LINK21

CONNECT NORTHERN CALIFORNIA

EQUITY BASELINE REPORT

DRAFT FINAL

September 2022

DRAFT - DELIBERATIVE

Prepared By:
Link21 Environmental Consultant Team

BART

CAPITOL CORRIDOR

ISSUE AND REVISION RECORD

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SHAREPOINT PATH

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ACRONYMS AND ABBREVIATIONS

ACRONYM/ABBREVIATION	DEFINITION
BART	San Francisco Bay Area Rapid Transit
CCJPA	Capitol Corridor Joint Powers Authority
ACE	Altamont Corridor Express
ACS	American Community Survey
AMBAG	Association of Monterey Bay Area Governments
Bay Area	San Francisco Bay Area
BIPOC	Black, Indigenous, and people of color
CAHSRA	California High-Speed Rail Authority
CBO	community-based organization
CNT	Center for Neighborhood Technology
EJ	environmental justice
EO	Executive Order
FHWA	Federal Highway Administration
HUD	Department of Housing and Urban Development
LEP	limited English proficiency
MCAG	Merced County Association of Governments
Megaregion	Northern California Megaregion
MPO	metropolitan planning organization
MTC	Metropolitan Transportation Commission
Muni	San Francisco Municipal Railway
PMC	Program Management Consultants
PMT	Program Management Team
PP	priority population
RR	Regional Rail
RTP	regional transportation plan
SACOG	Sacramento Area Council of Governments
SacRT	Sacramento Regional Transit District
SJCOG	San Joaquin Council of Governments
SMART	Sonoma-Marin Area Rail Transit
StanCOG	Stanislaus Council of Governments
TRPA	Tahoe Regional Planning Agency

ACRONYM/ABBREVIATION	DEFINITION
USDOT	U.S. Department of Transportation
VTA	Santa Clara Valley Transportation Authority

LINK21 PROGRAM TEAM NAMES

TEAM NAME	TEAM MEMBERS
PMC	The HNTB Team
PMT	BART/CCJPA + PMC
Consultants	Consultants supporting program identification/project selection
Link21 Team	PMT + Consultants

EXECUTIVE SUMMARY

The purpose of this Equity Baseline Report is to better understand the current state of inequities across the Northern California Megaregion (Megaregion) to inform the planning, design, and evaluation of projects that may advance as part of the Link21 Program (Link21). Link21 began by acknowledging that, historically, infrastructure projects have negatively affected people of color, low-income, and systemically disadvantaged communities. These past harms have resulted in decreased mobility options for certain demographic groups, including barriers to rail access that result in different travel behaviors. Link21 has committed to doing things differently by advancing a more equitable distribution of Link21's benefits and burdens, while also working to address the needs of those who were previously harmed by these infrastructure projects. To do so, the Link21 Team needs to clearly understand the current state of inequities in the Megaregion in order to design projects that begin to address these issues.

This report summarizes the Megaregion's demographics, the current distribution of burdens identified by the Link21 Team, and current travel behaviors of communities in the Megaregion and its four subregions. In addition, the report highlights the disparities between the general population as a whole and priority populations (PPs), including communities that have been historically marginalized, as defined by Link21. For Link21, PPs are census tracts that first have met qualification criteria, explained in detail in **Section 1.3.3.1**, and then scored above a set threshold of disproportionately negative outcomes based on evaluation metrics.

Below are the principal findings that highlight who is taking transit, what barriers they face when considering transit, key equity challenges as they relate to Link21, benefited and burdened communities, and considerations for more equitable outcomes in the Megaregion through Link21.

Transit Ridership and Demographics

Data used in this report are sourced from the 2017 National Household Travel Survey California Add-On (Federal Highway Administration [FHWA] 2017), which sampled 26,000 households in California, collecting socioeconomic and other demographic data from over 55,000 individuals, and asked them to report their travel behavior over the course of one day. This analysis confirms that white and higher-income transit riders tend to use rail, while people of color and lower-income transit riders tend to rely on bus. Rail infrastructure has historically required a significantly higher public subsidy than bus infrastructure, and generally provides a more efficient level of service.

Figure S-1 shows rail and bus trips by income. Transit trips in the Megaregion tend to be by bus for users from lower-income households (lower than $75,000 per year) and tend to be by rail for users from higher-income households ($75,000 per year and up). Approximately 74% of transit trips taken by individuals from lower-income households

were by bus, compared to 39% for their higher-income counterparts. Moreover, there is a substantial difference in the level of rail use among income brackets in the Megaregion.

Figure S-1. Megaregion Transit Mode Share by Income Level *(n = 1.7M trips)*

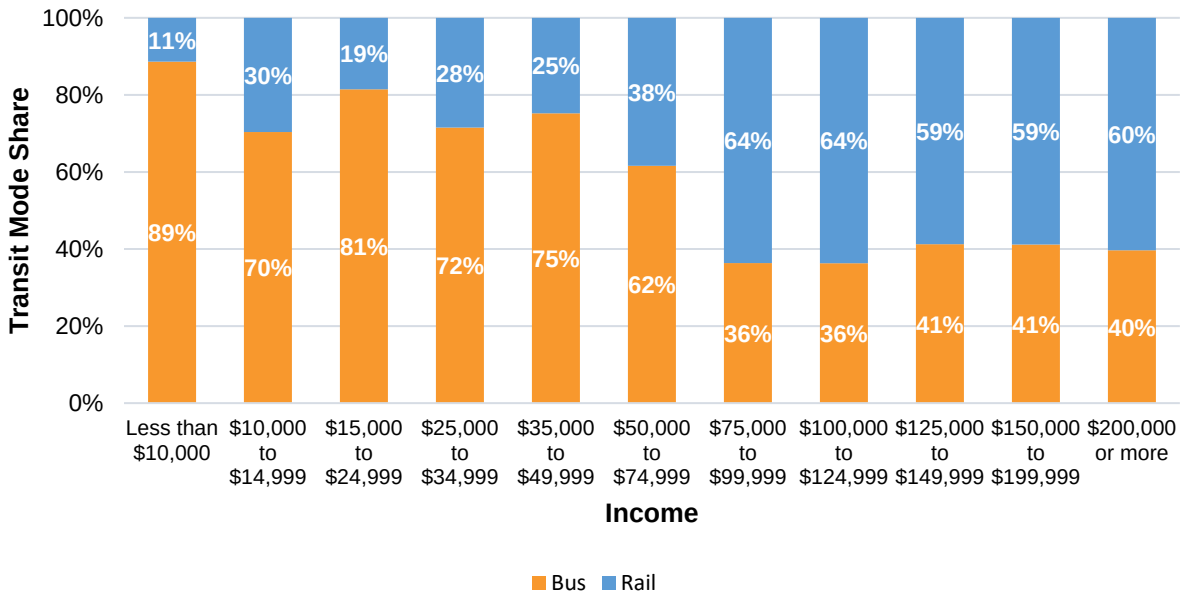
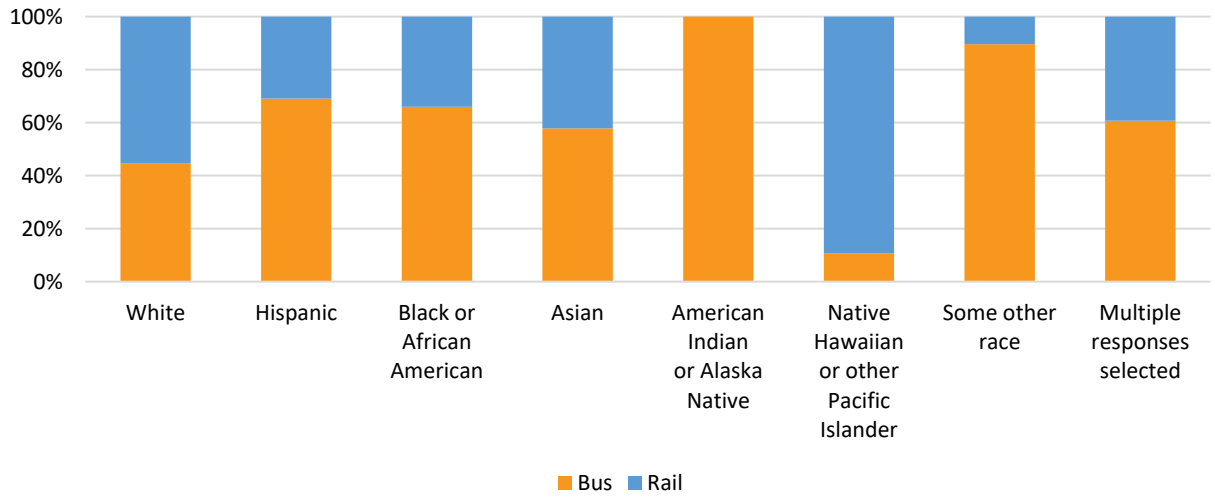


Figure S-2 shows rail and bus trips by race and ethnicity. Approximately 45% of transit trips taken by white riders are made via bus, while 55% of transit trips are made on rail. In contrast, the proportion of transit trips made by bus is 69% for Hispanic riders, 66% for Black/African American riders, and 58% for Asian riders. While the divide is not as pronounced as it is between income groups, there is a notably uneven distribution in rail usage across race and ethnicity groups.

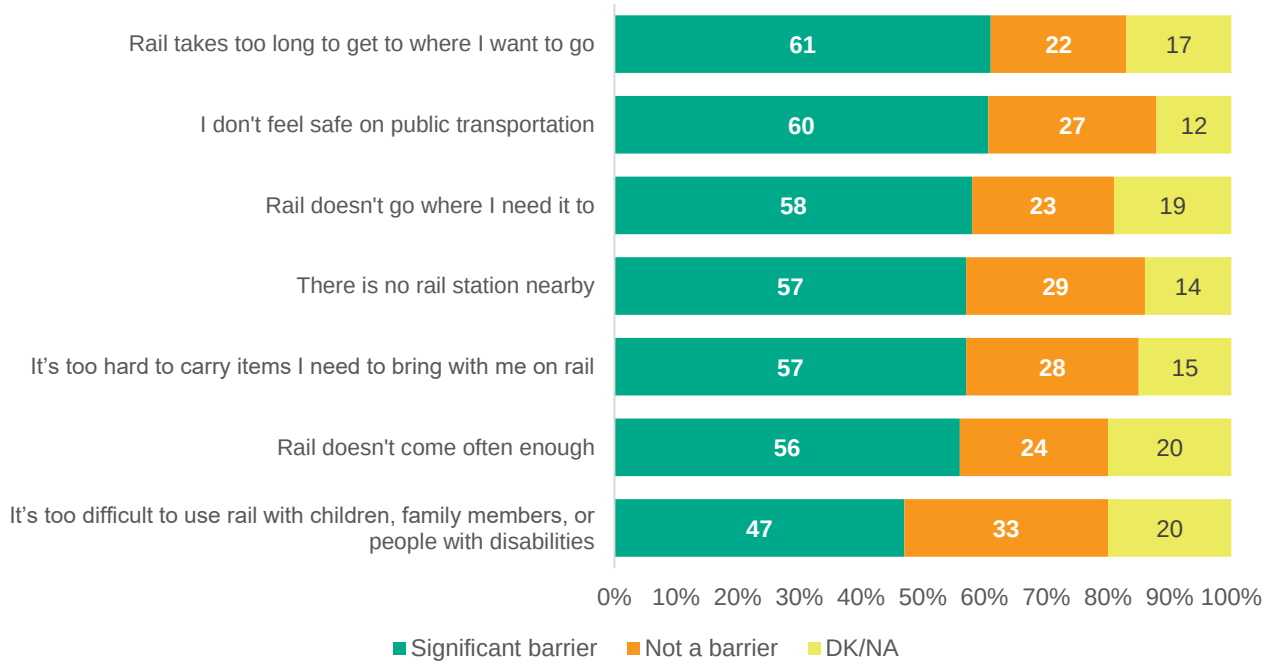
Figure S-2. Megaregion Transit Mode Share by Race & Ethnicity *(n = 1.7M trips)*



Equity Poll and Barriers to Rail

In order to better understand why these disparities exist, Link21 administered an equity poll. Conducted between August 19 and September 27, 2021, with a total of 1,505 respondents (79% people of color and 76% making less than $75,000 annually), the equity poll illuminated key barriers to people taking rail. **Figure S-3** identifies the results of the poll, showing that the greatest concerns of respondents are the time it takes to reach their destinations, safety on public transportation, and lack of accessible destinations.

Figure S-3. Link21 Equity Poll Results: Barriers to Rail



Key Link21 Equity Challenges for the Megaregion and Subregions

More key economic, mobility, and access-related disparities exist for PPs when compared to the general population, which inform the problems Link21 should seek to solve. Some key observations for the Megaregion include:

- Economic: PPs are more likely to have lower median household income, higher unemployment rates, live in renter-occupied households with larger family sizes, and work multiple jobs.
- Mobility: PPs are more likely to live in households with no car or with fewer vehicles than workers and have longer commutes.
- Access: PPs are more likely to include residents with a disability, medically underserved areas, and areas without internet access.

In order to plan and design local elements of Link21, it is important to understand inequities at the subregional level. The following disparities between PPs and the general population within each subregion should help Link21 staff consider distinct solutions within and between subregions:

- In the San Francisco Bay Area (Bay Area), the most pronounced disparities are related to income inequality, low-wage jobs, and displacement risk.
- In the Sacramento Area, the most pronounced disparities are related to unemployment, renter-occupied households, access to open spaces, and medically underserved areas.
- In the Northern San Joaquin Valley, the most pronounced disparities are related to unemployment, transportation (access to cars, commute length), access to open spaces and internet, and disconnected youth.
- In the Monterey Bay Area, the most pronounced disparities are related to wages, average family size, access to cars and internet, educational attainment, and health insurance.

Benefited and Burdened Communities

Link21 should benefit many communities across the Megaregion with improved transit service; however, construction and operation will likely result in burdens or negative impacts on some communities. While it is difficult to know what these benefits and burdens will be at this early stage in Link21's development, some assumptions can be made about which communities may experience greater benefits or burdens, which should inform the design of a more equitable program.

Appendix C provides an analysis of potential locations where Link21 improvements may provide greatest benefits to communities across the Megaregion as well as locations and PPs that may experience the greatest burdens associated with construction and operation of any infrastructure and services advanced as part of Link21. These assumptions related to potential benefits and burdens include:

- While the Bay Area is the subregion that will likely receive the greatest benefits from Link21, Bay Area PPs could receive many more Link21 construction and operations related burdens.
- Given the number of PPs in areas that could be potentially burdened by Link21 construction or operations, balanced with the transit benefits, portions of the Northern San Joaquin Valley and Sacramento Area subregions could receive both benefits and burdens related to Link21.
- With less anticipated Link21-related construction and operations in the Monterey Bay Area subregion, this subregion is projected to have limited burdens as a result of Link21.

Implications for Link21

Considering both the program's stated goals and objectives and the Megaregion's current inequities, Link21 should consider the following:

- **Transform the passenger experience** by prioritizing affordability, service frequency, safety, and accessibility. Seek to address the fact that fewer people of color ride rail than ride buses across the Megaregion by partnering with these riders to better understand their rail transit needs and prioritizing solutions to meet them. Using data from the equity poll and other resources, understand that cost, time, personal/public safety, convenience, location, and access are key factors — and current barriers — to using rail for people of color and lower-income populations.
- **Promote equity and livability** by improving safety, health, and air quality, particularly for communities that could be potentially burdened by Link21 such as the PP areas in the Bay Area subregion; downtown Sacramento and West Sacramento in the Sacramento Area; and Tracy, Stockton, and unincorporated areas of San Joaquin County (French Camp, Taft Mosswood, Trull, Holt, and Gillis) in the Northern San Joaquin Valley. Consider amenities such as affordable and equitable internet access at transit stations and inside rail cars to address the broadband and technology disparities and improve transportation technology access.
- **Support economic opportunity** by better connecting communities that have historically been marginalized to jobs, health care, social services, childcare, grocery stores, parks, and other essential places and supporting transit-oriented affordable development and affordable larger-family housing, with attention to economic, mobility, and access disparities in the Megaregion.
- **Advance environmental stewardship and protection** by providing high-quality transit access, especially for no-car households, households with a vehicle mismatch, or in areas with more megacommuters in the Megaregion, reducing the potential need to drive. Seek to reduce short-term environmental impacts of construction activities, particularly in neighborhoods with poor air quality.

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1. INTRODUCTION

San Francisco Bay Area Rapid Transit District (BART) and Capitol Corridor Joint Powers Authority (CCJPA) are advancing Link21 to better foster BART and Regional Rail (RR) connectivity. Link21 will transform the passenger rail network in Northern California into a faster, more integrated system that provides a safe, efficient, equitable, and affordable means of travel for all types of trips.

1.1. Purpose of This Report

The purpose of this Equity Baseline Report is to better understand the current state of inequities across the Megaregion to inform the planning, design, and evaluation of projects that may advance as part of Link21.

The report summarizes the demographics, burdens, and current travel behaviors of the communities in the Megaregion and its four subregions, highlighting the disparities between the general population as a whole and the marginalized communities as defined by Link21.

Link21 began by acknowledging that, historically, infrastructure projects have negatively affected people of color, low-income, and systemically disadvantaged communities. These past harms have resulted in decreased mobility options for certain demographic groups, including barriers to rail access that result in different travel behaviors. Link21 has committed to doing things differently by advancing a more equitable distribution of the program's benefits and burdens, while also working to address the needs of those who were previously harmed by these infrastructure projects. To do so, the Link21 Team needs to clearly understand the current state of inequities in the Megaregion in order to design projects that begin to address these issues.

1.2. Link21 Commitment to Equity

Link21 is being advanced with a focus on equity. The Link21 Equity Vision Statement commits the program to the following:

- Implement processes that advance equity through all aspects of Link21.
- Invest in accessible and accountable community engagement.
- Partner with community members most affected by past transportation projects to identify and avoid, mitigate, or minimize impacts while maximizing benefits to these marginalized communities, including PPs.[1]

[1] For Link21, a "priority population" is a geographic designation of underserved census tracts where people are most affected by experiencing inequitable outcomes, warranting additional attention throughout the planning of Link21. Note that PPs are not inclusive of all marginalized communities or areas with high proportions of minority (people of color) or low-income populations per the federal guidelines pursuant to Executive Order 12898 concerning environmental justice.

- Continue to review the process and our commitments to ensure they reflect the emerging needs of marginalized communities.
- Ensure that disadvantaged and small businesses are key participants in Link21's development.
- Uplift what we learn through co-creation by coordinating with external partners to integrate community input into parallel planning efforts for the long term.

Further, the Equity Blueprint Plan lays out the overarching program commitments to equity.

- Link21 is committed to advancing equity to reduce the inequitable distribution of transportation and environmental benefits and burdens that currently exists throughout the Megaregion.
- Link21 is committed to creating more equitable outcomes.
- Link21 is committed to NOT entrenching the status quo and perpetuating the continued marginalization of communities of color and low-income communities by limiting access to opportunity, displacement, and other burdens.

Link21's Definition of Equity:

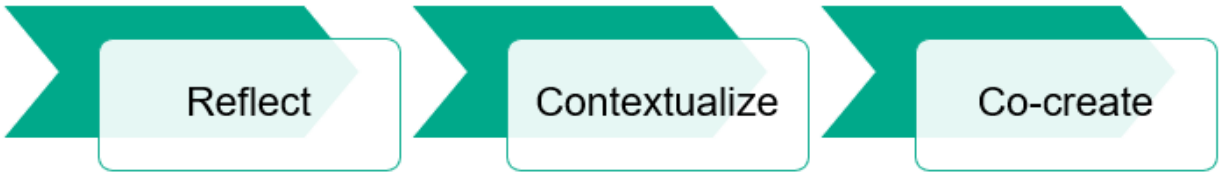
Equity is the state, quality, or ideal of being just, impartial, and fair. It is a state in which an individual's background does not predetermine or predict their opportunity.

- Equity is not a uniform concept and must be defined in and through partnership with community members.

1.2.1. Equitable Processes

To advance equity as envisioned in Link21, everyone involved in the program has a responsibility to promote equitable practices based on three key actions known as the process goals (**Figure 1-1**).

Figure 1-1. Equity Process Goals



1.2.1.1. Reflect: Think About Equity Programmatically

"Reflect" hinges on understanding what the Link21 Team — *as a whole* — brings to the table, both in strengths and challenges. As part of our reflection, we are asked to question existing standards or norms in transportation planning and program development more broadly. Approaches that may have been known as "best practices"

over the years could actually be perpetuating inequity by not resulting in needed benefits or not reducing burdens on disadvantaged communities.

1.2.1.2. Contextualize: See the Full Picture

When we "contextualize," we acknowledge that our knowledge of a community is not complete — not even close. By contextualizing, we seek to better understand how the distribution of benefits and harms has emerged within the context of historical and current patterns and government actions. Meaningful engagement with communities helps us learn about their strengths, needs, and priorities and how they have been formed by past experiences and current actions.

1.2.1.3. Co-create: Treat the Community as Core Partners

Engagement is key to building equity into program development and implementation that reflects the actual — *rather than perceived* — needs and goals of Link21 communities. Through co-creation, community members share power and responsibility, and make decisions together. The idea behind "co-create" is to develop strong partnerships with community members that result in bidirectional trust that affects broader community outcomes (e.g., health, wealth, opportunity).

In Link21's co-creation work, the Link21 Team partners with community-based organizations (CBOs) to host interactive workshops on key program topics. Those CBOs recruit community members from underrepresented identities and geographies to participate. Participants are compensated for their contributions. Learnings from co-creation directly influence the Link21 work.

1.3. Link21 Program Context

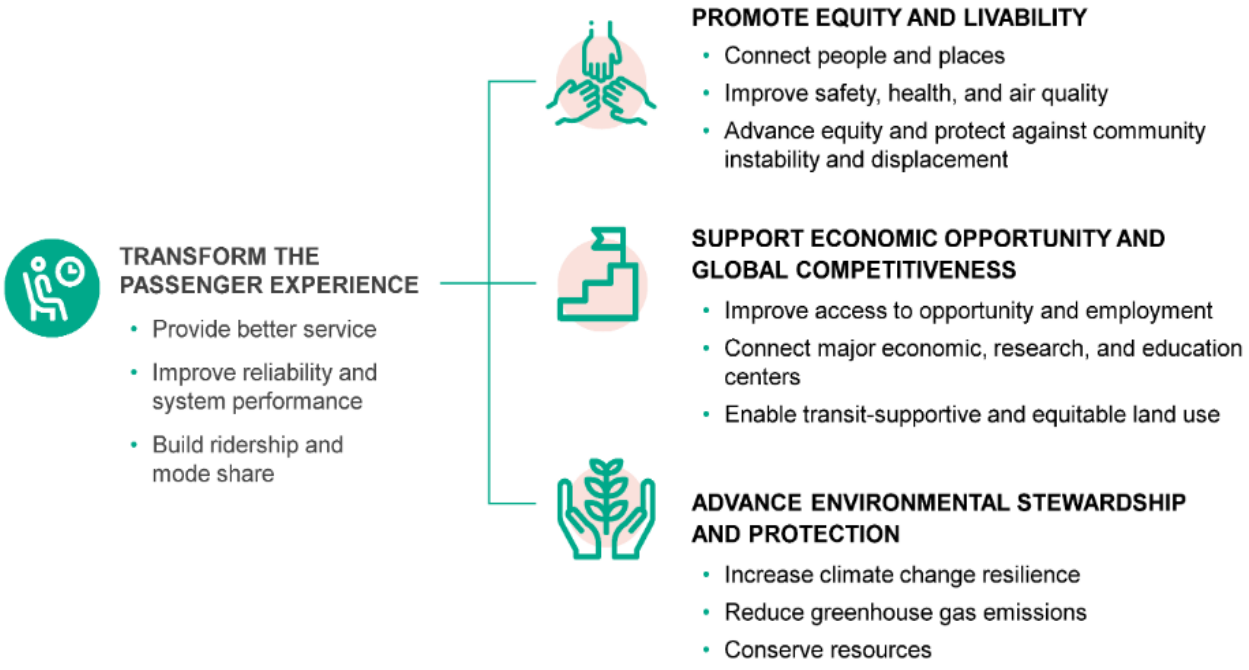
Link21 will consist of one or more projects that together could transform passenger rail by getting people to their destinations with greater efficiency, affordability, equity, and convenience. Link21 would include a new transbay passenger rail crossing between Oakland and San Francisco and could also include additional network improvements that support service through the new rail crossing. A new transbay crossing could unlock the potential for a next-generation passenger rail system, with transportation and air quality benefits that can be enjoyed by existing rail transit users and new riders in the future.

1.3.1. Goals and Objectives

The Link21 vision, based on input from communities within the Megaregion, states that "the Link21 Program and its partners will transform the BART and Regional Rail (including commuter, intercity, and high-speed rail) network in the Northern California Megaregion into a faster, more integrated system that provides a safe, efficient,

equitable, and affordable means of travel for all types of trips." The goals and objectives based on this vision are shown in **Figure 1-2**.

Figure 1-2. Link21 Goals and Objectives



Through these transportation improvements, communities within the Megaregion could experience enhanced environmental quality, livability, and economic opportunity while protecting against community instability and displacement in the Megaregion while improving the travel experience.

1.3.2. Link21 Study Area

The Link21 study area includes 21 counties in Northern California, collectively referred to as the Megaregion. As shown in **Figure 1-3**, the Megaregion is divided into four subregions: the Bay Area, Sacramento Area, Northern San Joaquin Valley, and Monterey Bay Area.

The Bay Area subregion contains the nine counties under the jurisdiction of the Metropolitan Transportation Commission (MTC) as the metropolitan planning organization (MPO): Alameda County, Contra Costa County, Marin County, Napa County, City and County of San Francisco, San Mateo County, Santa Clara County, Solano County, and Sonoma County.

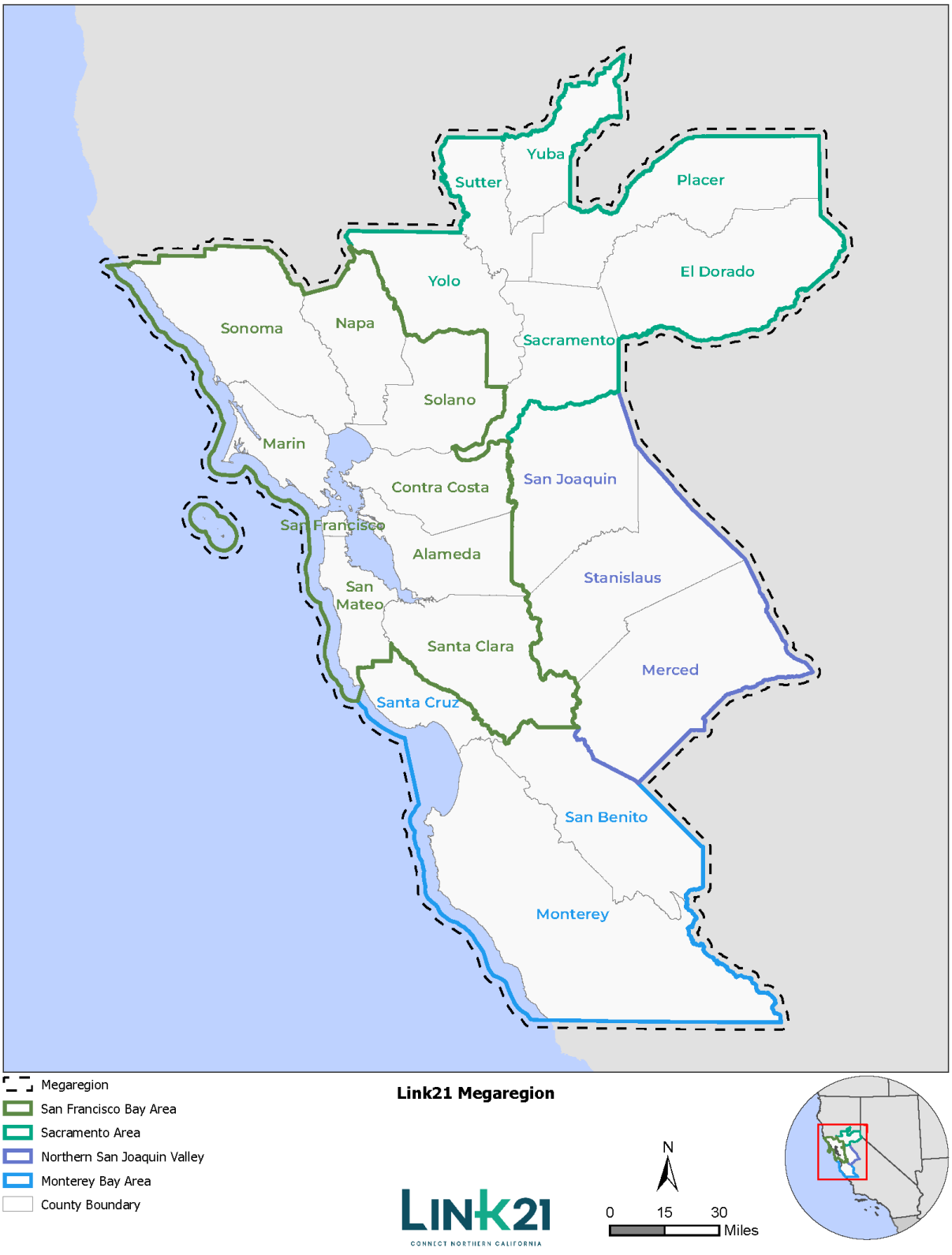
The Sacramento Area subregion contains six counties that make up the jurisdiction of the Sacramento Area Council of Governments (SACOG) MPO: El Dorado County, Placer County, Sacramento County, Sutter County, Yolo County, and Yuba County.

Also, the Tahoe Regional Planning Agency (TRPA) covers parts of Placer County and El Dorado County in California and Douglas and Washoe counties in Nevada.

The Northern San Joaquin Valley subregion is made up of three counties: Merced County, San Joaquin County, and Stanislaus County. Each of the three counties in the Northern San Joaquin Valley subregion has its own respective MPO. Merced County's MPO is the Merced County Association of Governments (MCAG), San Joaquin County's MPO is the San Joaquin Council of Governments (SJCOG), and Stanislaus County's MPO is the Stanislaus Council of Governments (StanCOG).

The Monterey Bay Area subregion comprises three counties as part of the Association of Monterey Bay Area Governments (AMBAG) MPO: Monterey County, San Benito County, and Santa Cruz County.

Figure 1-3. Northern California Megaregion and Four Subregions



1.3.3. Communities That Have Been Marginalized

Link21 is committed to advancing the program based on a foundation built from community input and evaluation measures that prioritize elements that could result in more equitable outcomes across the Megaregion. As part of its equity commitment, Link21 seeks to optimize benefits and prevent or mitigate harms to communities that have historically experienced negative impacts from infrastructure projects. These communities that have been marginalized include those populations that have been systemically or socially disadvantaged or underserved and are inclusive of Link21's PPs and environmental justice (EJ) communities, as described in **Section 1.3.3.2**.

1.3.3.1. Priority Populations

Link21 developed a definition of PPs early in the program to: (1) identify communities warranting additional focus in concept development and program analyses; and (2) identify those areas that would benefit from additional investment and may require additional sensitivity around decision-making. The preliminary definition of PPs combined existing state and regional definitions and did not use a consistent methodology across the Megaregion. For example, some subregions had created equity definitions (e.g., MTC's definition of Equity Priority Communities) while others had not. The Equity Team used the preliminary definition of PPs to provide additional weighting in the Market Analysis and to initiate engagement with marginalized communities, although the definition did not adequately represent the unique scale of the program.

In 2022, the Link21 Team updated its PP definition to be tailored to Link21 work. The new definition looks specifically at the distribution of benefits and burdens across the Megaregion to identify those communities that are experiencing disproportionately high negative outcomes. This update was substantially informed by round two of co-creation held between August and October 2021 (see **Section 1.2.1.3** for a description of co-creation). In this round, the Equity Team partnered with CBOs to either host a 2-hour workshop with community members or distribute a survey to the community. Feedback from 330 community members from typically underrepresented backgrounds was used to:

- Validate burdens that the Team had drafted
- Identify additional burdens that should be included
- Determine appropriate weights for the four different evaluation categories

A megaregional representative sample poll that had 1,500 respondents from communities of color and/or low-income backgrounds also influenced the updated definition.

While geographic metrics such as the PP definition have inherent limitations, the revised definition better reflects current conditions in the Megaregion. The definition provides a clearer picture of the inequitable distribution of benefits and burdens

between communities. The PP definition is not the only tool the program will use to prioritize marginalized communities throughout its work, nor is it a comprehensive list of all locations in the Megaregion where inequities exist. However, it was co-created with marginalized community members who were able to share current health, safety, mobility, community, and economic challenges they face that prevent them from having equal access to opportunities.

For Link21, the updated PPs are census tracts that first have met qualification criteria and then scored above a set threshold of disproportionately negative outcomes based on several evaluation metrics, as described below:

- **Qualify:** A census tract qualifies as a PP if it has a high proportion (50th percentile, or at least half) of low-income households, transportation cost burdened households, or persons of color.
- **Evaluate:** Qualifying census tracts are evaluated based on burden metrics within four general categories (economic, mobility, community, and health and safety). For each category, a weighted composite index is determined and an overall PPs index is calculated considering all four burden categories. Census tracts with index scores of 55 or higher are identified as PPs. **Table 1-1** provides the full list of evaluation metrics.

Table 1-1. Priority Population Evaluation Metrics

ECONOMIC	MOBILITY	COMMUNITY	HEALTH & SAFETY
▫ Household income ▫ Unemployment rates ▫ Low wages ▫ Tenure ▫ Housing and transportation costs ▫ Family size ▫ Multiple jobs	▫ Transportation cost burden ▫ No household cars ▫ Vehicle mismatch ▫ Commute length ▫ Transit access	▫ Disconnected youth ▫ Miles of highway ▫ Access to open spaces ▫ Access to grocery stores ▫ Low educational attainment ▫ Displacement ▫ Older adults 65+ ▫ Internet access	▫ Medically underserved area ▫ Asthma rate ▫ Heart disease death ▫ Air quality ▫ Collisions ▫ Overcrowded homes ▫ Low employment benefits

PPs have been identified and are discussed further in **Appendix B** of this report.

1.3.3.2. Environmental Justice Communities

EJ communities are defined based on the 1994 federal Executive Order (EO) 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations) that requires federal agencies to identify and address

disproportionately adverse effects of their programs, policies, and activities on minority and low-income populations. EO 12898 also requires the inclusion of full and fair participation in the decision-making process by all potentially affected communities.

Communities that may be considered EJ communities are those that are located within a specified geography that meets the criteria for a higher proportion of either minority populations (i.e., people of color — those who do not identify as white, non-Hispanic, one race only)[2] or low-income populations (i.e., persons who reside in households with incomes below the federal poverty level).[3] The threshold to define "higher proportions" are generally set by the implementing agency based on their service area, so for an interagency and megaregional program like Link21, no set threshold currently exists and may not be established until specific projects are selected.

EJ communities have not yet been identified for Link21, but some of these communities across the Megaregion may not necessarily coincide with the locations of PPs. The PP definition was intentionally developed to be tailored to the program to inform strategic program decision-making and provide additional emphasis on the most burdened communities throughout the Megaregion.

[2] People of color may also be referred to as "Black, Indigenous, and people of color" or BIPOC.
[3] Per the Federal Transit Administration's Circular 4703.1 (2012), 150% of the federal poverty level is to be used as the threshold for "low-income" unless a local or regional percentage is in use. In the Bay Area, 200% of the federal poverty level is the threshold for low-income status.

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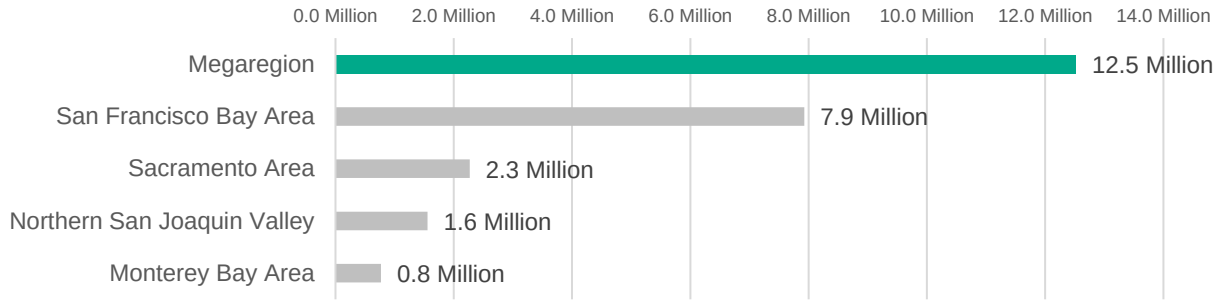
2. NORTHERN CALIFORNIA DEMOGRAPHICS

This section provides demographic data on the Megaregion and four subregions. About 30% of California's population resides in the Megaregion (~12.5 million). **Figure 2-1** shows the breakdown of population by subregion. The Bay Area is the most populated of the four subregions.

This section includes population statistics by subregion compiled from regional transportation plans (RTPs) of the seven MPOs within the Megaregion.[4] **Appendix A** provides projected population statistics by subregion compiled from the RTPs of the seven MPOs in the Megaregion and California Department of Finance's projections for 2040, the anticipated program service year.

Figure 2-1. Link21 Megaregion Population (2020)



Source: U.S. Census Bureau 2020

2.1. Current Population Characteristics

This section presents census data and mapping on current population characteristics, including:

- Race and ethnicity
- Age
- Gender
- Limited English proficiency (LEP)
- Foreign born
- Disability status
- Educational attainment
- Single-parent households
- Transportation cost burdened households
- Commute times
- Overcrowded households
- Renter-occupied households
- Unhoused residents

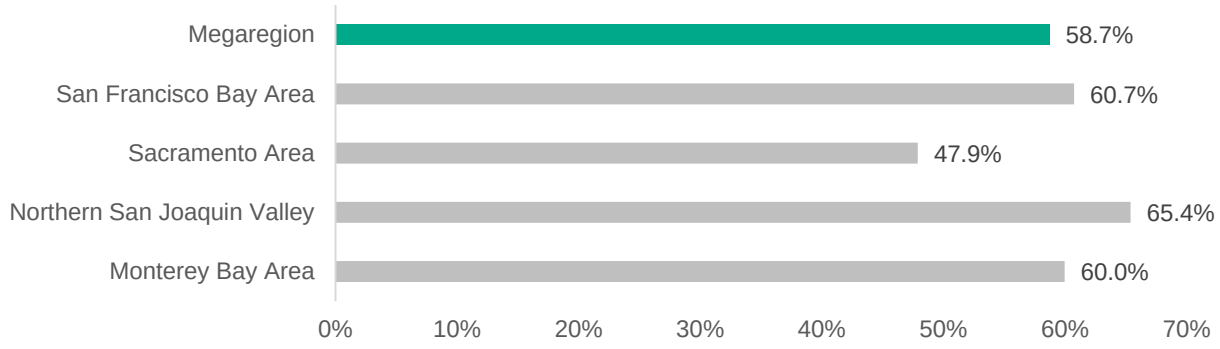
[4] The seven MPOs of the Megaregion are MTC, SACOG, TRPA, MCAG, StanCOG, SJCOG, and AMBAG. Data from the TRPA, which covers portions of El Dorado and Placer County, are not included in this report.

Appendix A provides information on projected population statistics by subregion compiled from the RTPs of the seven MPOs that are in the Megaregion and California Department of Finance's projections.

2.1.1. Race and Ethnicity

Historically, infrastructure projects have negatively affected people of color and systemically disadvantaged communities through direct and indirect displacement, construction impacts, disruptions to community cohesion, and environmental degradation. These communities are often left out of the decision-making process and receive fewer project benefits (Sanchez et al. 2003). People of color make up 59% of the Megaregion's population, with Northern San Joaquin Valley at 65%, Bay Area and Monterey Bay Area at approximately 60% each, and Sacramento Area at 47% (**Figure 2-2**). **Table 2-1** shows the race and ethnicity breakdown in further detail, by the Megaregion and four subregions.

Figure 2-2. Percentage of People of Color Population



Source: U.S. Census Bureau 2020

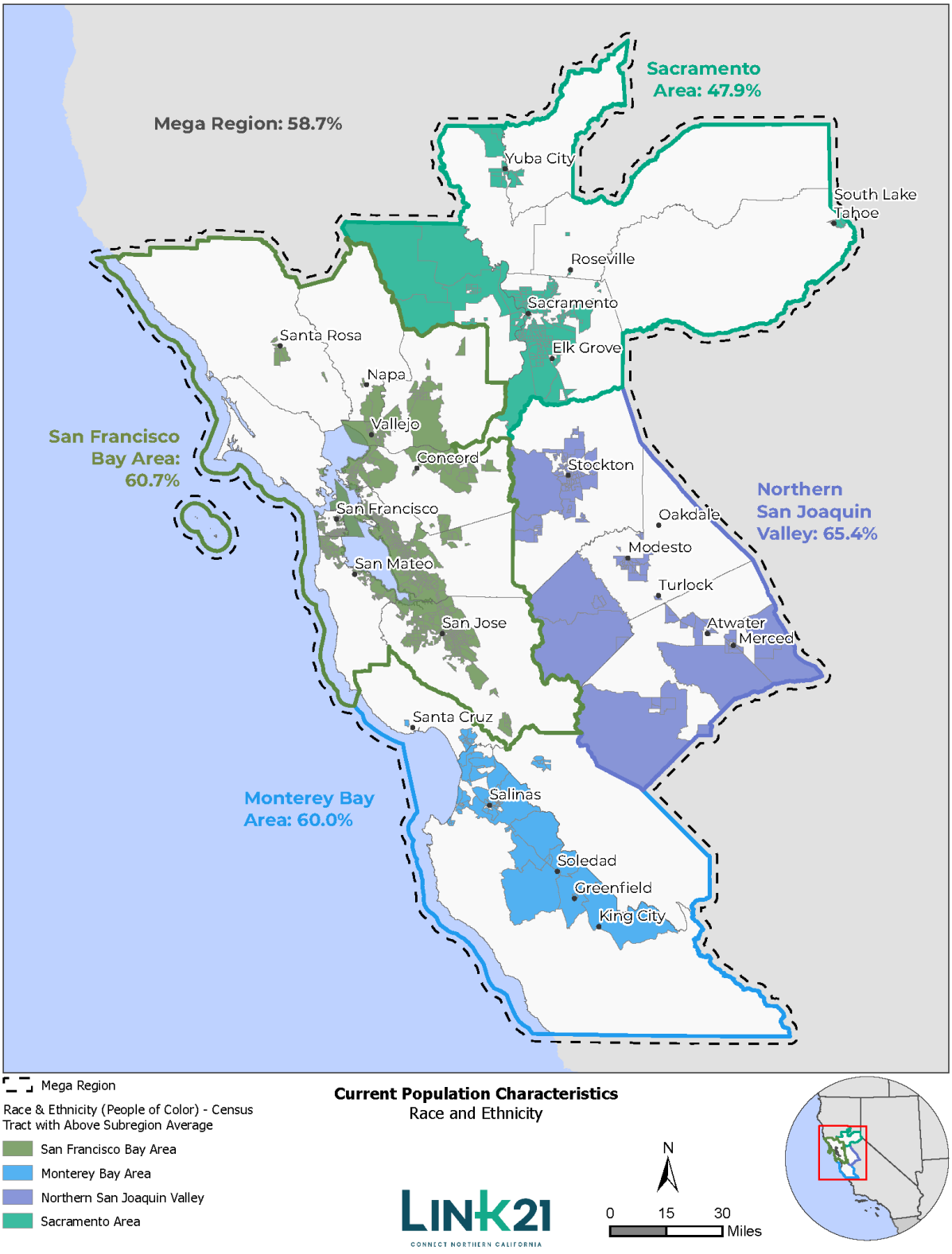
Table 2-1. Race/Ethnicity Distribution in the Megaregion and Four Subregions

RACE/ETHNICITY	SAN FRANCISCO BAY AREA	SACRAMENTO AREA	NORTHERN SAN JOAQUIN VALLEY	MONTEREY BAY AREA	MEGAREGION
Black	5.8%	6.5%	4.7%	1.8%	5.6%
Hispanic (Latino)	23.5%	22.2%	46.3%	49.8%	27.7%
Asian/Pacific Islander	26.7%	13.8%	10.9%	5.2%	20.8%
Native American	0.2%	0.4%	0.3%	0.2%	0.3%
Mixed/Other	4.5%	5.1%	3.2%	3.0%	4.4%
White	39.3%	52.1%	34.6%	40.0%	41.3%
People of Color	60.7%	47.9%	65.4%	60.0%	58.7%

Note: "People of color" indicates the population that does not identify as non-Hispanic white, inclusive of the following categories: Black, Hispanic/Latino, Native American, Asian/Pacific Islander, and Mixed/Other.
Source: U.S. Census Bureau 2020

To illustrate geographic distribution within each subregion, **Figure 2-3** shows the census tracts where the percentage of people of color is above the subregional average.

Figure 2-3. Percentage of People of Color Population



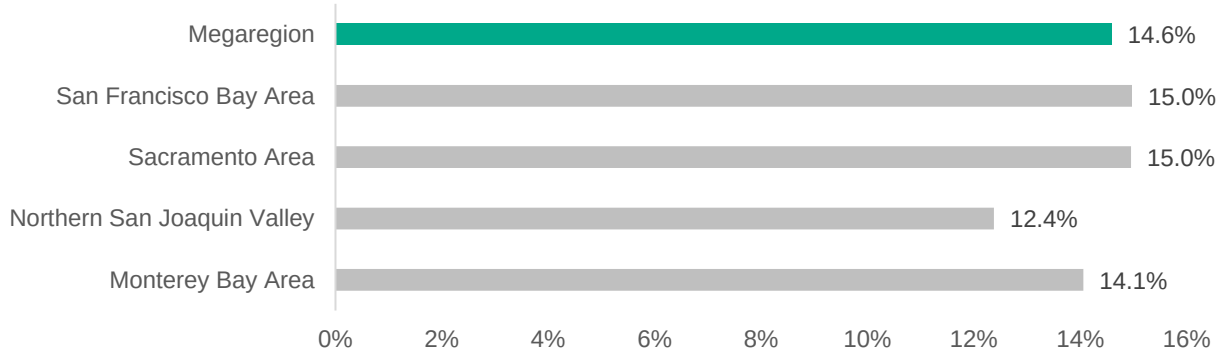
Sources: U.S. Census Bureau 2020; values calculated using the Link21 Priority Populations Evaluation and Identification Tool

2.1.2. Age

Older adults make up a large portion of the population who rely on community transportation and have diverse transportation needs, often intersecting with other key population characteristics, such as race and ethnicity, LEP, and disability status (National Center for Mobility Management 2017). Over one in seven of the Megaregion's population is over 65 years old (14.6%), with Bay Area and Sacramento Area at 15%, Monterey Bay Area at 14%, and Northern San Joaquin Valley at 12% (**Figure 2-4**).

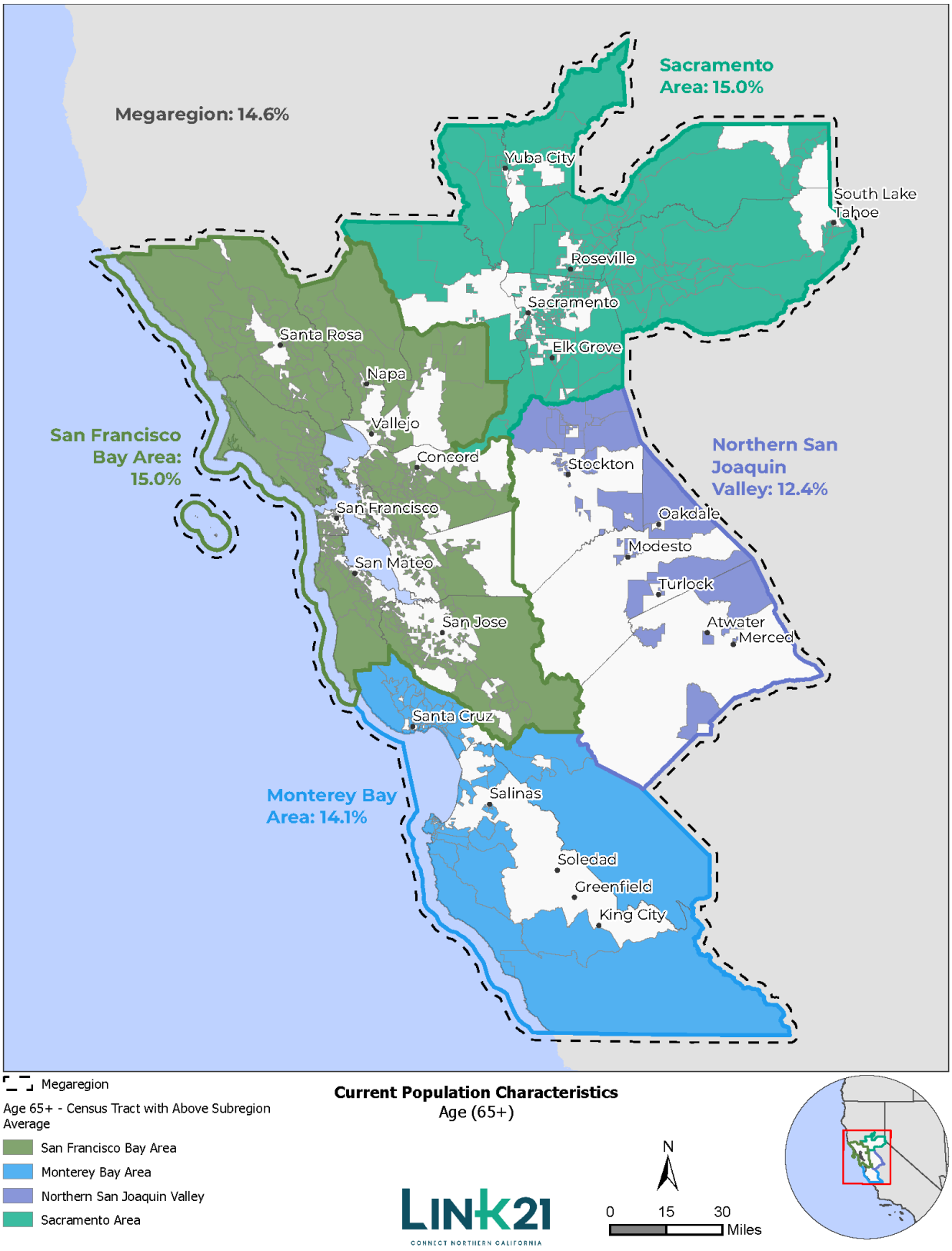
To illustrate geographic distribution within a subregion, **Figure 2-5** shows the census tracts where the percentage of older adults is above each respective subregional average. The tracts that are not highlighted have a lower proportion of older adults, lower than its respective subregional average. From the map's findings, older adults in the Megaregion seem to be more likely to be located outside of major cities within the Megaregion, although that seems to be less the case in the Sacramento Area and San Joaquin Valley subregions.

Figure 2-4. Percentage of Older Adult (65+) Population



Source: U.S. Census Bureau 2020

Figure 2-5. Percentage of Older Adult (65+) Population



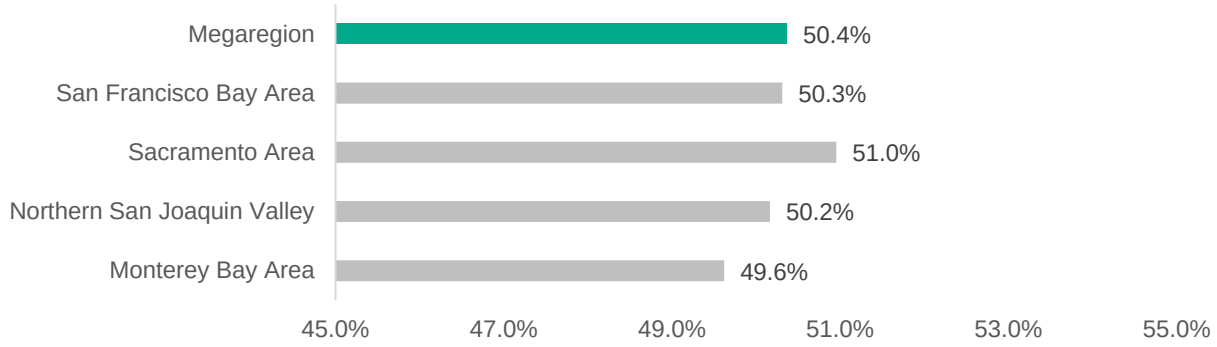
Sources: U.S. Census Bureau 2020; Priority Populations Evaluation and Identification Tool

2.1.3. Gender[5]

A growing number of studies have shown gender-based disparities and differences regarding transportation, with most current studies focusing on transportation needs of women (Ng and Acker 2018). Among such differences, women are more likely to chain or combine trips, take overall more trips, to travel at non-commute peak hours, and to choose more flexible modes (LA Metro 2019). Roughly 50% of the population in the Megaregion identifies as female, with small differences in each subregion likely due to normal statistical variation (**Figure 2-6**).

Figure 2-7 shows the geographical distribution of females in the subregions, illustrating the census tracts where females are above the subregional average.

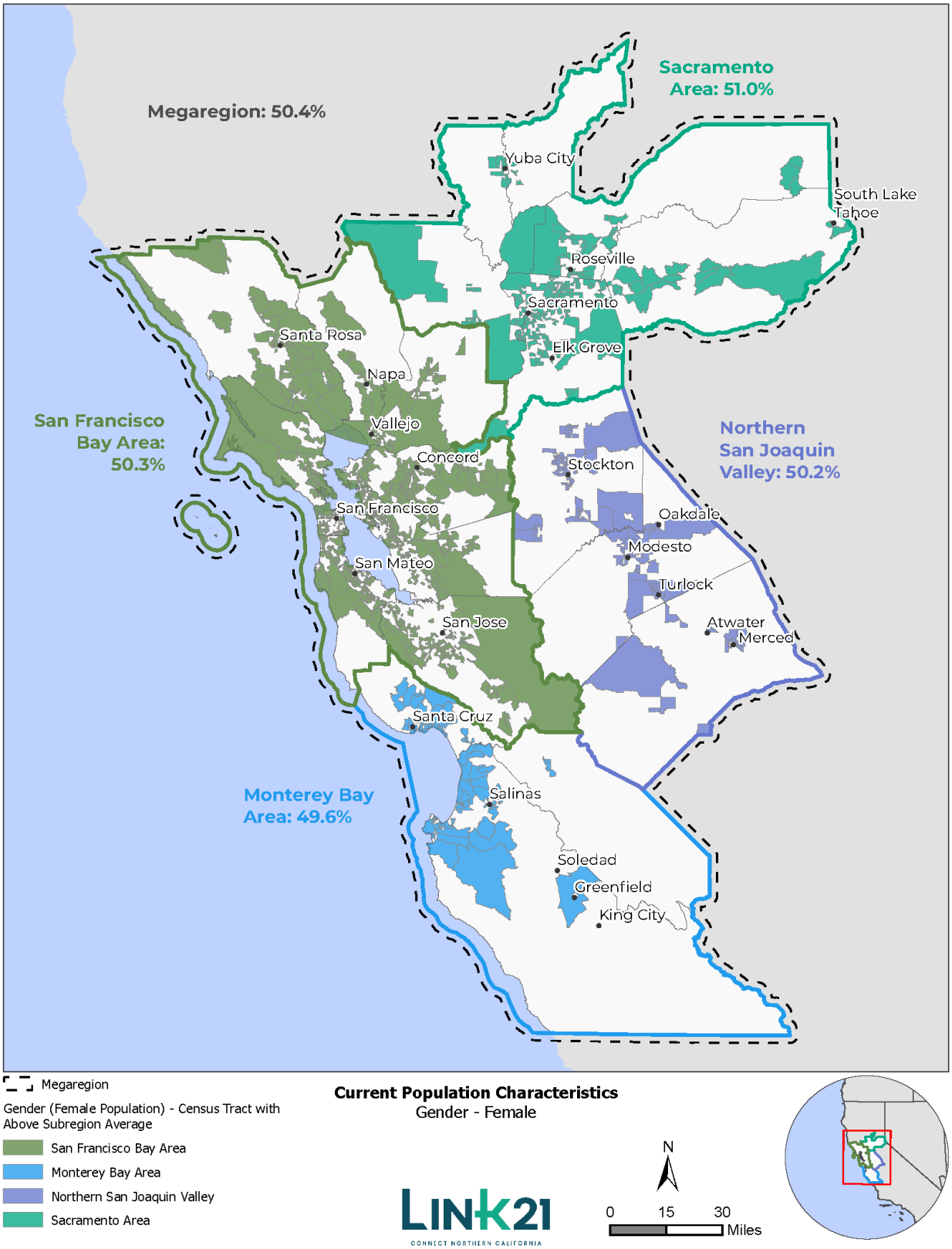
Figure 2-6. Percentage of Female Population



Source: U.S. Census Bureau 2020

[5] There continues to be limited data availability for transgender and gender nonconforming or nonbinary people. As a result, this section deals primarily with binary gender demographic information.

Figure 2-7. Percentage of Female Population



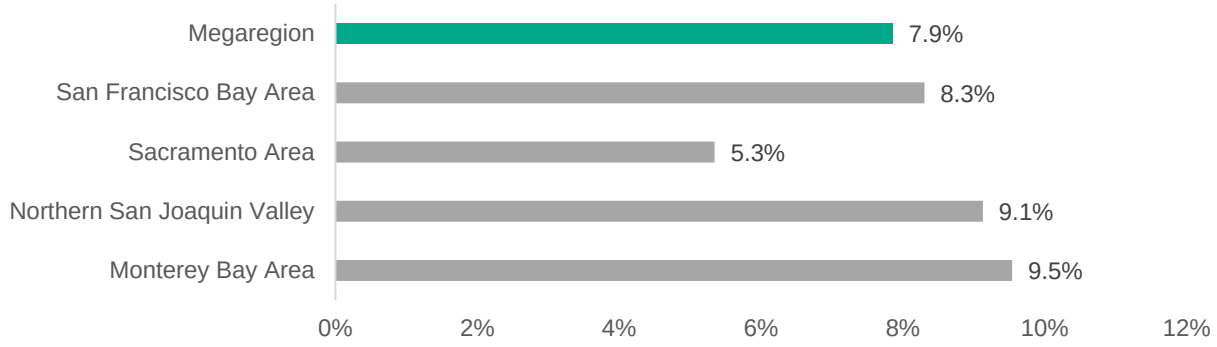
Sources: U.S. Census Bureau 2020; Priority Populations Evaluation and Identification Tool

2.1.4. Limited English Proficiency

LEP refers to people who have a limited ability to read, write, speak, or understand English, creating potential barriers for accessing services and information, such as public transportation, employment, education, and other resources (U.S. Department of Transportation [USDOT] 2016). In the Megaregion, approximately 7.9% of households have members over 14 who have some difficulty with English. Almost one in 10 households in the Monterey Bay Area (9.5%) and one in 11 in the Northern San Joaquin Valley (9.1%) have LEP households, with the Bay Area (8.3%) slightly higher than the Megaregion average (**Figure 2-8**).

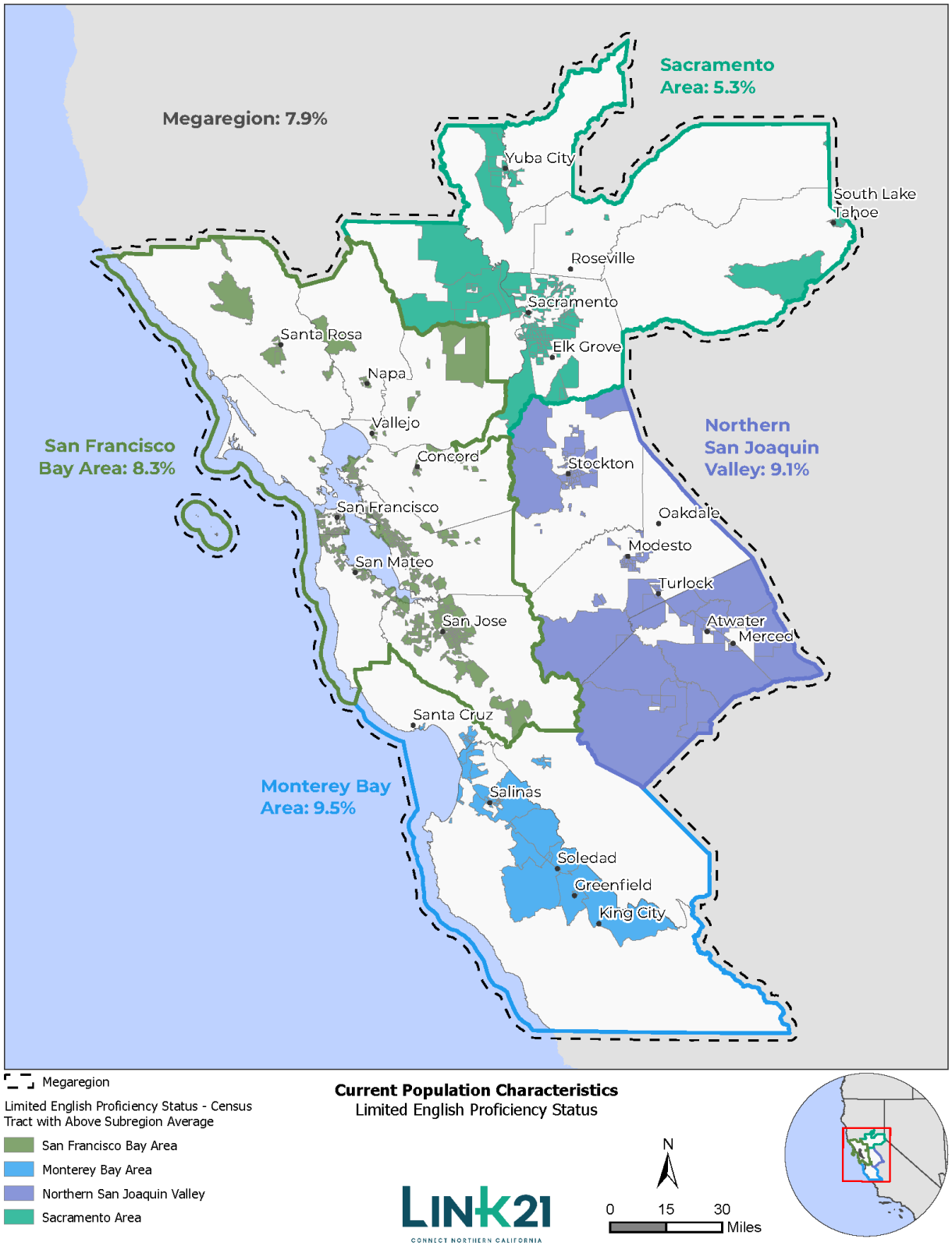
To illustrate geographic distribution within a subregion, **Figure 2-9** shows the census tracts where the percentage of LEP households is above the subregional average.

Figure 2-8**. Percentage of Limited English Proficiency Households**



Source: U.S. Census Bureau 2020

Figure 2-9. Percentage of Limited English Proficiency Households



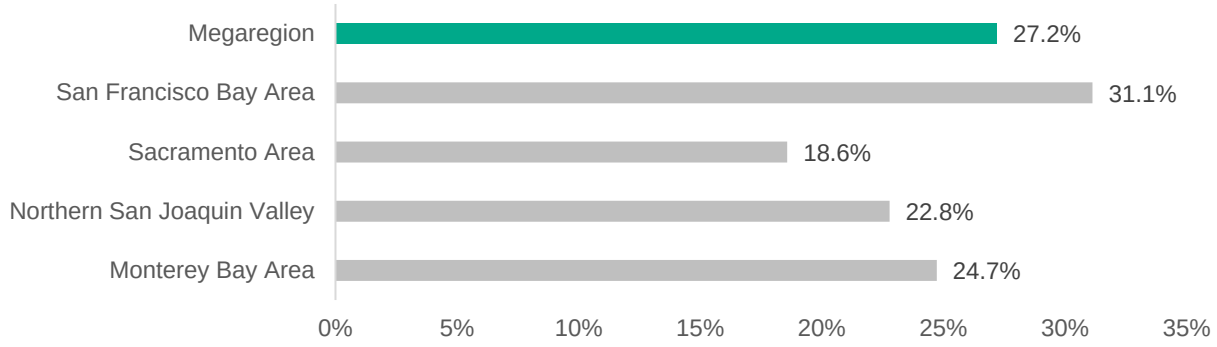
Sources: U.S. Census Bureau 2020; Priority Populations Evaluation and Identification Tool

2.1.5. Foreign Born

People born outside of the U.S. may face challenges including barriers to employment, access to health and human services, and complex government processes (U.S. Department of Health and Human Services 2012). Over 27% of the population in the Megaregion is foreign born. At 31.1%, the Bay Area has the highest percentage of foreign-born population among the subregions, followed by the Monterey Bay Area (24.7%), Northern San Joaquin Valley (22.8%), and the Sacramento Area (18.6%) (**Figure 2-10**).

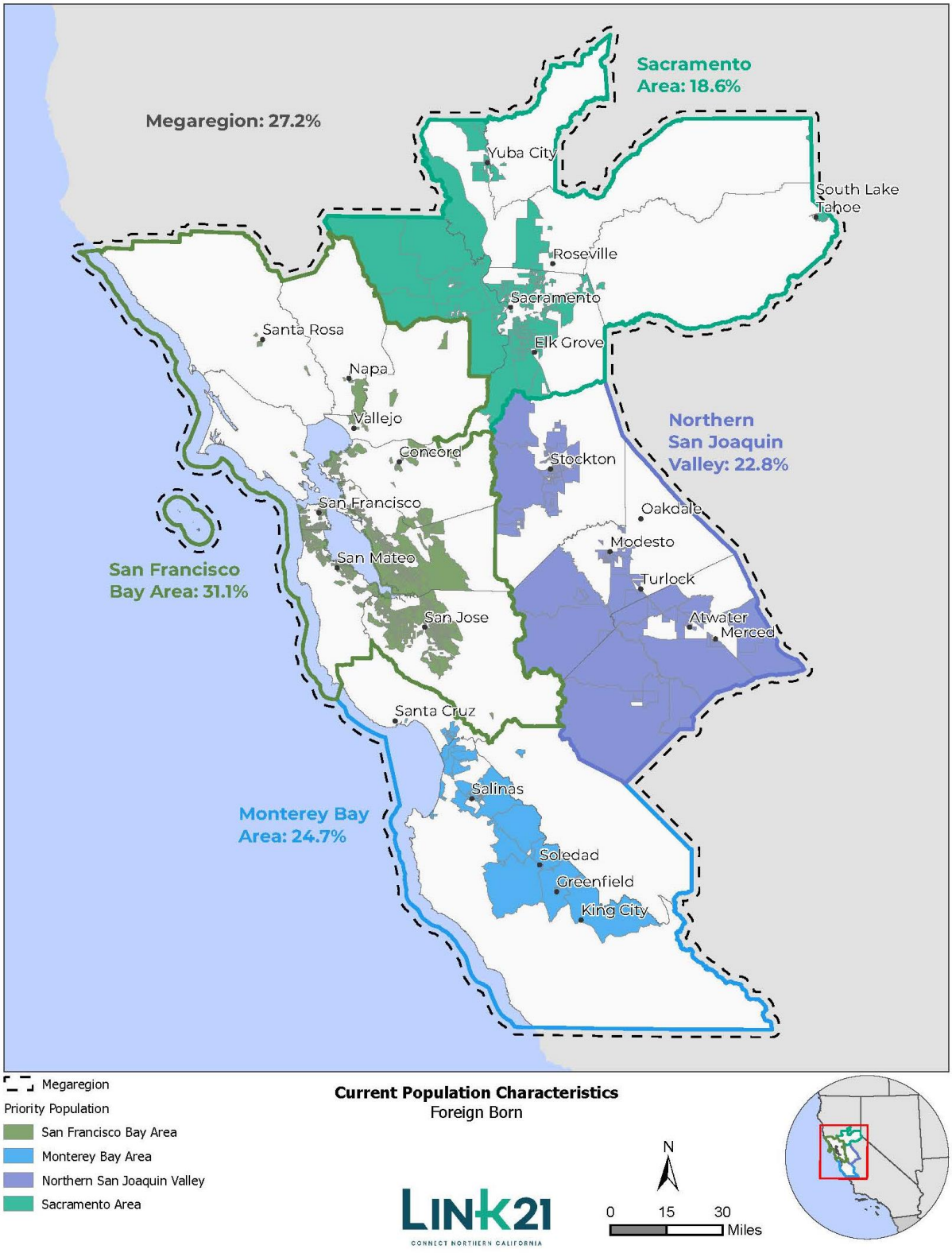
To illustrate geographic distribution within a subregion, **Figure 2-11** shows the census tracts where the percentage of foreign-born population is above the subregional average.

Figure 2-10. Percentage of Foreign-Born Population



Source: U.S. Census Bureau 2020

Figure 2-11. Percentage of Foreign-Born Population



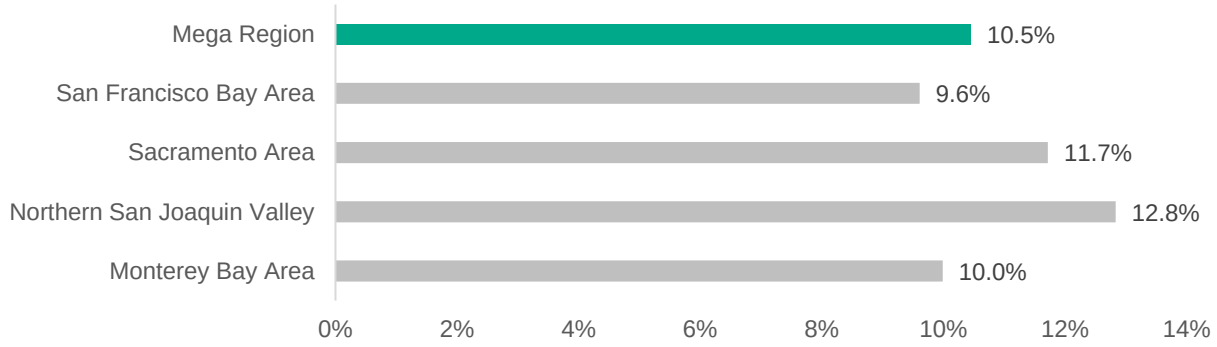
Sources: U.S. Census Bureau 2020; Priority Populations Evaluation and Identification Tool

2.1.6. Disability Status

Research shows that people with disabilities face multiple barriers in travel, access to services, and opportunities. In addition, people with disabilities report more mobility challenges and barriers in travel than those without disabilities (Institute of Medicine 2007). In the Megaregion, more than one in 10 residents identify as having a disability (10.5%). **Figure 2-12** shows populations with disabilities by subregion.

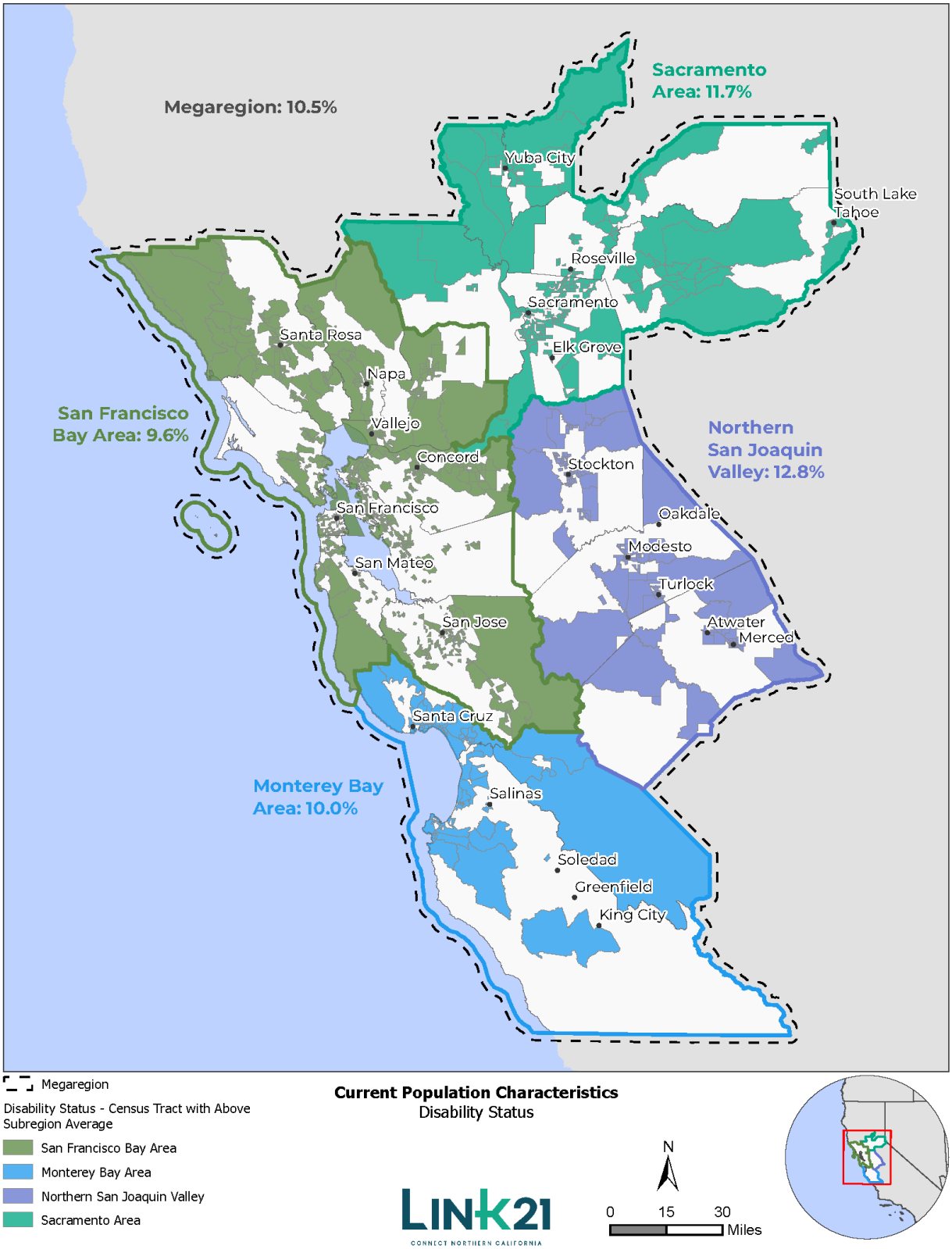
Figure 2-13 shows the geographical distribution of populations with disabilities in the subregions, highlighting census tracts where percentage of populations with disabilities is above the subregional average.

Figure 2-12. Percentage of Persons with a Disability



Source: U.S. Census Bureau 2020

Figure 2-13. Percentage of Persons with a Disability



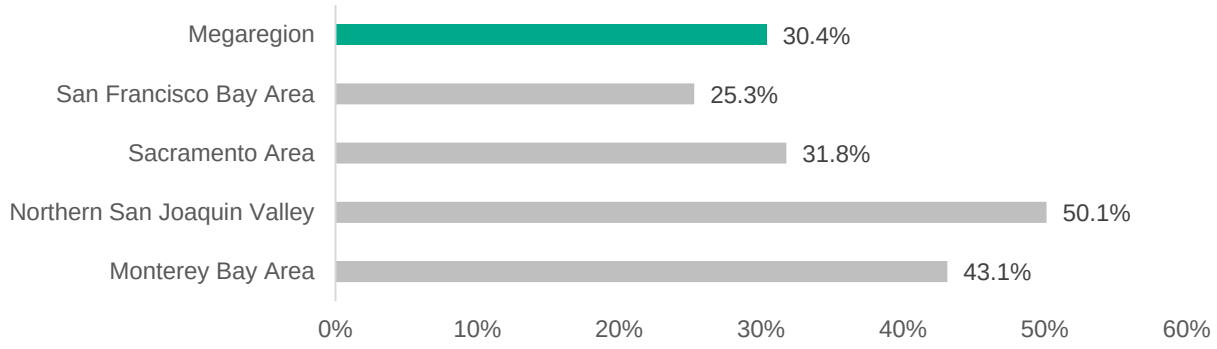
Sources: U.S. Census Bureau 2020; Priority Populations Evaluation and Identification Tool

2.1.7. Educational Attainment

In the Megaregion, “low educational attainment” is defined as when the highest level of educational attainment is less than high school graduation or no higher than high school graduation in the 25 to 64 years age group.[6] A person’s educational attainment plays an important role in employment, income, health status, housing, and other characteristics (Belfield and Levin 2007). In the Megaregion over 30% of the population has low educational attainment. Over half of the residents in Northern San Joaquin Valley (50.1%), over 40% of the residents in the Monterey Bay Area, and 32% of the residents in the Sacramento Area have low educational attainment; the Bay Area is below the megaregional average with about 1 in 4 residents with low educational attainment (**Figure 2-14**).

Figure 2-15 shows the geographical distribution of lower educational attainment in the subregions, highlighting census tracts in each of the subregions where the percentage of low educational attainment is above the subregional average.

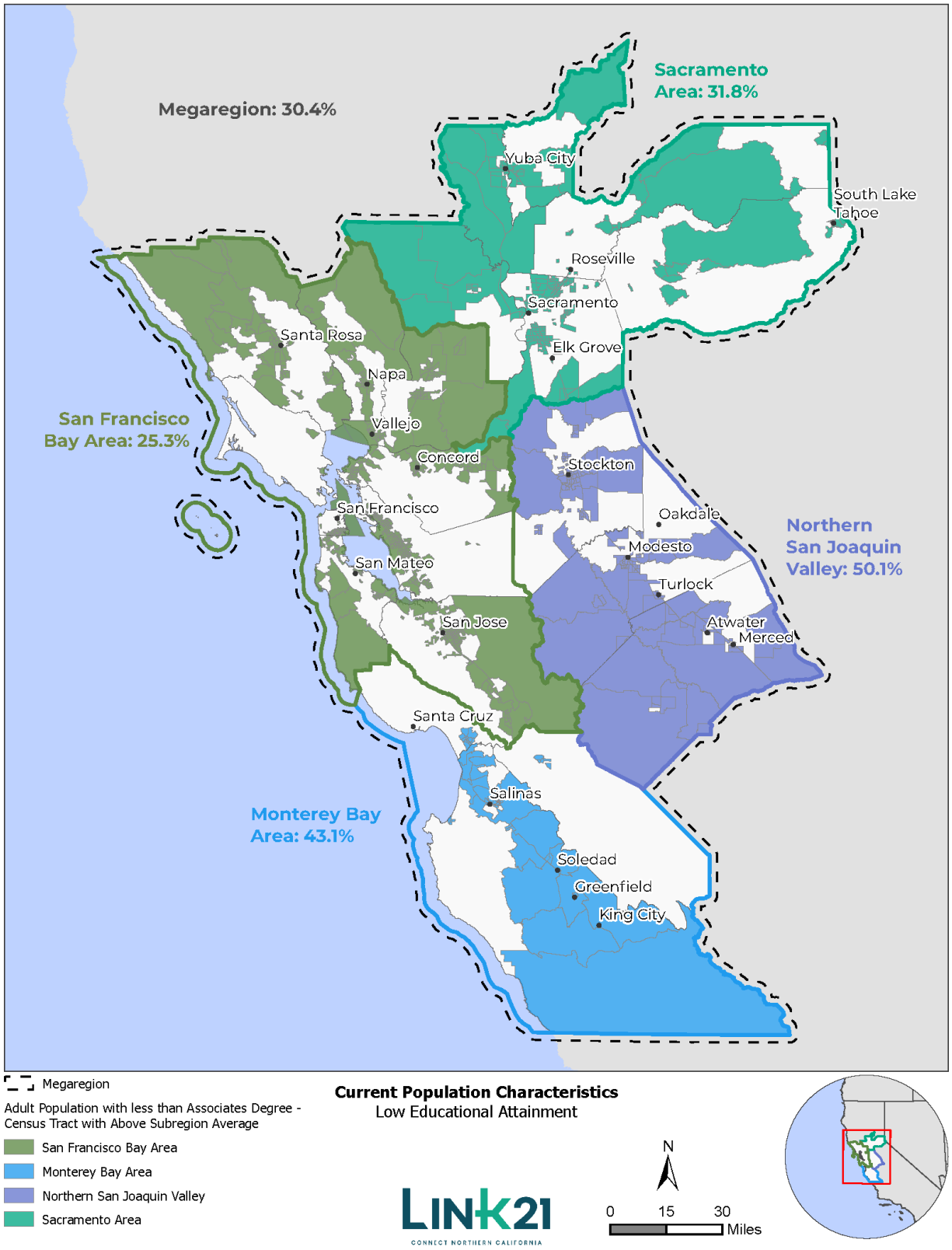
Figure 2-14. Percentage of Population with Low Educational Attainment



Source: U.S. Census Bureau 2020

[6] Priority Populations Update Documentation. Priority Populations Evaluation and Identification Tool.

Figure 2-15. Percentage of Population with Low Educational Attainment



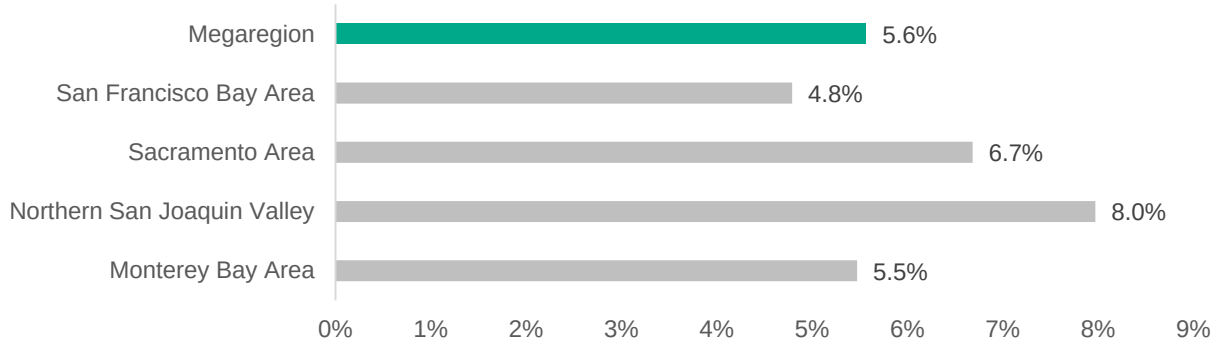
Sources: U.S. Census Bureau 2020; Priority Populations Evaluation and Identification Tool

2.1.8. Single-Parent Households

Single-parent households face distinct challenges, which may include financial, time, and mental health constraints, affecting their mobility options and travel behaviors (Stack and Meredith 2018). Over 5% of households in the Megaregion are single-parent households. The Northern San Joaquin Valley has the highest percentage of single-parent households among the subregions, and the Bay Area has the lowest (**Figure 2-16**).

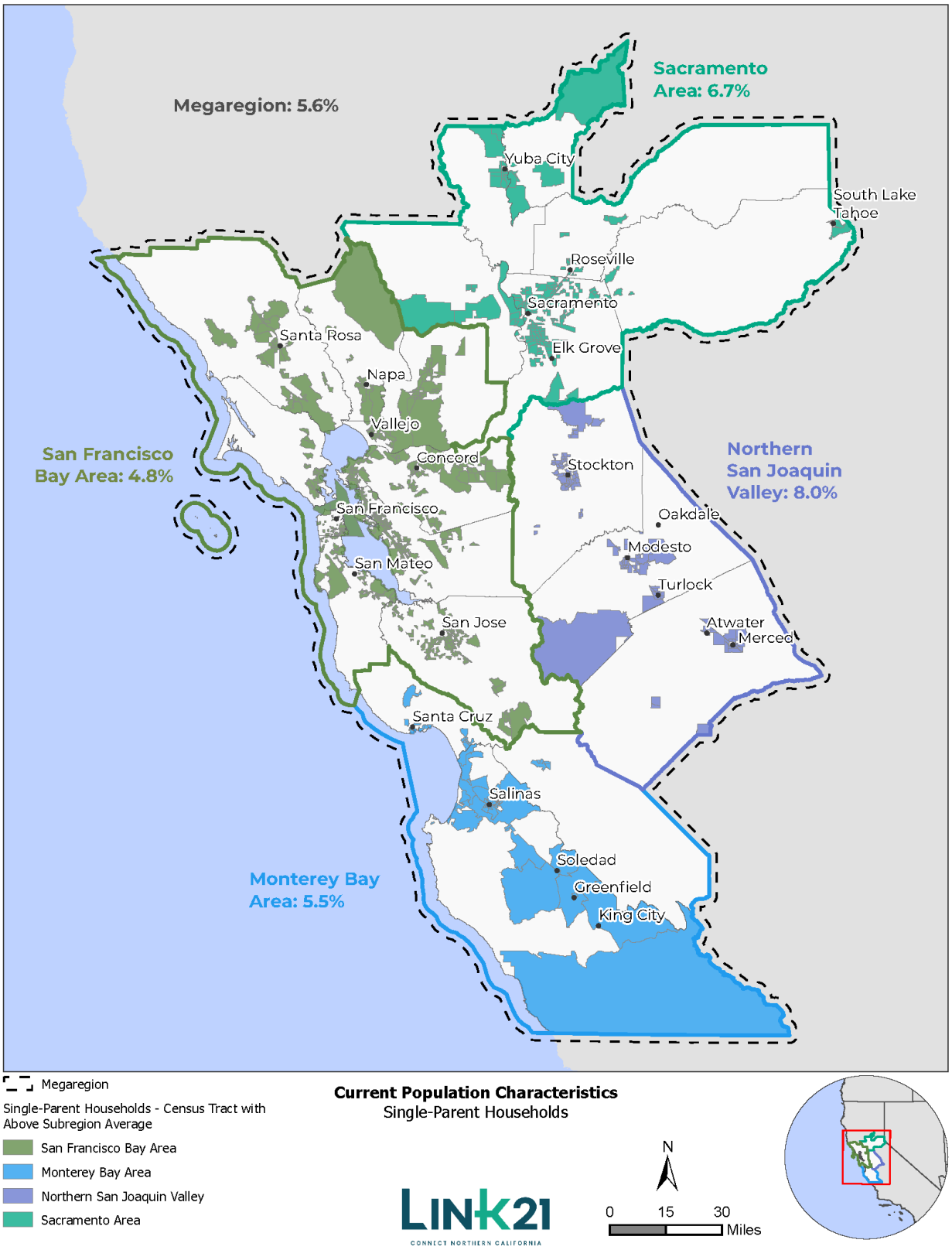
Figure 2-17 shows the geographical distribution of single-parent households in the subregions, highlighting census tracts in each subregion where the percentage of single-parent households is above the subregional average.

Figure 2-16. Percentage of Single-Parent Households



Source: U.S. Census Bureau 2020

Figure 2-17. Percentage of Single-Parent Households



Sources: U.S. Census Bureau 2020; Priority Populations Evaluation and Identification Tool

2.1.9. Transportation Cost Burdened Households

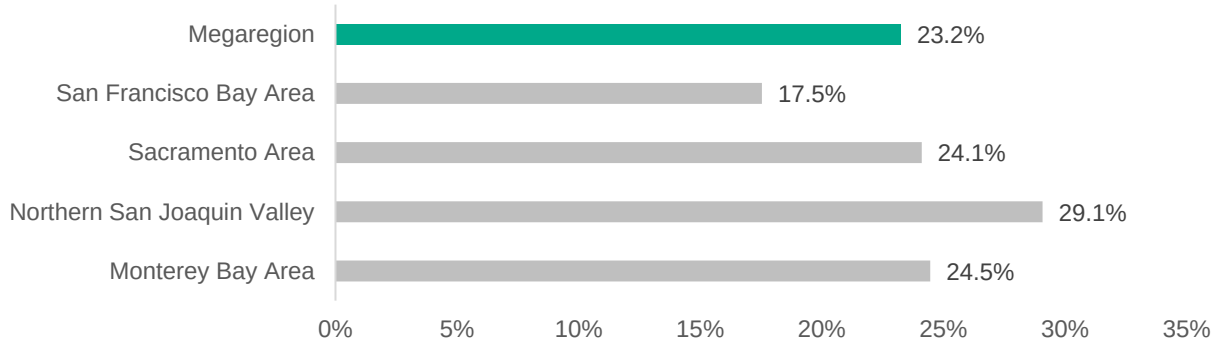
"Transportation cost burden" is defined as a percentage of household income put toward transportation. The higher the percentage is, the more transportation cost burdened the household is.[7] Transportation costs play a large role in overall household costs — they are typically the second largest expenditure after housing. If the transportation cost burden is too high, households have less to spend on other essentials such as food and health care (Center for Neighborhood Technology [CNT] 2022). In addition, residents who live in areas with more affordable housing may have a lower housing cost burden but may have higher transportation costs. This may be due to car reliance and longer trips to access work and other destinations (USDOT 2015).

Households are considered to be cost burdened if they spend more than 30% of their income on housing; however, the CNT factors in transportation costs to set the benchmark at no more than 45% of household income. As a result, a household could be considered transportation cost burdened if it spends more than 15% of its income on transportation. The methodology to factor transportation cost burden into the identification of PPs does not use the CNT metric. Instead, for Link21, the PP methodology uses percentiles to compare the level of burden across census tracts.

Over 23% of the households in the Megaregion are transportation cost burdened. Northern San Joaquin Valley has the highest percentage of transportation cost burdened households among the subregions, and the Bay Area has the lowest (**Figure 2-18**).

Figure 2-19 shows the geographical distribution of transportation cost burdened households in the subregions. The highlighted census tracts in each of the subregions indicate where transportation cost burdened households are above the subregional average.

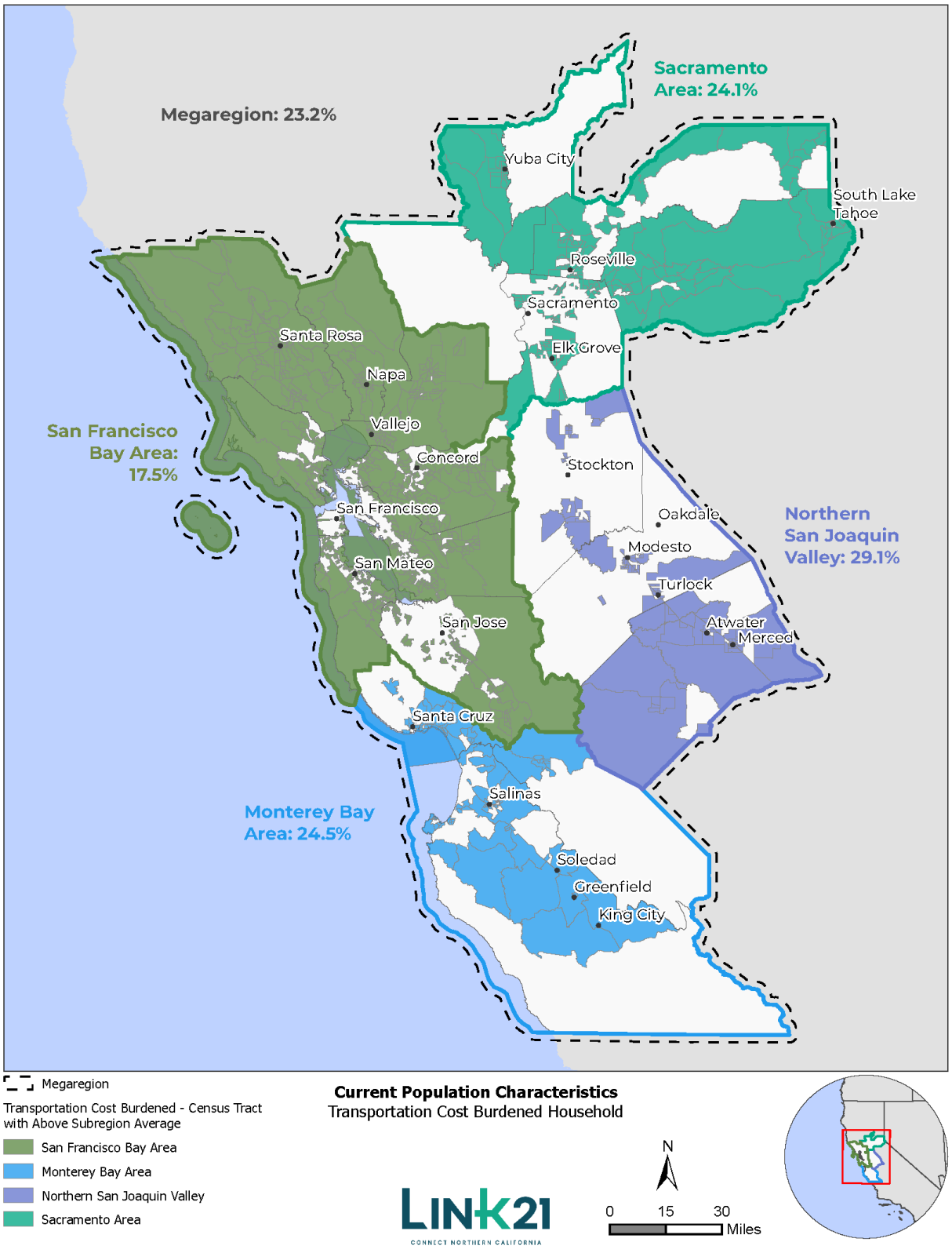
Figure 2-18**. Percentage of Transportation Cost Burdened Households**



Source: 2015-2019 American Community Survey (ACS) (5-year estimates), U.S. Census Bureau

[7] Priority Populations Update Documentation. Priority Populations Evaluation and Identification Tool.

Figure 2-19. Percentage of Transportation Cost Burdened Households



Sources: U.S. Census Bureau 2020; Priority Populations Evaluation and Identification Tool

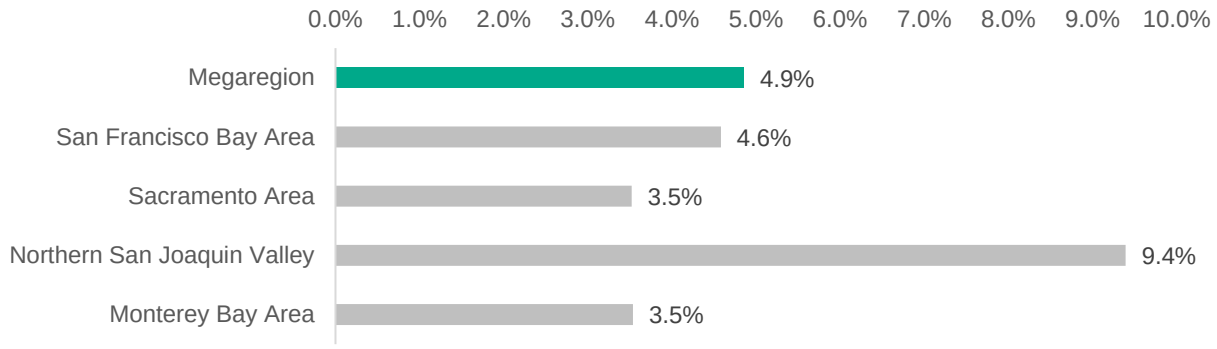
2.1.10. Commute Times

People who have long commutes, defined as commutes over 90 minutes one-way, are shown to have higher adverse physical and mental health conditions (Hoehner et al. 2012). In addition, long commutes can negatively affect the public due to increased congestion, greenhouse gas emissions, and poor air quality (Urban Land Institute 2009).

Nearly 5% of the commuters in the Megaregion have long commutes. Due to the high cost of housing in urban areas throughout the Megaregion, there has been a significant increase in long commutes in recent years as workers have moved or been pushed farther away from the Megaregion's job centers (Bay Area Equity Atlas 2022). The Northern San Joaquin Valley has the highest percentage of commuters with long commutes among the subregions, and the Monterey Bay Area and Sacramento Area have the lowest (**Figure 2-20**).

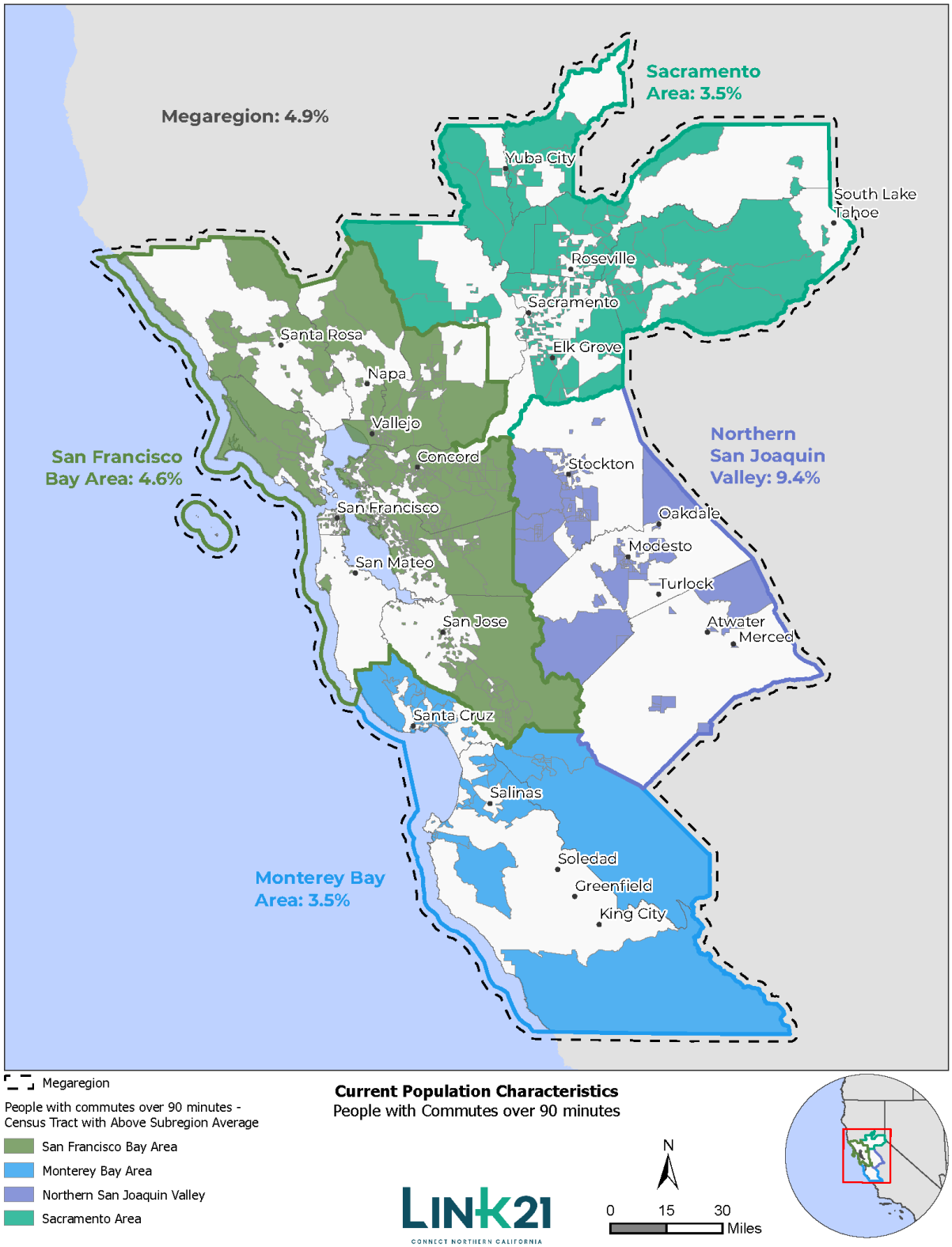
Figure 2-21 shows the geographical distribution of long commutes in the subregions, highlighting census tracts in each subregion where the percentage of long commutes is above the subregional average.

Figure 2-20. Percentage of Commuters with Long Commutes



Source: U.S. Census Bureau 2020

Figure 2-21. Percentage of Commuters with Long Commutes



Sources: U.S. Census Bureau 2020; Priority Populations Evaluation and Identification Tool

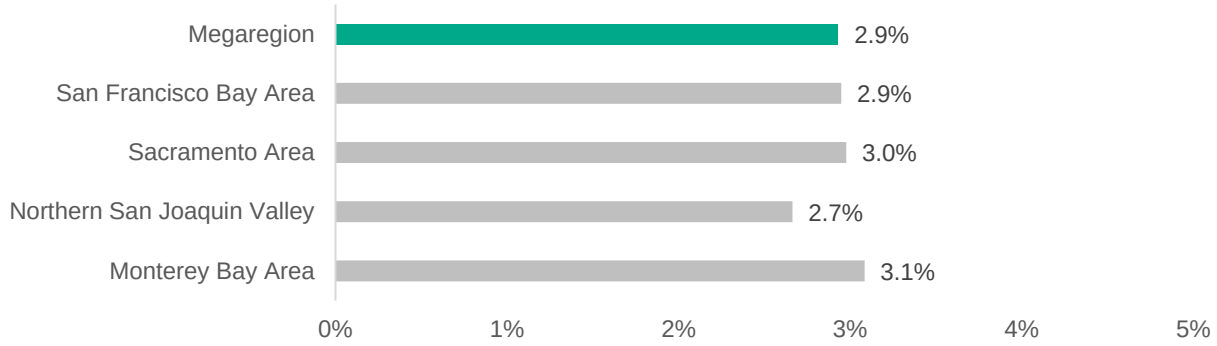
2.1.11. Overcrowded Households

Housing is considered overcrowded when there is more than one person per room in a given household. The metric used for overcrowded homes is the percentage of ratio of households with more than 1.5 occupants per room (California Department of Public Health 2017). Overcrowded housing is a public health issue, as studies have shown a direct link between overcrowded housing and adverse health, education, personal safety, and childhood development (World Health Organization 2018).

Over 3% of the occupied housing units in the Megaregion are overcrowded. While the four subregions have relatively similar levels of overcrowding, the Monterey Bay Area has a slightly higher percentage of overcrowded households and the Northern San Joaquin Valley has the lowest (**Figure 2-22**).

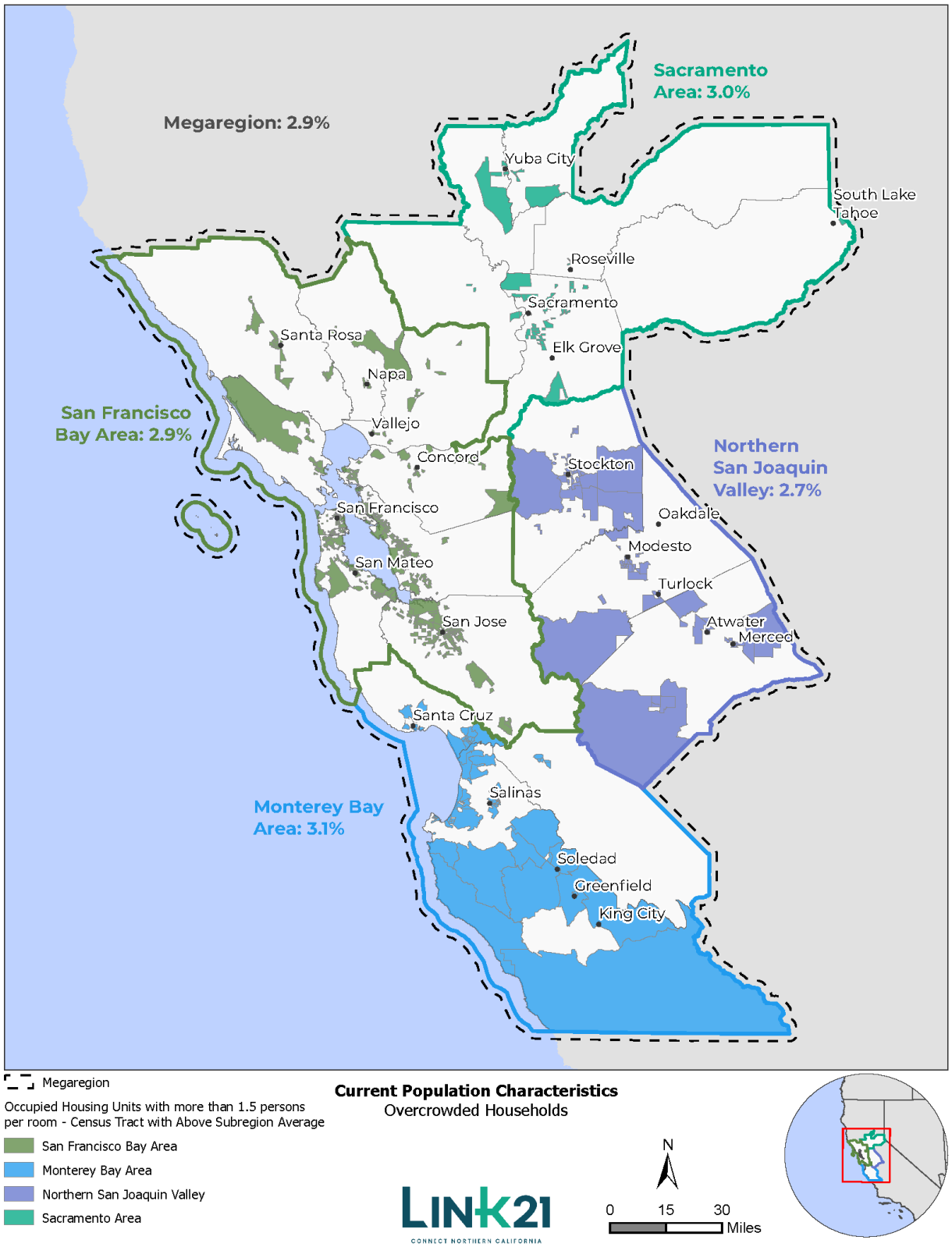
Figure 2-23 shows the geographical distribution of overcrowded housing units in the subregions, highlighting census tracts in each subregion where the percentage of overcrowded households is above the subregional average.

Figure 2-22. Percentage of Overcrowded Households



Source: U.S. Census Bureau 2020

Figure 2-23. Percentage of Overcrowded Households



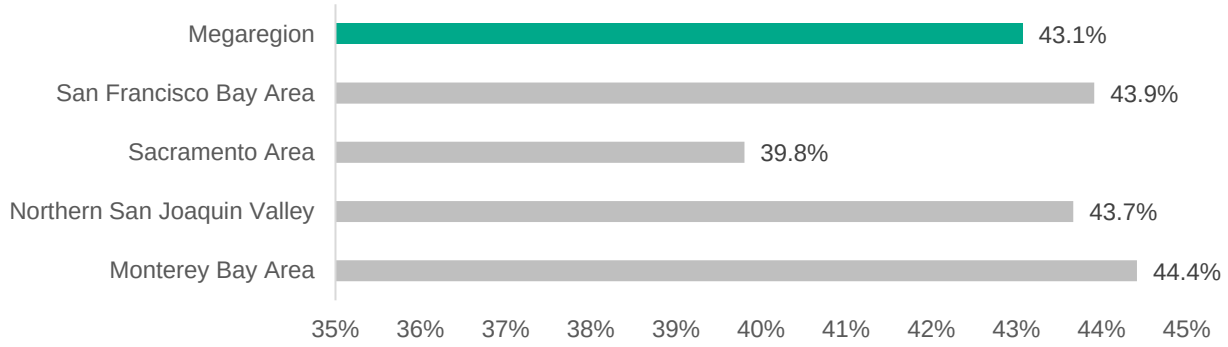
Sources: U.S. Census Bureau 2020; Priority Populations Evaluation and Identification Tool

2.1.12. Renter-Occupied Households

Renters are more vulnerable to increases in housing costs, particularly in areas without rent control or strong tenant protections (California Budget and Policy Center 2021). Over 43% of the households in the Megaregion are renter-occupied. The Sacramento Area has the lowest percentage of renter-occupied households; in the other three subregions, around 44% of households are renter occupied, which is slightly greater than the overall Megaregion (**Figure 2-24**).

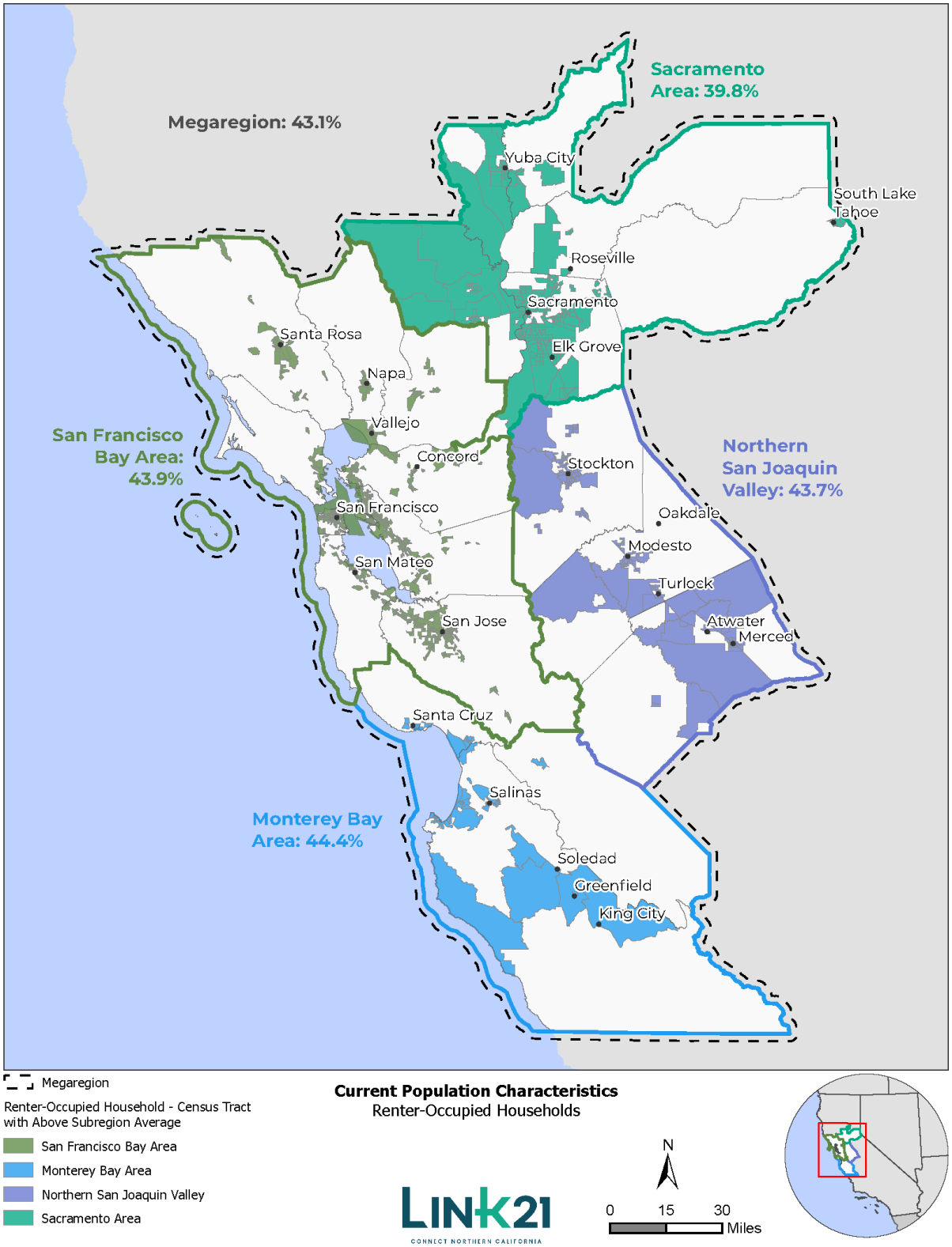
Figure 2-25 shows the geographical distribution of renter-occupied households in the subregions, highlighting census tracts in each subregion where the percentage of renter-occupied households is above the subregional average.

Figure 2-24. Percentage of Renter-Occupied Households



Source: U.S. Census Bureau 2020

Figure 2-25. Percentage of Renter-Occupied Households

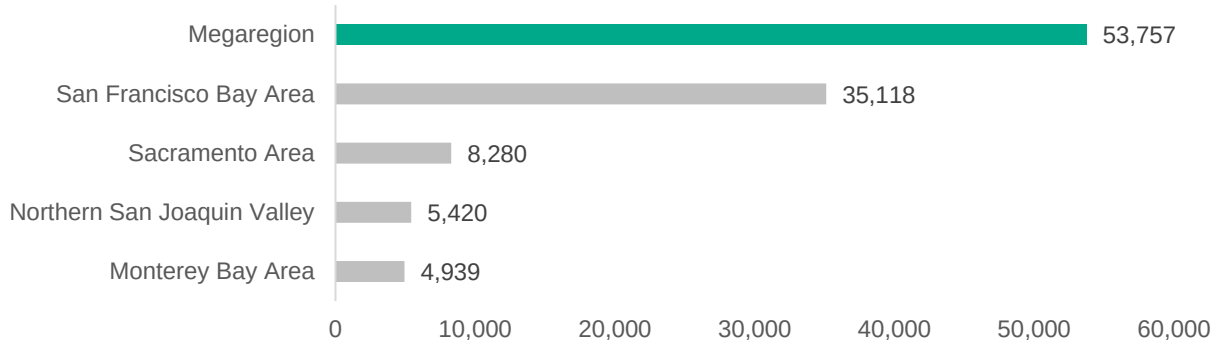


Sources: U.S. Census Bureau 2020; Priority Populations Evaluation and Identification Tool

2.1.13. Unhoused Residents

The number of unhoused residents in and around the Megaregion continues to rise (Department of Housing and Urban Development [HUD] 2022). Research shows the negative effects of lack of shelter or housing on people, including a high rate and earlier age of death from preventable conditions, severity and risk of chronic and acute illnesses, and cumulative stress and behavioral health challenges (Oppenheimer et al. 2016). Due to the inherently transient nature of this population, it is difficult to collect data and track trends over time. The most recent point-in-time count, however, shows that about 40% of California's unhoused population resides in the Megaregion. About 65% of the Megaregion's unhoused population is in the Bay Area, which is the highest; the lowest is in the Monterey Bay Area subregion (9.2%). **Figure 2-26** shows the breakdown of the unhoused population in the Megaregion and the four subregions. There are not enough census tract data on unhoused residents to display a map.

Figure 2-26. Total Unhoused Population by Subregion



Source: HUD 2022

2.2. Priority Population Metrics

Based on the methodology described in **Section 1.3.3**, the Equity Team implemented a multistep process to qualify and evaluate census tracts as PPs, in order to locate those areas across the Megaregion experiencing the greatest burdens, particularly when compared to neighboring communities.

This section describes the characteristics of the PP areas identified in the Megaregion. Appendix B provides a comprehensive analysis of the PP areas in each subregion.

In the Megaregion, 791 census tracts are identified as PP areas, or 31% of a total of 2,549 census tracts. **Figure 2-27** illustrates the locations of the 791 PP census tracts across the Megaregion and its four subregions.[8]

Figures 2-28 and **2-29** show PP distribution by subregion, as compared to total population and census tracts, respectively.

- The majority of PP census tracts are in the Bay Area, accounting for 51.5% of the Megaregion's PP population and 53% of the Megaregion's PP census tracts.
- Next is the Northern San Joaquin Valley, with PP areas representing 24.4% of the Megaregion's PP population and 23.3% of the Megaregion's PP census tracts.
- The Sacramento Area includes PP areas representing 18.2% of the Megaregion's PP population and PP census tracts.
- The Monterey Bay Area includes PP areas representing 5.8% of the Megaregion's PP population and 5.6% of the Megaregion's PP census tracts.

Table 2-2 provides a summary of the total PP population and tracts in the Megaregion and each of the four subregions.

[8] The Equity Baseline Report uses the May 2022 version of PP census tracts. At the time of the report's writing and submission, the Link21 Team is updating the collisions data that are a part of the methodology for defining what tracts are PPs. As a result, there may be slight differences in which tracts are designated as PPs between this report and deliverables produced after June 2022.

Figure 2-27. Priority Population Tracts in the Megaregion

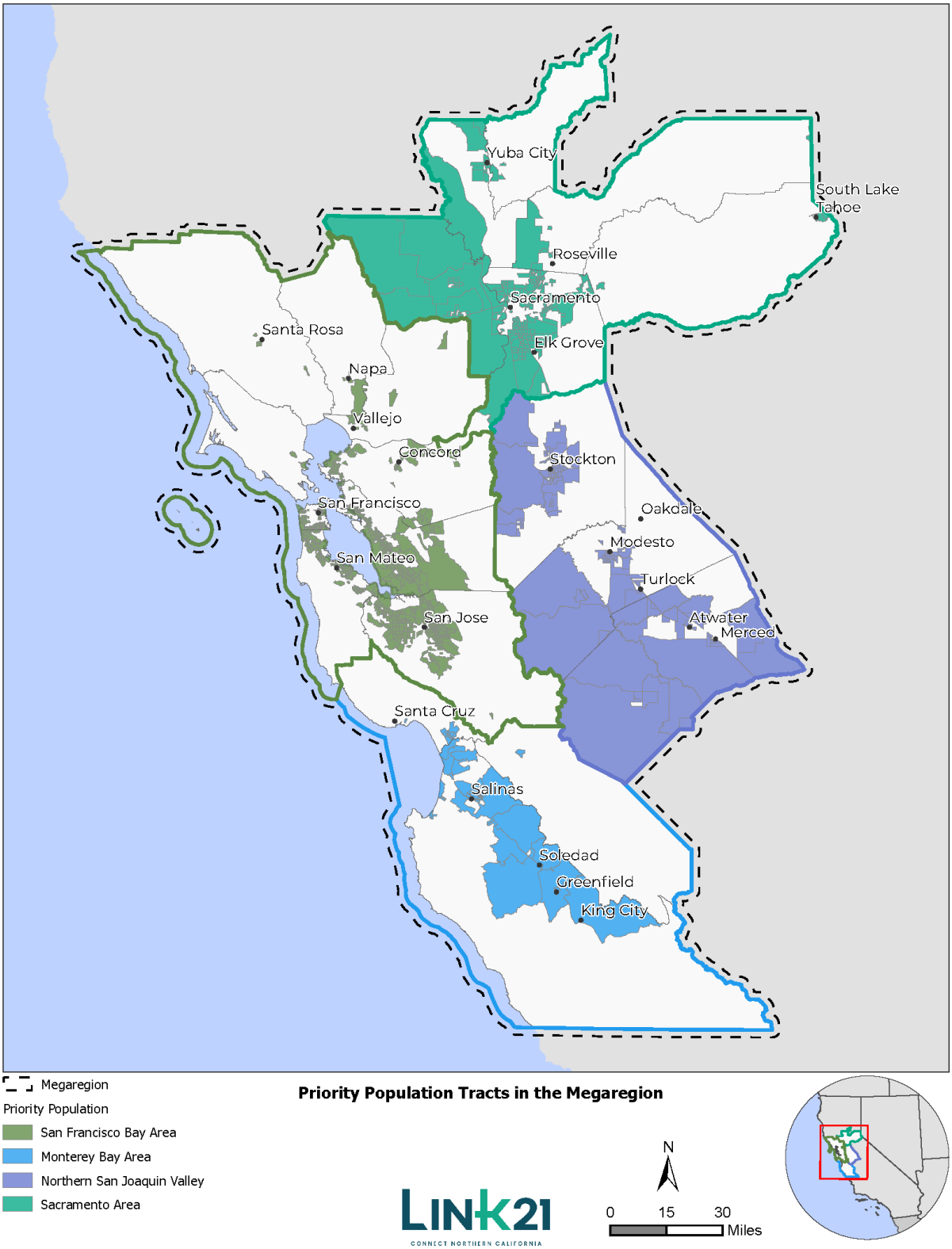


Figure 2-28. Priority Populations Distribution by Subregion (by Total Population)

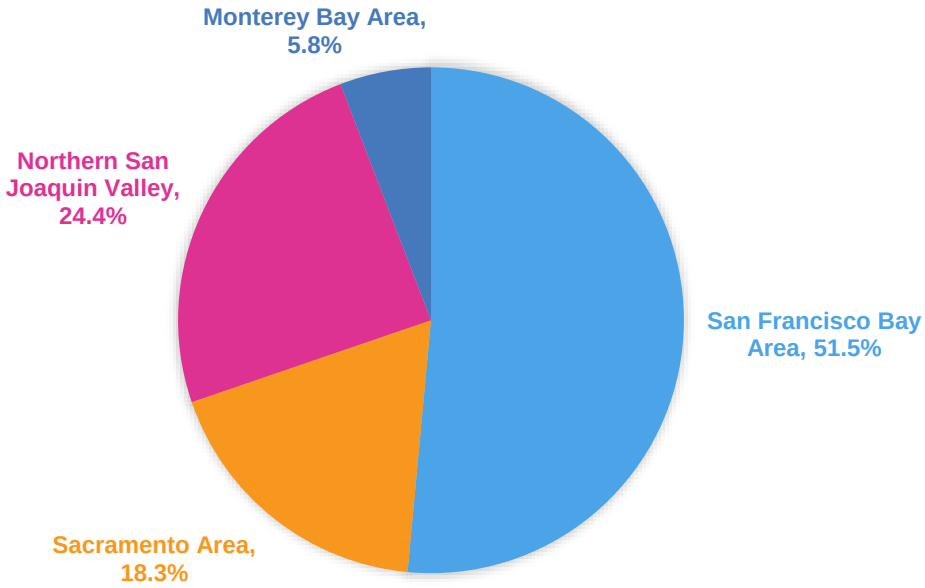


Figure 2-29. Priority Populations Distribution by Subregion (by Census Tracts)

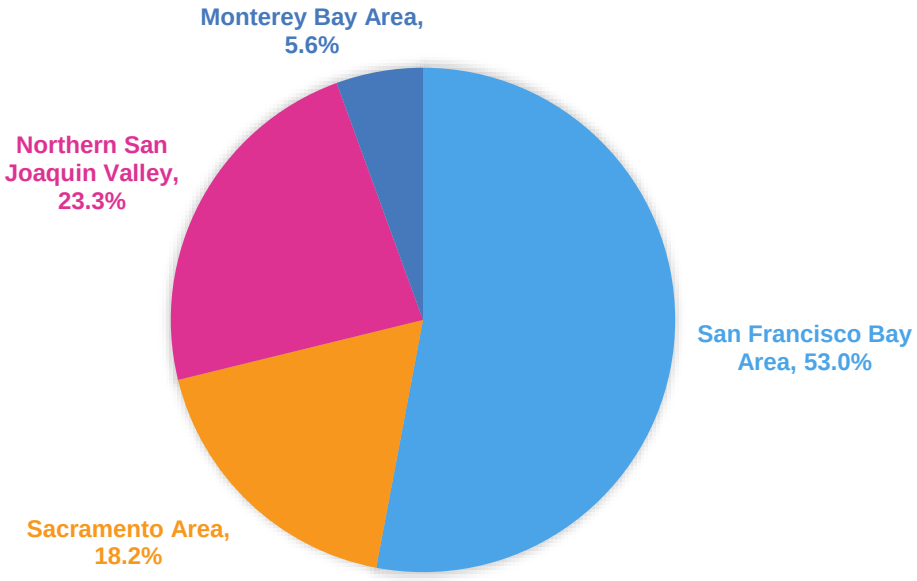


Table 2-2. Priority Populations Distribution by Census Tract

	CENSUS TRACTS			POPULATION		
	TOTAL	PRIORITY POPULATION	GENERAL POPULATION	TOTAL	PRIORITY POPULATION	GENERAL POPULATION
MEGAREGION	2,549	791	1,758	12,523,402	3,834,269	8,689,133
BAY AREA	1,588	419	1,169	7,710,026	1,973,809	5,736,217
SACRAMENTO AREA	480	144	377	2,488,449	700,711	1,787,678
NORTHERN SAN JOAQUIN VALLEY	282	184	98	1,557,179	936,373	620,806
MONTEREY BAY AREA	158	44	114	767,748	223,376	544,372

Appendix B provides a comprehensive analysis of the PP areas in the Megaregion and each of its four subregions, including a summary of the percentage of census tracts in each subregion that exceed the index score of 55 for each of the PP evaluation categories shown in Table 1-1.

Appendix C provides an analysis of locations where Link21 improvements may provide the greatest benefits to PP communities across the Megaregion as well as locations that could experience the greatest burdens associated with construction and operation of any infrastructure and services advanced as part of Link21. A summary of these findings is included in **Section 4.4**.

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3. TRANSIT RIDERSHIP AND BARRIERS IN THE MEGAREGION

This chapter provides an overall picture of who rides transit in the Megaregion and subregions. It analyzes mode share by household income and race/ethnicity and discusses projected 2040 trip distribution. Finally, this chapter discusses results of the equity poll conducted between August 19 and September 27, 2021, designed to better understand key barriers to using transportation.

3.1. Existing Ridership

3.1.1. Overall Megaregional Travel Characteristics

According to the market analysis performed for Link21, travelers within the Megaregion made nearly 33 million trips on an average weekday in 2015, almost two-thirds of which (19.9 million weekday trips) were made within the Bay Area (**Table 3-1**).

Table 3-1. Average Weekday Megaregional Trips 2015, Both Directions

	SAN FRANCISCO BAY AREA	SACRAMENTO AREA	NORTHERN SAN JOAQUIN VALLEY	MONTEREY BAY AREA	TOTAL TRIPS
SAN FRANCISCO BAY AREA	19,874,000	155,000	185,000	144,000	20,358,000
SACRAMENTO AREA	155,000	7,202,000	100,000	1,000	7,458,000
NORTHERN SAN JOAQUIN VALLEY	185,000	100,000	2,622,000	6,000	2,913,000
MONTEREY BAY AREA	144,000	1,000	6,000	1,949,000	2,100,000
TOTAL TRIPS	20,358,000	7,303,000	2,628,000	2,100,000	32,829,000

Source: Link21 Draft Market Analysis Report; Program Management Consultants (PMC) analysis of StreetLight and other travel pattern data

Of the 20.3 million megaregional daily trips, 19.9 million trips are within the Bay Area alone, 155,000 are between the Sacramento Area and the Bay Area, approximately 185,000 between the Northern San Joaquin Valley and the Bay Area, and 144,000 between the Monterey Bay Area and the Bay Area (**Figure 3-1**). The fewest inter-subregional trips are made between the Monterey Bay Area and Sacramento Area (1,000 daily trips) and Northern San Joaquin Valley (6,000 trips).

Figure 3-2 shows the percentage of the population that worked outside their county of residence, according to the U.S. Census Bureau 2015-2019 ACS 5-Year Estimates (U.S. Census Bureau 2020: Table B08130). The Sacramento Area subregion had the largest proportion of PP residents that worked outside their county of residence (36%) and the biggest disparity (6% difference) between the general population and PP area residents. In the Megaregion, the Bay Area subregion, and the Sacramento Area subregion, more PP area residents worked outside their county of residence than the general population.

Figure 3-3 and **Figure 3-4** show the current distribution of mode choice for commuters among the general population and PP areas, according to the U.S. Census Bureau 2015-2019 ACS 5-Year Estimates (U.S. Census Bureau 2020: Table S0801). The Northern San Joaquin Valley subregion had the most commuters that drive to work (91%) and the fewest commuters that use transit to get to work (1%) for both general population and PP areas. The Bay Area subregion had the fewest commuters that drive to work for both the general population (75%) and PP areas (78%) but the highest proportion of commuters that use transit to work for both general population (12%) and PP areas (11%).

The U.S. Census Bureau data are from ACS completed prior to the 2020 COVID-19 pandemic. The pandemic substantially affected travel patterns within the Megaregion, and while some travel behaviors have resumed to pre-pandemic conditions, much of these data may not be accurate at this time.

Figure 3-1. Daily Trips to and from the San Francisco Bay Area (2015)

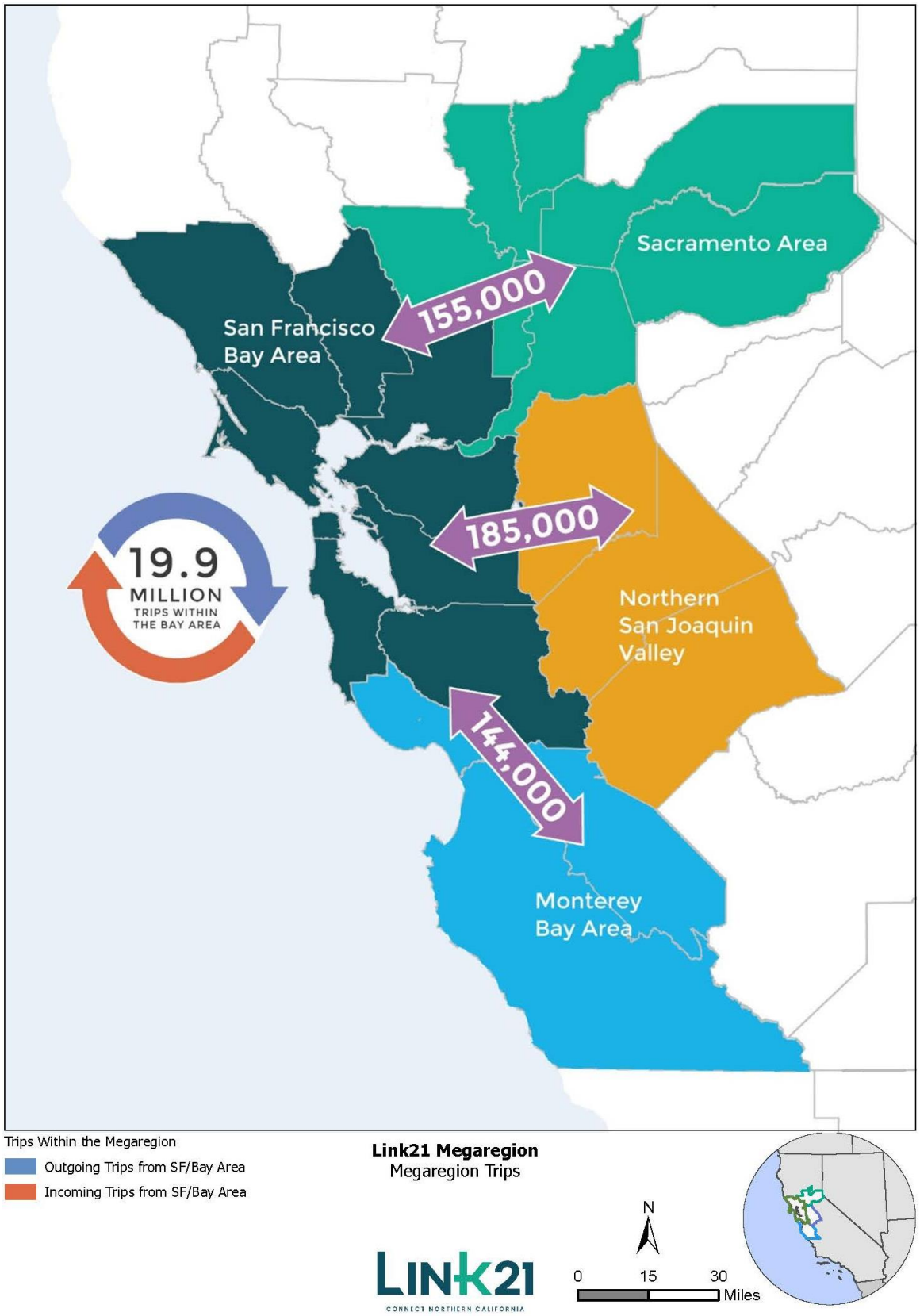
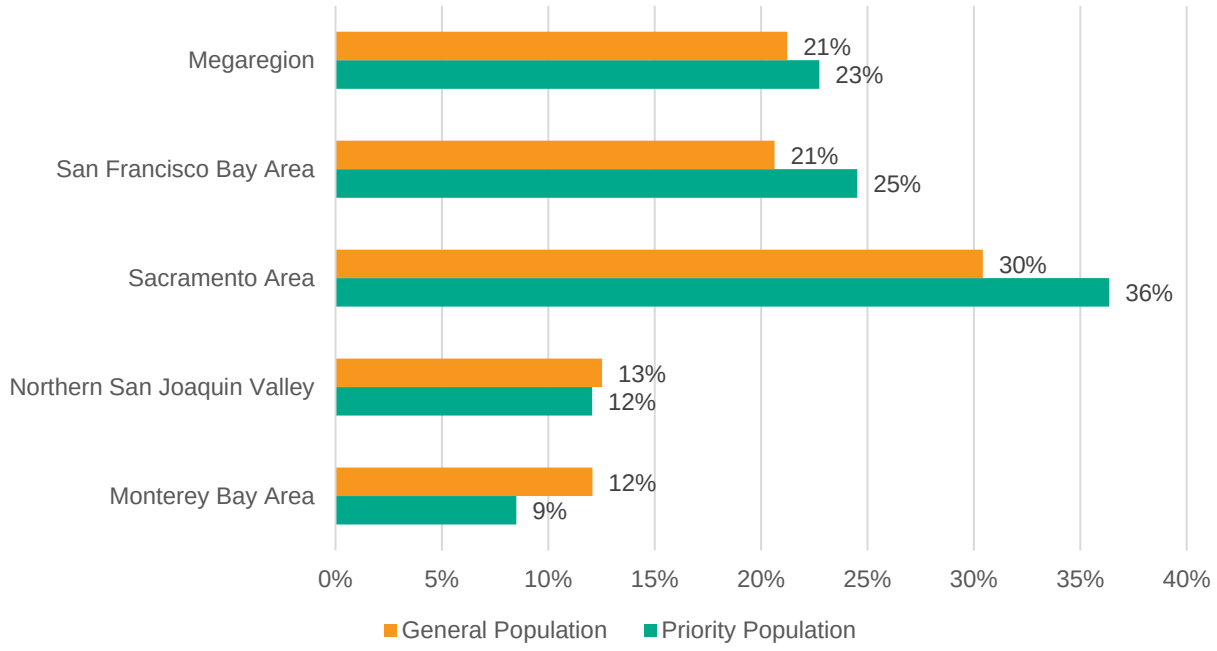
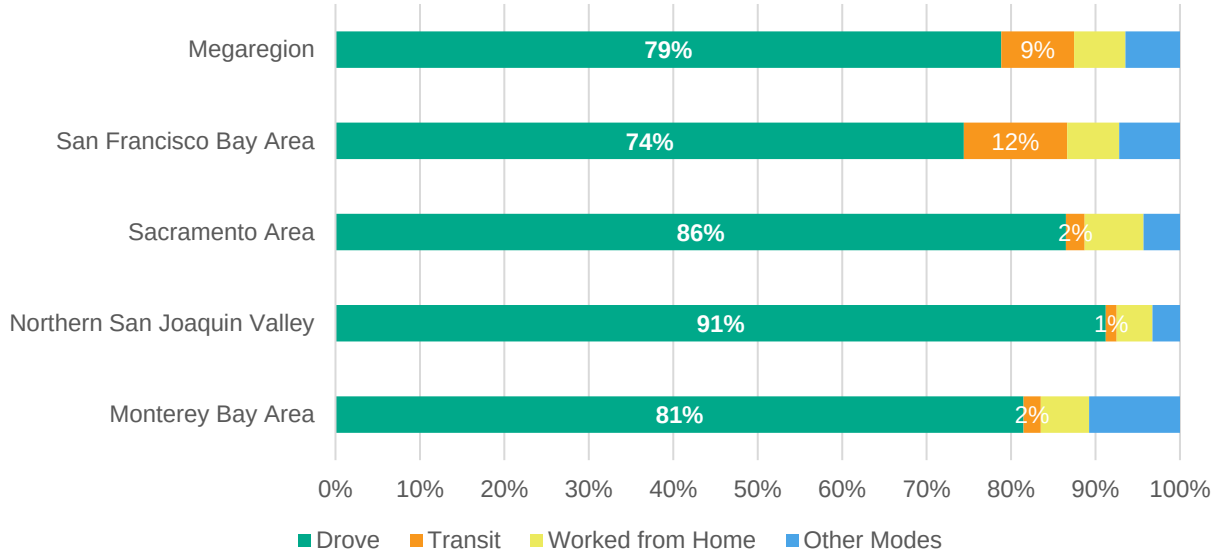


Figure 3-2. Residents Working Outside County of Residence in the Megaregion and Subregions



Source: U.S. Census Bureau 2020: Table B08130

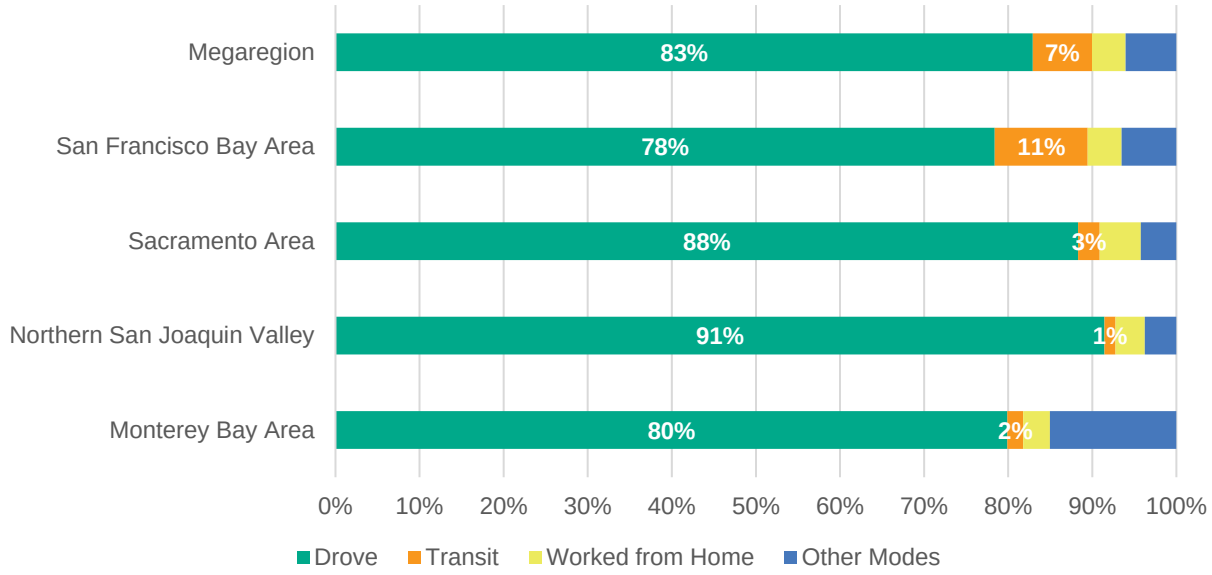
Figure 3-3. Mode Choice in the Megaregion and Subregions for General Populations



Source: U.S. Census Bureau 2020: Table B08006

Note: "Other modes" include biking, walking, taxicab/ride hail services, RV, and motorcycle.

Figure 3-4. Mode Choice in the Megaregion and Subregions for Priority Populations



Source: U.S. Census Bureau 2020: Table B08006

Note: "Other modes" include biking, walking, taxicab/ride hail services, RV, and motorcycle.

3.2. Demographic Characteristics of Megaregional and Subregional Travelers

This section presents mode share analysis by household income and race/ethnicity for the entire Megaregion and each of its four subregions. The data suggest that white and higher-income transit users tend to rely on rail while transit users who are people of color or lower income tend to rely on bus.

Data are sourced from the 2017 National Household Travel Survey California Add-On, the most recent release published by FHWA (FHWA 2017). The survey sampled 26,000 households in California, collecting socioeconomic and other demographic data from over 55,000 individuals and asking them to report their travel behavior over the course of one day.

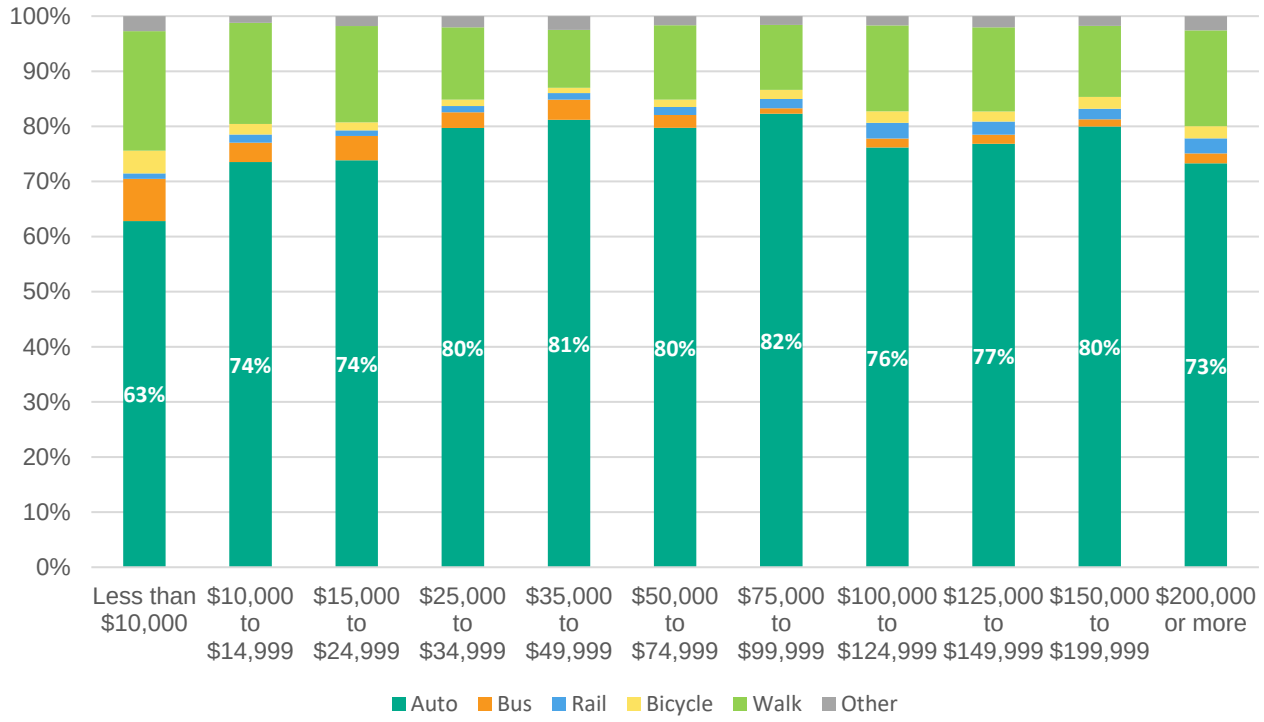
3.2.1. Megaregion

3.2.1.1. Megaregion Mode Share by Income

Figure 3-5 shows the mode share for all trips made by individuals living within the Megaregion by household income. Auto trips dominate travel at all household income levels, with only 4% of total trips made by transit. However, there is considerably more transit use and less auto use by those with annual incomes below $25,000. This shows

that for households with annual income below $25,000, transit plays a much more important role in their daily lives as a transportation mode.

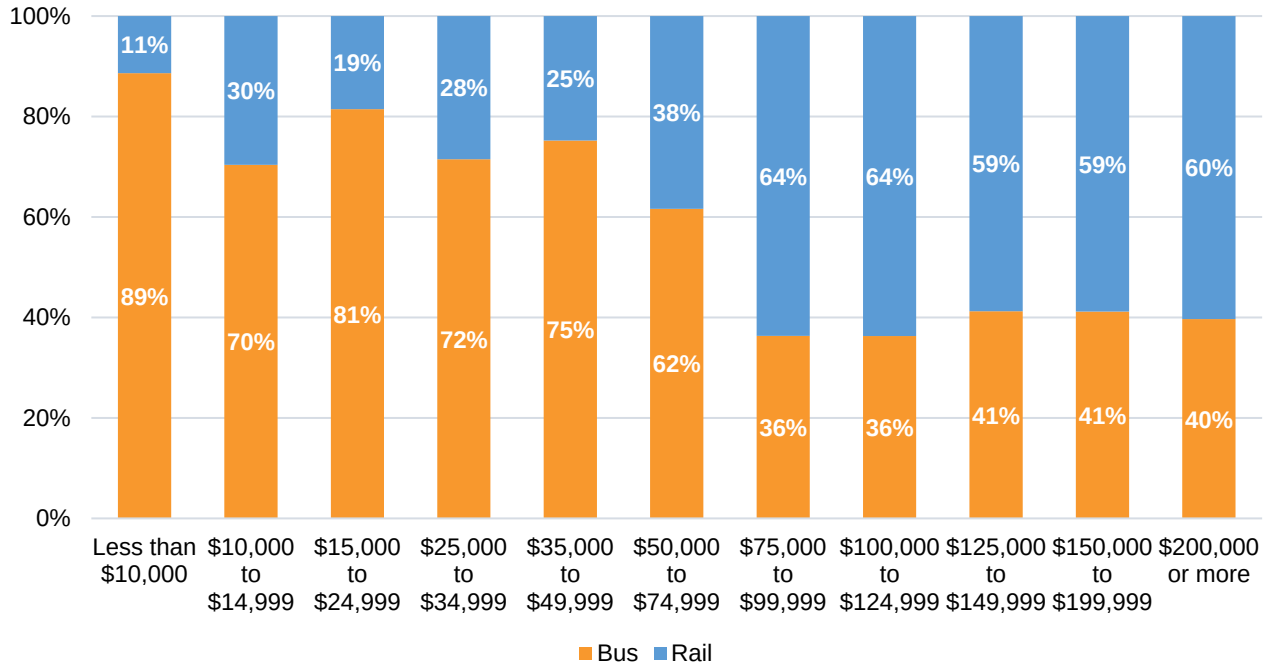
Figure 3-5. Megaregion Mode Share by Income Level *(n = 41.4M trips)*



Notes: Data labels are shown for auto mode only; "Other modes" include taxicab/ride hail services, RV, and motorcycle.

Figure 3-6 shows bus and trail trips by income level. Transit trips in the Megaregion are made predominantly by bus for users from lower-income households and predominantly by rail for users from higher-income households ($75,000 and up). For respondents reporting incomes lower than $75,000, transit trips taken by bus range from 62% to 89%, while there is a stark decrease for individuals making $75,000 and higher, with transit trips taken by bus ranging from 36% to 41%.

Figure 3-6. Megaregion Transit Mode Share by Income Level *(n = 1.7M trips)*

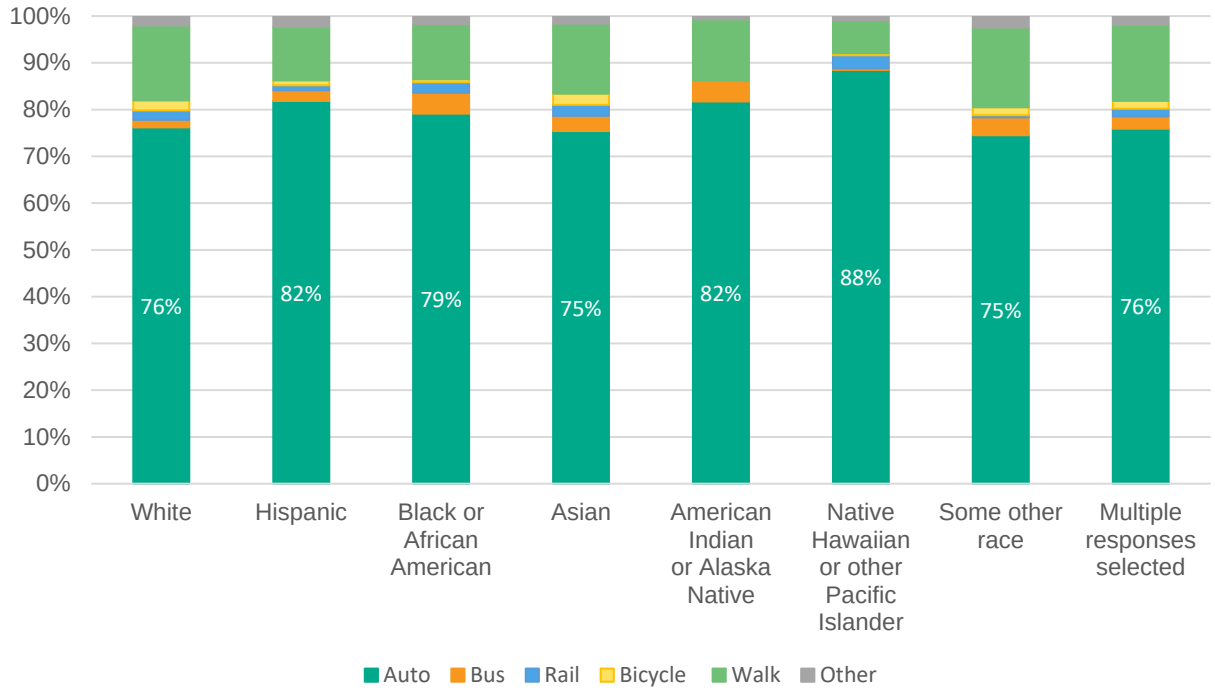


3.2.1.2. Megaregion Mode Share by Race & Ethnicity

This section explains race and ethnicity characteristics of travel within the Megaregion.

Figure 3-7 shows the mode share for all trips made by individuals living in the Megaregion by race and ethnicity. Similar to household income, for all race and ethnicity groups, auto travel is the dominant mode of travel.

Figure 3-7. Megaregion Mode Share by Race and Ethnicity *(n = 41.4M trips)*

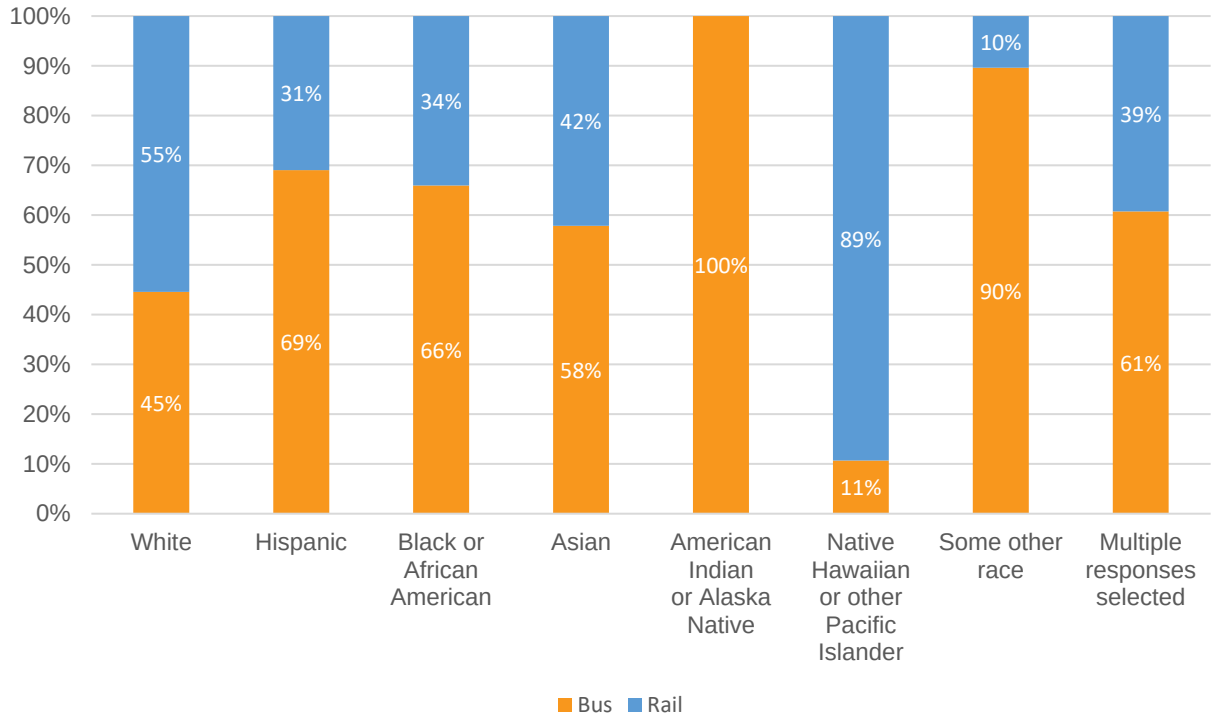


Notes: Data labels are shown for auto mode only; "Other modes" include taxicab/ride hail services, RV, and motorcycle.

Similar to the mode share by income discussion, **Figure 3-8** shows rail and bus trips by race and ethnicity. About 45% of transit trips taken by white riders are made by bus, while 55% of transit trips are made on rail. In contrast, the proportion of transit trips made by bus is 69% for Hispanic riders, 66% for Black/African American riders, and 58% for Asian riders.

While the divide is not as pronounced as it is between income groups, there is a notably uneven distribution in rail usage across race and ethnicity groups.

Figure 3-8. Megaregion Transit Mode Share by Race and Ethnicity *(n = 1.7M trips)*



3.2.2. San Francisco Bay Area Subregion

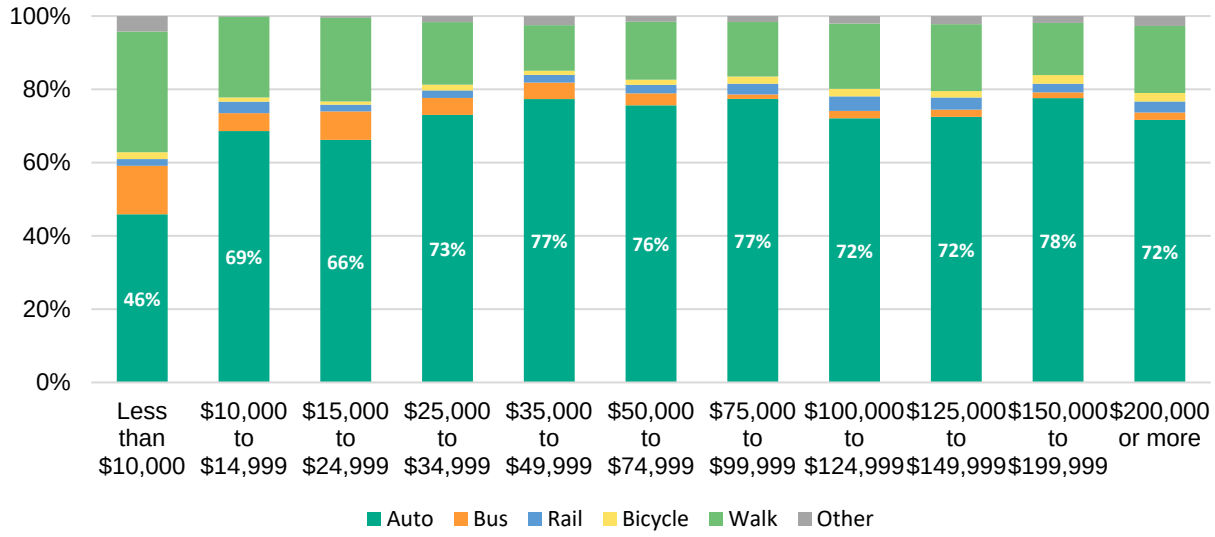
3.2.2.1. San Francisco Bay Area Mode Share by Income

This section explains income characteristics of travel made within the Bay Area.

Similar to megaregional trends, **Figure 3-9** shows that most people in the Bay Area subregion travel by automobiles regardless of income level above $35,000 per year; about 6% of total trips are made by transit.

As household income declines, the share of auto trips drops below 70% and the share of bus trips increases to above 5%. In addition, for household incomes below $35,000 per year, the proportion of auto trips declines and the proportion of bus and walk mode shares increases. The share of rail trips remains unchanged across income levels, hovering between 2% and 4%.

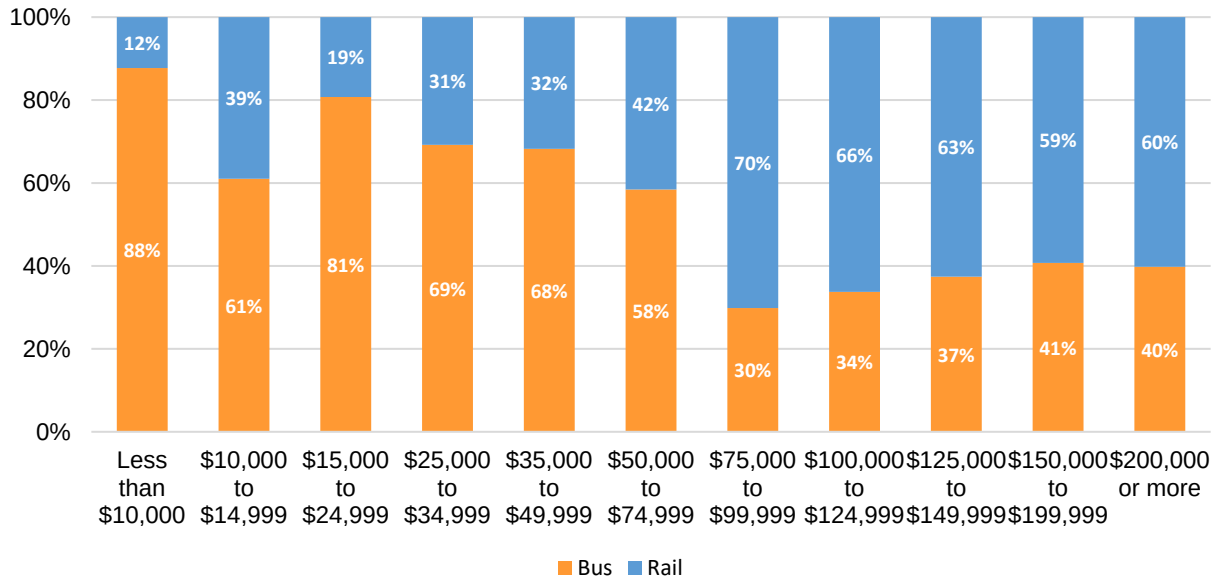
Figure 3-9. San Francisco Bay Area Mode Share by Household Income *(n = 27.2M trips)*



Notes: Data labels are shown for auto modes only; "Other modes" include taxicab/ride hail services, RV, and motorcycle.

The data in **Figure 3-10** shows that transit trips made by individuals in higher household income brackets ($75,000 and up) occur predominantly on rail, while trips made by individuals from lower-income households are made primarily by bus.

Figure 3-10. San Francisco Bay Area Transit Mode Share by Household Income *(n = 1.5M trips)*

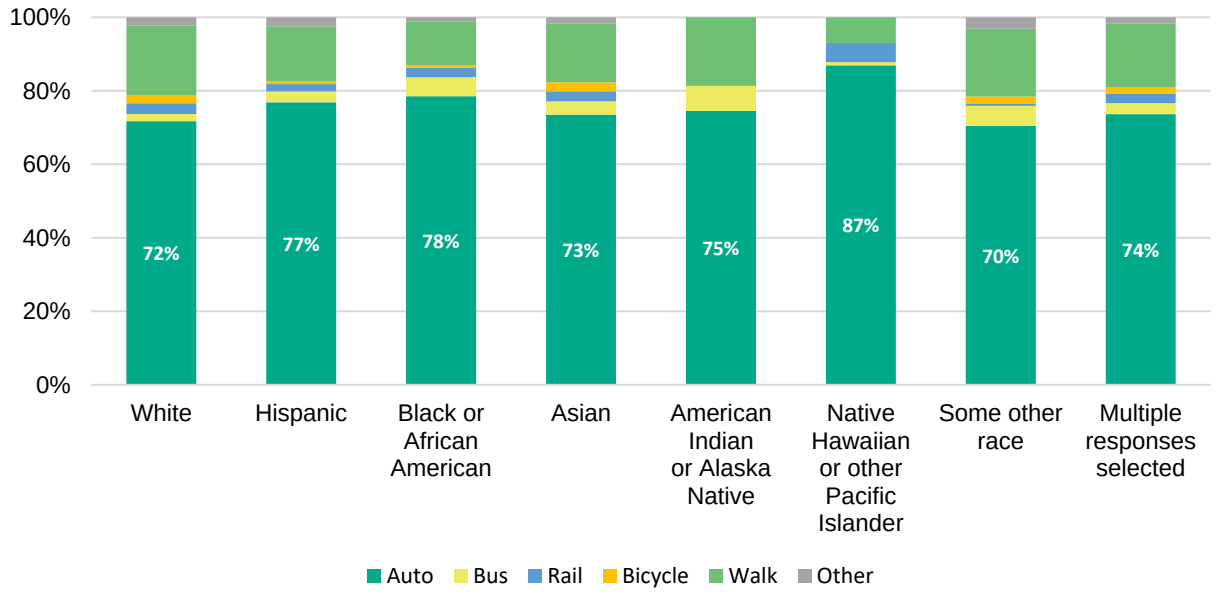


3.2.2.2. San Francisco Bay Area Mode Share by Race and Ethnicity

This section explains race and ethnicity characteristics of travel within the Bay Area.

Figure 3-11 shows the mode share for all trips made by individuals living in the Bay Area by race and ethnicity. Much like the Megaregion as a whole, auto travel is dominant across all demographic groups, remaining at 70% or above.

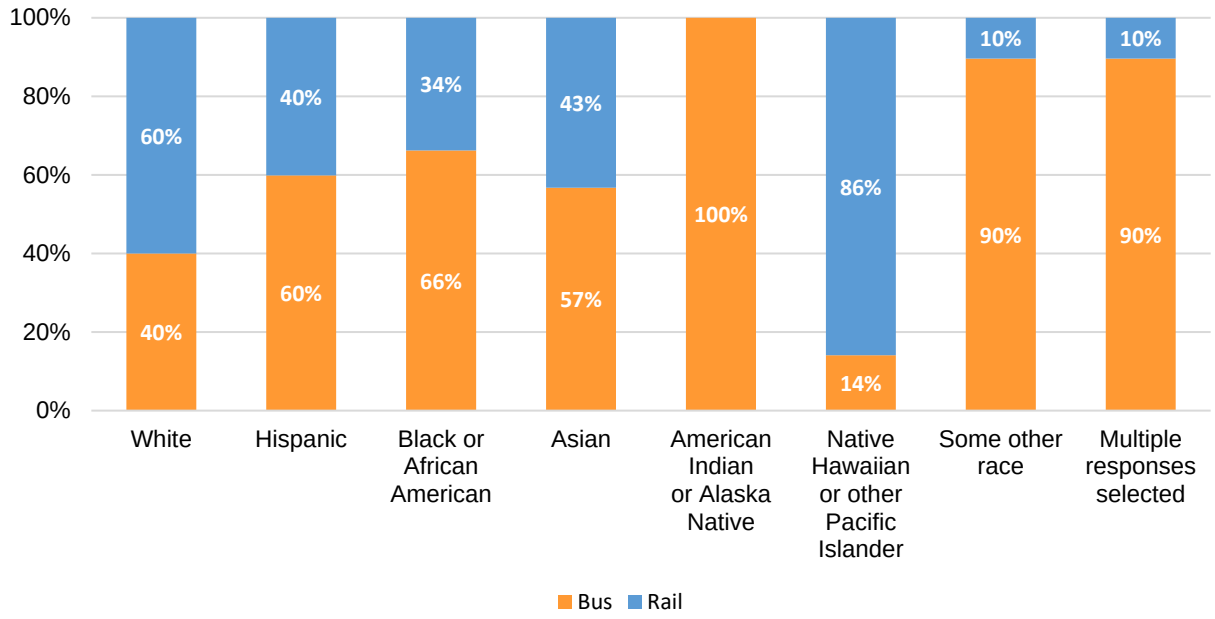
Figure 3-11. San Francisco Bay Area Mode Share by Race and Ethnicity *(n = 27.4M trips)*



Notes: Data labels are shown for auto mode only; "Other modes" include taxicab/ride hail services, RV, and motorcycle.

Figure 3-12, which shows rail and bus mode share, shows that 40% of transit trips taken by white riders are made via bus, while 60% of transit trips are made on rail. In contrast, the proportion of transit trips made by bus is 60% for Hispanic riders, 66% for Black/African American riders, and 57% for Asian riders. This shows a race and ethnicity disparity between bus and rail riders, with more people of color taking the bus and more white riders taking rail.

Figure 3-12. San Francisco Bay Area Transit Mode Share by Race and Ethnicity *(n = 1.5M trips)*



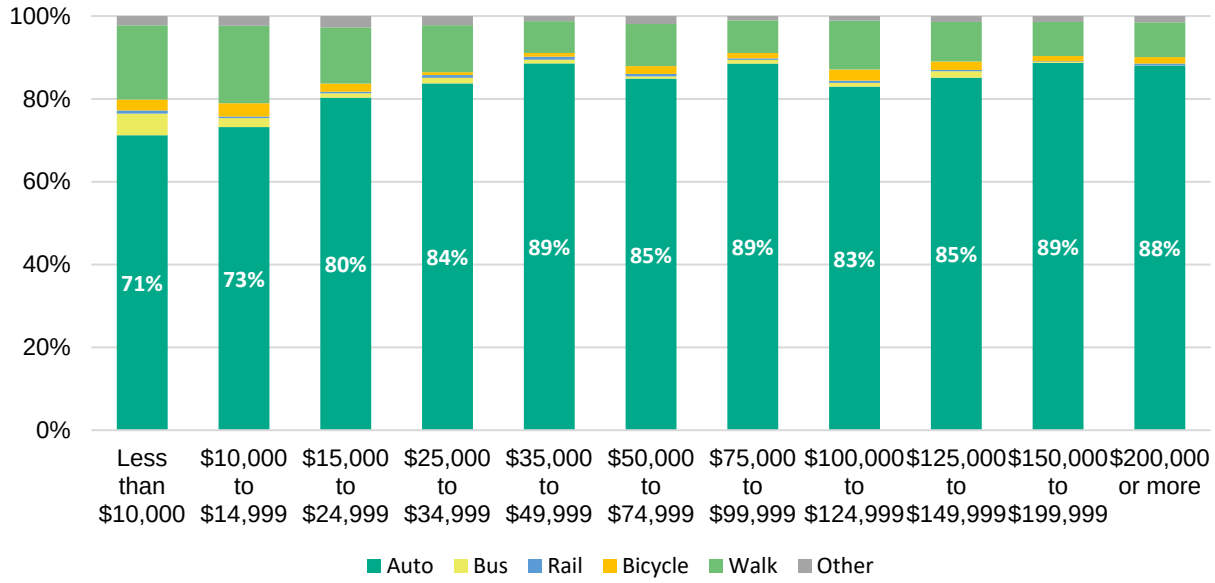
3.2.3. Sacramento Area Subregion

3.2.3.1. Sacramento Area Mode Share by Income

This section explains income characteristics of travel made within the Sacramento Area.

Figure 3-13 shows the mode share for all trips made by individuals living in the Sacramento Area by household income. Travel within the Sacramento Area is auto dominant at all household income levels and only 2% of total trips are made by transit. Like the Megaregion as a whole, there is a noticeable decline in auto usage starting at incomes below $35,000 per year.

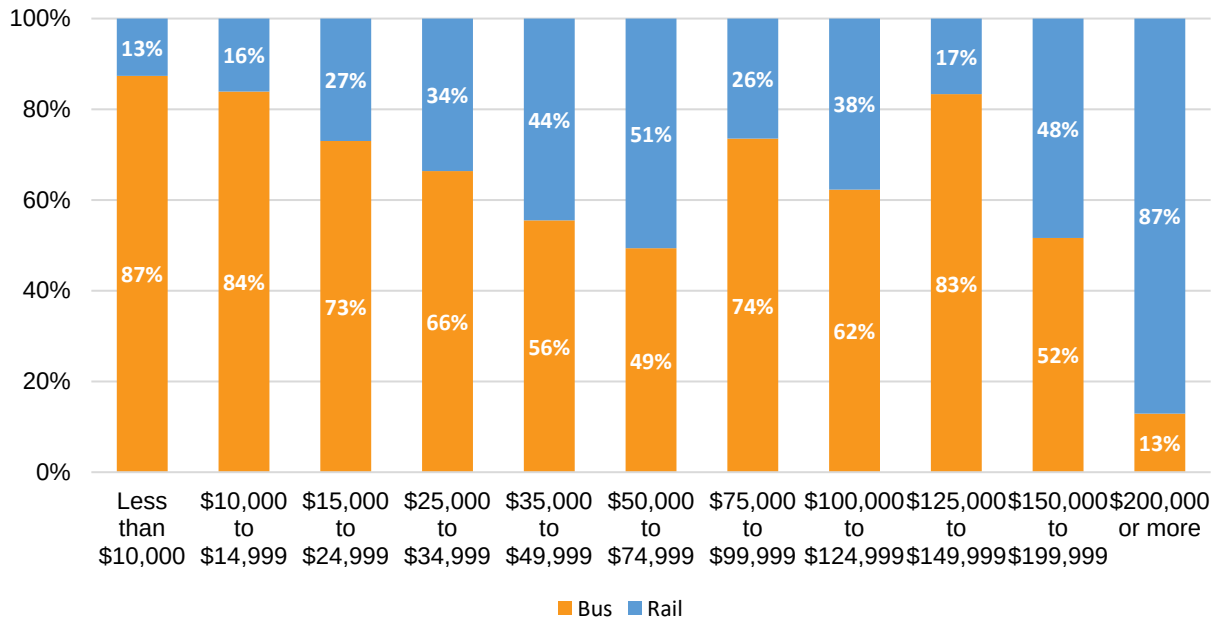
Figure 3-13. Sacramento Area Mode Share by Household Income *(n = 7.8M trips)*



Notes: Data labels are shown for auto modes only; "Other modes" include taxicab/ride hail services, RV, and motorcycle.

Figure 3-14 shows rail and bus usage as a proportion of total transit trips. For household incomes less than $25,000 per year, bus trips make up roughly 84% of all transit trips. In contrast, between $25,000 and $75,000 per year, 57% of transit trips are made by bus. The proportion of bus usage rises, declines, and rises above $75,000 per year income levels until $150,000 per year.

Figure 3-14. Sacramento Area Transit Mode Share by Household Income *(n = 105K trips)*

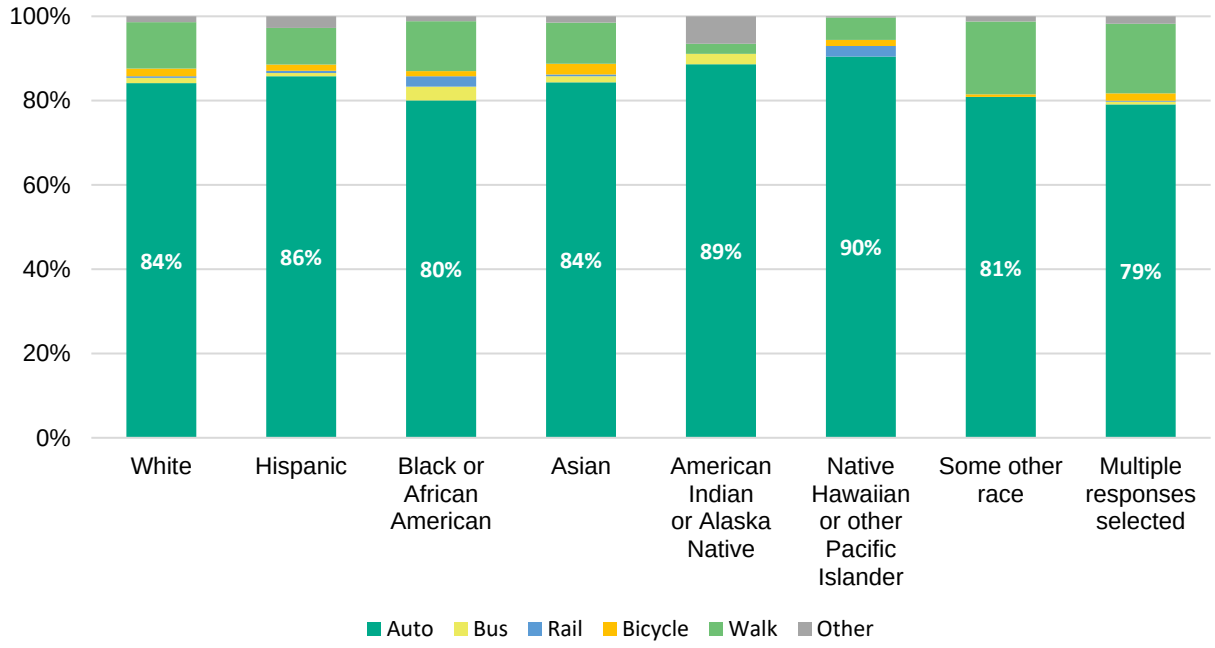


3.2.3.2. Sacramento Area Mode Share by Race and Ethnicity

This section explains race and ethnicity characteristics of travel within the Sacramento Area.

Figure 3-15 shows the mode share for all trips made by individuals living within the Sacramento Area by race and ethnicity. Travel is auto dominant for all groups as the share of auto trips is above 80% for almost all groups.

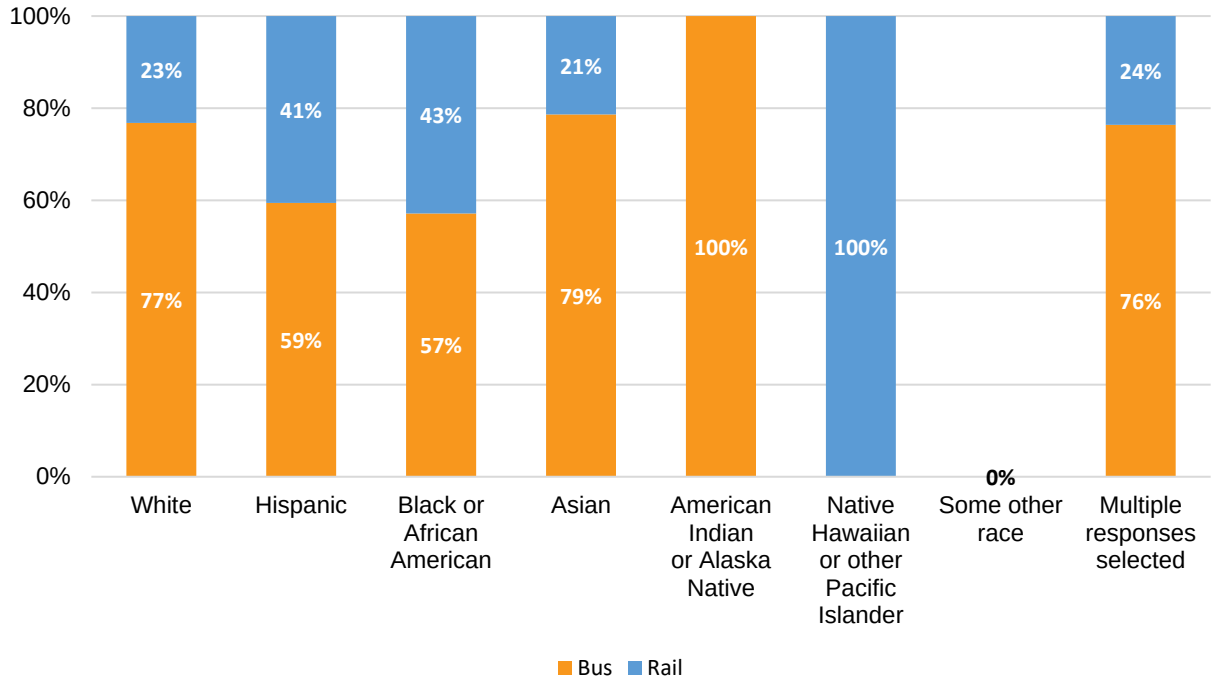
Figure 3-15. Sacramento Area Mode Share by Race and Ethnicity *(n = 7.7M trips)*



Notes: Data labels are shown for auto modes only; "Other modes" include taxicab/ride hail services, RV, and motorcycle.

Figure 3-16 provides mode share for bus and rail trips only. In contrast to the Megaregion, 79% of Asian riders and 77% of white riders used bus while 59% of Hispanic riders and 57% of Black riders used bus. Given the lower transit and rail ridership for this subregion in general, this may suggest lower transit and rail service levels, influencing individuals across different racial/ethnic groups to use the bus and auto. It should be noted that 0% of respondents identifying with "some other race" and 100% of respondents identifying with "American Indian or Alaska Native" and "Native Hawaiian/Pacific Islander" reported taking bus and/or rail. The small sample size relative to other groups makes understanding travel patterns in these populations more challenging, specifically at granular levels such as transit trip-making. This could be important to further investigate in future studies.

Figure 3-16. Sacramento Area Transit Mode Share by Race and Ethnicity *(n = 111K trips)*



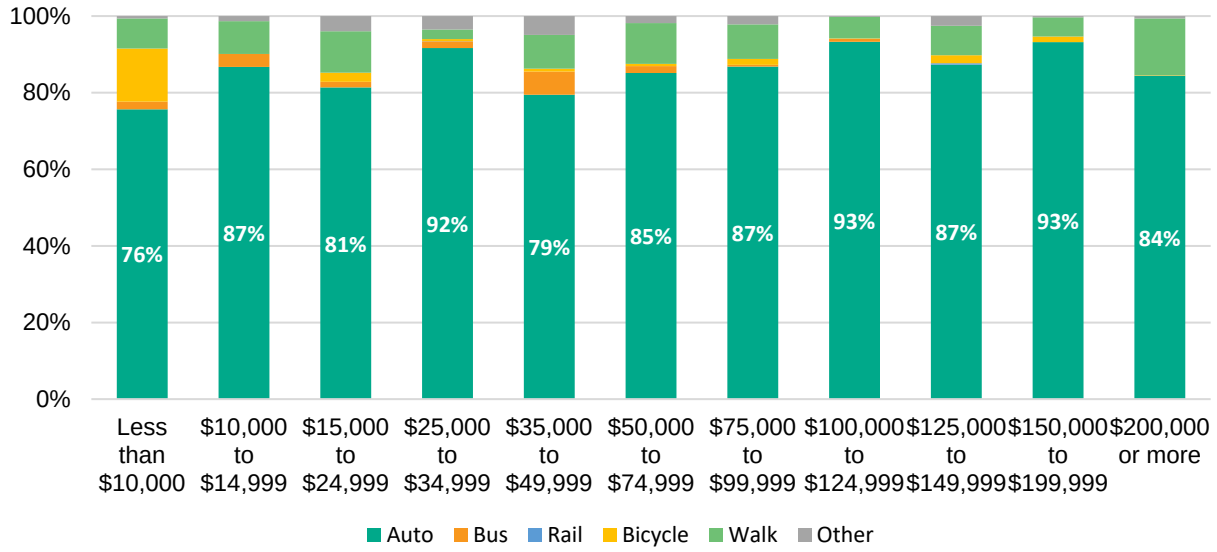
3.2.4. Northern San Joaquin Valley Subregion

3.2.4.1. Northern San Joaquin Valley Mode Share by Income

This section explains income characteristics of travel made within the Northern San Joaquin Valley.

Figure 3-17 shows the mode share for all trips made by individuals living within Northern San Joaquin Valley by household income. Like the Megaregion overall, travel is auto dominated across all incomes; only 2% of total trips are made by transit. Unlike the Megaregion as a whole, the proportion of auto trips does not follow a clear trend along income brackets. This could be indicative of lack of transit access in general across this region and would be important for Link21 to understand further. It is notable that 14% of trips made by individuals with household incomes under $10,000 are made by bicycle.

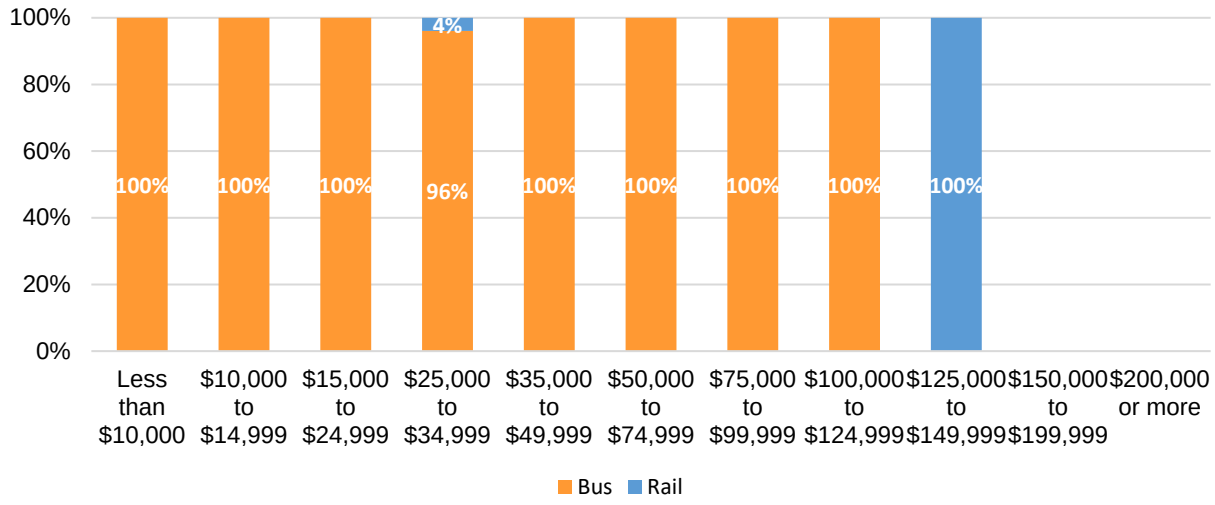
Figure 3-17. Northern San Joaquin Valley Mode Share by Income Level *(n = 4.2M trips)*



Notes: Data labels are shown for auto modes only; "Other modes" include taxicab/ride hail services, RV, and motorcycle.

Figure 3-18 shows rail and bus trips by income. In this subregion, transit trips are nearly exclusively made by bus for riders with household incomes below $125,000. While all transit trips made by individuals with incomes over $125,000 were by rail, this group represents only 747 trips, or 1% of total transit trips in the subregion. With such a small sample size, it would be difficult to make strong conclusions from the data and could be important for Link21 to understand further. Individuals in households with incomes above $150,000 reported no trips via transit, despite making 9% of total trips in the subregion. This information would also need to be further validated with larger sample size and further study.

Figure 3-18. Northern San Joaquin Valley Transit Mode Share by Income Level *(n = 83K trips)*

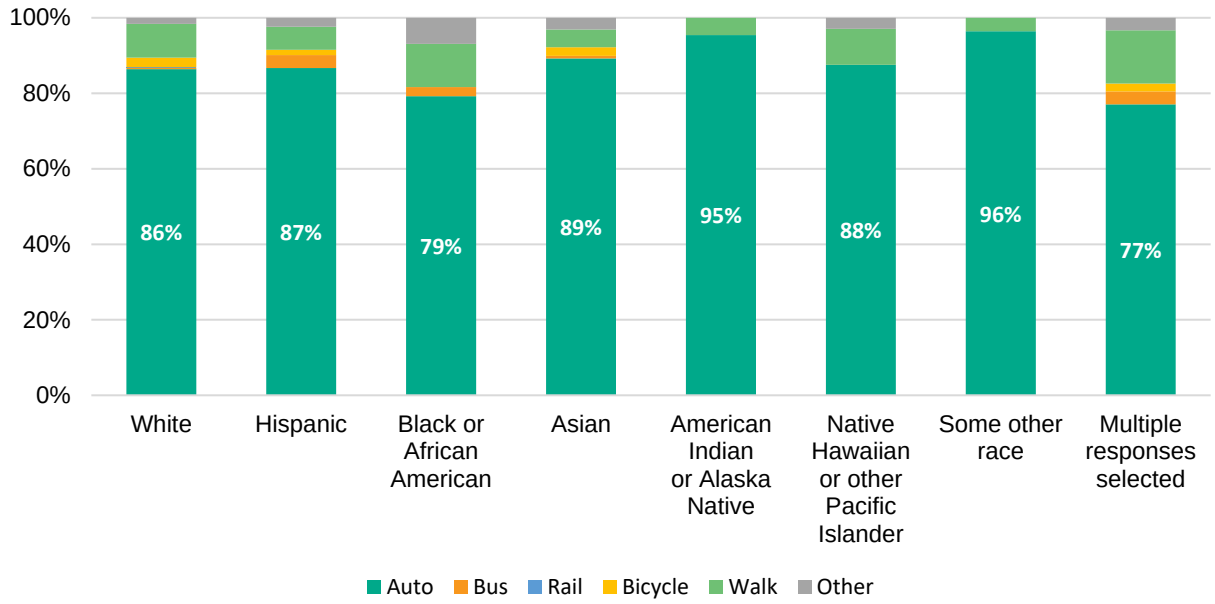


3.2.4.2. Northern San Joaquin Valley Mode Share by Race and Ethnicity

This section explains race and ethnicity characteristics of travel within the Northern San Joaquin Valley.

Figure 3-19 shows the mode share for all trips made by individuals living in the Northern San Joaquin Valley by race and ethnicity. In the subregion, auto travel is dominant across all demographic groups.

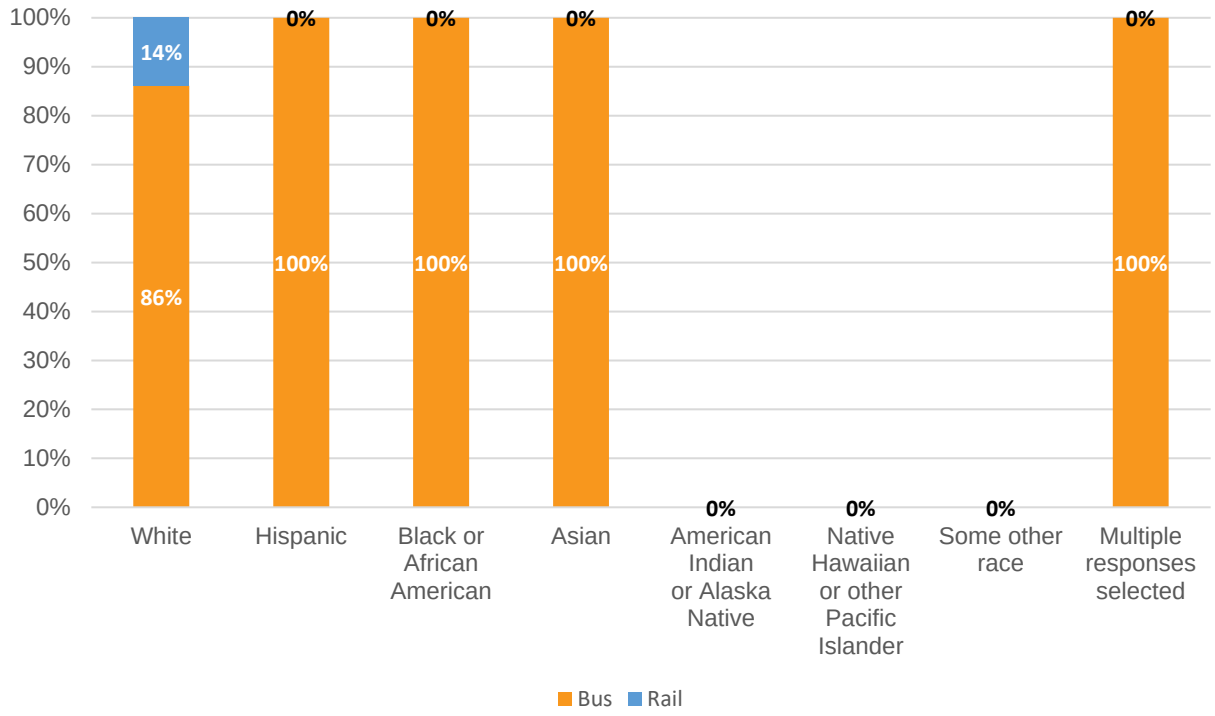
Figure 3-19. Northern San Joaquin Valley Mode Share by Race and Ethnicity *(n = 4.2M trips)*



Notes: Data labels are shown for auto modes only; "Other modes" include taxicab/ride hail services, RV, and motorcycle.

Figure 3-20 shows race and ethnicity for rail and bus trips only. Rail usage was reported by 14% of white respondents. Notably, for the subregion, all other groups made their transit trips exclusively by bus. American Indian/Alaskan Natives, Native Hawaiian/other Pacific Islanders, and those of some other race reported no transit trips recorded in this subregion. The small sample size relative to other groups makes understanding travel patterns in these populations more challenging, specifically at granular levels such as transit trip-making. This could be important to further investigate in future studies.

Figure 3-20. Northern San Joaquin Transit Mode Share by Race and Ethnicity *(n = 83k trips)*



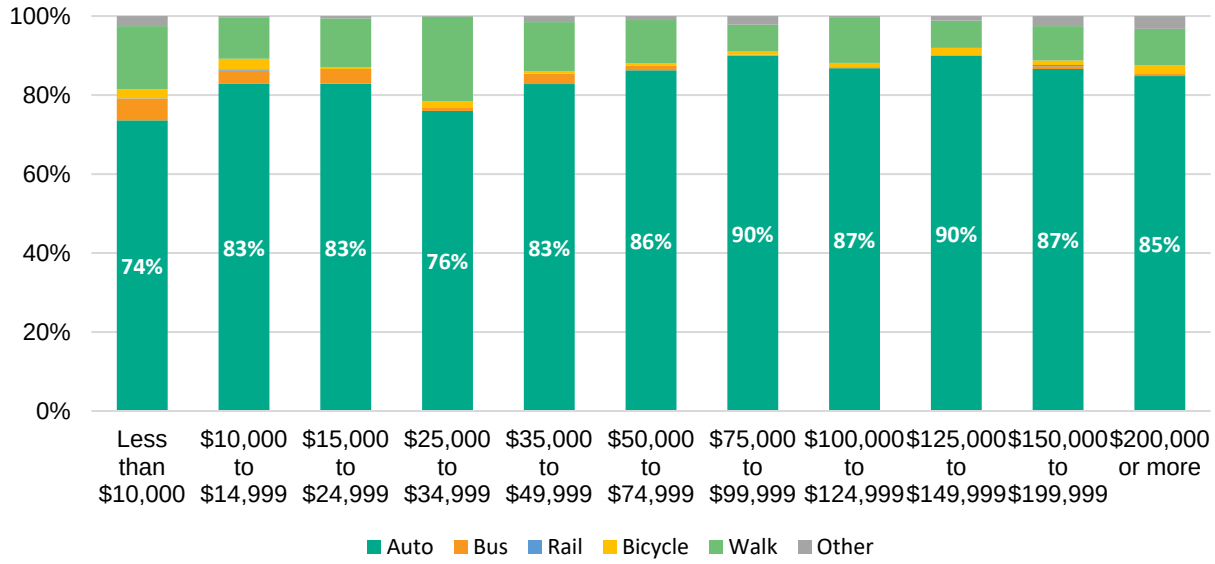
3.2.5. Monterey Bay Area Subregion

3.2.5.1. Monterey Bay Area Mode Share by Income

This section explains income characteristics of travel made within the Monterey Bay Area.

Figure 3-21 shows the mode share for all trips made by individuals living within the Monterey Bay Area by household income level. Travel is largely auto dominated across all incomes and only 1% of total trips are made by transit. While there is not a steady decline in auto usage at graduated income brackets below $35,000, as seen at the megaregional level, the data from the Monterey Bay Area does show lower levels of auto use among individuals below this threshold. The lack of a clear drop-off at lower income brackets could be indicative of poor transit access in general across this region, leading to widespread reliance on auto travel.

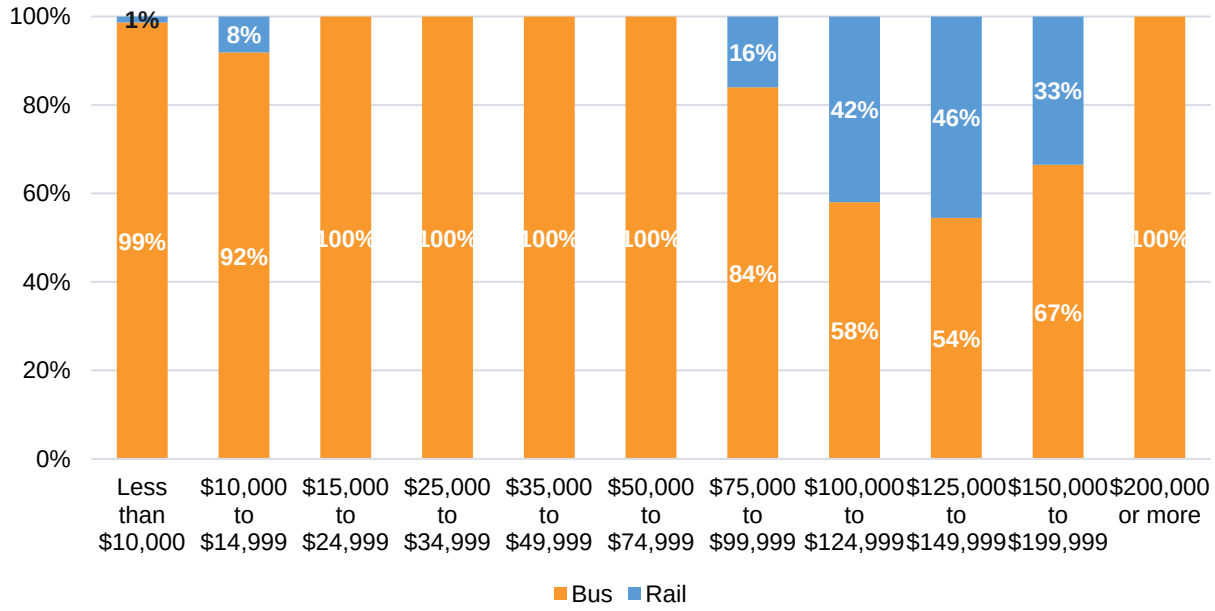
Figure 3-21. Monterey Bay Area Mode Share by Income Level *(n = 2.2M trips)*



Notes: Data labels are shown for auto modes only; "Other modes" include taxicab/ride hail services, RV, and motorcycle.

Figure 3-22 shows the mode choice for rail and bus trips, revealing that the majority of transit trips across all household income levels are made by bus. While rail trips are more common among income brackets over $75,000, riders in these income brackets make up only 16% of transit trips in the sample. The rail trip data would need further study due to current relative lack of rail options for residents in the subregion, with Amtrak rail being one of the only options for the Monterey Bay Area.

Figure 3-22. Monterey Bay Area Transit Mode Share by Income Level *(n = 28K trips)*

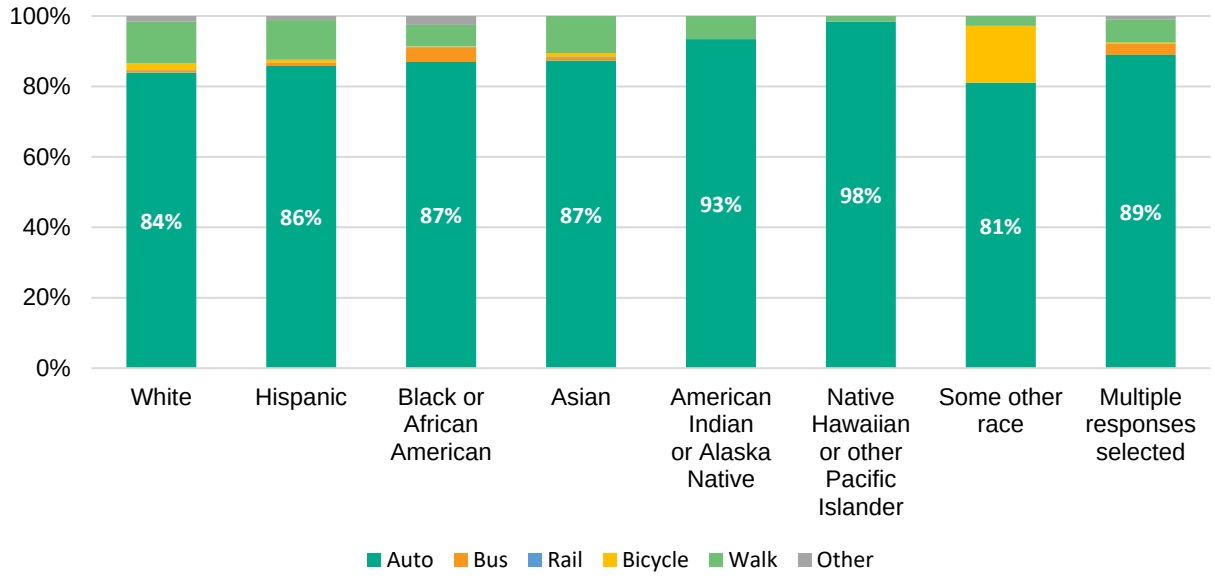


3.2.5.2. Monterey Bay Area Mode Share by Race and Ethnicity

This section explains race and ethnicity characteristics of travel within the Monterey Bay Area.

Figure 3-23 shows the mode share for all trips made by individuals living in the Monterey Bay Area by race and ethnicity. As with other subregions, auto travel is dominant across all races, ranging from 81% (for those of some other race for whom bike use is very common) to 98%.

Figure 3-23. Monterey Bay Area Mode Share by Race and Ethnicity *(n = 2.2M trips)*

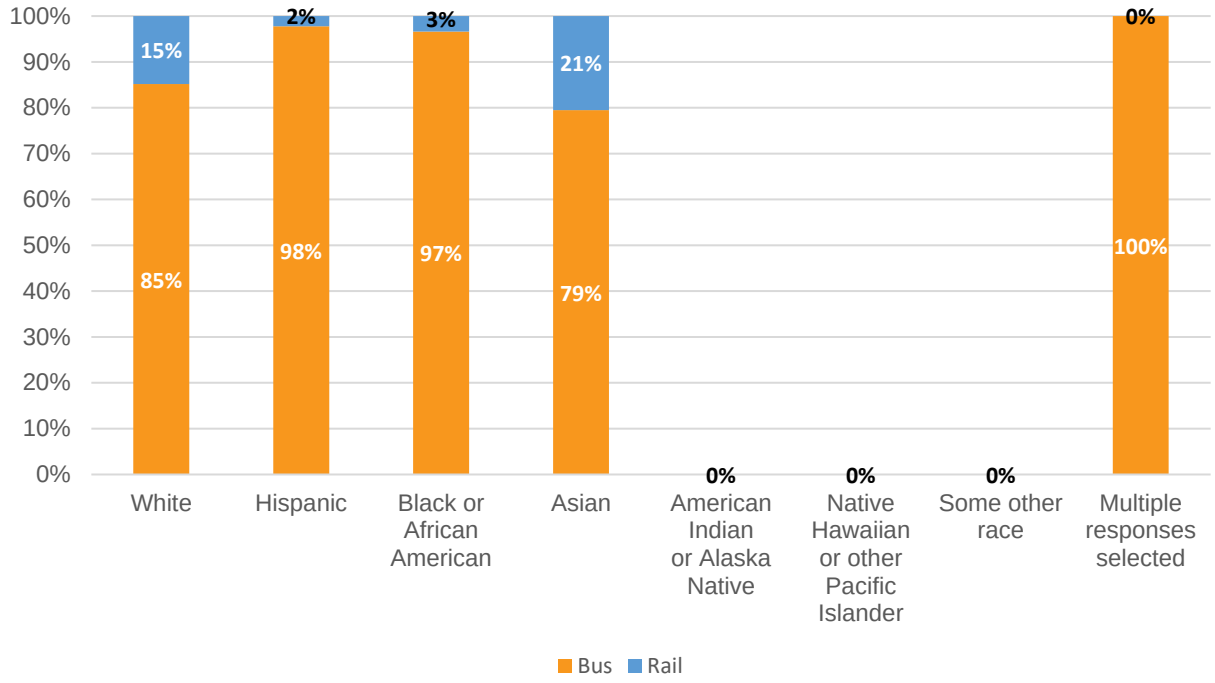


Notes: Data labels are shown for auto modes only; "Other modes" include taxicab/ride hail services, RV, and motorcycle.

Figure 3-24 shows the mode share for rail and bus trips. More white and Asian riders used rail (15% and 21%, respectively) compared to Hispanic and Black/African American riders, who made just 2% and 3% of their transit trips by rail, respectively. No transit trips were observed among American Indian or Alaskan Natives, Native Hawaiian or other Pacific Islanders, and mixed races.

As with the Northern San Joaquin Valley, the small sample size relative to other groups makes understanding travel patterns in these populations more challenging, specifically at granular levels such as transit trip-making. This could be important to further investigate in future studies.

Figure 3-24. Monterey Bay Area Transit Mode Share by Race and Ethnicity *(n = 25K trips)*



3.3. Projected Ridership

Table 3-2 shows the projected distribution of average weekday trips between the four subregions in the Megaregion in 2040. Similar to the existing trip patterns shown in Table 3-1, the largest share of trips is projected to be made within the Bay Area. **Table 3-3** provides the predicted percent growth in average weekday trips, comparing Tables 3-1 and 3-2, showing that the total number of megaregional trips is anticipated to increase by almost 28%, with the greatest growth in the Bay Area and Northern San Joaquin Valley (each at 29%). Trip distributions with lower existing volumes, such as Sacramento Area to and from Monterey Bay Area, show large percentages of growth, but the net growth is rather nominal compared to other subregional trip patterns.

Table 3-2. Average Weekday Megaregional Trips in 2040, Both Directions

	SAN FRANCISCO BAY AREA	SACRAMENTO AREA	NORTHERN SAN JOAQUIN VALLEY	MONTEREY BAY AREA	TOTAL TRIPS
SAN FRANCISCO BAY AREA	25,479,000	252,000	320,000	219,000	26,270,000
SACRAMENTO AREA	252,000	9,031,000	179,000	2,000	9,464,000
NORTHERN SAN JOAQUIN VALLEY	320,000	179,000	3,248,000	8,000	3,755,000
MONTEREY BAY AREA	219,000	2,000	8,000	2,255,000	2,484,000
TOTAL TRIPS	26,270,000	9,464,000	3,755,000	2,484,000	41,973,000

Source: Link21 Draft Market Analysis Report; PMC analysis of StreetLight and other travel pattern data

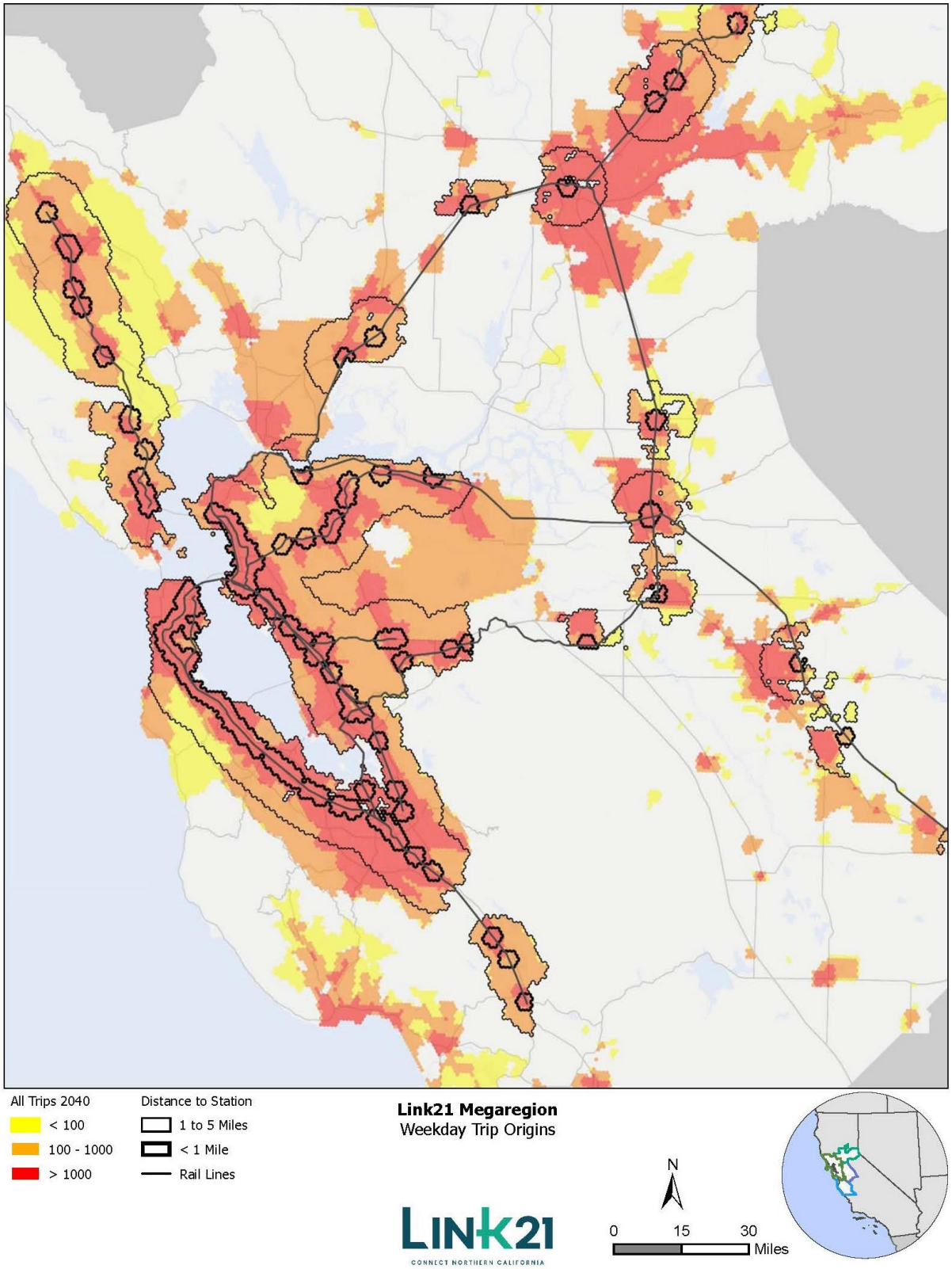
Table 3-3. Percent Growth in Average Weekday Megaregional Trips (2015 to 2040), Both Directions

	SAN FRANCISCO BAY AREA	SACRAMENTO AREA	NORTHERN SAN JOAQUIN VALLEY	MONTEREY BAY AREA	TOTAL TRIPS
SAN FRANCISCO BAY AREA	28.2%	62.6%	73.0%	52.1%	29.0%
SACRAMENTO AREA	62.6%	25.4%	79.0%	100.0%	26.9%
NORTHERN SAN JOAQUIN VALLEY	73.0%	79.0%	23.9%	33.3%	28.9%
MONTEREY BAY AREA	52.1%	100.0%	33.3%	15.7%	18.3%
TOTAL TRIPS	29.0%	26.9%	28.9%	18.3%	27.9%

Source: Link21 Draft Market Analysis Report; PMC analysis of StreetLight and other travel pattern data

Figure 3-25 illustrates the locations of origins of all trips in 2040 in the Megaregion in relation to existing and future planned rail stations. With planned investments to the rail network, 74% of trips are anticipated to originate within 5 miles of a rail station (corresponding to a reasonable auto distance) and 31% of trips are anticipated to originate within 1 mile of a rail station (corresponding to a reasonable walking distance). The locations in the figure showing trip origins that are not near stations provide insight into untapped rail ridership potential in the Megaregion.

Figure 3-25. Average Weekday Trip Origins by Distance from Nearest Rail Station (2040)



Source: PMC analysis of StreetLight and other travel pattern data

3.4. Mobility and Access Findings from Equity Poll

In order to advance equity as part of Link21, the team needs to better understand what is driving some of the disparities in mode share by demographic group highlighted above. In addition, the Link21 Team seeks to better understand what concerns residents in the Megaregion related to transportation, mobility, and access so that input from communities can inform the planning and design of Link21 improvements. In addition to co-creation efforts that informed the development of the program's goals and objectives and definition of PPs, direct feedback from residents helps to identify transportation equity needs and how Link21 might approach avoiding impacts on communities as well as improving quality of life for residents.

An equity poll was conducted in parallel to the second round of co-creation between August 19 and September 27, 2021 to inform early planning of the program and the updated PP definition. A total of 1,505 respondents participated in the poll, which was designed to oversample and specifically understand sentiments from people of color (79% of respondents) and low-income people (76% of respondents).

The equity poll illuminated the following concerns as indicators of general barriers to using public transportation:

- Financial cost
- Time
- Personal/public safety
- Location, convenience, and accessibility

Understanding the above concerns is important to the Link21 Team to help create a more equitable, accessible, and attractive option for residents, especially people of color and lower-income people. The following subsections discuss the key findings.

3.4.1. Financial Cost

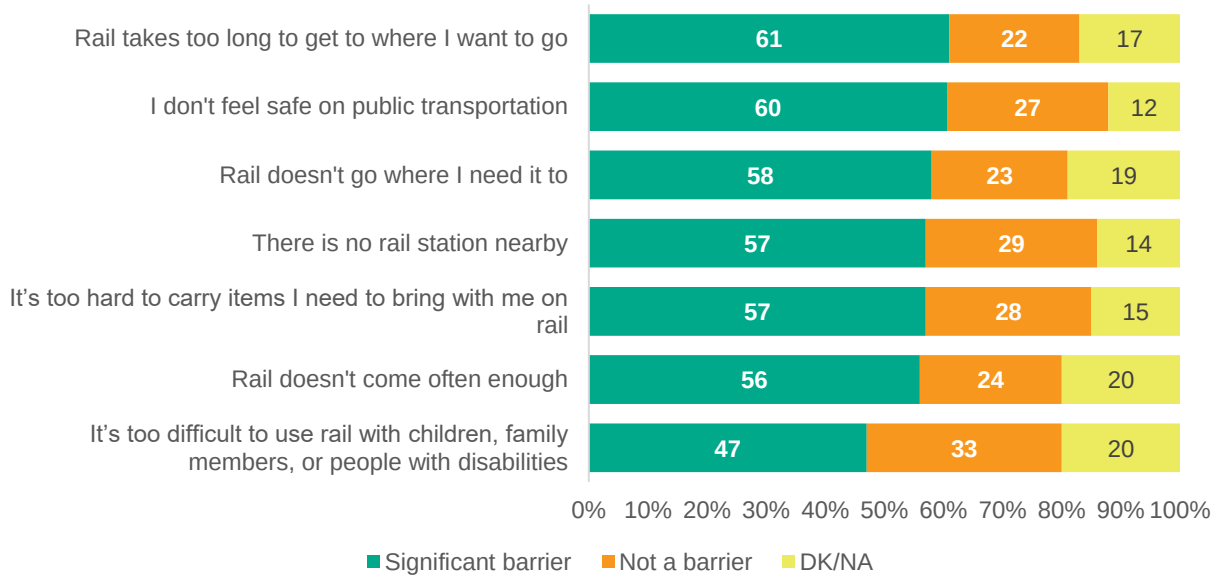
The equity poll uncovered respondents' overwhelming concern over the high financial cost of living in the Megaregion, with concerns related to the cost of housing and homelessness. Housing and homelessness ranked as serious problems for 80% and 78% of respondents, respectively, for the Megaregion.

When asked about what the most important factors were for residents' quality of life, financial concerns were prominent, with key issues being: having enough household income (54%), affordable housing costs (53%), having access to a car (32%), and affordable transportation costs (27%).

3.4.2. Time

When asked about why respondents do not ride rail like BART or Amtrak, the vast majority of people stated time-related reasons for not taking BART or Amtrak, with “Rail takes too long to get to where I want to go” (61%) and “Rail doesn’t come often enough” (56%) as leading responses (**Figure 3-26**).

Figure 3-26. Reasons People do not Ride Rail like BART or Amtrak



3.4.3. Personal/Public Safety

Respondents are also very concerned about personal and public safety. For the same question of why respondents do not ride rail like BART or Amtrak, 60% of people cited “I don’t feel safe on public transportation” as a key concern. The time period for the equity poll was during the COVID-19 pandemic, and the pandemic may have bolstered responses in the personal/public safety area (Figure 3-26).

3.4.4. Location, Convenience, and Accessibility

Location, convenience, and accessibility continue to play large roles in respondents’ perception of their transportation options, including service area, proximity of transit stations, and accessibility for those with mobility challenges or caretaking responsibilities. When asked why respondents do not ride rail like BART or Amtrak, responses such as “Rail doesn’t go to where I need it to go” (58%), “There is no rail station nearby” (57%), “It’s too hard to carry items I need to bring with me on rail” (56%) and “It’s too difficult to use rail with children, family members, or people with disabilities” (47%) were prominent (Figure 3-26).

4. MEGAREGIONAL EQUITY SUMMARY

This chapter summarizes the Megaregion's equity challenges, based on the information discussed in the previous chapters and key information from data described in greater detail in appendices A, B, and C.

4.1.1. Equity Challenges for the Megaregion

The equity challenges of the Megaregion cross all areas but are most acutely felt related to housing and economic conditions. The equity poll discussed in **Section 3.4** and population characteristics presented in **Chapter 2** show that housing costs, unhoused residents, and overcrowded households are key issues for people who call the Megaregion home. The housing challenges of the Megaregion are exacerbated by economic matters such as income inequality, low wages, and long commute times to access jobs in the Megaregion. Alongside housing and economic concerns, education, language, disability, and childcare access are also important to residents.

4.1.2. Key Highlights of Economy, Mobility and Access Disparities

Described in further detail in Appendix B, there are many ways in which PPs are more burdened than the general population in the Megaregion. Of distinct interest to Link21, key economic, mobility, and access-related disparities exist more for PPs than in the general population.

4.1.2.1. Economic Disparities

- PPs have much lower median income than the general population ($59,356 vs. $96,526), representing more than $30,000 in income disparity.
- PPs have higher unemployment rates than the general population (5.1% vs. 3.5%).
- PPs are more likely to rent their home than own (54.8% vs. 43.1% renter-occupied households). Renters are more vulnerable to increases in housing costs, particularly in areas without rent control or strong tenant protections. In addition, renters have disproportionately high rates of transit usage (McKenzie and Rapino 2011).
- PP households have larger average family sizes than the general population (3.9 vs. 3.5 persons). As noted through co-creation efforts, costs rise with additional (non-working) people in the household. Caring for children also requires additional considerations that can change economic and other opportunities.
- PPs are more likely to work multiple jobs than the general population with 9.8% vs. 8.4% of workers with multiple jobs. Co-creation revealed that many workers need to work more than one job to afford cost of living or get benefits like health care. This reduces the amount of time they have for non-work activities, including commuting.

4.1.2.2. Mobility Disparities

- Overall, there is a larger proportion of no-car households in PPs than in the general population (11% vs. 8%). Lack of access to a personal or family vehicle means that a household relies on transit to access essential destinations, both work and non-work. Access to reliable and high-quality transit is essential for these households to meet their needs.
- PPs are more likely than the general population to experience a vehicle mismatch, which is the percentage of households with fewer vehicles than workers (7.9% vs. 6.7%). For households with fewer vehicles than workers, it is more likely that some members of the household rely on other modes of transportation to access work or other destinations.
- There is a larger proportion of megacommuters who are from PPs than from the general population (5.9% vs. 4.9%). Megacommuters are workers with one-way commutes over 90 minutes. Long commutes are costly for workers, in terms of time/opportunity cost and increased transportation costs.

4.1.2.3. Access Disparities

- Residents with a disability represent a larger proportion of PPs than the general population, with more than one in eight residents with a disability in PPs vs. one in 10 in the general population. Research shows that people with disabilities face multiple barriers in travel, access to services, and opportunities. In addition, people with disabilities report more mobility challenges than those without disabilities (Institute of Medicine 2007).
- The medically underserved areas metric shows stark disparity between PPs and general population, with vast differences in percentages — nearly 20% points difference in the Monterey Bay Area and about 17% points difference in the Sacramento Area and the Bay Area. Although the Northern San Joaquin Valley shows the smallest disparity (1.3%), this may be a misleading metric for the subregion; Appendix B shows that Northern San Joaquin Valley is the most burdened regarding asthma rates, heart disease death, and collisions among the four subregions.
- In the Megaregion, almost one in six households in PP areas have no internet access vs. one in nine for the general population (17.3% vs. 11%). During co-creation workshops, it was noted that lower internet, phone, or other technology options can limit educational, social, and economic opportunities.

4.2. Key Equity Concerns for Each Subregion

This section provides a summary of the analyses that compare the main disparities between PPs and the general population within each subregion. In addition, to further emphasize notable findings, key insights of PP index burdens by county under each

subregion are noted. The PP index is first introduced in Section 1.3.3 and discussed in further detail in Appendix B.

The findings shed light on how a subregion might compare to other subregions regarding disparities.

4.2.1. San Francisco Bay Area Subregion

In the Bay Area, key disparities when comparing PPs to the general population are related to income inequality, low-wage jobs, and displacement risk. Key PP index burdens are related to economic conditions, mobility, and health and safety.

- Largest disparity in median household income ($57,480 for PPs vs. $110,962 for the general population) compared to other subregions.
- Largest disparity in low-wage jobs between PPs (19.9%) and the general population (15.7%) compared to other subregions.
- Largest disparity for risk of displacement or gentrification (63.0%) for PPs vs. the general population (20.6%) compared to other subregions.

Key burdens by county are as follows:

- Solano County's share of tracts (74.0%) exceeding index scores of 55 or greater in the mobility category is the highest in the Megaregion. In addition, Solano County is one of the most burdened counties in the Megaregion, with more than half of county tracts exceeding index scores of 55 or greater in three of the four evaluation categories — economic (63.5%), mobility (74%), and health and safety (58.3%).
- Sonoma County and Contra Costa County residents are most burdened by mobility conditions, such as commute length and transit access. 64.0% of Sonoma County and 63.9% of Contra Costa County tracts have index scores of 55 or greater; these counties are more burdened than other tracts in the Megaregion regarding mobility conditions.
- City and County of San Francisco and Alameda County residents are most burdened by health and safety burdens, such as asthma rate, heart disease, and air quality. More than half of county tracts in City and County of San Francisco and Alameda County, respectively, have index scores of 55 or greater; these counties are more burdened than other county tracts in the Megaregion regarding health and safety conditions.
- Santa Clara County residents are most burdened by economic conditions, such as household income, unemployment rates and low wages; however, only 24.2% of county tracts have index scores of 55 or greater. The data show that Santa Clara County residents are not as burdened as other counties because the county has a relatively lower percent of PP tracts per total census tracts.

- Marin County residents are most burdened by mobility conditions, such as commute length and transit access; however, only 26.8% of county tracts have index scores of 55 or greater. The data show that Marin County residents are not as burdened as other counties because the county has a relatively lower percent of PP tracts per total census tracts.
- San Mateo County residents are most burdened by health and safety concerns; however, only 31% of county tracts have index scores of 55 or greater. The data shows that San Mateo County residents are not as burdened as other counties because the county has a relatively lower percent of PP tracts per total census tracts.

4.2.2. Sacramento Area Subregion

In the Sacramento Area, key disparities when comparing PPs to the general population are related to unemployment, renter-occupied households, access to open spaces, and medically underserved areas. Key PP index burdens are related to health and safety, and community.

- Largest disparity in unemployment rate between PPs (5.7%) and the general population (3.8%) compared to other subregions.
- Largest disparity in renter-occupied households between PPs (55.5%) and the general population (39.8%) compared to other subregions.
- Largest disparity in access to open spaces, with 90.3% of PPs vs. 65.8% of the general population having no open spaces within a 10-minute walkable distance, compared to other subregions.
- Largest disparity (18.7% point difference) in medically underserved areas in PP areas compared to the general population, compared to other subregions.

Key burdens by county are as follows:

- Sacramento County residents are most burdened by health and safety concerns, such as asthma rate, heart disease, and air quality, where 63.7% of county tracts ranked over the 55th percentile.
- Placer County residents are most burdened by metrics in the community category, such as access to open spaces and low educational attainment, but less than half (32.9%) of county tracts have index scores of 55 or greater. The data shows that Placer County residents are not as burdened as other counties because the county has a relatively lower percent of PP tracts per total census tracts.

4.2.3. Northern San Joaquin Valley Subregion

In the Northern San Joaquin Valley, key disparities when comparing PPs to the general population are related to unemployment, commute length, access to open spaces and

internet, and disconnected youth. Key PP index burdens are related to all four PP index categories: economic, mobility, community, and health and safety.

- Highest unemployment rate in PPs (6.5%) among the subregions.
- Largest proportion of megacommuters among the subregions, with 9.4% of the general population and 9.2% of PPs reporting a one-way commute length of 90 minutes or more.
- Most people without access to open spaces within a 10-minute walking distance among the subregions for PPs and the general population (96.2% and 95.5%, respectively).
- Highest proportion of disconnected youth in the Megaregion, with 4.5% for PPs and 3.6% for the general population.

Key burdens by county are as follows:

- Stanislaus and Merced counties are two counties in the Northern San Joaquin Valley subregion with more than half of their tracts exceeding index scores of 55 or greater in all four evaluation categories. Stanislaus and Merced counties are more burdened than other county tracts in the Megaregion regarding economic, mobility, community, and health and safety conditions.
- Stanislaus County is one of the most burdened counties in the Megaregion, with more than half of its tracts exceeding index scores of 55 or greater in all four evaluation categories: economic (54.3%), mobility (53.2%), community (60.6%), and health and safety (84%).
- Merced County is one of the most burdened counties in the Megaregion, with more than half of its tracts exceeding index scores of 55 or greater in all four evaluation categories: economic (83.7%), mobility (65.3%), community (69.4%), and health and safety (93.9%).
- San Joaquin County residents are most burdened by metrics in the community (69.1%) and health and safety (85.6%) categories, with more than half of county tracts having index scores 55 or greater.

4.2.4. Monterey Bay Area Subregion

In the Monterey Bay Area, the key disparities when comparing PPs to the general population are related to wages, average family size, internet, educational attainment, and health insurance. Key PP index burdens are related to community, and health and safety.

- The percentage of low-wage jobs within PP areas is the highest (26.4%) among the subregions. In addition, the subregion is second to the Bay Area in disparity for low-wage jobs between PPs and the general population (26.4% vs. 22.5%).

- Greatest difference in average family size for PPs (4.1) compared to the general population (3.6) relative to other subregions.
- Highest proportion of low educational attainment in adults in PP areas (64.2%) and greatest disparity compared to general population areas (21.1% point difference) relative to other subregions.
- Highest proportion of households without internet access (21.4%) among PPs and greatest disparity compared to general population households (7.5% point difference) relative to other subregions.
- Largest proportion of workers with no health insurance among PPs (12.8%) and greatest disparity compared to the general population (4.9% point difference) relative to other subregions.

Key burdens by county are as follows:

- Monterey County residents are most burdened by economic conditions (57.4%), such as household income, unemployment rates and low wages, with more than half of county tracts ranking over the 55th percentile. Monterey County tracts are more burdened than other county tracts in the Megaregion regarding economic conditions.
- San Benito County residents experience the most burdens in the community category (45.5%), such as access to open spaces and low educational attainment, but the data shows that San Benito County residents are not as burdened as other counties because the county has a relatively lower percent of PP tracts per total census tracts.
- Santa Cruz County residents are most burdened by community conditions; however, only 28.3% of county tracts have index scores of 55 or greater. The data show that Santa Cruz County residents are not as burdened as other counties because the county has a relatively lower percent of PP tracts per total census tracts.

4.3. Service Area Summaries

In addition to the characteristics and disparities described in Appendix A for each subregion, population characteristics in specific rail transit service areas are described in the following sections. **Section 4.3.1** describes the passenger rail service areas and **Section 4.3.2** identifies particular metrics that are more apparent in different service areas.

4.3.1. Rail Transit Service Areas

This section describes the passenger rail services operating in the Megaregion. Link21 improvements potentially would enhance these services and boost their benefits to PPs in their service areas.

BART: BART's heavy-rail public transit system serves San Francisco, Alameda, Contra Costa, San Mateo, and Santa Clara counties. This service area is completely within the Bay Area subregion.

CCJPA — Capitol Corridor: The service area for Capitol Corridor's intercity passenger rail, part of the Amtrak system, includes Placer, Sacramento, Yolo, Solano, Contra Costa, Alameda, and Santa Clara counties. The Capitol Corridor service area is within both the Bay Area and Sacramento Area subregions.

Peninsula Corridor Joint Powers Board — Caltrain: The Caltrain service area is within San Francisco, San Mateo, and Santa Clara counties, all part of the Bay Area subregion.

Sonoma-Marin Area Rail Transit (SMART): SMART serves Sonoma and Marin counties in the North Bay, both part of the Bay Area subregion.

San Joaquin Regional Rail Commission — Altamont Corridor Express (ACE): The ACE service area currently covers San Joaquin, Alameda, and Santa Clara Counties. These counties are within the San Francisco Bay Area and Northern San Joaquin Valley Subregions. The planned Valley Rail Program would extend the service area north into Sacramento County (in the Sacramento Area Subregion) and south to Stanislaus and Merced Counties (in the Northern San Joaquin Valley Subregion).

San Joaquin Joint Powers Authority — Amtrak San Joaquins: The Amtrak San Joaquins intercity rail service area includes Alameda and Contra Costa counties (in the Bay Area subregion); Sacramento County (in the Sacramento Area subregion); and San Joaquin, Stanislaus, and Merced counties (in the Northern San Joaquin Valley subregion). Service continues south to Bakersfield in Kern County.

Amtrak — Coast Starlight: The Coast Starlight's service between Los Angeles and Seattle serves the following counties in the Megaregion: Monterey, Santa Clara, Alameda, Contra Costa, Yolo, and Sacramento. These counties are in the Monterey Bay Area, Bay Area, and Sacramento Area subregions.

San Francisco Municipal Transportation Agency — San Francisco Municipal Railway (Muni): Muni is a local light rail transit system that serves the City and County of San Francisco in the Bay Area subregion.

Santa Clara Valley Transportation Authority (VTA) — Light Rail: VTA light rail is a local light rail transit system that serves Santa Clara County in the Bay Area subregion.

Sacramento Regional Transit District (SacRT) — Light Rail: SacRT light rail is a local light rail system serving Sacramento County in the Sacramento Area subregion.

Tri-Valley-San Joaquin Valley Regional Rail Authority — Valley Link: Valley Link is a planned rail system with a service area that includes San Joaquin and Alameda counties in the Northern San Joaquin Valley and Bay Area subregions.

California High-Speed Rail Authority (CAHSRA) – High-Speed Train: CAHSRA's planned high-speed rail system will serve the following counties in the Megaregion: San Francisco, San Mateo, and Santa Clara in the Bay Area subregion; Sacramento in the Sacramento Area subregion; and San Joaquin, Stanislaus, and Merced in the Northern San Joaquin Valley subregion.

Transportation Agency for Monterey County — Monterey County Rail Extension: The Monterey County Rail Extension is a planned extension of passenger rail from Santa Clara County (in the Bay Area subregion) to Monterey County, also serving Santa Cruz County (both counties in the Monterey Bay Area subregion). While the extension would travel through San Benito County, service to that area is not planned.

4.3.2. Service Areas by County and Population Characteristics

The communities that would experience the greatest benefits as a result of Link21 are located near rail stations — both existing and proposed — that would improve their megaregional connectivity with new or enhanced services. This section identifies these rail services and stations and describes characteristics of PPs located within 0.5 mile of existing and proposed rail stations in the counties within the service areas summarized in Section 4.3.1.

Alameda County (BART, Capitol Corridor, ACE, Amtrak San Joaquins, Coast Starlight, and future Valley Link)

- There are 18 stations located in or within a 0.5-mile radius of PP tracts in Alameda County. There are five Amtrak stations (Oakland Coliseum, Berkeley, Oakland, Hayward and Emeryville) and 13 BART stations (Ashby, MacArthur, 19th Street, West Oakland, 12th Street, Lake Merritt, Fruitvale, Coliseum, San Leandro, Bayfair, Hayward and South Hayward).

Contra Costa County (BART, Capitol Corridor, Amtrak San Joaquins, and Coast Starlight)

- There are 10 stations located in or within a 0.5-mile radius of PP tracts in Contra Costa County. There are three Amtrak stations (Martinez, Richmond, and Antioch) and seven BART stations (Pittsburg/Bay Point, Concord, El Cerrito Del Norte, Pleasant Hill, El Cerrito Plaza, Walnut Creek, and Antioch).

City and County of San Francisco (BART, Caltrain, Muni, and future CAHSRA High-Speed Rail)

- There are 10 stations located in or within a 0.5-mile radius of PP tracts in San Francisco County. There are nine BART stations (Embarcadero, Montgomery Street, Powell Street, Civic Center, 24th Street and Mission, Balboa Park, Ferry Building, Financial District, and SF Shopping Center) and one Caltrain station (Bayshore).

Santa Clara County (BART, Caltrain, Capitol Corridor, ACE, VTA light rail, Coast Starlight, future Monterey County Rail Extension, future CAHSRA High-Speed Rail)

- There are four Caltrain stations located in or within a 0.5-mile radius of PP tracts in Santa Clara County (Gilroy, Tamien, Capitol, and Blossom Hill).

Sacramento County (Capitol Corridor, Amtrak San Joaquins, SacRT light rail, Coast Starlight, future ACE, and future CAHSRA High-Speed Rail)

- There is one Amtrak station (Sacramento) located in or within a 0.5-mile radius of PP tracts in Sacramento County.

Placer County (Capitol Corridor)

- There is one Amtrak station (Roseville) located in or within a 0.5-mile radius of PP tracts in Placer County.

Yolo County (Capitol Corridor and Coast Starlight)

- There is one Amtrak station (Davis) located in or within a 0.5-mile radius of PP tracts in Yolo County.

Solano County (Capitol Corridor)

- There is one Amtrak station (Suisun Fairfield) located in or within a 0.5-mile radius of PP tracts in Solano County.

San Mateo County (BART, Caltrain)

- There are 10 stations located in or within a 0.5-mile radius of PP tracts in San Mateo County. There are seven Caltrain stations (South San Francisco, San Bruno, Millbrae, Broadway, San Mateo, Redwood City, and San Bruno) and three BART Caltrain stations (Daly City, Colma, and South San Francisco).

Sonoma County (SMART)

- There are three stations located in or within a 0.5-mile radius of PP tracts in Sonoma County (Santa Rosa Downtown Station, Rohnert Park Station, and Petaluma Station).

Marin County (SMART)

- There are no rail stations located in or within a 0.5-mile radius of PP tracts in Marin County.

San Joaquin County (ACE, Amtrak San Joaquins, future Valley Link, and future CAHSRA High-Speed Rail)

- There are four stations located in or within a 0.5-mile radius of PP tracts in San Joaquin County. There are three Amtrak stations (Lodi, Downtown Stockton, and San Joaquin Street) one ACE station (Downtown Stockton).

Stanislaus County (Amtrak San Joaquins, future ACE, and future CAHSRA High-Speed Rail)

- There is one Amtrak station (Modesto) located in or within a 0.5-mile radius of PP tracts in Stanislaus County.

Merced County (Amtrak San Joaquins, future ACE, and future CAHSRA High-Speed Rail)

- There is one Amtrak station (Merced) located in or within a 0.5-mile radius of PP tracts in Merced County.

Monterey County (Coast Starlight, future Monterey County Rail Extension)

- There is one Amtrak station (Salinas) located in or within a 0.5-mile radius of PP tracts in Monterey County.

Santa Cruz County (future Monterey County Rail Extension)

- There are no rail stations located in or within a 0.5-mile radius of PP tracts in Santa Cruz County.

San Benito County (Coast Starlight, future Monterey County Rail Extension)

- There are no rail stations located in or within a 0.5-mile radius of PP tracts in San Benito County.

El Dorado County (no rail service)

- There are no rail stations located in or within a 0.5-mile radius of PP tracts in El Dorado County.

Yuba County (no rail service)

- There are no rail stations located in or within a 0.5-mile radius of PP tracts in Yuba County.

Sutter County (no rail service)

- There are no rail stations located in or within a 0.5-mile radius of PP tracts in Sutter County.

Napa County (no rail service)

- There are no rail stations located in or within a 0.5-mile radius of PP tracts in Napa County.

4.4. Benefited and Burdened Communities

While the data presented previously in this report should be used to provide previously affected communities with benefits from Link21 improvements, these communities also run the risk of being affected by a number of Link21 construction- and operation-related burdens that communities may experience, which could include acquisition of property;

impacts on access, noise, and air pollution; harms to open space or wildlife; and other related burdens.

Appendix C provides an analysis of locations where Link21 improvements may provide greatest benefits to communities across the Megaregion as well as locations that could experience the greatest burdens associated with construction and operation of any infrastructure and services advanced as part of Link21.

The analysis for Appendix C was conducted by overlaying the potential Link21 construction areas (burden areas, based on early concepts developed by the Link21 Team) with the PPs as described in Section 1.3.3 in GIS to obtain a better understanding of which communities would be most likely to be burdened as a result of Link21. Similarly, the PPs within a larger area that may potentially benefit from Link21 were identified. These populations would potentially receive wide-reaching benefits of the program, including but not limited to additional transit access, improved connectivity to more locations, and improved health benefits from cleaner transportation. Early concepts developed by the Link21 Team are still being refined and may change; therefore, additional burdened communities may be identified later in Link21's development.

This section summarizes some of the key findings from Appendix C, which highlights the locations that could bear the greatest burdens as well as those that may most likely benefit from Link21:

- While the Bay Area is the subregion with the greatest potential of experiencing direct improvements due to Link21, many more PPs within the Bay Area are proximate to potential Link21-related construction, operations, and associated burdens. The PPs in the Bay Area are likely to be burdened more than other megaregional PP tracts as a result of Link21.
- In the Sacramento Area, identified potential Link21 burdened areas are limited to Davis, West Sacramento, and downtown Sacramento, with West Sacramento and downtown Sacramento identified as PP areas. In addition to Link21 benefits, the Sacramento Area has the potential to experience benefits associated with rail improvements advanced by others that would provide greater connectivity and burdens from potential service and related impacts related to rail construction and operation. Given the small number of PPs in potentially burdened locations, and the potential for the subregion to experience potential megaregional transit benefits, the Sacramento Area may be considered both potentially burdened and benefited in the Megaregion as a result of Link21.
- In the Northern San Joaquin Valley, potentially burdened locations with PPs include parts of Tracy, Stockton, and unincorporated areas of San Joaquin County (French Camp, Taft Mosswood, Trull, Holt, Gillis). The region has the potential to experience benefits associated with rail improvements advanced by others that would provide greater connectivity and burdens from potential service and related impacts related

to rail improvements, construction, and operations. Given the numbers of PPs in Link21 potentially burdened areas, balanced with the potential transit benefits, the Northern San Joaquin Valley may be considered both potentially burdened and benefited as a result of Link21.

- In the Monterey Bay Area, no identified potential transit construction projects are directly part of Link21. Potentially benefited areas include PP census tracts in Santa Cruz, Marina, Sand City, Seaside, Salinas, Monterey, Watsonville, Castroville, Elkhorn, and Pajaro that would benefit from rail investments advanced by others. The subregion could experience some benefits with more regional connectivity as well as the possibility of burdens from potential indirect service impacts.

5. IMPLICATIONS FOR THE LINK21 PROGRAM

Equity is at the foundation of Link21. Understanding the communities in the Megaregion, the potential burdens they experience, and the ways they travel is fundamental to developing a program that reflects the needs of the people it would serve. This report lays the groundwork for potential ways Link21 can play a role in addressing transportation, mobility, and access equity challenges of the Megaregion and its subregions.

At its best, transit is a public service that provides affordable and convenient connections to jobs, goods and services, medical care, and other essentials of daily life. This report shows that pervasive inequities persist, with wide disparities across demographic, income, health, social, and other characteristics.

Using the goals and objectives introduced in **Chapter 1** as a framework, and in consideration of the Megaregion's current inequities, the following considerations have been identified for Link21 to promote equity across the program.

Transform the Passenger Experience

- Prioritize affordability, service frequency, safety, and accessibility. Consider the transit ridership demographic trends of the Megaregion, where fewer people of color ride rail vs. buses (**Section 3.1**).
- Using data from the equity poll and other resources (**Section 3.3**), understand that financial cost, time, personal and public safety, convenience, location, and access are key factors, and currently barriers, to using rail for people of color and lower-income populations.

Promote Equity and Livability

- Improve safety, health, and air quality especially for more Link21 potentially burdened communities such the PP areas in the Bay Area, West Sacramento in the Sacramento Area, and Tracy, Stockton, and unincorporated areas of San Joaquin County (French Camp, Taft Mosswood, Trull, Holt, Gillis) in the Northern San Joaquin Valley (**Section 4.3**).
- Prioritize affordable and equitable internet access at transit stations, inside rail cars, and in communities (**Section 4.1.2**) as transportation and technology are currently and becoming more interlinked.

Support Economic Opportunity and Global Competitiveness

- Prioritize connecting people with disabilities, lower incomes, multiple jobs, long commutes, and caretaking responsibilities, to jobs, health care, social services, childcare centers, grocery stores, parks, and other essential places, in consideration of the economic, mobility, and access disparities in the Megaregion (Section 4.1.2).
- Enable transit-supportive and equitable land use by supporting transit-oriented affordable development, and affordable larger family housing (Section 4.1.2).

Advance Environmental Stewardship and Protection

- Improve high-quality transit access, especially for no-car households, households with a vehicle mismatch, or areas with more megacommuters, reducing the potential need to drive, and improving environmental quality and benefits (Section 4.1.2).

In addition, the Link21 Team could use the findings of this report in further ways, including but not limited to the following:

- Examine and understand subregional nuances in disparities, burdens, and benefits to inform more tailored and granular program design and improvement.
- Inform co-creation and other engagement activities by providing baseline data on locations of populations with specific characteristics or areas where PPs are experiencing greater burdens and thus should be the focus of outreach.
- Provide technical teams with equity data that can be incorporated into their work and used in analysis to address equity concerns.
- Support program-wide decision-making across all work streams and phases to arrive at more equitable approaches.

6. REFERENCES

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APPENDIX A. PROJECTED POPULATION CHARACTERISTICS

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APPENDIX A PROJECTED POPULATION CHARACTERISTICS

This appendix provides projected population statistics by subregion compiled from the regional transportation plans of the seven metropolitan planning organizations (MPOs) that are within the Northern California Megaregion (Megaregion) and California Department of Finance's projections.

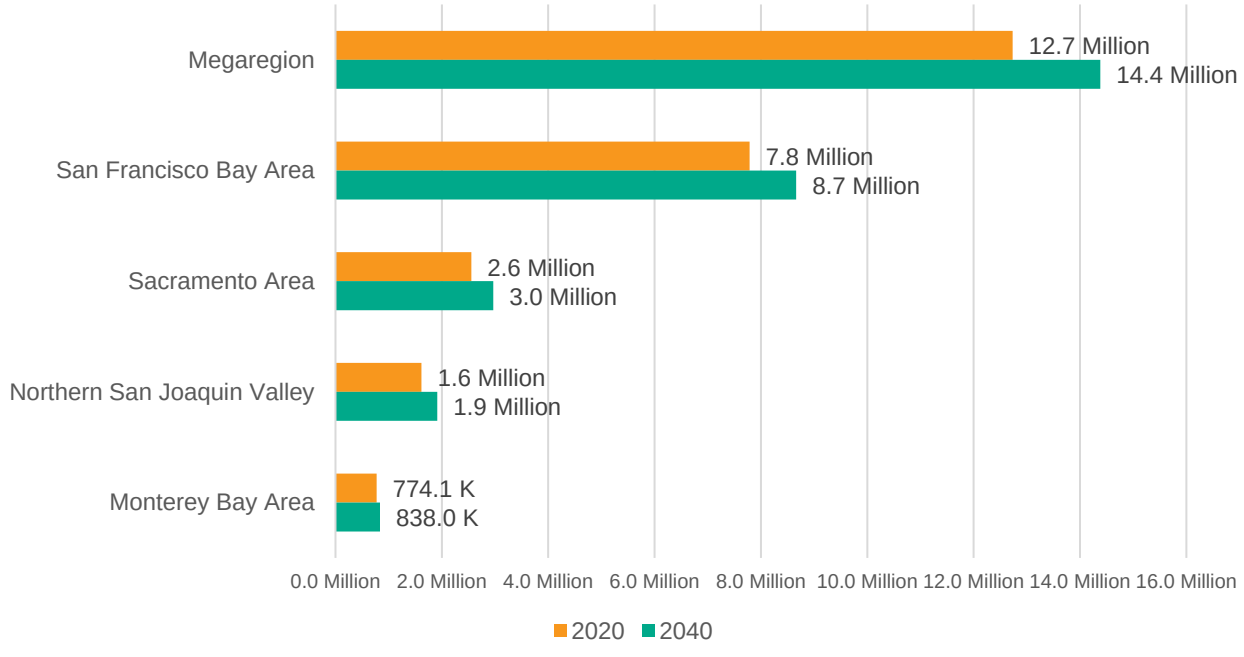
The appendix starts with a description of projected population trends, race and ethnicity information, and other demographic characteristics such as age, gender, and employment, all projected using 2020 as the base year and 2040 as the forecast year.

The main purpose of this appendix is to respond to questions regarding the demographics of the Megaregion and its subregions currently and in the future, in order to understand the population that the Link21 Program (Link21) is serving.

A.1. Overall Population Trends

In 2020, people of color represented about 57% of the Megaregion's population; by 2040, this proportion is expected to grow to 60%. The current population and population projection data were obtained from the California Department of Finance (2021). **Figure A-1** shows the projected population in 2040.

Figure A-1. Existing 2020 and Projected 2040 Population

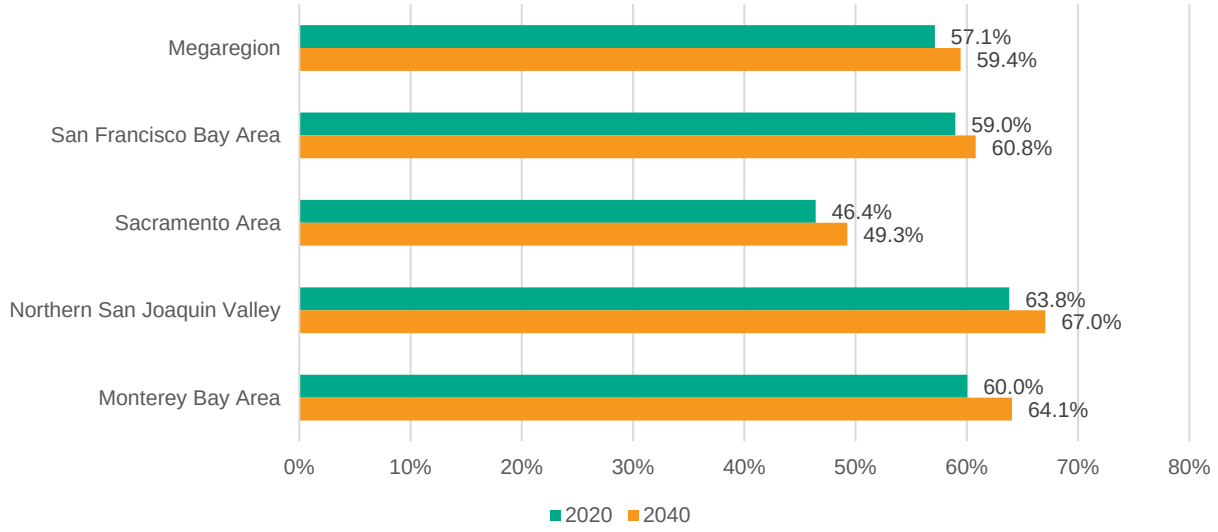


Source: California Department of Finance 2021

A.2. Race

In 2040, people of color could account for approximately 59% of the Megaregion's overall population. The Northern San Joaquin Valley subregion is projected to be the most racially diverse, with 67% of the population considered people of color. The Sacramento Area subregion is projected to be the least racially diverse, with 49% of the population considered people of color. **Figure A-2** illustrates the existing 2020 and projected 2040 percentage of people of color by subregion. **Table A-1** shows the race/ethnicity breakdown for the Megaregion and four subregions.

Figure A-2. Existing 2020 and Projected 2040 Percentages of People of Color Population



Source: California Department of Finance 2021

Table A-1. Projected Race/Ethnicity Distribution in 2040

RACE / ETHNICITY	SAN FRANCISCO BAY AREA	SACRAMENTO AREA	NORTHERN SAN JOAQUIN VALLEY	MONTEREY BAY AREA	MEGAREGION
Black	6.4%	7.0%	5.5%	1.8%	6.1%
Hispanic (Latino)	25.6%	23.9%	47.6%	54.4%	29.9%
Asian/Pacific Islander	23.9%	12.8%	9.9%	4.7%	18.6%
Native American	0.3%	0.7%	0.5%	0.3%	0.4%
Mixed/Other	4.6%	4.9%	3.5%	2.8%	4.4%
White	39.2%	50.7%	33.0%	35.9%	40.6%
People of Color	**60.8%**	**49.3%**	**67.0%**	**64.1%**	**59.4%**

Note: "People of color" indicates the population that does not identify as non-Hispanic white, inclusive of the following categories: Black, Hispanic (Latino), Native American, Asian/Pacific Islander, and Mixed/Other

Source: California Department of Finance 2021

A.3. Age

Overall, the average age of the Megaregion's population is rising rapidly. According to the 2040 projections, there is likely to be a 57% increase in the population aged 65 and older. The Northern San Joaquin Valley subregion is projected to have a 61% increase in the population of older adults, and the Monterey Bay Area is projected to have a 49% increase. Overall, the Megaregion is projected to experience a decline in the age groups of 0-14 years and 15-24 years by 2.1% and 4.2%, respectively (**Table A-2**).

Table A-2. Projected Population Growth by Age Group in 2040

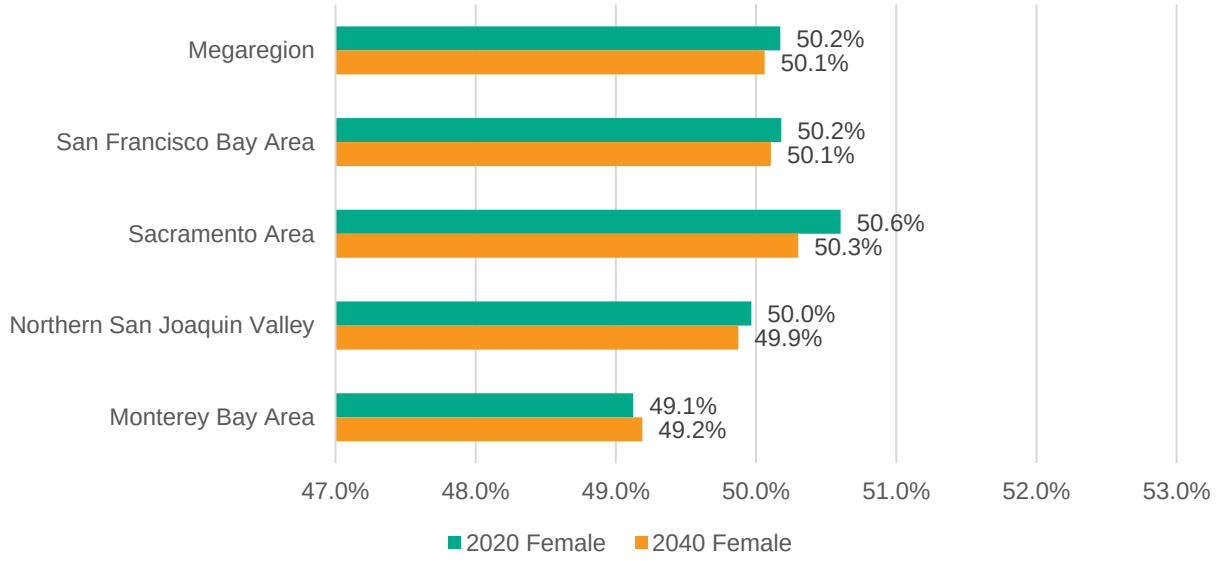
REGION	0-14	15-24	25-64	65+
Megaregion	-2.1%	-4.2%	+7.1%	+57.4%
Bay Area	-4.9%	-6.0%	+3.3%	+59.3%
Sacramento Area	+3.0%	-2.6%	+13.9%	+51.5%
Northern San Joaquin Valley	+4.4%	-0.4%	+17.5%	+61.0%
Monterey Bay Area	-9.0%	-3.7%	+3.7%	+49.8%

Source: California Department of Finance 2021
Bay Area = San Francisco Bay Area

A.4. Gender

Figure A-3 shows the 2020 and 2040 gender projections in the Megaregion and subregions. The projected female population is expected to remain around 50%.

Figure A-3. Existing 2020 and Projected 2040 Female Population Percentage



Source: California Department of Finance 2021

A.5. Employment

Table A-3 shows the projected employment growth statistics for the Megaregion and subregions. Overall jobs in the Megaregion are projected to grow by 20% from 2020 to 2040. Jobs in the Northern San Joaquin Valley subregion are expected to grow by 15%. The Bay Area has the highest percentage of projected job growth (23.8%), and the Monterey Bay Area the lowest (6.9%).

Table A-3. Projected Employment Growth in 2040

REGION	MPO	2020	2040	PERCENT CHANGE
Megaregion		6,331,882	7,597,635	20.0%
Bay Area	MTC	4,080,000	5,050,000	23.8%
Sacramento Area	SACOG	1,168,000	1,330,000	13.9%
	TRPA[a]	28,604	29,290[b]	2.4%
Northern San Joaquin Valley	MCAG	82,017	103,290	25.9%
	StanCOG	264,668	282,297	6.7%
	SJCOG	330,917	397,901	20.2%
Monterey Bay Area	AMBAG	406,280	434,147	6.9%

Sources: Metropolitan Transportation Commission, Sacramento Area Council of Governments, Tahoe Regional Planning Agency, Merced County Association of Governments, Stanislaus Council of Governments, San Joaquin Council of Governments, and Association of Monterey Bay Area Governments Employment Projections

AMBAG = Association of Monterey Bay Area Governments

MCAG = Merced County Association of Governments

MTC = Metropolitan Transportation Commission

SACOG = Sacramento Area Council of Governments

SJCOG = San Joaquin Council of Governments

StanCOG = Stanislaus Council of Governments

TRPA = Tahoe Regional Planning Agency

[a] *TRPA demographic projections cover all four counties within its jurisdiction, which includes two counties in Nevada that are not part of Link21. These numbers also overlap with SACOG's projections to a certain extent because of the two counties of TRPA that are repeated.*

[b] *TRPA demographic projections have a base year of 2020 and horizon year of 2045. The 2040 projected numbers are calculated through interpolation.*

Table A-4. Projected Household Growth in 2040

REGION	MPO	2020	2040	PERCENT CHANGE
Megaregion		4,410,349	5,710,453	29.5%
Bay Area	MTC	2,760,000	3,710,000	34.4%
Sacramento Area	SACOG	899,500	1,101,000	22.4%
	TRPA[a]	21,624	23,777[b]	10.0%

REGION	MPO	2020	2040	PERCENT CHANGE
Northern San Joaquin Valley	MCAG	88,526	117,648	32.9%
	StanCOG	179,276	215,916	20.4%
	SJCOG	239,184	292,427	22.3%
Monterey Bay Area	AMBAG	243,863	273,462	12.1%

Sources: Metropolitan Transportation Commission, Sacramento Area Council of Governments, Merced County Association of Governments, Stanislaus Council of Governments, San Joaquin Council of Governments, and Association of Monterey Bay Area Governments Employment Projections

[a] Note: TRPA demographic projections cover all four counties within its jurisdiction, which includes two counties in Nevada that are not part of Link21. These numbers also overlap with SACOG's projections to a certain extent because of the two counties of TRPA that are repeated.

[b] TRPA demographic projections have a base year of 2020 and horizon year of 2045. The 2040 projected numbers are calculated through interpolation.

A.6. References

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APPENDIX B. PRIORITY POPULATION ANALYSES

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APPENDIX B PRIORITY POPULATION ANALYSES

This appendix provides comprehensive analyses on demographic characteristics in the megaregion and the four subregions using the priority population (PP) framework developed specifically for Link21. The main purpose of this appendix is to provide detailed baseline equity information in the Link21 study area across the Megaregion and the four subregions.

The appendix starts with a detailed list of locations of PP census tracts and then provides a summary and analysis of the proportion of census tracts in each subregion that exceed the index score of 55 for each of the four PP evaluation categories, indicating greater burdens across the county in a specific evaluation category.

B.1. Priority Population Locations

In the Megaregion, 791 census tracts are identified as PP areas, out of a total of 2,549 census tracts (31%). **Figure B-1** illustrates the locations of the 791 PP census tracts across the Megaregion and its four subregions.

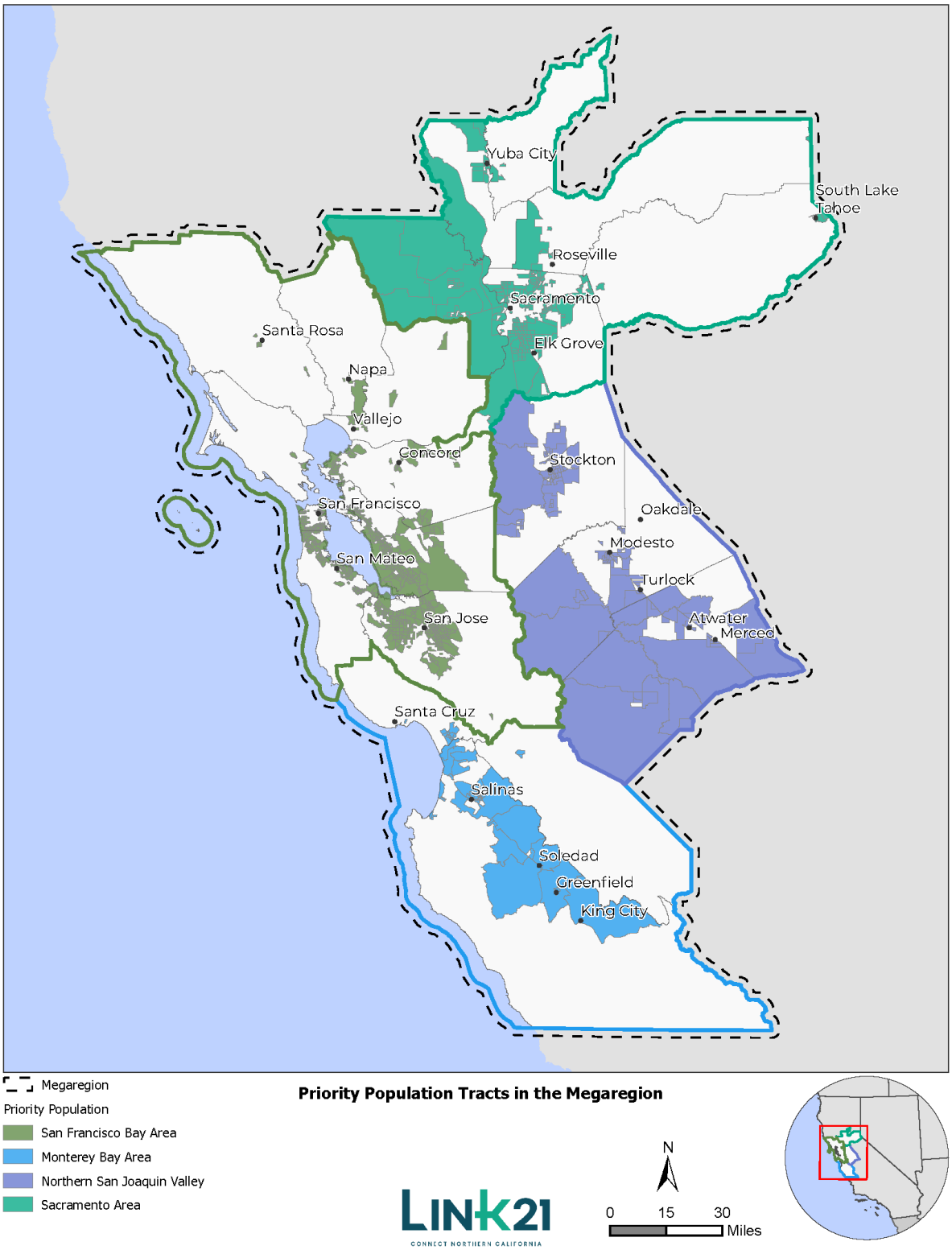
B.2. Priority Population Metrics by Subregion

Sections B.2.1 to **B.2.4** provide a detailed list of which cities have PP census tracts, organized by subregion. In addition, these sections provide a summary and analysis of the proportion of census tracts in each subregion that exceed the index score of 55 for each of the four PP evaluation categories, indicating greater burdens across the county in a specific evaluation category. **Table B-1** summarizes the four index categories and metrics that make up each category.

Table B-1. Priority Populations Evaluation Metrics

ECONOMIC	MOBILITY	COMMUNITY	HEALTH & SAFETY
▫ Household income ▫ Unemployment rates ▫ Low wages ▫ Tenure ▫ Housing and transportation costs ▫ Family size ▫ Multiple jobs	▫ Transportation cost burden ▫ No household cars ▫ Vehicle mismatch ▫ Commute length ▫ Transit access	▫ Disconnected youth ▫ Miles of highway ▫ Access to open spaces ▫ Access to grocery stores ▫ Low educational attainment ▫ Displacement ▫ Older adults 65+ ▫ Internet access	▫ Medically underserved area ▫ Asthma rate ▫ Heart disease death ▫ Air quality ▫ Collisions ▫ Overcrowded homes ▫ Low employment benefits

Figure B-1. Priority Population Tracts in the Megaregion



B.2.1. San Francisco Bay Area Subregion

Figure B-2 illustrates the following locations where PPs are most prevalent in the Bay Area:

- In Alameda County, cities with PP census tracts include Albany, Berkeley, Oakland, Alameda, San Leandro, Hayward, and Union City. There are also PP census tracks in the unincorporated census designated places (CDPs) of Ashland, Castro Valley, Cherryland, Fairview and San Lorenzo.
- In Contra Costa County, cities with PP census tracts include El Cerrito, Richmond, San Pablo, Pinole, Walnut Creek, Concord, Pittsburg, Antioch, Oakley, and Brentwood. There are also PP census tracks in the unincorporated CDPs of Bay Point, Bethel, Byron, Crockett, El Sobrante, North Richmond, and Rodeo.
- In Marin County, cities with PP census tracts include Novato and San Rafael, and the unincorporated CDP of Marin City.
- In Napa County, cities with PP census tracts include American Canyon, Napa, Yountville, St. Helena, and Calistoga. There are also PP census tracks in the unincorporated CDPs of Aetna Springs, Knoxville, Lake Berryessa, Moskowite Corner, and Pope Valley.
- In the City and County of San Francisco, places with PP census tracts include parts of Chinatown, Tenderloin, Western Addition, Mission, Bayview, Hunter's Point, Treasure Island, Visitacion Valley, and Lake Merced.
- In San Mateo County, cities with PP census tracts include Daly City, South San Francisco, San Bruno, Burlingame, San Mateo, Menlo Park, East Palo Alto, and Redwood City. There are also PP census tracks in the unincorporated CDP of Broadmoor.
- In Santa Clara County, cities with PP census tracts include San Jose and Gilroy.
- In Solano County, cities with PP census tracts include Vallejo, Suisun City, Fairfield, Vacaville, and Dixon.
- In Sonoma County, cities with PP census tracts include Sonoma, Petaluma, Cotati, Rohnert Park, Sebastopol, Santa Rosa, Windsor, and Healdsburg. There are also PP census tracks in the unincorporated CDPs of Eldridge, Fetters Hot Springs-Agua Caliente, Boyes Hot Springs, Temelec, Sonoma State University, Bloomfield, Valley Ford, Fulton, Guerneville, Forestville, Monte Rio, and Cazadero.

Figure B-2. Priority Populations in the San Francisco Bay Area Subregion

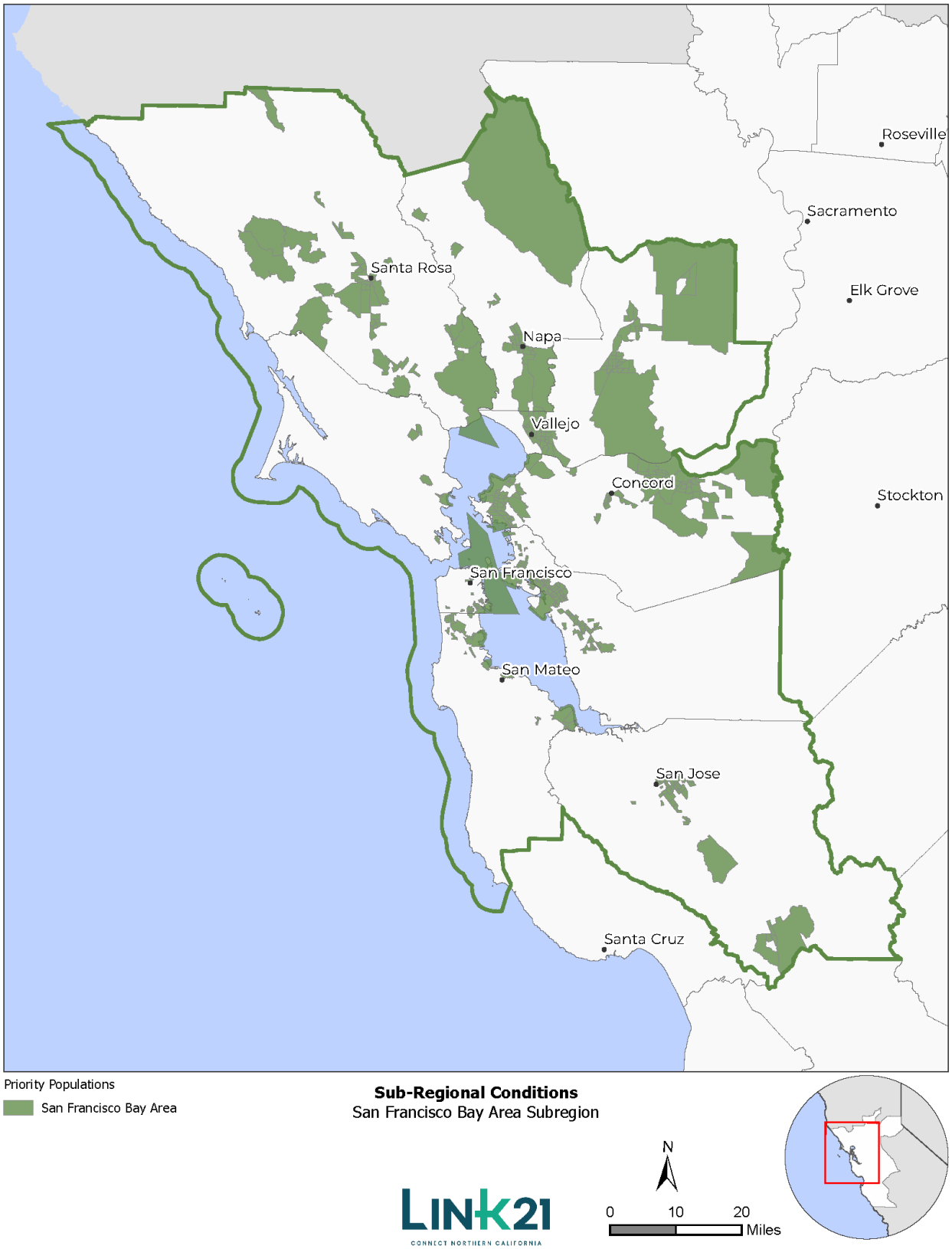


Table B-2 shows bolded in green which counties in the Bay Area have an index score of 55 or greater in more than half of their census tracts.

- Economic: This category includes household income, wage, and related metrics. Over 60% of the census tracts in Solano County (61.5%) have index scores over 55.
- Mobility: This category includes commute length and transit access. More than half the census tracts in Contra Costa County (60.6%), Napa County (62.5%), Solano County (68.8%), and Sonoma County (62%) have index scores over 55.
- Health and Safety: This category includes asthma rates, heart disease death, and collisions. More than half the census tracts in Alameda County (53.5%), Napa County (80%), and Solano County (58.3%) have index scores over 55.
- No counties in the Bay Area show index scores over 55 in the community category, which includes access to grocery stores, displacement, and low educational attainment.

Table B-2. Census Tracts with Index Scores of 55 or Greater in the San Francisco Bay Area Subregion

COUNTY	TOTAL NUMBER OF CENSUS TRACTS	CENSUS TRACTS EXCEEDING INDEX SCORE OF 55							
		ECONOMIC		MOBILITY		COMMUNITY		HEALTH & SAFETY	
		#	%	#	%	#	%	#	%
Alameda	361	111	30.7%	81	22.4%	82	22.7%	193	**53.5%**
Contra Costa	208	66	31.7%	126	**60.6%**	66	31.7%	85	40.9%
Marin	56	7	12.5%	15	26.8%	9	16.1%	9	16.1%
Napa	40	17	42.5%	25	**62.5%**	19	47.5%	32	**80.0%**
San Francisco	197	58	29.4%	10	5.1%	28	14.2%	77	39.1%
San Mateo	158	33	20.9%	15	9.5%	12	7.6%	47	29.7%
Santa Clara	372	89	23.9%	28	7.5%	52	14.0%	80	21.5%
Solano	96	59	**61.5%**	66	**68.8%**	36	37.5%	56	**58.3%**
Sonoma	100	43	43.0%	62	**62.0%**	44	44.0%	20	20.0%
Subregion Total	**1,588**	**483**	**30.4%**	**428**	**27.0%**	**348**	**21.9%**	**599**	**37.7%**

Note: Counties with more than half of their census tracts with index scores of 55 or greater per category are identified ***in green*** *in the table.*

B.2.2. Sacramento Area Subregion

Figure B-3 illustrates the following locations where PPs are most prevalent in the Sacramento Area:

- In El Dorado County, cities with PP census tracts include Placerville and South Lake Tahoe.
- In Placer County, cities with PP census tracts include Lincoln and Roseville.
- In Sacramento County, cities with PP census tracts include Isleton, Galt, Elk Grove, Sacramento, Rancho Cordova, Citrus Heights. There are also PP census tracks in the unincorporated CDPs of Walnut Grove, Courtland, Hood, Freeport, Florin, Parkway, Lemon Hill, Fruitridge Pocket, La Riviera, Antelope, Foothill Farms, Rio Linda, McClellan Park, North Highlands, Carmichael, and Arden-Arcade, and large parts of unincorporated areas in the southwest portion of the county.
- In Sutter County, cities with PP census tracts include Yuba City and Live Oak. There are also PP census tracks in the incorporated CDPs of Robbins, Meridian, Sutter, and large parts of unincorporated areas in the county.
- In Yolo County, cities with PP census tracts include Davis, West Sacramento, and Woodland. There are also PP census tracks in the incorporated CDPs of Knights Landing, Yolo, Dunnigan, Rumsey, Guinda, Tancred, Brooks, Esparto, Madison, and Monument Hills.
- In Yuba County, places with PP census tracts include parts of the City of Marysville and the unincorporated CDPs of Linda and Olivehurst.

Figure B-3. Priority Populations in the Sacramento Area Subregion

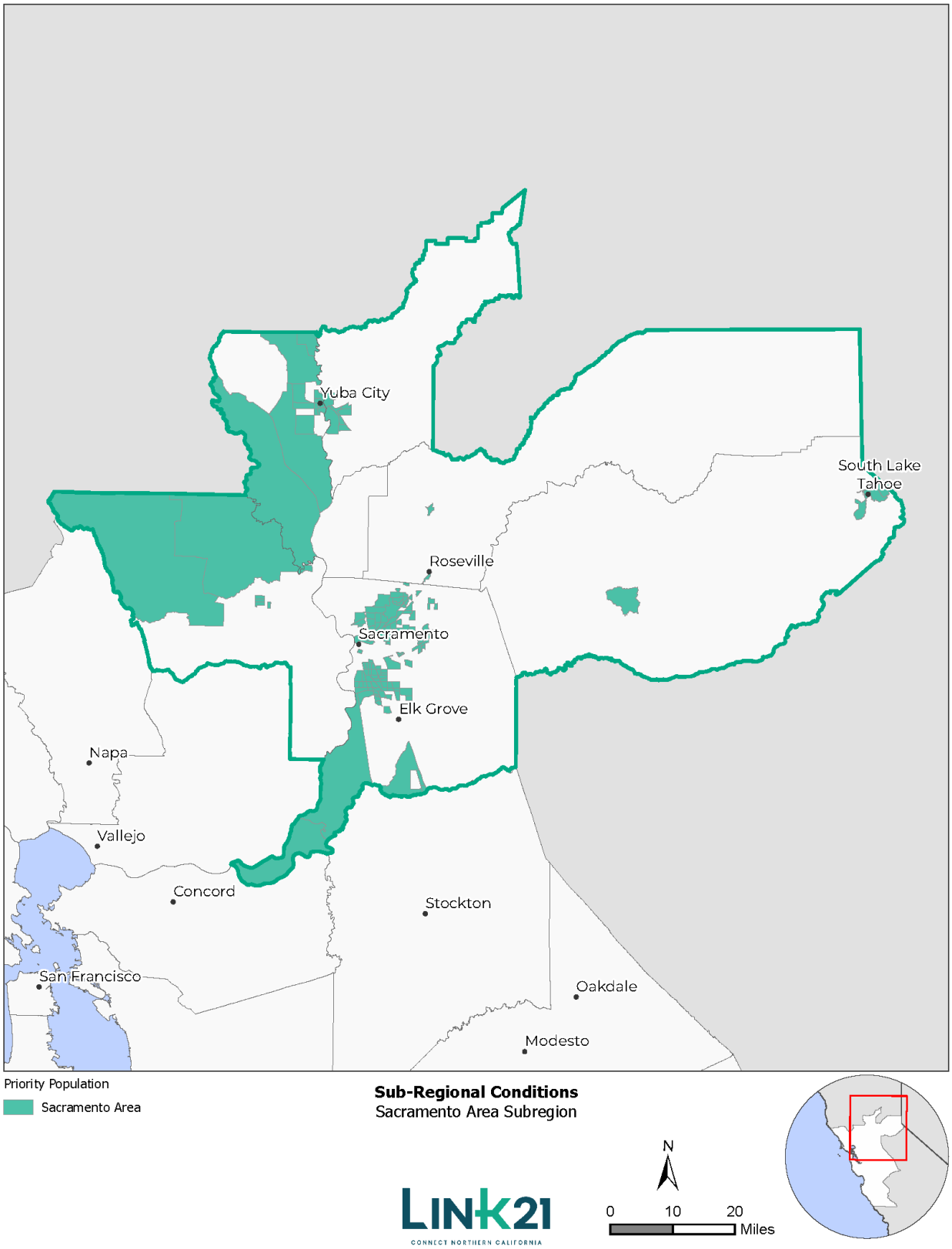


Table B-3 shows bolded in green which counties in the Sacramento Area have an index score of 55 or greater in more than half of their census tracts.

- Economic: More than half the census tracts in Sutter County (57.1%) and Yolo County (56.1%) have index scores over 55.
- Mobility: More than half the census tracts in Sutter County (66.7%), Yolo County (53.7%), and Yuba County (64.3%) have index scores over 55.
- Community: This category includes access to grocery stores, displacement and low educational attainment. More than half the census tracts in Sutter County (71.4%) and Yuba County (64.3%) have index scores over 55.
- Health and Safety: More than half the census tracts in Sacramento County (59.9%), Sutter County (76.2%), and Yuba County (71.4%) have index scores over 55.

Among the six counties in the Sacramento Area subregion, Sutter, Yuba, and Yolo counties show higher index scores in more than one category, indicating such counties experience multiple overlapping burdens. Notably, higher index scores for Sutter County are prevalent in four evaluation categories. Yuba County exceeds the index score criterion in three categories.

Table B-3. Census Tracts with Index Scores of 55 or Greater in the Sacramento Area Subregion

COUNTY	TOTAL NUMBER OF CENSUS TRACTS	CENSUS TRACTS EXCEEDING INDEX SCORE OF 55							
		ECONOMIC		MOBILITY		COMMUNITY		HEALTH & SAFETY	
		#	%	#	%	#	%	#	%
El Dorado	43	6	14.0%	21	48.8%	17	39.5%	4	9.3%
Placer	85	2	2.4%	23	27.1%	27	31.8%	10	11.8%
Sacramento	317	115	36.3%	50	15.8%	134	42.3%	190	**59.9%**
Sutter	21	12	**57.1%**	14	**66.7%**	15	**71.4%**	16	**76.2%**
Yolo	41	23	**56.1%**	22	**53.7%**	13	31.7%	11	26.8%
Yuba	14	6	42.9%	9	**64.3%**	9	**64.3%**	10	**71.4%**
Subregion Total	**521**	**164**	**31.5%**	**139**	**26.7%**	**215**	**41.3%**	**241**	**46.3%**

*Note: Counties with more than half of their census tracts with index scores of 55 or greater per category are identified **in green** in the table.*

B.2.3. Northern San Joaquin Valley Subregion

Figure B-4 illustrates the following areas where PPs are most prevalent in the Northern San Joaquin Valley:

- In Merced County, places with PP census tracts make up most of the county. Only parts of the unincorporated CDPs of Hilmar-Irwin, McSwain, and Tittle and parts of the City of Merced are not designated as PP areas.
- In San Joaquin County, cities with PP census tracts include Lodi, Stockton, Manteca, Lathrop, and Tracy. There are also PPs in unincorporated CDPs of Thornton, Woodbridge, Terminous, Lockeford, Victor, Waterloo, Morada, Lincoln Village, Country Club, August, Garden Acres, Kennedy, Taft, Mosswood, and French Camp.
- In Stanislaus County, cities with PP census tracts include Oakdale, Riverbank, Modesto, Patterson, Turlock, Ceres and Newman. There are also PPs in unincorporated CDPs of East Oakdale, Salida, Empire, West Modesto, Bystrom, Parklawn, Rouse, Bret Harte, Cowan, Keyes, Riverdale Park, Patterson, Grayson, Westley, Crows Landing, and Diablo Grande.

Figure B-4. Priority Populations in the Northern San Joaquin Valley Subregion

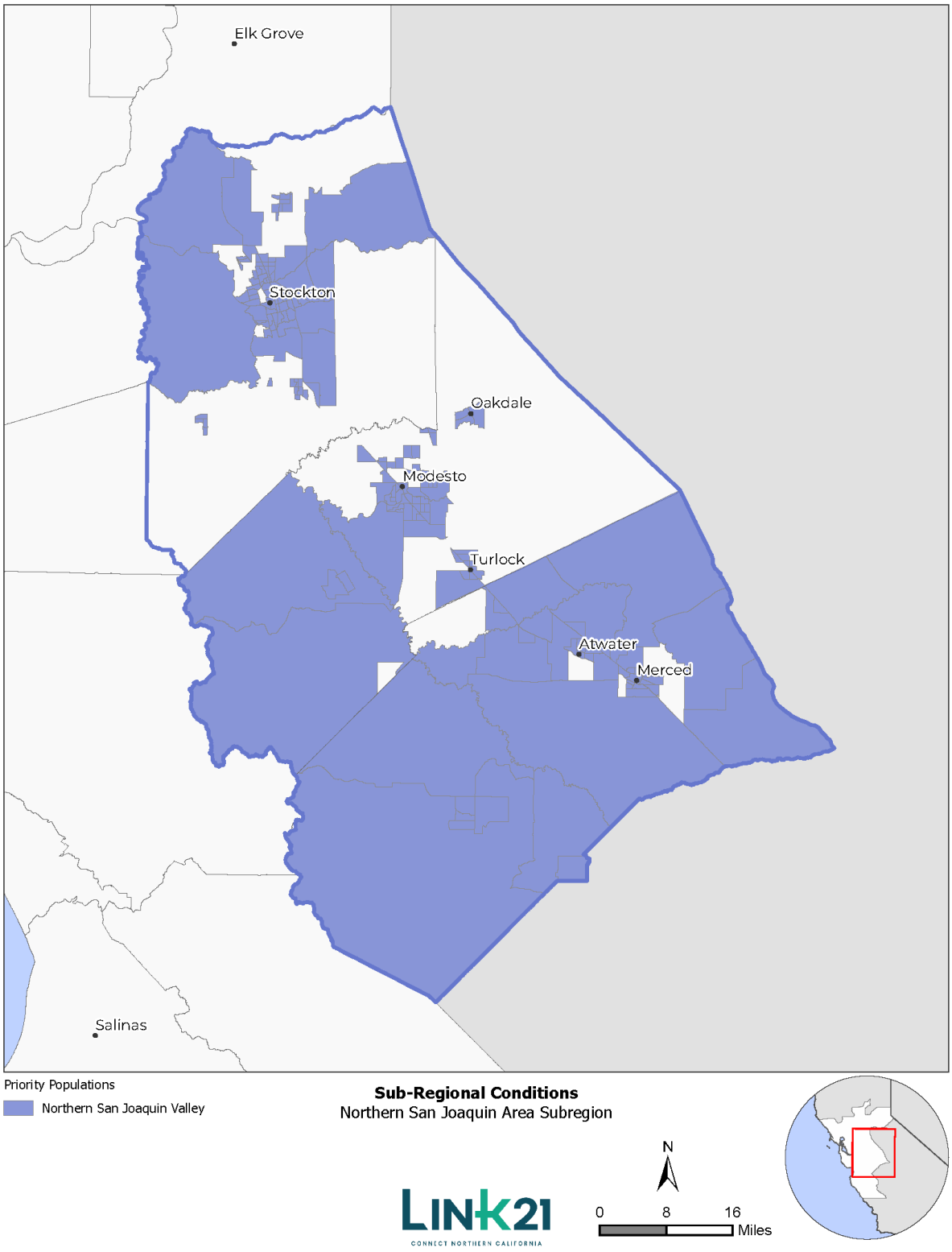


Table B-4 shows bolded in green which counties in the Northern San Joaquin Valley have an index score of 55 or greater in more than half of their census tracts.

- Economic: More than half the census tracts in Merced County (83.7%) and Stanislaus County (52.1%) exceed the index score of 55.
- Mobility: More than half the census tracts in Merced County (65.3%) and Stanislaus County (51.1%) exceed the index score of 55.
- Community: Almost two-thirds of the census tracts in all three counties — Merced County (69.4%), San Joaquin County (67.6%), and Stanislaus County (60.6%) — exceed the index score of 55.
- Health and Safety: A severely prevalent proportion of the census tracts in Merced County (93.9%), San Joaquin County (81.3%), and Stanislaus County (76.6%) have index scores over 55.

For the Northern San Joaquin Valley, the health and safety category is the most burdened among the four subregions, at a subregion average of 81.9% census tracts exceeding the index score of 55. Most notably, Merced County is the only county in the Megaregion to exceed 90% for health and safety. Moreover, Merced and Stanislaus counties are two of the three counties in the entire Megaregion with more than half of their census tracts exceeding an index score of 55 in all four evaluation categories, indicating multiple overlapping burdens.

Table B-4. Census Tracts with Index Scores of 55 or Greater in the Northern San Joaquin Valley Subregion

COUNTY	TOTAL NUMBER OF CENSUS TRACTS	CENSUS TRACTS EXCEEDING INDEX SCORE OF 55							
		ECONOMIC		MOBILITY		COMMUNITY		HEALTH & SAFETY	
		#	%	#	%	#	%	#	%
Merced	49	41	**83.7%**	32	**65.3%**	34	**69.4%**	46	**93.9%**
San Joaquin	139	68	48.9%	38	27.3%	94	**67.6%**	113	**81.3%**
Stanislaus	94	49	**52.1%**	48	**51.1%**	57	**60.6%**	72	**76.6%**
Subregion Total	**282**	**158**	**56.0%**	**118**	**41.8%**	**185**	**65.6%**	**231**	**81.9%**

Note: Counties with more than half of their census tracts with index scores of 55 or greater per category are identified ***in green*** *in the table.*

B.2.4. Monterey Bay Area Subregion

Figure B-5 illustrates the following areas where PPs are most prevalent in the Monterey Bay Area:

- In Monterey County, cities with PP census tracts include Marina, Salinas, Sand City, Seaside, Monterey, Greenfield, Soledad and King City. There are also PPs in the unincorporated CDPs of Pajaro, Las Lomas, Moss Landing, Castroville, Big Sur, King City, San Lucas, San Ardo, Fort Hunter Liggett, Lockwood, Parkfield, and Bradley, and large parts of unincorporated areas in the southern portion of the county.
- In San Benito County, places with PP census tracts include parts of the City of Hollister.
- In Santa Cruz County, cities with PP census tracts include Santa Cruz and Watsonville. There are also PPs in the unincorporated CDPs of Twin Lakes, Amesti, and Freedom.

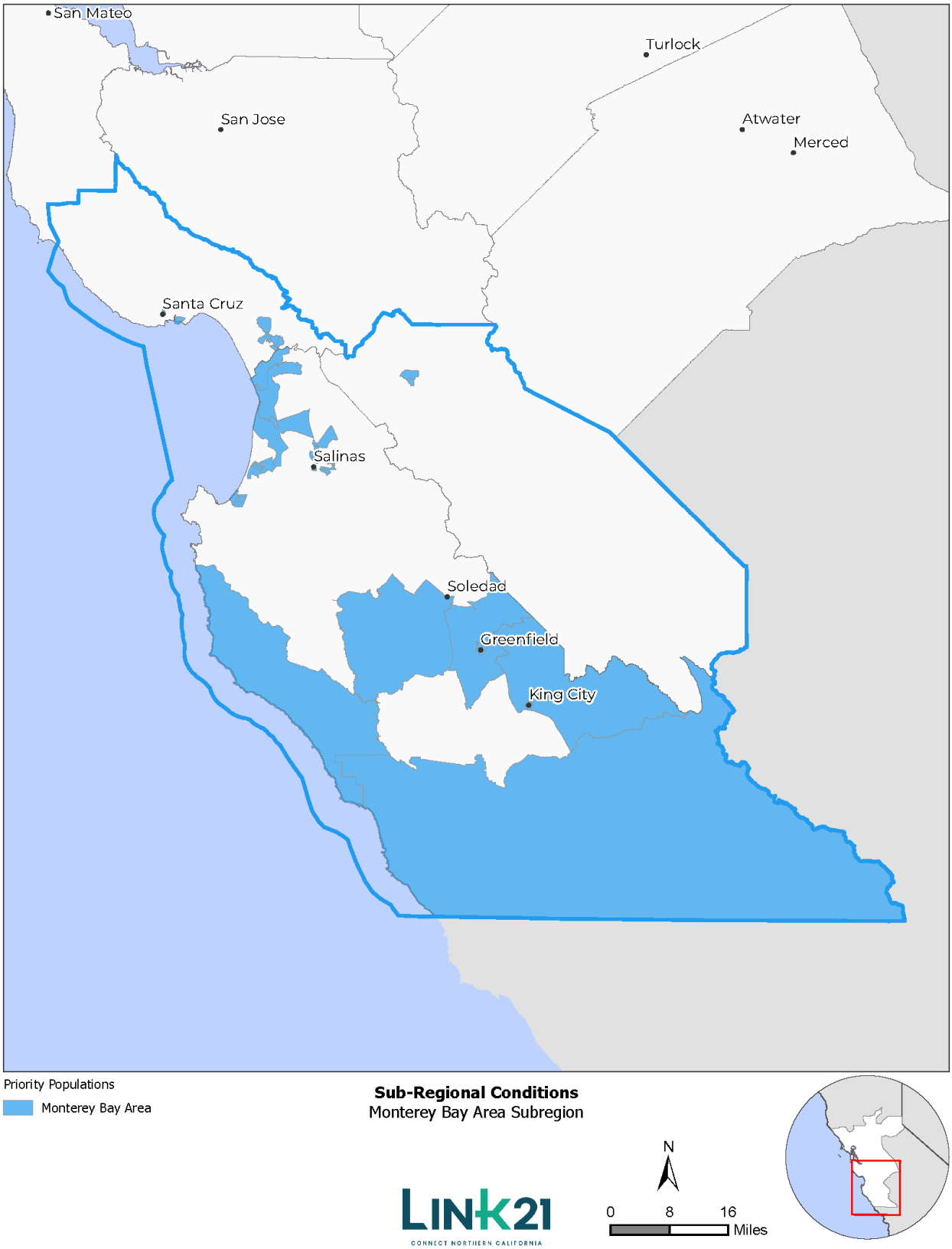
Table B-5 shows bolded in green which counties in the Monterey Bay Area have an index score of 55 or greater in more than half of their census tracts. In Monterey County, more than half the census tracts (56.4%) have index scores over 55 in the economic category, which includes household income, wage, and related metrics.

Table B-5. Census Tracts with Index Scores of 55 or Greater in the Monterey Bay Area Subregion

COUNTY	TOTAL NUMBER OF CENSUS TRACTS	CENSUS TRACTS EXCEEDING INDEX SCORE OF 55							
		ECONOMIC		MOBILITY		COMMUNITY		HEALTH & SAFETY	
		#	%	#	%	#	%	#	%
Monterey	94	53	**56.4%**	23	24.5%	33	35.1%	41	43.6%
San Benito	11	3	27.3%	2	18.2%	1	9.1%	3	27.3%
Santa Cruz	53	12	22.6%	4	7.5%	14	26.4%	13	24.5%
Subregion Total	**158**	**68**	**43.0%**	**29**	**18.4%**	**48**	**30.4%**	**57**	**36.1%**

*Note: Counties with more than half of their census tracts with index scores of 55 or greater per category are identified **in green** in the table.*

Figure B-5. Priority Populations in the Monterey Bay Area Subregion



B.3. Disparities Across the Megaregion

This section compares PPs to the general population across the evaluation metrics included in the revised PPs definition and highlights the disparities among the subregions. The term "general population" in this section is inclusive of PPs and non-PPs, which is the entire population in the specific geography that is being evaluated.

B.3.1. Disparities by Evaluation Category

Table B-6 compares the evaluation category index scores for the general population to those of the PPs in the Megaregion and subregions. The index scores for all census tracts in each evaluation category were averaged to develop the score for the general population, and the index scores for all census tracts identified as PPs in each category were averaged to develop the score for the PPs. The table shows the difference between how the general population and the PPs score in each category to highlight the areas of greatest concern for PPs.

Table B-6. Comparison of Evaluation Category Index Scores between General Populations and Priority Populations

REGION	ECONOMIC		MOBILITY		COMMUNITY		HEALTH & SAFETY	
	GENERAL POPULATION	PRIORITY POPULATION	GENERAL POPULATION	PRIORITY POPULATION	GENERAL POPULATION	PRIORITY POPULATION	GENERAL POPULATION	PRIORITY POPULATION
Megaregion	49.9	60.8	49.9	59.0	55.1	61.7	54.4	67.9
Disparity *(difference)*	10.9		9.1		6.6		13.5	
Bay Area	47.7	62.2	49.4	58.7	48.4	55.8	52.6	66.2
Disparity *(difference)*	14.5		9.3		7.4		13.6	
Sacramento Area	48.8	62.3	49.4	55.5	52.5	59.2	55.5	67.7
Disparity *(difference)*	13.5		6.1		6.7		12.2	
Northern San Joaquin Valley	56.2	61.5	53.7	57.3	58.4	60.7	66.9	71.1
Disparity *(difference)*	5.2		3.6		2.4		4.2	
Monterey Bay Area	53.1	64.7	47.2	53.8	51.8	56.6	49.3	59.3
Disparity *(difference)*	14.6		6.5		4.8		10.0	

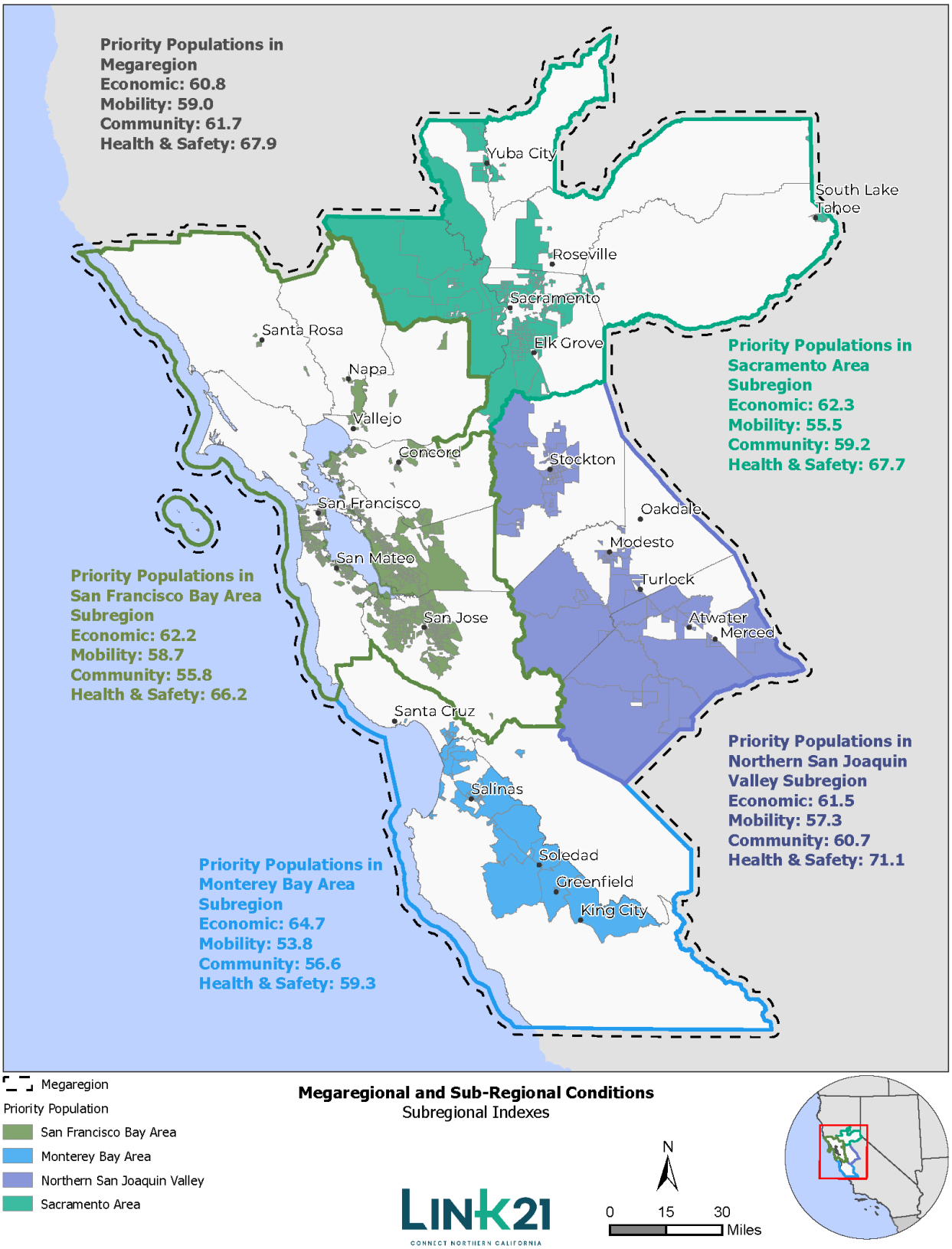
Note: Differences may not be exact due to rounding.

Across the Megaregion, the general population average index scores in all four evaluation categories fall below 55, and the PP average index scores in all four categories fall above 55, both as anticipated. In the Megaregion, the highest index score for the general population and for PPs is in the health and safety category (54.4 and 67.9, respectively). The greatest disparities between the general population and the PPs in the Megaregion and each of the subregions are in the community and health and safety categories. This finding reveals that PPs in all parts of the Megaregion are experiencing comparatively much greater burdens related to their community and health and safety conditions than the population in general.

In the Northern San Joaquin Valley, there is the least disparity between the general population and PPs among the subregions across all categories, ranging from a difference of 2.4 in average index scores (community) to 5.2 (economic). The smallest disparity in the Bay Area and Monterey Bay Area is in the community category, and the smallest disparity in the Sacramento Area is in the mobility category.

Figure B-6 shows the locations of the PPs in the Bay Area, Sacramento Area, Northern San Joaquin Valley, and Monterey Bay Area subregions and highlights the average index scores in PP tracts for the four evaluation categories. Similar to the findings discussed in **Section B.2**, the health and safety evaluation category has the highest average index scores in all subregions (Bay Area, Sacramento Area, and Northern San Joaquin Valley) except Monterey Bay Area. The Monterey Bay Area has the highest average index score in the economic category.

Figure B-6. Priority Populations in the Megaregion and Subregions



B.3.2. Disparities by Demographics and Evaluation Metrics

This section provides a closer look at seven demographics indicators in the Megaregion in addition to 27 individual metrics that fall under the four evaluation categories (economic, mobility, community, and health and safety). For each metric, a map illustrates the locations of census tracts within the Megaregion with the greatest burden, i.e., they fall at or above the 60th percentile for the specific indicator/metric.

The revised PPs methodology does not develop indices for the individual metrics; however, it does develop percentiles and provides quintiles to illustrate tracts with lowest share or least burden (up to 20th percentile), highest share or greatest burden (80th to 100th percentile), and three quintiles between the extremes. For this analysis, the two highest quintiles (60th percentile or greater) are aggregated to represent the tracts with higher share or greater burden.

B.3.2.1 Demographics

The demographics considered in the revised PPs methodology include the following indicators: race and ethnicity, gender, disability, limited English proficiency (LEP), foreign born, single parent, and veteran status. The following subsections describe the metrics used for each of the indicators and the resulting disparities between the general population and PPs.

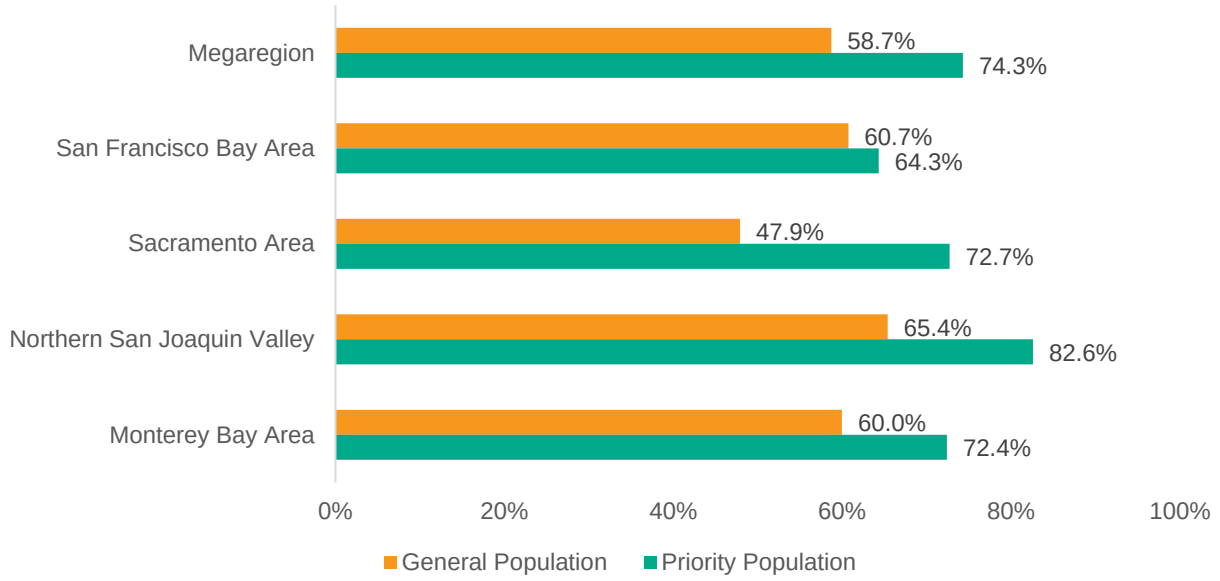
⇨*Race and Ethnicity*

The metric used for race and ethnicity is the percentage of population identifying as people of color.

Historically, infrastructure projects have negatively affected people of color and systemically disadvantaged communities through direct and indirect displacement, construction impacts, disruptions to the built environment and community cohesion, and environmental degradation. In addition, these communities are often left out of the decision-making process and receive fewer project benefits (Sanchez et al. 2003).

Figure B-7 summarizes the percentages of people of color population in the Megaregion and subregions. **Figure B-8** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for people of color populations.

Figure B-7. Percentages of People of Color in the Megaregion and Subregions

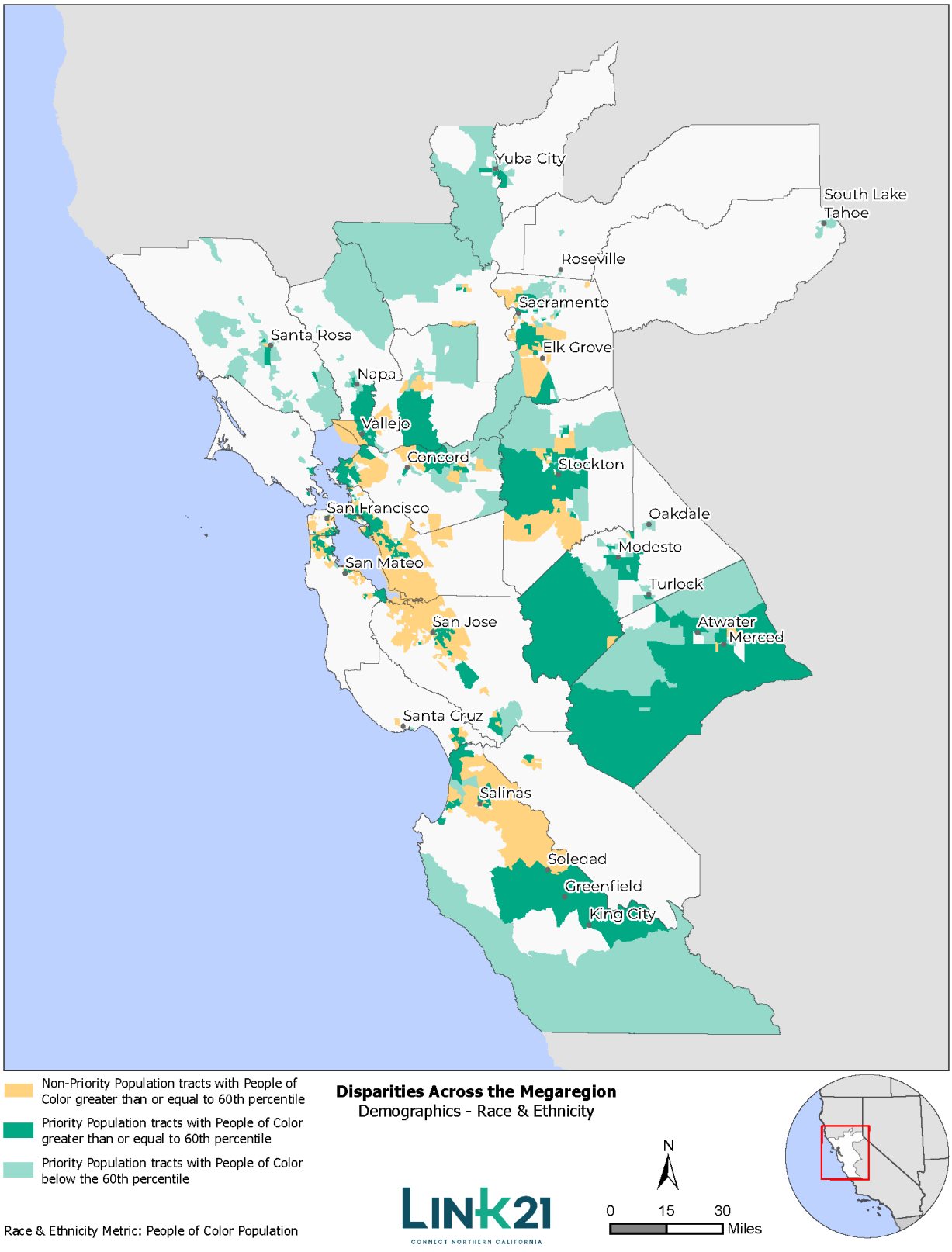


Source: U.S. Census Bureau 2020: Table B03002

When reviewing the data comparing general population to PPs regarding race and ethnicity, some key findings emerge:

- Most notably, people of color represent a larger proportion of PPs than the general population (74.3% vs. 58.7%), and this trend is reflected throughout all subregions.
- For PP areas, the Bay Area has the smallest proportion of people of color in addition to the smallest difference between people of color in PP areas vs. the general population (64.3% vs. 60.7%).
- The Sacramento Area sees the largest difference (24.8%) between people of color represented in the general population and people of color in PPs (47.9% vs. 72.7%).
- By subregion, the Northern San Joaquin Valley has the highest proportion of people of color (82.6%) as part of PPs.
- In parts of San Francisco, western Alameda County, eastern San Mateo County, Santa Clara County, around Vallejo, Sacramento, Elk Grove, north and south of Stockton, and around Salinas, a high proportion of people of color live in areas that are not part of a PP census tract.

Figure B-8. People of Color Disparities Across the Megaregion



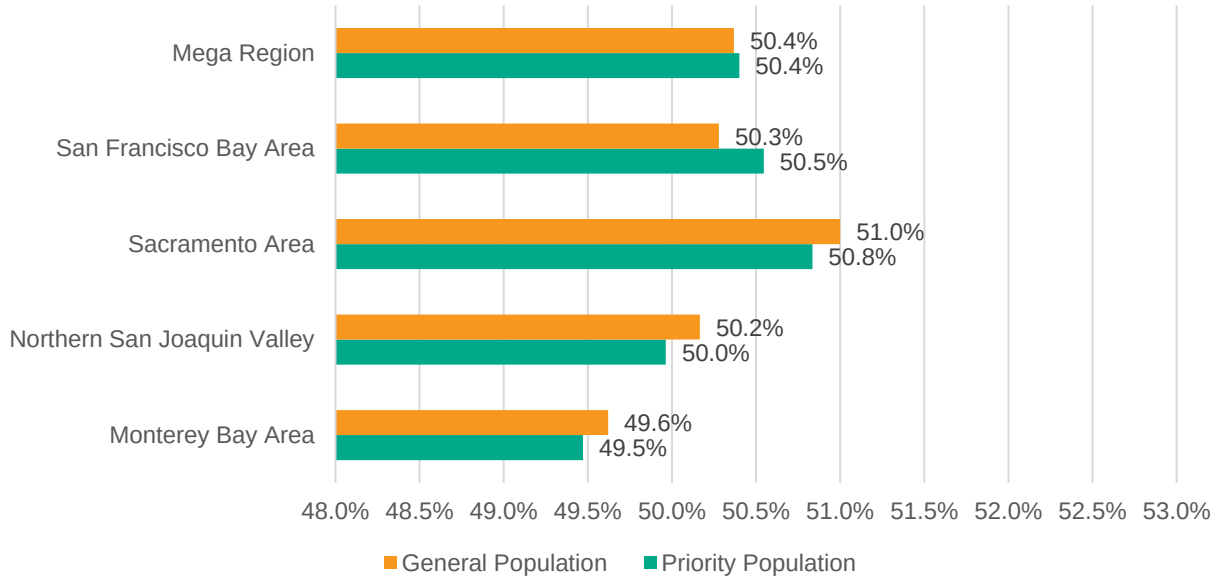
⇨Gender

The metric used for gender[1] is the percentage of female population.

A growing number of studies have shown gender-based disparities and differences regarding transportation, with most current studies focusing on transportation needs of women (Ng and Acker 2018). Among such differences, women are more likely to chain or combine trips, take overall more numbers of trips, to travel at non-commute peak hours, and to choose more flexible modes (LA Metro 2019).

Figure B-9 summarizes the percentages of females in the Megaregion and the subregions. Roughly 50% of the population in the Megaregion identifies as female, with small differences between general population and PPs in each subregion likely due to normal statistical variation. **Figure B-10** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for female populations. While the map does show where there are slight variations in gender percentiles, the differences are very small and most likely due to normal statistical variation.

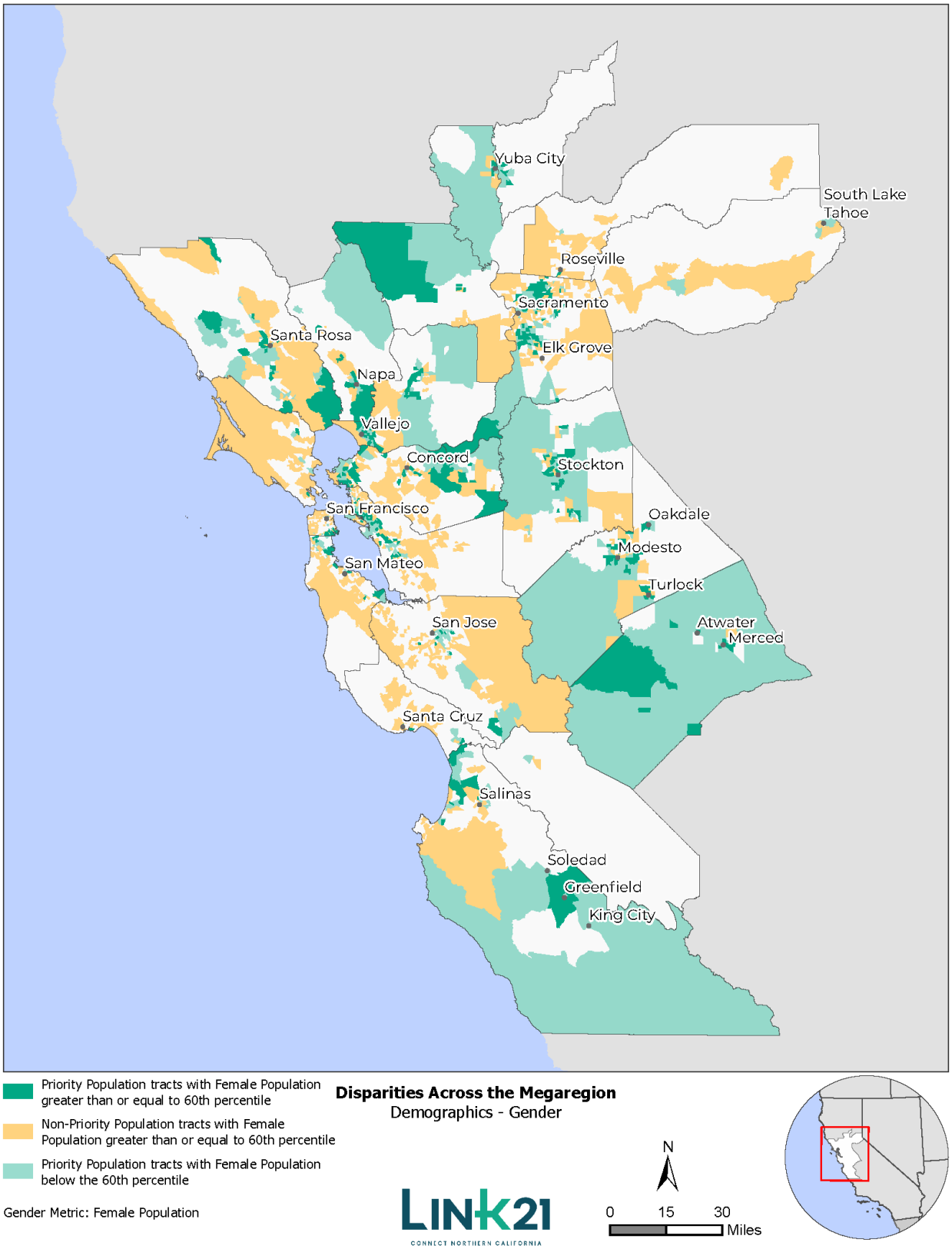
Figure B-9. Percentages of Female Population in the Megaregion and Subregions



Source: U.S. Census Bureau 2020: Table S0101

[1] There continues to be limited data availability for transgender and gender nonconforming or nonbinary people. As a result, this section deals primarily with binary gender demographic information.

Figure B-10. Gender Disparities Across the Megaregion



⇨*Disability Status*

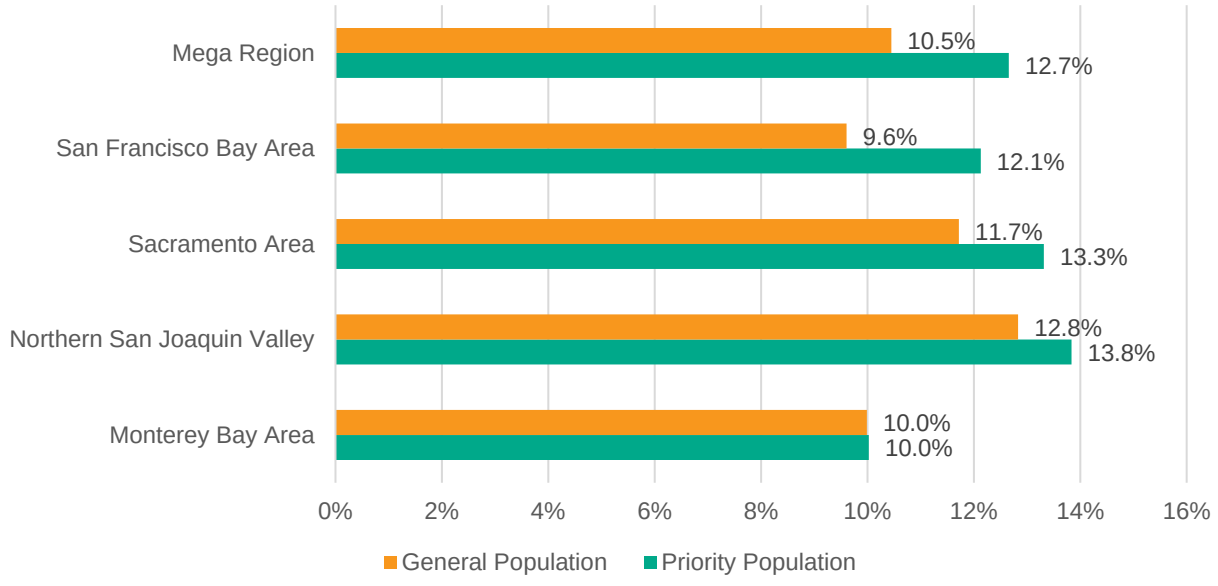
The metric used for disability status is the percentage of population with a disability.

Research shows that people with disabilities face multiple barriers in travel, access to services, and opportunities. In addition, people with disabilities report more mobility challenges than those without disabilities (Institute of Medicine 2007).

Figure B-11 summarizes the percentages of population with a disability in the Megaregion and subregions. **Figure B-12** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for populations with a disability. Some key findings related to disability include the following:

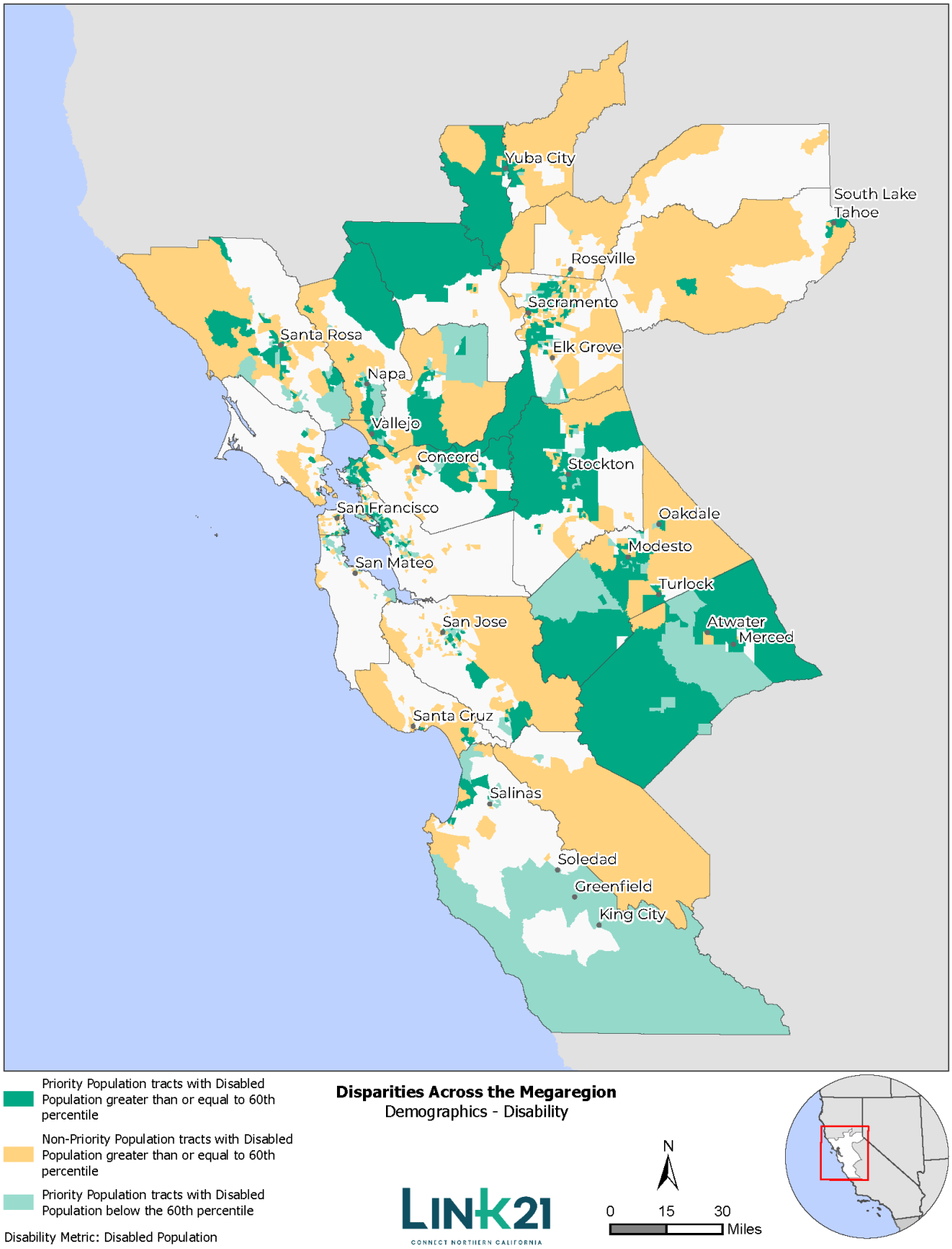
- People with a disability represent a larger proportion of PPs than the general population, with more than one in eight residents with a disability versus one in 10 in the general population. The Monterey Bay Area is at 10% for both the general population and PPs.
- The Northern San Joaquin Valley (13.8**%**) and Sacramento Area (13.3**%**) subregions show the highest percentages of population in PP areas with a disability.
- The Bay Area subregion has the biggest disparity in population with a disability between the general population and PPs (9.6% vs. 12.1%)
- Across the Megaregion, multiple census tracts that rank higher than the 60th percentile score for persons with a disability are not designated as PPs.

Figure B-11. Percentages of Persons with a Disability in the Megaregion and Subregions



Source: U.S. Census Bureau 2020: Table S1810

Figure B-12. Disability Disparities Across the Megaregion



⇨*Limited English Proficiency*

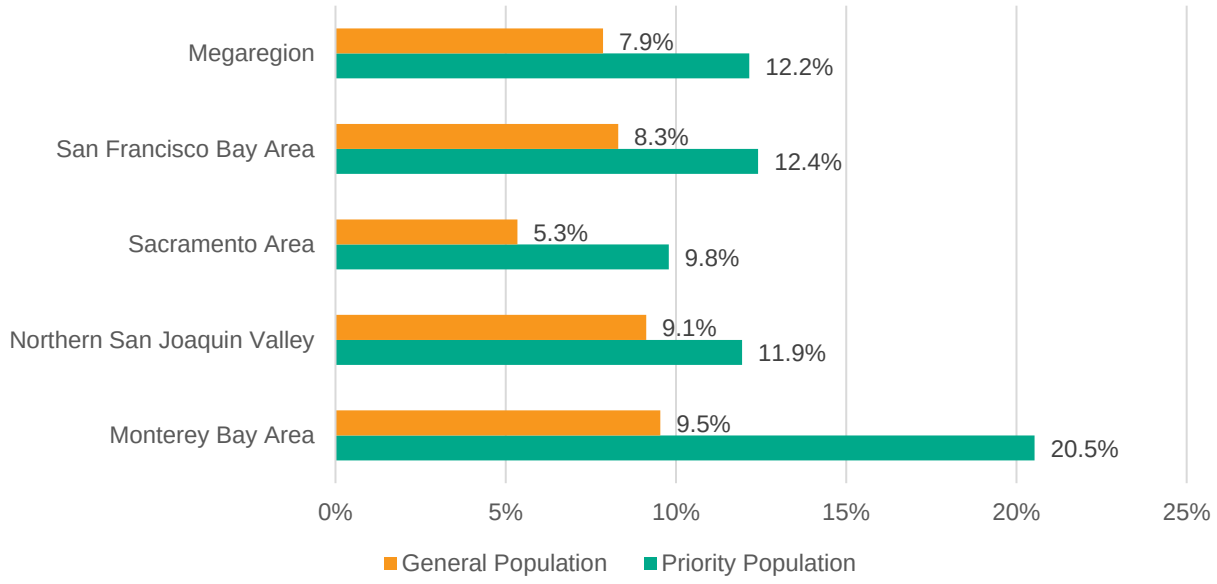
The metric for LEP is the percentage of households with all residents 14 years or older speaking English less than "very well".

People with LEP may face barriers for accessing services and information, such as public transportation, employment, education, and other resources (U.S. Department of Transportation [USDOT] 2016).

Figure B-13 summarizes the percentages of LEP households in the Megaregion and subregions. **Figure B-14** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for LEP households. Some key findings include the following:

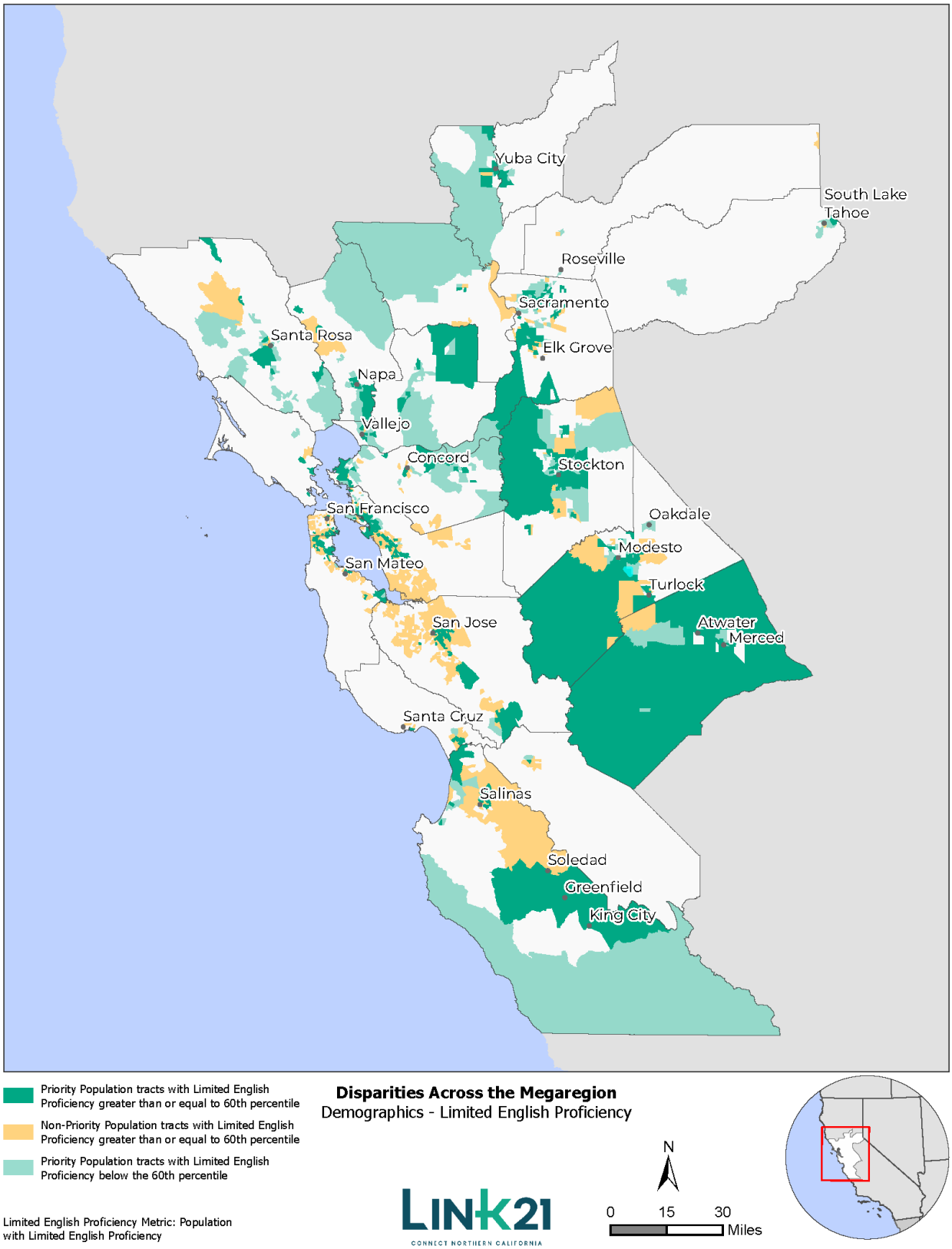
- The Monterey Bay Area subregion shows not only the highest prevalence of population with LEP residing in PP census tracts (20.5%), but also the largest difference in percent of population with LEP between PPs and the general population (20.5% vs. 9.5%)
- In the Megaregion and all subregions, there is a higher prevalence of population with LEP in PP census tracts versus the general population.
- Across the Megaregion, non-PP census tracts with percentile scores for LEP households higher than the 60th percentile include areas around the South Bay and San Jose, areas near and around Salinas and Soledad; and smaller areas near Turlock and Modesto, and in the Sacramento Area and North Bay.

Figure B-13. Percentages of Limited English Proficiency Households in the Megaregion and Subregions



Source: U.S. Census Bureau 2020: Table C16002

Figure B-14. Limited English Proficiency Disparities Across the Megaregion



⇨Foreign-Born

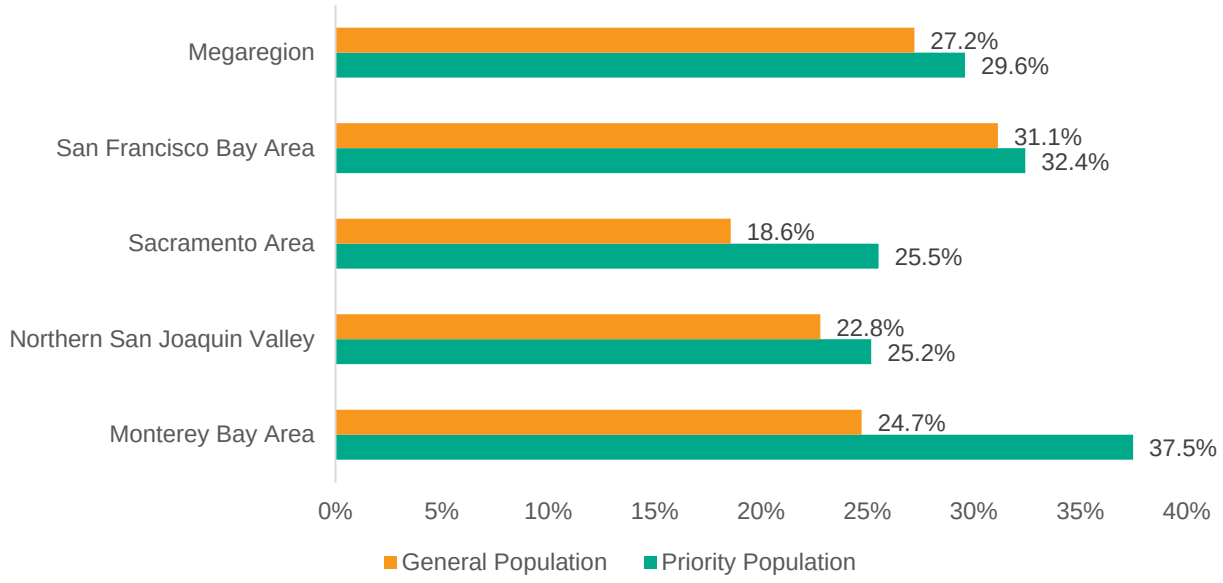
The metric used for foreign born is the percentage of the population born outside of the U.S.

People born outside of the U.S. may face challenges including barriers to employment, access to health and human services, and complex government processes (U.S. Department of Health and Human Services 2012).

Figure B-15 summarizes the percentages of foreign-born populations in the Megaregion and subregions. **Figure B-16** provides a map of the Megaregion with census tracts at the 60th percentile or greater for foreign-born populations. Some key findings include the following:

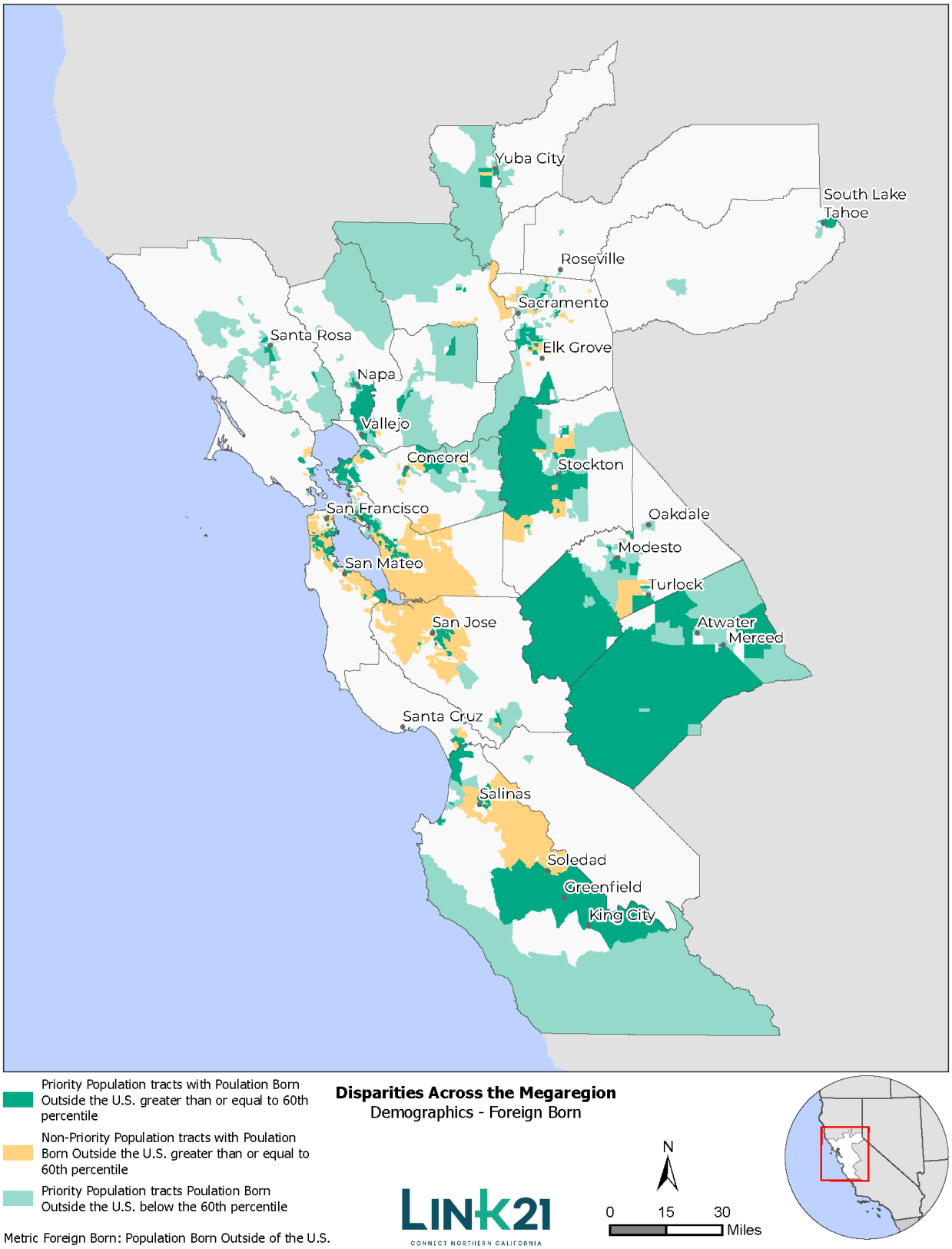
- The Monterey Bay Area subregion has the highest percentage of foreign-born population in PPs, with over 37.5% born in other countries and the biggest difference in foreign-born population between the general population and PPs (24.7% vs. 37.5%)
- The Bay Area subregion has the least difference in foreign-born population between the general population and PPs regardless of the census tract being identified as a PP.
- In San Francisco, Alameda County, northern Santa Clara County, Salinas, and parts of the Central Valley, multiple census tracts with a high proportion of foreign-born residents are not designated as PP areas.

Figure B-15. Percentages of Foreign-Born Population in the Megaregion and Subregions



Source: U.S. Census Bureau 2020: Table DP02

Figure B-16. Foreign-Born Population Disparities Across the Megaregion



⇨*Single-Parent*

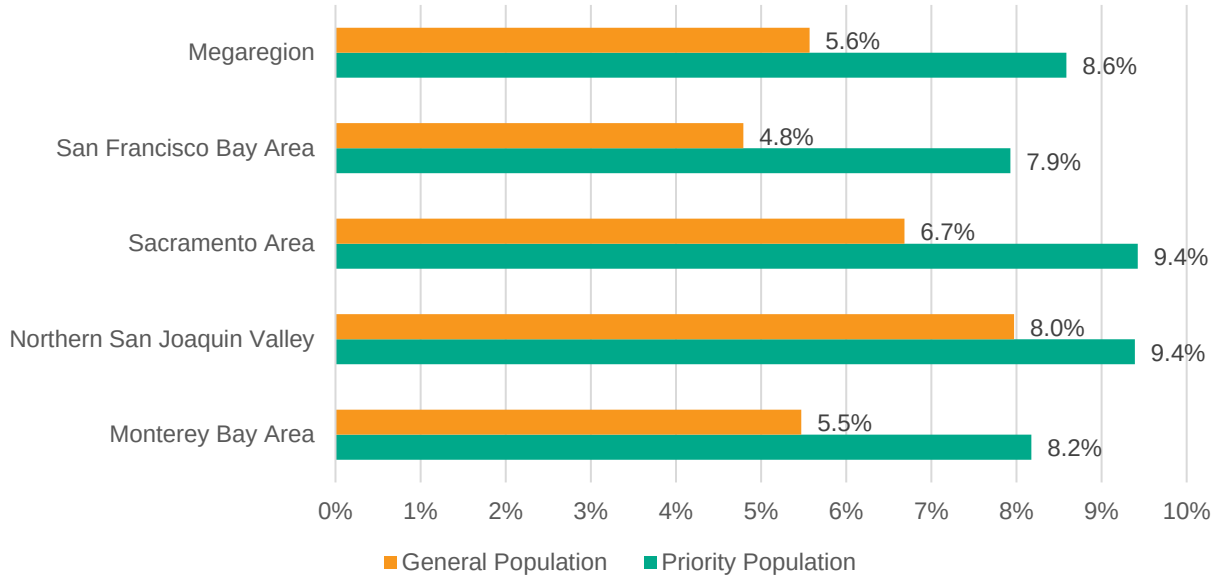
The metric used for single-parent households is the percentage of households with a male or female single parent with children under 18 years of age.

Single-parent households face distinct challenges which may include financial, time, and mental health constraints, affecting their mobility options and travel behaviors (Stack and Meredith 2018).

Figure B-17 summarizes the percentages of single-parent households in the Megaregion and subregions. **Figure B-18** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for single-parent households. Some key findings include:

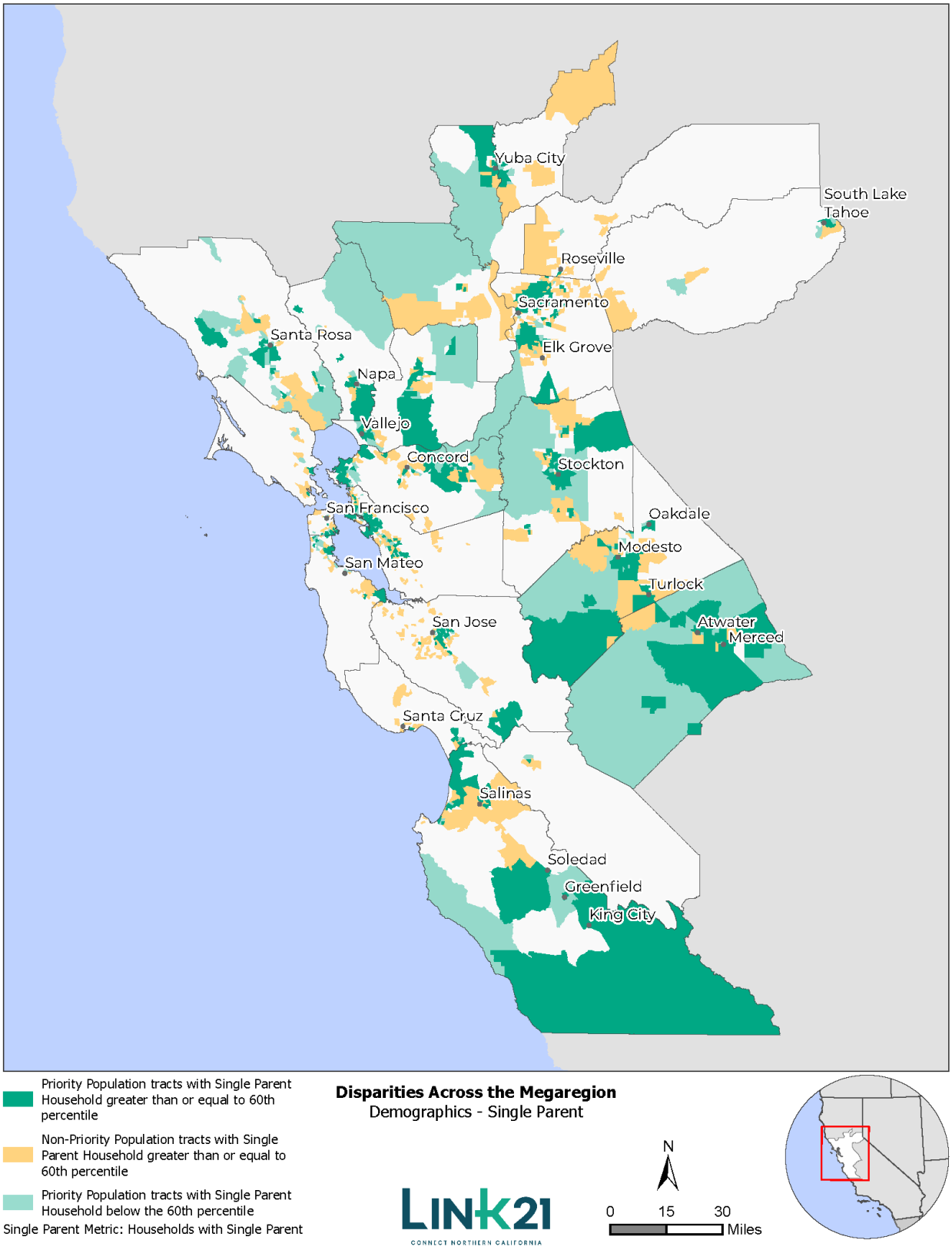
- Single-parent households represent a larger proportion of PPs than the general population. This trend is reflected throughout all subregions.
- While the actual percentages show variation among the subregions, the disparity percent difference between PP and general population census tracts remains fairly consistent, ranging from 2.4% (Northern San Joaquin Valley) to 3.1% (Bay Area).
- The Sacramento Area and Northern San Joaquin Valley subregions show the largest proportion of single-parent households in PP census tracts at 9.4%.
- Spread out across the Megaregion, multiple census tracts that rank higher than the 60th percentile for single-parent households are not designated as PP areas.

Figure B-17. Percentages of Single-Parent Households in the Megaregion and Subregions



Source: U.S. Census Bureau 2020: Table DP02

Figure B-18. Single-Parent Households Disparities across the Megaregion



⇨Veterans

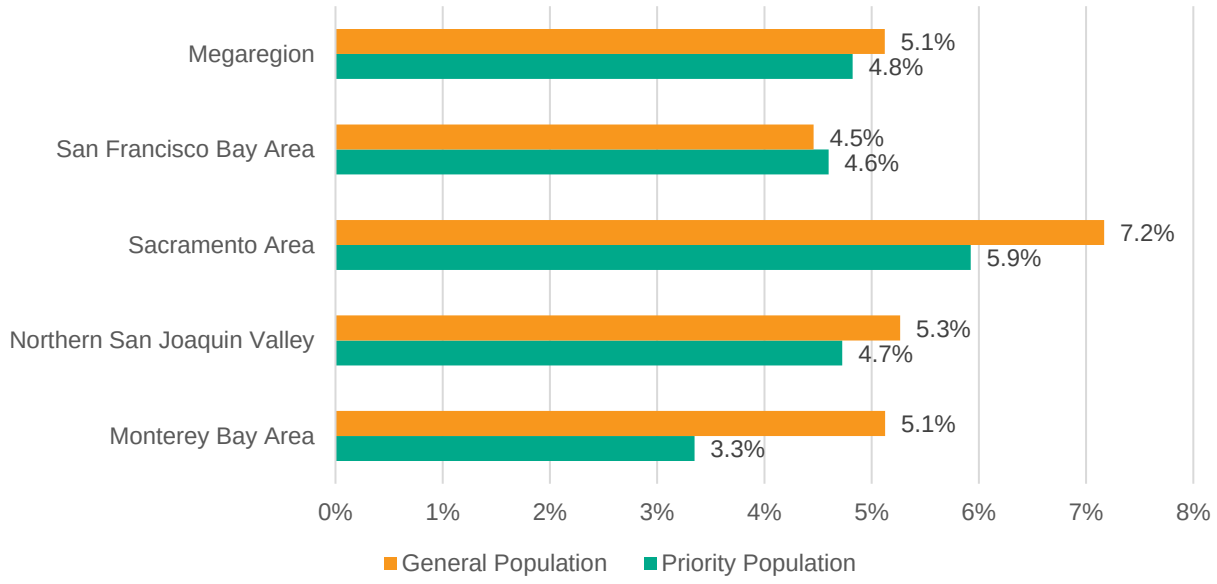
The metric used for veterans is the percentage of the population that are civilian veterans.

Veterans may face several intersecting challenges upon completion of service, including physical ailments or disabilities, mental health impacts, and economic and job-related hardships. Along with potentially living in remote or rural areas, veterans have unique transportation needs to access health, social, educational, and related services (U.S. Department of Veterans Affairs 2019).

Figure B-19 summarizes the percentages of veterans in the Megaregion and subregions. **Figure B-20** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for veterans. Some key findings include:

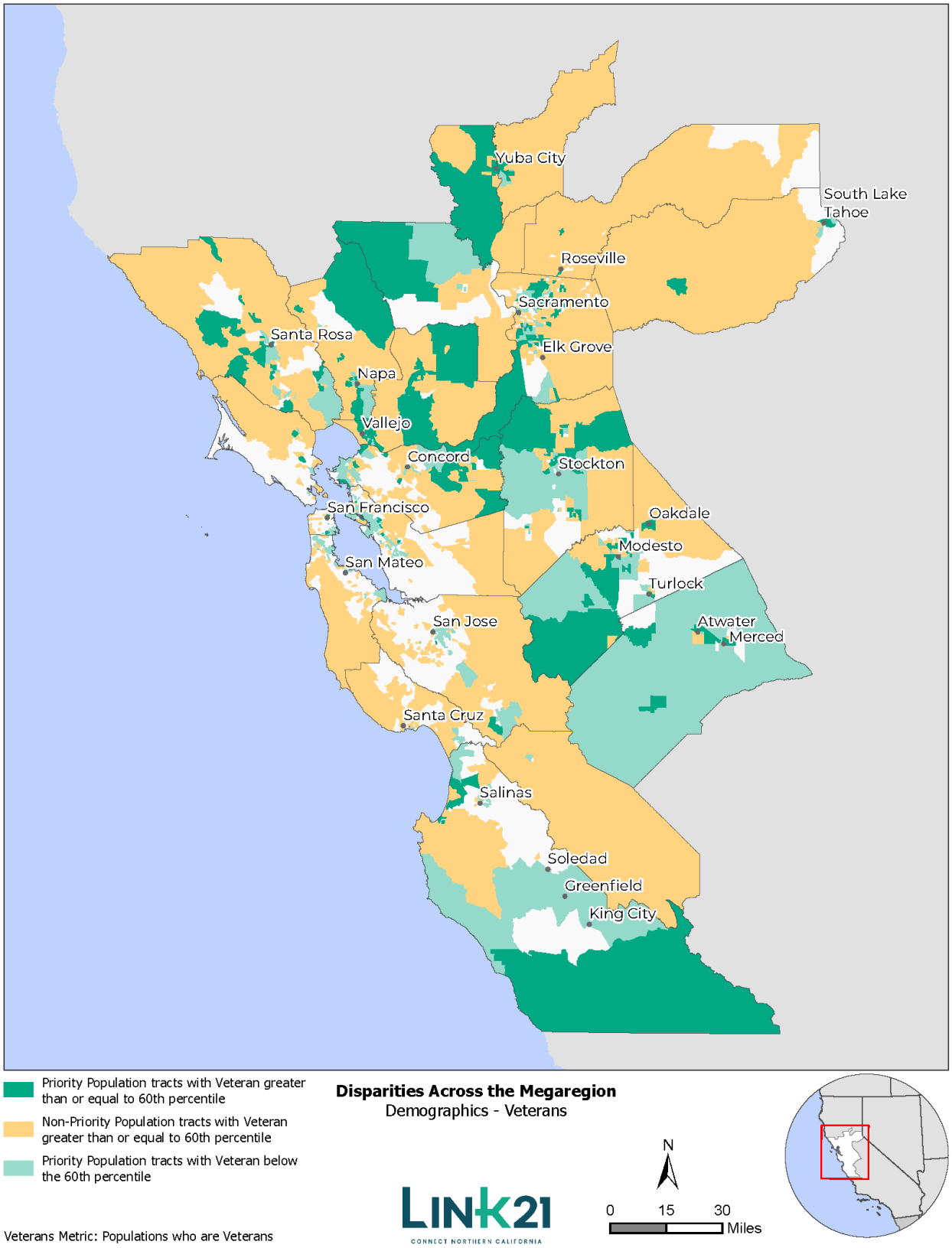
- Unlike many other metrics, there are more veterans in the general population than in PPs except in the Bay Area, which has a slightly higher percentage of veterans living in PPs than in the general population.
- In addition, the Sacramento Area subregion reflects the highest percentage of veterans in the Megaregion, represented in both the general population and PP (7.2% and 5.9%, respectively).
- With more veterans living outside of PP areas, there are more census tracts that rank over the 60th percentile for veterans that are not designated as PP areas.

Figure B-19. Percentages of Veterans in the Megaregion and Subregions



Source: U.S. Census Bureau 2020: Table DP02

Figure B-20. Veteran Disparities Across the Megaregion



B.3.2.2 Economics

As noted in **Section B.2**, PPs are identified based on evaluation metrics in one of four categories, one of which is economics. The economics metrics considered in the updated PPs methodology comprise median household income, unemployment rates, low wages, housing tenure, housing and transportation costs, family size, and multiple jobs. The following subsections describe the metrics used for each and the resulting disparities between the general population and PPs.

⇨*Household Income*

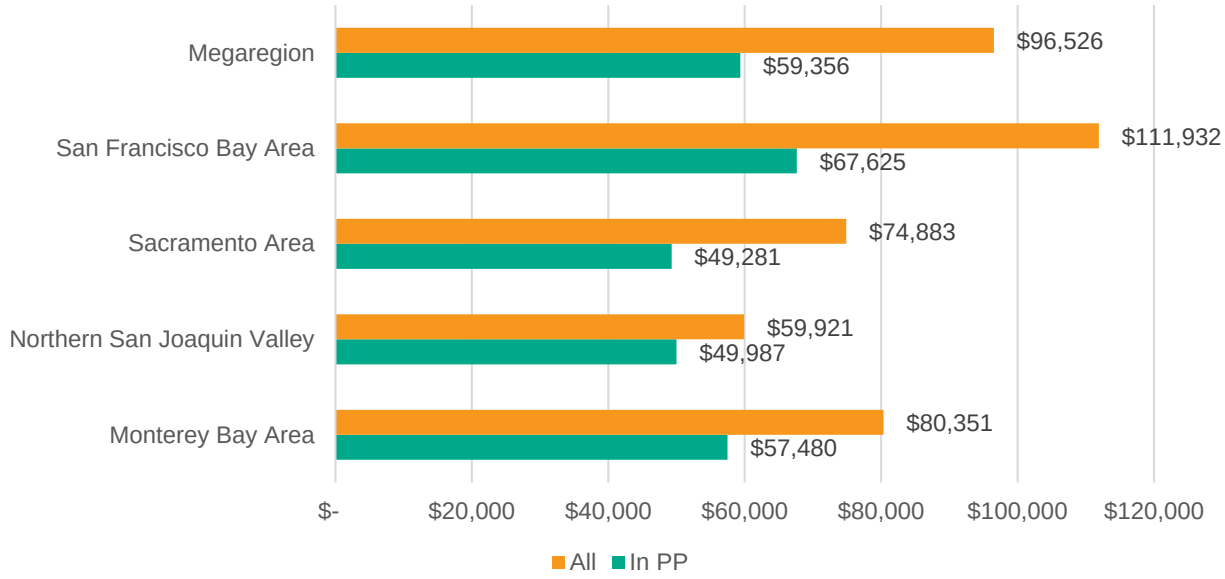
The metric used for household income is the median household income (in dollars) in the past 12 months.

Income disparity is a driving source of inequity. Low incomes reduce access to essential services and daily needs and increase the cost burden of most necessities, including housing and transportation. The historical trend for household incomes reveals a widening gap between the rich and poor, especially since 1990 (MTC 2019a). Low-income households are less likely to own cars and more likely to travel by alternative modes, such as regional train services (Blumenberg and Pierce 2012).

Figure B-21 summarizes the median household income in the Megaregion and subregions. **Figure B-22** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for median household income. When reviewing the data comparing general population to PP household income, some key findings include:

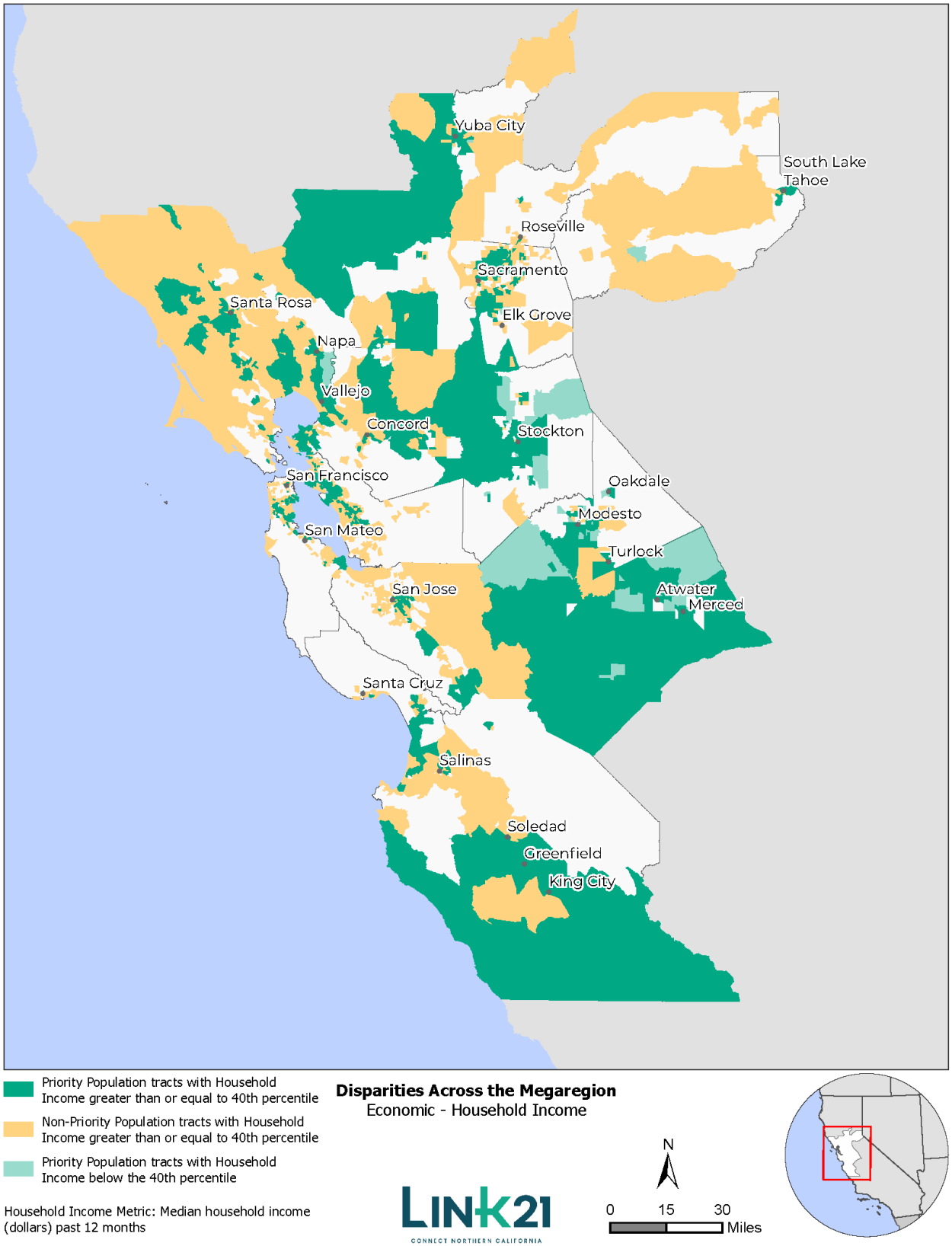
- For the Megaregion and for the subregions, PPs have much lower median income than the general population. For the Megaregion, the general population's median household income was $96,526 compared to $59,356 for PPs, representing more than $30,000 in income disparity.
- Consistent with the well-documented growing income gap of the subregion, the Bay Area subregion has the highest median household income for the general population ($111,932), but the biggest disparity between PPs and the general population, with PPs earning $67,625 vs. the general population of $111,932.
- The Northern San Joaquin Valley subregion has the lowest median household income for both the general population ($59,921) and PPs ($49,987), but the smallest disparity between PPs and the general population.
- Some census tracts in northwest Sonoma County, northwest Marin County, southern Yolo County, northeast Yuba County, El Dorado County, western Solano County, parts of Santa Clara County, and Monterey County rank over the 60th percentile in household income but are not designated as PP areas.

Figure B-21. Median Household Income in the Megaregion and Subregions



Source: U.S. Census Bureau 2020: Table S1901

Figure B-22. Household Income Disparities Across the Megaregion



⇨Unemployment Rates

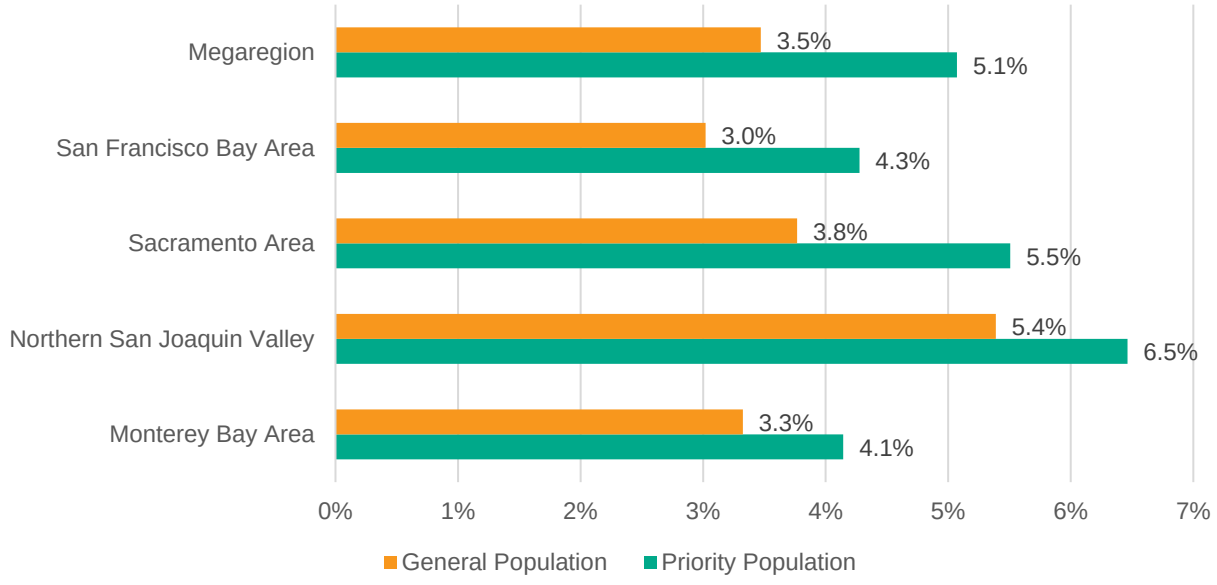
The metric used for unemployment rates is the percentage of the civilian labor force that are unemployed.

Employment is the predominant source of income for most people, and unemployment is strongly associated with poverty. The lack of accessible and affordable transportation is an economic barrier to the poor or unemployed who may need to travel to different job markets and explore employment opportunities. Research suggests that transit improvements are positively associated with increases in median household income and decreases in unemployment rate (Deboosere et al. 2019). It is therefore important that transit improvements factor in job accessibility to benefit unemployed individuals.

Figure B-23 summarizes the unemployment rates in the Megaregion and subregions. **Figure B-24** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for unemployment rates. Some key findings include:

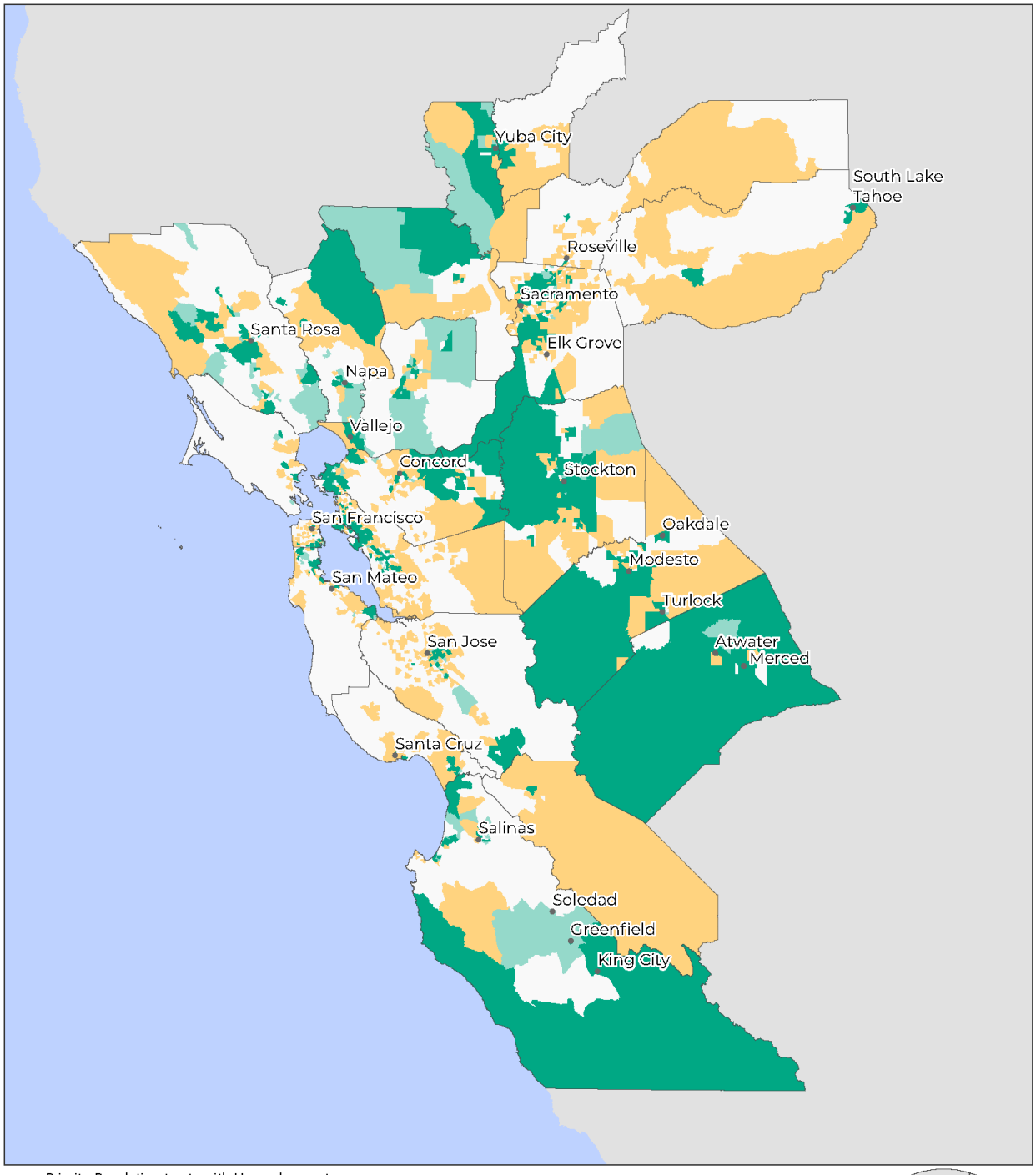
- The Northern San Joaquin Valley subregion has the highest unemployment rate among PPs (6.5%) and in the general population (5.4%).
- The Sacramento Area subregion has the largest disparity in unemployment rate between PPs (5.5%) and the general population (3.8%).
- Census tracts in the following counties rank over the 60th percentile in unemployment rate but are not designated as PPs: Sutter, Placer, El Dorado, Sacramento, San Joaquin, Stanislaus, San Benito, Santa Cruz, Monterey, and most of the Bay Area counties.

Figure B-23. Unemployment Rates in the Megaregion and Subregions



Source: U.S. Census Bureau 2020: Table DP03

Figure B-24. Unemployment Rate Disparities Across the Megaregion



⇨Low Wages

The metric used for low wages is the percentage of jobs with earnings of $1,250 per month or less.

According to the U.S. Census Bureau's Longitudinal Employer-Household Dynamics Origin-Destination Employment Statistics, earnings fall into three classifications: $1,250 per month or less (considered low wages for Link21), between $1,251 and $3,333 per month, and greater than $3,333 per month (U.S. Census Bureau 2021).[2]

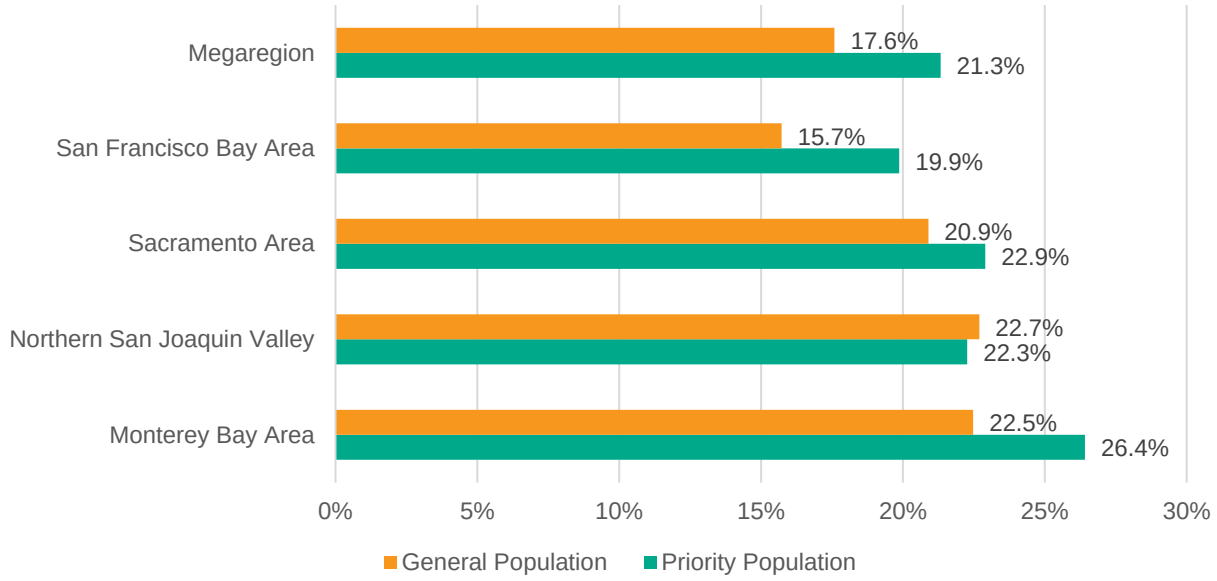
Low wages create barriers for paying for basic needs and may push people to work multiple jobs and many hours. This may affect an individual's mobility options and travel behaviors given that they may have more time constraints, diverse travel patterns, or both. In recent years, there has been an increase in low-wage earners working in ride hailing and other flexible gig economy jobs to supplement their income; these jobs have significant impacts on regional travel behaviors.

Figure B-25 summarizes the percentage of low-wage jobs in the Megaregion and subregions. **Figure B-26** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for low-wage jobs. Some key findings include:

- In the Monterey Bay Area subregion, the percentage of low-wage jobs within PP areas is the highest (26.4%) across the Megaregion, possibly due to the prevalence of agricultural and other lower-wage workers in the area.
- The highest disparity for low-wage jobs between general population and PPs (4.2% difference) is in the Bay Area.
- The Northern San Joaquin Valley subregion has more low-wage jobs in general population areas than in PP areas due to most of the PP tracts being in downtown areas of major cities such as Stockton, Modesto, and Merced, where there may be higher-paying jobs but not where high earners reside.
- Many parts of the Megaregion (especially in San Benito County, San Mateo County, Santa Cruz County, Sonoma County, Placer County, and El Dorado County) rank over the 60th percentile in number of low-wage jobs but are not designated as PP areas.

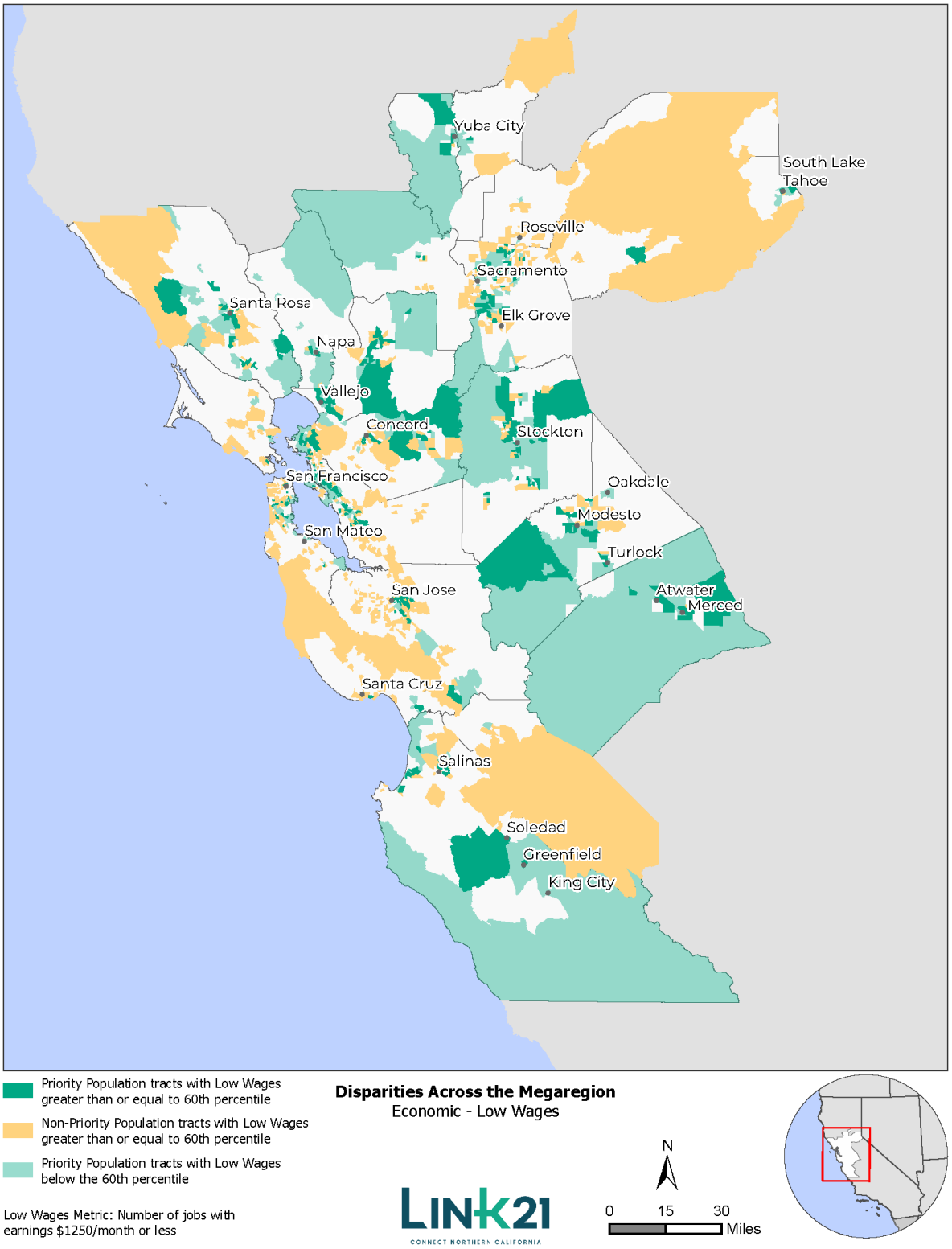
[2] Residence Area Characteristics (RAC), Census LEHD Origin-Destination Employment Statistics (LODES) 2018

Figure B-25. Percentages of Low-Wage Jobs in the Megaregion and Subregions



Source: U.S. Census Bureau 2021

Figure B-26. Low-Wage Job Disparities Across the Megaregion



⇨Housing Tenure

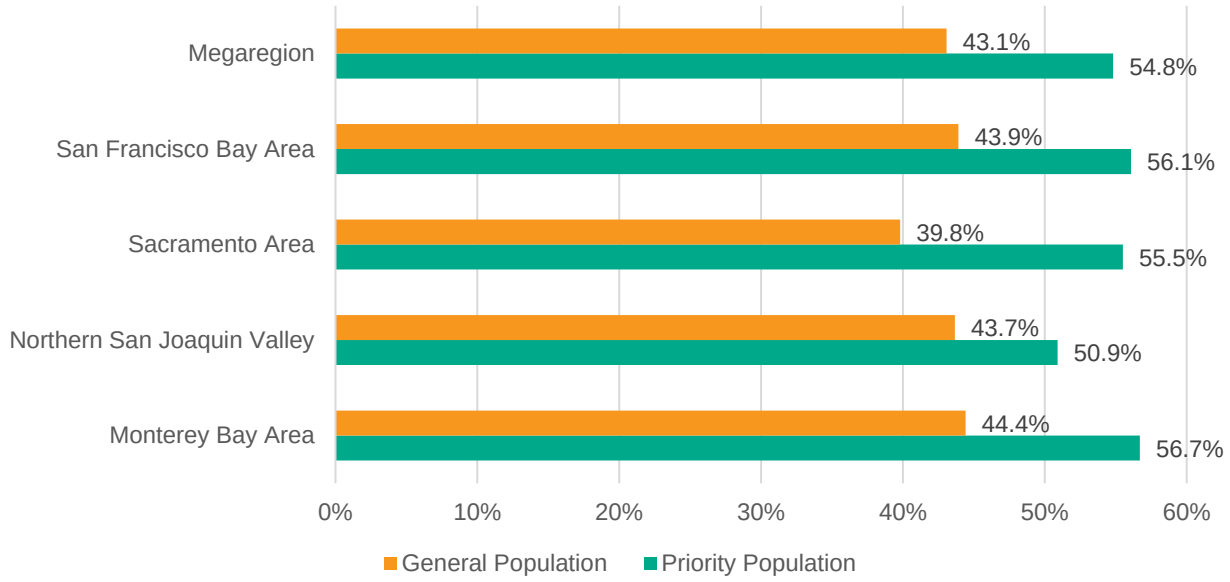
The metric used for housing tenure is the percentage of households that are renter occupied.

Renters are more vulnerable to increases in housing costs, particularly in areas without rent control or strong tenant protections. Younger workers, renters, people without vehicle access, people of color, and the poor have disproportionately high rates of transit usage (McKenzie and Rapino 2011). However, investments in transit infrastructure tend to increase property values in the vicinity, while homeowners may benefit and renters may face rising costs and move to a less expensive neighborhood with less transit access (McKenzie 2013).

Figure B-27 summarizes the percentages of renter-occupied households in the Megaregion and subregions. **Figure B-28** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for renter-occupied households. Some key findings include:

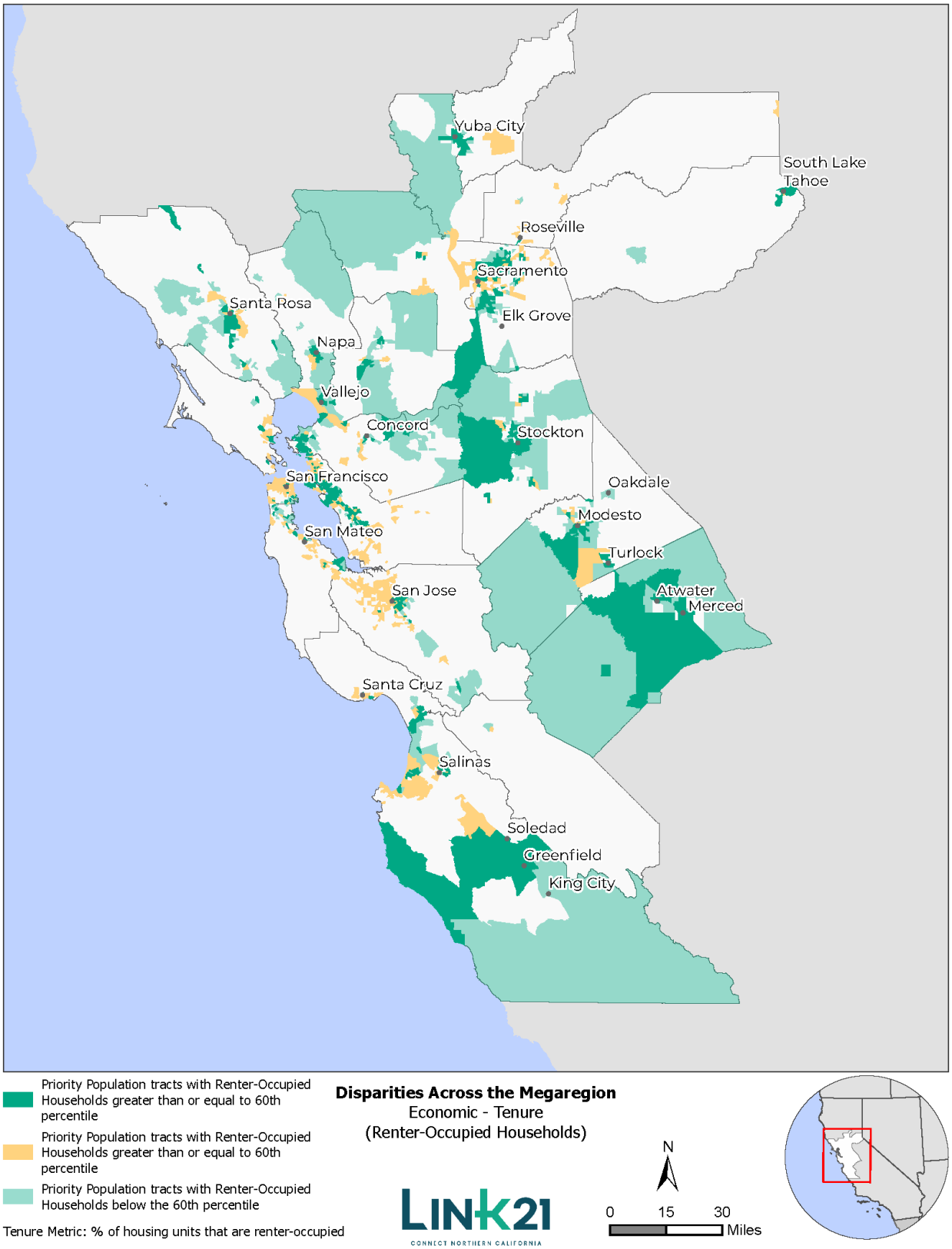
- Across the Megaregion and all subregions, there are more renter-occupied households in PPs than among the general population. This observation is consistent with the trend that lower-income residents tend to be renters rather than homeowners.
- The Monterey Bay Area has the highest proportion of renter-occupied households (56.7%) among PPs.
- The Sacramento Area has the largest disparity in renter-occupied households between the general population (39.8%) and PPs (55.5%).
- Across the Megaregion, non-PP census tracts with percentile scores for renter-occupied households higher than the 60th percentile include areas around San Francisco, along U.S. Highway (US) 101 in San Mateo County and Santa Clara County; areas around southern Alameda County, South Bay, and San Jose; and smaller areas near Santa Cruz, Salinas, Soledad, Roseville, and Sacramento.

Figure B-27. Percentages of Renter-Occupied Households in the Megaregion and Subregions



Source: U.S. Census Bureau 2020: Table S2502

Figure B-28. Renter-Occupied Households Disparities Across the Megaregion



⇨Housing and Transportation Costs

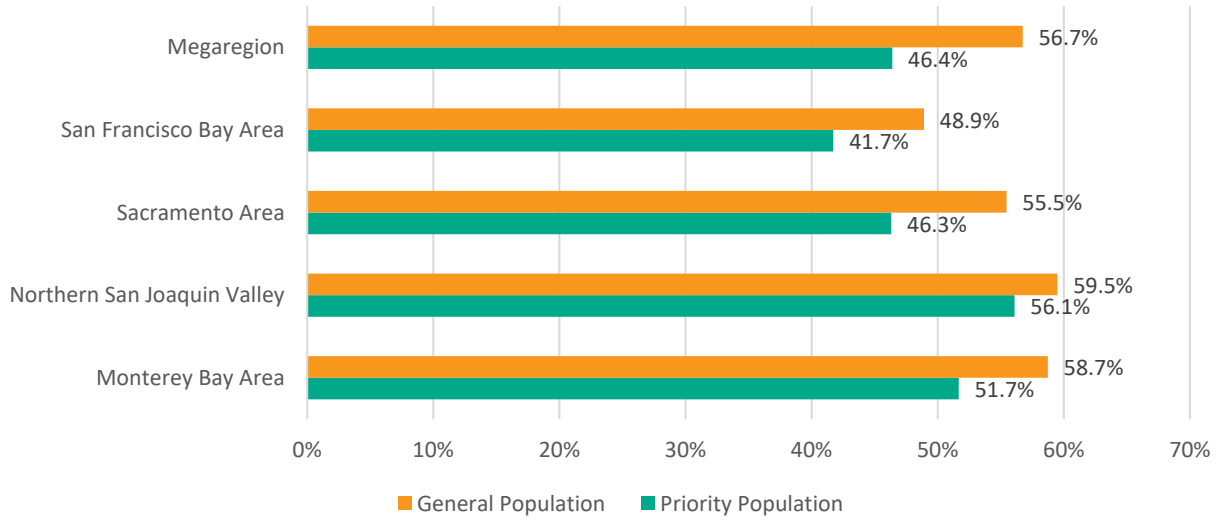
The metric used for housing and transportation costs is the sum of housing and transportation costs as a percentage of household income.

Through Link21 co-creation, housing cost was consistently cited as a hugely variable expenditure that was changing rapidly in many places. It was also noted that people were fairly universally transportation cost burdened, regardless of housing affordability or unaffordability. Although renters may have access to rent-controlled or subsidized housing, homeowners may pay a higher percentage of monthly income towards their mortgage and would be building wealth and financial equity with those payments.

Figure B-29 summarizes the housing and transportation cost burdens in the Megaregion and subregions. **Figure B-30** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for housing and transportation costs. Some key housing findings include:

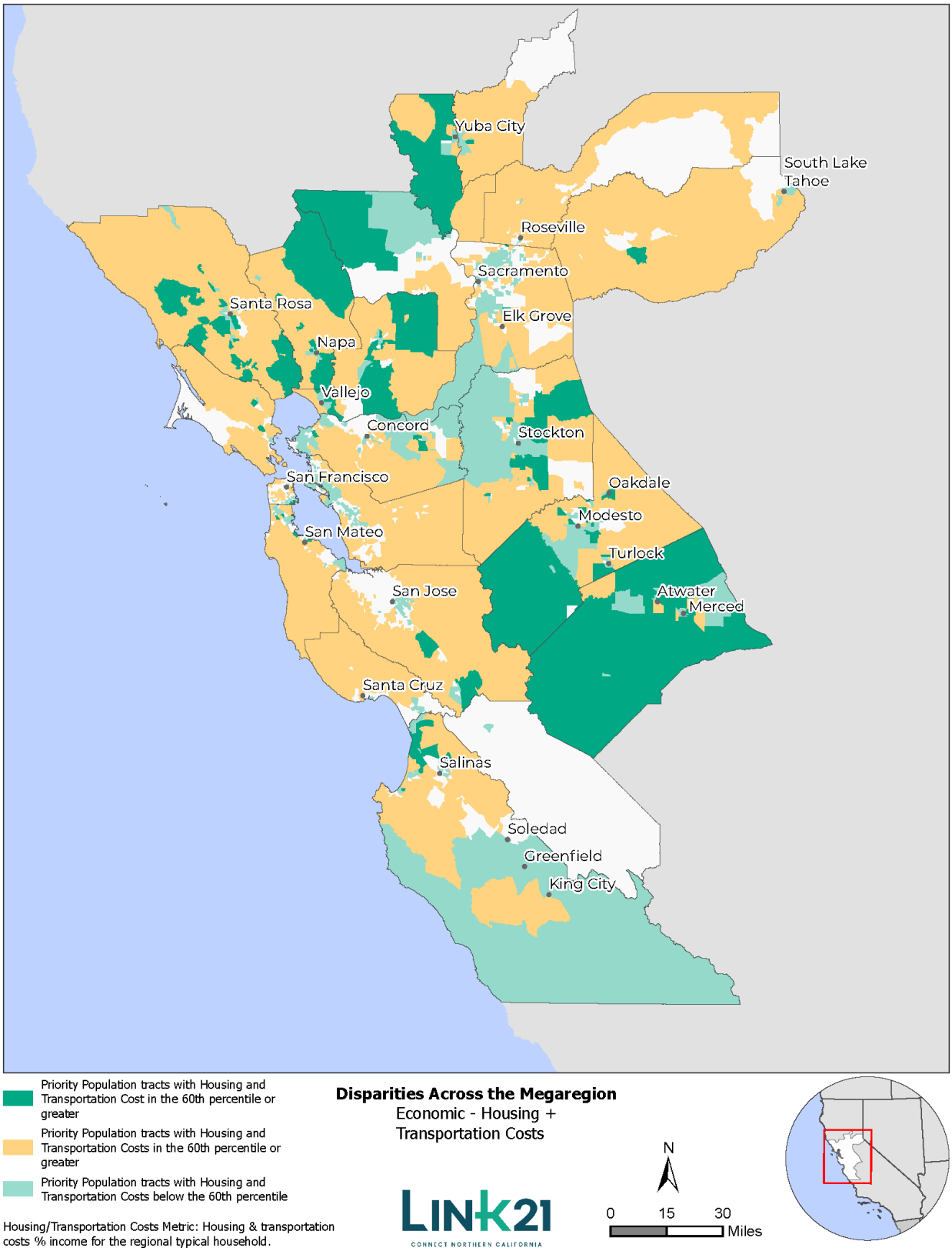
- Across the Megaregion, the typical general population household spends a larger portion of its income on housing and transportation than households in PPs.
- Northern San Joaquin Valley households have the highest housing and transportation cost burden in both general population and PPs.
- Bay Area households have the lowest housing and transportation cost burden in both general population and PPs.
- Most census tracts that rank over the 60th percentile in terms of housing and transportation cost burden are not PP areas, except in San Benito County and parts of Santa Clara County.

Figure B-29. Housing and Transportation Costs as a Percentage of Total Household Income in the Megaregion and Subregions



Source: Center for Neighborhood Technology 2022

Figure B-30. Housing and Transportation Costs Disparities Across the Megaregion



⇨*Family Size*

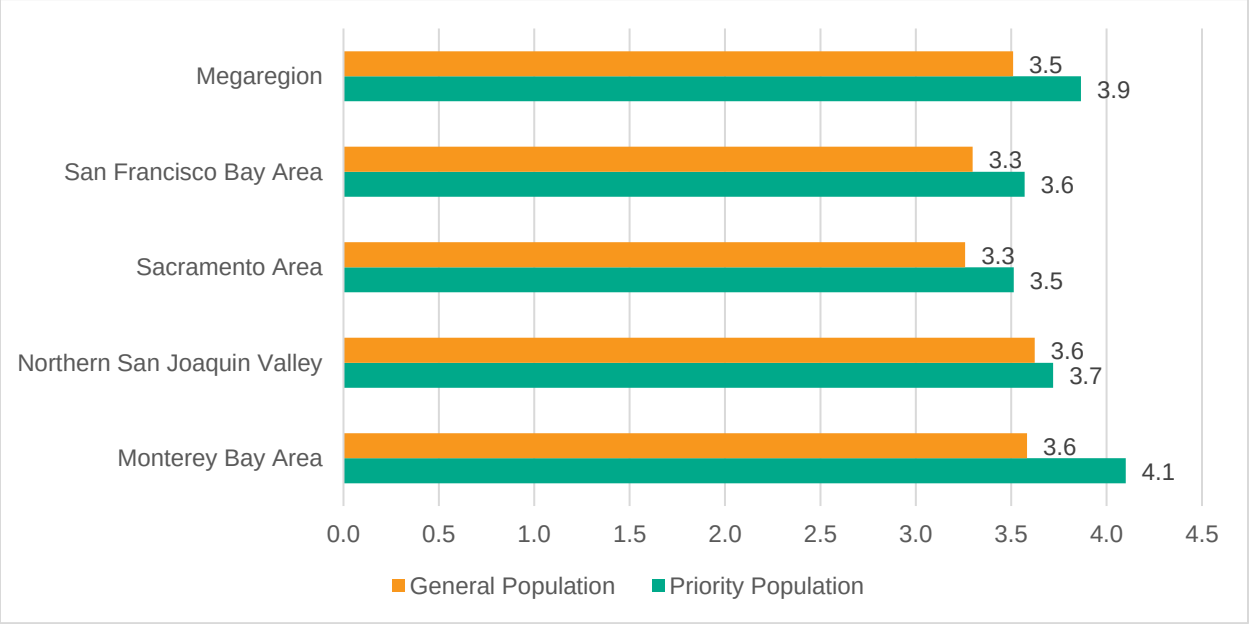
The metric used for family size is the average family size.

As noted through co-creation efforts, costs rise with additional (non-working) people in the household. Caring for children also requires additional considerations that can change economic and other opportunities.

Figure B-31 summarizes average family size in the Megaregion and subregions. **Figure B-32** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for average family size. Some key findings include:

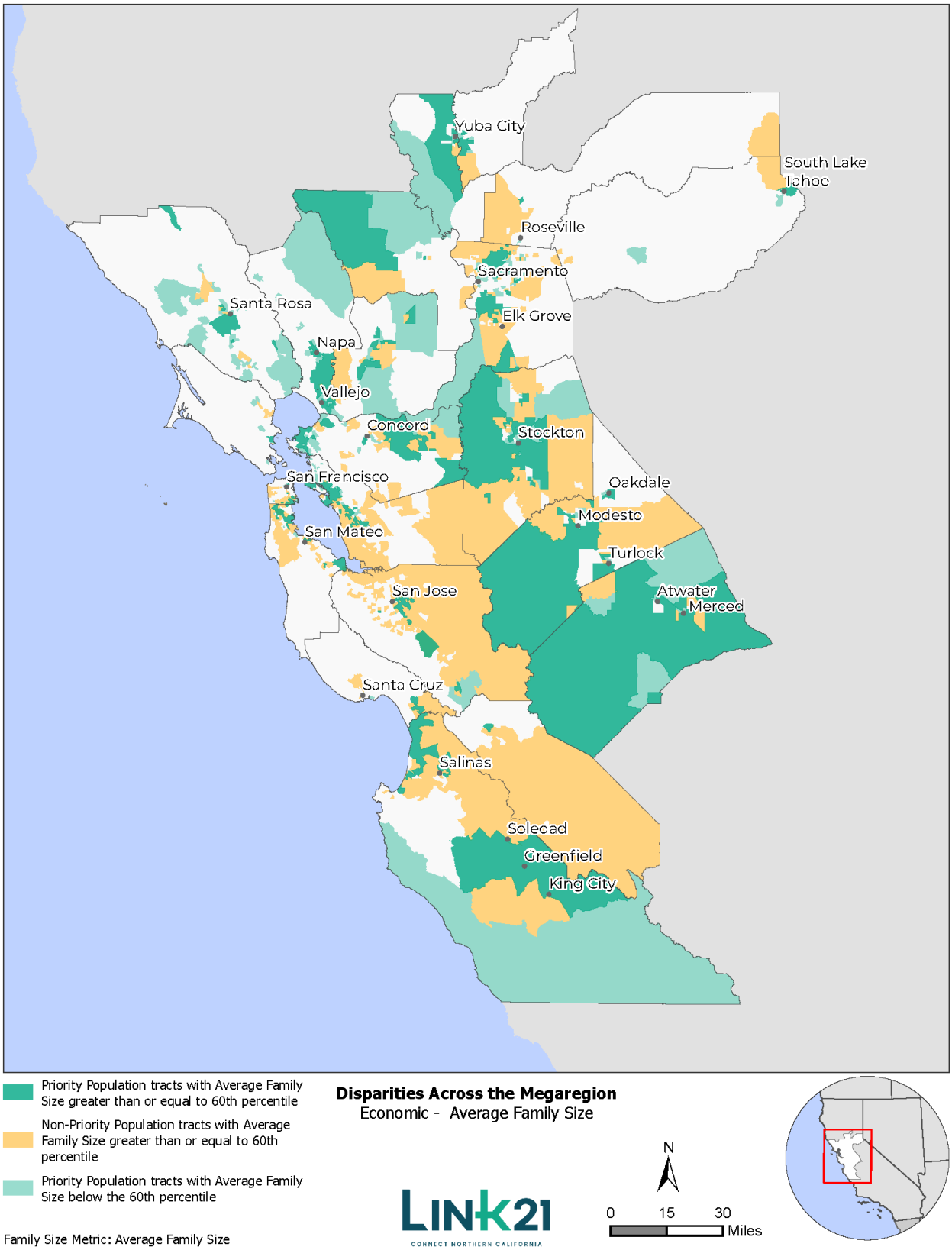
- PP households have larger families than households in the general population.
- PP households in the Monterey Bay Area subregion have the largest average family of 4.1 people per household and also the greatest difference (0.5 people) compared to the general population.
- Both the Bay Area and Sacramento Area subregions have the smallest average family size among PP households (3.6 people) and the smallest difference (0.3 people) compared to the general population.
- Some census tracts in Alameda County, Santa Clara County, San Benito County, San Joaquin County, Stanislaus County, Placer County, and Monterey County rank over the 60th percentile in average family size but are not designated as PP areas.

Figure B-31. Average Family Size in the Megaregion and Subregions



Source: U.S. Census Bureau 2020: Table DP02

Figure B-32. Average Family Size Disparities Across the Megaregion



⇨*Multiple Jobs*

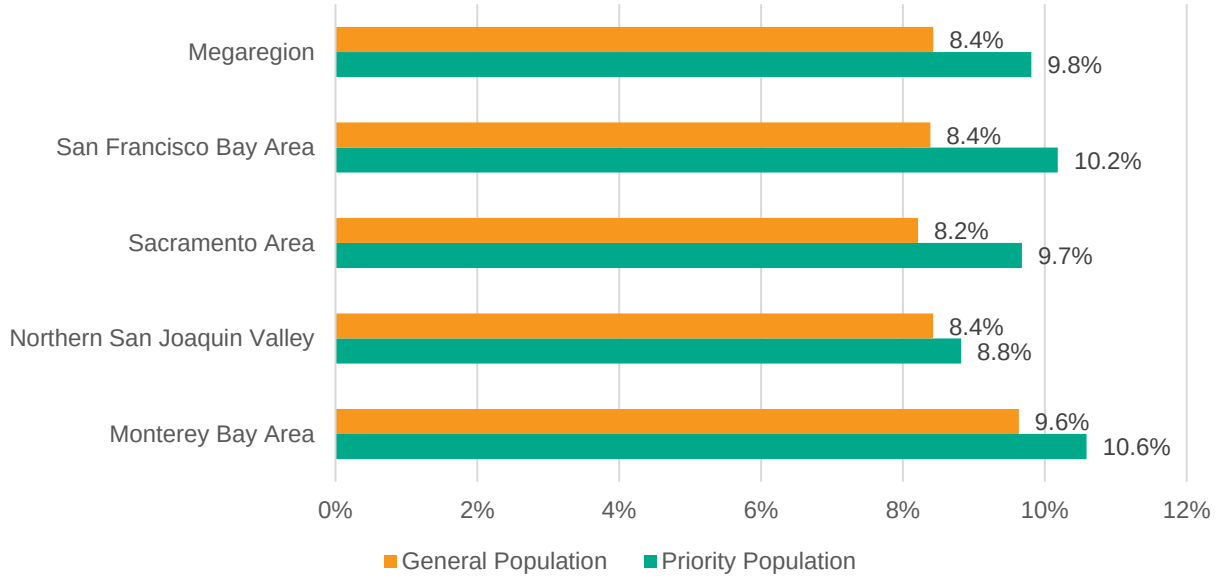
The metric used for multiple jobs is the ratio of primary jobs to all jobs, identifying number of workers with multiple jobs.

Co-creation revealed that many workers need to work more than one job to afford cost of living or get benefits like health care. This reduces the amount of time they have for non-work activities, including commuting.

Figure B-33 summarizes the ratio for multiple jobs in the Megaregion and subregions. **Figure B-34** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for multiple jobs. Some key findings include:

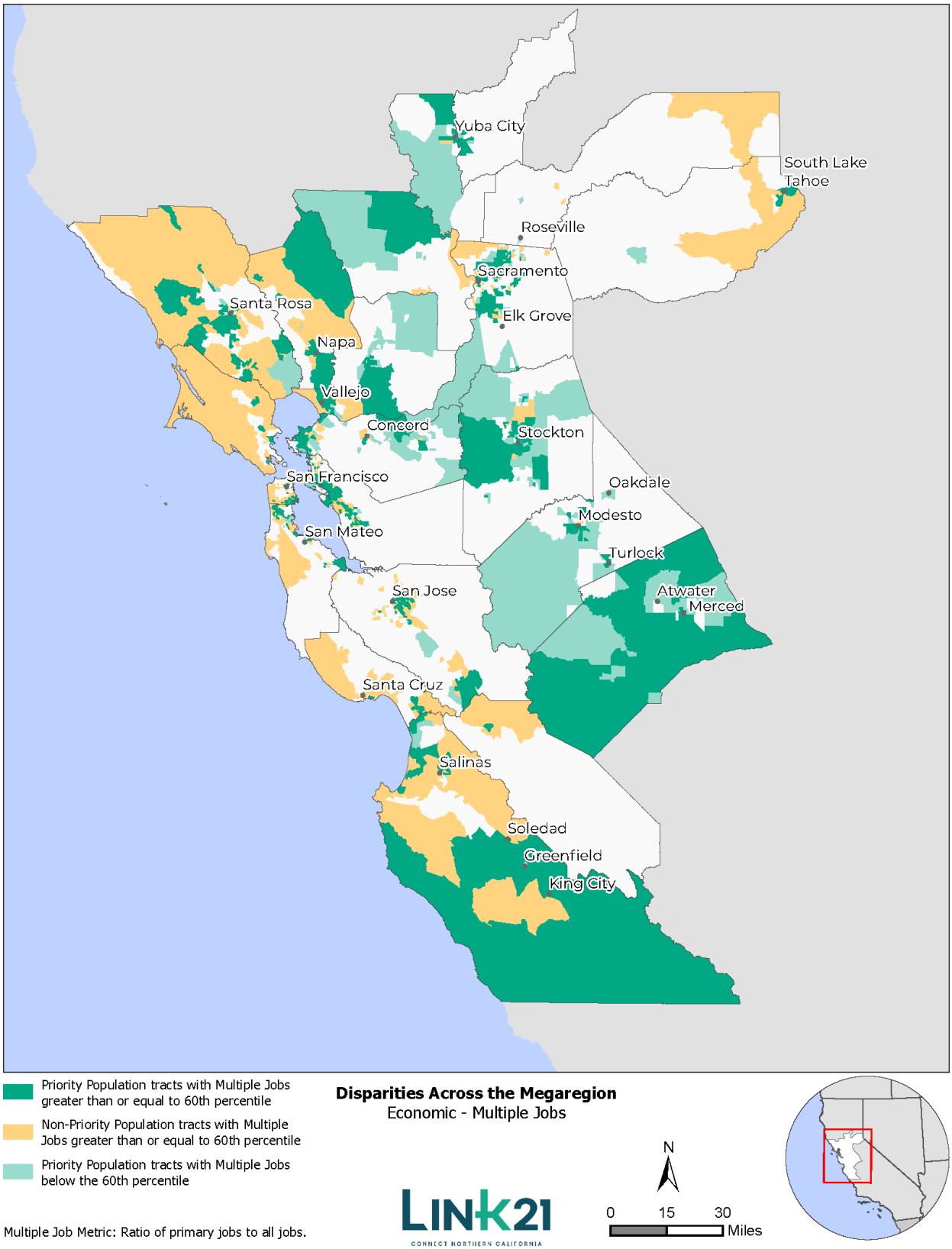
- The Monterey Bay Area subregion has the highest proportion of residents working more than one job across PPs (one in nine residents work more than one job) and across the general population (one in 10 residents).
- The Northern San Joaquin Valley has the smallest difference of workers with multiple jobs between PPs and general population residents (8.8% vs. 8.4%).
- Across the Megaregion, non-PP census tracts with percentile scores for workers with multiple jobs higher than the 60th percentile include areas around Sonoma, Marin, and Napa counties; the Lake Tahoe region; western San Mateo County and Santa Cruz County; and large parts of Monterey County.

Figure B-33. Percentages of Workers with Multiple Jobs in the Megaregion and Subregions



Source: U.S. Census Bureau 2021

Figure B-34. Multiple Job Disparities Across the Megaregion



B.3.2.3 Mobility

The mobility category for evaluation, according to the updated PPs methodology, includes the following indicators/metrics: transportation cost burden, no household cars, vehicle mismatch, commute length, and transit access. The following subsections describe metrics used for each and the resulting disparities between the general population and PPs.

⇨*Transportation Cost Burden*

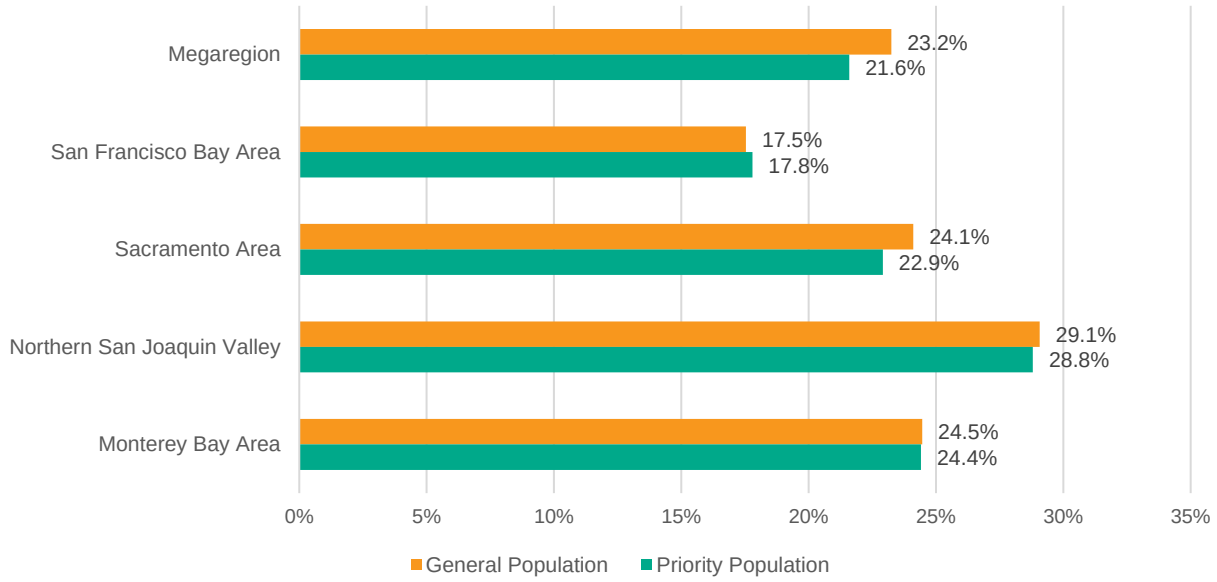
The metric used for transportation cost burden is the percentage of total household income spent on transportation costs.

Those who live in more affordable areas may have a lower housing cost burden, but increased transportation costs due to car reliance and longer trips. Generally, no more than 45% of household income should be spent on housing and transportation, with up to 15% spent on transportation to be considered affordable. Due to the lack of density in various metro areas, the distance between affordable housing and jobs has increased, making people more reliant on their personal vehicles to go longer distances. Even if housing in certain areas is affordable, the cost of transportation may negate the savings made through housing. As places are built without transit-oriented planning and as housing costs rise, traveling long distances and living in car-reliant areas becomes more and more common (Institute for Transportation and Development Policy 2019).

Figure B-35 summarizes the transportation cost burden in the Megaregion and subregions. **Figure B-36** illustrates census tracts in the Megaregion at the 60th percentile or greater for transportation cost burden. Some key findings include:

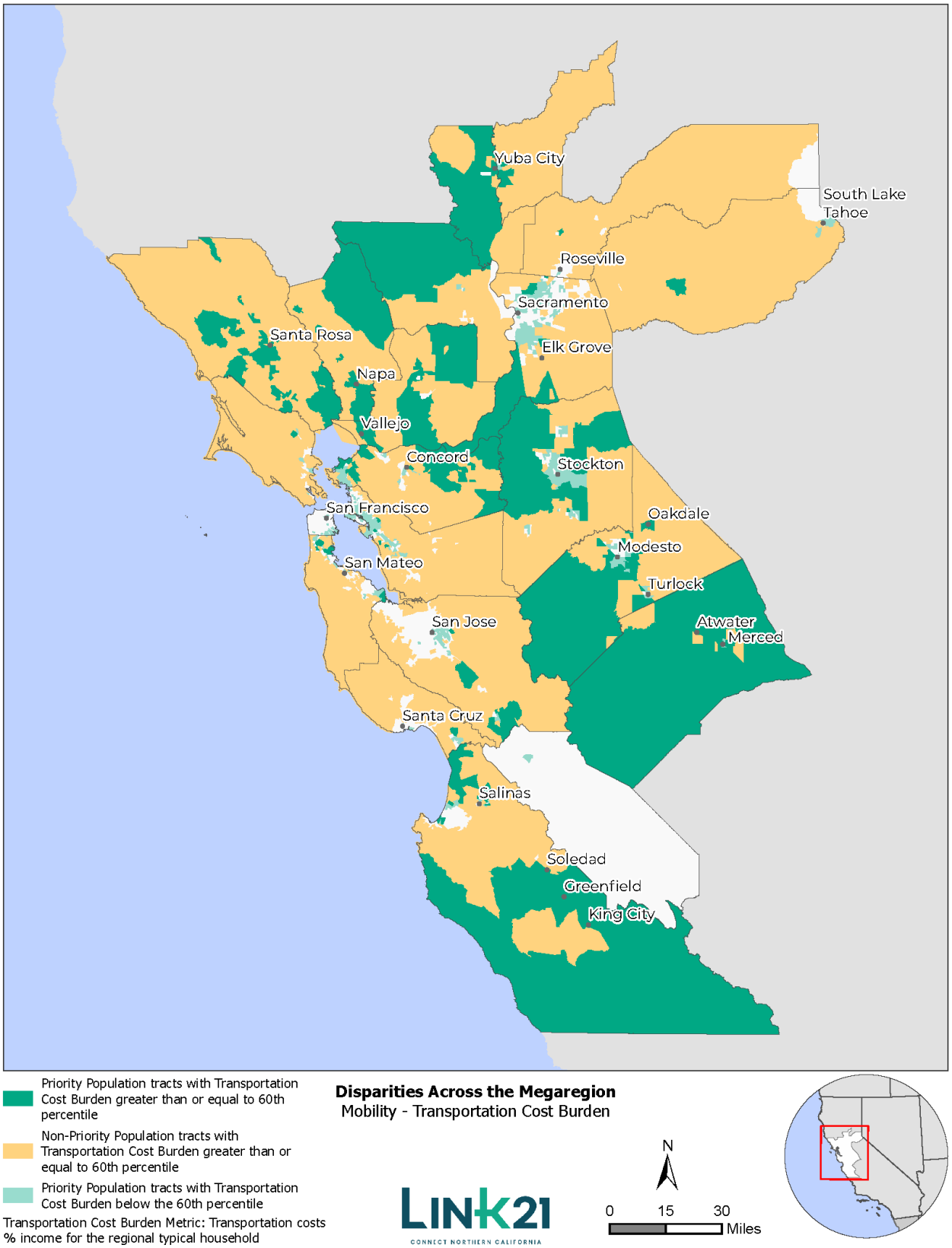
- Throughout the Megaregion, both the general population and PPs are considered transportation cost burdened, due to the high cost of living in housing, transportation, and other categories affecting all populations.
- For the Megaregion as a whole and for three of the four subregions, the transportation costs are greater for the general population than for the PPs.
- Most census tracts that rank over the 60th percentile in terms of transportation cost burden are not PP areas, except for San Benito County and parts of northern Santa Clara County.

Figure B-35. Transportation Costs as Percentage of Total Household Income in the Megaregion and Subregions



Source: Center for Neighborhood Technology 2022

Figure B-36. Transportation Cost Burden Disparities Across the Megaregion



⇨*No-Car Households*

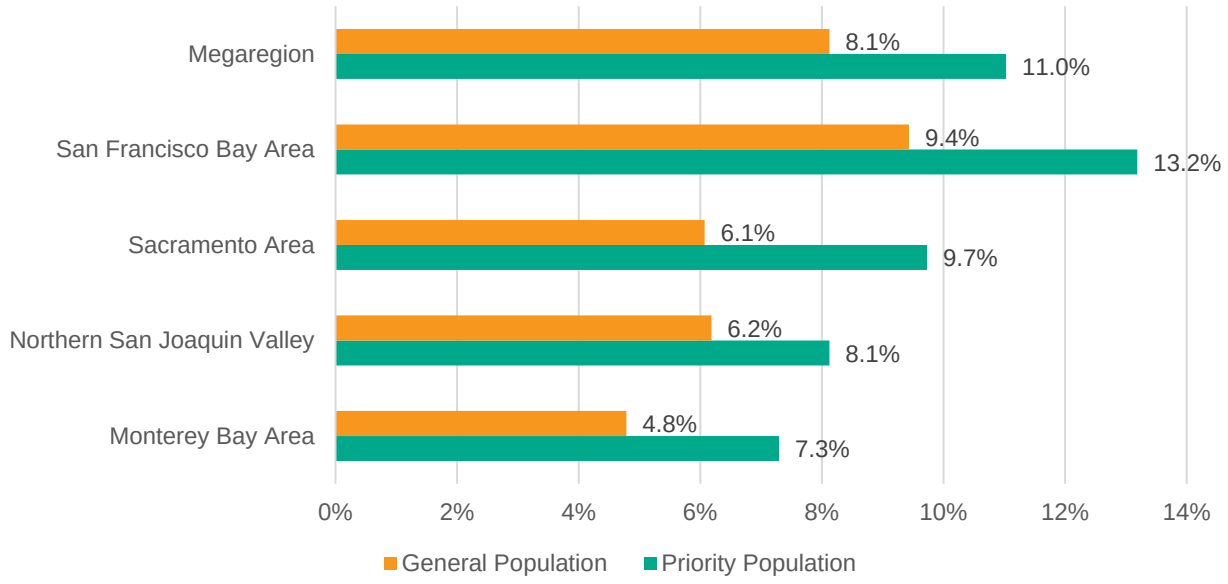
The metric used for no-car households is the percentage of households with no vehicle available.

Lack of access to a personal or family vehicle means that a household relies on transit to access essential destinations, both work and non-work. Access to reliable and high-quality transit is essential for these households to meet their needs. Lack of access to a vehicle in urban areas, where there are usually more transit options, is generally considered less of a burden than rural areas.

Figure B-37 summarizes the percentage of no-car households in the Megaregion and subregions. **Figure B-38** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for no-car households. Some key findings include:

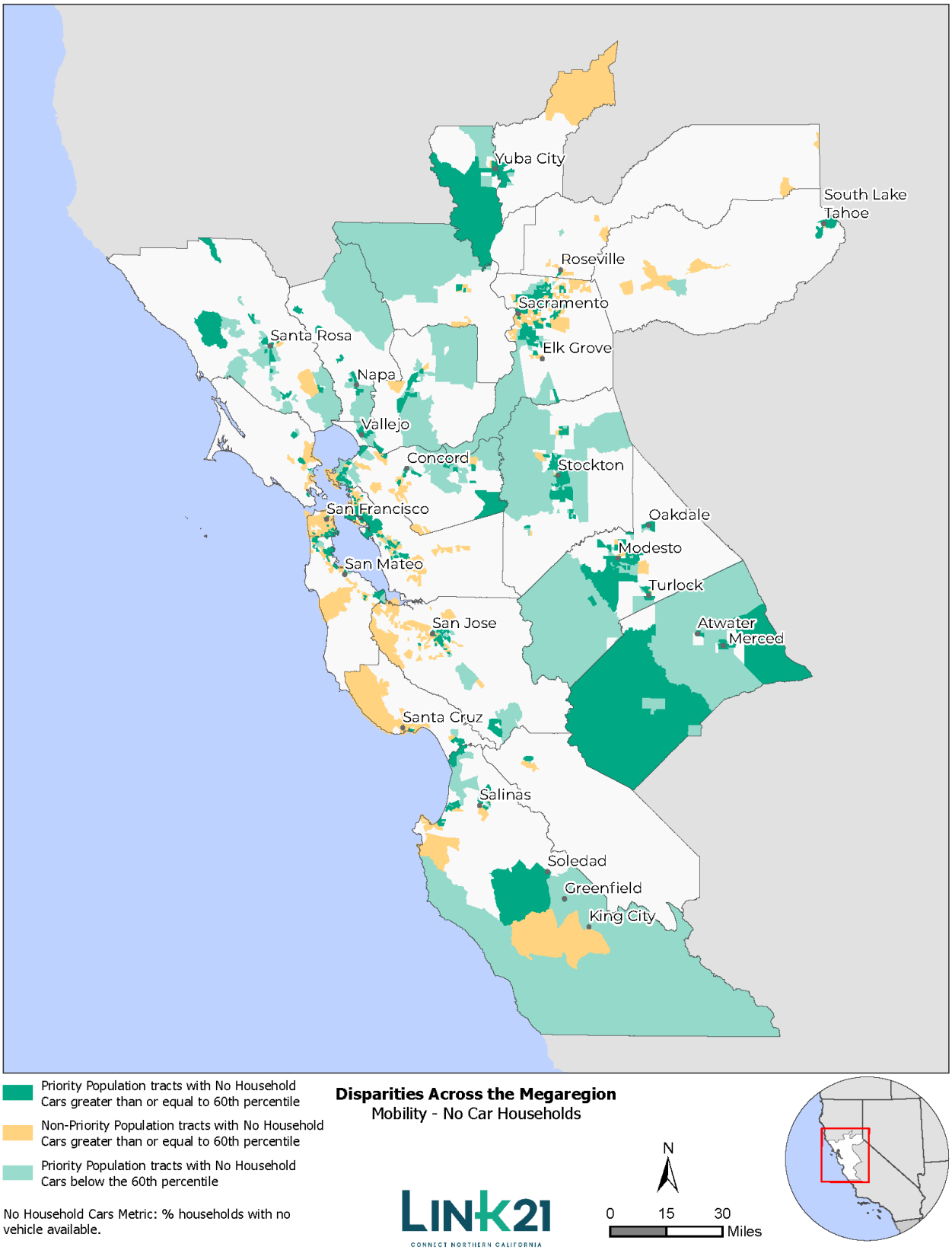
- Overall, there is a larger proportion of no-car households that are considered PPs than the general population (11% versus 8%).
- The largest disparities between the PPs and general population are in the Bay Area and Sacramento Area.
- Census tracts where no-car households rank over the 60th percentile but not designated as PP areas are located in the City and County of San Francisco, areas surrounding Sacramento and Roseville, San Mateo County and Santa Clara County along US 101, and parts of Santa Cruz and Monterey counties.

Figure B-37. Percentages of No-Car Households in the Megaregion and Subregions



Source: U.S. Census Bureau 2020: Table B08201

Figure B-38. No-Car Households Disparities Across the Megaregion



⇨Vehicle Mismatch

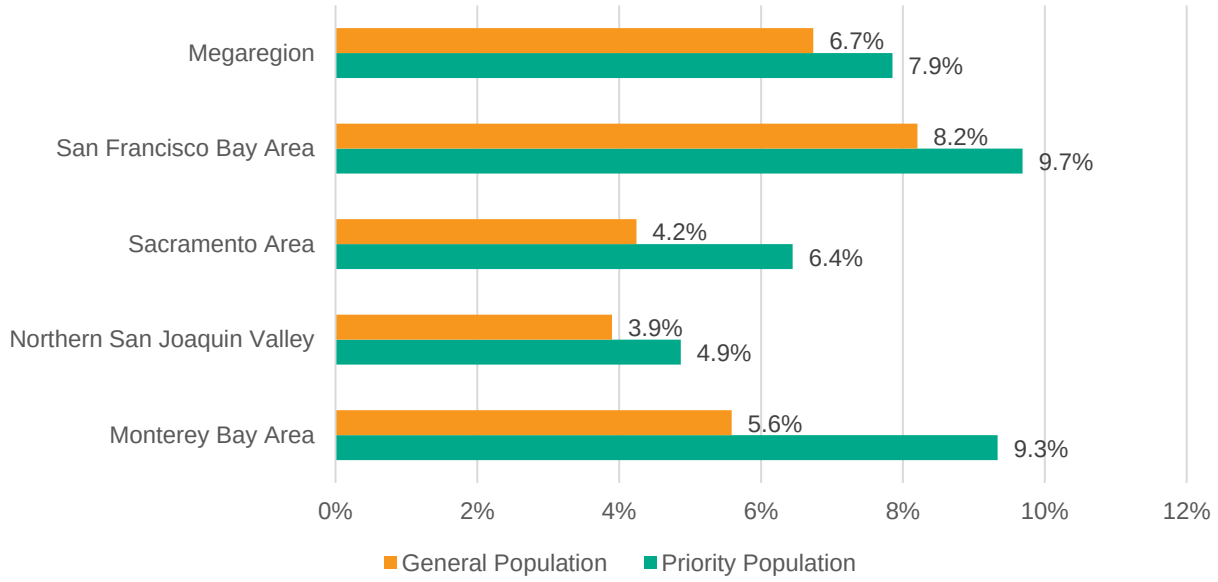
The metric used for vehicle mismatch is the percentage of households with fewer vehicles than workers.

For households with fewer vehicles than workers, it is more likely that some members of the household rely on other modes of transportation to access work or other destinations.

Figure B-39 summarizes vehicle mismatch in the Megaregion and subregions. **Figure B-40** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for vehicle mismatch. Some key findings include:

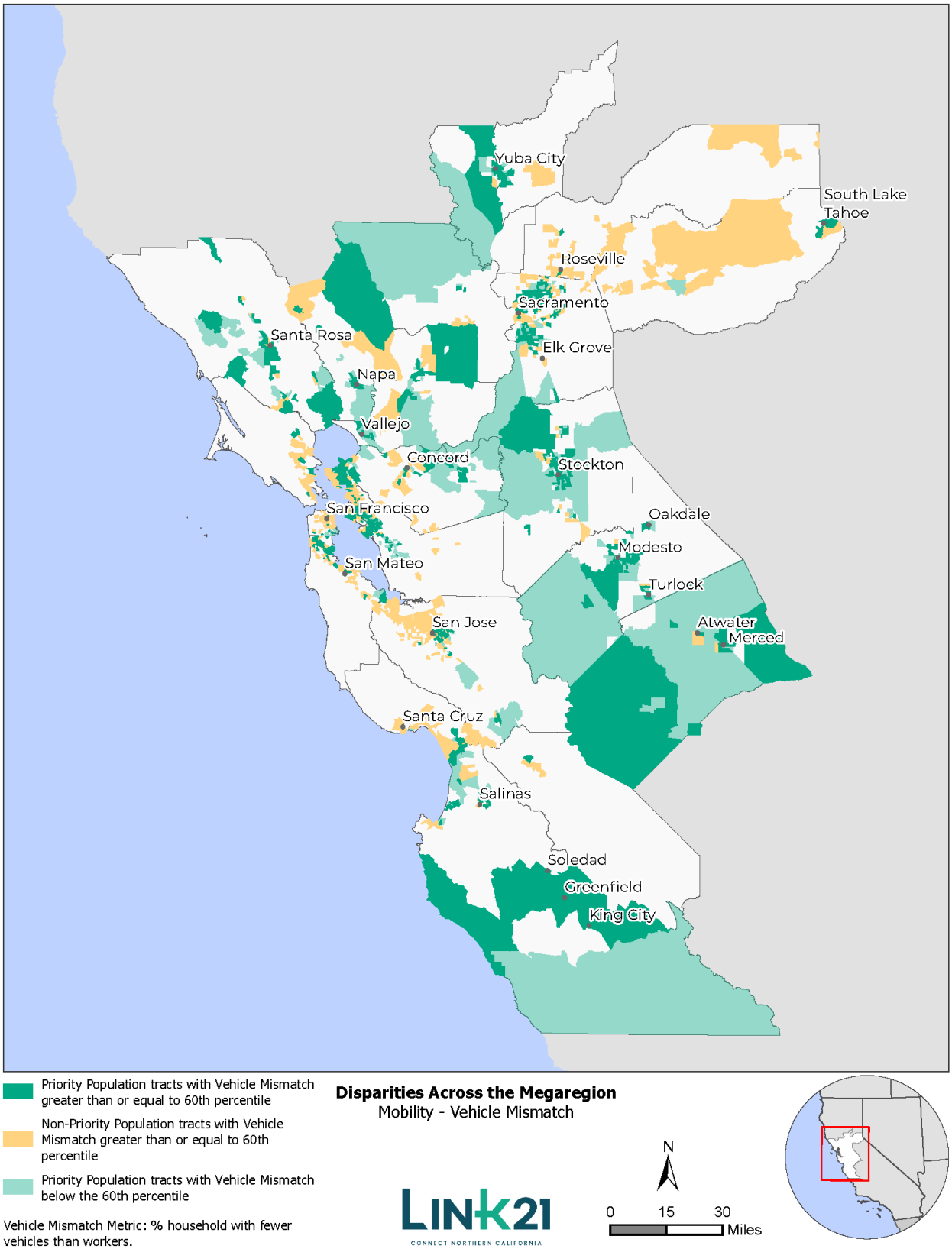
- The Monterey Bay Area subregion has the greatest disparity between PPs (9.3%) and the general population (5.6%) in terms of vehicle mismatch. This may be attributed to overcrowded housing in the Monterey Bay Area and not all household members owning a vehicle.
- In the Bay Area, the vehicle mismatch is high in both PPs and general population, which may be due to higher use of other modes of transportation including transit, biking, and walking. The Northern San Joaquin Valley subregion has the least proportion of households with a vehicle mismatch burden in both PP households (4.9%) and general population households (3.9%).
- Census tracts where vehicle mismatch ranks over the 60th percentile but not designated as PP areas are located in San Mateo and Santa Clara counties along US 101, Napa County, Yuba County, Placer County, and El Dorado County.

Figure B-39. Percentages of Households with Fewer Vehicles than Workers in the Megaregion and Subregions



Source: U.S. Census Bureau 2020: Table B08203

Figure B-40. Vehicle Mismatch Disparities Across the Megaregion



⇨Commute Length

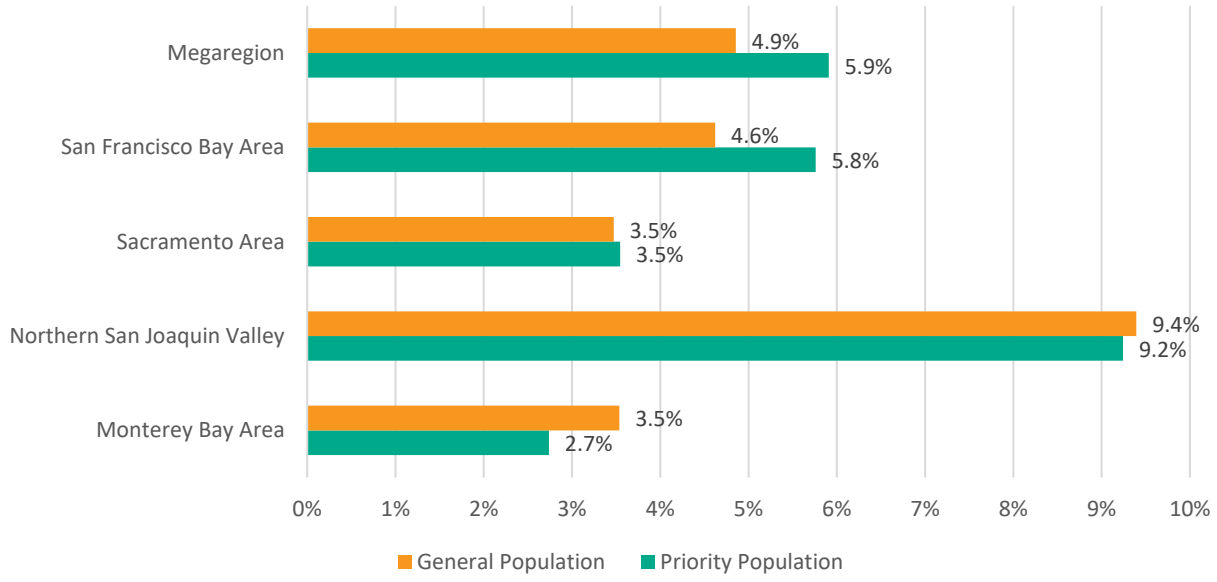
The metric used for commute length is the percentage of workers with one-way commutes over 90 minutes (referred to as "megacommuters").

Long commutes are costly for workers, in terms of time/opportunity cost and increased transportation costs. It leaves commuters with less time for meeting needs or being with family and friends. Long commutes often are related to the high cost of living in proximity to better-paying jobs.

Figure B-41 summarizes the percentages of megacommuters in the Megaregion and subregions. **Figure B-42** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for commute length. Some key findings include:

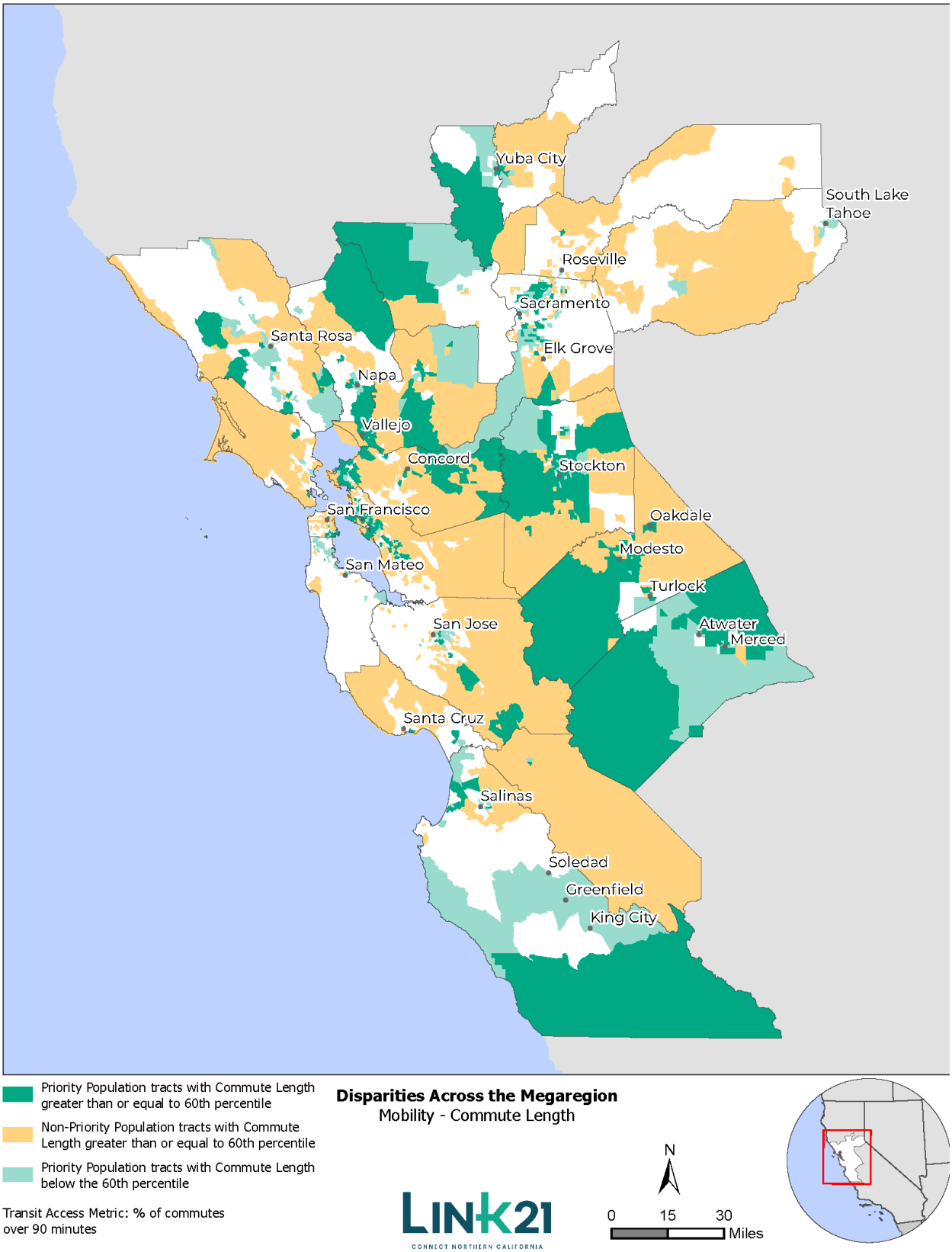
- Consistent with national research on the relationship between socioeconomic characteristics and commute length, in the Megaregion there is a larger proportion of megacommuters who are from PPs than from the general population (5.9% vs. 4.9%), with the Bay Area and Monterey Bay Area showing the largest differences between PPs and general population.
- There are a few key outliers in the Megaregion:
  - The Sacramento Area shows a relatively lower percentage and no difference between PPs and general population percentage of megacommuters, at 3.5% each, which may be due to a combination of factors, which may include a generally lower rate of megacommuting as compared with the rest of the subregions, which would be something to investigate and understand in future studies.
  - The Northern San Joaquin Valley also shows a small difference between PPs and the general population, although the difference between the Sacramento Area and the Northern San Joaquin Valley is that the percentage of megacommuters in the Northern San Joaquin Valley is much higher (over 9%). This seems to show a larger proportion of the population in the Northern San Joaquin Valley traveling longer distances to more job-dense regions such as the Bay Area, which is shown by the data in Figure B-41. In addition, populations in the Northern San Joaquin Valley have the highest proportion of people driving to work as shown in Figure B-41. Residents there are burdened with not only longer commutes but longer drives.
- The amount of megacommuters in the Northern San Joaquin Valley Subregion is more than twice the amount in the Sacramento Area and Monterey Bay Area subregions.
- In both the Northern San Joaquin Valley and Monterey Bay Area subregions, there are more megacommuters in the general population than in PPs.

Figure B-41. Percentages of Worker with Commute Length of 90 Minutes or More in the Megaregion and Subregions



Source: U.S. Census Bureau 2020: Table B08012

Figure B-42. Commute Length Disparities Across the Megaregion



⇨Transit Access

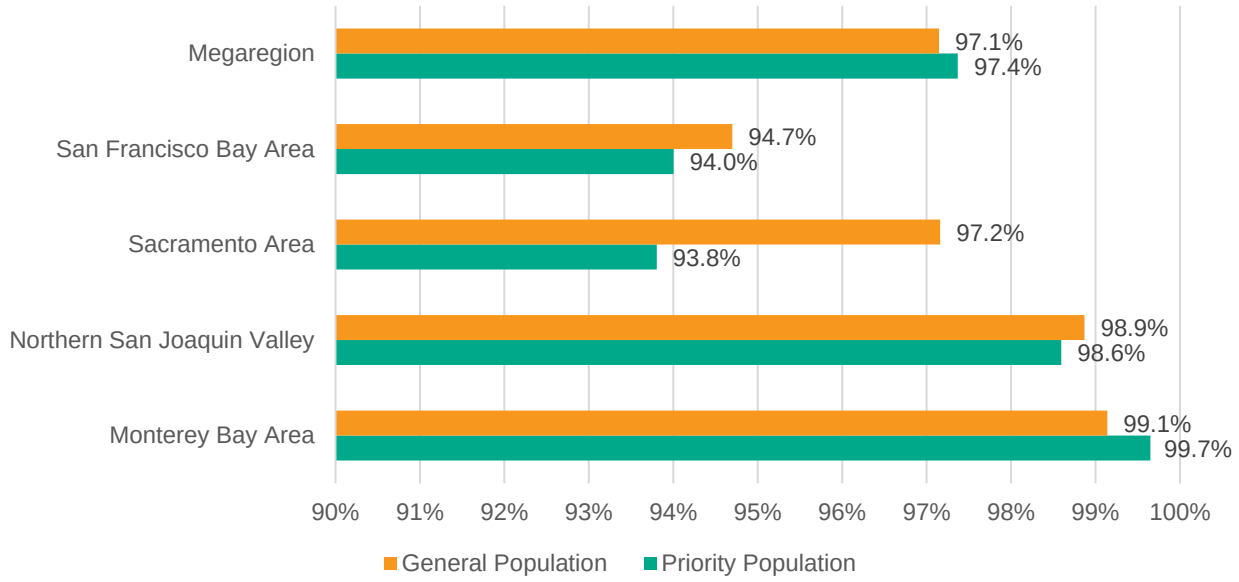
The metric used for transit access is the percentage of the census tract area with access to high-quality transit, defined as fixed-route service with frequency of 15 minutes or less in the Bay Area or 30 minutes or less elsewhere during peak periods.

Transit helps people connect to jobs and take essential non-work trips. It can decrease household transportation costs. Lack of access to frequent transit limits mobility options.

Figure B-43 summarizes transit access in the Megaregion and subregions. **Figure B-44** illustrates census tracts in the Megaregion at the 60th percentile or greater for transit access. Some key findings include:

- Very few residents in the Megaregion have access to high-quality transit. In the Bay Area about 94% of both PPs and general population lack access to high-quality transit. This may be because only the eastern portion of this subregion has high density of transit lines and other areas of the subregion do not.
- PPs in the Sacramento Area and Bay Area subregions have the lowest proportion of PP residents (94%) without access to high-quality transit. This may be because several transit lines are located in PP tracts in this subregion.
- Monterey Bay Area residents in PP areas (99.7%) and general population areas (99.1%) have the highest proportion of population without access to high-quality transit.
- Census tracts where transit access ranks over the 60th percentile but not designated as PP areas are located in most of the Sacramento Area and Bay Area subregions.

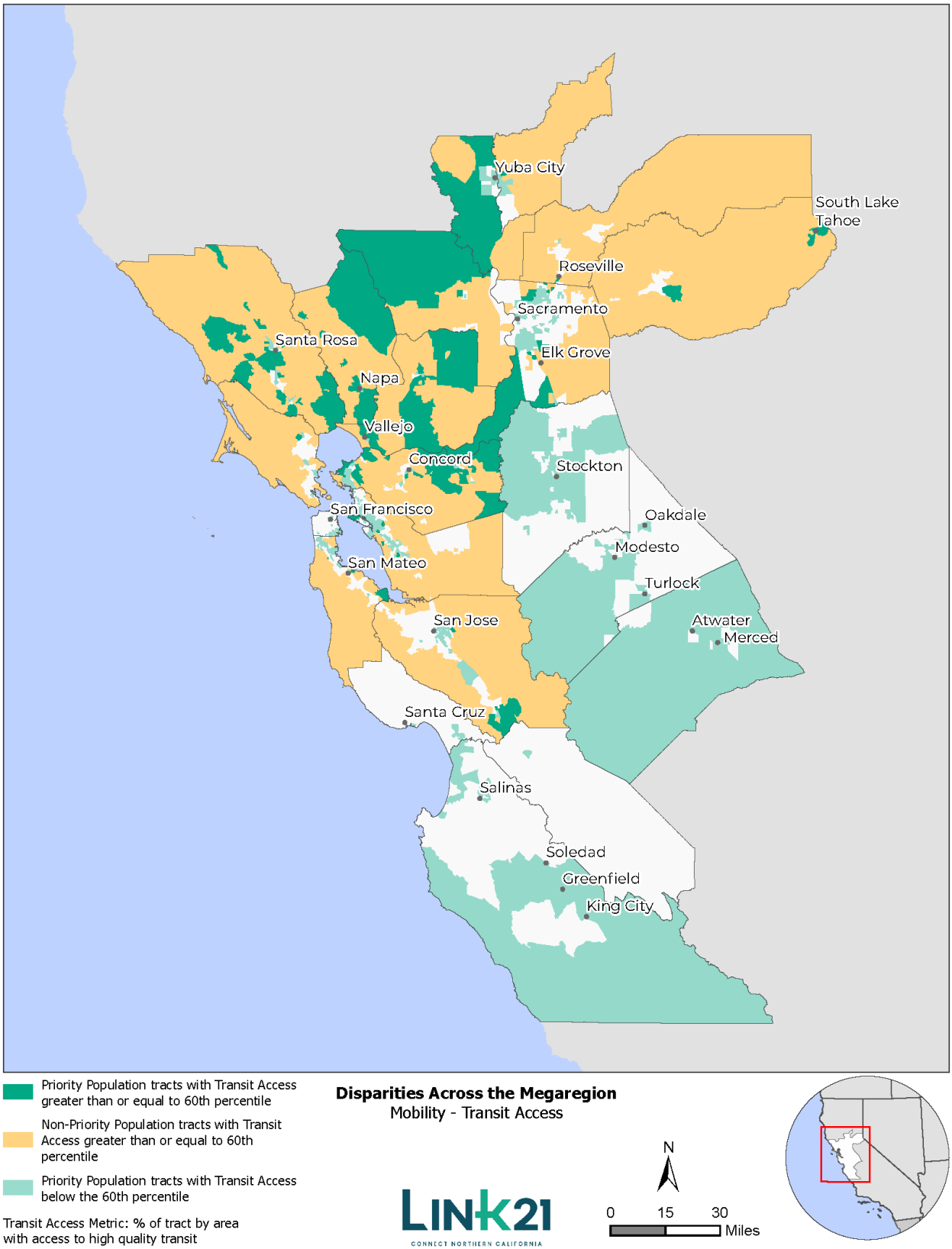
Figure B-43. Percentages of Tracts without Access to High-Quality Transit in the Megaregion and Subregions



Source: GTFS Data for Megaregional Transit Providers[3]

[3] AC Transit; ACE, BART, CALTRAIN, City South SF, Commute Org Shuttles, County Connection, Dumbarton, Emery Go Round, Fairfield Suisun Transit, Golden Gate, LAVTA, Marin, Petaluma, Rio Vista Delta Breeze, Samtrans, Santa Rosa City Bus, SF Bay Ferry, SFMTA, SMART, SolTrans Sonoma, Stanford Marguerite Shuttle, T, Tideline Water Taxi; Union City Transit; Vacaville City Coach, VINE, VTA, WestCat Western Contra Costa (MTC 2022); Auburn (OpenMobilityData 2021a); CCJPA (CCJPA 2021); El Dorado (El Dorado Transit 2022); Escalon (OpenMobilityData 2022a); Lodi (City of Lodi 2022); Merced (Merced the Bus 2022); MST (MST 2022); PCT (OpenMobilityData 2022b); SBCE (OpenMobilityData 2022c); SCMetro (SCMetro 2022); SJRTD (SJRTD 2022); South Co Sac (OpenMobilityData 2021b); Stanislaus (StanRTA 2022); Yolo (OpenMobilityData 2022d); Yuba Sutter (Yuba-Sutter Transit 2022).

Figure B-44. Transit Access Disparities Across the Megaregion



B.3.2.4 Community

The community category for evaluation, according to the updated PPs methodology, includes the following indicators/metrics: disconnected youth, miles of highway, access to open spaces, access to grocery stores, low educational attainment, displacement, older adults 65 and over, and internet access. The following subsections describe the metrics used for each and the resulting disparities between the general population and PPs.

⇨*Disconnected Youth*

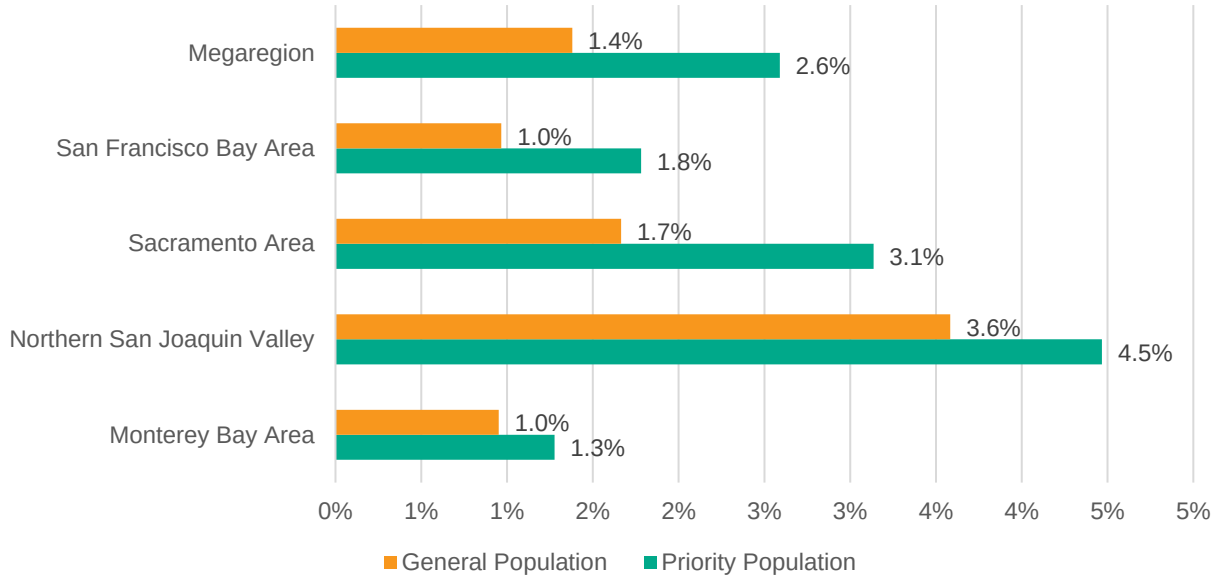
The metric used for disconnected youth is the percentage of unemployed persons aged 16 to 24 not in school.

Not accessing education and job experiences early in life can have long-lasting impacts that include lower earnings, higher public expenditures, lower tax revenues, and lost human potential (Bay Area Equity Atlas 2019).

Figure B-45 summarizes disconnected youth in the Megaregion and subregions. **Figure B-46** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for disconnected youth. Some key findings include:

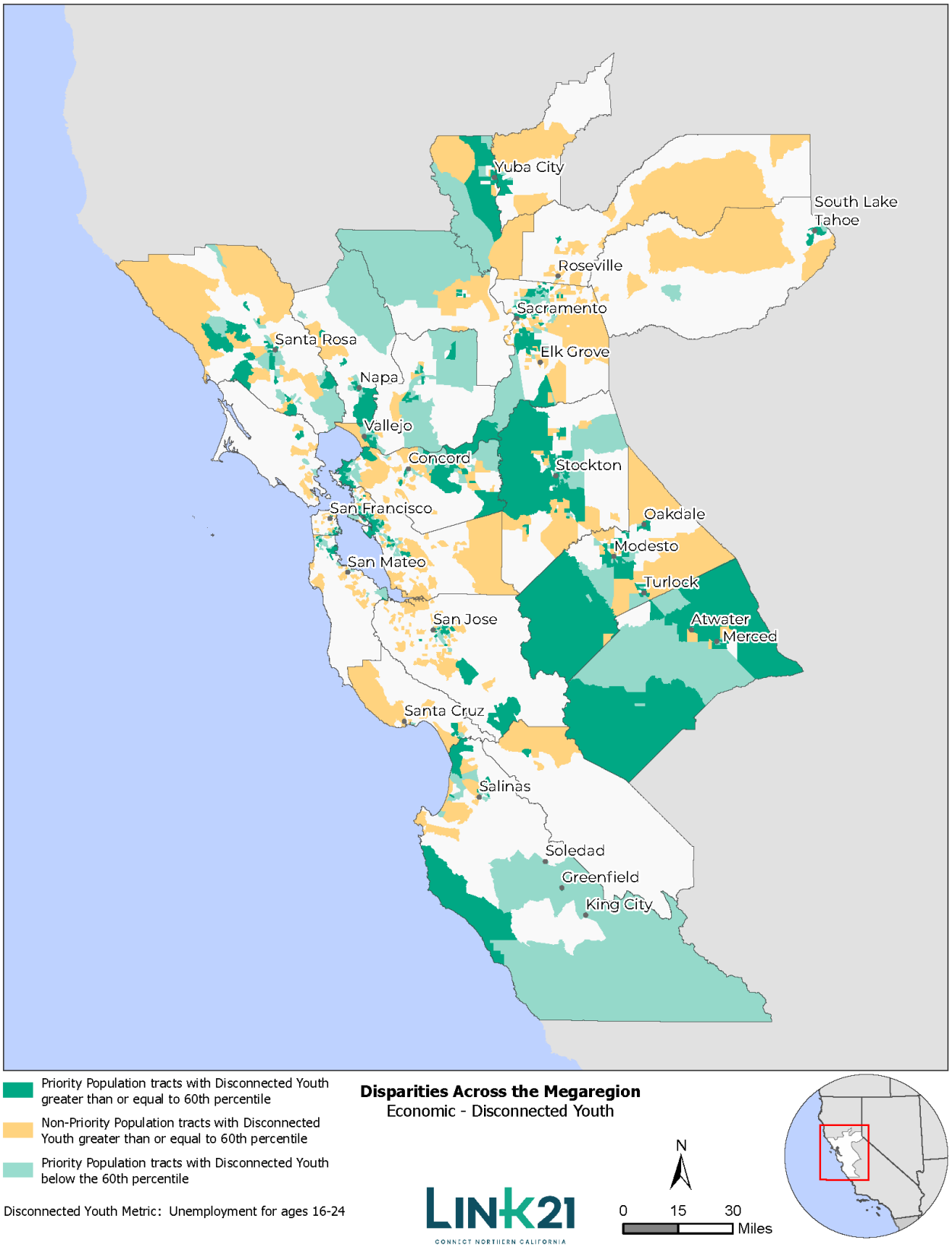
- The Northern San Joaquin Valley subregion has the highest proportion of disconnected youth in the Megaregion, with 4.5% for PPs and 3.6% for the general population.
- The Sacramento Area subregion has the biggest disparity of disconnected youth between PPs (3.1%) and the general population (1.7%).
- There are more disconnected youth in PP areas than among the general population across all subregions.
- Several census tracts across the Megaregion have disconnected youth ranking over the 60th percentile but are not designated as PP areas. These areas are mostly outside major cities identified in the map, except around Roseville, Elk Grove, San Mateo, Santa Cruz, and Salinas.

Figure B-45. Percentages of Disconnected Youth in the Megaregion and Subregions



Source: U.S. Census Bureau 2020: Table S2301

Figure B-46. Disconnected Youth Disparities Across the Megaregion



⇨Miles of Highway

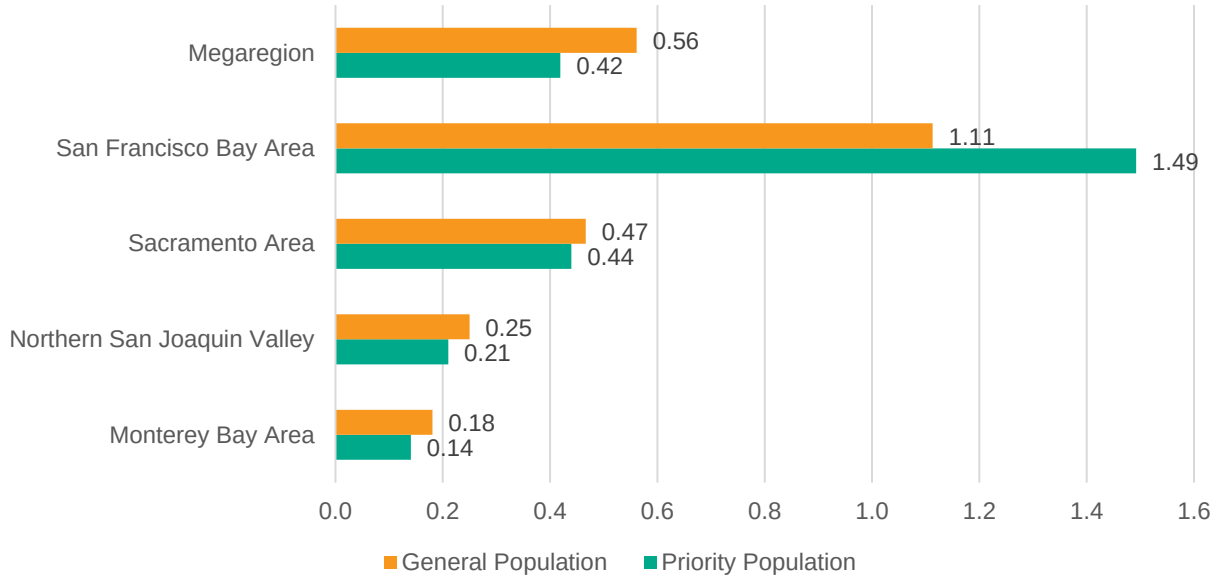
The metric used for highway miles is the miles of highway per census tract square mile.

Highways create physical barriers and noise pollution, contribute to less safe road environments, and contribute to poor air quality and associated long-term health impacts. Highway projects that generate the greatest levels of daily traffic volume and bad air quality have historically and presently cause harm to people of color and low-income communities. Research has also shown that households with no vehicles, who would be contributing the least to transportation-related emissions, are most likely to be residing in areas facing the highest exposure and health risks, for example less desirable housing options that are more affordable and closer to highways (Chakraborty 2009).

Figure B-47 summarizes the miles of highway per census tract area in the Megaregion and subregions. **Figure B-48** provides a map of the Megaregion illustrating census tracts at the 40th percentile or greater for miles of highway. The highest value in the census tracts is 53rd percentile; therefore, with the 60th percentile threshold there would not be any census tracts that are of greater burden. Hence a 40th percentile threshold has been used for this metric. Some key findings include:

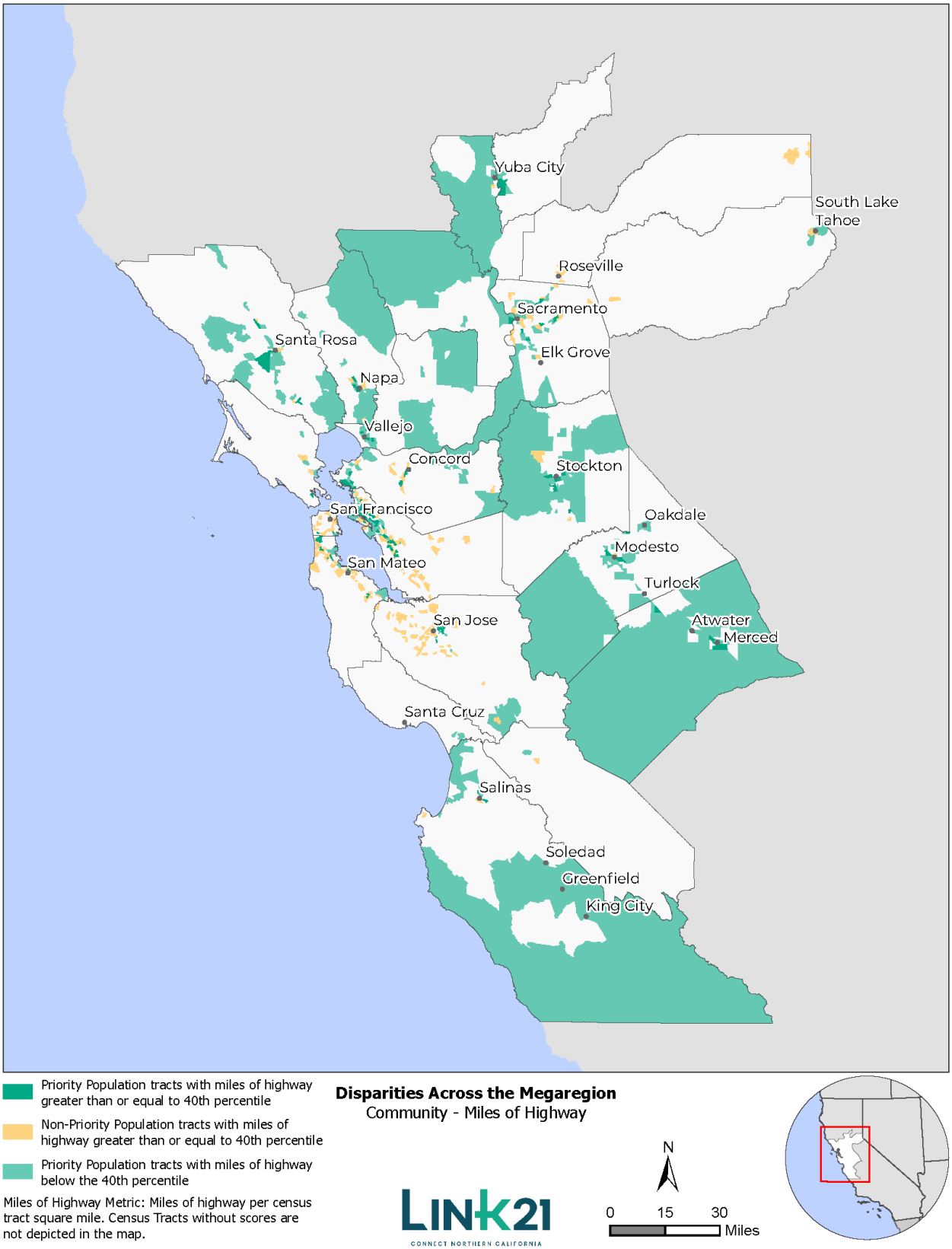
- Overall, the Megaregion shows a larger number of miles of highway per census tract for the general population than for PPs. The outlier in this analysis is the Bay Area, where PP areas have more miles of highway per square mile than the general population. The disparity between the two groups is also the largest in the Bay Area subregion.
- The Northern San Joaquin Valley Area and Monterey Bay Area show fewer highway miles per census tract in PPs than in the general population, underlying that highways cut across many populations in the Megaregion, including the general population.
- Across the Megaregion, non-PP census tracts with miles of highway higher than the 40th percentile mostly include areas surrounding major urban areas such as Sacramento, Roseville, San Francisco, San Jose, and southern Alameda County.

Figure B-47. Miles of Highway per Square Mile in the Megaregion and Subregions



Source: California Department of Transportation 2022

Figure B-48. Miles of Highway Disparities Across the Megaregion



⇨Access to Open Spaces

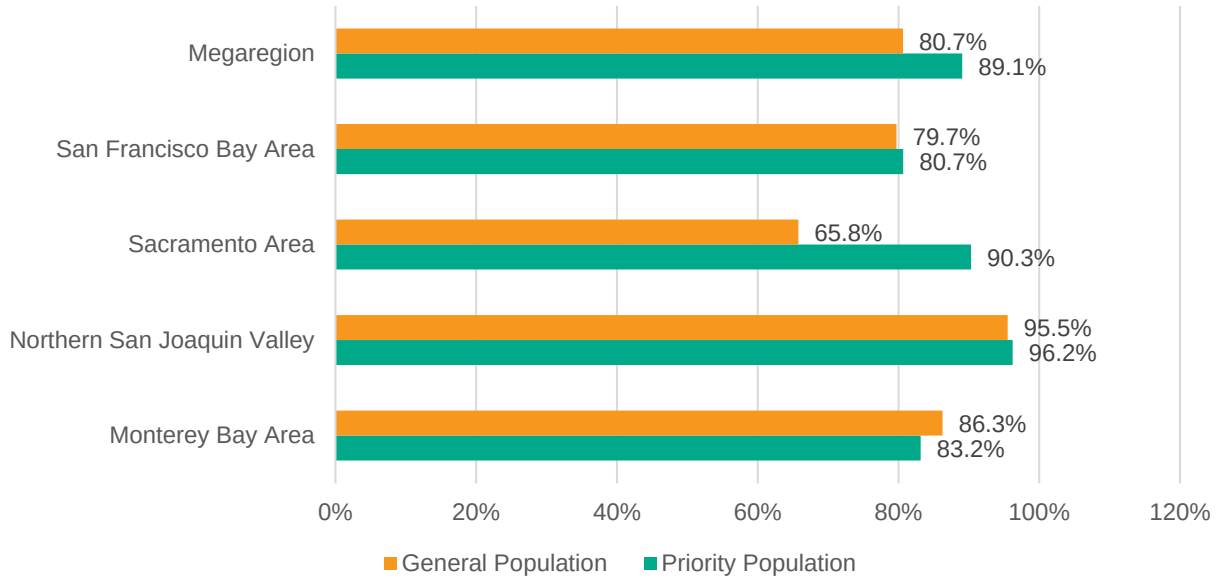
The metric used for access to open spaces is a 10-minute walkable service area from parks and open spaces.

Parks and open space are essential non-work destinations and are important to community health and wellbeing. Additionally, disadvantaged areas historically have been park-poor, with fewer resources invested into providing access to open space. Research shows neighborhoods where residents predominantly identify as people of color have access to an average of 44% less park acreage than predominantly white neighborhoods, and low-income neighborhoods average 42% less park acreage per person than high-income neighborhoods (Trust for Public Land 2021).

Figure B-49 summarizes the percentages of each area without easy access to open spaces in the Megaregion and subregions. **Figure B-50** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for lack of access to open spaces. Some key findings include:

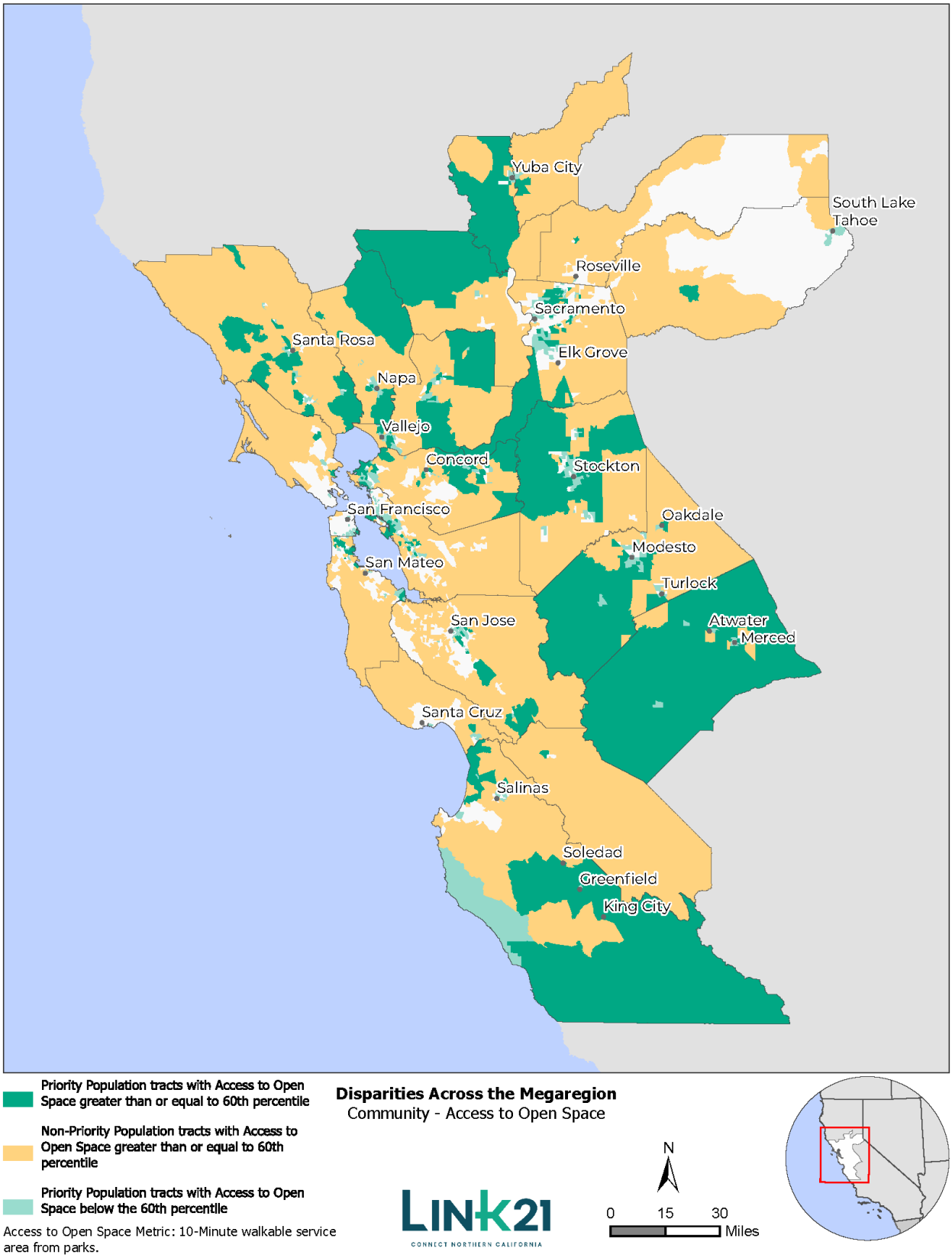
- Northern San Joaquin Valley residents have the least access to open spaces within a 10-minute walking distance.
- In the Sacramento Area, the difference in access to open spaces between PPs and the general population is the greatest across all subregions, where 90% of PPs have no open spaces within a 10-minute walkable distance.
- Across the Megaregion and all subregions, general population areas usually have more access to open spaces within a 10-minute walking distance except for in the Monterey Bay Area. The Monterey Bay Area shows 86.3% of residents in the general population versus 83.2% of residents in PPs lack convenient access to open spaces.
- Most census tracts across the Megaregion that are not PP areas do not have convenient access to open spaces. Most rank over the 60th percentile in lack of access to open spaces and are not designated as PP areas.

Figure B-49. Percentages of Population Lacking Access to Open Spaces in the Megaregion and Subregions



Source: Trust for Public Land 2022

Figure B-50. Access to Open Space Disparities Across the Megaregion



⇨Access to Grocery Stores

The metric used for access to grocery stores is the percentage of the population living more than 0.5 mile (urban areas) or 10 miles (rural areas) from the nearest supermarket, supercenter, or large grocery store.

Access to groceries and healthy, affordable food is essential to community health and wellbeing. Disadvantaged areas are more likely to be food deserts (Gordon et al. 2011). While the data show almost half of the population do not have easy access to grocery stores, marginalized communities are more likely to be even more burdened by having no convenient transit option and having multiple jobs. On the other hand, higher-income populations with better access to personal vehicles and flexible work schedules would have less burden getting to grocery stores even if it is geographically distant.

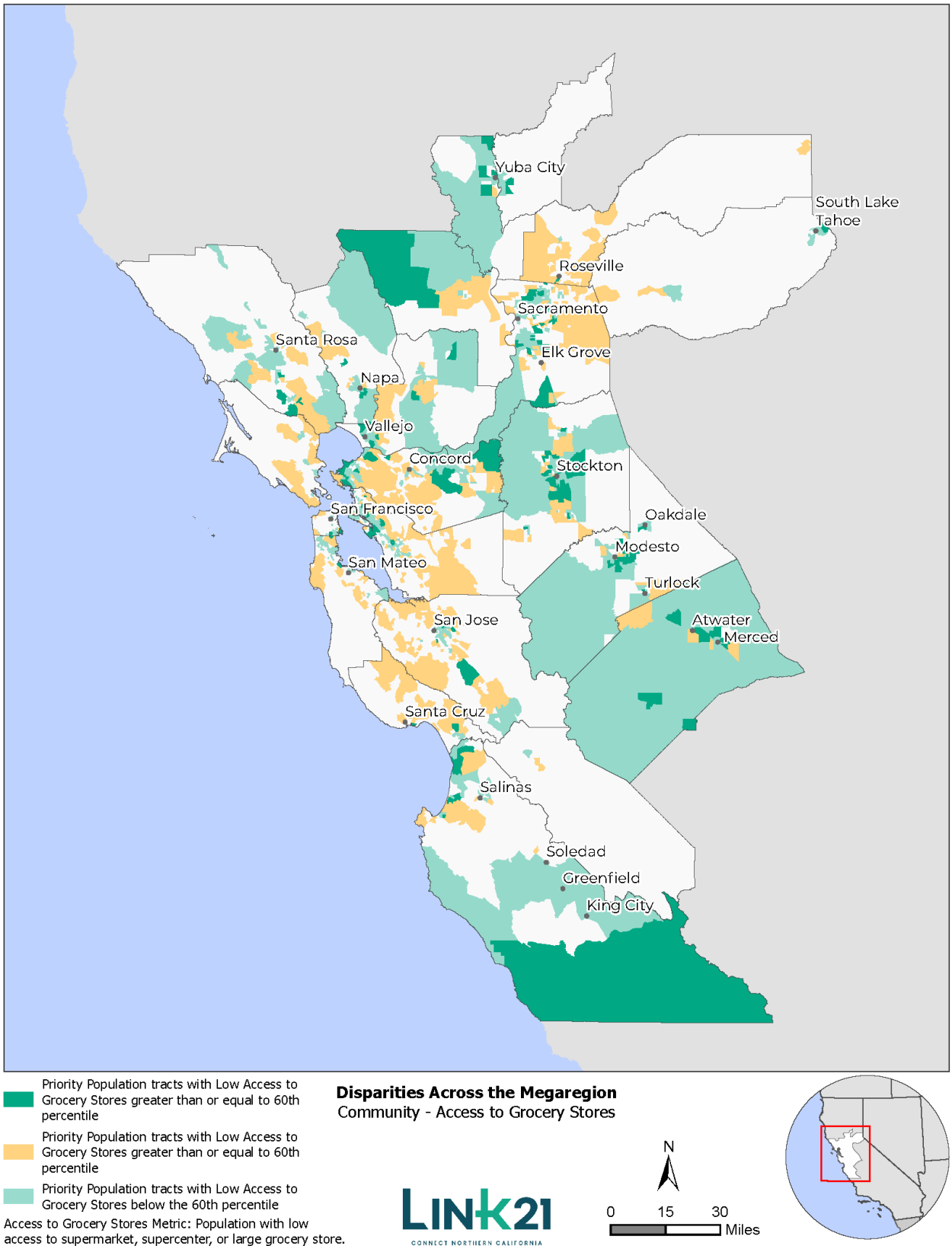
Figure B-51 summarizes the lower access to grocery stores in the Megaregion and subregions, showing the percentages of each area without easy access. **Figure B-52** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for lack of access to grocery stores. Some key findings include:

- Less than half of the population in the Megaregion does not have easy access to grocery stores, with similar rates of access for PPs and the general population.
- The Sacramento Area subregion has the highest proportion of population with low access to groceries in both PPs (52.2%) and the general population (53.3%).
- Many census tracts that rank over the 60th percentile in low access to grocery stores are not designated as PP areas and are mostly found in suburban areas, which would have been evaluated against the 0.5-mile urban area threshold.

Figure B-51. Percentages of Population with Lower Access to Grocery Stores in the Megaregion and Subregions

Source: Economic Research Service 2022

Figure B-52. Lower Access to Grocery Stores Disparities Across the Megaregion



⇨Low Educational Attainment

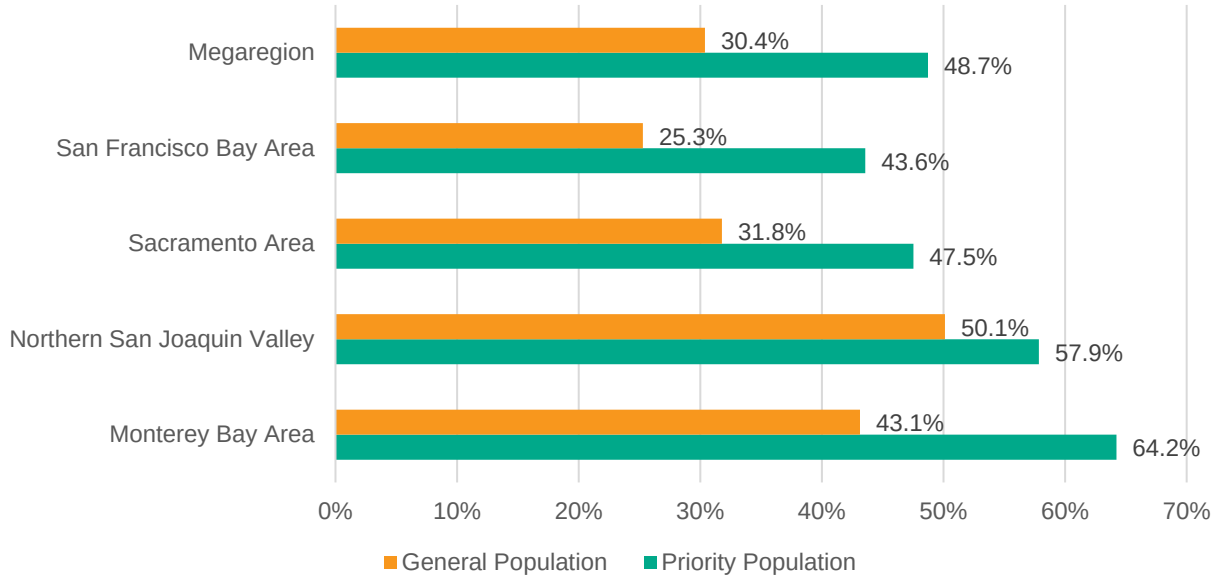
The metric used for low educational attainment is the percentage of the adult population with less than an Associates Degree.

Lower educational attainment can create barriers for individuals when trying to obtain jobs with a livable wage.

Figure B-53 summarizes low educational attainment in the Megaregion and subregions. **Figure B-54** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for low educational attainment. Some key findings include:

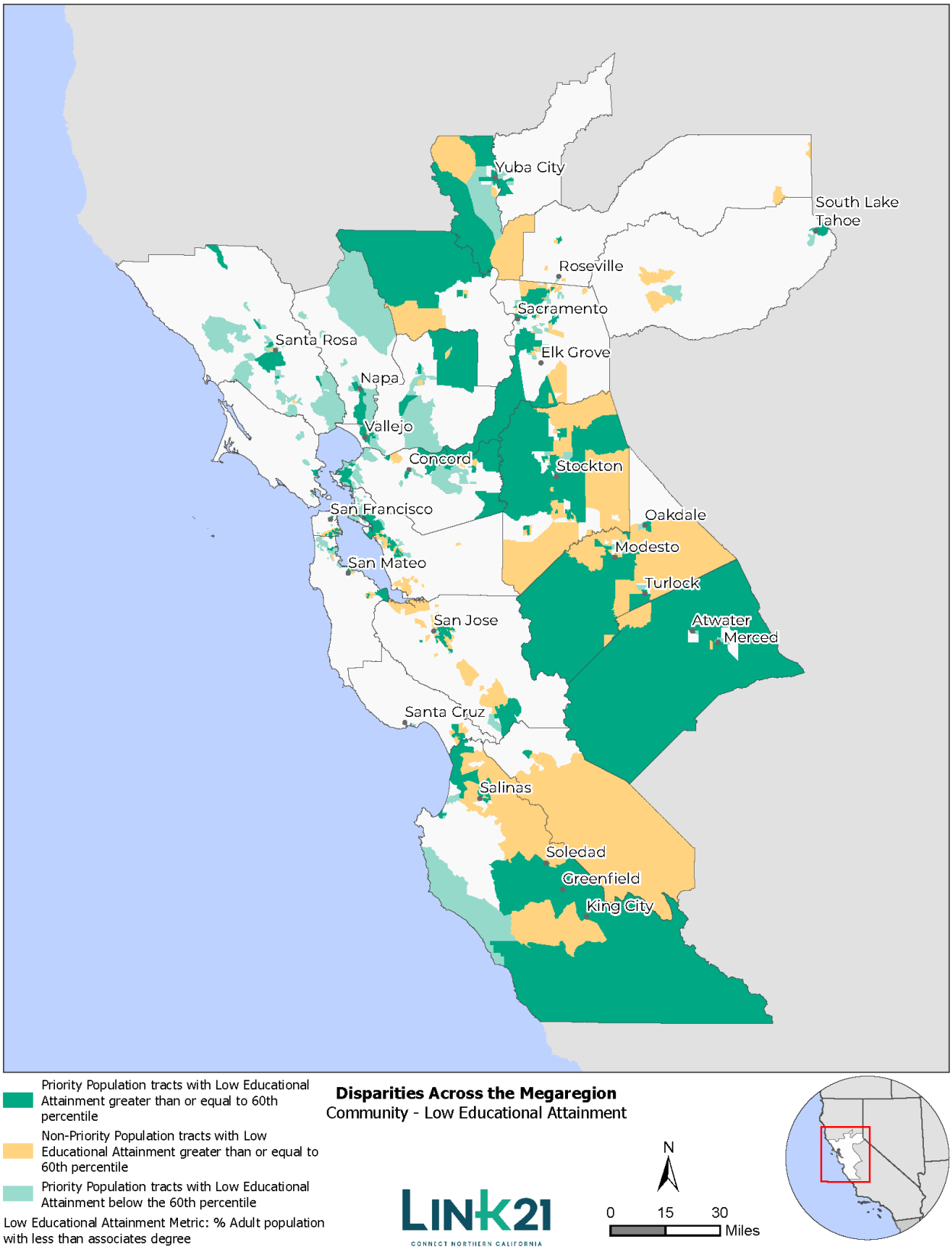
- In all subregions, the proportion of adults with low educational attainment in PP areas is much greater than those in the general population.
- The Monterey Bay Area subregion has the highest proportion of low educational attainment adults in PP areas (64.2%) and the greatest disparity compared to general population areas (21.1% difference).
- The Northern San Joaquin Valley subregion has the second highest proportion of low educational attainment adults in PP areas (57.9%) but the least disparity (7.8% difference) compared to the general population.
- Census tracts where low educational attainment ranks over the 60th percentile but are not designated as PP areas are concentrated in the Monterey Bay Area and Northern San Joaquin Valley subregions.

Figure B-53. Percentages of Adults with Low Educational Attainment in the Megaregion and Subregions



Source: U.S. Census Bureau 2020: Table S2301

Figure B-54. Low Educational Attainment Disparities Across the Megaregion



⇨Displacement

The metric used for displacement is areas experiencing or at risk of gentrification and displacement.[4] (Note that data are not available for the entire Megaregion.)

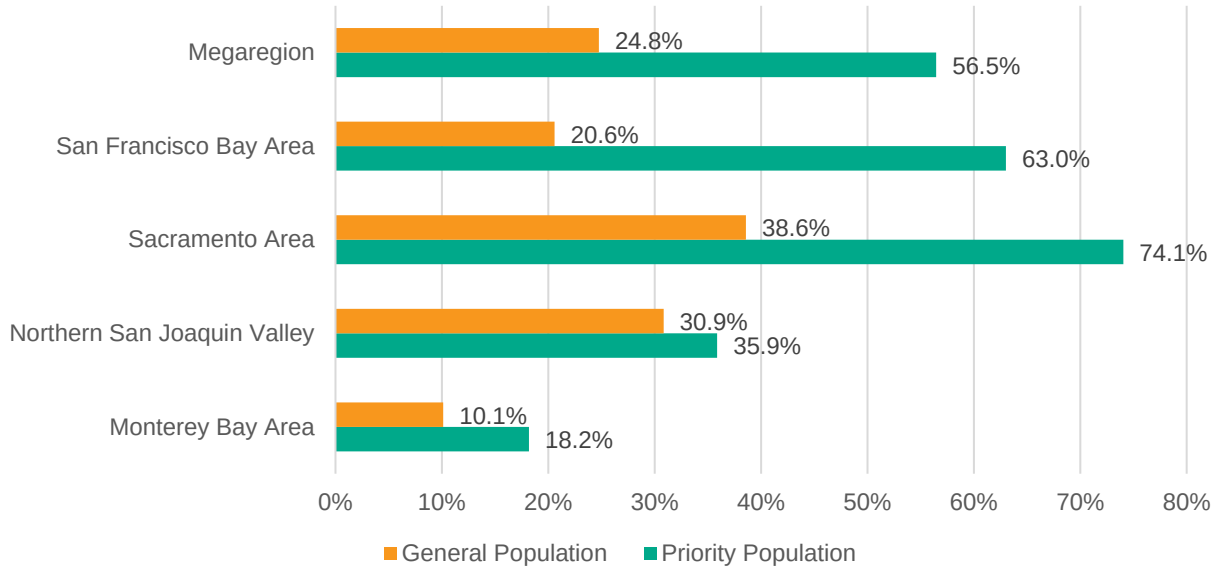
Areas experiencing or at risk of displacement may undergo increased economic pressure (increased housing and living costs), while losing important community resources (e.g., neighbors, nearby family, local businesses, affordable services). Rising housing costs that come with investments in transit infrastructure, combined with a lack of tenant protections, can result in families having to relocate to distant, more affordable communities (MTC 2019b).

Figure B-55 summarizes the percentages of tracts with risk of displacement in the Megaregion and subregions. **Figure B-56** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for displacement risk. Some key findings include:

- In the Sacramento Area subregion, 74.1% of PP census tracts are at risk of displacement or gentrification.
- The PP census tracts in the Bay Area subregion are at high risk of displacement or gentrification (63%); the disparity between PPs and the general population in the subregion is 42.4%, the highest among the subregions.

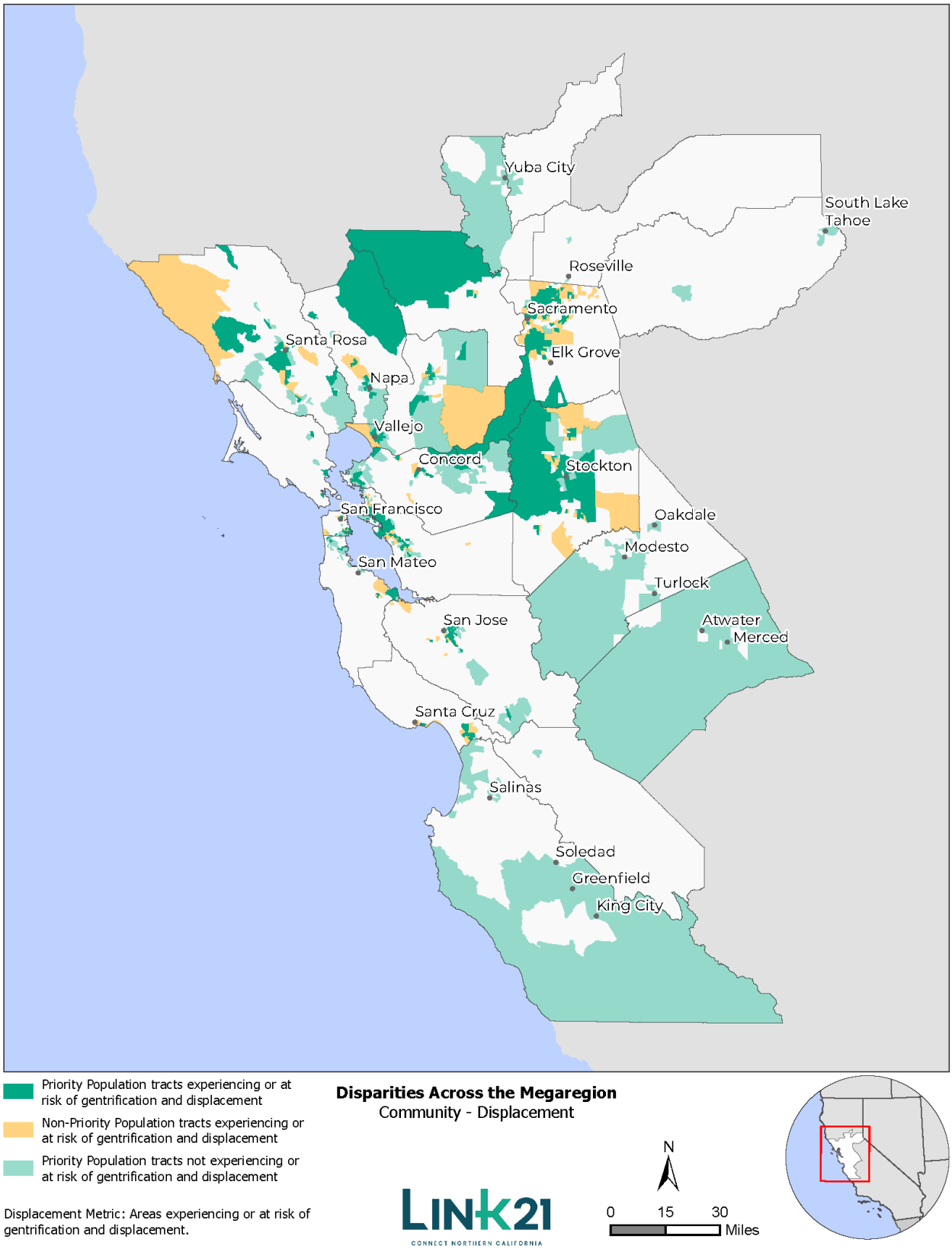
[4] Flags census tracts experiencing or at risk of displacement. Typologies flagged are: Low-Income/Susceptible to Displacement; Early/Ongoing Gentrification; At Risk of Gentrification; Ongoing Displacement. Data is not available for entire Megaregion.

Figure B-55. Percentage of Census Tracts at Risk of Displacement in the Megaregion and Subregions



Source: Urban Displacement Project 2021

Figure B-56. Displacement Disparities Across the Megaregion[5]



⇨*Older Adults 65 and Over*

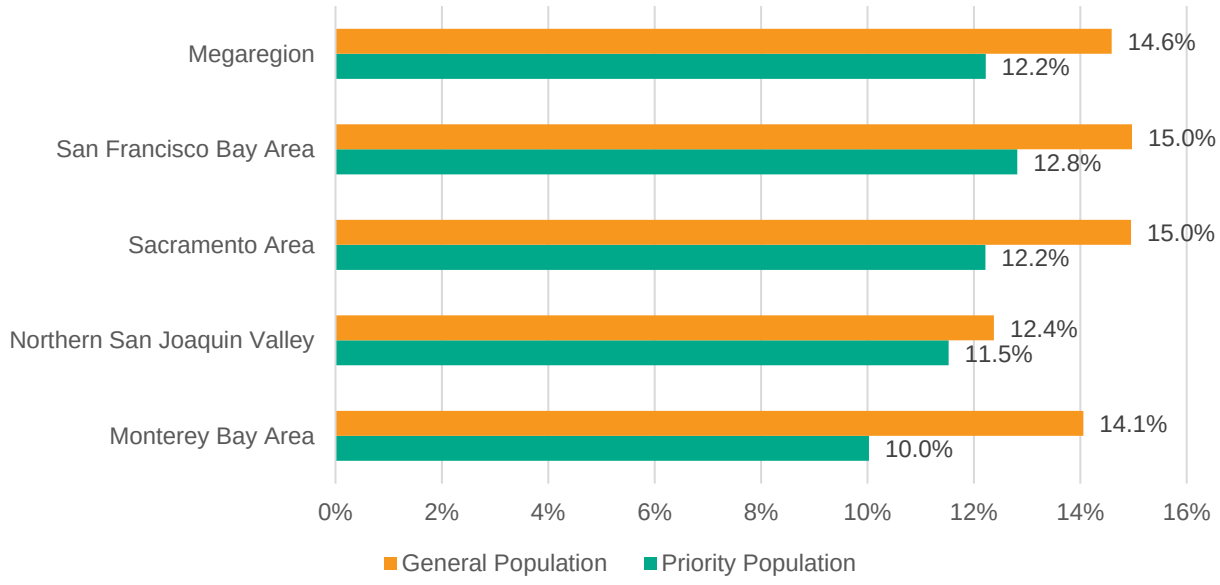
The metric used for older adults is the percentage of the population aged 65 or older.

During co-creation workshops, it was cited frequently that seniors face a number of difficulties in daily life, including mobility challenges.

Figure B-57 summarizes the percentage of older adults in the Megaregion and subregions. **Figure B-58** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for older adults. Some key findings include:

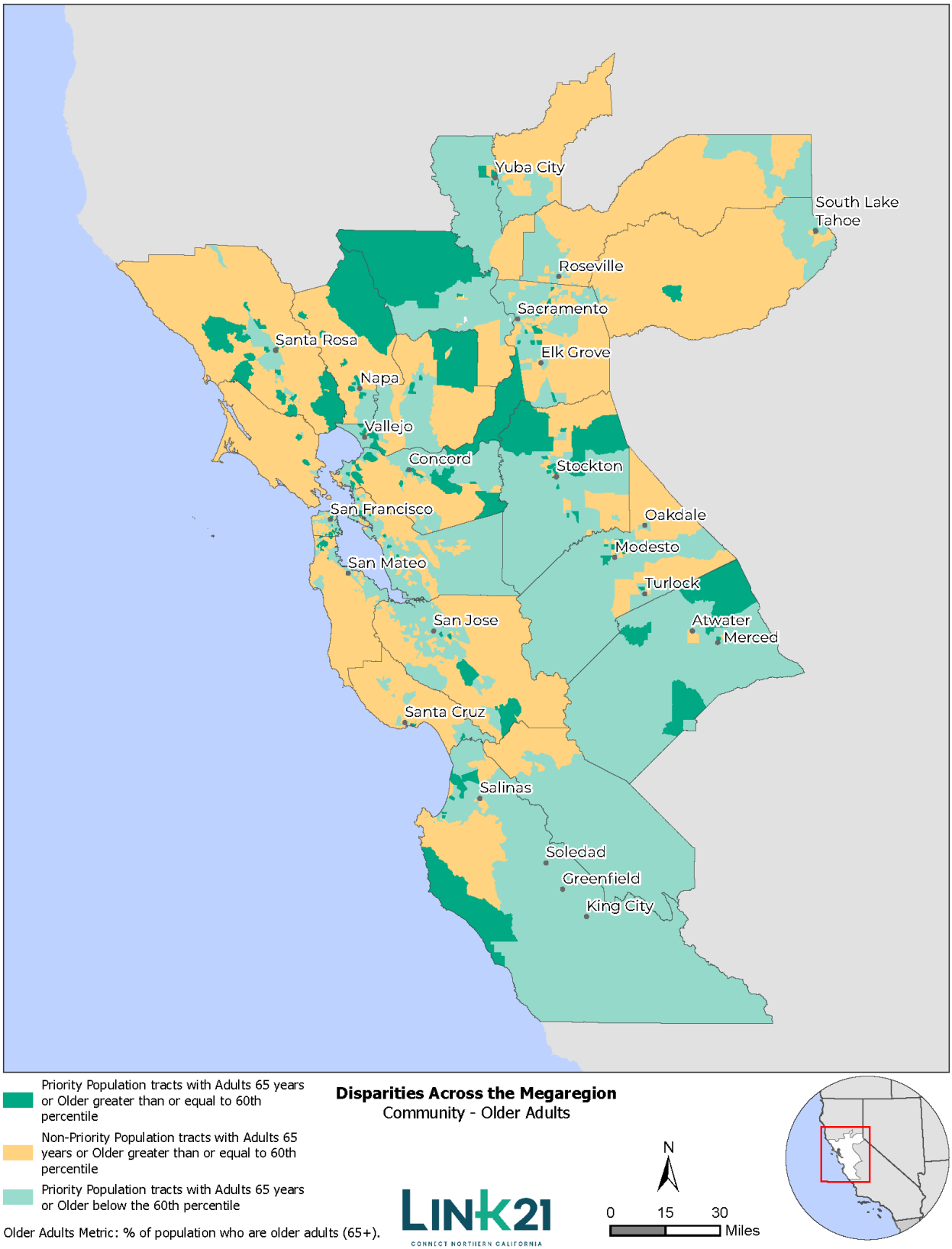
- More older adults live outside of PP areas.
- The Bay Area subregion has the greatest percentage of older adults (12.8%) living in PP areas.
- The Monterey Bay Area subregion has the lowest percentage of older adults (10%) living in PP areas but the greatest disparity (4.1%) compared to older adults living among the general population.
- Given that more older adults live outside of PP areas, it follows that there are more census tracts that rank over the 60th percentile for older adults that are not designated as PP areas.

Figure B-57. Percentages of Older Adults in the Megaregion and Subregions



Source: U.S. Census Bureau 2020: Table S0101

Figure B-58. Older Adult Disparities Across the Megaregion



⇨*Internet Access*

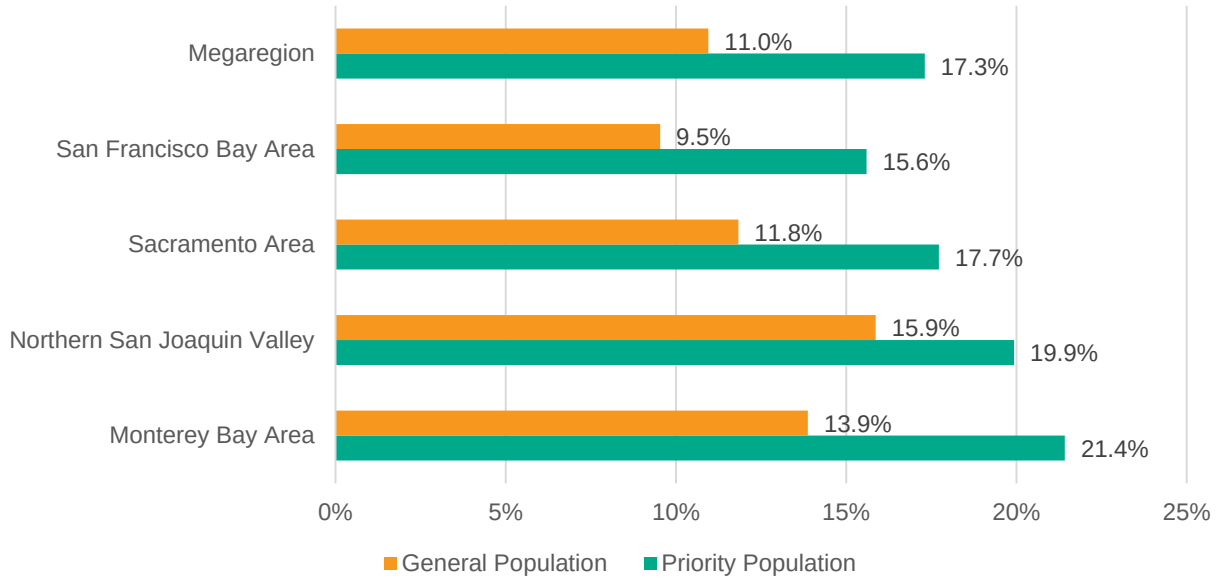
The metric used for internet access is the percentage of households without access to the internet.

During co-creation workshops, it was noted that poor internet, phone, or other technology options can limit educational, social, and economic opportunities. As smart mobility options such as e-scooters, e-bikes, and transit passes that require the use of smart digital devices are emerging and being quickly adopted across the U.S., low-income populations without access to a smart device might be left out. These disparities are significant barriers to the equitable transition to smart mobility and need to be addressed for the needs of transportation-disadvantaged communities (Golub et al. 2019).

Figure B-59 summarizes the percentage of households without internet access in the Megaregion and subregions. **Figure B-60** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for no internet access. Some key findings include:

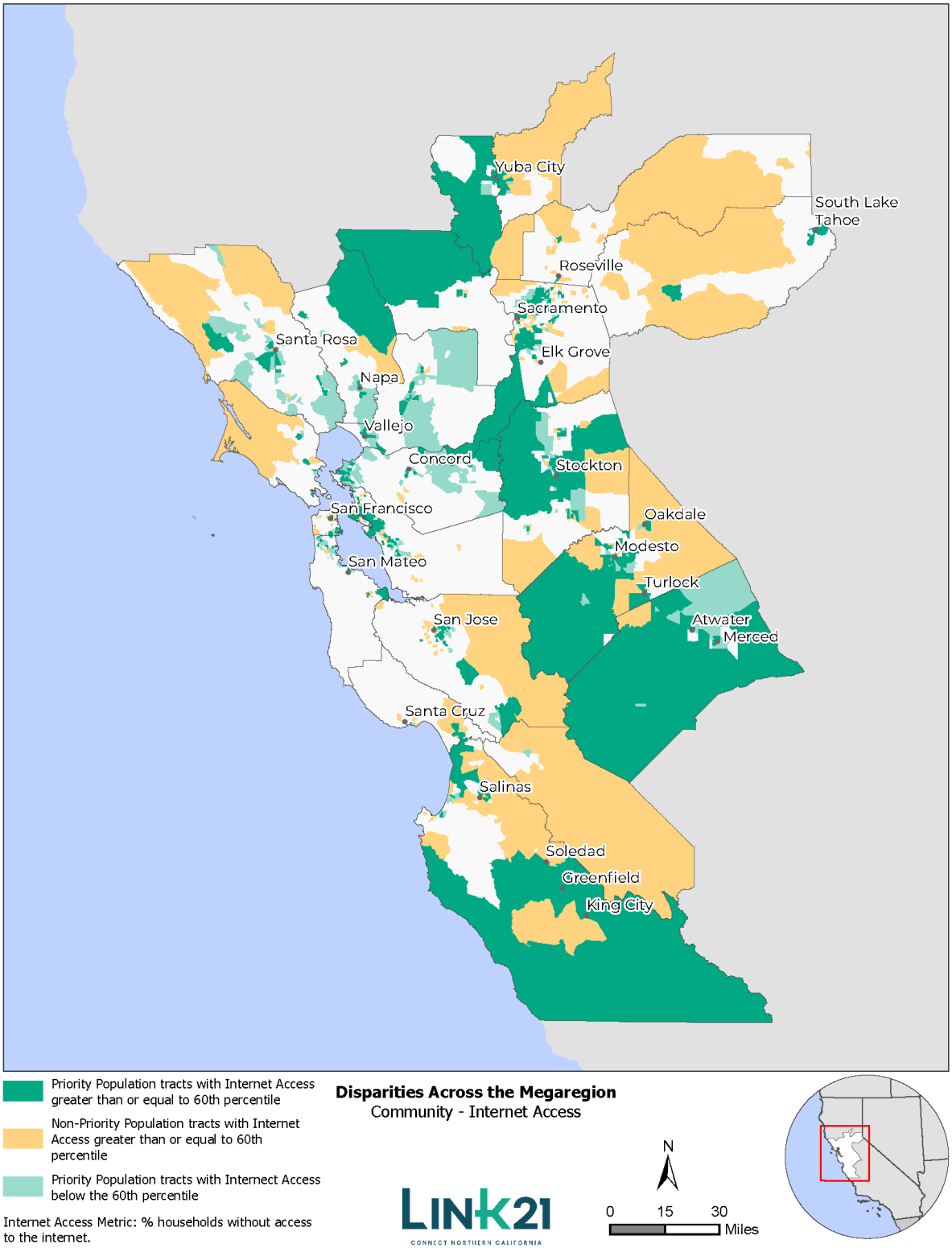
- In the Megaregion, almost one in six households in PP areas have no internet access vs. one in nine for the general population (17.3% vs. 11%).
- The Monterey Bay Area subregion has the largest proportion of households without internet access (21.4%) among PPs and also the greatest disparity (7.5% difference) compared to general population households, where only 14% lack internet access.
- PPs in the Bay Area have the lowest proportion of households without internet access (15.6%).
- Some census tracts in Sonoma County, Yuba County, Placer County, El Dorado County, eastern Stanislaus County, eastern Santa Clara County, San Benito County, and parts of Monterey County rank over the 60th percentile in the lack of internet access but are not designated as PP areas.

Figure B-59. Percentages of Population without Internet Access in the Megaregion and Subregions



Source: U.S. Census Bureau 2020: Table S2801

Figure B-60. Internet Access Disparities Across the Megaregion



B.3.2.5 Health and Safety

The health and safety category for evaluation, according to the updated PPs methodology, includes the following indicators/metrics: medically underserved areas, asthma rates, heart disease deaths, air quality, collisions, overcrowded homes, and low employment benefits. The following subsections describe the metrics used for each and the resulting disparities between the general population and PPs.

⇨*Medically Underserved Areas*

The metric used for medically underserved areas is the percentage of census tracts with too few primary care providers, high infant mortality, high poverty, or a high elderly population, as defined by the California Health and Human Services Agency.

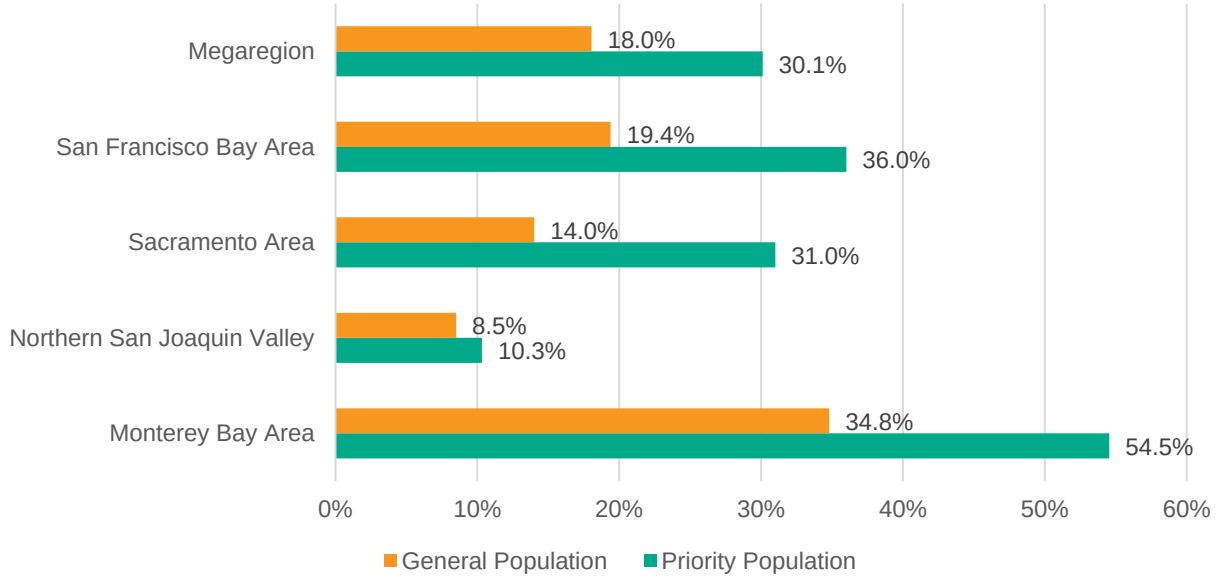
Lack of access to health care can significantly affect quality of life. Lack of preventative health care and delay in receiving care can lead to worse health outcomes and higher costs (U.S. Department of Health and Human Services 2022). Improving transportation access and mobility can play a large role in improving access to health care, especially for medically underserved areas, including rural and remote areas.

Figure B-61 summarizes the percentage of medically underserved areas in the Megaregion and subregions. **Figure B-62** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for medically underserved areas. Some key findings include:

- The medically underserved areas metric shows stark disparity between PPs and general population across the Megaregion and in three of the four subregions, with differences ranging from 19.7% in the Monterey Bay Area, 17% in the Sacramento Area, and 16.6% in the Bay Area.
- Although the Northern San Joaquin Valley shows the smallest percentages overall and smallest disparity, at 1.3%, this may be a misleading metric for the subregion. In the health and safety category, which includes asthma rates, heart disease death, and collisions, the Northern San Joaquin Valley is the most burdened among the four subregions, with a subregion average of 81.9% census tracts exceeding the index score of 55. Specifically for the Northern San Joaquin Valley, the medically underserved metric may be misleading due to the way the California Health and Human Services Agency defines the geographic boundaries of this metric for the subregion. In addition, most of the areas surrounding the Northern San Joaquin Valley are shown to be medically underserved.
- Given the current disparities regarding medically underserved areas, these findings indicate a potential focus on medically underserved areas as a leading metric for improved transportation, as it may have a high potential to make direct impacts on residents' health outcomes, mortality, and quality of life.

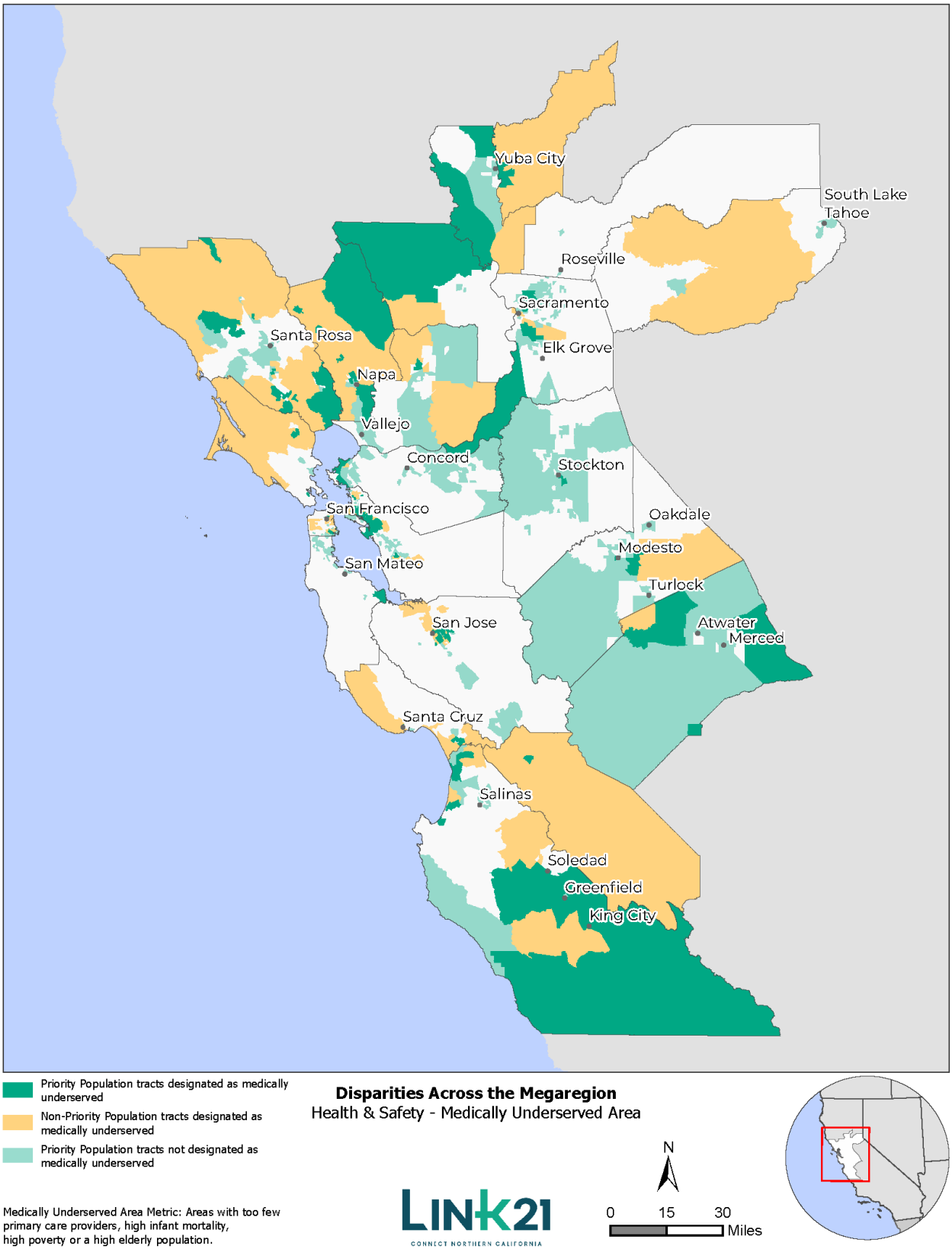
- Census tracts with medically underserved areas over the 60th percentile but not designated as PP areas are located in San Benito County, Sonoma County, Napa County, Yuba County, and El Dorado County.

Figure B-61. Percentages of Medically Underserved Census Tracts in the Megaregion and Subregions



Source: California Health and Human Services Agency 2019

Figure B-62. Medically Underserved Areas Disparities Across the Megaregion



⇨Asthma Rate

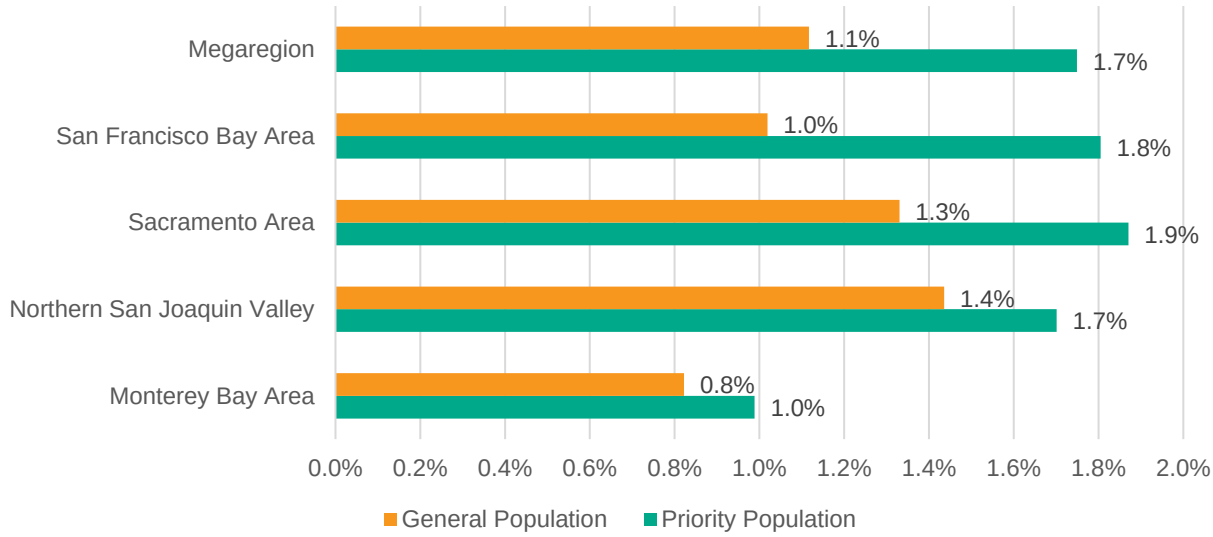
The metric used for asthma rate is the percentage of asthma emergency department visits among adults.

Asthma affects short- and long-term health and wellbeing, and in particular can negatively affect the brain and physical development of children. People of color and those in poverty experience higher asthma rates and poorer asthma outcomes than the general population, with structural determinants of health, such as redlining, housing discrimination, and environmental injustice playing a lead role in this disparity (Asthma and Allergy Foundation of America 2021).

Figure B-63 summarizes the percentage of asthma rates in the Megaregion and subregions. **Figure B-64** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for asthma rates. Some key findings include:

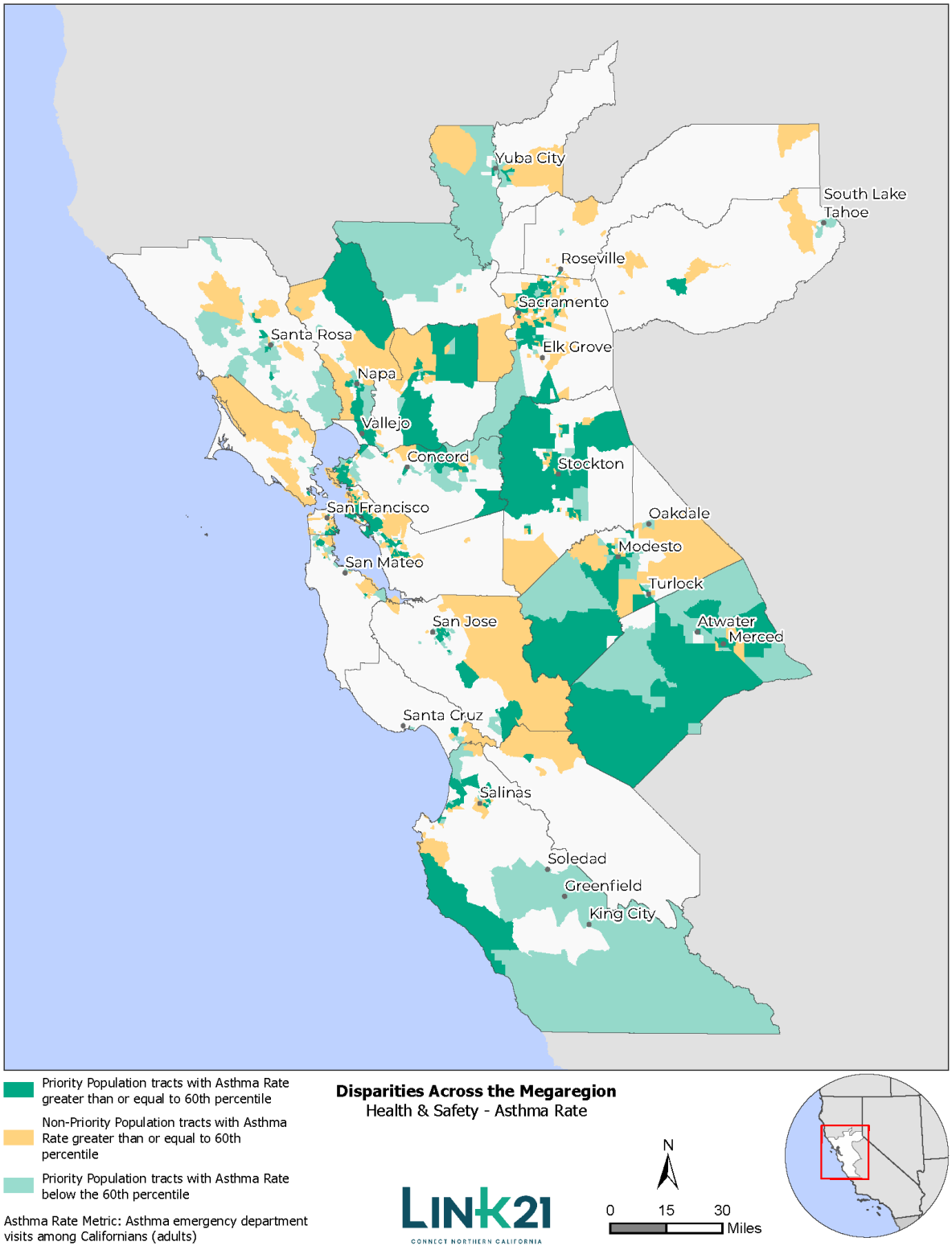
- The Megaregion overall shows a disparity (0.6% difference) in asthma rates between the general population and PPs, with the Bay Area showing the largest disparity (0.8% difference) in asthma rates between the general population and PPs.
- Sacramento Area PP residents have the highest asthma rate among the subregions (1.9%).
- Census tracts with asthma rates over the 60th percentile but not designated as PPs are located in northern Marin County, eastern Napa County, southern Yolo County, Yuba County, eastern Stanislaus County, eastern Santa Clara County, and northern San Benito County.

Figure B-63. Asthma Rates in the Megaregion and Subregions



Source: California Department of Public Health (CDPH) 2022

Figure B-64. Asthma Rate Disparities Across the Megaregion



⇨Heart Disease Deaths

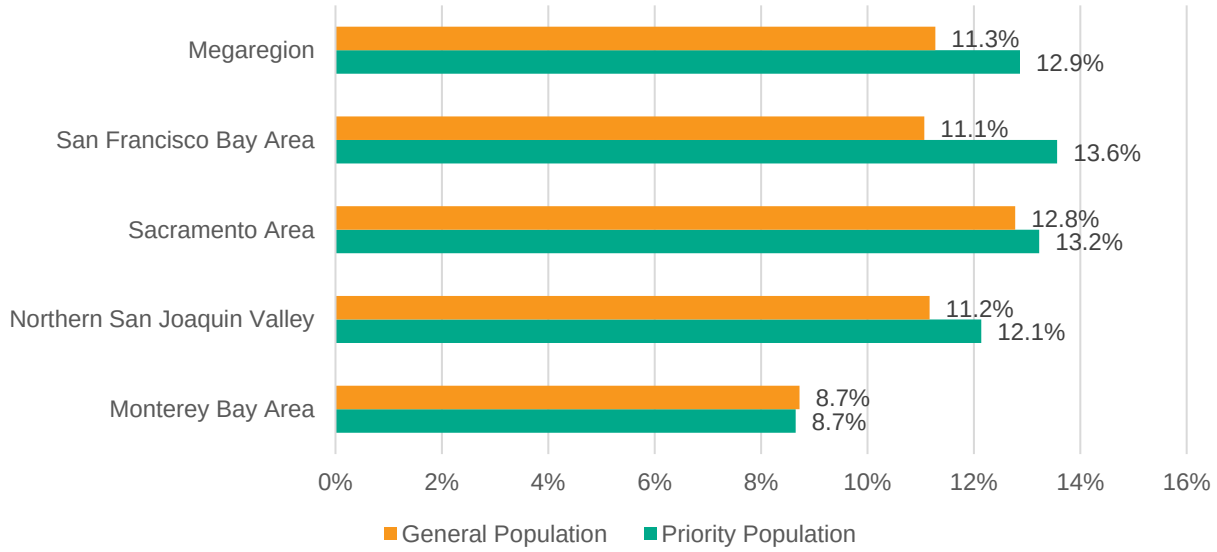
The metric used for heart disease deaths is the percentage of deaths due to some type of heart disease.

Heart disease causes more deaths in the U.S. than other diseases and is the leading cause of disability in the U.S. As with other health-related disparities, and related to racial and social inequities regarding health care, poverty, and other factors, heart disease and is more prevalent for people of color and lower-income populations (Graham 2015).

Figure B-65 summarizes the percentage of heart disease deaths in the Megaregion and subregions. **Figure B-66** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for heart disease deaths. Some key findings include:

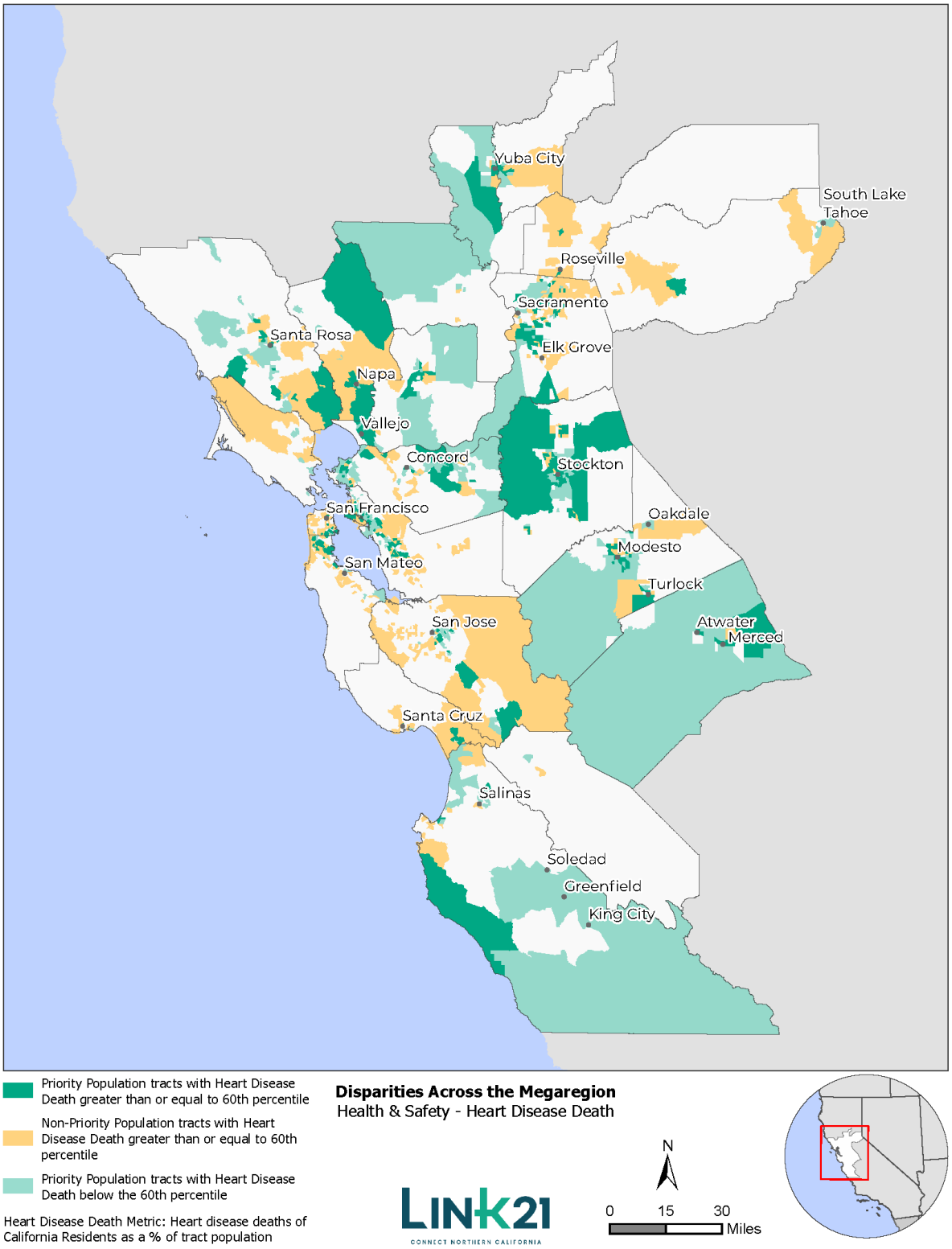
- The Sacramento Area has the highest proportion of heart disease deaths for both PP areas (13.2%) and general population areas (12.8%).
- The Bay Area has the largest disparity between heart disease deaths in PP and general population areas (2.5% difference) compared to other subregions.
- Census tracts with heart disease deaths over the 60th percentile but not designated as PP areas are located in eastern Marin County, southern Sonoma County, southern Napa County, southern Yuba County, Lake Tahoe region, western Placer County, San Mateo County, southern Contra Costa County, large parts of Santa Clara County, and southern Santa Cruz County.

Figure B-65. Percentages of Deaths Due to Heart Disease in the Megaregion and Subregions



Source: CDPH 2021

Figure B-66. Heart Disease Death Disparities Across the Megaregion



⇨Air Quality

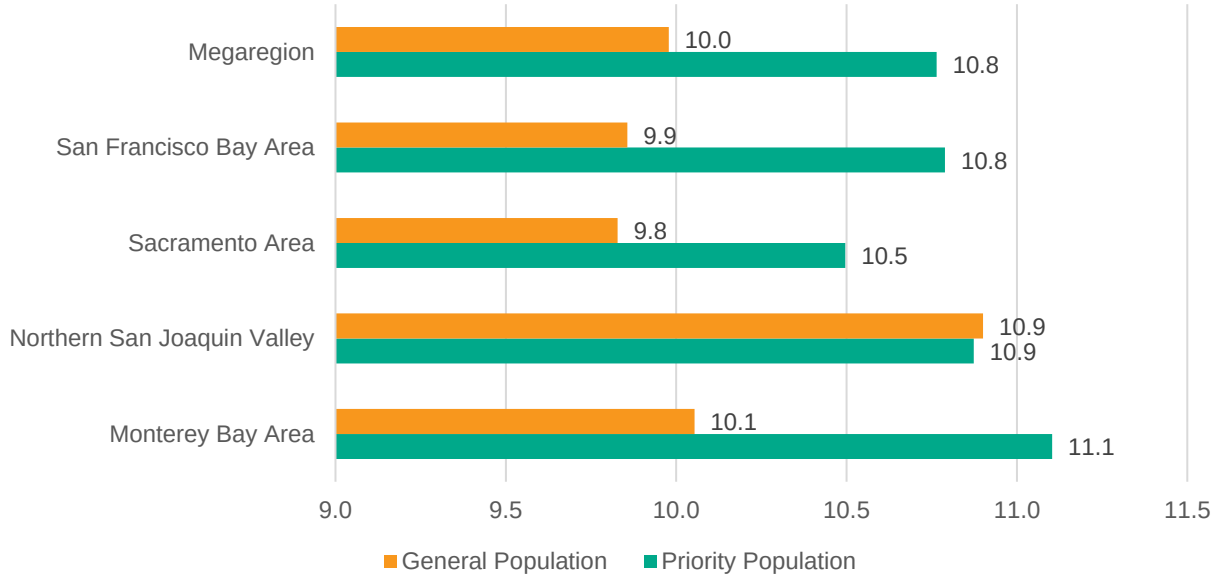
The metric used for air quality is the annual mean particulate matter 2.5 microns or smaller in diameter ($PM_{2.5}$) concentrations.

$PM_{2.5}$, associated with transportation emissions, are small particles in the air that reduce visibility, cause haze, and have been linked to long-term health impacts, such as asthma, heart disease, increased hospital visits, and death (Feng et al. 2016). Related to asthma, heart disease and other metrics, people of color and lower-income people are exposed to more $PM_{2.5}$, relating to environmental injustice, redlining, and health care access inequities (Mikati et al. 2018).

Figure B-67 summarizes the mean $PM_{2.5}$ concentrations in the Megaregion and subregions. **Figure B-68** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for $PM_{2.5}$ concentrations. Some key findings include:

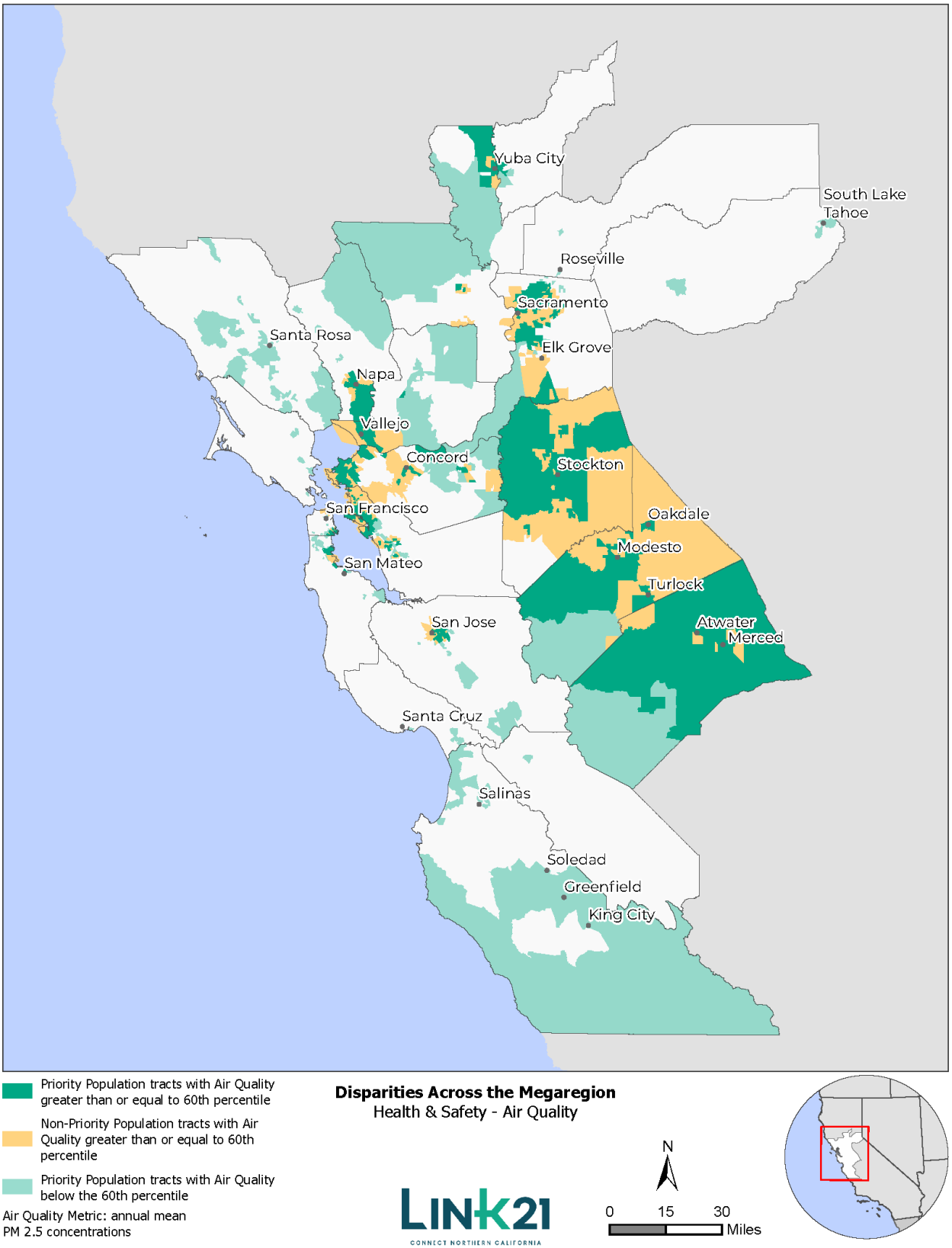
- In the Megaregion and across all subregions PPs are exposed to worse air quality than the general population, with the exception of Northern San Joaquin Valley, which shows similar rates of exposure between PPs and the general population.
- Census tracts with $PM_{2.5}$ concentrations over the 60th percentile but not designated as PP areas are located in San Jose, eastern Alameda County, northern Contra Costa County, southern Solano County, Sacramento, Elk Grove, San Joaquin County, and eastern Stanislaus County.

Figure B-67. Annual Mean $PM_{2.5}$ Concentrations in the Megaregion and Subregions



Source: California Office of Environmental Health Hazard Assessment 2021

Figure B-68. Air Quality Disparities Across the Megaregion



⇨Collisions

The metric for collisions is the ratio of collisions to population.

Road safety is a key transportation health and safety concern across local communities and nationally. In the U.S., the rate of fatalities per 100 million vehicle miles traveled has not substantially improved over the last 10 years, and increased significantly in 2020 (USDOT 2021). In addition, research has shown a relationship between socioeconomic characteristics and rates of traffic collisions, with higher rates of traffic collisions and fatalities associated with higher poverty and other factors (Maciag 2014).

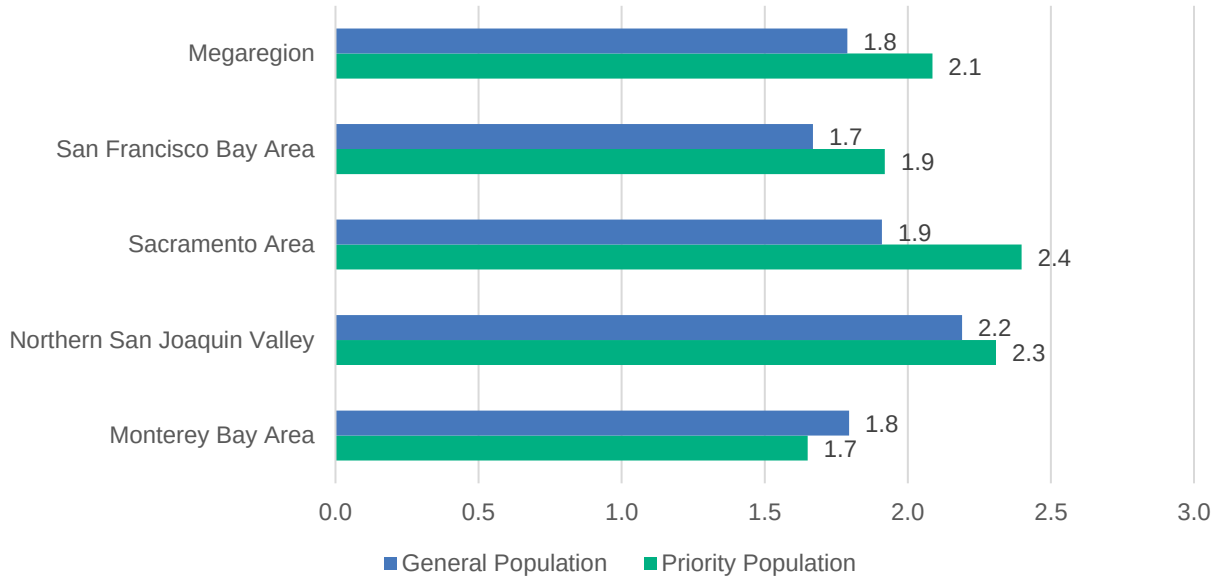
Figure B-69 summarizes the rate or ratio of collisions per 100 people in the Megaregion and subregions from 2016 to 2019, according to data from the Statewide Integrated Traffic Records System data, via Transportation Injury Mapping System (University of California, Berkeley 2022).[6]

Some key findings include:

- For the Megaregion as a whole and for three of the four subregions, the rate of collisions per 100 people is greater for PPs than for the general populations, which is consistent with a growing body of research showing socioeconomic disparities in traffic collisions and fatalities in the U.S. (Governors Highway Safety Association 2021).
- The Monterey Bay Area is an outlier, showing rate of collisions for PPs slightly lower than for the general population (1.7 versus 1.8 collisions per 100 people), of note to investigate in further studies.
- PPs in the Sacramento Area subregion have the highest collision ratio (2.4 collisions per 100 people); PPs in the Monterey Bay Area have the lowest collision ratio (1.7 collisions per 100 people), compared to only PPs in the Megaregion.
- Disparity between PPs and general populations in the Sacramento Area subregion is also the largest (2.4 versus 1.9 collisions per 100 people), while the Northern San Joaquin Valley subregion has the smallest disparity between the two groups; however, the ratio of collisions is the highest among general populations across the Megaregion and the four subregions.
- Census tracts with collisions over the 60th percentile but not designated as PP areas are located in Marin County, San Mateo County, Santa Clara County, Contra Costa County, San Joaquin County, Sacramento County, and El Dorado County.

[6] Collision location data from 2016-2019 downloaded from the Transportation Injury Mapping System, mapped and joined to census tracts. Output is a count by tract for total collisions.

Figure B-69. Ratio of Collisions per 100 people (2016 to 2019) in the Megaregion and Subregions



Source: University of California, Berkeley 2022

At this time, mapping data is not available for collisions indices.

⇨Overcrowded Homes

The metric used for overcrowded homes is the percentage of households with more than 1.5 occupants per room.

The COVID-19 pandemic demonstrated the increased health risk of crowding in homes due to the increased likelihood of transmission.

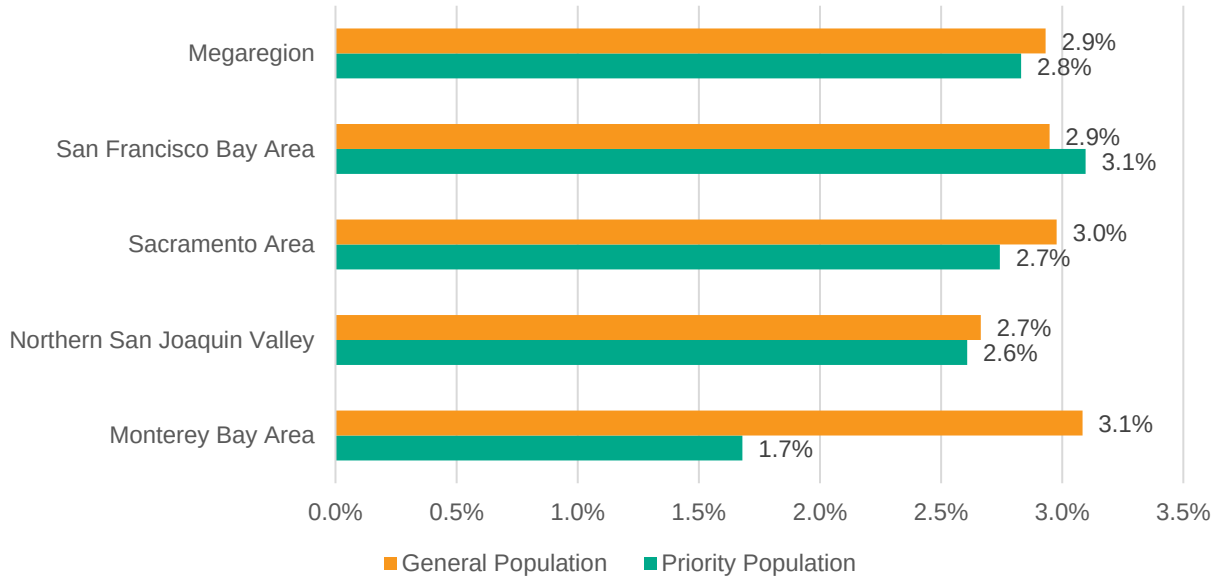
Figure B-70 summarizes the percentage of overcrowded homes in the Megaregion and subregions. **Figure B-71** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for overcrowded homes. Some key findings include:

- PPs in the Bay Area subregion are more likely to live in overcrowded homes.
- There are more overcrowded homes in the general population than among PP households across all subregions, except for the Bay Area.
- General population households in the Monterey Bay Area subregion are almost twice as likely as PP households to live in overcrowded homes. This may be due to the number of farm workers and seasonal residents in the subregion. There are consistently high rates of residences that are above the severely crowded condition

of 2.0 people per room in this subregion. This is true of almost all the subgroups of the population.[7]

- Census tracts with overcrowded homes over the 60th percentile but not designated as PP areas are located in northern Marin County, southern Yolo County, eastern San Joaquin County, eastern Alameda County, most of San Francisco, San Mateo, Santa Clara, Santa Cruz County, and northern Monterey County.

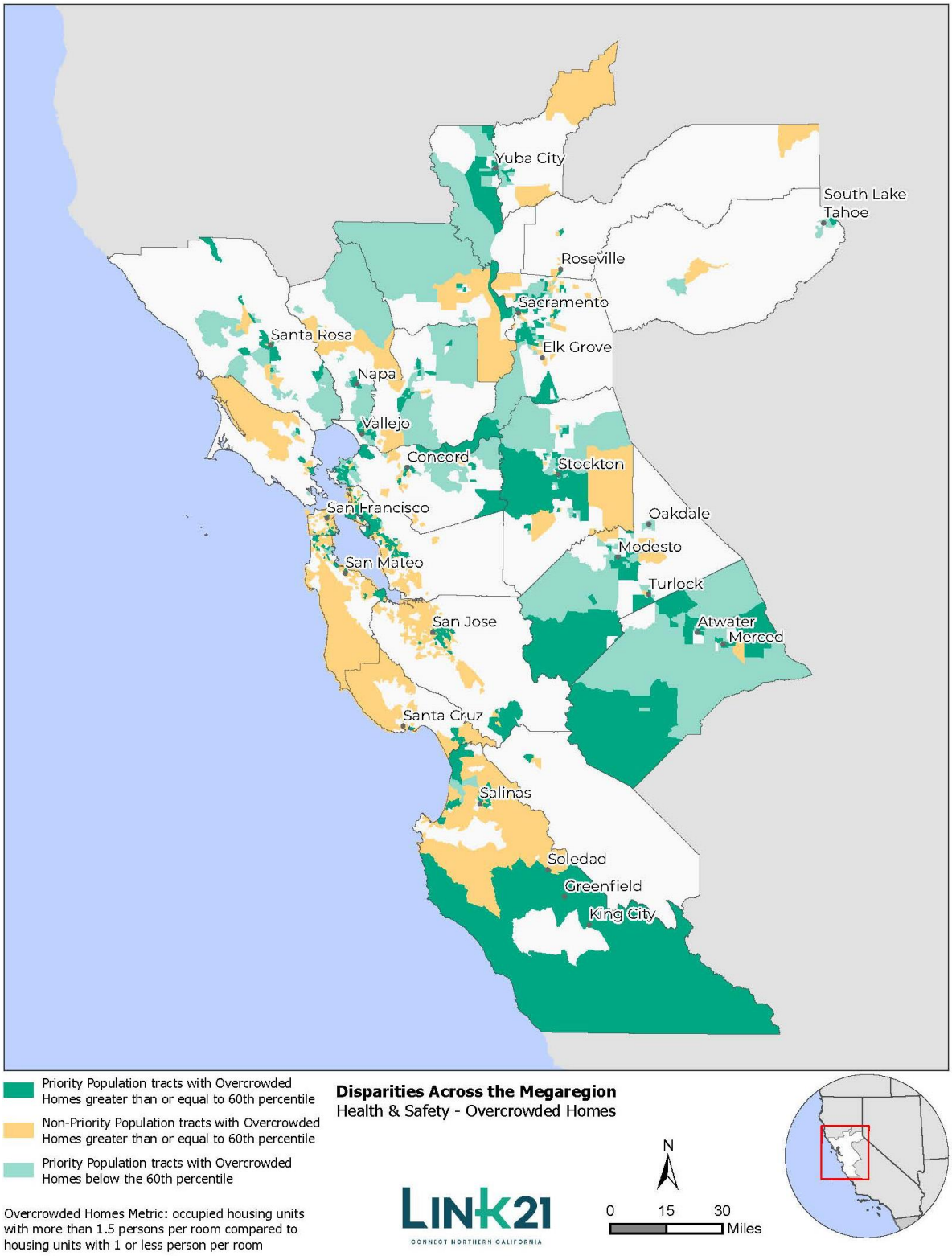
Figure B-70. Percentages Households with Overcrowded Homes in the Megaregion and Subregions



Source: U.S. Census Bureau 2020: Table S2501

[7] Farmworker Housing Study and Action Plan for Salinas Valley and Pajaro Valley

Figure B-71. Overcrowded Homes Disparities Across the Megaregion



⇨Low Employment Benefits

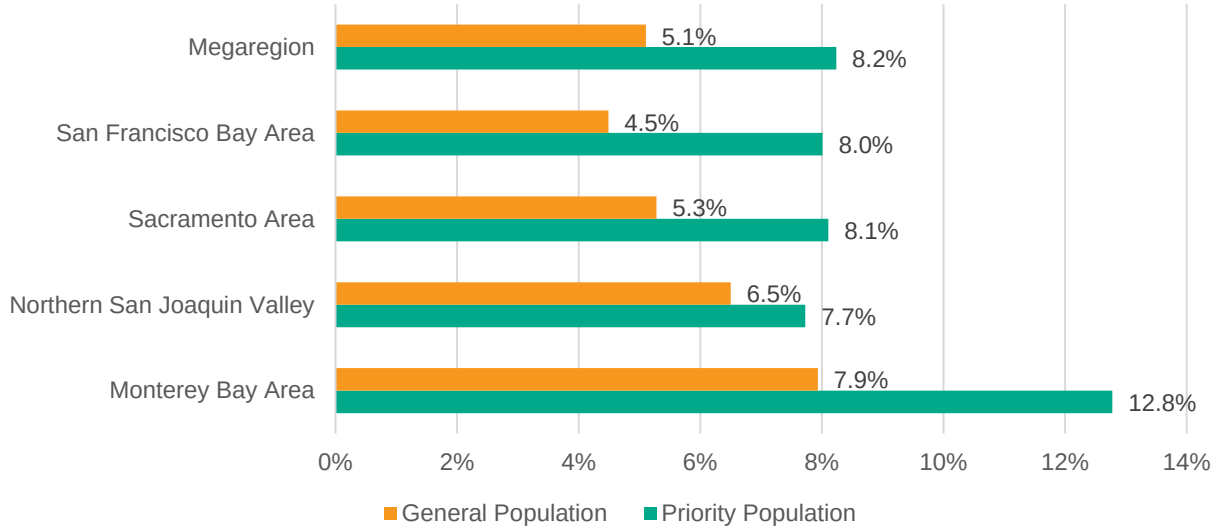
The metric used for low employment benefits is the percentage of the population with no health insurance.

During co-creation workshops, it was noted that if a job does not provide quality benefits (e.g., affordable health care, sick time), employees may incur high out-of-pocket costs. This can lead to less income to spend on other necessities or not being able to afford crucial services like health care or transportation.

Figure B-72 summarizes low employment benefits in the Megaregion and subregions. **Figure B-73** provides a map of the Megaregion illustrating census tracts at the 60th percentile or greater for low employment benefits. Some key findings include:

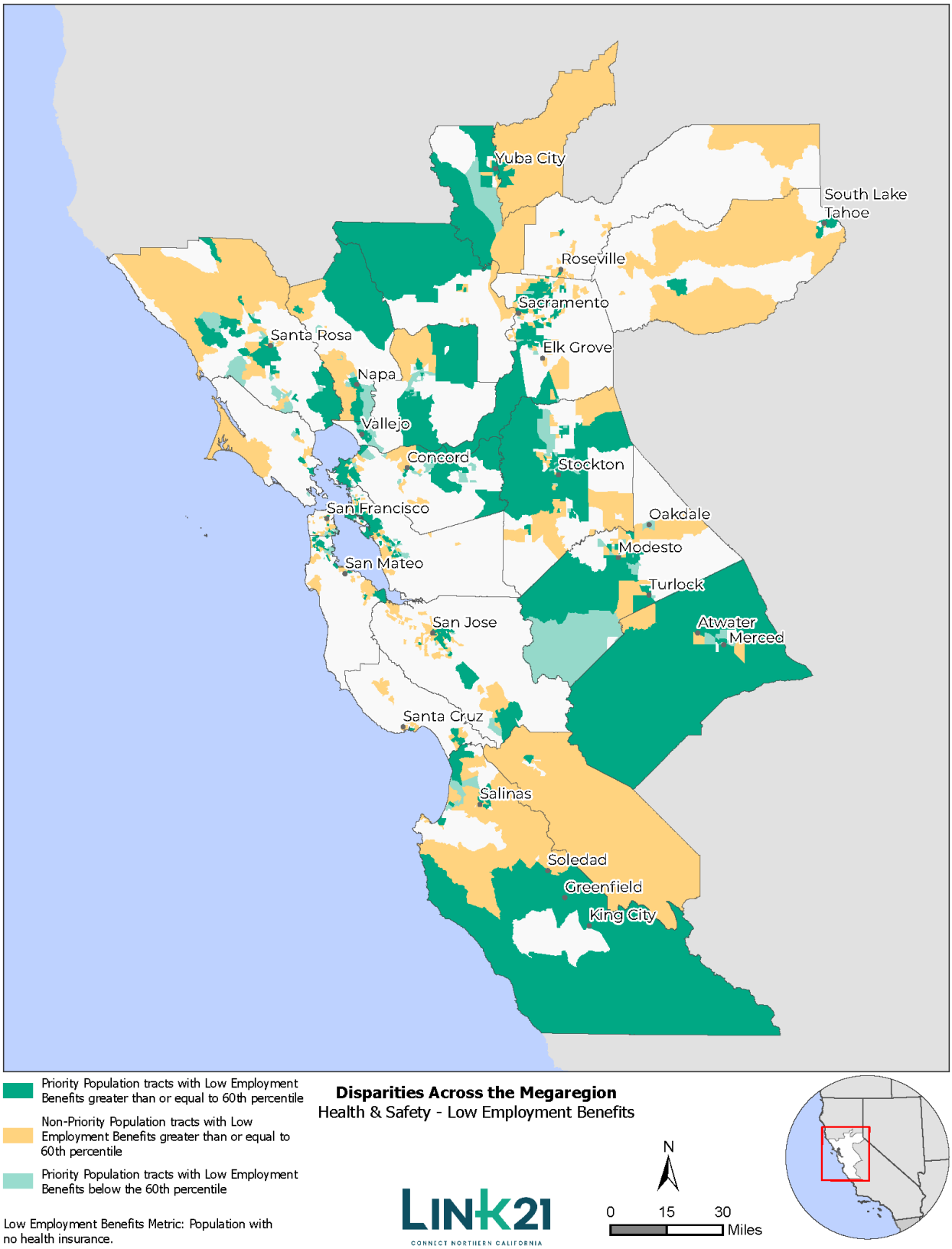
- The Monterey Bay Area subregion has the largest proportion of workers with no health insurance among its PPs (12.8%) and the biggest disparity (4.9% difference) compared to workers in the general population. This may be due to significantly high number of farm workers in the subregion with seasonal jobs receiving low employment benefits.
- The Northern San Joaquin Valley subregion has the smallest proportion of workers with no health insurance among its PPs (7.7%) and the smallest disparity compared to workers in the general population.
- Census tracts with low employment benefits over the 60th percentile but not designated as PPs are located in northern Sonoma County, Yuba County, El Dorado County, eastern San Joaquin County, eastern Alameda County, Santa Clara County along US 101, San Benito County, and northern Monterey County.

Figure B-72. Percentages of Population with Low Employment Benefits in the Megaregion and Subregions



Source: U.S. Census Bureau 2020: Table DP03

Figure B-73. Low Employment Benefits Disparities Across the Megaregion



B.4. Priority Population Regression Analysis

The updated PPs index is determined by a two-step process (qualify and evaluate), using 27 different metrics. The evaluate step only included a limited number of demographic variables such as race, disability status, gender, and English proficiency. These variables are not burdens but basic population characteristics. The demographic variables that were included in the evaluate step were all identified by community members during co-creation activities as characteristics that have a more inherent association with types of burdens.

Therefore, the Link21 Team conducted a regression analysis to validate the components and design of the updated PPs methodology by determining whether the final PP census tracts relate to the demographic characteristics of the Megaregion, particularly for those groups that have experienced systemic and institutional marginalization.[8]

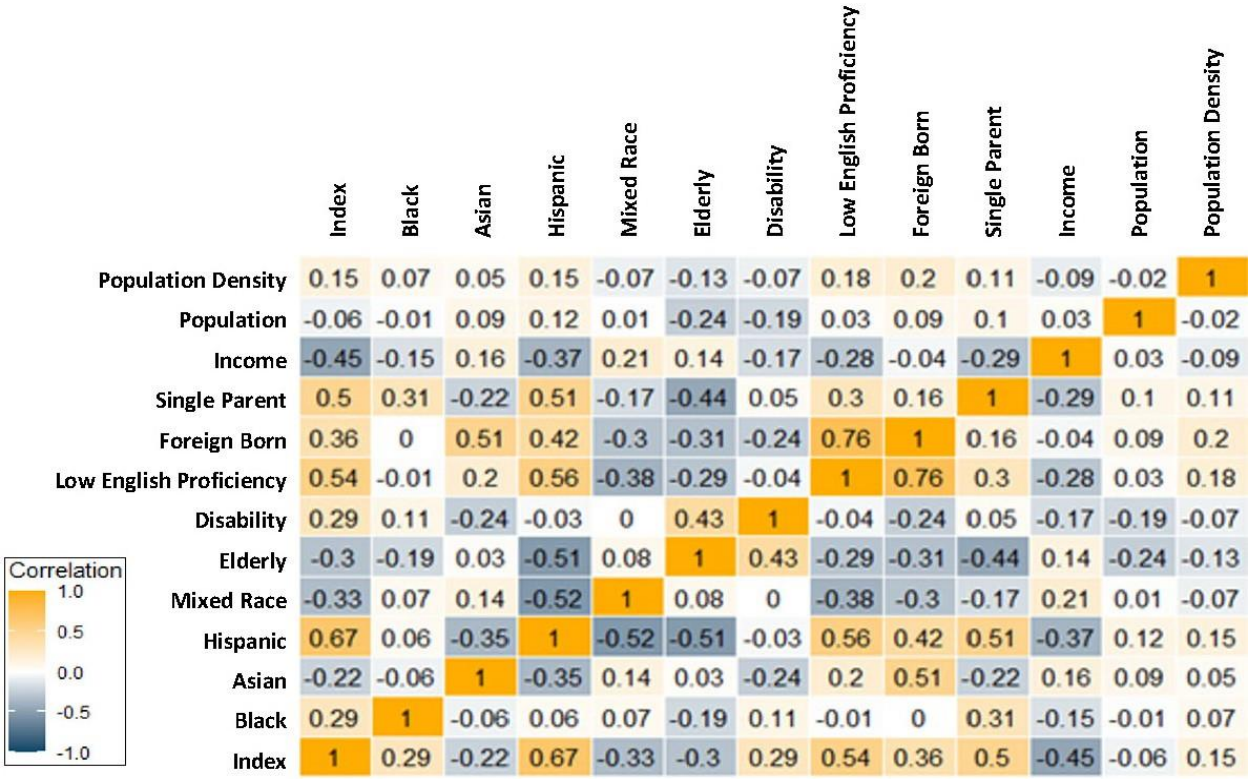
As seen in **Figure B-74**, the results of the regression analysis found statistically significant relationships between socio-demographic variables (e.g., income, ethnicity, disability, education) and the PPs that were identified through the updated PPs methodology. Using a Pearson's correlation matrix, Figure B-75 displays the relationship between demographic variables by assigning numeric values between -1 and 1, where 0 is no correlation. Positive values between 0 and 1 show positive correlation with 1 as total positive correlation; negative values between 0 and -1 show negative, or inverse, correlation, with -1 as total negative correlation. This finding highlights the importance of prioritizing areas with a high index score as they strongly relate to historically marginalized identities.

Key findings of the regression analysis include:

- Income is negatively correlated with the PP index; as income increases, the PP index decreases.
- Certain minority groups correlate positively with the PP index.
  - The higher the proportion of Black residents, the higher the PP index.
  - The higher the proportion of Hispanic residents, the higher the PP index.
- Additional key equity measures also were found to correlate with the updated PPs methodology.
  - The higher the proportion of disabled residents, the higher the PP index.
  - Foreign-born and single-parent populations, and those with LEP also were found to correlate positively with the PP index.
- Demographic characteristics such as Asian residents and elderly populations do not have a strong correlation with the PP index score.

[8] Not all demographic groups, including LGBTQIA+ identities, that have experienced systemic or institutional marginalization were included in this regression analysis due to limited data availability.

Figure B-74. Correlation Matrix



Source: Updated priority populations methodology

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APPENDIX C. LINK21 BENEFITS AND BURDENS

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APPENDIX C LINK21 BENEFITS AND BURDENS

This appendix provides an analysis of locations where Link21 improvements may provide greatest benefits to communities across the Megaregion as well as locations and PPs that would experience the greatest burdens associated with construction and operation of any infrastructure and services advanced as part of Link21. The main purpose of this appendix is to understand the extent of the potential benefits and burdens for the Megaregion and its subregions, to inform more tailored and granular Link21 design and improvement.

The appendix starts with an overview and definitions of potentially benefited and burdened communities with regards to Link21-related construction and operations. The main body of the appendix describes in detail the potentially benefited and burdened communities for each of the Megaregion's subregions.

C.1. Overview and Definitions

Link21 improvements have the potential to benefit a wide breadth of communities by providing transportation options that may improve the quality of life for both the general population and PPs. Many of these benefits may reach across all 21 counties in the Megaregion, while some may focus on locations closer to the areas of potential improvements.

To implement these improvements, there are a number of Link21 construction-related burdens that communities may experience, which could include acquisition of property; impacts on access, noise, and air pollution; harms to open space or wildlife; and other related burdens. Future Link21 operations could also create burdens related to noise pollution, air pollution, and other factors.

Identifying the locations of Link21 PPs in areas considered most likely to experience burdens provides insight into the most affected communities in the Megaregion (see **Section 1.2** in the main body of this report). This can inform Link21 Team members of which communities would be most likely to be burdened by Link21, depending on where improvements are ultimately made. The analysis to identify potentially benefited and potentially burdened communities is based on an overlay of the potential Link21 construction areas (burden areas, based on early concepts developed by the Link21 Team) with the PPs in a geographic information system (GIS) to obtain a better understanding of which PP communities would be most likely to be burdened as a result of Link21's construction and operation. It is also important to understand which parts of the general population could be affected by Link21 burdens.

Understanding the populations most potentially benefited by Link21 is also key. These populations would be populations not directly burdened by Link21 construction or

operations and would receive some of the more wide-reaching benefits of the program, including but not limited to additional transit access, improved connectivity to more locations, and improved health benefits from cleaner transportation. Similarly, the PPs that may potentially benefit from Link21 were identified by overlaying the larger benefit areas with PPs in GIS.

For ease of understanding, the following definitions are used in this section to identify the most benefited and burdened communities for each subregion:

- "Burdened areas" are areas that could experience burdens from Link21 construction or operations.
  - There are burdened areas in PP areas and in the general population.
- "Benefited areas" are areas that that are outside of areas of potential Link21 infrastructure that would not be subject to direct construction and operations burdens but may experience benefits.
  - There are benefited areas in PP areas and in the general population.

Lastly, it is important to understand that for both benefited and burdened areas, Link21 presents wide-reaching benefits for the Megaregion.

The following sections go into further detail, to help understand benefited and burdened communities at the subregional level.

C.2. Benefited and Burdened Areas in Subregions

C.2.1. San Francisco Bay Area Potentially Benefited and Burdened Areas

Figure C-1 shows the potentially benefited and burdened communities in the Bay Area subregion.

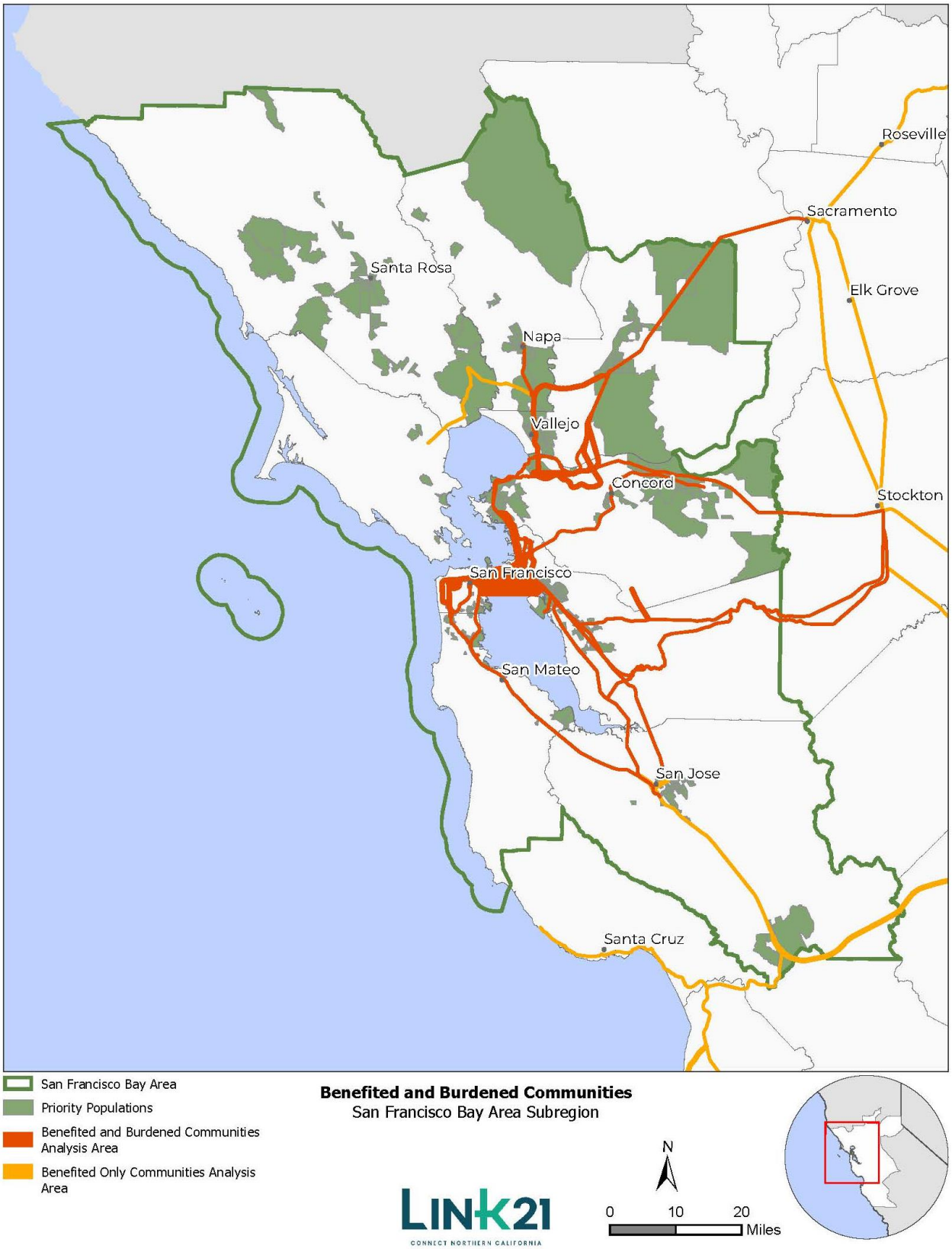
While the Bay Area is the subregion with the greatest potential of experiencing direct improvements from Link21, it also is a subregion where many PPs overlap with the potential construction or operations-related burdens from Link21, shown on the map in red. As a result, trade-off analyses would be necessary for the burdened and benefited areas in the Bay Area subregion.

Regarding potentially burdened and benefited areas:

- The locations where PPs overlap with potentially burdened and benefited areas include parts of downtown San Francisco and the Bayview District, Western Addition, Richmond District, and Sunset District in San Francisco, Daly City, South San Francisco, San Bruno, Burlingame, Redwood City, San Jose, Hayward, Ashland

and Cherryland CDPs in unincorporated Alameda County, San Leandro, Oakland, Emeryville, Berkeley, El Cerrito, Richmond, San Pablo, Pinole, Rodeo and Crockett in unincorporated Contra Costa County, Martinez, Concord, Bay Point, Pittsburg, Antioch, Oakley, Dixon, Vacaville, Fairfield, Suisun City, Napa, American Canyon, and Vallejo.

Figure C-1. Potentially Benefited and Burdened Areas in the San Francisco Bay Area



Regarding potentially benefited only areas, three locations are located in PP areas, which are shown in yellow:

- In San Jose, the San Francisco Bay Area Rapid Transit (BART) Silicon Valley Extension Phase II connects two identified areas of possible Link21 improvements.
- PP areas in Gilroy are located where the California High-Speed Rail Authority (CAHSRA), Caltrain electrified rail service, and Transportation Agency for Monterey County (TAMC) Monterey County Rail Extension to Salinas would have converging passenger rail services.

Lastly, the Sonoma-Marin Area Rail Transit extension from Novato to Vallejo (also identified as an enhancement to Link21) overlaps several PP areas in Vallejo, American Canyon, and unincorporated areas of Sonoma County (Schellville, Wingo, McGill, Fairville, and Sears Point).

C.2.2. Sacramento Area Potentially Benefited and Burdened Areas

Figure C-2 shows the potentially benefited and burdened communities in the Sacramento Area subregion.

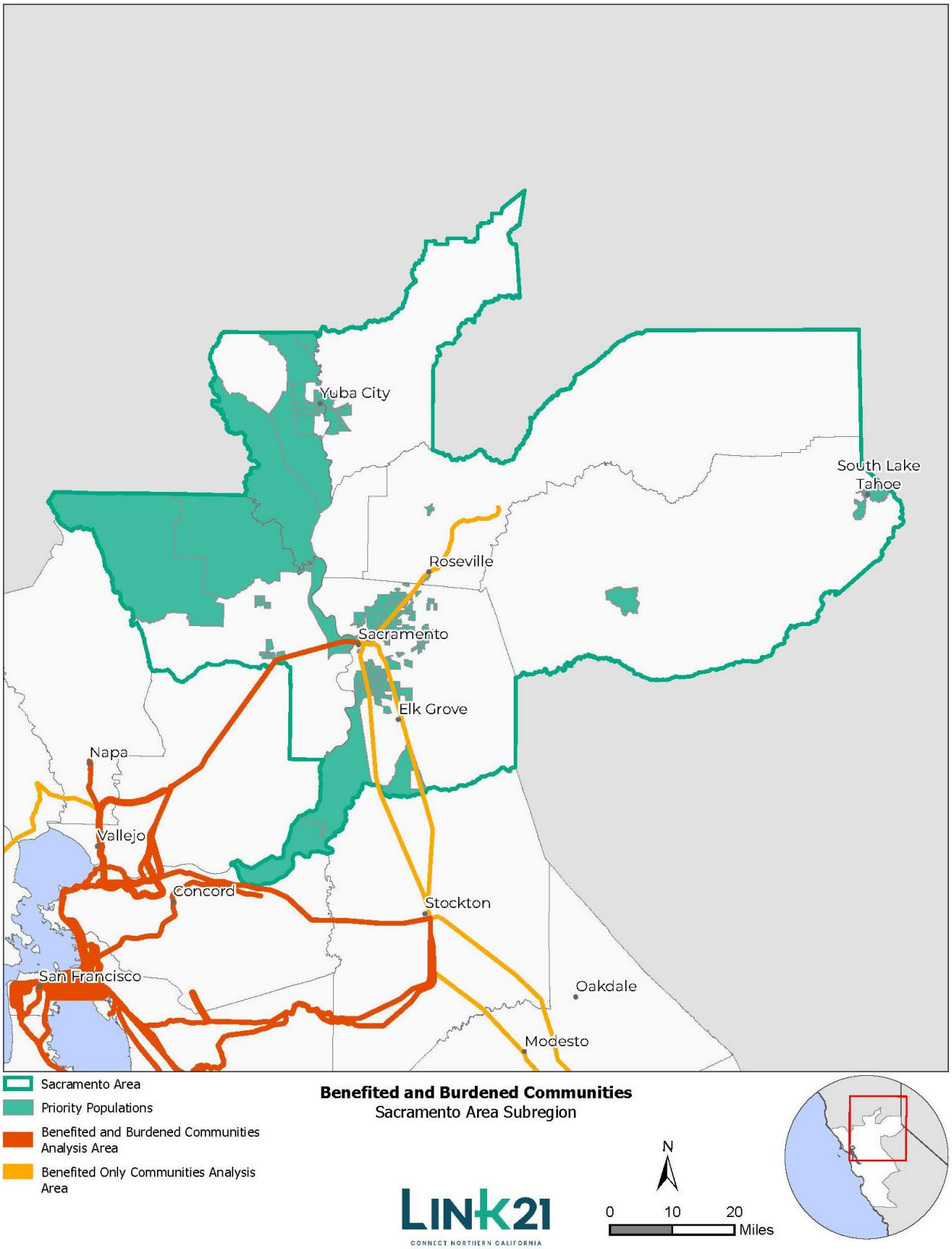
Regarding potentially burdened and benefited areas:

- In the Sacramento Area subregion, identified potential Link21 burdened areas include Davis, West Sacramento, and downtown Sacramento at the Sacramento Valley Station. Due to the overlap of burdened areas in West Sacramento and downtown Sacramento with PPs, trade-off analyses would be necessary for this segment.

Regarding potentially benefited areas:

- Shown in yellow, approved transportation projects considered as benefits for Link21 that overlap with PP census tracts are the Capitol Corridor Sacramento-to-Roseville Third Track Extension Project, with improved service between Sacramento and Auburn. Along this corridor, PP areas are in North Sacramento, McClellan Park, North Highlands, and Roseville.
- In addition, shown in yellow as a Link21 benefit, the San Joaquin Regional Rail Commission's (SJRRC) Valley Rail Program is planned to increase passenger rail service between the Central Valley and Sacramento. This corridor passes through PP areas in Lemon Hill, Parkway, Florin, and Galt.

Figure C-2. Potentially Benefited and Burdened Areas in the Sacramento Area



C.2.3. Northern San Joaquin Valley Potentially Benefited and Burdened Areas

Figure C-3 shows the potentially benefited and burdened communities in the Northern San Joaquin Valley subregion.

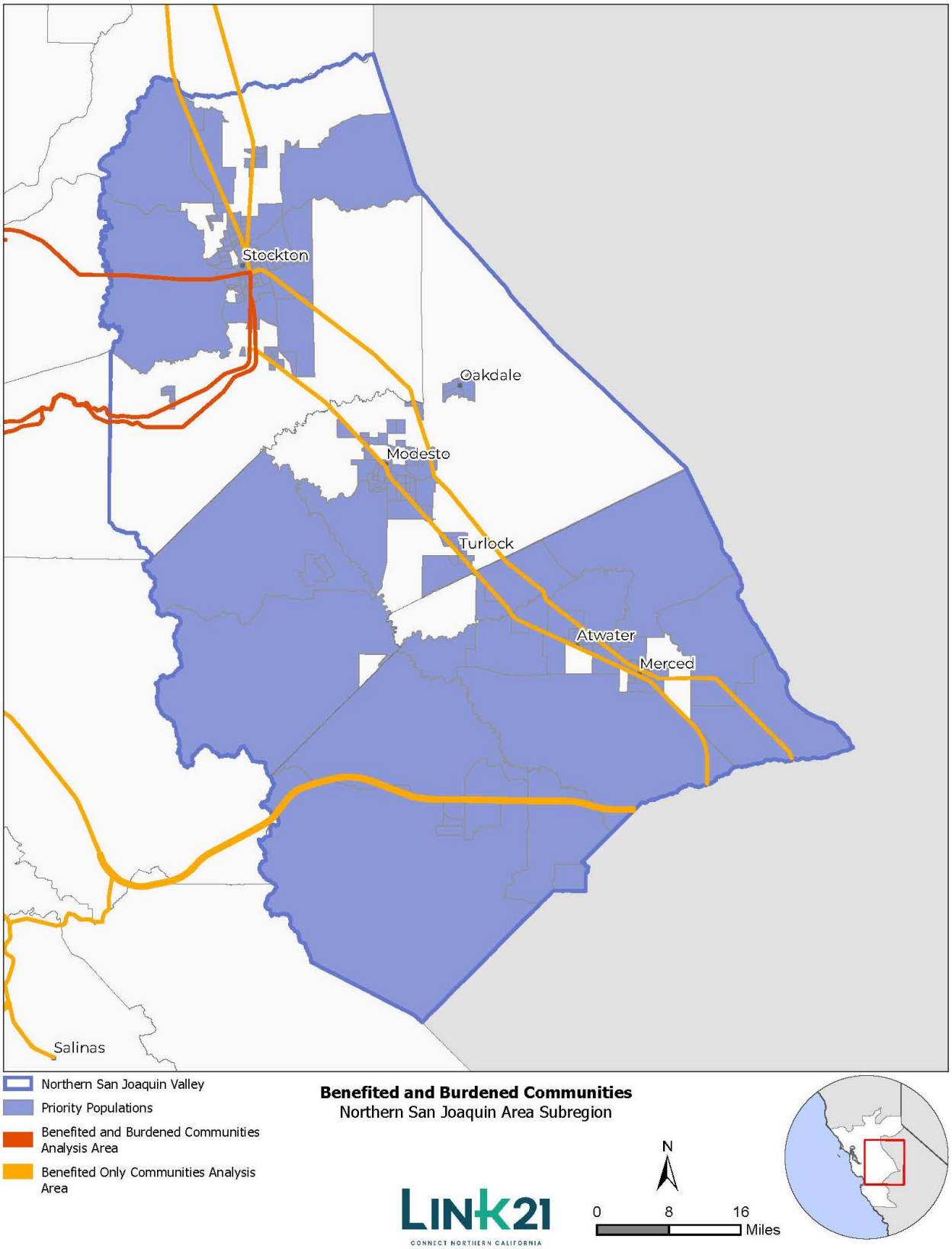
Regarding potentially burdened and benefited areas:

- In the Northern San Joaquin Valley subregion, locations where PPs overlap with potentially burdened areas include parts of Tracy, French Camp, Taft, Mosswood, Stockton, and unincorporated areas of San Joaquin County (Trull, Holt, Gillis). Due to this overlap, trade-off analyses would be necessary.

Regarding potentially benefited areas:

- Major transportation projects that are being considered as opportunities for Link21 include the SJRRC Valley Rail Program that is planning an extension to Ceres and Merced. SJRRC is advancing the Stockton Diamond Grade Separation in Stockton to facilitate improved train operations through Stockton that would have far-reaching benefits in the Megaregion. Also planned are the CAHSRA service to Merced and the Modesto Intermodal Train Connection Projects. These projects coincide with PP areas in Thornton, Lodi, Stockton, French Camp, Lathrop, Manteca, Riverbank, Modesto, Ceres, Bystrom, Empire, Keyes, Parklawn, Salida, Livingston, Turlock, Atwater, Merced, Ballico, Cressey, Delhi, Bear Creek, Franklin, Le Grand, McSwain, Planada, Tuttle, Winton, Santa Nella, and Volta.

Figure C-3. Potentially Benefited and Burdened Areas in Northern San Joaquin Valley



C.2.4. Monterey Bay Area Potentially Benefited and Burdened Areas

Figure C-4 shows the potentially benefited and burdened communities in the Monterey Bay Area subregion.

In the Monterey Bay Area subregion, no identified potential improvements are directly part of Link21, which means that no burdened communities are located in this subregion. Benefited areas include PP census tracts in Santa Cruz, Marina, Sand City, Seaside, Salinas, Monterey, Watsonville, Castroville, Elkhorn, and Pajaro that would benefit from TAMC's Monterey County Rail Extension.

Figure C-4. Potentially Benefited and Burdened Areas in Monterey Bay Area