so much for taking the time to share this information and for being a part of Míocar. You will receive your $50 gift card by email within the next two weeks."

End of Block: Survey End
