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Struggling to Connect: Housing and Transportation Challenges of Low-Income Suburban Residents in the San Francisco Bay Area

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16. Abstract
Suburban areas have lower density development than urban areas, which may make them less accessible for the growing population of low- and moderate-income suburban residents, particularly those without a personal vehicle. This research examines factors that lead these households to move to suburban areas and identifies accessibility barriers they face. We use a mixed-methods approach with Public Use Microdata Sample (PUMS) data from the U.S. Census, online/in-person surveys (n=208), and interviews conducted in English and Spanish (n=25) with households in Contra Costa County with an income of less than $75,000. To understand key differences in housing and transportation choices between urban and suburban residents, these data were compared to survey and interview data from low-income Oakland residents from 2020-2021. We found that low- and moderate-income households choose to live in suburbs due to rising rents and other requirements (e.g., credit score, rental history) in urban areas, and a desire for home ownership and safer environment for children. Yet lack of tenant protections is leaving them vulnerable to rising rents in suburban areas. Transportation costs are higher in suburbs due to longer commutes and higher reliance on personal vehicles. Despite higher levels of car ownership in the suburbs, households often go without a car due to maintenance issues or inability to make car payments. When faced with the lack of an automobile, suburban households have few quality transportation alternatives.

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Acknowledgments

Disclaimer

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Executive Summary

Executive Summary

The growth of poverty in suburban areas in the U.S. in recent years has complicated the image of American suburbs as residential communities for middle class, predominantly white families. In 2010, researchers found that the largest share of households under the poverty line now reside in suburban areas (Kneebone and Garr, 2010). As suburban areas are often characterized by low density development and low levels of public transit service compared to urban areas, living in the suburbs may pose accessibility challenges for low-income households, particularly those without a personal vehicle.

In this research, we used Contra Costa County, the county with the highest rates of suburban poverty in the San Francisco Bay Area, as a case study for understanding the housing decisions and transportation challenges of low- and moderate-income (LMI) households. We also interviewed individuals between the ages of 30 and 70 who earn less than 80 percent of the Area Median Income (AMI) of Contra Costa, which is around $75,000 (i.e., working age LMI residents) Our research identifies:

1. Demographic and external factors that lead LMI households to move to suburban areas, in particular the trade-off between housing costs and transportation accessibility; and
2. Transportation accessibility barriers faced by LMI suburban households.

We employed a mixed-methods analysis using quantitative and qualitative data from Public Use Microdata Sample (PUMS) data from the U.S. Census, along with data collected from online and in-person surveys conducted from February to May 2022 (n = 208) and in-depth interviews conducted in English and Spanish from April to July 2022 (n = 25). To understand key differences between the housing and transportation use of LMI urban and suburban residents, we supplement our analysis with data previously collected from research on rent-burdened residents in Oakland in 2020 and 2021 (i.e., residents who spend more than 30 percent of their income on housing expenses).

Summary of Key Takeaways

Housing

We asked research participants in surveys and interviews about their housing location choice, recent migration patterns, reasons for moving, and factors prioritized when moving. These findings are summarized below.

- Much attention has been given to the displacement of low-income residents from urban to suburban areas due to rising housing costs in urban areas. However, we find that LMI households in Contra Costa County are displaced not just by rising housing costs, but also by strict requirements for renting, such as credit score checks and income requirements.

Meanwhile, other LMI households are not just motivated by lower housing costs, but also the desire for home ownership and a safer, more family-oriented environment for their children.

- Housing costs are also beginning to rise in suburban areas. Comparison of the dataset of rent-burdened Oakland residents with LMI Contra Costa residents indicates that residents pay about the same in monthly housing costs, with both groups having a median monthly housing expenditure between $1,000 and $1,500. Yet, suburban areas have fewer tenant protections in place (e.g., rent control), particularly for those renting single-family homes. Interviewees had experienced significant increases in rent in the past five years.

Transportation

We asked research participants about their use of transportation, daily travel patterns, trade-offs between different transportation modes, challenges or barriers faced during daily travel, and transportation expenses. These findings are summarized below.

- While housing expenditures are similar between urban and suburban residents, transportation expenditures were higher for Contra Costa interviewees compared to Oakland interviewees. The reasons for higher transportation expenditures were longer commutes and higher reliance on personal vehicles. On average, Contra Costa interviewees spent $638 per month on transportation while Oakland interviewees spent $336 per month. Comparing only vehicle owners between the two samples, Contra Costa interviewees still spend more on average ($680/month vs. $406/month). Insurance expenditures were higher for Contra Costa interviewees, who were more likely to pay for full insurance coverage, compared to Oakland interviewees, who paid only for minimum state liability coverage.

- While some LMI suburban residents are able to commute using public transit, many report that a personal vehicle is still necessary for non-work trips, such as grocery shopping, other errands, and visiting friends and family. Interviewees who relied on public transit said that running a simple errand would often turn into multiple hours of travel time and waiting due to long headways and the need for multiple transfers.

- Despite the necessity of car ownership in suburban areas, car ownership could be unstable for LMI individuals due to the higher maintenance needs of used or older vehicles, inability to make car payments, or inconsistent insurance, registration, and driver's licenses. Approximately 33 percent of survey respondents with a car reported experiencing periods of not having a car in the past year for these reasons.

- Individuals without a car have few backup options in suburban areas, with non-car owners relying on public transit with low level of service (e.g., hour-long headways).

- Rather than rely on public transit, some interviewees without a car have begun using delivery services for grocery shopping and other shopping needs (e.g., Instacart, Amazon Prime, Walmart Plus).

Policy Strategies

To address issues of rising housing costs in suburban areas and accessibility challenges, especially for individuals without a car, we suggest the following policy strategies:

- **Expand tenant protections in suburban areas that are experiencing rising housing costs** (e.g., establish rent control for single family homes, establish just cause for evictions).

- **Invest in quality alternatives to car travel in suburban areas** to support LMI residents without a personal vehicle or with inconsistent vehicle ownership, such as subsidizing shuttles, taxis, or transportation network companies (TNCs, e.g., Uber or Lyft) for grocery shopping, which was the most common errand for which interviewees required the use of a personal vehicle.

- **Consider expanding awareness of grocery delivery services** such as Instacart and Walmart Plus through targeted advertising or informational campaigns, as these services are used by some LMI residents who do not have a car.

- **Explore the possibility of improving public transit services and other transportation alternatives** (e.g., services to facilitate vanpooling or carpooling) to support suburb-to-suburb commutes, which represented about a quarter of all commutes in our survey sample and which are currently more difficult to complete using public transit compared to suburb-to-city commutes.

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Introduction

American suburbs are frequently depicted as residential communities where middle class, predominantly white families seek safety, space, and better schools outside of the central city. However, the rise of suburban poverty in recent years has complicated this image of the suburbs, with researchers finding that the largest share of households under the poverty line now reside in suburban areas (Kneebone and Garr, 2010). Existing research has identified distinct groups of low-income suburban households, such as suburban households impacted by the economic recession in 2008, households displaced from urban areas, and low-income immigrant households (Kneebone and Berube, 2013). However, there remains a gap in understanding the specific factors that underly a household's complex decision to move residences and how households decide where to move.

Suburban areas are often characterized by low density development which may pose accessibility challenges for low-income households, particularly those without a personal vehicle. Several authors have studied the accessibility challenges of low-income individuals (see, for example, Cui et al., 2019 or van Wee, 2011), but the specific spatial and temporal trip behavior of low-income individuals in suburban areas is a topic that warrants further study. As the low-income suburban population continues to grow, understanding the accessibility challenges of this group is crucial to ensure their accessibility needs are met.

In this research, we focus on the San Francisco Bay Area, a region with some of the highest housing costs and traffic congestion in the nation. In 2018, the San Francisco Bay Area had the second highest median home prices in the U.S.[1] The urban area was ranked as the seventh most congested in the U.S. in 2021 (INRIX, 2021). Thus, both housing affordability and accessibility are issues for many households in the region, especially those with low or moderate incomes.

Our research identified:

1. Demographic and external factors that lead low- and moderate-income (LMI) households to move to suburban areas, in particular the trade-off between housing costs and transportation accessibility; and

2. Accessibility barriers faced by LMI suburban households.

We conducted our analysis using Public Use Microdata Sample (PUMS) data from the U.S. Census, along with data collected from online and in-person surveys undertaken from February to May 2022 (n = 208) and in-depth interviews in English and Spanish from April to July 2022 (n = 25)[2]. To understand key differences between the housing and transportation use of LMI urban and suburban households, we compared the results from this research with our previous research on the housing and

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[1] Calculated using Median Sale Price data from Zillow: https://www.zillow.com/research/data/.
[2] We intended to conduct ethnographic shadowing exercises (i.e., commute ride alongs) where researchers would accompany a research participant as they completed a typical commute trip to make observations of how participants make live transportation decisions. However, we ran into issues recruiting individuals willing to participate in this exercise.

transportation of low-income Oakland residents conducted in 2020 and 2021. Our study population is LMI households (i.e., households below 80 percent of the Area Median Income (AMI)) residing in Contra Costa County.[3] In the sections that follow, we provide additional background and relevant literature on the suburbanization of poverty, housing location choice of low-income households, and accessibility challenges of low-income households. Next, we discuss our study population; describe the study methodology; and present findings from the PUMS data analysis, surveys, and interviews. We conclude with key takeaways, policy strategies, and future research directions.

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[3] Note that we also attempted to survey residents of San Joaquin County at the Altamont Corridor Express station in Stockton, CA to capture the behavior of super-commuters, or individuals commuting over 50 miles to work. However, we only received ten responses from this area and have not included them in our analysis.

Background

Growth of poverty in the suburbs

Residents of suburban areas in the U.S. have historically been higher income and white, though some suburbs have always been lower income (e.g., mill towns). In the nineteenth century, advances in transportation technology (e.g., streetcars, rail lines) and the desire for home ownership accelerated suburban development. Because the newest transportation technology and home ownership were only available to higher-income families, this had the effect of creating an income, racial, and ethnic divide in who could afford a suburban lifestyle (Jackson, 1985). Other scholars, from the 1950s to 1970s, have argued that suburban demographics are a product of exclusionary government policies that prevented racial and ethnic minorities from buying homes in the suburbs (Rothstein, 2017).

Since the late twentieth century, however, the nature of the suburbs has shifted. Howell and Timberlake (2014) use decennial census data between 1980 and 2010 to show that the share of households under the poverty line has increased in suburban areas over time, a finding which is consistent across all racial and ethnic groups. Kneebone and Garr (2010) use decennial census data from 2000 combined with American Community Survey data from 2007 and 2008 to track changes in poverty trends in the U.S. In 2000, urban areas still housed the largest share of households under the poverty line. However, by 2008, the majority of households in poverty lived in suburbs, rather than cities or non-metropolitan areas. Additionally, Kneebone and Garr found that the fastest growing population of households in poverty was in the suburbs.

Housing location choice and housing decisions of low-income households

Researchers have identified three distinct populations of low-income suburban residents: 1) long-term suburban residents, including households whose financial situation was exacerbated by the economic recession of 2008; 2) low-income residents who were priced out of urban areas and moved to the suburbs; and 3) recent immigrants who bypassed cities to settle in suburban areas. Of these populations, much attention has been paid to recently displaced households who have moved out of urban areas not by choice, but because they were involuntarily displaced or forced out due to high housing costs.

To understand the characteristics that impact housing costs, some economists and planners have used hedonic price models, an econometric approach to studying housing markets by estimating the effects of different housing attributes on housing prices. In a review of literature on hedonic housing price models, Chin and Chau (2003) categorize commonly used housing attributes in hedonic price models into locational (e.g., distance from central business district, nature or landscape views), structural (e.g., square footage, number of bedrooms, amenities such as air conditioning or swimming pool), and

neighborhood attributes (e.g., proximity to good schools, proximity to shopping centers, traffic noise). Most relevant to our research is the analysis of the relationship between housing and accessibility. In a review of accessibility metrics used in hedonic price models, Heyman et al. (2018) find that most studies quantify accessibility based on Euclidean distance to urban amenities (e.g., employment or central business district, shops, schools) and public transit (e.g., bus stop, subway stop). For example, there is an extensive body of literature quantifying the impact of proximity to public transit infrastructure on housing prices (Andersson et al., 2010; Armstrong & Rodriguez, 2006; Forrest et al., 1996; Henneberry, 1998).

Other researchers have studied the relationship between housing and accessibility from the point of view of the consumer and how they make decisions regarding housing. The literature on housing location choice is complex and there are many factors that influence a household's decision to move, including external factors such as housing market conditions (e.g., mortgage interest rates, rate of new construction, etc.), national economic circumstances, and local and national housing policies (Dieleman, 2001). Household-level factors such as life stage or lifecycle changes (Clark et al., 2003; Clark and Onaka, 1983), and job location (Abraham and Hunt, 1997; Waddell et al., 2008) also have important impacts on when and where households move. Researchers have found that when deciding where to move, households place high value on building or home type (Habib and Kockelman, 2008; Lee and Waddell, 2010), neighborhood attributes such as school quality, crime rate, and racial/ethnic composition (Barrow, 2002; Lewis et al., 2011; Nechyba and Strauss, 1998), and accessibility (Ben-Akiva and Bowman, 1998; Chen et al., 2008).

Researchers have investigated the importance of these factors for low-income households, specifically focusing on households who receive housing assistance, such as housing voucher programs. The findings on the impacts of housing voucher programs on economic and well-being outcomes of low-income households are varied. For example, some researchers have found that housing voucher programs can reduce homelessness and overcrowding while increasing housing stability and well-being, and can put recipients on the path to home ownership (Skobba et al., 2013; Wood et al., 2008). In contrast, an assessment of the Moving to Opportunity (MTO) housing voucher program, intended to move low-income households from high- to low-poverty neighborhoods, found that almost all households that received a housing voucher moved back into high poverty neighborhoods (Blumenberg et al., 2015; Rosenblatt and DeLuca, 2012). This may be due to considerations such as the role of social network relationships on moving decisions (Carrillo et al., 2016) and the relationship between housing cost and commuting time (Cervero et al., 2006).

Recipients of housing vouchers represent just a portion of low-income movers. There are other households, including those with moderate incomes, who face similar challenges, particularly in a high-cost region such as the San Francisco Bay Area. To date, there has not been a study focusing on both low- and moderate-income households in suburban areas and the factors underlying the decision of whether to move to a suburban area or where to move. Our research fills this gap in the literature by exploring the housing location choices of low- and moderate-income suburban households in the San Francisco Bay Area, specifically in Contra Costa County, an area with some of highest rates of suburban poverty.

Accessibility challenges of low-income households

Given that suburban areas are characterized by low density development and low levels of public transit service, low-income suburban residents may face unique transportation challenges compared to low-income urban residents. In an early study of commute distances and times of different racial/ethnic groups in major metropolitan areas, Taylor and Ong (1995) found that commute distance does not differ significantly by race or ethnicity but that commute time was significantly longer for Black and Hispanic workers. The authors attributed this travel time burden to a heavier reliance on public transit, compared to white workers who largely commute using a private vehicle. More recently, Blumenberg and King (2019) use data from the National Household Travel Survey to test whether relationship between residential location (i.e., low- or high-density neighborhood) and commute distance varies between low- and high-income workers. The authors find that between 2001 and 2017, commute distances increased slightly more for low-income workers than for high-income workers, suggesting that the reason is increasing numbers of low-wage workers living in low-density areas (i.e., the suburbanization of poverty).

In addition to longer commutes, low-income suburban households may face challenges reaching other important destinations, such as schools, grocery stores, recreational spaces, and other amenities and services, which can negatively impact quality of life or social inclusion. Studies of accessibility, a concept first defined in Hansen (1959) as the spatial distribution of activities or services with the ability and desire of individuals to reach those activities or services, have found that increasing accessibility can enhance the social inclusion of low-income groups (Cass et al., 2005). Researchers have studied disparities in access to food and healthcare for low-income groups. In a comparison of a low- and high-income suburban neighborhood in the metropolitan Detroit area, researchers found that supermarkets in the low-income neighborhood were less likely to have healthy food items and that these supermarkets go out of business more frequently, contributing to an unstable food system (Bastian and Napieralski, 2015). Research on low-income access to healthcare has found that difficulty finding transportation to healthcare facilities was a major barrier to low-income individuals receiving regular preventative or primary care (Lazar and Davenport, 2018).

The land use characteristics of the suburbs and lack of alternate transportation options may necessitate the purchase of a private vehicle, yet many low-income and racial/ethnic minorities are unable to attain vehicle ownership. In a study of household travel survey data in California, Brown (2017) found that 79 percent of households without a car did not own a car due to economic or physical (e.g., health/age related reasons, cannot drive) constraints. These households were lower-income and more likely to be non-white compared to households with a car and compared to households without a car that chose to be "car-free", i.e., did not own a car for environmental reasons or were able to use other transportation modes instead.

Meanwhile, for low-income households that do have a car, the expansion of subprime lending in auto loan markets since 2008 has played a role in the rise of automobile debt. Since 2009, the amount of auto debt in the U.S. has increased by 75 percent and in 2016, subprime lending made up 26 percent of all auto loans (Cross et al., 2019). Through stakeholder interviews, a qualitative study of subprime auto

lending in Los Angeles found that the subprime loan industry was able to create even more demand for these auto loans through the desperation of low-income individuals who needed access to a car. Interviewees stated that the most vulnerable populations of borrowers included racial/ethnic minorities, women, and young adults buying a car for the first time (Pollard et al., 2020).

Methodology Our methodology is summarized in Figure 1. To select our case study area and study population, we reviewed policy documents and prior research on suburban poverty to identify our population of interest. We used U.S. Census data to identify high-poverty regions in the Bay Area. We then conducted an online/paper survey and selected 25 survey respondents for further in-depth interviews.

Case selection and study population
- Reviewed policy documents to define population of interest
- Used U.S. Census data to identify high-poverty regions of the Bay Area

Online/paper survey (n=208)
- Developed online and paper survey, translated into Spanish
- Identified community-based organizations and public agencies to help distribute survey
- Identified locations to distribute paper survey or flyers with QR code for online survey
- Survey collection February–May 2022
- Conducted commute characteristic and transportation expenditure analysis

In-depth interviews (n=25)
- Developed interview guide in English and Spanish
- Contacted survey respondents who indicated they were interested in participating in interviews to schedule interviews
- Conducted interviews in person or over phone/video call April–July 2022
- Transcribed interviews
- Coded interviews with flexible coding process using Atlas.ti

Figure 1. Methodology overview

In our research, we use a modified version of the urban/suburban designation[4] from the Metropolitan Transportation Commission (MTC), the metropolitan planning organization (MPO) of the San Francisco Bay Area, which identifies core cities, suburbs, and rural areas based on population, employment, and transportation (Metropolitan Transportation Commission, 2014). We use this suburban/urban definition because it reflects the planning and policy priorities of our study region. Under this definition, we select suburban Contra Costa County as our study site, specifically Richmond, San Pablo, Antioch, Concord, and Pittsburg, which have high concentrations of poverty. The poverty rates of suburban Public Use Microdata Areas (PUMAs) are shown in the map in Figure 2. PUMAs are areas

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[4] Prior research has used a range of definitions to delineate urban and suburban areas. For a more detailed explanation, see Appendix A.

defined by the U.S. Census Bureau and are the highest geographic resolution available in the PUMS of American Community Survey data.

Percent of suburban residents below federal poverty line, 2021 PUMS

Highest Suburban Poverty Rates

PUMA Name	County	Federal Poverty Rate
Richmond & San Pablo	Contra Costa	15.1%
Antioch	Contra Costa	13.9%
Santa Rosa	Sonoma	10.5%
Vallejo & Benicia	Solano	10.4%
Pittsburg & Concord	Contra Costa	10.1%
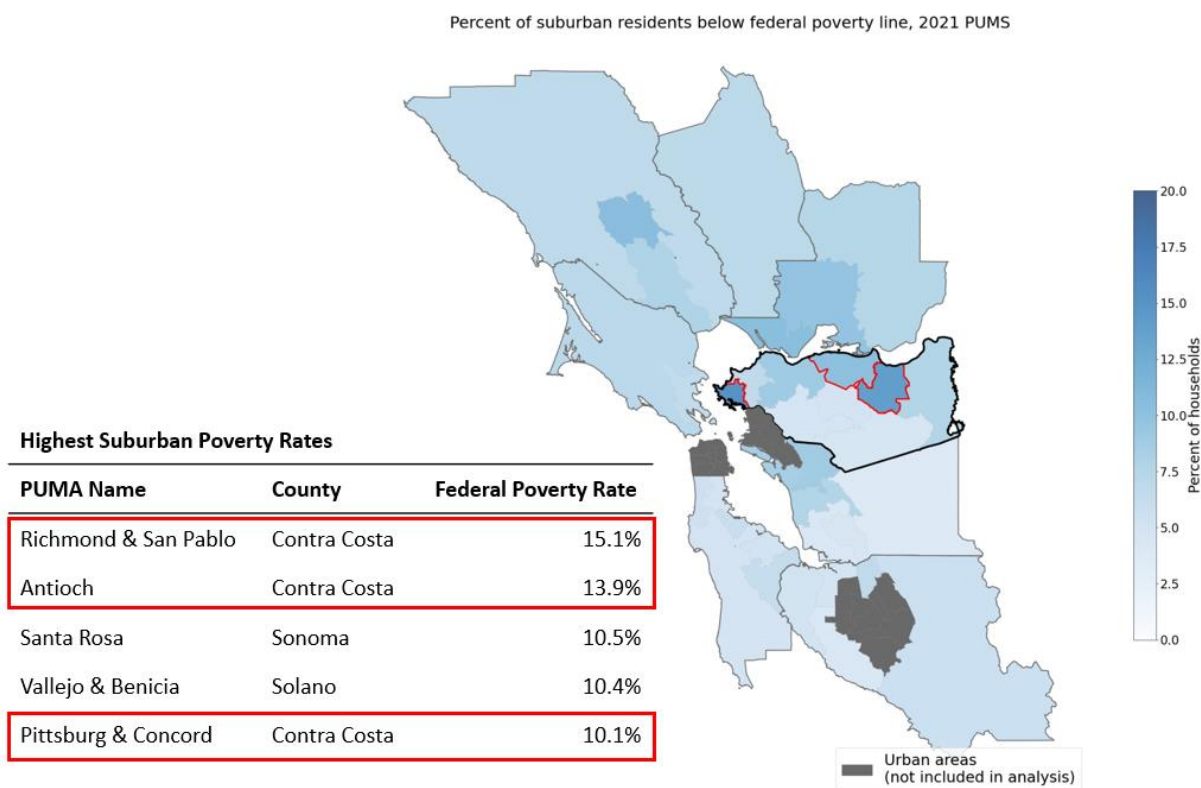
Figure 2. Poverty rate of suburban PUMAs in the San Francisco Bay Area

We define our population of interest using the broader "low- and moderate-income" designation to capture households who are above the poverty line but still struggle with the high cost of living in the Bay Area. The Department of Housing and Urban Development (HUD) sets income limits based on Area Median Income (AMI), with low-income families defined as those with a household income less than 80 percent of the AMI and very low-income families earning less than 50 percent of the AMI. We use a similar definition of low-income in this research. From the 2021 ACS Five-Year estimates, the AMI of Contra Costa County was $110,455, and 80 percent of the AMI was $88,364. In our research, we define low-income based on a household income threshold of $75,000 to align with ACS income categories. We also limit our study sample to individuals between the ages of 30 and 70. By excluding adults under the age of 30, we aim to remove college or graduate students and young adults who may be receiving financial assistance from their family and who may be moving more frequently compared to the general population. We also exclude adults over the age of 70 to capture more individuals who are currently in the labor force.

Our analysis includes four key components: 1) PUMS data analysis; 2) online/in-person survey (n = 208); 3) in-depth phone, video, and in-person interviews (n = 25); and 4) comparison to a similar

dataset of low-income Oakland residents collected in 2020 and 2021. These are explained in further detail below.

PUMS data analysis

PUMS data are a sample of anonymized individual responses to the American Community Survey (ACS) conducted by the U.S. Census Bureau. We use PUMS data from the 2021 Five-Year ACS estimates, which were the most recent dataset available at the time of our analysis (Ruggles et al., 2022). Because PUMS data are individual responses to the ACS, researchers can create more detailed cross-tabulations than ACS data, for example, commute modes of low-income individuals in different geographic regions. In our research, we analyze housing, transportation, and socioeconomic variables of all Contra Costa residents and the population of Contra Costa residents who would be eligible to participate in our study (i.e., household income less than $75,000 and between the ages of 30 and 70). We refer to these two groups throughout this report as "all Contra Costa residents" and "working age LMI Contra Costa residents."

Online/in-person survey

We distributed a 10-15-minute-long survey in English and Spanish with questions about current housing and neighborhood characteristics, housing location choice, transportation use, and perceived accessibility through in-person tabling events and online channels. Eligible respondents were individuals between the ages of 30 and 70 currently residing in Contra Costa County with a household income of less than $75,000. For in-person surveying, we conducted intercept surveys at three BART stations in the highest poverty areas in Contra Costa County (Richmond, Pittsburg Center, and Concord) and other public transit centers serving Contra Costa County (e.g., Hercules Transit Center). Other in-person events included tabling at libraries in Richmond, San Pablo, and Concord. From February to March 2022, members of the research team, consisting of nine graduate and two undergraduate students, approached riders at these stations and patrons entering and exiting the library and either handed out flyers containing a QR code linked to the online survey or distributed paper surveys to individuals who passed a series of three screener questions (age, city of residence, and household income). On average, the response rate from in-person surveying was between 10-20 percent at transit centers, between 60-70 percent at library tabling sessions, and about 10 percent from flyers.[5] To distribute the online survey, we collaborated with community-based organizations (CBOs), public transit agencies, and social services organizations to advertise the survey through email lists, flyers, and social media and website posts. Survey respondents received a $10 gift card for completing the survey with an additional drawing with a one in 20 chance of receiving a $50 gift card.

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[5] Response rate for surveys is calculated as the number of people who filled out the survey divided by the number of people approached. Response rate for flyers is calculated as the number of people who filled out the survey divided by the number of flyers distributed.

A summary of data we collected from the surveys is shown in Table 1. The full survey questionnaire is in Appendix C.

In-depth interviews

From the survey respondents, we selected 25 respondents to conduct further in-depth semi-structured interviews. We selected respondents to represent a range of demographic, housing, and transportation characteristics (e.g., renters vs. owners, former residents of urban areas, car owners vs. non-car owners, etc.). We interviewed the majority of respondents in person, though we conducted phone and video interviews for respondents who requested them. We conducted 16 interviews in English and nine interviews in Spanish. In the interviews, we asked more detailed questions around decisions to move, factors prioritized when moving, and "grand tour" questions that prompted respondents to provide detailed accounts of their daily travel patterns, including the trade-offs between transportation modes considered, key destinations that interviewees need to reach, and perceptions of their accessibility and built environment. Interviewees each received a $50 gift card upon completion of the interview. We refer to interviewees throughout this report using pseudonyms to preserve anonymity.

A summary of data we collected from the interviews is shown in Table 1. The full interview guide is in Appendix C.

Oakland dataset

To evaluate whether the housing and transportation choices of low-income individuals differ between urban and suburban areas, we use a comparison dataset of low-income Oakland residents collected in 2020 and 2021. The findings from this prior research are shared in more detail in Pan and Shaheen (2021). The primary datasets taken from the Oakland research are an online survey conducted from August to September 2020 (n = 140) and in-depth phone/video interviews conducted from September 2020 to February 2021 (n = 31).

In the Oakland project, we defined "low-income" as individuals who are rent burdened, i.e., spend more than 30 percent of their income on rent. To better compare the results with our research on Contra Costa, which defines low- and moderate-income as households earning an annual income of less than $75,000, we present findings from the Oakland research including only respondents who have a household income less than $75,000.

A summary of data collected from the surveys and interviews is shown in Table 1. Note that the survey and interview questions that were the same for the Oakland and Contra Costa surveys are shown in bold.

Table 1. Summary of survey and interview questions

Category	Questions
Online Survey	
Housing and migration	**Current residence (cross streets)**, number of moves in past five years, other cities lived, previous residence in urban area, reasons for moving out of urban area, priorities during <u>last</u> move, **home ownership**, number of bedrooms, **housing costs**
Transportation	**Car access**, reasons for lacking car access in past year, **frequency of use of different transportation modes**, work location, time of departure for work, mode used to access non-work location, days/times usually traveling to non-work location, perceived accessibility
Demographics	**Gender, age, race/ethnicity, languages spoken at home, educational attainment, number of household members, relation of household members**, disability status, **household income**
In-Depth Interviews	
Housing and migration	Pros and cons of current neighborhood, **reasons for moving from previous residence**, other places considered when moving, whether respondent is considering moving out of current residence, reasons for moving out of urban area (if applicable)
Transportation	**Typical workday routine, typical non-workday routine, what modes are used if primary transportation mode is unavailable**, places to shop for food, **any places respondents wanted to go but could not due to transportation or other barriers**, most difficult or frustrating moments with transportation in daily routine, the **respondent's experience while driving, the respondent's experience while taking public transit**, what a respondent's transportation patterns would look like with/without car (if applicable), **estimate of transportation expenses by mode**

Note: bolded items refer to survey and interview questions that were common between the Oakland and Contra Costa studies.

Study Limitations

This study has several limitations. Our survey and interviews were conducted in English and Spanish, but a portion of low-income individuals in the study areas speak Chinese and Tagalog (approximately 3.2% and 2.7% of survey-eligible residents). Our research may not represent the unique challenges that these residents face. We also focus on a single geographic area, Contra Costa County, which contains suburbs in the San Francisco Bay Area. The findings from our research are specific to this

region, and research conducted in the suburbs of other metropolitan areas may find different results. Our survey and interview recruitment methods do not result in a true random sample, but instead this a convenience sample. Finally, our study population includes both low- and moderate-income individuals, but our analysis does not distinguish between very low-income individuals earning less than $35,000 or $50,000 from those earning up to $75,000. Future research could explore the nuances of different income tiers of low- and moderate-income individuals in more detail.

Results and Discussion

Our findings are organized in the following sections: 1) overview of survey respondent demographics; 2) detailed socioeconomic characteristics of working age LMI Contra Costa residents; 3) housing characteristics and location choice; and 4) transportation use and accessibility. We also include personas throughout this section as interviewees who represent different types of LMI suburban residents.

Overview of survey respondent demographics

An overview of the socioeconomic, housing, and transportation characteristics of online and paper survey respondents compared to working age LMI Contra Costa residents are shown in Table 2 and Table 3. The working age LMI population comprises approximately 16 percent of the total population of Contra Costa County. The major differences between our survey sample and the working age LMI population in Contra Costa County are: ethnicity (more survey respondents are Hispanic/Latino), income (more survey respondents have a household income less than $15,000); home ownership (more survey respondents are renters); and car ownership (more survey respondents do not have a personal vehicle). The higher percentage of Hispanic/Latino respondents is a result of our focusing survey recruitment on cities with a large population of Hispanic/Latino residents (for example, 60.3 percent of San Pablo residents are Hispanic/Latino, compared to just 30.1 percent of survey-eligible residents across all cities in Contra Costa County). Differences in income might be due to our inclusion of a "prefer not to answer" option that was selected by 15.5 percent of survey respondents. The large percentage of survey respondents without a vehicle might be a result of our survey recruitment through public transit agencies, which would bias the sample toward more frequent public transit users who have lower rates of vehicle ownership (for a summary of survey responses from each recruitment source, see Appendix B). Meanwhile, the difference in home ownership rate could be a result of the option in our survey, "Staying with friends or family," which is not an option in the ACS, and was selected by 12.6 percent of survey respondents.

We will discuss survey respondent and working age LMI Contra Costa resident characteristics in more detail in the following sections. Detailed demographics for interviewees are shown in Appendix D.

Table 2. Summary of socioeconomic characteristics of survey respondents

Characteristic	Contra Costa (Working Age LMI)	Survey Sample	Characteristic	Contra Costa (Working Age LMI)	Survey Sample
Gender	N = 188,154	N = 208	Income (Households, $ US)	N = 118,442	N = 200
Male	46.8%	37.0%	Less than $10,000	5.1%	7.0%
Female	53.2%	61.5%	$10,000 - $14,999	5.1%	6.5%
Non-binary	NA	1.0%	$15,000 - $24,999	9.0%	11.0%
Age	N = 188,154	N = 191	$25,000 - $34,999	15.3%	25.0%
Under 30	0.0%	0.0%	$35,000 - $49,999	23.1%	18.5%
30 - 34	15.3%	23.6%	$50,000 - $74,999	41.7%	15.5%
35 - 44	25.3%	33.5%	More than $75,000	0.6%	1.0%
45 - 54	21.9%	21.5%	Prefer not to answer	NA	15.5%
55 - 64	23.5%	14.1%	Education	N = 188,154	N = 205
65 - 70	13.9%	6.8%	Did not complete high school	20.1%	14.1%
Over 70	0.0%	0.0%	High school graduate	25.0%	16.6%
Race/Ethnicity	N = 188,154	N = 201	Some college	22.0%	19.5%
White/Caucasian	35.6%	28.8%	2-year college degree	8.4%	14.1%
Hispanic or Latino	32.9%	42.2%	4-year college degree	16.7%	20.0%
Black/African American	11.9%	14.4%	Graduate degree	7.6%	12.2%
Asian	15.1%	6.5%	Employment	N = 188,154	N = 210
Other	4.5%	6.5%	Employed	56.7%	59.5%
Prefer not to answer	NA	0.5%	Unemployed / not in labor force	43.3%	38.1%
Household Size	N = 118,442	N = 197	Number of children	N = 118,442	N = 210
1 person	55.1%	14.2%	None	60.0%	51.0%
2 people	38.5%	21.3%	1 child	17.3%	18.1%
3 people	4.7%	19.3%	2 children	13.4%	17.6%
4 people	1.2%	21.8%	3 or more	9.4%	13.4%
5 or more	0.4%	23.4%			

Note: Contra Costa Working Age LMI values taken from PUMS ACS 2021 5-year estimates. Demographics with largest differences in grey.

Table 3. Summary of housing and transportation characteristics of survey respondents

Characteristic	Contra Costa (Working Age LMI)	Survey Sample	Characteristic	Contra Costa (Working Age LMI)	Survey Sample
Housing Characteristics					
Home ownership	N = 118,442	N = 206	Housing cost	N = 118,442	N = 204
Own	47.8%	18.4%	Less than $300	5.4%	8.8%
Rent	52.2%	59.7%	$300 - $499	4.8%	4.9%
Staying with friends/family	NA	12.6%	$500 - $799	7.4%	8.3%
			$800 - $999	5.4%	9.8%
Housing tenure	N = 118,442	N = 207	$1,000 - $1,499	17.5%	18.6%
Less than 5 years	34.8%	62.8%	$1,500 - $1,999	21.0%	17.2%
			$2,000 - $2,499	17.4%	12.3%
Number of bedrooms	N = 118,442	N = 201	$2,500 - $2,999	9.1%	5.4%
Studio	4.1%	4.5%	More than $3,000	12.1%	0.0%
1-bedroom	13.2%	9.5%	Prefer not to answer	NA	9.8%
2-bedrooms	29.1%	37.8%			
3-bedrooms	33.2%	29.9%			
4 or more	20.4%	18.4%			
Transportation Characteristics					
Car ownership	N = 118,442	N = 203	Typical departure time for work	N = 117,797	N = 95
No car	6.6%	27.1%	Midnight - 7 am	42.8%	24.2%
At least one car	93.4%	72.9%	7 am - 10 am	39.2%	40.0%
			10 am - 3 pm	11.4%	9.5%
Avg. commute time (min)	N = 106,768	N = 95	3 pm - 7 pm	4.7%	5.3%
Commute time (min)	31.4	39*	7 pm - midnight	1.9%	1.0%
			It varies	NA	16.8%

Note: Contra Costa Working Age LMI values taken from PUMS ACS 2021 5-year estimates. Demographics with largest differences in grey.
* Average based on driving time during off-peak

Socioeconomic characteristics of working age LMI Contra Costa residents

In this section, we use PUMS data to compare the population of working age LMI Contra Costa residents with all Contra Costa residents to indicate how LMI residents between the ages of 30 and 70 differ from the county average. We also compare our sample of survey respondents to all working age LMI residents in Contra Costa County.

Based on PUMS data from 2021, the median household income in Contra Costa County is approximately $110,455 and 37.8% percent of households have an annual income less than $75,000. In the Contra Costa working age LMI population, approximately 35 percent earn an annual income less than $35,000, 23.1 percent earn between $35,000 and $50,000 per year, and 41.7 percent earn $50,000 to $75,000 per year. Our survey sample is lower income than the overall working age LMI population, with more survey respondents earning less than $35,000 (nearly 50 percent of the survey sample) and significantly fewer respondents with an income between $50,000 and $75,000 (15.5%).

Compared to all Contra Costa residents, we find that a higher percentage of working age LMI Contra Costa residents identify as Black/African American and Hispanic/Latino and a lower percentage identify as White/Caucasian or Asian (Figure 3). This indicates that low-income Contra Costa residents between the ages of 30 and 70 are more racially and ethnically diverse compared to the average Contra Costa resident.
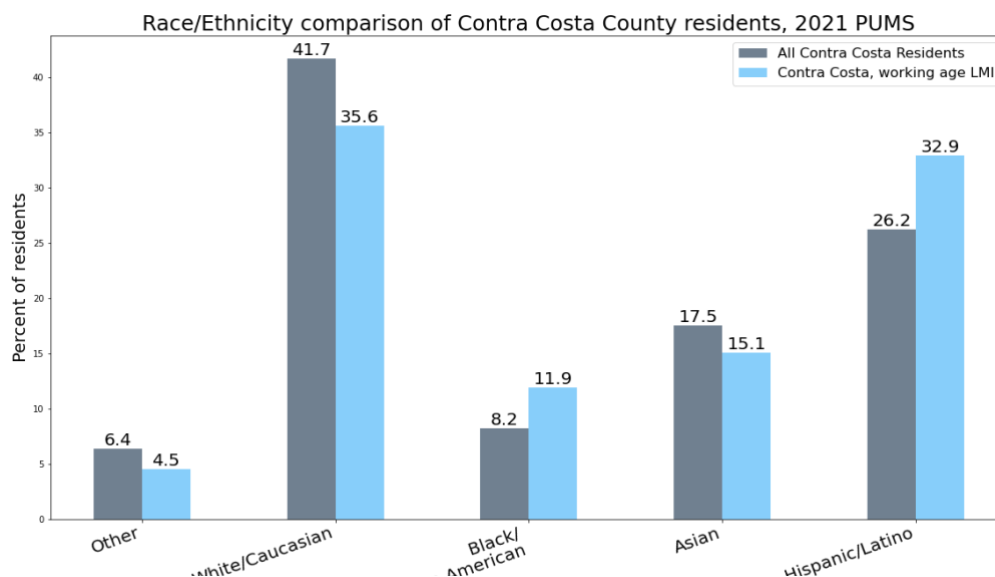
Figure 3. Comparison of race/ethnicity of working age LMI Contra Costa residents vs. county average using 2021 PUMS data

Compared to the overall working age LMI population in Contra Costa, our survey sample had a higher percentage of Black/African American respondents (14.4%) and Hispanic/Latino respondents (42.2%) and fewer White/Caucasian (28.8%) and Asian (6.5%) respondents. This is because the areas we

conducted our surveying (e.g., Richmond, Antioch) had higher concentrations of Black/African American and Hispanic/Latino residents. For example, the working age LMI population of Richmond is 49 percent Hispanic/Latino, compared to the working age LMI population of Contra Costa as a whole which is just 30.1 percent Hispanic/Latino.

The average household size of working age LMI Contra Costa residents is 1.5 household members and 40.0 percent of these households have children living at home. Our survey had more households with children compared to low-income Contra Costa residents, as 49 percent of respondents reported having a child in their household. The overall average household size of survey respondents was larger, with 3.2 household members.

Housing characteristics

Less than half of working age LMI Contra Costa residents own their home (47.8%), compared to 66.9 percent of all Contra Costa households. In our survey sample, an even smaller percentage of respondents own their homes (18.4%) while 59.7 percent of respondents are currently renting a house or apartment. We also included an option for staying with friends or family, which represented 12.6 percent of survey respondents.

Renters tend to have shorter housing tenures compared to owners. Within the working age LMI Contra Costa population, 49.3 percent of renters have lived in their current residence for less than five years, compared to 18.9 percent of owners. Hardly any renters are there for the long term; 11.7 percent of owners in the working age LMI population have lived in their current residence for more than 30 years, compared to 1.1 percent of renters.

We did not have a housing tenure question in the survey but we did ask respondents how many times they had moved in the past five years. Our survey sample experienced more frequent moves compared to the Contra Costa average; only 37.2 percent of respondents said that they had not moved in the past five years, corresponding to a housing tenure of more than five years.

Figure 4. Typical single-family home in the neighborhood of interviewees, Richmond, CA (Photo by Frida Calvo Huerta)

Housing stock characteristics also differ between urban and suburban areas and between the different suburban areas of our study. From 2021 PUMS data, in Oakland, the closest urban area to Contra Costa County, 32.3 percent of households live in single-family homes compared to 67.9 percent of Contra Costa households. We find that the suburbs closer to urban areas have fewer households living in single-family homes. For example, in Richmond, which is located about ten miles from Oakland, 56.5 percent of households live in single-family homes, while in Antioch, about 35 miles from Oakland, 76.3 percent of households live in single-family homes. As a result, renters in suburban areas are more likely to be renting single-family homes compared to renters in urban areas. Only 16.5 percent of Oakland households with an annual household income less than $75,000 rent a single-family home while 30.7 percent of working age LMI Richmond households and 46.8 percent of working age LMI Antioch households rent single-family homes. This finding is relevant because rent control measures do not always apply to single-family homes (see, for example, AB 1482, the California Tenant Protection Act of 2019[6]).

Current housing costs

Prior literature on low-income populations in suburban areas has found that some of these households have been priced out of city housing markets and look to the suburbs for cheaper housing (Kneebone and Berube, 2013). Our analysis of housing costs in the PUMS data[7] for our study area finds that instead, LMI households are paying similar amounts in suburban and urban areas. We use San Francisco and Oakland as the two major urban areas closest to Contra Costa County to compare housing costs and find that, on average, households in San Francisco pay about $2,624 and households in Oakland

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[6] https://sfrb.org/article/summary-ab-1482-california-tenant-protection-act-2019
[7] This analysis combines housing costs for renters and owners. We use renter costs reported in PUMS data which include costs for utilities (e.g., water, electricity, gas). Costs for homeowners include mortgage payments, real estate taxes, insurance, and utilities.

pay about $2,234 per month in housing compared to $2,491 per month in Contra Costa. LMI households in San Francisco and Oakland also pay similar amounts for housing ($1,832 and $1,658 per month respectively) compared to LMI households in Contra Costa ($1,848 per month).

These findings were reflected in our survey data analysis. We compared the reported housing costs of survey respondents with the housing costs from a previous survey conducted with rent burdened Oakland residents in late 2020 (Figure 5). The overall distribution of housing costs is very similar between the two samples, though there were more respondents in Contra Costa County reporting housing costs of less than $300 per month.[8] The median monthly housing cost for both samples is $1,000-$1,500.
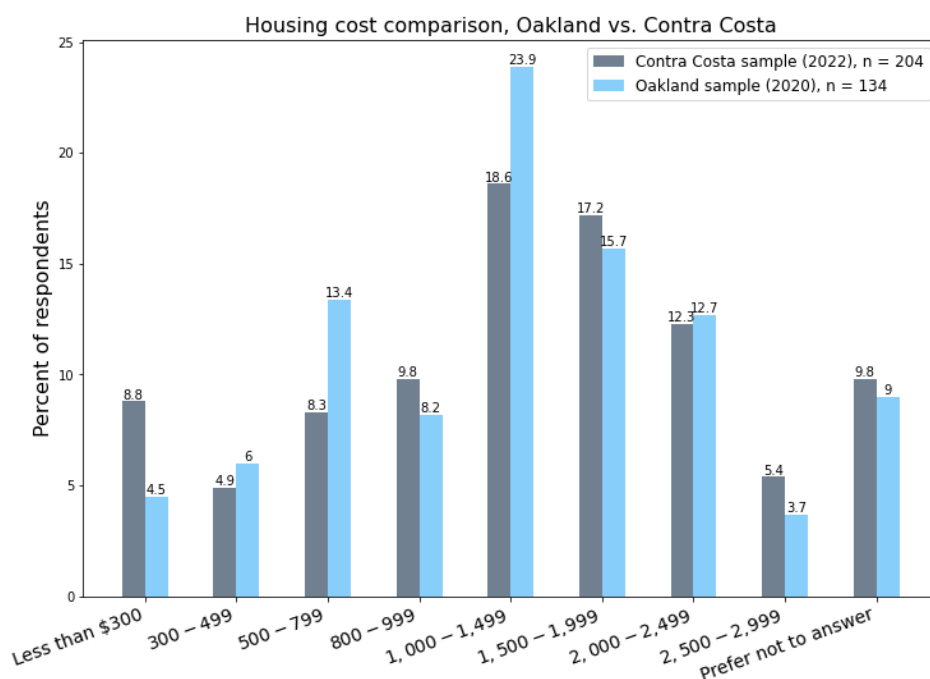
Figure 5. Reported monthly housing costs of low-income Oakland and Contra Costa County residents

While it may seem counterintuitive that housing costs are similar, or in some cases even higher, in suburban areas and urban areas, we do find that the per-bedroom cost of housing is lower in suburban areas. In Contra Costa, the average cost per bedroom is $919 per month, compared to $1,494 per month and $1,157 per month in San Francisco and Oakland respectively. The same is true for LMI households, who pay $822 per month per bedroom in Contra Costa and $1,076 and $966 per month per bedroom in San Francisco and Oakland. The average number of bedrooms is therefore higher for Contra Costa households (2.6) than San Francisco (2.0) and Oakland households (2.0). In our survey analysis, we also found survey respondents had an average of 2.5 bedrooms in their home or

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[8] Among the 18 respondents who are paying less than $300 per month in rent, four of the respondents are homeless, two respondents are homeowners, and ten are renters. Remaining respondents did not share their ownership status.

apartment. Thus, LMI households may be moving to suburban areas not just in search of lower housing costs, but a combination of lower housing costs and larger home/apartment size. This finding aligns with our analysis of household size from PUMS data that found that residents in Contra Costa County have larger households than residents in Oakland.

Housing location choice

In our survey and interviews, we included housing location choice questions to understand why LMI households are moving to suburban areas. In our survey sample, one-third of respondents had previously lived in an urban area, including San Francisco, Oakland, Berkeley, and San Jose.[9] The most common reasons for leaving an urban area were wanting cheaper housing (51% of respondents who previously lived in an urban area), wanting to purchase a home (32.9%), wanting better quality housing (30%) and lifestyle change, such as relationship formation/dissolution or having children (27%).

> "[When we were deciding to move out of Berkeley], we had never heard of Antioch, whatsoever. We knew about Pittsburg and Bay Point, but never Antioch. And [Antioch] just happened to be where my mother could have a place where we could grow and have a decent house."
>
> - Shawn, 31, describing his family's move from Berkeley to Antioch

Of the 25 interviewees, six had previously lived in San Francisco, Oakland, or Berkeley. For lower income respondents (i.e., respondents with an annual household income less than $50,000), their move to the suburbs was initially due to wanting cheaper housing. However, after spending some time in suburban areas such as Pittsburg and Concord, they found that the environment was better for raising children. Alicia grew up in Oakland and later moved to Pittsburg because it was more affordable, she shared: "Oakland is like, really violent. And I mean, yeah, I could hang with them …. But once I got out here [to Pittsburg] and started experiencing more of the neighborhoods … then I started knowing which neighborhood might be suitable for what I'm trying to do, which is raise kids." This sentiment was echoed by all four interviewees who have children and previously lived in an urban area. Sarah was concerned about exposing her children to an unsafe environment in Oakland and wanted to move somewhere more "family-oriented" and with a "suburb-y feel." For her, Concord was a happy medium where her children could play outside in parks and had close access to museums and cultural attractions in Oakland, without being in the "farmland" of Antioch, Oakley, or Brentwood. Similarly, Shawn was born in Berkeley but when he and his siblings started getting older, his mother wanted to find a place where the kids would have more space to grow up, eventually settling on Antioch where she could afford to buy a house.

Like Shawn's mother, two interviewees who were moderate-income (i.e., annual household income between $50,000 and $75,000) left San Francisco and Oakland because they wanted to buy a home and could not afford home ownership in those cities. In their housing search, these interviewees were

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[9] Among the 74 respondents who had previously lived in an urban area, 33 had lived in San Francisco, 29 in Oakland, 16 in Berkeley, 3 in San Jose, and 4 did not specify. Note that respondents could select more than one option.

largely driven by where they could find an affordable home. Jennifer looked in Union City and Fremont, two areas that were closer to her church and her workplace in Oakland, but ultimately settled in Antioch. About her housing search, she said: "I was really trying to move towards Union City, Fremont but you know, when you qualify for home, you have to kinda go where your money could provide."

Persona 1: Jennifer, trading off home ownership and a long commute

Jennifer lives in Antioch and works in an administrative role at a healthcare office in Oakland. She previously lived in Oakland and wanted a more suburban environment to raise her son. During her housing search, she considered homes in Union City and Fremont but could only afford to buy in Antioch. She tried unsuccessfully to transfer offices and work closer to home but her request was denied. She has a car of her own, which she occasionally shares with her son, but prefers to take public transit to get to work since her employer provides pre-tax commuting benefits. However, Jennifer said she needs the car for grocery shopping and visiting her mother who lives in Vallejo.

As a frequent public transit rider, Jennifer is strict about following the bus schedule: "I kind of got [the bus schedule] down pat. I know that the 380 comes at 6:34, the 384 westbound comes about 6:35…"

Figure 6 BART train as seen from highway near Antioch, CA (Photo by Frida Calvo Huerta)

A day in the life…

Time	Description
6:15 am	Jennifer departs her home around 6:15 am every morning. She walks about three blocks to get to the bus stop where she can get on one of two buses to get to the Antioch bus station. Some mornings, if the bus is delayed or if she doesn't feel like walking to the bus stop, Jennifer can use My Ride, a new microtransit service offered through Tri Delta Transit. On these days, she books her trip through the My Ride app and gets picked up at her door.
6:30 am	Jennifer arrives at the BART station about 20 minutes before the train arrives. She makes sure to build in some extra time in case she encounters any delays with the bus or My Ride.
6:50 am	The BART train arrives and Jennifer gets on, greeting some other fellow commuters who she sees on the train almost every morning.
7:50 am	Jennifer arrives at her stop in Oakland and walks a short distance to work. If she has time before her shift starts at 8, she stops by the grocery store to grab some essentials for dinner that she keeps in the break room refrigerator.
5:00 pm	Jennifer clocks out of work and starts the journey home in reverse, getting home around 6:30 pm.

Affordability is not the only challenge for renters

Rising housing costs in urban areas have led some researchers to speculate that displacement of low-income urban households is a significant factor in the increase in suburban poverty (Kneebone and Garr, 2010). However, several interviewees who previously lived in urban areas spoke about housing challenges not just in the amount of rent they had to pay every month, but because of credit scores or income requirements. Nine interviewees discussed difficulty finding housing for these reasons, including some who moved from the urban areas of Berkeley and Oakland, as well as some experiencing these challenges in suburban cities such as Richmond and Antioch. As Sandra found out, landlords in Oakland began requiring that prospective residents have a monthly income that was three times the rent: "Even though they're charging $2,000, you need to make $6,000. It's like, look, I'm barely making the $2,000 … but that's the terms."

> "I've seen a lot of things being implemented, growing up in Oakland […] [It's gotten to the point] where, not only is it impossible to pay rent, but even if you did have the money, nine times out of ten, you still won't get approved, because of something as simple as your credit score."
>
> *- Sandra, 36, Pittsburg resident*

Strict rental requirements were a significant issue for many Spanish-speaking interviewees; four of the nine Spanish-speaking residents we interviewed said that not having a previous credit or rental history, having bad credit, or not having a Social Security number made it difficult to find housing. Some interviewees were able to circumvent these requirements through family or social networks. For example, Alegria initially immigrated from Mexico to Lodi, California, where she and her husband worked on a ranch. After the owner of the ranch passed away, they struggled to find another place to live because they did not have a rental history. Luckily, through family connections they were able to move to San Pablo: "I didn't know that to move to these places that are more expensive, you need a rental history … but the owner of the apartment was my husband's cousin. He believed we could pay. We didn't give our credit, he didn't say anything, just our word. And it was this way he rented to us." Other interviewees who were not so lucky instead experienced periods of housing instability and even homelessness while conducting their housing search.

Housing instability

LMI Contra Costa residents are not immune to the housing issues experienced in urban areas, such as housing instability and homelessness. Five interviewees had previously experienced homelessness while living in suburban areas; two interviewees were in Antioch, two in Richmond, and one in Livermore.[10] Four of these interviewees were displaced from their residence (e.g., through the owner selling the residence or wanting to move in, or sudden rent increases) while one became homeless after losing the family home in foreclosure. Three interviewees were able to stay with friends or family while searching for a new apartment, while two interviewees lived out of their car or on the street.

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[10] Livermore is an Alameda County city on the eastern edge of the San Francisco Bay Area with a population of about 87,000 people.

Overall, three interviewees had experienced foreclosure, either their own home or their family's home. Ella lost her home but was able to move into another home she inherited from a family member. For two interviewees, the foreclosure led to several years of housing instability and homelessness before getting into Section 8 housing or finding a suitable room for rent through friends. Their experiences with foreclosure and the resulting instability gave them a negative perspective on home ownership. Beatriz, whose family lost their home during the market crash in 2008, said: "I just see owning a home as so complicated. I still have that feeling where it can be taken away, if the market crashes, because you still owe the bank for so long." Similarly, Elliot's family also lost their home in the mid-2000s; he has thought about home ownership but said he does not have the credit to even try and would still worry about making mortgage payments and potentially losing the house.

Renters who face frequent and sudden moves confront additional challenges. Two interviewees cited significant financial burden associated with moving into a new apartment; on move in, apartments often charge the first and last month's rent plus a security deposit.[11] For example, Maribel wants to move out of the three-bedroom house she rents in Hercules to somewhere safer and less drug-stricken. But for a similar sized house, also with a rent of $3,000 per month, she would have to budget close to $9,000 to cover all the move in costs. Also facing pressure to move was Teresa, who was given 30 days' notice after her landlord decided to sell the house she was renting with her husband and three children in Richmond: "we were both looking, but mostly me, because he goes to work and all the time I had, I would look. I was like crazy looking." She was luckily able to find an apartment within 20 days, but in a neighborhood that she considered more violent than her previous neighborhood. Since she moved, there have been two shootings in her neighborhood, including an incident that put three bullets in her car window. When asked if she was considering moving again, she said no: everywhere else was too expensive.

Rising rents

Housing instability will undoubtedly continue to be an issue in the future, as the theme of rising rents was present in many interviews with suburban residents. Alyssa used to live in Richmond and moved to Pittsburg five years ago because it was cheaper at the time. However, she has noticed rents getting higher in Pittsburg in recent years. Alicia had a similar experience with high rents in Richmond. Within our main study sites of Richmond, Concord, Pittsburg, and Antioch, Richmond is the only area with rent control, a measure that was enacted in late 2015. Alicia says that her family was displaced right around the time the rent control law was passed because the landlord wanted to increase the rent; in 2016, she paid $1,300 for a three-bedroom apartment and the rent increased to $2,600 after she was displaced. She and her family spent a few months staying with different family members before she was able to find a cheap one-bedroom apartment for herself and her son in Richmond in 2017.

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[11] Even though interviewees could use the security deposit they paid for their previous apartment to cover move-in fees for a new apartment, some landlords are slow to return the deposit or may not return the full amount, citing wear and tear. Two interviewees in our sample (Teresa and Selina) had landlords take money out of their security deposits for wear and tear.

Rent control may have eased the housing burden for some residents, but in Richmond it is limited to multi-unit properties and 29 percent of low-income households rent single-family homes. Alegria, who rents a three-bedroom single-family home in San Pablo, saw her rent raised from $1,950 to $2,400 per month just before the COVID-19 pandemic in 2020. Her rent remained stable throughout the pandemic, and then in May 2022, she received notice that the rent was increasing again to $2,700 per month. After this experience, she said: "I began to research and to be in advocacy and I have realized how disastrous the situation is, because that is why there are families living on the street, and the fear is that I am the next. Either you feed your kids or pay the rent."

Interviewees in other suburban areas also expressed concerns about housing affordability and instability. Selina currently rents a home in Antioch, where she has lived for more than 12 years. However, she still worries about being displaced: "If tomorrow the landlord asks for the house, we are thinking of where to live because there are no cheap rents anymore. Not an apartment with one bedroom and a kitchen, they are already worth $2,000 [per month] up here [in Antioch] and supposedly this was cheaper." Antioch may have been affordable for Selina when she moved there a decade ago, but rising rents in recent years and lack of tenant protections such as rent control and just cause for eviction has made her fear for the future.

Transportation characteristics

In addition to home ownership, suburbs are also commonly associated with high levels of personal vehicle ownership and use. Based on 2021 PUMS data, 95 percent of all Contra Costa residents own at least one car (Figure 7). Within the working age LMI population, 93.4 percent own at least one car. However, on average, working age LMI residents have fewer cars per household compared to the county average, with 37.3 percent of residents having just one car in their household, compared to 27.6 percent of all residents. In our survey sample, a much higher percentage of respondents (27%) reported that they did not have access to a personal vehicle compared to the overall working age LMI population (6.6% in zero-vehicle households).
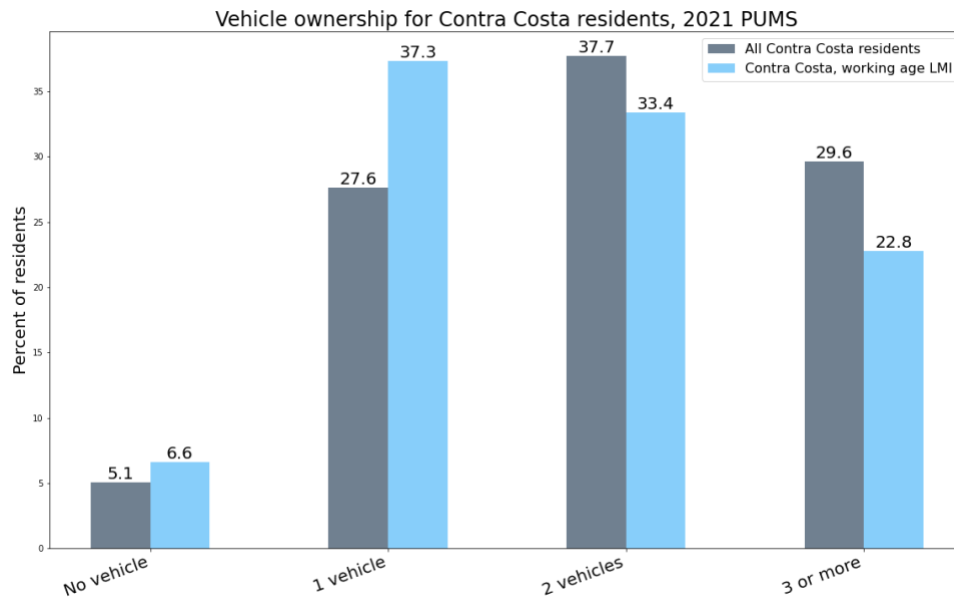
Figure 7. Vehicle ownership comparison, Contra Costa residents vs. working age LMI Contra Costa residents, using 2021 PUMS data.

Our analysis of commute mode using PUMS data indicates that commutes are dominated by driving. About 71% of all Contra Costa residents drive teo work, with slightly more of the working age LMI population driving to work (77%). The next largest mode share for all Contra Costa residents is work from home (13.9%) followed by heavy rail (i.e., Bay Area Rapid Transit, or BART) (5.3%). Fewer working age LMI residents take BART (3.6%) and work from home (8.1%). Compared to all Contra Costa residents, slightly more working age LMI residents take the bus (2.6% vs. 1.7% for all residents) and walk (1.5% vs. 1.3%) to work.

The average commute time for working age LMI residents is similar to the county average (around 31 minutes). Comparing only individuals who commute using public transit, the average commute time for working age LMI residents is slightly shorter (63 minutes vs. 64.2 minutes for all Contra Costa residents). Comparing only individuals who commute by driving, the average commute time for working age LMI residents is also slightly shorter (33.8 minutes vs. 35 minutes for all Contra Costa residents). Slightly fewer working age LMI residents have a commute time of less than 30 minutes (52.5%) compared to all Contra Costa residents (53.7%) (Figure 8).

Commute time comparison, 2021 PUMS
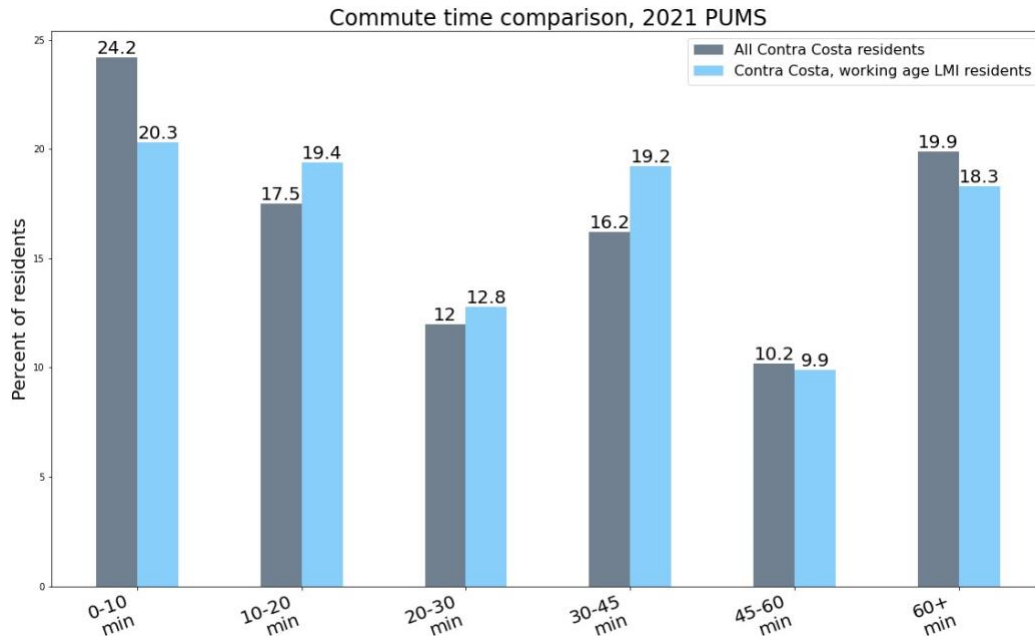
Figure 8. Commute time comparison, all Contra Costa residents vs. working age LMI Contra Costa residents, using 2021 PUMS data.

Contra Costa residents with a commute shorter than 30 minutes are less likely to take BART (0.3% of residents with a short commute, compared to 5.3% of all Contra Costa residents) and more likely to work from home (25.9% vs. 13.9%). Working age LMI residents with a short commute are also less likely to take BART (0.3% vs. 5.3% of all Contra Costa residents) and more likely to walk (2.5% vs. 1.3% of all Contra Costa residents).

There is also a significant percentage of all residents (19.9%) and working age LMI residents (18.3%) that have commutes longer than one hour. Contra Costa residents with a long commute are more likely to take public transit, including the bus (4.7% vs. 1.7% of all residents), BART (16.7% vs. 5.3% of all residents) and commuter rail (4.5% vs. 1.2% of all residents). Working age LMI residents with a long commute are also more likely to take public transit (7.8% take the bus and 12.8% take BART) and are slightly more likely to drive (74.5% vs. 71.2% of all residents).
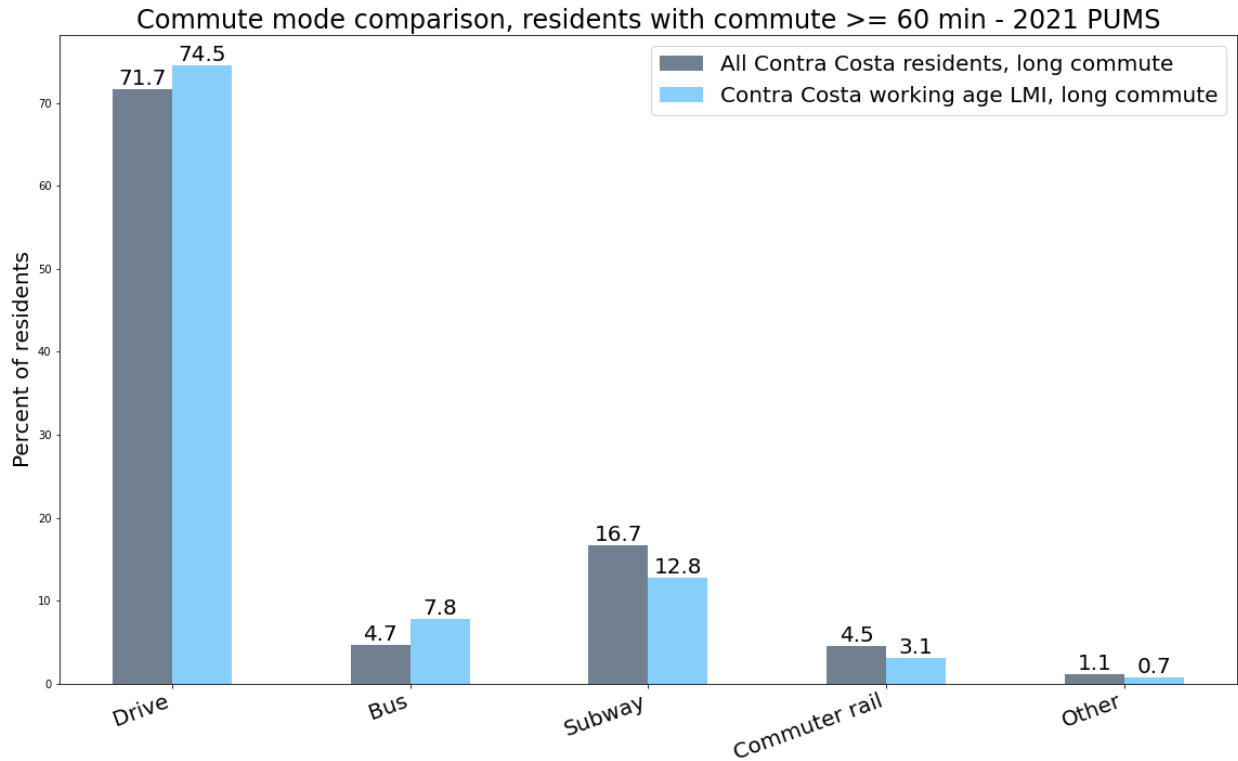
Figure 9. Commute mode comparison of long commuters, all Contra Costa residents vs. working age LMI Contra Costa residents, using 2021 PUMS data.

For all Contra Costa residents, those with a long commute have more cars per household compared to the county average, with 80.3 percent having two or more cars in their household. The same is true for working age LMI long commuters, with 64.8 percent of these residents having at least two cars in their household, compared to just 56.2% of working age LMI residents. Fewer working age LMI long commuters do not have a vehicle in their household (4.4%, compared to 6.6% of all working age LMI residents) (Figure 10). The vehicle ownership rate of working age LMI residents with a short commute is similar, as just 2.2 percent of working age LMI residents with a commute shorter than 30 minutes do not have a vehicle in their household. This suggests that while working age LMI long commuters are more likely to commute with public transit compared to short commuters, this is not because of lack of vehicle ownership.
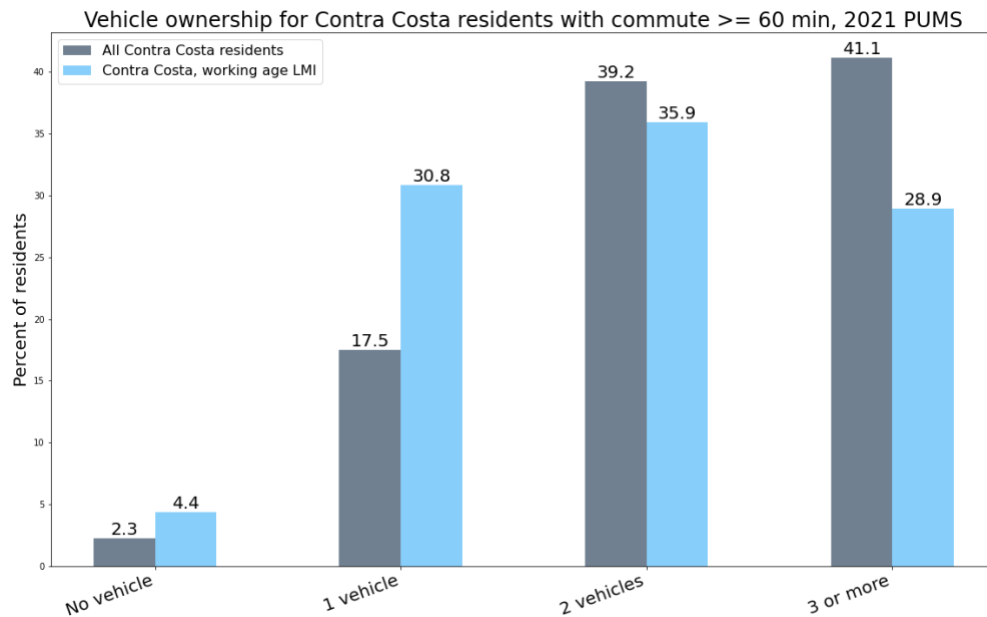
Figure 10. Vehicle ownership comparison for long commuters, all Contra Costa residents vs. working age LMI population, using 2021 PUMS data.

Commutes and job accessibility

Long commute times can result when workers have lower job accessibility near their residence and have to travel further to reach employment opportunities. Using Longitudinal Employer-Household Dynamics Origin-Destination Employment Statistics (LODES) data from 2021, we compared the number of low-wage jobs (i.e., jobs with an annual income less than $40,000[12]) per square mile available in Richmond, Concord, Pittsburg, and Antioch with urban areas of Oakland and San Francisco. San Francisco has the highest job density, with 3,414 low-wage jobs per square mile, followed by Oakland with 1,164 low-wage jobs per square mile. Within the suburban locations in our study area, Concord had the highest low-wage job density, with 736 low-wage jobs per square mile. Richmond, Pittsburg, and Antioch all had around 360-375 low-wage jobs per square mile.

Despite the higher density of low-wage jobs in Oakland and San Francisco, we did not find that a majority of survey respondents commute between their suburb and an urban area. We asked survey respondents about the city of their primary work location, which we compared to their home location. For the 54 percent of respondents who were employed, most live and work in the same city (42.5%), while 28.3 percent live and work in a suburban location and 29.2 percent live in a suburb and work in a city (e.g., Berkeley, Oakland, or San Francisco).

While we did not collect data on commute mode for survey respondents, we analyzed the driving distance to work and estimated the travel time for driving and public transit of survey respondents using Google Maps. A total of 95 respondents provided cross streets for their home and work address,

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[12] Note that the job wage categories for LODES data are limited to: less than $1,250 per month; $1,251 to $3,333 per month; and more than $3,333 per month. A monthly wage of $3,333 per month corresponds to an annual income of about $40,000.

allowing us to compute their commute characteristics. We found that the average uncongested driving time was 22 minutes (calculated off-peak, i.e., Tuesday at 1:00 pm) and 39 minutes during the weekday peak hour (Tuesday at 8:00 am), while the average public transit time was 59 minutes. Based on survey responses for departure time for work, we found that 40 percent of employed survey respondents commute during the morning peak period (7 am to 10 am) while the remainder of survey respondents commute off-peak, during the uncongested time.

The average driving time for survey respondents is shorter than the average driving commute time for the working age LMI population in Contra Costa (33.8 minutes). The public transit time is also shorter than the average public transit commute time for working age LMI Contra Costa residents (63.0 minutes).

The average commute distance was shortest for respondents who lived and worked in the same suburb[13] (2.1 miles, or 6.1 minutes by driving off-peak and 6.4 minutes during peak) and longest for respondents who live in a suburb and work in a city (29.3 miles, or 40.3 minutes by driving off-peak and 75 minutes during peak). Respondents in our sample who work in a different suburb than where they live had an average commute distance of 18.6 miles, or 24 minutes by driving off-peak and 39.7 minutes during peak. The difference between on- and off-peak driving time is much larger for respondents who have a longer commute; for individuals who commute between a suburb and city, the peak travel time while driving is almost double the travel time off-peak.

While survey respondents in our study area who commute to a different suburb than where they live have a much shorter driving time than survey respondents who commute to work in cities (e.g., San Francisco, Oakland, and Berkeley), the travel time on public transit is almost the same. On average, it would take a survey respondent who works in a different suburb than where they live about 82 minutes to commute to work on public transit, compared to 85 minutes for respondents who live in a suburb and work in a city, despite the average distance to work being 10.7 miles shorter for suburb-to-suburb commuters. The time difference between taking public transit and driving (during peak period) is about 42 minutes for respondents who commute to a different suburb and only nine minutes for respondents who commute to a city. This is likely a result of more suburb-to-city commuters being able to take BART, which is a faster mode compared to the bus (75% of suburb-to-suburb commuters would use BART vs. 91% of suburb-to-city commuters).

Furthermore, our travel time calculation does not account for the public transit headways. Using General Transit Feed Specification (GTFS) data for the public transit agencies operating in Contra Costa County, we found that only 9.5 percent of survey respondents live within 500m of a high-frequency transit stop (i.e., headway less than 15 minutes during weekday morning peak hour). The public transit agency with the shortest median headway during the weekday morning peak was BART, the heavy-rail system, with a median headway of 15 minutes. In comparison, the median headway for bus systems during the weekday morning peak was longer; AC Transit, which operates in Richmond and San Pablo as well as other cities in Alameda County, has a median headway of 30 minutes (considering

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[13] Note that this calculation does not include the 8 respondents who work from home.

only routes that serve Contra Costa County) and Tri Delta Transit, which operates in Pittsburg, Antioch, and other places in eastern Contra Costa County, has a median headway of 60 minutes. Overall, survey respondents had better access to bus stops than BART. The average distance from survey respondents' home locations to the nearest BART station was 3 miles and the average distance to the nearest bus stop with a headway of less than 30 minutes was 1.1 miles. As a result, for individuals who commute between suburbs or between a suburb and a city, not only is the public transit travel time much longer than driving, but suburban residents also have to contend with longer headways and longer distances to the nearest public transit stop.

From the interviews we conducted with LMI Contra Costa residents, we found that car owners were more likely to commute by public transit if they were working during standard working hours (e.g., 9 am to 5 pm). Meanwhile, two interviewees worked night shifts when public transit was unavailable (e.g., 10 pm to 6 am or 3 pm to 1 am) and commuted with their personal vehicle. Other interviewees commuted with a personal vehicle because their workplace or their partner's workplace was not located near public transit. Angela, who previously lived in San Francisco with her partner and daughter, could commute from her home in Richmond to her workplace in San Francisco using BART. However, her partner's job in San Francisco is not easily accessible with public transit, and her daughter also goes to school in San Francisco, so they commute together in their family car, which saves money compared to public transit costs. Mary lives in San Pablo and works in San Rafael. Before she had a car of her own, she would take two buses to get to work. She remembers how difficult it was to arrange childcare around her work schedule and the bus schedule. The bus line she used to get home from work had a headway of one hour, so she would either have to leave work early to catch the 8:00 pm bus or wait close to an hour for the 9:00 pm bus. Though she was lucky that her manager usually gave her the flexibility to leave earlier, she said that having a car "is much better."

Transportation expenditures

We asked interviewees to estimate their monthly transportation expenditures, including car payments, insurance, registration, gas, and public transit expenses. Fifteen interviewees provided detailed responses that allowed us to verify their calculations. We compared these data to the same question asked to rent-burdened Oakland residents in late-2020 and early-2021; fifteen Oakland interviewees provided detailed responses to this question. We found that transportation costs are higher for low- and moderate-income Contra Costa residents due to higher reliance on personal vehicle ownership and, for some commuters, higher public transit expenditures.

On average, Contra Costa interviewees spent $638 per month on transportation while Oakland interviewees spent $336 per month. Two Contra Costa interviewees and eight Oakland interviewees did not own a vehicle; comparing only vehicle owners between the two samples, Contra Costa interviewees still spend more on average ($680/month vs. $406/month). We also compared the two samples with adjusted gas prices, assuming a price of $3.50 per gallon,[14] reducing the average

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[14] $3.50/gallon was the average cost in California in late-2020/early-2021. In March 2022, gas prices spiked to over $6/gallon in California. Average prices taken from http://www.californiagasprices.com/retail_price_chart.aspx

transportation expenditure for low- and moderate-income Contra Costa residents slightly to $607/month on average.

Persona 2: Alicia, working single mom

Alicia lives in a two-bedroom apartment in Richmond with her son, Adam. She recently started a job as a BART operator but was placed at a location about 40 miles away from her home. A Bay Area native, Alicia spent her childhood living between Oakland, Richmond, and Pinole and went through a period of housing instability a few years ago due to increased rents in Richmond. She was finally able to find an affordable apartment and even had her rent lowered during the COVID-19 pandemic. This enabled her to build some savings and this, along with her previous experience with housing instability, has made her think about buying a home in the future.

Figure 11 Typical apartment buildings near home of interviewees in Richmond, CA.

A day in the life…

Time	Description
7:00 am	Alicia starts getting her son ready for school and drives him about five miles to his elementary school. After dropping him off, Alicia goes home to try and get another hour or two of sleep before work.
1:00 pm	Alicia leaves for work around 1:00 pm. Because her shift overlaps with her son's school schedule, Alicia has a family member pick him up and watch him in El Sobrante.
2:00 pm	The drive to work typically takes between 45 minutes to an hour and Alicia arrives just in time for her shift to start at 2:00 pm.
1:00 am	Instead of five 8-hour workdays, Alicia works four 10-hour shifts. On Mondays and Tuesdays, her shift ends at 1:00 am and afterwards, she goes to El Sobrante to pick up her son and bring him home to Richmond. She knows that this schedule is not ideal for her son and is waiting to build more seniority at work to transfer to a location closer to home.

Higher transportation expenditures in Contra Costa County are a result of greater reliance on personal vehicles. For the four interviewees who live and work in the same suburb, or are able to work from home, transportation costs were minimal. Two of these interviewees did not have a personal vehicle and primarily walked to work. Mariela, who lives in Richmond, walks less than 20 minutes to her job as a security guard and Elliot, who lives in Antioch, walks long distances to work in nutritional services at various public schools. Elliot started walking during the COVID-19 pandemic as a way to relieve stress

and prefers the health benefits of walking over taking the bus, though he still occasionally uses the bus or Uber if he is late for work.

Even comparing only car owners between Contra Costa and Oakland, transportation expenditures are still higher in the suburbs. Contra Costa interviewees spend more on gas and insurance per month. Higher gas expenditures are a result of Contra Costa interviewees driving more on average than Oakland interviewees; Oakland interviewees who had a personal vehicle would only use their vehicle for errands such as grocery shopping or for recreational purposes, while Contra Costa interviewees were also using their vehicles for commuting. Higher insurance expenditures were a surprising finding, given that insurance costs are generally lower in suburban than urban areas. Based on average insurance estimates for those areas, we believe that Oakland interviewees pay for state minimum liability insurance (average of $50 to $75 per month), while Contra Costa interviewees pay for full coverage (average of $100 to $200 per month). For example, one interviewee in Oakland said that he pays $250 every six months for minimum liability insurance, which averages out to about $42 per month. Meanwhile, four interviewees in Contra Costa said they were paying $200 or more per month for insurance, which is close to the average cost of full coverage insurance.

Contra Costa interviewees who use public transit for commuting also face higher expenditures than Oakland interviewees as they have longer commutes on public transit. The three interviewees in the sample who commute with public transit are commuting over 20 miles on BART. On average, these interviewees spend between $8 and $17 per trip on public transit (including bus fare and BART), while Oakland interviewees who commute with public transit were spending around $5 to $8 per trip, often commuting between Oakland and San Francisco or just within Oakland. Beatriz, a resident of Bay Point, previously commuted to San Francisco using public transit but was able to shift most of her work activities online during the pandemic. Working from home has allowed her to save immensely on transportation expenditures. As a non-car owner, she previously relied on public transit to get from Bay Point to her job as a translator in San Francisco, a journey which would take over an hour. In the evenings, she did not feel comfortable walking from the BART station back to her apartment in the dark and would spend around $10 on an Uber instead. She would also occasionally pay for Ubers to her mother's medical appointments. During the pandemic, she estimates that she has saved close to $700 per month for her own and her mother's transportation expenses.

Our interviewee sample over-represents individuals with longer commutes, as only four of the 12 interviewees who were currently employed had jobs in the same place where they lived, compared to 42.5 percent of the survey sample. Three of the 12 interviewees live and work in suburbs while the remaining five interviewees live in a suburb and work in a city (Oakland or San Francisco). Only three interviewees use public transit as their primary commute mode, with the remaining interviewees relying on their personal vehicle. As a result, the high transportation expenditures we found from interviewees may not be representative of LMI Contra Costa residents as a whole. However, these findings still highlight the burden of transportation expenses for LMI suburban residents.

Persona 3: Maribel, caretaker and homemaker

Maribel rents a three-bedroom house in Richmond with her husband and two children, where they have lived for more than ten years. She works in Oakland as an overnight caretaker and her husband picks up construction jobs around the Bay Area. Both Maribel and her husband have cars: a truck that her husband uses for work and a van that she relies on to carry the wheelchair equipment for one of her children. Maribel recently got a nightshift job in Oakland because her family needed extra income to cover the bills. With her working at night and her husband working during the day, they are able to save on childcare. When she's not working, Maribel spends most of the day driving her children to school and doctor's appointments.

Figure 12. Single family home in typical neighborhood where interviewees live in Richmond, CA.

A day in the life…

Time	Description
7:00 am	Maribel drives back home from her job as an overnight caretaker in Oakland at 7 am.
7:40 am	She arrives at home 40 minutes later, prepares her children to go to school and packs her son's wheelchair equipment in the car.
8:30 am	It usually takes her 20 minutes to drive her son to school and at least 10 more minutes to unload the wheelchair and help her son out of the car. She then drives nearby to drop off her daughter at school.
9:00 am	Maribel will sometimes run errands after dropping the kids off at school, since she is already out with her car, for example, stopping by the grocery store to get food for the week. She prefers getting all the essentials once a week so she can take advantage of special sales. It takes her about half an hour to drive back home.
9:30 am	Maribel unpacks the groceries, relaxes at home for a bit and catches up on her sleep before she has to pick her son up from school.
12:30 pm	A few times a week, Maribel drives her son to physical therapy in another city. His doctor's appointments alternate between Oakland and San Francisco.
3:15 pm	After her son's appointment, Maribel drives him back home and then goes to pick up her daughter from school.
4:00 pm	Once her children are home, she heads back out to Oakland for her job that starts at 5 pm. She is allowed to sleep part of the time while on duty and clocks out at 7 am to start her routine again.

Necessity of car ownership for non-commute trips

Figure 13. Cars parked in a typical neighborhood in San Pablo, CA (Photo by Alexandra Pan)

Even for the interviewees who were able to commute with public transit, having a car was still a necessity for other trips, such as grocery shopping, picking up and dropping off children, and seeing friends or family. In our survey analysis, we found that 61.6 percent of respondents use their own car or get a ride to the grocery store, while 13.4 percent walk and 12.5 percent use either BART or the bus. In our interviews in Contra Costa, we found that individuals who had access to a car would primarily drive to the grocery store and occasionally walk to their neighborhood market or convenience store to buy just a few items throughout the week. Having a car gave interviewees more flexibility and options to choose which grocery store they wanted to shop at, with interviewees saying they would choose the grocery store based on promotions, such as $5 Friday sales at Safeway. Many interviewees with cars approached grocery shopping in a similar way to Lara, who lives in Pittsburg. Lara makes one big grocery shopping trip for her family every month at a store about a ten-minute drive away from her house and if she needs items throughout the week, she walks to a Mexican grocery store fifteen minutes away. However, she says that produce there is much more expensive and she does not go there unless she needs to.

Interviewees without a car would most often walk to the grocery store or occasionally get a ride from a friend or family member. Three of the four interviewees without a car would also use delivery services, such as Instacart, Walmart Plus, and Amazon Prime. Elliot began using Walmart Plus during the pandemic to avoid shopping in person and has continued to use it because he likes the convenience of not having to carry heavy groceries while walking; he considers the $99 annual subscription fee worth not having to buy groceries in person. Beatriz uses Instacart where she lives in Bay Point. Previously, her mother would buy some groceries at a small Mexican market close to her workplace or Beatriz would take the bus to other grocery stores in the area. With Instacart, Beatriz says she is saving a lot of travel time and can access more grocery stores than before, which is worth the delivery fees for her[15]. Beatriz also uses other delivery services to save her time for running errands:

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[15] While Beatriz did not say exactly how much delivery fees were on Instacart, a news article estimated that the median delivery fee for grocery delivery services is about $5 (Cheng, 2021).

If I just have an errand that should only take an hour and I have to use public transportation, I have to block off my day, at least an additional three to four hours just for transportation, between wait times and transfers and all that. Which is sometimes why people prefer to just pay someone else to do it, because who can just take off half of the day all the time, when you have to work or whatever it may be.

This quote from Beatriz shows how time-consuming transportation becomes for individuals without a personal vehicle, a sentiment echoed by other interviewees as well. Imani, who has one car in her household that her husband uses for work, said that she tries to organize her errands around the weekends when the car is available, rather than enduring long wait times for the bus during the day.

The reliance on a personal vehicle for non-commute trips resulted in some interviewees paying significantly more for transportation, as they had high public transit costs and high costs for their personal vehicle. For example, Jennifer uses public transit to commute between her home in Antioch and her workplace in Oakland, and uses her car for grocery shopping, other errands, visiting her mother who lives in Vallejo, and going to her church in Oakland. She spends about $500 per month on transportation, with $300 on public transit and $200 in gas. Even more extreme is Ella who pays over $1,000 per month in transportation; she commutes with public transit between Pittsburg and San Francisco, a trip that costs about $7 each way, and is still paying off her car loan with a payment of about $400 per month. Interestingly, she believes that her transportation costs are lower now than when she was driving 45 minutes to her previous job in Oakland, with gas prices being so high. Thus, even though transportation costs are higher on average for individuals with long commutes in the suburbs, having access to public transit near their home and work locations might reduce their costs for commuting, compared to if they were reliant on driving to work.

When we spoke with interviewees about their transportation expenses, almost all interviewees with a car only reported the amount that they spent on gas and their monthly car payment, if they had one. We prompted interviewees to also consider the cost of tolls, parking, insurance, and registration, costs which were more difficult for the interviewees to estimate. This indicates that interviewees tend to conceptualize the cost of driving only in terms of gas, which at the time of our interviews from April to June 2022 was over $6 per gallon. Only one interviewee considered wear and tear of her vehicle as a significant cost of driving, having noticed that driving more resulted in more maintenance issues with her car. This aligns with previous research conducted with a survey of German drivers, which found that drivers underestimated their monthly driving costs by up to 52 percent (Andor et al., 2020).

Persona 4: Luis, young immigrant in a food desert

Luis lives in a studio apartment in Walnut Creek with his partner and works the dinner rush at a restaurant nearby. He previously lived in a two-bedroom apartment with four other roommates who were all immigrants like him. However, he had to move out after his roommates moved out and he could not afford rent on his own. During his housing search, he prioritized proximity to work and grocery stores, as he does not own a car, but given his budget of $1,000 per month, he had limited options and ended up at an apartment about a 40-minute walk from the closest grocery store.

Figure 14. Apartments in Walnut Creek near home of interviewee.

A day in the life...

Time	Description
1:00 am	Luis gets off work around 1:00 am every day. He walks home after his shift at the restaurant because the local bus service does not start running until 7 am. Even though it takes him about 30 minutes to get home, he feels safe walking at night in his neighborhood.
10:30 am	Together with his partner, Luis heads out to go grocery shopping at a Latin supermarket in Concord. It takes them around 50 minutes to get there on the bus. Another option closer to home is Target, which is about a 40-minute walk away. However, they prefer to go to Mexican supermarkets for a larger variety of fruits and vegetables and specific ingredients. Because of how far away the supermarket is, they try to go only once every two weeks.
12:30 pm	They take the bus or BART back to Walnut Creek and explore downtown for a bit. Sometimes they grab a bite before walking or taking the local bus back home that passes every half hour.
6:20 pm	Luis departs his home for work in the early evening. The local bus lines ran their last loop at 6 pm, before he leaves home, so he walks.
1:00 am	His shift ends usually ends around 1 am, although sometimes closer to 2 am. He makes his way back home to start the day again.

Issues and inconsistency with car ownership

Figure 15. Damaged vehicles parked outside homes near interviewee neighborhood in Richmond, CA (Photo by Alexandra Pan)

High expenses associated with driving to work are not limited to gas, insurance, and car payments. Alicia drives about 30 miles between Richmond and Hayward four times a week and recently incurred a $1,600 maintenance bill on her car. She says she thinks all the driving she has to do for work, bringing her son to school, and other errands is "tearing up [her] car." Among survey respondents with a car (n=115), 33 percent reported that their car was not able to be driven due to maintenance issues for a period of at least one week in the past year. Car ownership was generally inconsistent as well, with about 20 percent of car owners reporting not having a car during part of the past year. Interviewees reported periods of lacking car ownership due to vehicles being towed: Jesus had his car towed after parking it illegally and Mariela had her car towed for driving with a suspended license. Both Jesus and Mariela relinquished their vehicles because the cost to recover the vehicle from the tow yard was too expensive (it would have cost around $2,000) and have been relying on walking and public transit since then. Elliot similarly did not have the money to repair his car's engine and began taking the bus and walking in Antioch instead.

We found that many interviewees experienced stress about the status of their vehicle or driver's license. During the pandemic, both Jennifer and Sandra were unable to make car payments and continued to drive while fearing their car would be repossessed. Of this time, Sandra said: "You might get your car taken and once your car gets taken, that's like throwing a wrench into the program. Everything breaks down after that," a statement which shows the level of reliance she has on her personal vehicle and the lack of alternate transportation options if something were to happen to it. These consequences also extend beyond transportation; having a car repossessed negatively impacts one's credit score, which we found in this research is a significant factor in qualifying for an apartment.

For Alegria, who is undocumented and was not able to get a driver's license until about six years ago, she would drive in "terrible fear" and pray every time that she saw a police officer that they would not pull her over. She said that her reason for getting a car was because she had to bring her children to different appointments and because she did not know how to use public transportation: "I didn't know how to get on public transport. The people I worked with at school, nobody used public transport so

they didn't know how to explain it." The lack of high-quality alternatives to personal vehicle ownership in suburban areas results in additional stress for low-income households that are more likely to have inconsistent vehicle ownership.

Key Takeaways, Policy Strategies, and Future Research

In this section, we summarize our main takeaways from this research, provide policy strategies for local and state policymakers and transit agencies to address housing and transportation accessibility issues, and conclude with potential future research directions.

Key Takeaways

- **Displacement of LMI urban households to suburban areas is not solely a result of rising housing costs.** We found that LMI households are displaced not just by rising housing costs, but they are also burdened by strict requirements for renting, such as credit score checks and income requirements. Meanwhile, other LMI households move to suburbs for lower housing costs per bedroom and also because they desire home ownership and a better environment for their children.

- **Housing costs are also beginning to rise in suburban areas,** where there are fewer tenant protections in place, particularly for those renting single-family homes.

- **Transportation expenditures are often higher for LMI suburban residents than for urban residents**, as suburban residents travel longer distances for work and are more reliant on personal vehicles.

- While some LMI suburban residents are able to commute using public transit, many report that **a personal vehicle is still necessary for non-work trips, such as grocery shopping, other errands, and visiting friends and family**. Due to long headways and multiple transfers, interviewees who relied on public transit said that running a simple errand would often turn into multiple hours of travel time and waiting for transit connections.

- **Car ownership is unstable for LMI individuals** due to the higher maintenance needs of used or older vehicles, inability to make car payments, or inconsistent insurance, registration, and driver's licenses.

- **Individuals without a car have few backup options in suburban areas**, with non-car owners relying on public transit with a low level of service (e.g., hour-long headways).

- Some interviewees without a car have begun using **delivery services for grocery shopping and other shopping needs.** Despite the additional subscription and delivery fees associated with these services, interviewees considered the cost to be worth the convenience and said that delivery services allowed them to buy from stores that are otherwise inaccessible without a car.

Policy Strategies

To address issues of rising housing costs in suburban areas and accessibility challenges, especially for individuals without a car, we suggest the following policy strategies.

Local jurisdictions should strengthen renter protections in Contra Costa County by expanding rent control to include single-family homes in Richmond and establishing rent control and just cause for evictions in San Pablo, Concord, Pittsburg, and Antioch. Suburban areas in Contra Costa County have fewer renter protections compared to urban areas, yet our research has found that housing costs are rising in suburban areas, leaving suburban households vulnerable. The lack of renter protections in Contra Costa County is evidenced by the number of evictions that occurred during the pandemic, in spite of state and local eviction moratoriums. From March 2020 to March 2021, Contra Costa County had 227 evictions, compared to just 25 in Alameda County (Baldassari & Solomon, 2021). The California Tenant Protection Act of 2019, which extends policies such as rent caps and just cause for eviction statewide, notably does not include single-family homes and condominiums. As we find that many LMI households rent single-family homes in suburban areas, local jurisdictions can step in to close these loopholes. For example, the city of Berkeley in Alameda County includes single-family homes in just cause eviction policy (City of Berkeley, n.d.).

To support LMI residents without a personal vehicle or with inconsistent vehicle ownership, public transit agencies should reconsider how they provide services in low-density suburban areas. In particular, agencies should focus on how to better serve non-commute trips during off-peak periods or weekends, such as grocery shopping, which was the most common errand Contra Costa County interviewees said that they needed a personal vehicle for. There have been some local examples in the San Francisco Bay Area of public transit agencies replacing low-performing bus routes with subsidized rideshare (e.g., Uber, Lyft) or taxi services. In 2017, the Livermore Amador Valley Transit Authority (LAVTA) piloted a program that refunded rideshare users up to $5 when taking rides within Dublin, CA, finding that on the agency side, the average subsidy per trip was lower for rideshare services ($3.30 per trip) compared to the bus ($7.66 per trip); however, the cost for passengers was higher for ridesharing than the bus (Tree et al., 2018).

AC Transit launched a year-long on-demand shuttle pilot project in 2016 in Castro Valley and Newark, two cities in southern Alameda County. Through the Flex program, AC Transit deployed three shuttles along two bus lines and allowed riders to book on-demand trips, with pick-up and drop-off locations at existing bus stops. AC Transit found that the subsidy per passenger trip was much higher for the Flex shuttles compared to the existing bus lines. However, through rider surveys, the agency found that rider satisfaction was higher compared to the existing fixed route service. Low ridership on the shuttles was a result of educational and outreach barriers associated with understanding the reservation system (Urgo, 2018).

Figure 16. Electric carsharing and microtransit vans in Richmond, CA.

Two cities in our study area have an existing microtransit program (Tri MyRide in Antioch/Pittsburg/Bay Point) or recently launched a microtransit pilot (Richmond Moves in Richmond). One interviewee in Antioch occasionally used microtransit during her commute to get to and from the Antioch BART station. One limitation of Tri MyRide is that the service area is limited to an approximately two-mile-wide zone around Antioch and Pittsburg/Bay Point BART stations. Though these service areas include some grocery stores and shopping centers, the overall service area is small and excludes large parts of these cities. Similarly, the microtransit pilot project in Richmond that launched recently in April 2022 is starting with a service area of less than six miles and three vehicles and is focused on connecting commuters with BART or ferries (Lauer, 2022).

In addition to public transit service changes, local jurisdictions should also consider travel training and educational outreach to increase awareness and familiarity with using public transit. Two interviewees, in San Pablo and Antioch, shared that lack of understanding on how to use public transit (e.g., how to alert the bus driver to stop at the bus stop) was a major barrier. One of these interviewees is an immigrant from Mexico who also cited lack of informational materials in Spanish as a barrier. Thus, public transit agencies could consider holding travel training workshops or developing clear guides on how to use public transit.

Future Research

Our research investigates how LMI households in the suburban region of Contra Costa County are making housing and transportation decisions, as well as the housing and transportation challenges they face in the suburbs. This research advances our understanding of the LMI population in suburbs. However, our analysis is limited to the Contra Costa County within the San Francisco Bay Area. Future research could explore the housing choices and transportation accessibility in suburbs of other metropolitan areas (e.g., Los Angeles, New York City) or in exurban areas (e.g., Stockton).

We also focused on suburb-to-suburb and suburb-to-city commuters, with the maximum commute distance of our survey respondents being about 40 miles. However, there is an increasing population of

"super commuters," individuals commuting more than 50 miles, such as individuals who commute between San Joaquin County and cities in Alameda and Contra Costa counties. Future research could investigate this population in more detail. Additionally, we found that suburb-to-suburb commutes, which represented about a quarter of all commutes in our survey sample, are currently more difficult to complete using public transit compared to suburb-to-city commutes. Future research could identify ways to improve public transit services to support these commutes.

Our research also identified the need for public transit services to reconsider how to provide service in low-density suburban areas to serve non-commute trips, such as grocery shopping and other errands. We have suggested some policy strategies, such as subsidizing TNCs and taxis or microtransit services, however, more research is needed in collaboration with public transit agencies to develop these policy strategies. In the next stage of this research, we plan to conduct expert interviews with key stakeholders at public transit agencies, local and state planning agencies, and community-based organizations to further develop and advance these policy strategies.

Finally, the COVID-19 pandemic has impacted the desire of households to live in cities, with many households moving to more suburban areas during the pandemic. It is unclear how long these changes will persist, especially with other changes such as allowing more remote work. With housing costs already rising in suburban areas, increased demand for suburban lifestyles could further impact low-income suburban households.

Appendix A: Defining "suburbs"

Prior research on suburban issues has used a range of definitions to delineate the difference between urban and suburban areas. An overview of three of the most common definitions is given in Airgood-Obrycki et al. (2020), summarized in Table 4.

Table 4: Summary of commonly used urban/suburban definitions

Definition	Description
Census convenient	Any area outside of the political boundary of central or principal cities but within the census-defined metropolitan statistical area is considered the suburbs.
Suburbanisms	Defines areas as suburban based on "ways of living", e.g., single-family dwellings, home ownership, and car ownership. Acknowledges that there is a continuum of suburban ways of life across a metro area, including in some cities.
Typology	Identifies types of suburbs, most often based on time of construction.

How researchers define urban and suburban is critical because research findings may be sensitive to the definitions in use. For example, Airgood-Obrycki et al. (2020) find that under the census-convenient definition, 56 percent of the U.S. population resides in suburbs compared to 70 percent under the typology definition and just 41 percent under the suburbanisms definition. In our research, we use a modified version of the urban/suburban designation taken from a map published by the Metropolitan Transportation Commission (MTC), the metropolitan planning organization (MPO) of the San Francisco Bay Area (Metropolitan Transportation Commission, 2014). MTC defines three core cities in the Bay Area: San Francisco, Oakland, and San Jose, with the remaining area divided between inner suburbs, outer suburbs, and rural areas, designations given based on population, employment, and transportation characteristics. The main modification we make to this definition is the addition of Berkeley as a core city, as the population density and job density of Berkeley exceeds that of Oakland: the population density of Berkeley is close to 12,000 people per square mile, compared to 7,800 people per square mile in Oakland,[16] and the job density of Berkeley is 5,400 jobs per square mile compared to 3,900 jobs per square mile in Oakland.[17]

We use this definition because it is policy relevant and reflects the planning and policy priorities of this region's Metropolitan Planning Organization (MPO). Furthermore, this definition differentiates between inner and outer suburbs based on commuting characteristics which is relevant to our research objective to understand the trade-off between housing location and transportation accessibility. The main modification we make is to project the MTC definitions from census-designated places to Public

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[16] Source: Census QuickFacts.
[17] Source: Longitudinal Employer-Household Dynamics Survey Origin-Destination Employment Statistics.

Use Microdata Areas (PUMAs), as well as including Berkeley as a central city. PUMAs are areas defined by the U.S. Census Bureau and are the highest geographic resolution available in the PUMS of American Community Survey data. The comparison of the original MTC suburbanization of poverty map and our definition used in this research is shown in Figure 17 below.
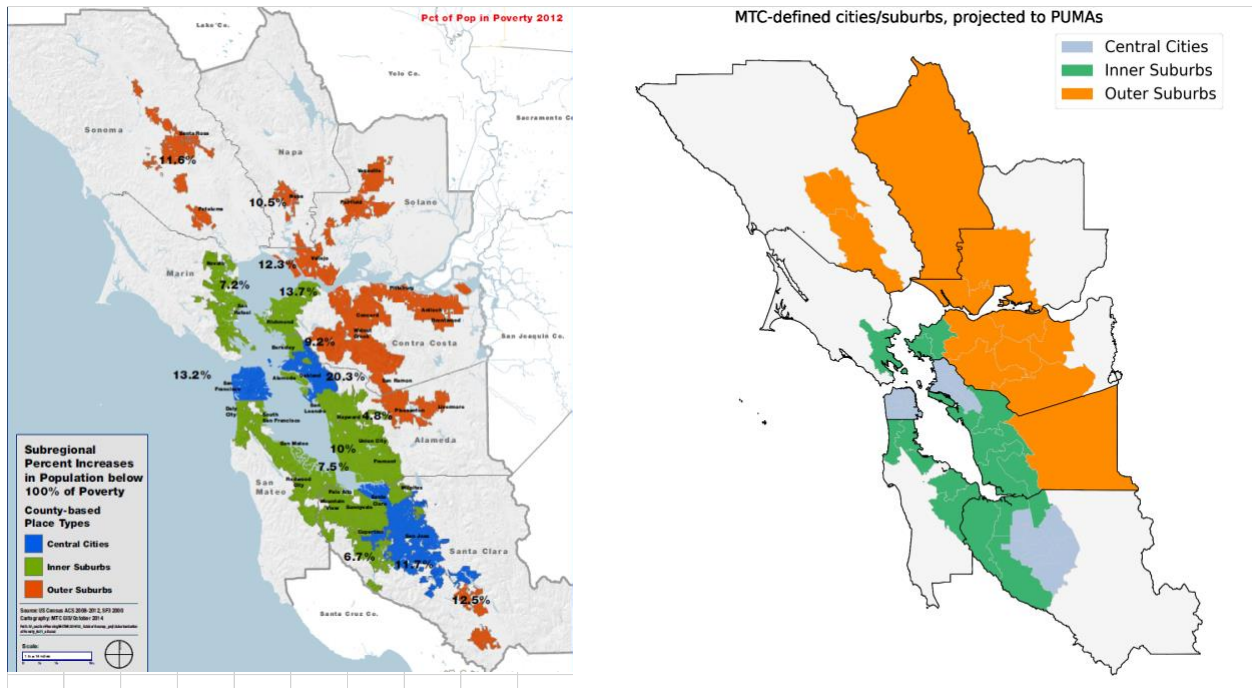
Figure 17. MTC definitions of city, inner suburb, and outer suburb (left). MTC definitions mapped onto PUMAs, including Berkeley as a central city (right).

We used PUMS data from the 2021 ACS Five-Year estimates to analyze poverty rates in the central cities, inner suburbs, and outer suburbs as we categorized them. From this analysis, we find that three of the five highest poverty suburban PUMAs are located in Contra Costa County, our study site for this research. We focused study recruitment on Richmond, San Pablo, Pittsburg, Concord, and Antioch, as these were the cities with the highest poverty rates in Contra Costa County, though individuals in other cities in Contra Costa County (e.g., Walnut Creek, Bay Point) who fulfilled our age and income requirements were considered eligible for the study.

Appendix B: Summary of Survey Responses by Source

Table 5. Survey responses by source

Source	N
Public library	32
Public transit agency	140
Bay Area Rapid Transit (BART)	29
County Connection	10
Tri Delta Transit	96
WestCAT	3
Other organizations	38
First 5	37
Contra Costa Public Health Department	1
Total	208

Appendix C: Survey and interview questions

Online/Paper Survey Questions

1. Where do you live now?
   City; street; nearest cross street to your home
2. How many times have you moved since 2016?
   0; 1; 2; 3; 4; 5 or more
3. What other cities have you lived in since 2016?
   I have lived in the same city, but in different residences; other cities:
4. Have you ever lived in San Francisco, Oakland, Berkeley, or San Jose?
   No; yes: please list the cities and years that you lived there:
5. Think back to when you decided to move out of San Francisco, Oakland, Berkeley, or San Jose. What were some of your reasons for moving away? Please select all that apply.
   Wanted cheaper housing; wanted better quality housing; wanted to purchase a home; wanted to be closer to friends/family/community; conflicts with relatives or roommates; wanted a safer neighborhood; job or job location changed; lifestyle change (marriage, break-up, having children, etc.); wanted better schools, displacement (eviction, lease termination, etc.; other, please explain:
6. Think back to the last time you moved. What was most important when you were looking for a place to live? Please choose a number between 1 and 5 for each of the options below, with 1 being NOT important and 5 being VERY important.
   Cheaper housing; bigger apartment or home; safe neighborhood; better schools; be within 30-minutes of work; be within 30-minutes of friends/family/community; be within 15-minutes of BART or bus; be within a 15-minute drive of highway; be within 30-minutes of key destinations (grocery store, doctor, parks, etc.); other:
7. Think about how you get around in your daily life. About how often do you use different types of transportation?
   Frequency options: Never, every day or almost every day, a few times per week, a few times per month, a few times per year
   Transportation options: Walk; drive my own or borrowed car; get a ride from someone I know; carpool with coworkers; bus; BART; commuter rail; Uber/Lyft; taxi (not Uber/Lyft); bicycle; shared bikes or scooters; carsharing; other:
8. Do you currently have access to a car?
   Yes, my own; Yes, family member or roommate's car; No
9. In the past year, have you experienced any of the following for one week or more? Please select all that apply.
   Didn't have a car; didn't have a driver's license; didn't have car insurance; didn't have registration; unable to make car payments; car couldn't be driven (broken down, in an accident, didn't pass inspection, etc.); car was stolen; sold my car; none of the above
10. What is your current occupation?
    Employed, occupation; unemployed, retired, or other

11. Please list the city where you work and your work address or any landmarks (e.g., bus stop, coffee shop, parks) within a 10-minute walk of your work location.
12. Think about a typical week. Approximately what time do you leave your home to go to work?
    Day options: Monday – Sunday
    Time options: It varies; midnight – 7am; 7-10 am; 10am – 3pm; 3-7 pm; 7pm – midnight; N/A
13. Select ONE PLACE from the list below that you go to at least once a week.
    Grocery store; restaurant, cafe, or bar; family or friend's house; other:
14. How do you usually get there? Please select all that apply.
    Walk; drive my own car or borrowed car; get a ride from someone I know; bus; BART; Amtrak or Caltrain; Uber/Lyft; taxi (not Uber/Lyft); bike; shared bikes or scooters (Gotcha, Lime scooters, etc.); carsharing (Getaround, Zipcar, Turo, etc.); other:
15. What days do you usually go there?
    Weekdays (Monday - Friday); weekends (Saturday or Sunday)
16. What times of day do you usually go there? Please select all that apply.
    Midnight - 7am; 7 - 10am; 10am - 3pm; 3 - 7pm; 7pm - midnight
17. On a scale from 1-5, how easy is it for you to get there?
    Very EASY (1); 2; 3; 4; Very HARD (5)
18. (If respondent selects 4 or 5) Please briefly describe why it is hard for you to get there (e.g., reduced bus schedule):
19. In general, how do you feel about getting around in your current neighborhood?
    Options: Strongly agree; agree; neutral; disagree; strongly disagree
    Statements:
    i.   It is _possible_ for me to get everywhere I need to go by using only bus or BART.
    ii.   It is _easy_ for me to get everywhere I need to go by using only bus or BART
    iii. I enjoy taking the bus and BART.
    iv.   (Car owners only) If I didn't have a car, I would be able to continue living the way I want.
    v.   (Non-car owners only) If I had a car, it would be easier for me to get everywhere I need to go.
20. What is your gender identity?
    Male; female; non-binary/other; prefer not to answer
21. What is your age?
22. Are you of Hispanic, Latino, or Spanish origin?
    Yes; no; prefer not to answer
23. What race do you identify with? Please select all that apply.
    American Indian/Alaska Native; Asian; Black/African American; Native Hawaiian/other Pacific Islander; Caucasian/White; Other, please specify; Prefer not to answer
24. What languages do you speak at home?
25. What is the highest level of education you have completed?
    Less than high school; high school; some college; 2-year college; 4-year college; graduate school; prefer not to answer
26. Do you rent or own your current residence?
    Rent; own; staying with family/friends; other; prefer not to answer

27. How many bedrooms are there in your current home/apartment?
    0 (studio); 1; 2; 3; 4 or more
28. How many people (including yourself) live in your current home/apartment?
    1; 2; 3; 4; 5 or more
29. How are they related to you?
30. Do you or does someone in your household have a temporary or permanent condition or disability that makes it difficult to travel outside of the home?
    Yes, myself; Yes, someone in my household; No; Prefer not to answer
31. Approximately how much is your monthly rent or mortgage payment?
    Less than $300; $300 - $499; $500 - $799; $800 - $999; $1,000 - $1,499; $1,500 - $1,999; $2,000 - $2,499; $2,500 - $2,999; More than $3,000; Prefer not to answer
32. Approximately how much did your household earn last year before taxes?
    Less than $10,000; $10,000 - $14,999; $15,000 - $24,999; $25,000 - $34,999; $35,000 - $49,999; $50,000 - $74,999; More than $75,000; Prefer not to answer

In-depth Interview Questions

1. From your survey, we understand that you live in a ___ bedroom apartment/home that you rent/own, with __ other people. Is this accurate?
    Probes: Who do you live with and how are they related to you?
2. How long have you lived here?
3. (For people with a car) You said that you have a car, what kind of car is it? Do you know how many miles you drive every year?
4. (If employed) Can you tell me how you usually get to work and what you work in?
5. Now for current housing questions. Tell me a little bit about your neighborhood. What are two pros and two cons about living here?
    Probes: What kinds of things attracted you to this neighborhood when you were deciding to move here?
6. What were some of the reasons you decided to move away from your previous residence?
    Probes: How did you find your current apartment? (Craigslist, Facebook, etc.) How long were you looking for housing before you found this apartment?
7. What kinds of transportation do you see around you, on the street or in your neighborhood?
    Probes: bus stops, train station, bikes, scooters
8. Now for housing location choices. What were some other places you considered living, the last time you moved?
    Probes: What were some pros/cons of these places?
9. Are you thinking of moving out of where you live now? Why or why not?
    Probes: What are your most important reasons for wanting to stay/leave?
10. (Only for respondents who left an urban environment)
    In your survey, you said that you previously lived in [San Francisco/ Oakland/ Berkeley/ San Jose] (If not specified in the survey) Where did you live exactly, and what years did you live there?
    What were some of the factors that led you to move away?

> *Probes:* If [factors in response] were different, would you still be living there now?
>
> What was the first place you moved to, after you left [city]?
>> *Probes:* Think back to when you decided to move there. What would you say are the most important factors you considered when making that decision?

11. Now for transportation questions. Can you walk me through what you did yesterday, all the places you went, and how you got from place to place?
    > *Probes:* Was this a typical work/weekend day for you? What does a typical work/ weekend day look like for you? How much flexibility do you have in your schedule? Are there any places you wanted to go, but couldn't because of lack of transportation? How do you choose whether to take one transportation mode over the other? What do you do if one mode is unavailable?

12. What would you say are some of the most difficult or frustrating things you run into when you're trying to get from place to place in your everyday life?

13. (For people who indicated they take public transit on the survey)
    > What is your experience like on public transit, such as the bus or BART, when you take it?
    >> *Probes:* safety, timeliness/delays, cleanliness, transfers, schedule

14. (Only for respondents who do not have a car)
    > Have you previously had a car? If so, what happened to it?
    > Are you currently thinking about getting a car of your own? Why or why not?
    > How do you think your daily travel would be different if you had a car?

15. (Only for respondents who do have a car)
    > How many cars does your household have? Who uses each one? How do you decide who uses each car?
    > What are some of the main challenges you face when driving?
    >> *Probes:* Are there ever times where you want to drive but can't do so? Why?

16. Now, we will ask you some questions about your transportation expenses. (Walk through each mode discussed in the interview) Can you estimate about how much you spend on [mode] every month?
    > *Probes for car:* monthly car payment, insurance, registration, gas
    > *Probe for gas:* about how many times do you fill up your tank every month? How much does it cost to fill up your tank?
    > *Interview notes:* is it easy for respondent to answer? What costs do they forget about? What emotions do they show (surprise, resignation, frustration)?

17. If you could change one thing about your experience with transportation, what would it be and why?

At the end of the interview, if you have extra time, or if the interviewee agrees to be interviewed for longer, ask any of these additional questions:

1. Do you have any other specific or memorable stories about living in your neighborhood that come to mind?
2. About other places you considered living the last time you moved, can you provide more specifics on what exactly made you prefer your current neighborhood more?

Probes: Who did you consult in the process of deciding where to live?

3. (For respondents who previously lived in urban places) If you can remember back to the time you lived in [urban place], what were some other places you were considering? Why did you ultimately choose to move to [current place]?

4. Can you elaborate a bit more on why you like your current neighborhood…?

   (If respondent mentioned CHEAPER HOUSING) How much were you paying in rent/housing costs at the apartment/home before this one? What was your budget when you were looking for a new place?

   (If respondent mentioned WANTING MORE SPACE) How many bedrooms was your previous home/apartment?

   (If respondent mentioned SAFETY) How safe do you feel in this neighborhood? In the daytime? At night?

   (If respondent mentioned SCHOOLS) What makes the schools around here good, and why?

   (If respondent mentioned ACCESSIBILITY) What kinds of destinations were most important for you to be close to and why?

5. Have you noticed any changes in your neighborhood since you moved here?

6. Has the COVID-19 pandemic changed how you think about where you want to live in the future?

   Probes: want a larger apartment, more space, somewhere cheaper, etc.

7. (For car owners – reference answers to the survey question "In the past year, have you experienced any of the following for a week or more…")

   (If respondent didn't have driver's license/car insurance/registration) in the survey you indicated that [fill in blank]. How did this impact how you used your car during this time?

   (If the respondent's car couldn't be driven/was stolen) When you didn't have access to your car, what kinds of transportation did you use instead? Approximately how long were you without your car?

   (If respondent sold their car) What were some of the reasons why you sold your car? What kinds of transportation did you use instead?

   (If respondent was unable to make car payments) How did this impact how you used your car during this time? Approximately how often did you miss car payments/were you late to make a car payment?

Appendix D: Interviewee Demographics

Table 6. Interviewee demographics

Pseudonym	Home city	Work city	Car	Age	Gender	Race/ Ethnicity	Language	Home Ownership	Housing Costs	Household Income
Alejandro	Richmond	NA	Yes	55 - 64	Male	Hispanic/ Latino	English	Staying with family/ friends	$300 - $499	$10,000 - $14,999
Alicia	Richmond	Hayward or Berryessa	Yes	35 - 44	Female	Black/ African American	English	Rent	$1,000 - $1,499	$35,000 - $49,999
Alegria	San Pablo	NA	Yes	35 - 44	Female	Hispanic/ Latino	Spanish	Rent	$2,500 - $2,999	$50,000 - $74,999
Alyssa	San Pablo	San Francisco	Yes	35 - 44	Female	Hispanic/ Latino	English	Rent	$500 - $799	Less than $10,000
Angela	Richmond	San Francisco	No	25 - 34	Female	Hispanic/ Latino	English	Own	$2,500 - $2,999	$50,000 - $74,999
Barbara	San Pablo	NA	Yes	45 - 54	Female	Hispanic/ Latino	Spanish	Own	$2,000 - $2,499	$50,000 - $74,999
Beatriz	Bay Point	San Francisco or Work from home	No	25 - 34	Female	Hispanic/ Latino	English	Rent	Less than $300	$25,000 - $34,999
Clara	Richmond	NA	Yes	25 - 34	Female	Hispanic/ Latino	Spanish	Rent	$1,500 - $1,999	$35,000 - $49,999
Ella	Pittsburg	San Francisco	Yes	35 - 44	Female	Hispanic/ Latino	English	Own	Prefer not to answer	$35,000 - $49,999
Elliot	Antioch	Antioch	No	45 - 54	Male	Hispanic/ Latino	English	Rent	$800 - $999	$35,000 - $49,999
Emilia	San Pablo	NA	Yes	55 - 64	Female	Hispanic/ Latino	Spanish	Own	$1,500 - $1,999	$35,000 - $49,999
Imani	Richmond	NA	Yes	55 - 64	Female	Asian	English	Rent	$1,000 - $1,499	$25,000 - $34,999

Pseudonym	Home city	Work city	Car	Age	Gender	Race/ Ethnicity	Language	Home Ownership	Housing Costs	Household Income
Jennifer	Antioch	Oakland	Yes	55 - 64	Female	Black/ African American	English	Own	Prefer not to answer	Prefer not to answer
Jesus	San Pablo	NA	No	45 - 54	Male	Hispanic/ Latino	English	Rent	$500 - $799	Prefer not to answer
Lara	Pittsburg	Work from home	Yes	25 - 34	Female	Black/ African American	English	Staying with family/ friends	Prefer not to answer	$50,000 - $74,999
Luis	Walnut Creek	Walnut Creek	No	35 - 44	Male	Hispanic/ Latino	Spanish	Rent	$2,000 - $2,499	$35,000 - $49,999
Maribel	Richmond	Oakland	Yes	35 - 44	Female	Hispanic/ Latino	Spanish	Rent	$2,500 - $2,999	$25,000 - $34,999
Mariela	Richmond	Richmond	No	45 - 54	Female	Hispanic/ Latino	English	Staying with family/ friends	$500 - $799	Less than $10,000
Mary	Richmond	San Rafael	Yes	35 - 44	Female	Caucasian/ White	English	Own	$1,000 - $1,499	$10,000 - $14,999
Sandra	Pittsburg	San Francisco	Yes	35 - 44	Female	Black/ African American	English	Rent	$2,000 - $2,499	$35,000 - $49,999
Sarah	Concord	NA	Yes	35 - 44	Female	Mixed race	English	Rent	$300 - $499	$15,000 - $24,999
Selina	Antioch	Oakland	Yes	55 - 64	Female	Hispanic/ Latino	Spanish	Rent	$2,000 - $2,499	$15,000 - $24,999
Shawn	Antioch	NA	Yes	25 - 34	Male	Mixed race	English	Rent	Prefer not to answer	Prefer not to answer
Teresa	San Pablo	NA	Yes	35 - 44	Female	Hispanic/ Latino	Spanish	Rent	$2,000 - $2,499	$50,000 - $74,999
Veronica	San Pablo	NA	Yes	35 - 44	Female	Hispanic/ Latino	Spanish	Rent	$800 - $999	$35,000 - $49,999

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