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Technical Memorandum

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To: David Berman, AICP, Senior Transportation Planner
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From: Kittelson & Associates, Inc.

RE: AC Transit Realign: Market Analysis

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AC Transit Realign is a recognition that the COVID-19 pandemic resulted in changes in how people use transit throughout the San Francisco Bay Area. *Realign* seeks to reorient the AC Transit network by understanding who lives and works in the region and where people want to go.

The impact of the COVID-19 pandemic on the region cannot be overstated. According to the California COVID-19 State Dashboard[1], between March 2020 and June 2023:

- 2,156 confirmed deaths were attributable to COVID-19 in Alameda County
- 1,601 confirmed deaths were attributable to COVID-19 in Contra Costa County
- The case rate for communities with median income under $40,000 a year was 14% higher than the rate for all Californians

The pandemic and its associated health restrictions led to more households reconsidering where they live and work. Remote work and hybrid work schedules have become more common, reducing the demand for traditional home-to-work commutes. Since the pandemic, many cities within the AC Transit service area have experienced declining populations after several prior years of population growth. These rapid changes related to population shifts and household travel patterns have made it difficult to know which demographic and socioeconomic changes are temporary and which ones may be permanent.

This market analysis summarizes demographic and socio-economic conditions for the AC Transit service area, with a focus on 1) factors influencing demand for transit services; and 2) changes between pre-pandemic and post-pandemic conditions.

Key findings of this market analysis are summarized below.

Demographic and Socio-economic Characteristics

- The AC Transit service area population grew by 4.4% from 2013 to 2021, nearly double the statewide growth rate over the same period. The City of Oakland experienced the largest population increase from 2013 to 2021, more than three times any other jurisdiction. During this period, the Fremont–Newark–Union City subarea grew slower than the other three subareas.
- Population estimates for 2022 and 2023 show that most cities in the service area have experienced a decline in population, with the largest estimated decreases occurring in Oakland, Richmond, Union City, and San Leandro.
- Between 2013 and 2021, the percentage of youth (under 18) residents has declined throughout the service area, with the greatest decrease (3.0 percentage points) observed in the Hayward–San Leandro subarea. During this period, the proportion of older residents has increased throughout the service area by an average of 2.5 percentage points, with the highest increase (2.8 percentage points) in the Hayward-San Leandro subarea. This may indicate that there will be an increasing need for transit services (both fixed-route and on-demand) to meet the needs of an aging population engaged in non-commuter trips.
- Between 2013 and 2021, the share of low-income households decreased by almost nine percentage points (30.8% to 21.9%), with the largest decrease occurring in the Hayward-San Leandro subarea. The share of zero-vehicle households within the service area decreased by 1.6 percentage points during this period, with the greatest decrease (2.5 percentage points) occurring in Oakland-Alameda-Berkeley. These declines may be attributed to a greater occurrence of urban displacement and gentrification as housing prices increased during the last decade.
- Between 2013 and 2021, the Black population in the service area decreased by 10%, the only racial group to see a population decline. The Asian population grew by 20%, the most of any racial or ethnic group.

[1] covid19.ca.gov

- Most basic services within the AC Transit service area are well served by transit, particularly in Oakland and Berkeley. However, basic services in more suburban or less densely populated cities such as Richmond, Hayward, San Leandro, and Fremont are comparatively less accessible by transit.
- Areas designated as having limited access to food are found throughout the service area. In particular, West Oakland, East Oakland, and the Western Costa County and Hayward-San Leandro subareas have significant areas with limited access to food. Transit services can play an important role in connecting these areas with grocery stores and other essential services, particularly for lower-density communities.

Employment and Commute Patterns

- Based on year 2019 estimates, approximately 43% of AC Transit service area residents work in Alameda County, reinforcing the need for mobility within the service area. Approximately 16% of service area residents work in San Francisco County and 12.2% of service area residents work in Santa Clara County.
- Based on year 2019 estimates, 60 percent of those who work within the AC Transit service area also live within Alameda County or Contra Costa County.

1. INTRODUCTION

AC Transit Realign is a recognition that the COVID-19 pandemic resulted in paradigm shifts in how and why people use transit throughout the San Francisco Bay Area. *Realign* seeks to reorient the AC Transit network and expand the geography of mobility within the region by understanding who lives and works in the region and taking stock of where people want to go. This memorandum examines the past, existing, and potential future transportation landscape through four influences on transit ridership:

- An inventory of **existing and planned transportation services**, which establishes an understanding of existing connections, findings from provider surveys and interviews, and other considerations.
- A **socio-economic overview**, which shows the changes since COVID-19 and where target populations live in the study area. *(5 Year American Community Survey: 2021 and 2013)*
- **Key origins and destinations**, including commuting patterns, key activity centers, and existing transit destinations to be served. *(Longitudinal-Employer Household Dynamics, 2019)*
- **Future growth** that would influence shifts in commute patterns and shape the transit network system. (*ABAG 2035 and 2050 forecasts*).

As this Market Analysis is drawing from data collected before and during the COVID-19 pandemic, it will be critical to follow up with additional analysis using current data and feedback from the communities served by AC Transit. These inputs will be provided as part of the origin-destination analysis (using year 2022 data) and passenger surveys (conducted in Spring 2023). These analyses are documented in separate technical memoranda.

2. EXISTING CONDITIONS

2.1 AC Transit Service Area

The Alameda-Contra Costa Transit District (AC Transit) provides transportation services to 13 cities and adjacent unincorporated areas in the East Bay region of the San Francisco Bay Area between Richmond and Fremont (see **Figure 1** AC Transit Service Area). AC Transit's bus lines also connect to adjacent East Bay communities, including Milpitas, Pinole, and Union City, as well as across San Francisco Bay to San Francisco and Palo Alto. AC Transit currently operates 138 local bus lines and 30 Transbay bus lines that connect with 16 other public and private transit systems, 22 BART stations, six Amtrak stations, and five ferry terminals.

For this analysis, the "service area" refers to the extent represented in **Figure 1** and is defined by 2020 Census block group and tract boundaries. Four subareas within the service area were identified to enable analysis of socio-economic representation on a regional and sub-regional scale:

- West Contra Costa County
- Oakland-Alameda-Berkeley
- Hayward-San Leandro
- Fremont-Newark-Union City

AC Transit provides the following transit services:

- Local bus lines: AC Transit operates numerous local bus lines throughout the West Contra Costa County, Oakland-Alameda-Berkeley, Hayward-San Leandro, and Fremont-Newark-Union City subareas.
- Transbay bus lines: AC Transit's Transbay bus lines connect the East Bay with San Francisco and Palo Alto.
- Rapid: Rapid is a limited-stop service that uses traffic signal technology and on-street improvements to make service more efficient and reduce travel time.
- Tempo: Tempo is a bus rapid transit service that includes features such as dedicated bus lanes and center-boarding stations to provide faster, more reliable service.
- Dumbarton Express: The Dumbarton Express is a commuter service operated by AC Transit in collaboration with other transit agencies to connect communities in the East Bay with the Peninsula across the Dumbarton Bridge.
- All-Nighter service: AC Transit operates nighttime bus lines that provide overnight transportation options during late night when BART is closed.
- Supplementary service to schools: AC Transit provides supplementary bus services to schools within its service area.
- Paratransit: AC Transit operates a door-to-door paratransit service to provide transportation for individuals with disabilities who are unable to use regular fixed-route buses or BART trains.

These services are described in more detail in a separate technical memorandum. For the market analysis presented in this memorandum, school routes and paratransit are not included, as they are not available to the general public.

Figure 1 AC Transit Service Area

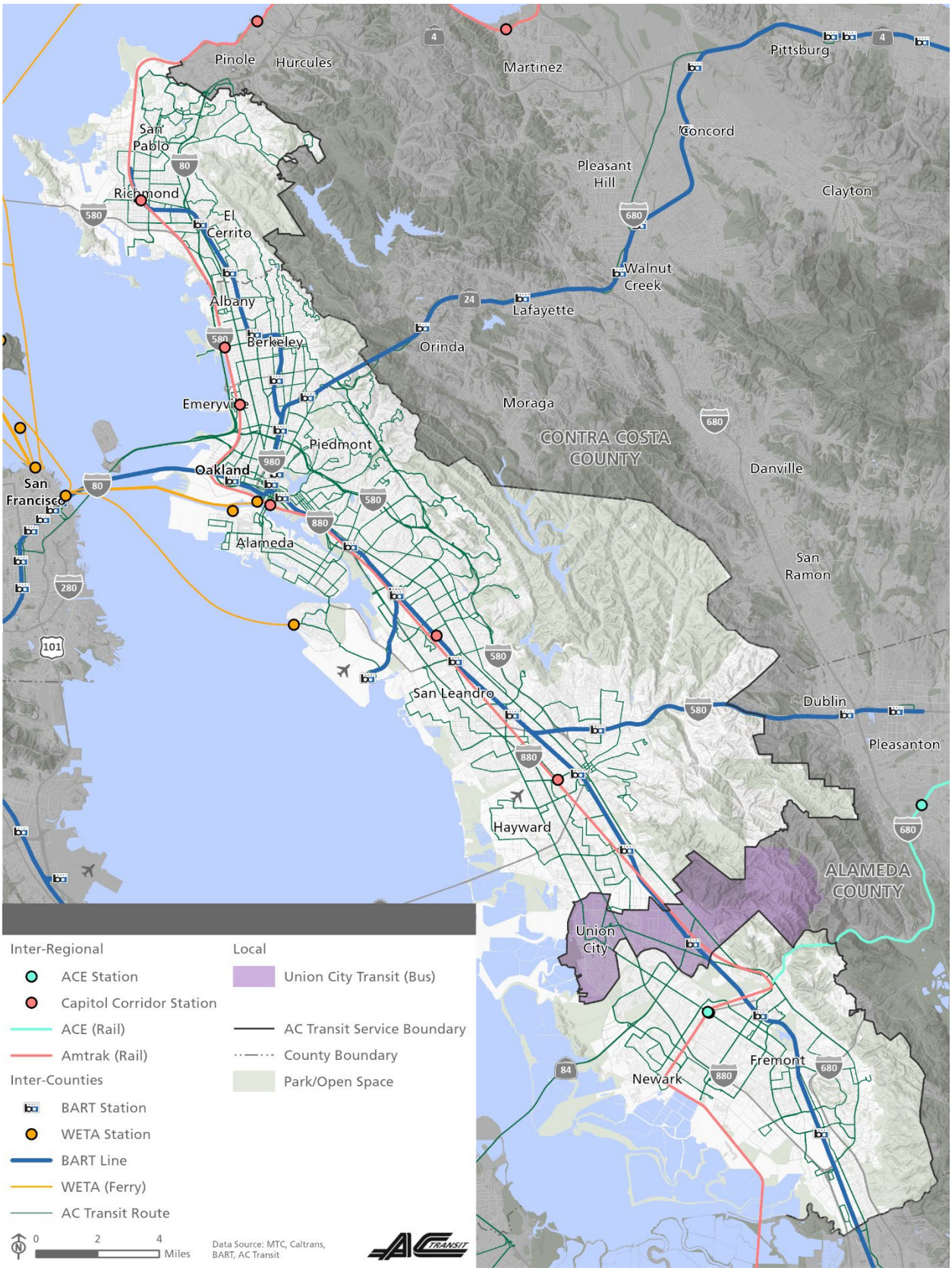
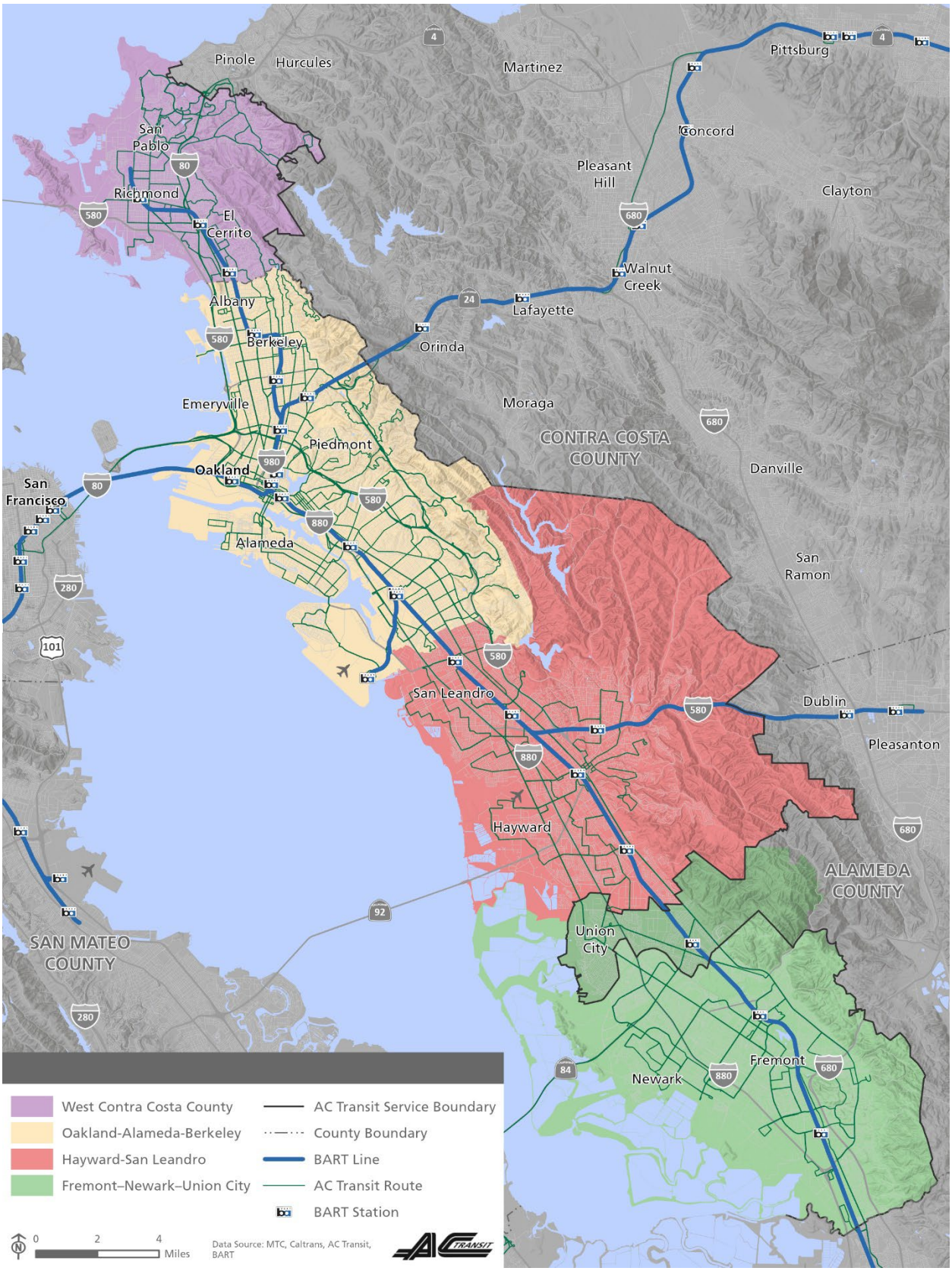


Figure 2 AC Transit Subareas/Planning Areas



2.2 Local and Regional Transit Connectivity

Figure 21 shows transit services in the AC Transit service area. AC Transit connects the East Bay to San Francisco through via 15 Transbay and 5 Early Bird bus lines that cross the Bay Bridge to the Salesforce Transit Center.[2] These routes primarily operate during the morning and evening peaks, facilitating commuter travel to and from San Francisco. AC Transit makes over 500 trips each weekday into and out of downtown San Francisco. Further, three Transbay lines run all day and on weekends, and one All-Nighter line operates during the late-night hours when BART does not operate.

AC Transit also manages a network of 44 routes that are oriented around educational institutions on school days. These routes are predominantly active during morning and afternoon hours, with schedules aligned with school bell times to ensure convenient access for students.

AC Transit connects with the following regional public transportation providers:

- San Francisco Bay Ferry
- Solano Express
- WestCat
- Golden Gate Transit
- SFMTA (Muni)
- SamTrans
- Santa Clara Valley Transportation Authority (VTA)
- Amtrak Capitol Corridor
- Amtrak San Joaquin Corridor
- ACE commuter rail

These connections provide access to destinations throughout the Bay Area and beyond to Davis, Sacramento, and the San Joaquin Valley.

There are 23 Bay Area Rapid Transit (BART) stations within the AC Transit district, providing connections to central and eastern Contra Costa County, eastern Alameda County, San Francisco, northern San Mateo County, and north San Jose, along with Oakland and San Francisco airports. AC Transit serves each of these stations, offering convenient first-/last-mile connectivity for BART passengers. Additionally, many of these stations serve as important hubs for AC Transit customers transferring between local routes or making connections to other bus operators.

2.3 Existing and Planned Service Findings from Previous Plans

AC Transit, along with other transit service providers and local and regional planning agencies, have developed a variety of plans that provide recommendations for AC Transit's service. Table 1 highlights the key findings and conclusions from these plans, including past and ongoing planning initiatives conducted by AC Transit, the Metropolitan Transportation Commission (MTC), BART, Alameda County, and the cities of Oakland, Alameda, and Emeryville. **Table 1** Summary of Relevant Plans provides a summary of the plans most relevant to Realign. Realign will provide an opportunity to restructure services in support local and regional plans and priorities.

AC Transit's plans include its Strategic Plan, Zero Emission Bus Transition Plan, Capital Improvement Plan, and Short-Range Transit Plan. These plans outline specific goals and initiatives to enhance safety, convenience, financial stability, network performance, and sustainability. Further, AC Transit is engaged in external studies and coordination efforts with other agencies as part of their commitment to regional cooperation and

[2] An additional Dumbarton Express service crosses the Dumbarton Bridge connecting Fremont to Palo Alto, but as this is not operated by AC Transit, it is not considered as part of this study.

integrated transit planning. The Berkeley–El Cerrito Corridor Access Plan is a partnership between AC Transit and BART to improve access to transit stations and reduce reliance on private vehicles. Additionally, the City of Emeryville has conducted studies and developed plans, such as the Emeryville Berkeley Oakland Transit Study and the Emeryville Sustainable Transportation Plan, to enhance connectivity and promote sustainable transportation modes. Lastly, the City of Alameda's Transportation Choices Plan emphasizes transit and demand management strategies to alleviate congestion and enhance transportation options within the city.

Table 1 Summary of Relevant Plans

Plan	Description	Role in This Study	AC Transit Area
(1) AC Transit Plans			
AC Transit Strategic Plan (April 2019)	This plan outlined six goals and five initiatives for the District, with a focus on improving safety, convenience, reliability, financial stability, workforce, public support, and environmental sustainability.	AC Transit Realign provides an opportunity to work towards some of the main goals and initiatives, including convenient and reliable service, financial stability and resiliency, service quality, and financial efficiency and revenue maximization.	District-wide
Strategic Plan Addendum (April 2022)	This plan provides updates for the 2019 Strategic Plan, reflecting the impacts of the COVID-19 pandemic. It includes positive and negative projections for the identified initiatives and adds an additional goal and initiative focused on diversity, equity, and inclusion.	This plan provides foundational information on how AC Transit has responded to date to the impacts of COVID on ridership and demographic trends. This information will be used as a baseline for assessing the impacts of additional changes	District-wide
AC Transit Transbay Tomorrow (2018)	This plan aimed to reduce bus overcrowding and improve congestion on the Bay Bridge. As part of this project, AC Transit introduced double-decker buses that increased capacity to 78 passengers per coach. The initial phase of the rollout prioritized the busiest routes, Lines FS and J, serving over 1,600 average weekday passengers. The second phase introduced double-decker buses to Lines L and LA, starting on February 11, 2019, serving an additional 1,200 passengers each day. Introducing double-decker buses to these routes brought enhanced capacity and comfort to a significant number of commuters.	This plan provides recommendations to address major issues including overcrowding, reliability, speed, and productivity. Strategies outlined in the plan involve extending the service span, deploying high-capacity buses on high ridership routes, utilizing the Salesforce Transit Center, adjusting routing to major roads, increasing stop spacing, implementing Transbay fares, and reallocating resources from underperforming routes to those with high ridership. These strategies aim to enhance the Transbay service and address the identified challenges for improved commuter experiences.	District-wide
AC Transit Service Expansion Plan (2016)	This plan aimed to expand service throughout the AC Transit service area, increasing platform hours by up to 14% within Alameda and Contra Costa counties.	This plan would apply to the whole AC Transit service area and would address service improvement needs in a comprehensive and integrated manner	West Contra Costa County & Oakland-Alameda-Berkeley
AC Transit Major Corridors Plan (2016)	This study aimed to develop and evaluate capital improvements for AC Transit's key corridors and provides recommendations for short- and long-term investment strategies to shape	This study aligns with AC Transit's efforts to improve service on its highest ridership corridors to meet the following goals: increasing ridership, enhancing access to work, education, services, and	District-wide

Plan	Description	Role in This Study	AC Transit Area
	their capital investment program for the next two decades. By prioritizing corridors with the highest ridership, the study seeks to identify opportunities that will benefit a large number of customers and attract new riders by 2040.	recreation, improving effectiveness and reliability, achieving cost efficiency, and reducing emissions.	
AC Transit Redesign: Fremont/Newark Plan (2020)	This plan proposed two scenarios for a frequent transit network (i.e. service every 15 minutes or better) to serve parts of Fremont and Newark, along with other network improvements.	This Plan aims to improve the efficiency and effectiveness of their transit system. The current AC Transit plan will be informed by the analysis and recommendations from the Fremont/Newark Plan.	Fremont-Newark-Union City
AC Transit Capital Improvement Plan (CIP): FY 23 – FY 26 (2021)	This plan outlines planned capital expenditures and categorizes them into Corridor, Safety/ Environmental/Other, Facilities, Information Technology (IT), and Vehicles.	Capital improvements noted in the CIP (especially corridor and station improvements) will be taken into consideration when developing new routing recommendations in the AC Transit Redesign.	District-wide
AC Transit Short-Range Transit Plan FY 2019–2029 (2019)	This plan analyzed AC Transit's 2019 service performance and includes budget summaries. It tracks goals and objectives that AC Transit Realign could meet (i.e., implementing a grid network, designing simpler routes to improve reliability, planning for timed transfers, and increasing frequencies). Due to budget constraints, not all SRTP goals may be met, but the Realign project will prioritize them.	The AC Transit Realign will use the service performance analysis and budget information as inputs to route recommendations. The goals and objectives of the SRTP will also be taken into account when assessing the effectiveness of alternative recommendations.	District-wide
(2) Regional and Countywide Plans			
MTC Dumbarton Forward (2018)	This project is a set of near-term strategies to improve efficiency and reduce delays on and near the Dumbarton Bridge. It will implement a part-time bus lane, and a bus lane on the Bayfront Expressway in Menlo Park, and on the Dumbarton Bridge, to be used by Dumbarton Express services (operated by AC Transit).	This project aims to limit traffic congestion during peak periods in the State Route 84-Dumbarton Bridge-Bayfront Expressway corridor between Interstate 880 in Fremont and Marsh Road in Menlo Park. The AC Transit Redesign will consider how the strategies in this project could improve the effectiveness of route operations.	Fremont-Newark-Union City
MTC I-80 Westbound Bus Lanes Project (2020)	This project will provide a continuous westbound bus-only lane from the I-80/Powell interchange to the Bay Bridge.	This project aims to improve the operational efficiency and travel time for, increase person throughput, and encourage carpooling and transit use. This can impact how Transbay Services will be routed in the area and impact overall travel time.	Oakland-Alameda-Berkeley
MTC Transformation Action Plan (2021)	This MTC project, which grew out of the Blue Ribbon Transit Recovery Task Force, aims to better coordinate operations, fares, and information between transit providers, throughout the region including AC Transit.	This plan aims to improve the Bay Area's public transportation network to create a more user-friendly and connected system. The outcomes of Realign should be consistent with the work done on this project.	District-wide

Plan	Description	Role in This Study	AC Transit Area
MTC San Francisco Bay Area Core Capacity Transit Study (2017)	This pre pandemic study recommended 110 additional Transbay buses, facilities, and right of way improvements.	The future of Transbay service will be an element of the Realign project considering the changed environment since the Core Capacity Study was issued.	District-wide
Alameda CTC Multimodal Corridor – E. 14th St./Mission Blvd and Fremont Blvd. (2018-2020)	This Alameda CTC project built off existing planning and improvement efforts, conducted a detailed analysis of multimodal mobility within the corridor, and identified specific implementable short-, medium- and long-term improvements to advance them to project delivery.	This project may have an impact on how service is operated on an important AC Transit Corridor. This Corridor has also been identified by AC Transit as a future BRT corridor.	Hayward-San Leandro & Fremont-Newark-Union City
Alameda CTC Multimodal Corridor – San Pablo Avenue (2017-2020)	AC Transit staff is working with ACTC on development of short-term transit improvements in Oakland, Emeryville, & portion of Berkeley. These improvements include the installation of high visibility crosswalks, flashing beacons, pedestrian signals, median refuge islands, upgraded lighting, accessible curb ramp upgrades, bulb outs at Rapid bus stops, and the relocation of bus stops.	This project aims to enhance safety and transit on San Pablo Avenue, the second busiest corridor for AC Transit bus riders. The AC Transit Redesign will consider how this project's implementation could improve the effectiveness of AC Transit route operations.	Oakland-Alameda-Berkeley
Alameda CTC I-580 Transit and Multimodal Strategy (2022-present)	This plan includes a multimodal approach to enhance person throughput along I-580, spanning from the San Joaquin Valley to the Bay Bridge. One of its key components focuses on the planning of express bus service and the MacArthur Blvd SMART corridor.	This project will increase connectivity and safety of walking, biking, and taking transit to access local BART and rail stations that support using BART and rail in the corridor.	Oakland-Alameda-Berkeley & Hayward-San Leandro
West Contra Costa County Action Plan (2023)	This plan identifies and develops strategies, policies, and actions for regionally significant road, transit, and bike routes in West County. It is intended to contribute to the Countywide Transportation Plan and potentially inform a tax measure	Recommendations from this plan may influence Realign recommendations for West Contra Costa County.	West Contra Costa County
(3) Local Plans			
Downtown Oakland Specific Plan (2017-2019)	This plan incorporates land use planning, urban design, and circulation in Downtown Oakland.	Recommendations from this plan can impact Realign recommendations for transit circulation in Downtown Oakland.	Oakland-Alameda-Berkeley
Oakland General Plan (2022-present)	This plan serves as the guiding policy document for the City's future, based on community values and priorities. The transportation elements will be consulted in developing Realign recommendations.	The Oakland Transit Action Strategy provides more transit specific elements that will influence the Realign recommendations.	Oakland-Alameda-Berkeley

Plan	Description	Role in This Study	AC Transit Area
City of Berkeley Telegraph Avenue Multimodal Corridor Study and Southside Complete Streets Project (2021-2024)	This project will improve conditions for people walking, biking, riding transit, driving, and delivering goods and services in Berkeley's Southside neighborhood along Telegraph Avenue, Bancroft Way, Fulton Street, and Dana Street.	These City of Berkeley Projects may have an impact on how service is operated on Bancroft and Telegraph Avenue, an important corridor for AC Transit services.	West Contra Costa County & Oakland-Alameda-Berkeley
City of Berkeley Transit First Policy (2023)	The Berkeley City Council adopted the Transit Fert Implementation Plan on March 21, 2023. The City identifies primary and secondary transit corridors in the city which will inform the Realign project.	This plan aims to enhance transit efficiency, reliability, and accessibility while increasing ridership and prioritizing transit corridors for future planning.	West Contra Costa County & Oakland-Alameda-Berkeley
City of El Cerrito San Pablo Avenue Specific Plan Update (2019-2022)	This land use plan integrates complete streets to improve bicycle and pedestrian facilities, as well as relocates bus stops along San Pablo Avenue. It includes proposed bus boarding islands and the removal of local bus stops. The land use portion allows for the addition of up to 2,500 homes and 100,000 sq ft of retail	This plan aims to establish a vision for the future of San Pablo Avenue, outlining improvements and adopting context-sensitive regulations for the avenue and its surrounding areas. It aims to increase transit access and walkability.	West Contra Costa County
City of San Leandro Crosstown Corridors Study (2011-2023)	This study has developed design alternatives for multimodal improvements on the Williams St & Bancroft Ave corridors.	This project can impact service recommendations in the City of San Leandro.	West Contra Costa County & Oakland-Alameda-Berkeley
BART Berkeley–El Cerrito Corridor Access Plan (2023)	This plan outlines a development project with the goal of easing the region's severe housing shortage, improving transit accessibility, and promoting sustainability and equity. It aims to construct over 2,000 mixed-income homes, retail, and community-serving facilities at the El Cerrito Plaza, North Berkeley, and Ashby BART Stations. The plan focuses on enhancing access to BART stations through strategies that promote transit use and reduce car dependency. It recommends increasing the frequency of existing or potential new transit lines serving BART stations or Transbay, restoring service to pre-pandemic levels, and developing bus network redesign strategies based on post-pandemic demands.	The AC Transit Realign project will incorporate the findings from the Corridor Access Plan into the final plan, ensuring that the planned developments receive appropriate levels of bus service.	Oakland-Alameda-Berkeley

Plan	Description	Role in This Study	AC Transit Area
Oakland DOT & AC Transit: Transit Action Strategy (2020 – 2021)	This plan outlines a joint effort between AC Transit and the Oakland Department of Transportation to develop strategies aimed at improving the transit experience and safety, reducing delays, and enhancing access to bus stops. It focuses on making improvements to streets and stops, setting goals to enhance crosswalks near stops, improve bus shelters, and integrate transit signal priority	The AC Transit Realign project will incorporate the actions taken in developing network scenarios, including the recommendations made. It will also consider the strategy's recommendations, as updated, and integrate them into the plan. Additionally, Realign provides an opportunity to revisit the priorities established by the Strategy and update them to align with the needs and goals of the project.	Oakland-Alameda-Berkeley
Emeryville Berkeley Oakland Transit Study (EBOTS) (2015)	This proposes transit plans for Emeryville and neighboring areas. It aims to explore future visions for the study area with respect to transit as it relates to land use in Emeryville, West Berkeley, and West Oakland.	While EBOTS is an older study, AC Transit Realign will reconsider its recommendations, such as increased service levels, improved east–west connections, and specific route enhancements, to address current mobility challenges faced in the area.	Oakland-Alameda-Berkeley
Emeryville Sustainable Transportation Plan (March 2012)	The plan identifies four main strategies: providing direct service between high-ridership areas, facilitating connections within Emeryville and to neighboring cities, serving all areas of Emeryville, and coordinating different modes of transportation. Additionally, the plan identifies specific corridors where capital improvements, such as the construction of bus lanes, queue jumps, and bus bulbs, can be implemented to enhance bus speed and efficiency.	The AC Transit Realign project offers a chance to review and assess the recommendations previously made, as well as the progress achieved on those recommendations. It will specifically reevaluate these corridors to determine if the existing level of service is sufficient for implementing the proposed improvements.	Oakland-Alameda-Berkeley
City of Alameda: Transportation Choices Plan—Transit and Transportation Demand Management (2018)	This plan summarizes the mobility and access challenges, particularly due to being an island with limited crossings to neighboring communities. It identifies transit as a solution to moving more people in and out of the city without increasing congestion.	The AC Transit Realign project can help fulfill this goal and consider specific projects such as an Alameda shuttle service, a bus rapid transit alignment, and a crosstown express bus service. If the Realign project recommends a different fleet mix, such as a decrease in the number of over-the-road coaches and an increase in transit buses for local service, it would entail modifying this plan accordingly.	Oakland-Alameda-Berkeley

3. SOCIO-ECONOMIC OVERVIEW

A people-focused transportation network starts by understanding the people making up the community today and how the community has changed over time. This understanding helps ensure that the transit network evolves along with the needs of its community.

This section examines the market for potential transit users through the lens of key demographic and socio-economic characteristics for historically marginalized communities and those with the greatest transportation need, including the following:

- Youth (people under the age of 18)
- College-Aged (18-to-24 year-olds)
- Older Adults (65 and over)
- Persons with disabilities
- Households with income 200% of the poverty level
- Zero-vehicle households
- Limited English Proficiency households

The remaining sections provide detailed results for each key characteristic.

A note about the data:

Current year data, unless otherwise specified, is sourced from 5-Year American Community Survey (ACS) estimates for 2017-2021 at the block group level. Comparison-year data, unless otherwise noted, is sourced from 5-Year ACS estimates for 2009-2013 at the census tract level. This results in an 8-year comparison year period rather than the traditional 10-year comparison because the ACS tables are not available before 2013. Narrative explicitly referring to a subarea or the AC Transit service area relies on this Census tract-level analysis.

3.1 Population

Current and Historical Population

As of 2021, the AC Transit district is home to an estimated 1,588,606 residents. **Table 2** shows the population change for the District's service area between 2013 and 2021. The service area had an overall growth rate of 4.4% from 2013 to 2021, nearly double the statewide growth rate over the same period. **Table 2** also shows the population growth of the AC Transit service area by subarea between 2013 and 2021. As shown, growth was slowest in the Fremont–Newark–Union City subarea, while the other three subareas grew at similar rates.

Table 2 Service Area Population Change, 2013 - 2021

Geography	2013 Population	2021 Population	2013-2021 Change	
			Number	Percent
State of California	38,332,521	39,237,836	905,315	2.4%
Alameda County	1,578,891	1,648,556	69,665	4.4%
Contra Costa County	1,094,205	1,161,413	67,208	6.1%
AC Transit Service Area	1,522,106	1,588,606	66,500	4.4%
AC Transit Service Area Subareas				
West Contra Costa County	168,729	177,444	8,715	5.2%
Oakland – Alameda – Berkeley	639,242	671,369	32,127	5.0%
Hayward – San Leandro	373,552	395,787	22,235	6.0%
Fremont – Newark – Union City	340,583	344,006	3,423	1.0%

Source: 2013 ACS, 2021 ACS (Table B01001)

Table 3 documents the service area population by community (incorporated cities and unincorporated Census Designated Places). Oakland is the most populous city in the service area and experienced the largest population increase from 2013 to 2021, more than three times any other jurisdiction. While most communities experienced modest growth between 2013 and 2021, the communities of El Sobrante (–12.5%), East Richmond Heights (–6.2%), Union City (–5.3%), El Cerrito (–4.4%), and Alameda (–0.1%) experienced population declines.

Table 3. Service Area Population by Local Jurisdiction, 2013-2021

Geography	2013 Population	2021 Population	2013-2021 Change	
			Number	Percent
Subarea 1: West Contra Costa County				
East Richmond Heights	3,576	3,355	−221	−6.2%
El Cerrito	25,898	23,862	−237	−4.4%
El Sobrante	13,900	12,163	−1,737	−12.5%
Kensington	5,201	5,288	87	1.7%
North Richmond	3,818	3,928	110	2.9%
Richmond	107,580	115,642	8,062	7.5%
San Pablo	29,324	31,975	2,651	9.0%
Subarea 2: Oakland-Alameda-Berkeley				
Alameda	76,413	76,352	−61	−0.1%
Albany	18,769	19,958	1,189	6.3%
Berkeley	116,774	117,147	373	0.3%
Emeryville	10,206	12,747	2,541	24.9%
Oakland	406,228	433,797	27,569	6.8%
Piedmont	10,852	11,368	516	4.8%
Subarea 3: Hayward-San Leandro				
Hayward	151,582	159,839	8,257	5.4%
San Leandro	87,967	88,878	911	1.0%
Ashland	22,900	23,640	740	3.2%
Castro Valley	61,637	66,408	4,771	7.7%
Cherryland	14,873	15,552	679	4.6%
Fairview	10,536	11,050	514	4.9%
San Lorenzo[1]	24,057	30,420	6,363	26.4%
Subarea 4: Fremont-Newark-Union City				
Fremont	224,904	227,523	2,619	1.2%
Newark	43,139	47,815	4,676	10.8%
Union City	72,540	68,668	-3,872	−5.3%

Source: 2013 ACS, 2021 ACS (Table B01001)

[1] *The San Lorenzo CDP boundary expanded slightly in the 2020 Census which may account for larger than expected population growth.*

Table 4 summarizes January 2022 and January 2023 population estimates per the State of California Department of Finance for incorporated communities in the service area (Population estimates are not available for Census Designated Places.) Most cities in the service area have experienced a decline in population from 2022 to 2023, with the largest estimated decreases occurring in Oakland, Richmond, Union City, and San Leandro.

Table 4. Service Area Population by Local Jurisdiction, 2022-2023

Geography	1/1/2022 Population	1/1/2023 Population	2022-2023 Change	
			Number	Percent
East Richmond Heights	N/A	N/A	N/A	N/A
El Cerrito	25,710	25,484	-226	-0.9%
El Sobrante	N/A	N/A	N/A	N/A
Kensington	N/A	N/A	N/A	N/A
North Richmond	N/A	N/A	N/A	N/A
Richmond	114,521	113,518	-1,003	-0.9%
San Pablo	31,625	31,301	-324	-1.0%
Alameda	77,437	77,287	-150	-0.2%
Albany	21,524	21,401	-123	-0.6%
Berkeley	123,188	123,562	374	0.3%
Emeryville	12,478	12,610	132	1.1%
Oakland	421,806	419,556	-2,250	-0.5%
Piedmont	10,913	10,793	-120	-1.1%
Hayward	160,081	159,800	-281	-0.2%
San Leandro	88,075	87,497	-578	-0.7%
Ashland	N/A	N/A	N/A	N/A
Castro Valley	N/A	N/A	N/A	N/A
Cherryland	N/A	N/A	N/A	N/A
Fairview	N/A	N/A	N/A	N/A
San Lorenzo	N/A	N/A	N/A	N/A
Fremont	229,122	229,467	345	0.2%
Newark	47,150	47,459	309	0.7%
Union City	67,720	66,754	-966	-1.4%

Source: State of California Department of Finance, 2023. Population estimates are not available for Census Designated Places.

Figure 3 through Figure 6 show the change in population in the service area by census block group between 2013 and 2021. As shown, the greatest increases (more than 1,500 people) in population have been observed in South Richmond, the Southside neighborhood in Berkeley, the Uptown and Havenscourt neighborhoods in Oakland, and the Downtown, Burbank, and Highland neighborhoods in Hayward. The areas with population decline have been spread throughout the service area. [3]

[3] The Census Bureau redefines census boundaries with each decennial census. The study comparison years - 2013, 2021 - are defined by different decennial boundaries (2010 and 2020, respectively). To address this, data in 2013 census tracts were redistributed proportionally by area overlap with 2021 boundaries.

Figure 3 Change in Population, 2013-2021 (West Contra Costa County)

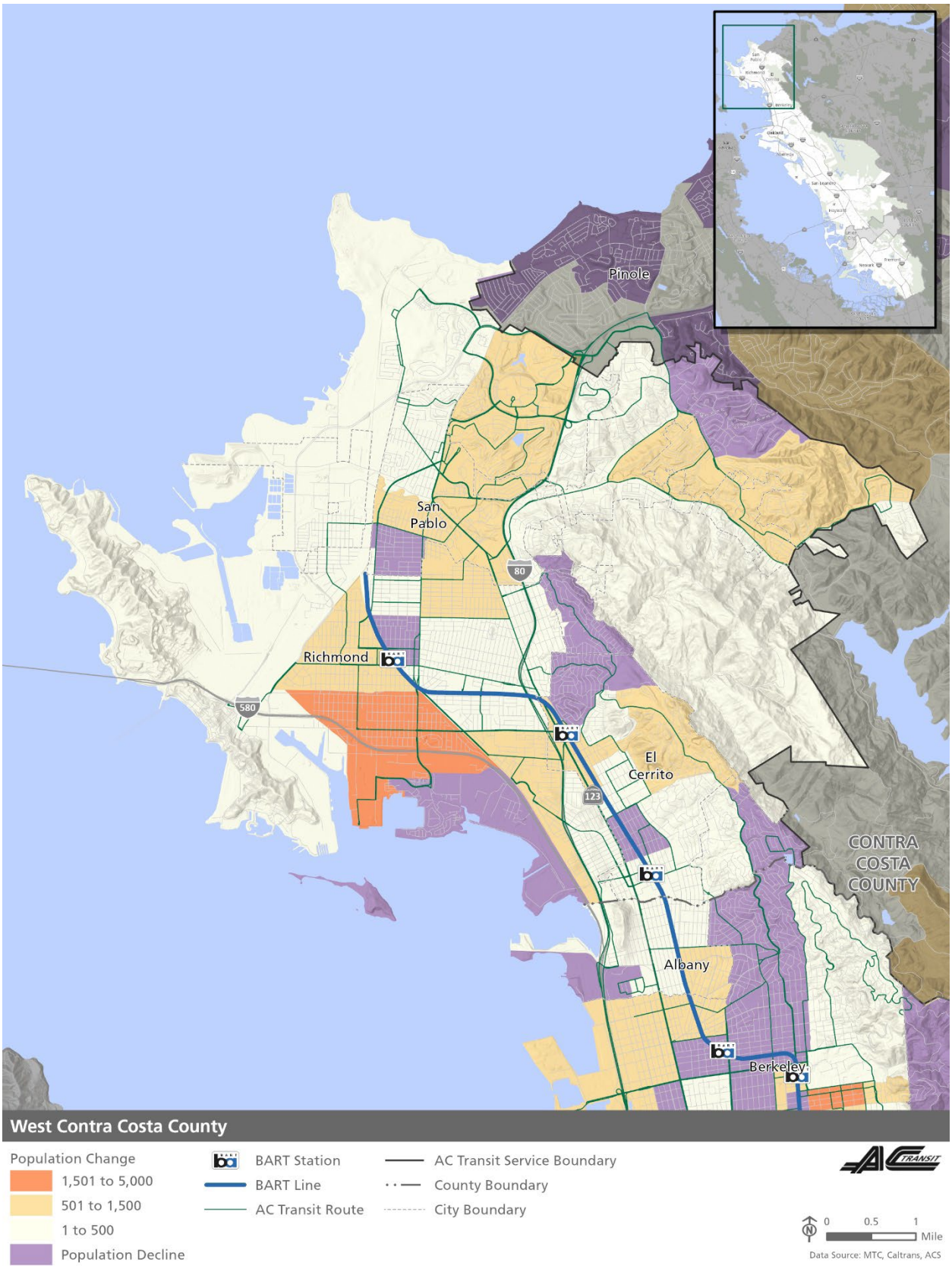


Figure 4 Change in Population, 2013-2021 (Oakland – Alameda – Berkeley)

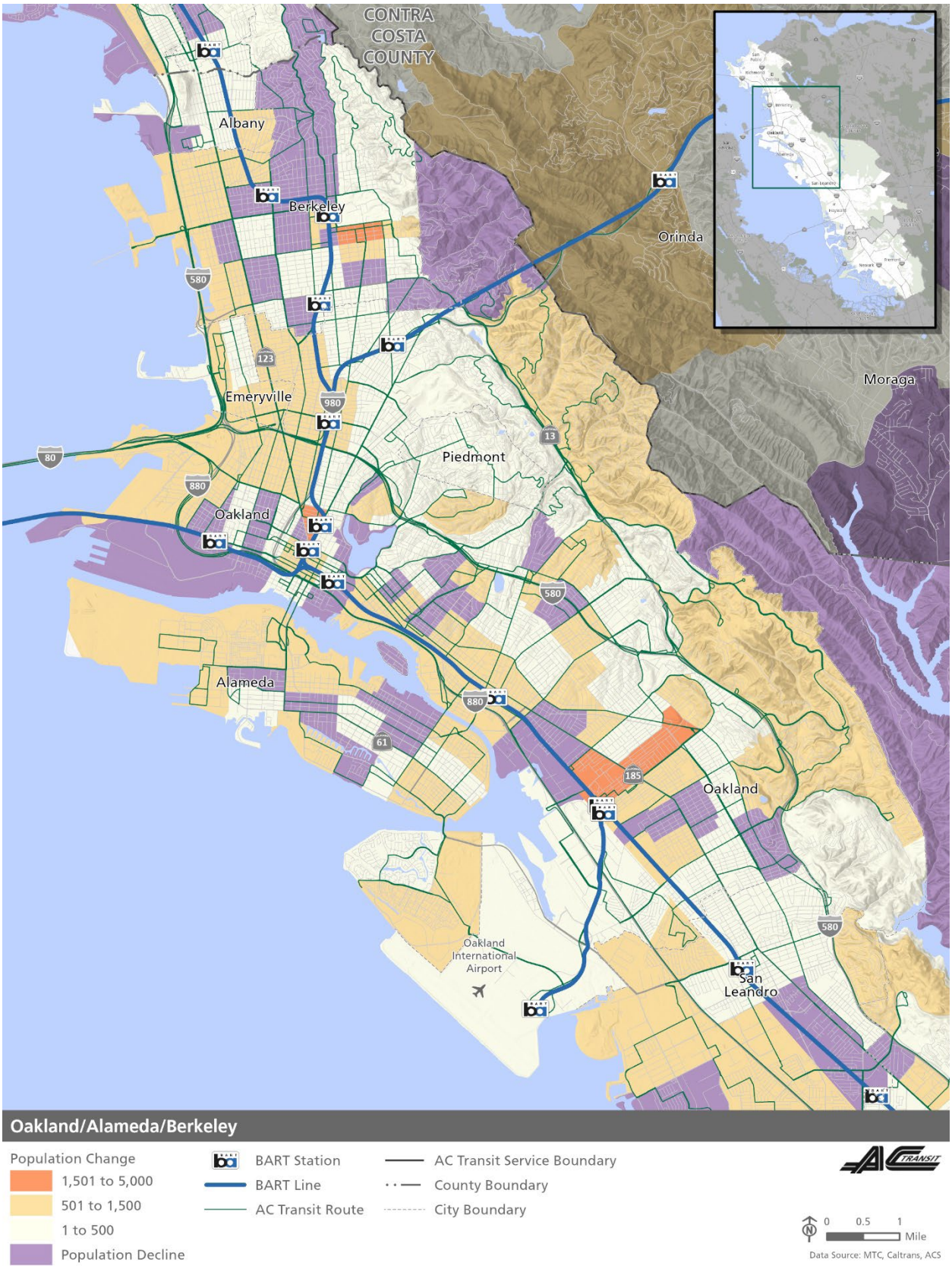


Figure 5 Change in Population, 2013-2021 (Hayward – San Leandro)

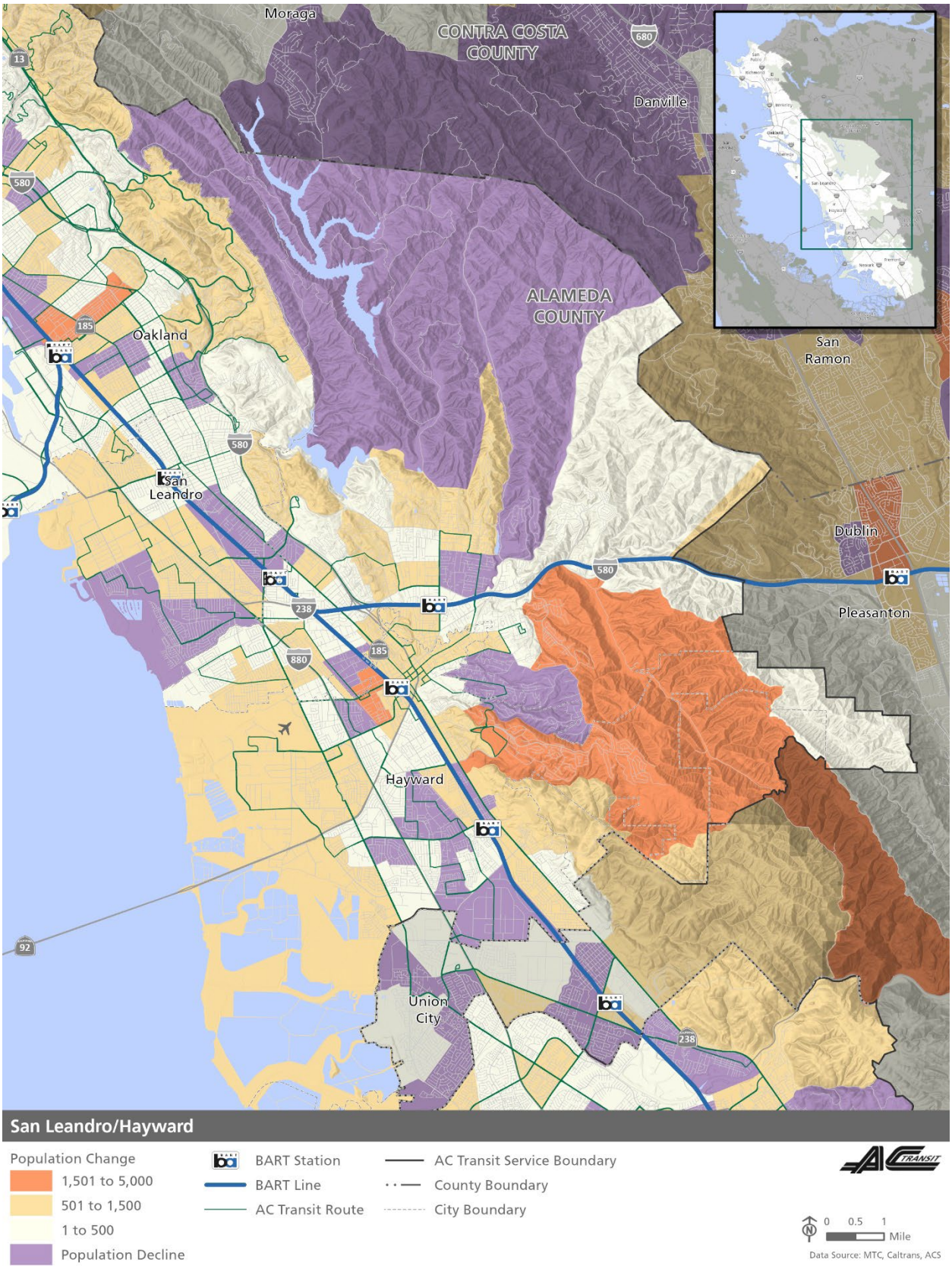
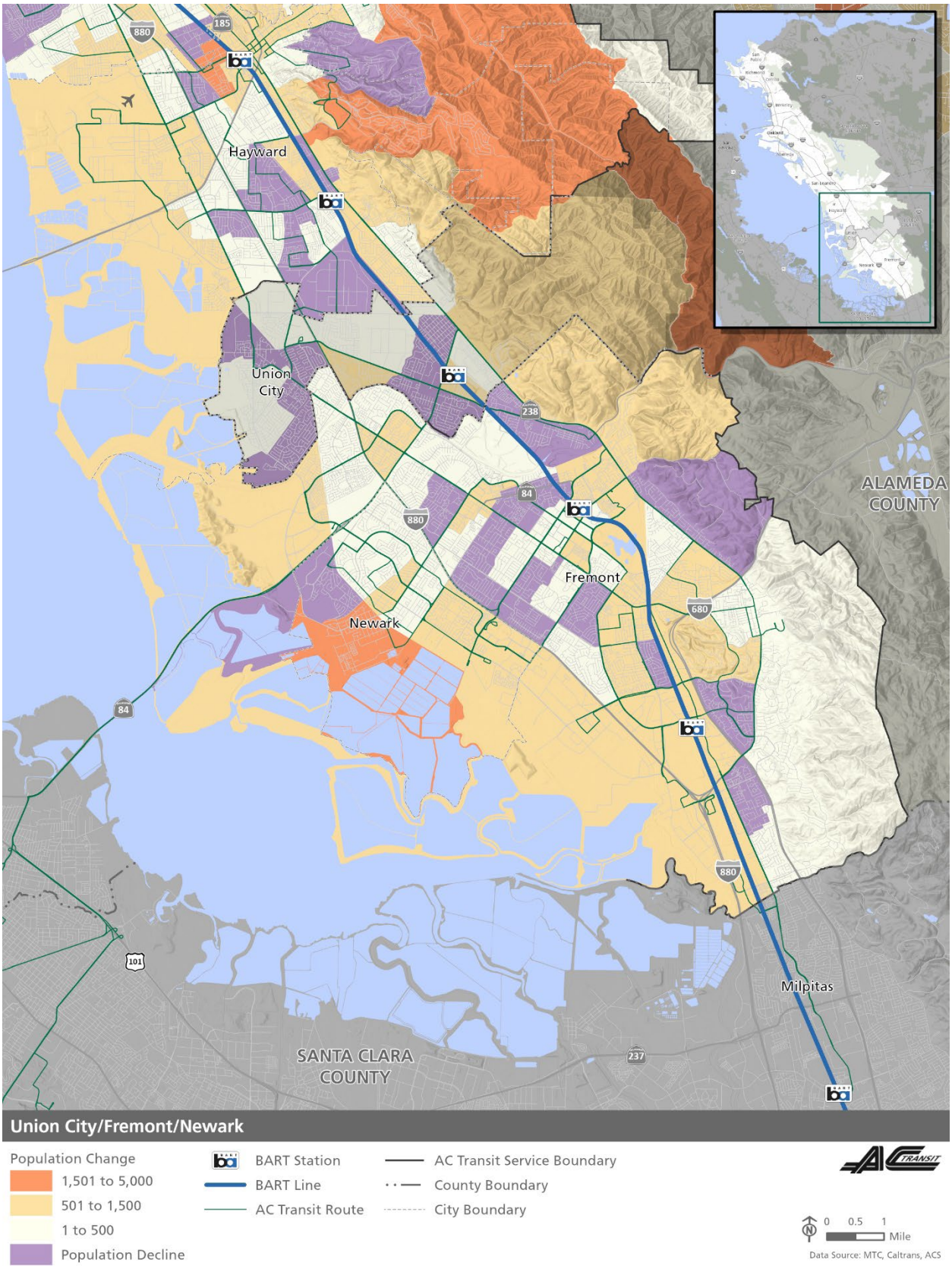


Figure 6 Change in Population, 2013-2021 (Fremont – Newark – Union City)



Population Forecasts and Growth Geographies

The Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG) share joint responsibility for Plan Bay Area, the long-range planning initiative that charts the course for the future of the nine-county San Francisco Bay Area. As part of this initiative, long-term coordinated population forecasts for these counties and their cities are developed. According to the Plan Bay Area 2050 Population Forecast[4] for 2015 through 2050, which is the latest report available at this time:

> *"Between 2015 and 2050, the region is forecasted to add 1.4 million new jobs, for a total of 5.4 million Bay Area workers. Household growth is anticipated to roughly follow pace, adding slightly fewer than 1.4 million new households for a total of 4 million households by 2050. This growth would bring the Bay Area's population to an estimated 10.3 million residents by 2050, up from around 7.8 million today.*
>
> *To accommodate new families and meet the needs of those living in the Bay Area today, Plan Bay Area 2050 plans for sufficient housing growth (i.e., growth in the number of homes available) to ensure that strong job growth is not met with an increase in traffic congestion and long-distance commuters traveling to the Bay Area from outside of the region. In total, the region would need to build another 1.4 million new homes by 2050 to meet forecasted future demand."*

Plan Bay Area describes four types of growth geographies:

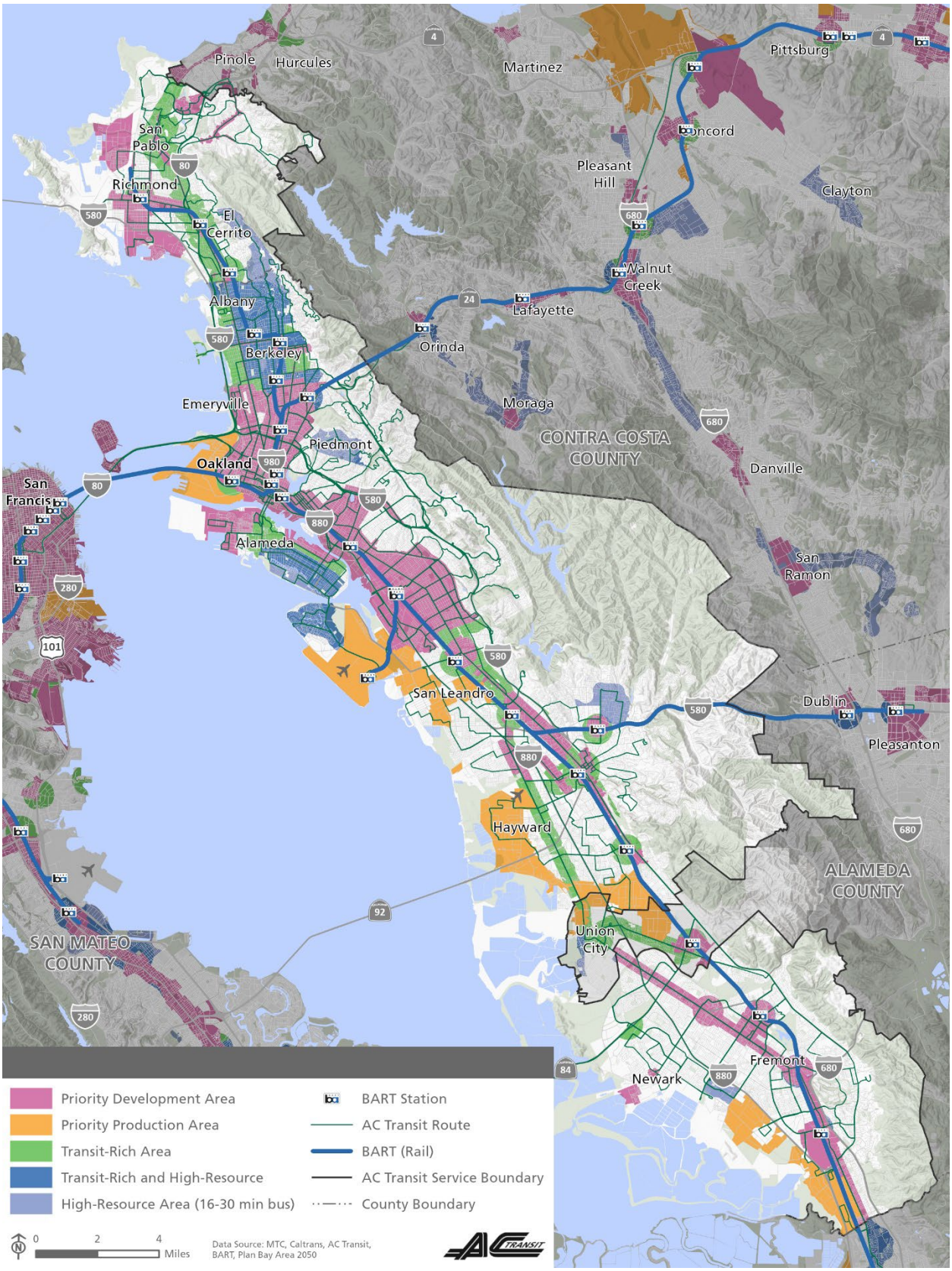
- **Priority Development Areas (PDAs):** Areas generally near existing job centers or frequent transit that are locally identified (i.e., identified by towns, cities or counties) for housing and job growth.
- **Priority Production Areas (PPAs):** Locally identified places for job growth in middle-wage industries such as manufacturing, logistics, or other trades. An area must be zoned for industrial use or have a predominantly industrial use to be a PPA.
- **Transit-Rich Areas (TRAs):** Areas near rail, ferry, or frequent bus service that were not already identified as PDAs. Specifically, these are areas where at least 50% of the area is within ½ mile of either an existing rail station or ferry terminal (with bus or rail service), a bus stop with peak service headway of 15 minutes or better, or a planned rail station or planned ferry terminal (with bus or rail service).
- **High-Resource Areas (HRAs):** State-identified places with well-resourced schools and access to jobs and open space, among other advantages, that may have historically rejected more housing growth. This designation only includes places that meet a baseline transit service threshold of bus service with peak headways of 30 minutes or better.

Figure 7 shows the locations of growth geographies within the service area. Most of the Oakland-Alameda-Berkeley and West Contra County subareas fall within one or more of the Plan Bay Area growth geographies, with the except of the Oakland Hills, Berkeley Hills, and Richmond Hills. For the Hayward-San Leandro and Fremont-Newark-Union City subareas, growth geographies are more focused along specific transit corridors or around office and industrial parks.

A summary of major planned development projects is provided as **Appendix A** to this memorandum. In general, the planned projects correspond to the Plan Bay Area growth geographies discussed above.

[4] Plan_Bay_Area_2050_October_2021_rev.pdf (planbayarea.org)

Figure 7 Plan Bay Area Growth Geographies, 2015-2050



ABAG year 2035 and year 2050 population forecasts for the AC Transit service area and its subareas are provided in **Table 5**. As shown, the Hayward–San Leandro subarea is forecast to have slower population growth compared to the other subareas for both 2021-2035 (6%) and 2021-2050 (14%). The Oakland-Alameda-Berkeley subarea is forecast to experience the most growth for both 2021-2035 (25%) and 2021-2050 (39%).

Table 5 ABAG Population Forecasts

Geography	2021 Population	2035 Population	Change (2021–2035)	2050 Population	Change (2021–2050)
West Contra Costa County	177,444	212,458	20%	234,613	32%
Oakland – Alameda – Berkeley	671,369	841,038	25%	934,919	39%
Hayward – San Leandro	395,787	419,908	6%	449,407	14%
Fremont – Newark – Union City	344,006	424,753	23%	444,435	29%
Service Area	1,588,606	1,898,157	19%	2,063,374	30%

Source: Plan Bay Area 2050

Population Density

The greater an area's population density, the greater the likelihood that people will opt for transit. Higher-density areas generate more transit trips both because more people live there (i.e., there is a bigger market) and because people living in higher-density areas tend to make more trips by transit.

As a general rule, residential densities of three (3) households per gross acre along a route can support hourly weekday transit service[5] (A gross acre is total land area, including land used for streets, parks, schools, and other non-residential uses). Higher densities can support more frequent service. Other factors, such as age, income, car ownership, and disability, discussed later in this section, can indicate a greater potential to make trips by transit than might be suggested by residential density alone.

Figure 8 shows population density in terms of persons per square mile within the service area. **Figure 9 to Figure 12** show the distribution of population density (people per square mile) by census block group[6] for each subarea. A density of 5,000 persons per square mile is approximately equal to 3 households per acre. Because these maps were developed from census data at the block group level, some pockets of higher density development may not show up in the maps, if the development is located within a larger block group that is mostly undeveloped (e.g., regional parkland) or mostly developed with non-residential uses such as industrial.

Within the service area, the highest population densities are found around the UC Berkeley campus and in downtown Oakland.

[5] Transit Capacity and Quality of Service Manual (3rd Edition)

[6] Census block groups are the smallest demographic unit for which 5-year ACS data are available. While they provide valuable information for this planning process, they do not necessarily coincide with jurisdictional boundaries for the communities of the AC Transit service area.

Figure 8 Population Density, 2021 (Service Area)

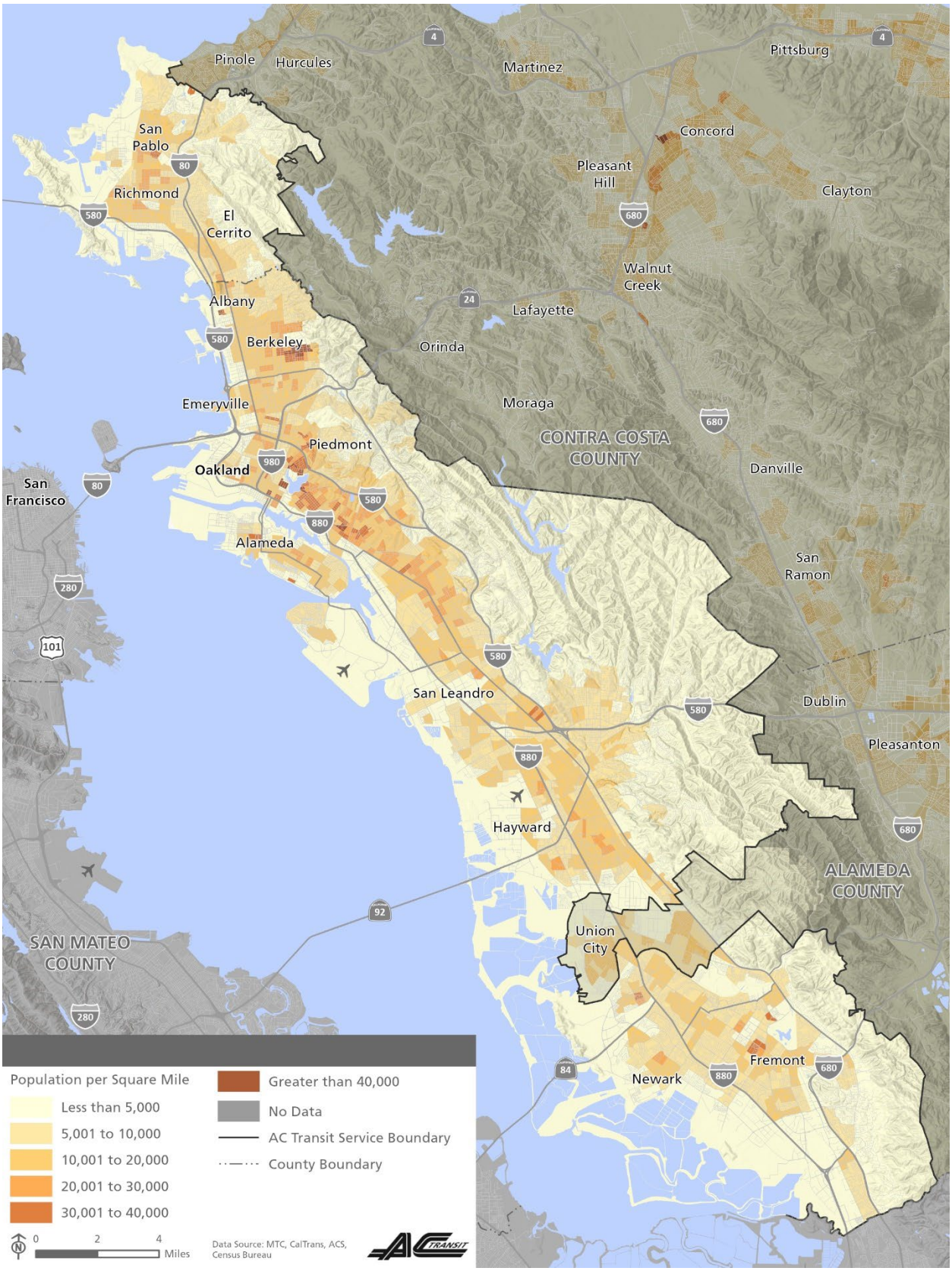


Figure 9 Population Density, 2021 (West Contra Costa County)

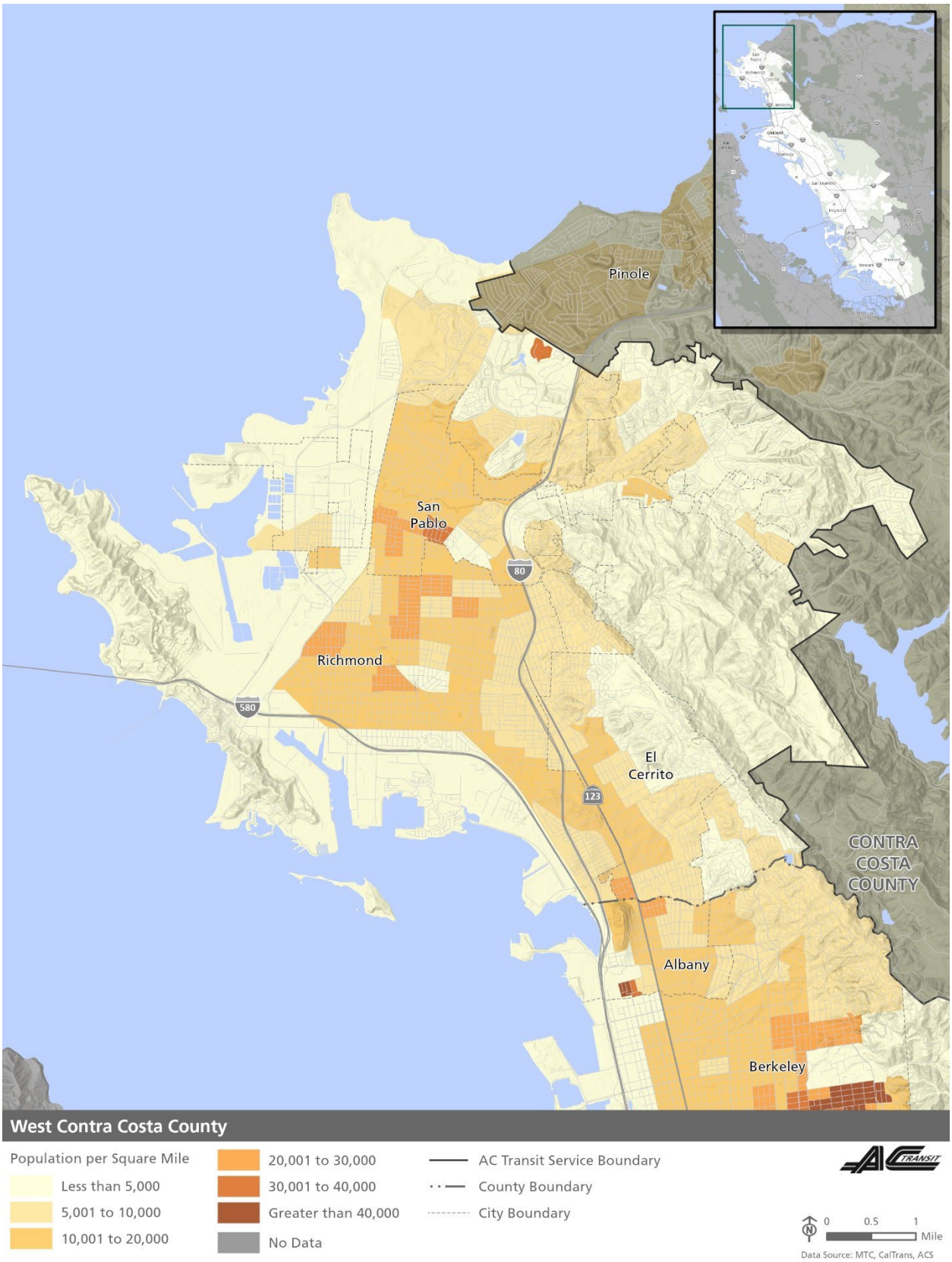


Figure 10 Population Density, 2021 (Oakland - Alameda - Berkeley)

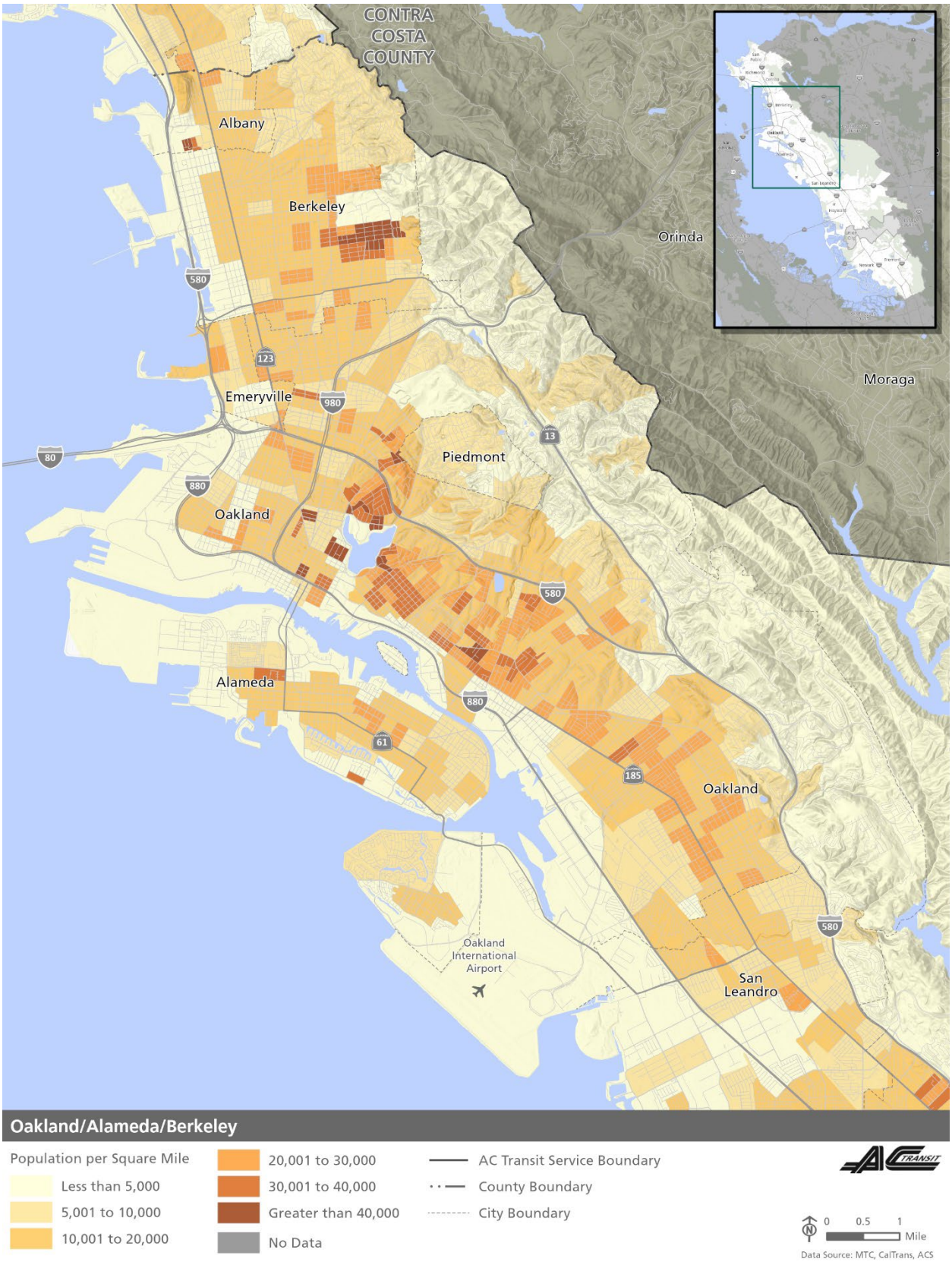


Figure 11 Population Density, 2021 (Hayward - San Leandro)

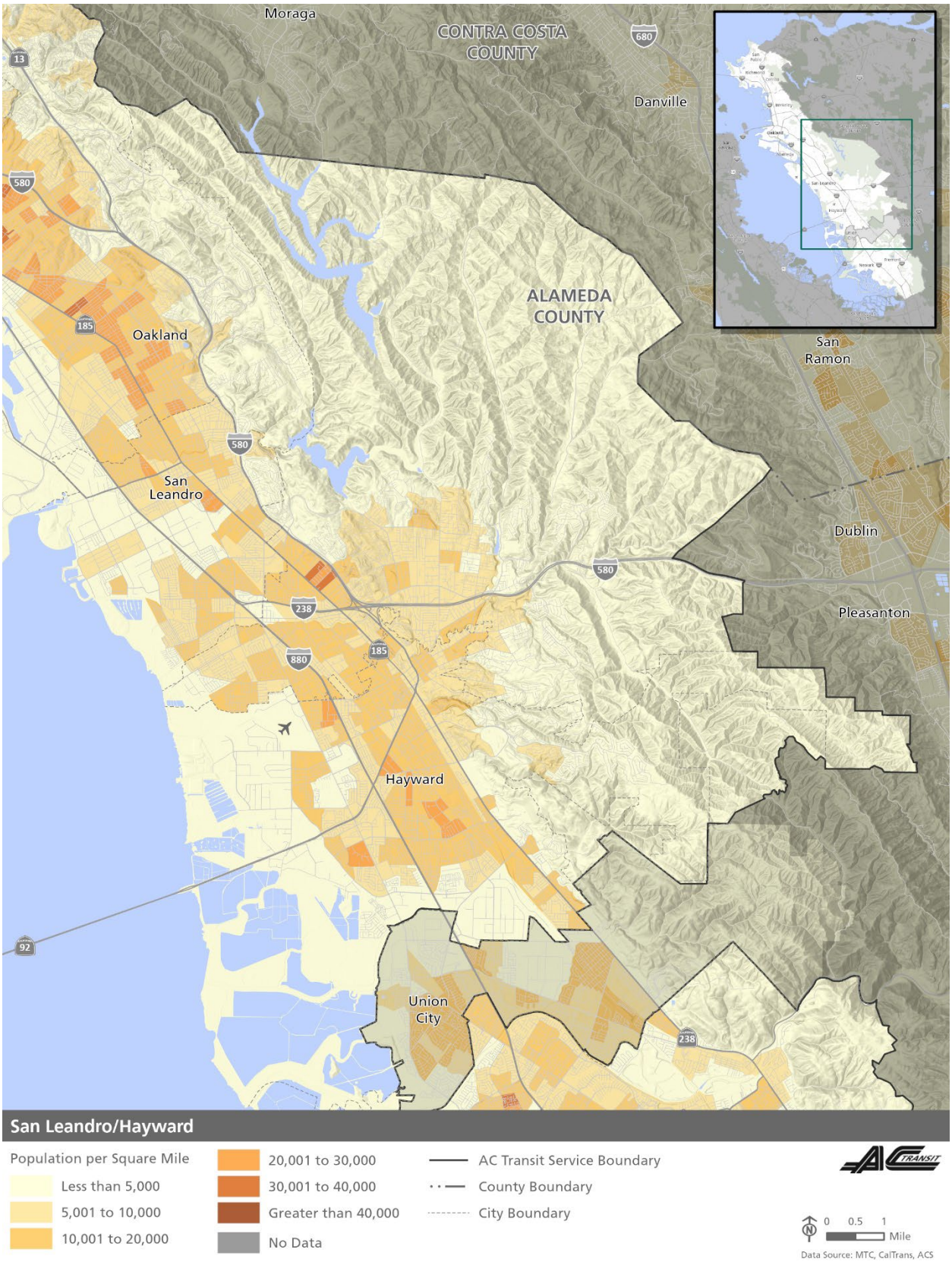
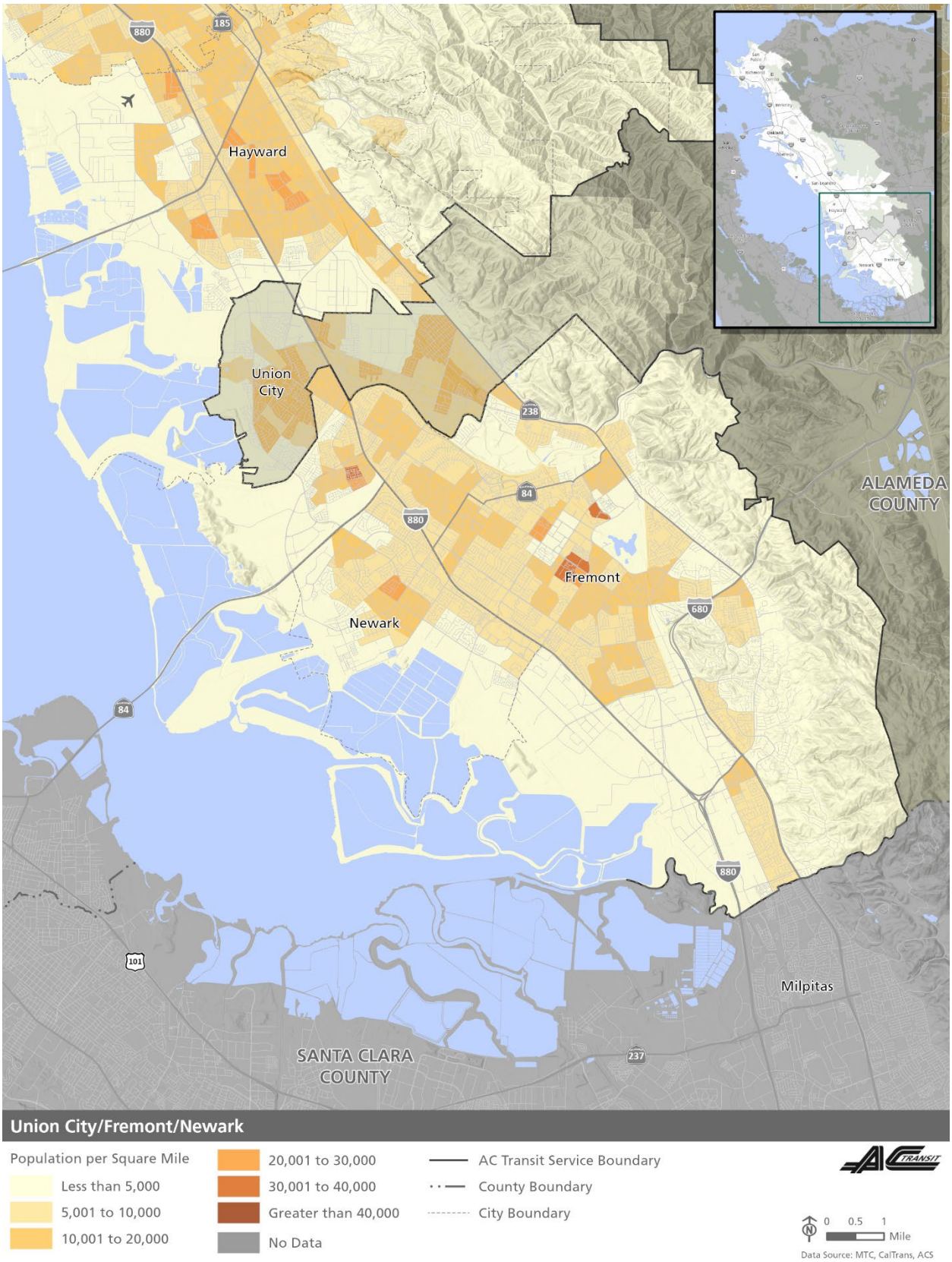


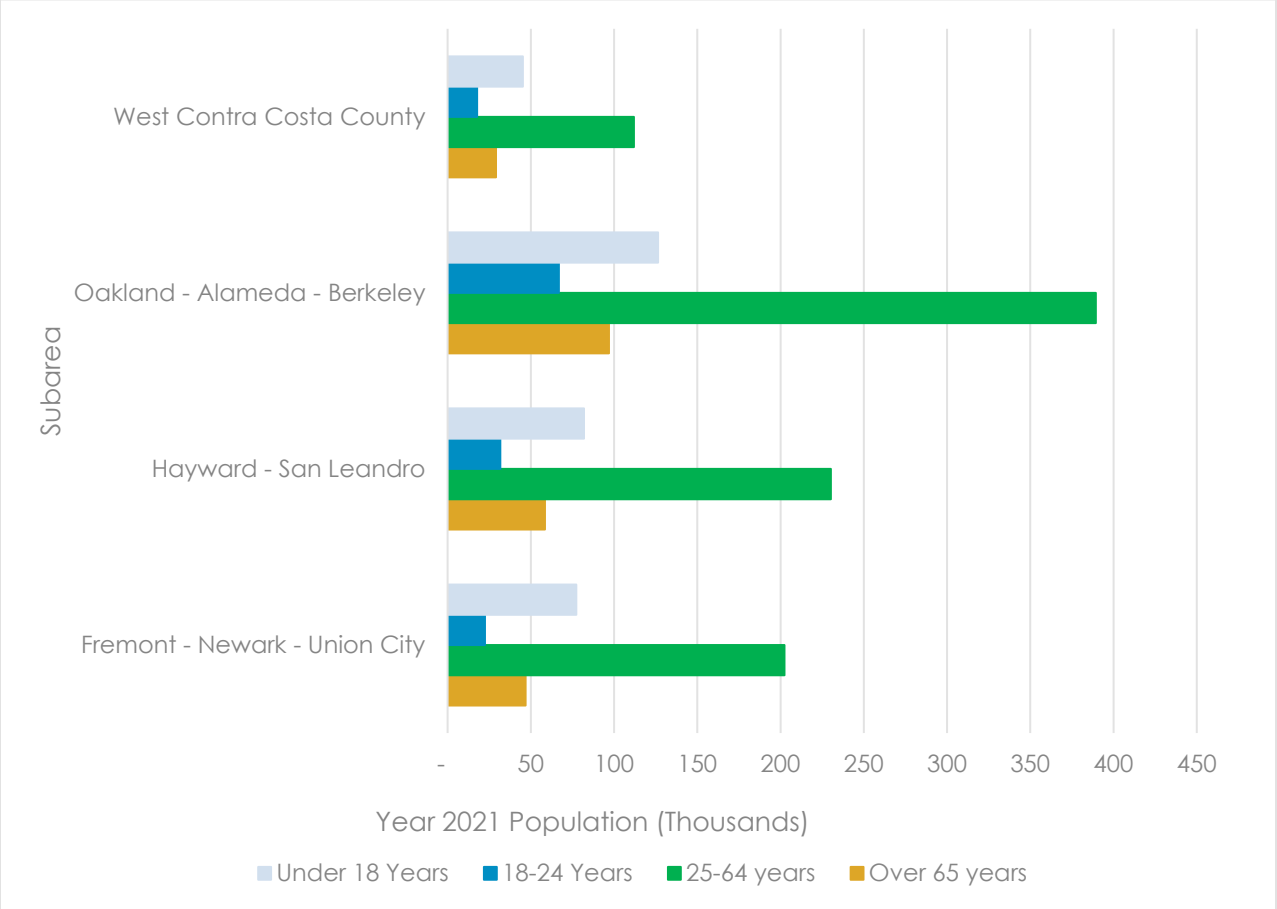
Figure 12 Population Density, 2021 (Fremont - Newark - Union City)



3.2 Age

It is important to recognize the use of mobility options by age group in society and how mobility can change with time. For example, youth and seniors have limited mobility options. In most cases, youth are limited to rides from parents, public transit, school buses (where provided), walking, or biking, some of which may be unavailable, unreliable, or deemed unsafe by parents. **Figure 13** illustrates the 2021 populations of youth (under 18 years), young adults (18–24 years), and older adults (65 and older) within the subareas and the service area. In general, the youth population is greater within each subarea than the older adult population. However, over time, the older adult population has increased, while the youth and young adult populations have decreased.

Figure 13 Population by Age Group, 2021



Source: 2021 5 Year ACS (Table B01001)

Youth (Under 18 Years)

Figure 14 shows the share of youth population for the service area. Areas with a high concentration of youth generally coincide with single-family residential areas near schools. While school bus services may serve the youth populations during the school year, additional services to youth-based activities (parks, community centers, athletic centers) may be appropriate to consider in support of summer and out-of-school mobility.

Table 6 documents the percent of total population under 18 years of age for 2013 and 2021 and the percent change between the two years for the subareas and the service area. For the year 2021, Fremont-Newark-Union City and West Contra Costa County and Fremont-Newark-Union City have the highest proportion of youth, at 22.2 percent and 22.0 percent, respectively. As shown, the youth population in the service area has declined by 1.2 percentage points, with the greatest decrease (3.0 percentage points) observed in the Hayward–San Leandro subarea. The Oakland–Alameda–Berkeley subarea has the lowest proportion of youth relative to the total population.

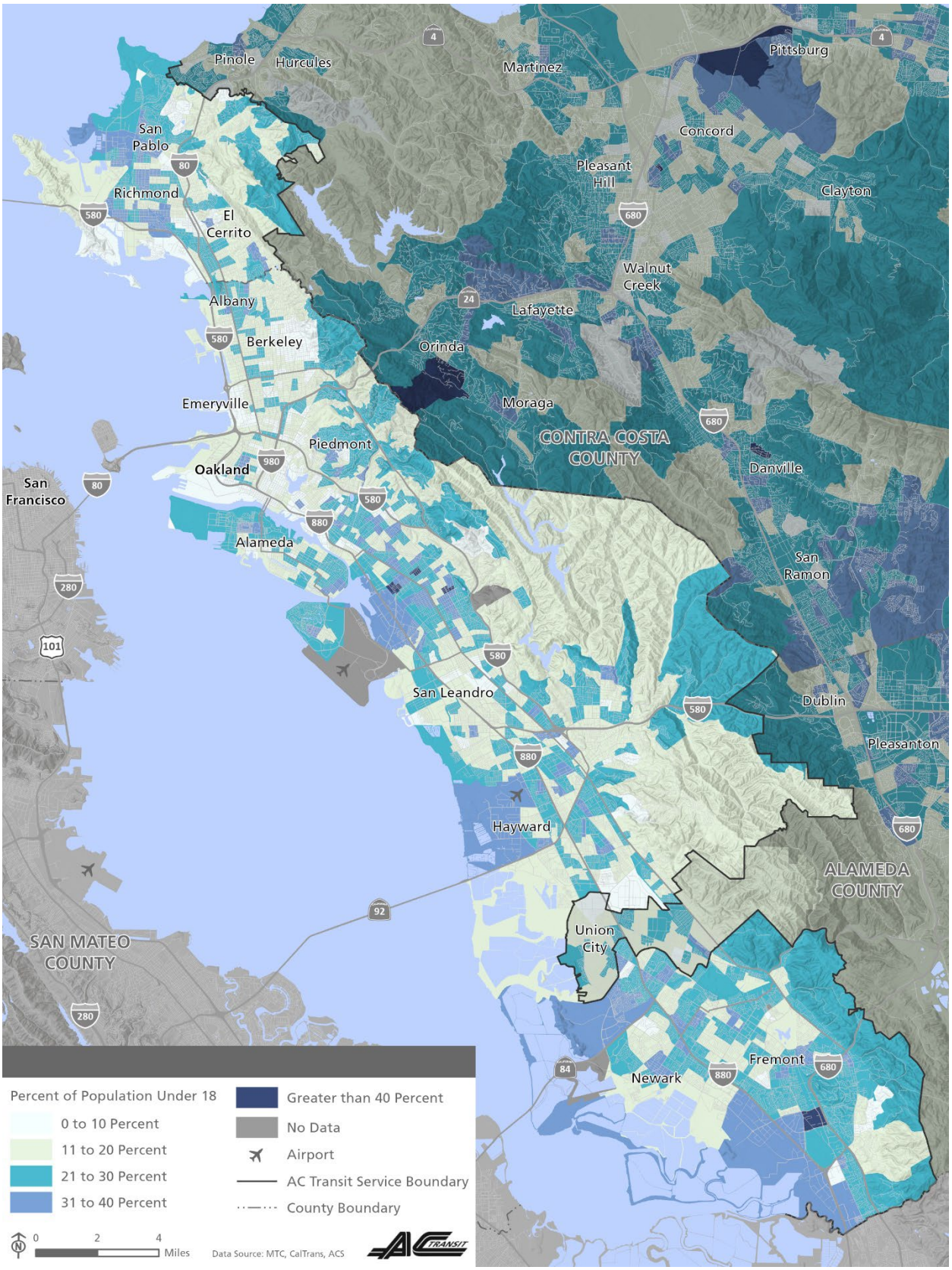
Overall, there is a decline in the number of young people relative to the service area population. As there is not a commensurate increase in the young adult (ages 18-24) population, this may indicate that families with children left the service area between 2013 and 2021.

Table 6 Change in Under 18-Year-Old Population (2013–2021)

Geography	Population under 18 (2013)	Population under 18 (2021)	Change (2013 - 2021)
West Contra Costa County	23.5%	22.0%	-1.5%
Oakland–Alameda–Berkeley	19.8%	18.6%	–1.2%
Hayward–San Leandro	23.4%	20.4%	–3.0%
Fremont–Newark–Union City	23.9%	22.2%	–1.7%
Service Area	**22.0%**	**20.8%**	**–1.2%**

Source: 2021 5 Year ACS (Table B01001)

Figure 14 Youth (Under 18) Population, 2021



Young Adults (18–24 Years)

Populations constituting young adults in the age group of 18 to 24 years of age are typically people who go to college or are early in their career. Transit access is crucial to young adults due to the cost of driving relative to income, and commuting to educational institutions and job centers is prominent among this demographic.

Figure 15 shows the proportion of young adults for census block groups within the service area. As shown in the figure, the highest proportions of young adults are found at the campuses of UC Berkeley and Cal State University East Bay in Hayward.

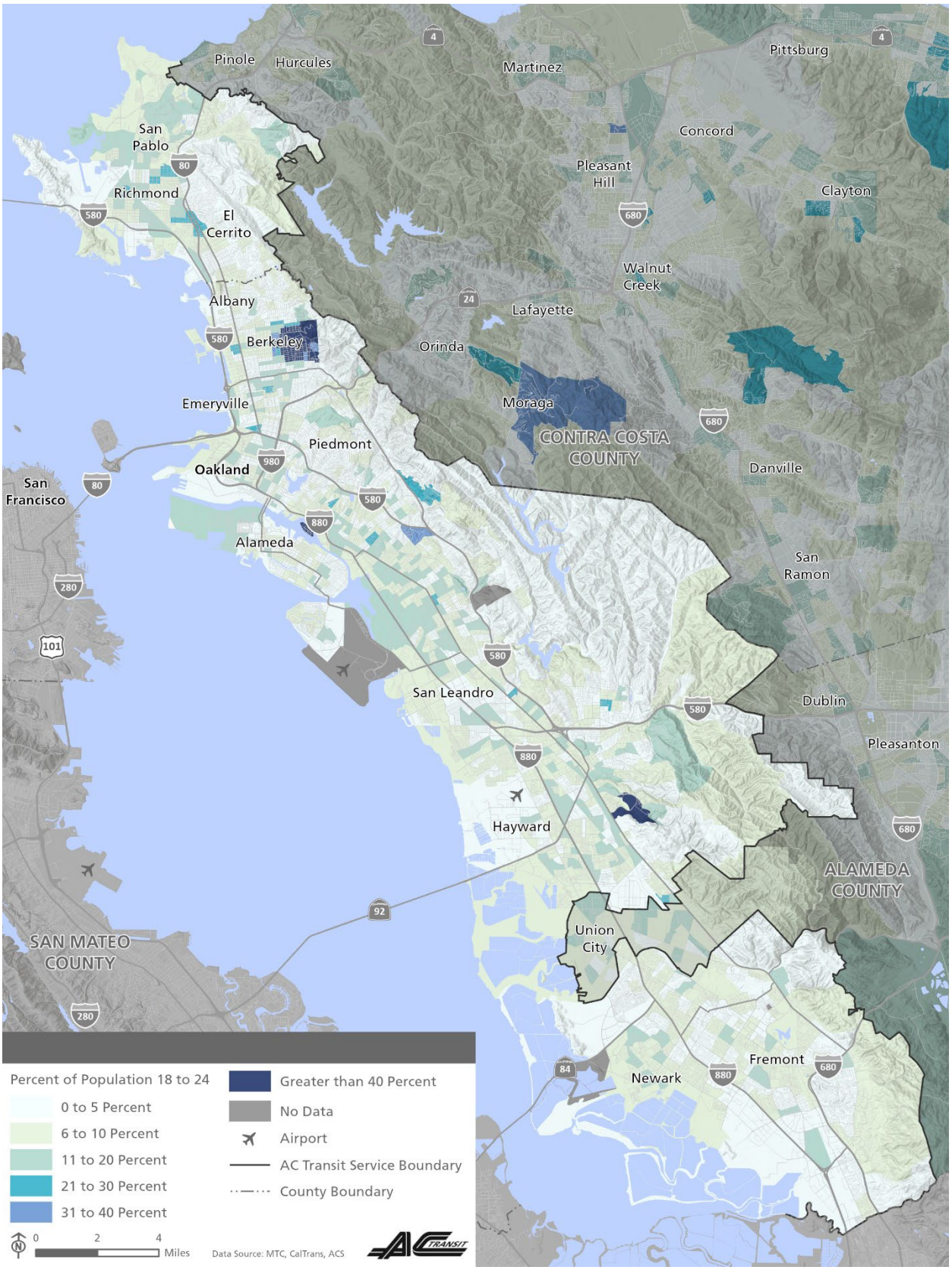
Table 7 documents the percent of young adults for each subarea for 2013 and 2021. As shown, the young adult population decreased by 1.4 percentage points between 2013 and 2021, with the greatest decrease occurring in the Oakland-Alameda-Berkeley subarea.

Table 7 Change in 18 to 24-Year-Old Population (2013–2021)

Geography	18- to 24-Year-Old Population (2013)	18- to 24-Year-Old Population (2021)	Change (2013 - 2021)
West Contra Costa County	9.3%	8.6%	–0.7%
Oakland – Alameda – Berkeley	11.7%	9.8%	–1.9%
Hayward – San Leandro	9.3%	7.8%	–1.5%
Fremont – Newark – Union City	7.7%	6.4%	–1.3%
Service Area	**9.9%**	**8.5%**	**–1.4%**

Source: 2021 5 Year ACS (Table B01001)

Figure 15 Young Adult (18 – 24) Population, 2021



Older Adults (65 Years and Older)

The first "Baby Boomers" turned 65 years old in 2011. This generation is sizeable, contributing to an increase in this population cohort. Baby Boomers are reaching retirement age and over time are likely to be less able to drive on their own. In general, older adults are more likely than the general population to use public transportation, as it becomes more difficult to drive themselves or to maintain a car on a fixed income.

Figure 16 shows the proportion of older adults for census block groups in the service area. Areas with a high proportion of older adults are found in downtown Oakland, West Oakland, San Pablo, and Piedmont.

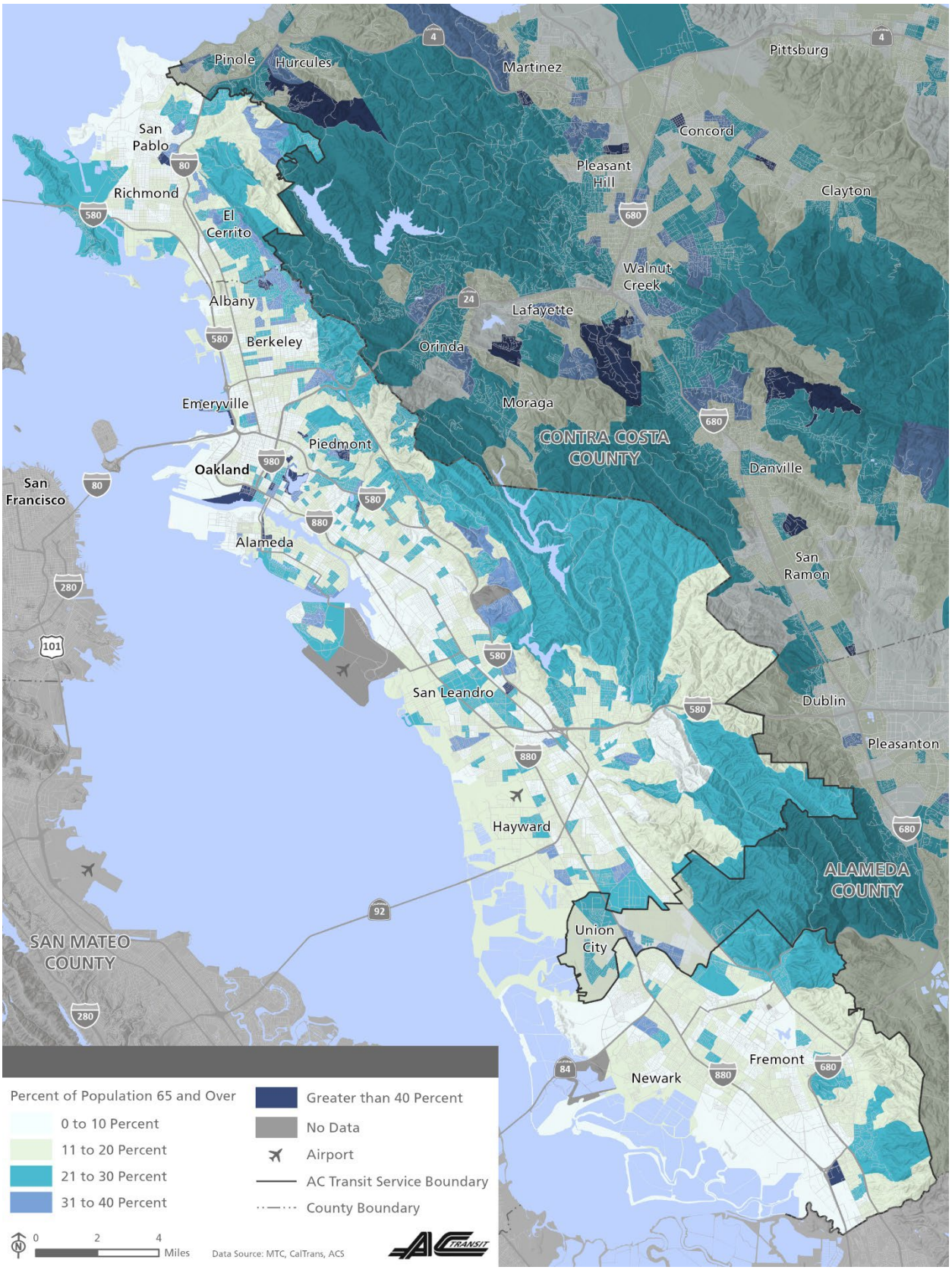
Table 8 documents the proportion of the population 65 years of age and older within each subarea for 2013 and 2021, along with the change between the two years. From 2013 to 2021, the proportion of older residents has increased throughout the service area by an average of 2.5 percentage points. While the greatest increase occurred in the Hayward-San Leandro subarea, all subareas have experienced relatively similar increases. This may indicate that there will be an increasing need for transit services (both fixed-route and on-demand) to meet the needs of an aging population engaged in non-commuter trips.

Table 8 Change in Older Adult (Age 65+) Population

Subarea	65+ Population (2013)	65+ Population (2021)	Change (2013 - 2021)
West Contra Costa County	11.9%	14.4%	2.5%
Oakland–Alameda– Berkeley	11.9%	14.3%	2.4%
Hayward–San Leandro	11.8%	14.6%	2.8%
Fremont–Newark–Union City	11.0%	13.4%	2.4%
Service Area	**11.7%**	**14.2%**	**2.5%**

Source: 2021 5 Year ACS (Table B01001)

Figure 16 Older Adult (65+) Population



3.3 Persons with Disabilities

Persons with disabilities may have mobility or vision impairments that make it difficult or impossible to operate a motor vehicle; consequently, this group has a greater likelihood of relying upon transit for travel. This makes it especially important for transit to be located close to where people with disabilities live and work. While individuals with disabilities may have access to paratransit services (such as East Bay Paratransit, City of Alameda Paratransit, and Oakland Paratransit), these services typically cost more to provide than fixed-route services. Therefore, it is appropriate to consider how the existing and future AC Transit services encourage persons with disabilities to utilize fixed-route services instead of on-demand services.

Table 9 shows the change in the proportion of the population in the service area with a disability. Overall, the proportion of the service area population with a disability is similar between 2013 and 2021. Among the subareas, there was a slight increase (0.2 percentage points) in the share of the population with a disability in Hayward-San Leandro. This increase may correspond to the increase in the older adult population discussed earlier.

Table 9 Change in Population with Disability

Subarea	Population with Disability (2013)	Population with Disability (2021)	Change (2013–2021)
West Contra Costa County	10.8%	10.8%	< 0.1%
Oakland–Alameda-Berkeley	10.3%	10.0%	-0.3%
Hayward-San Leandro	9.9%	10.1%	0.2%
Fremont-Newark-Union City	7.5%	7.3%	-0.2%
Service Area	**9.65%**	**9.5%**	**-0.1%**

Source: 2021 5 Year ACS (Table B18101)

3.4 Low-Income Households

Low-income populations can be particularly reliant on public transit service as a means of affordable transportation. For low-income populations in the service area, the threshold selected was population with a household income less than 200 percent of the federal poverty level (FPL). This threshold is consistent with AC Transit's Title VI program and was used to reflect the higher cost of living in the Bay Area relative to the United States as a whole.

Figure 17 shows the percentage of low-income households by census block groups for the year 2021. Areas near San Pablo, Richmond, Downtown Oakland, East Oakland, and San Leandro have the highest concentration of low-income households.

Table 10 lists the share of population in each subarea with household incomes below 200 percent of the FPL in 2013 and 2021. For 2021, the West Contra Costa and Oakland-Alameda-Berkeley subareas have the highest proportion of low-income households. Between 2013 and 2021, the share of low-income households decreased by almost nine percentage points (30.8% to 21.9%), with the largest decrease occurring in the Hayward-San Leandro subarea.

Table 10 Change in Low-Income Households (2013–2021)

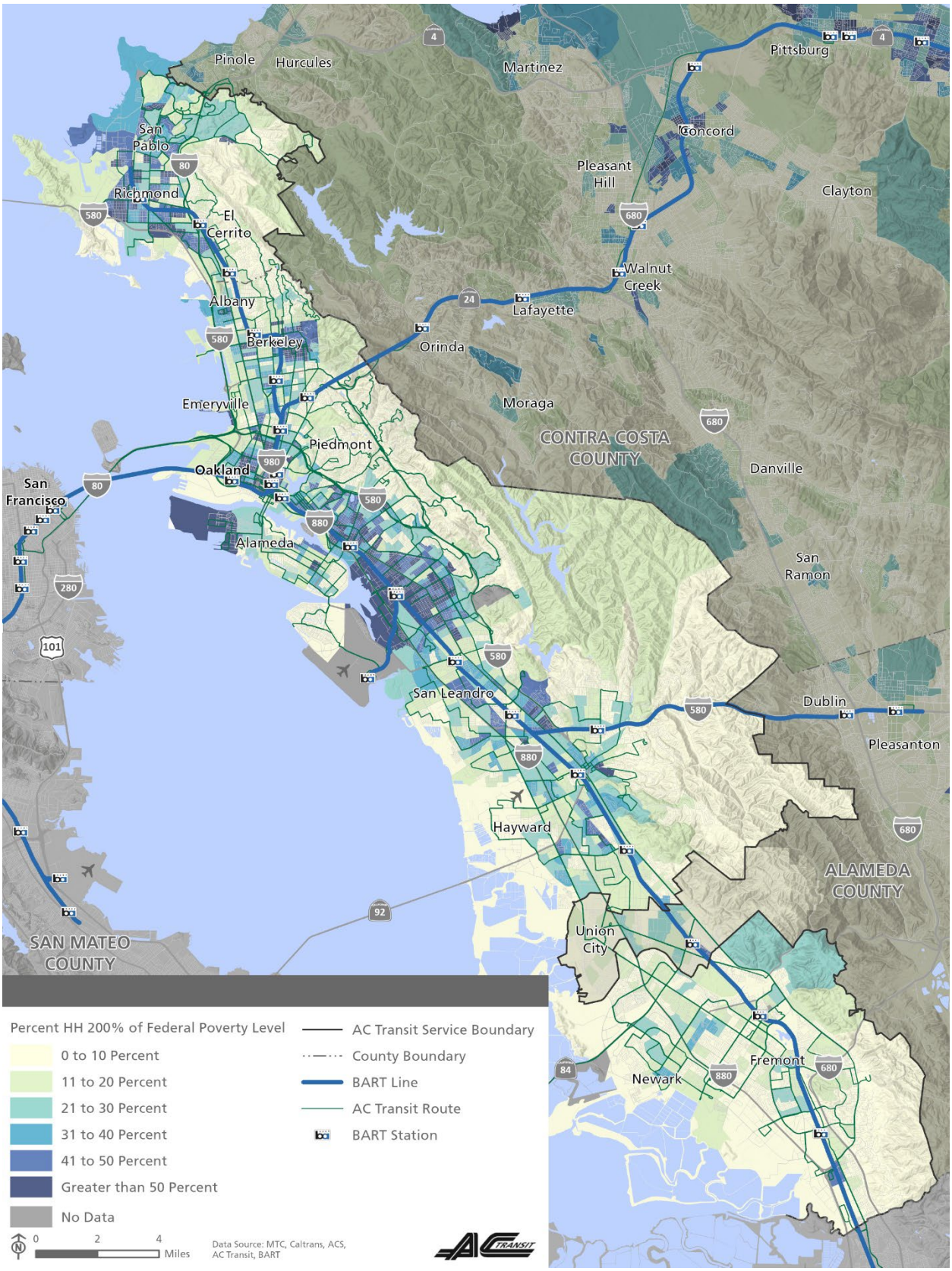
Subarea	Low-Income Households (2013)	Low-Income Households (2021)	Change (2013–2021)
West Contra Costa County	36.4%	27.6%	-8.8%
Oakland–Alameda-Berkeley	36.2%	26.9%	-5.3%
Hayward-San Leandro	30.0%	20.3%	-9.7%
Fremont-Newark-Union City	18.7%	11.0%	-7.7%
Service Area	**30.8%**	**21.9%**	**-8.9%**

Source: 2021 5 Year ACS (Table C17002)
Note: The FPL in 2013 for a four-person household was $23,550. In 2021, the FPL for a four-person household was $26,500.

The decline in the share of low-income households in the service area may be attributed to a greater occurrence of urban displacement and gentrification as housing prices increased during the last decade. For example, research carried out by the *Urban Displacement Project* reveals the presence of ongoing and advanced gentrification within Alameda County.[7]

[7] Urban Displacement Project Gentrification and Displacement retrieved from https://abag.ca.gov/technical-assistance/sf-bay-area-map-gentrification-displacement

Figure 17 Low-Income Households, 2021



3.5 Zero-Vehicle Households

Households without cars have more limited mobility options and may rely more heavily on public transit. Zero-vehicle households may face challenges in accessing transit if transit stops and service are located far away. **Table 11** lists the percentage of zero-vehicle households in 2013 and 2021 for each subarea as well as for the entire service area.

Between 2013 and 2021, the share of zero-vehicle households within the service area decreased by 1.6 percentage points, with the greatest decrease (2.5 percentage points) occurring in Oakland-Alameda-Berkeley. This trend may have important implications for communities' transportation needs, as it indicates that more households now have access to a personal vehicle. It also suggests that public transit demand may decrease if the trend continues. This may be due to gentrification and displacement within the service area, or it may be because people preferred traveling by private automobile during the pandemic.

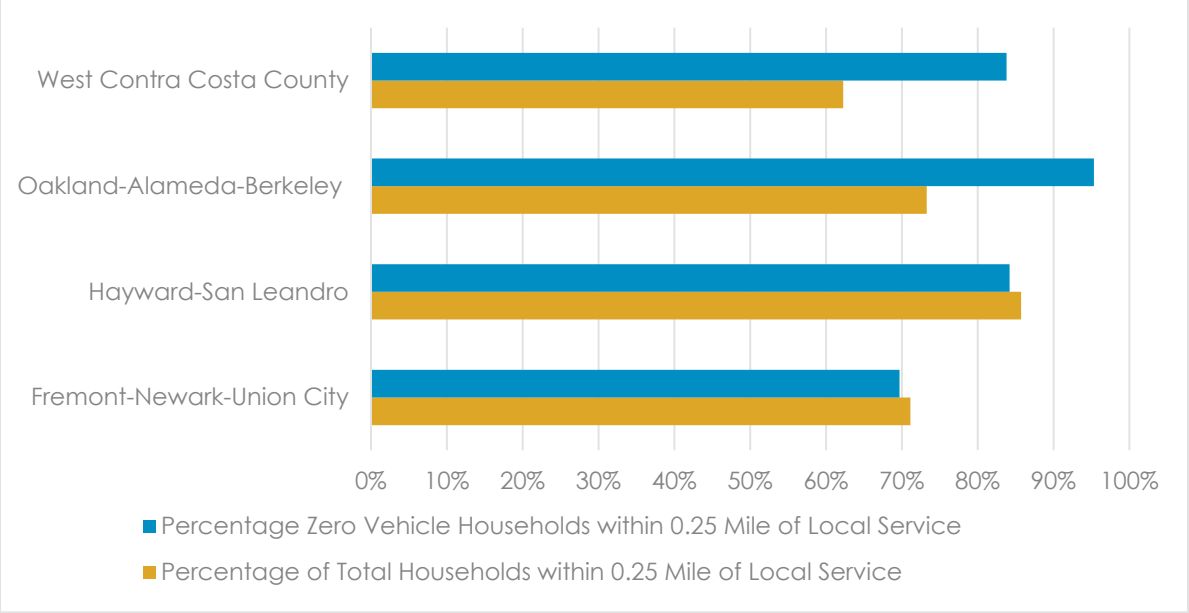
Table 11. Change in Zero-Vehicle Households

Subarea	Zero-Vehicle Households (2013)	Zero-Vehicle Households (2021)	Change (2013–2021)
West Contra Costa County	8.9%	7.4%	-1.5%
Oakland–Alameda-Berkeley	16.6%	14.1%	-2.5%
Hayward-San Leandro	6.5%	5.9%	-0.6%
Fremont-Newark-Union City	4.8%	4.3%	-0.5%
Service Area	**11.1%**	**9.5%**	**-1.6%**

Source: 2021 5 Year ACS (Table B25044)

Figure 18 shows the percentage of zero-vehicle households in each subarea within a quarter mile of local bus system compared to the total households in each subarea that are the same distance from local bus service. For the West Contra Costa County and Oakland-Alameda-Berkeley subareas, a greater percentage of zero-vehicle households within ¼ mile of bus service compared to the population overall. The Fremont-Newark-Union City subarea has the lowest share of zero-vehicle households within a quarter mile of local routes at 70 percent.

Figure 18 Zero-Vehicle Households within 1/4 Mile of Local Bus Service



3.6 Race and Ethnicity

Examining race and ethnicity distribution within the service area can assist AC Transit in assessing whether the proposed network redesign is equitably serving its customers, as well as providing insight as to whether there may be local or cultural barriers to marketing and delivering transit services to the diverse communities throughout the service area.

A note about the data:

Race and ethnicity data was sourced from the ACS via the U.S. Census Bureau. The Census considers race and ethnicity as two separate concepts. For ethnicity, respondents may identify as "Hispanic or Latino" or "Not Hispanic or Latino". The Census then uses these ethnicity categories to qualify race. Recognizing that people do not consider themselves as "Not an Ethnicity", the following section refers to populations as either Hispanic or Latino (Hispanic-Latino) or by their self-reported race. Due to low representation within the region the following categories were analyzed as a combined group: American Indian and Alaska Native, Native Hawaiian and Other Pacific Islander, two or more races, and some other race. **Table 12** summarizes the terms used to identify racial and ethnic groups for analysis purposes.

Table 12 Census Race and Ethnicity Categories

Census Term	Analysis Memo Term
Hispanic or Latino	Hispanic-Latino
Not Hispanic or Latino: White	White
Not Hispanic or Latino: Black or African American	Black
Not Hispanic or Latino: Asian	Asian
Not Hispanic or Latino: American Indian and Alaska Native	Other
Not Hispanic or Latino: Native Hawaiian and Other Pacific Islander	Other
Two or More Races	Other
Some Other Race	Other

Geographic Distribution

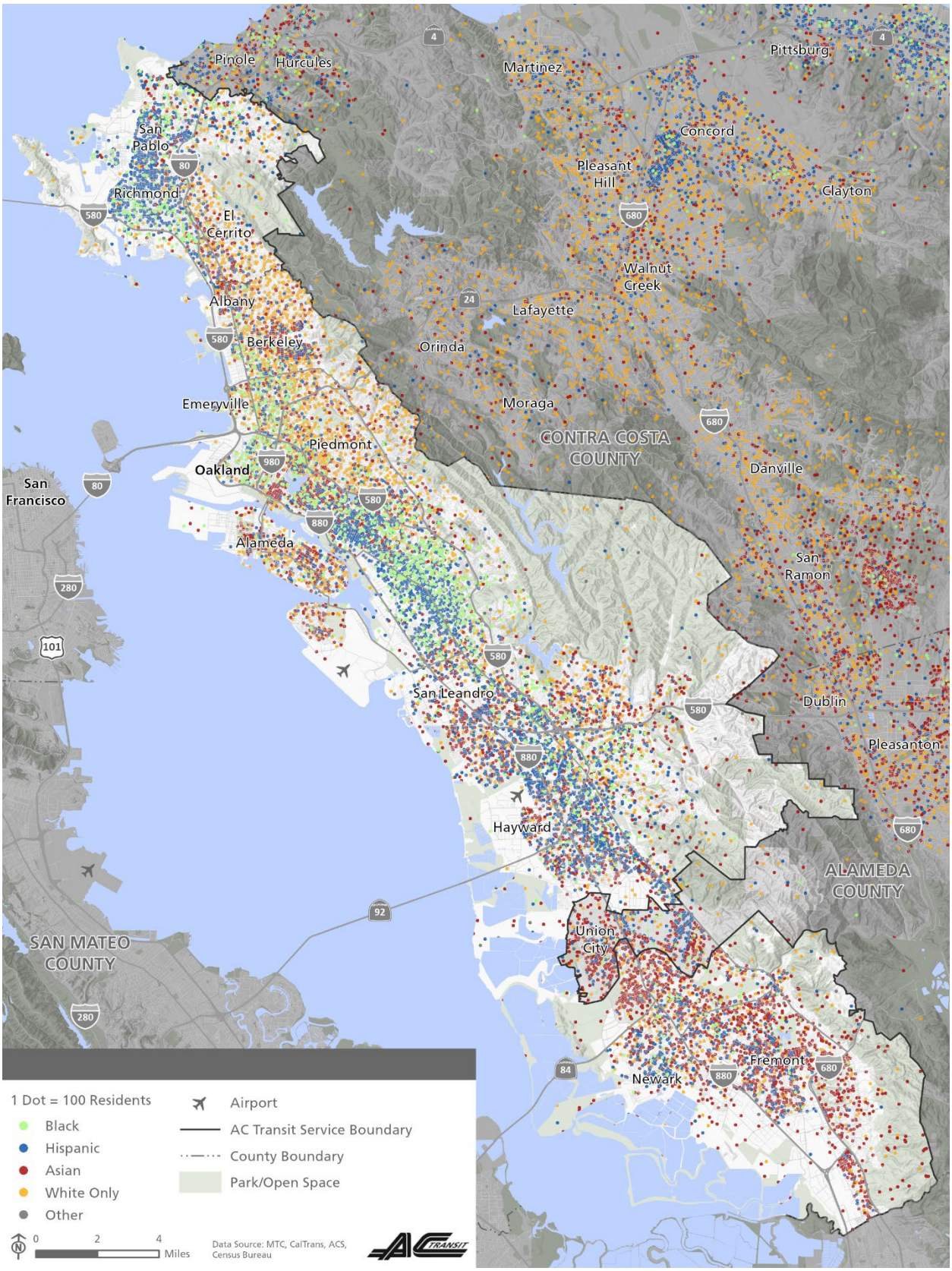
Figure 19 shows the geographic distribution of racial and ethnic groups within the service area. While there are concentrations of particular groups at the municipality or subarea level, no single racial or ethnic group accounts for more than 30 percent of the population within the service area. As shown in **Table 13**, Hispanic-Latino, White, and Asian communities have nearly equal representation within the service area.

Table 13 Race and Ethnicity, 2021 (Service Area)

Subarea	Hispanic-Latino	White	Black	Asian	Other[1]	Subarea Population as % of Service Area
West Contra Costa County	5%	3%	2%	2%	1%	**12%**
Oakland-Alameda-Berkeley	9%	15%	7%	8%	3%	**42%**
Hayward-San Leandro	8%	5%	2%	7%	2%	**25%**
Fremont-Newark-Union City	3%	4%	1%	12%	1%	**21%**
Service Area Total	**26%**	**27%**	**12%**	**29%**	**7%**	**100%**

Source: 2021 ACS 5 Year (Table B03002)
[1] NHL-Other inclusive of some other race alone, two or more races, American Indian and Alaska Native, and Native Hawaiian and other Pacific Islander ACS categories.
Numbers may not add to 100% due to rounding.

Figure 19 Race and Ethnicity, 2021

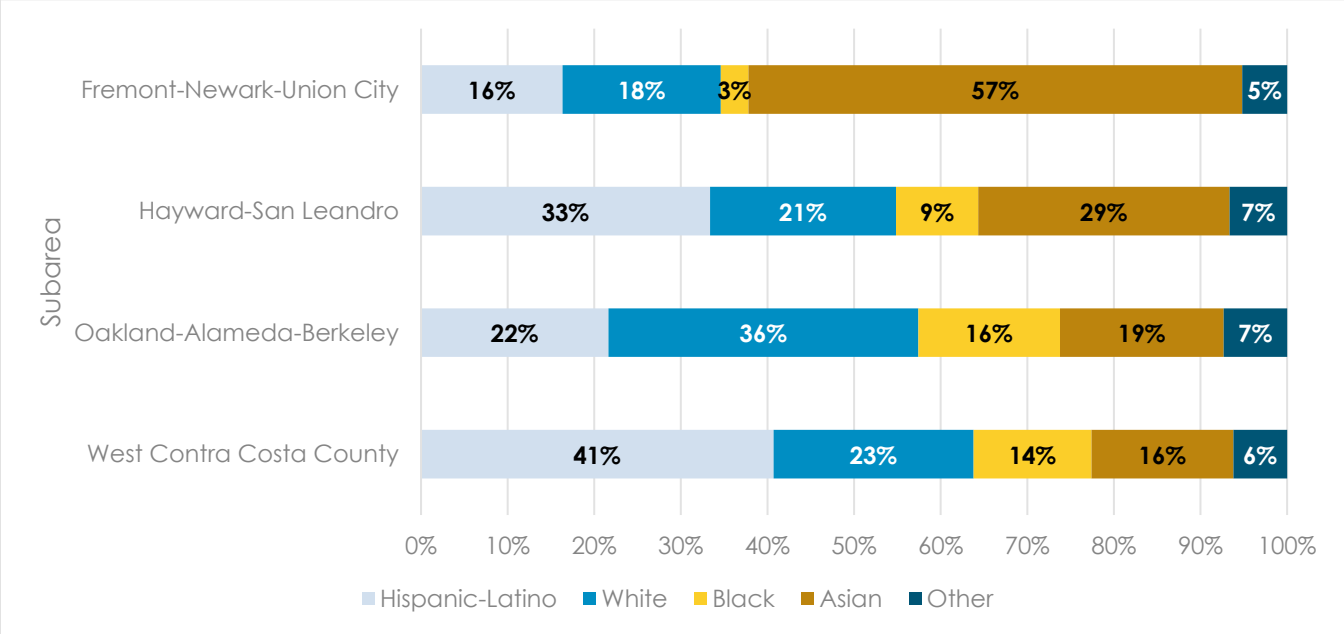


Additional findings regarding the geographic distribution of racial and ethnic groups are as follows:

- The Asian population is largest in the Fremont-Newark-Union City subarea.
- The White population and Black population are significantly larger in the Oakland-Alameda-Berkeley subarea compared to the other subareas.

Figure 20 summarizes the distribution of racial and ethnic groups as a proportion of each subarea's population. The Hispanic-Latino population represents the largest single racial or ethnic group for the West Contra Costa County and Hayward-San Leandro subareas. The Asian and White communities represent the highest share of any racial or ethnic group in Fremont-Newark-Union City and Oakland-Alameda-Berkeley, respectively. The Black and Other populations do not represent a majority or plurality in any subarea.

Figure 20 Race and Ethnicity by Subarea



Source: 2021 ACS 5 Year (Table B03002)

Population Changes

Table 14 shows the population change by racial group between 2013 and 2021. During this period, the Asian population grew most of the racial and ethnic groups within the service area. The Black population is the only racial group whose overall numbers decreased significantly during this period.

Table 14 Change in Race and Ethnicity by Gross Population

Race/Ethnicity	2013 Population	2021 Population	% Change (2013 to 2021)
Hispanic-Latino	383,000	422,000	10%
White	445,000	441,000	Less than 1%
Black	210,000	188,000	-10%
Asian	398,000	478,000	20%
Other[1]	82,000	107,000	31%

[1] Other inclusive of some other race alone, two or more races, American Indian and Alaska Native, and Native Hawaiian and other Pacific Islander ACS categories.
Source: 2021 ACS 5 Year (Table B03002), 2013 ACS 5 Year (Table B03002)

Table 15 shows the proportion of the service area population that each race and ethnicity group represented in 2013 and 2021. The Asian population grew 3 percentage points, the largest of any group. While its absolute numbers stayed nearly the same, the White population shrunk by 2.4 percentage points as a share of the service area – the largest reduction of any racial or ethnic group. While the Black population shrunk by 10% overall, it shrunk by just over 2 percentage points as a share of the service area. Despite growing 10% in absolute numbers, the Hispanic Latino population stayed relatively steady as a share of the service area. The Asian and Other populations grew the most significantly overall (20 and 31%) and as a proportion of the service area.

Table 15 Change in Race and Ethnicity as a Proportion of Service Area

Race/Ethnicity	% of 2013 Service Area Population	% of 2021 Service Area Population	Change
Hispanic-Latino	25.2%	25.8%	**0.6%**
White	29.3%	26.9%	**-2.4%**
Black	13.8%	11.5%	**-2.3%**
Asian	26.2%	29.2%	**3.0%**
Other[1]	5.4%	6.6%	**1.2%**
Total	**100%**	**100%**	**-**

[1] Other inclusive of some other race alone, two or more races, American Indian and Alaska Native, and Native Hawaiian and other Pacific Islander ACS categories.
Source: 2021 ACS 5 Year (Table B03002), 2013 ACS 5 Year (Table B03002)

3.7 Limited English Proficiency

A "limited English-speaking household" is one in which no member 14 years old and over (1) speaks only English or (2) speaks a non-English language and speaks English "very well" (ACS Table C16002). The following analysis examines at a high level the proportion of the populace that may require language assistance and where those households are generally distributed.

Limited English proficiency (LEP) households make up 9.3% of the service area in 2021. **Table 16** shows the proportion of LEP households in 2016 and 2021 for each subarea and for the service area. Overall, the share of LEP households in the service area decreased from 11.1% in 2016 to 9.3% in 2021. Fremont-Newark-Union City is the only subarea that experienced an increase (0.4 percentage point) in the share of LEP households between 2016 and 2021.

Table 16 Change in Limited-English Proficiency Households, 2016-2021

Subarea	% LEP in Subarea (2016)	% LEP in Subarea Area (2021)	Change
West Contra Costa County	12.3%	10.0%	-2.3%
Oakland-Alameda-Berkeley	9.7%	6.8%	-2.9%
Hayward-San Leandro	13.0%	10.7%	-2.3%
Fremont-Newark-Union City	9.4%	9.8%	0.4%
Service Area	**11.1%**	**9.3%**	**-1.8%**

Source: ACS 5 Year Estimates 2021 (Table C16002). 2016 is the first year available for this data.

3.8 Access to Basic Services

A people-focused transportation network starts by understanding the existing level of access to basic services. These basic services include schools and universities, major hospitals, libraries, parks and open spaces. This understanding helps ensure that the transit network serves the community in accessing all of their needs in a safe and timely manner. Many of these basic services are shown along with existing transit coverage in **Figures 21 through 24**.

In addition to assessing basic services associated with a single parcel or address, the study team also considered "food deserts." The limited access to food designation is based on low-income census tracts where a relatively high number of households without vehicles is more than 1/2 mile from the nearest supermarket or grocery store (USDA, 2019 Food Access Research Atlas).[8;9] Food deserts have a higher proportion of low income communities in the Bay Area.[10] The inclusion of food deserts and hospitals in this section is intended to show at a high level how expanding the geography of mobility for these communities can improve their access to critical community resources as well as economic and recreational opportunities.

[8] https://www.ers.usda.gov/data-products/food-access-research-atlas/go-to-the-atlas/
[9] USDA Atlas utilized data from the U.S Department of Commerce County Business Patterns to identify the location of supermarkets or small grocery stores primary engaged in the retail of food including fresh food. Convenience stores and supercenters or warehouse clubs were excluded.
[10] https://sites.google.com/csueastbay.edu/rumbamath/2020-2021-projects/food-deserts-in-the-bay-area

Figure 21 Access to Basic Services (West Contra Costa County)

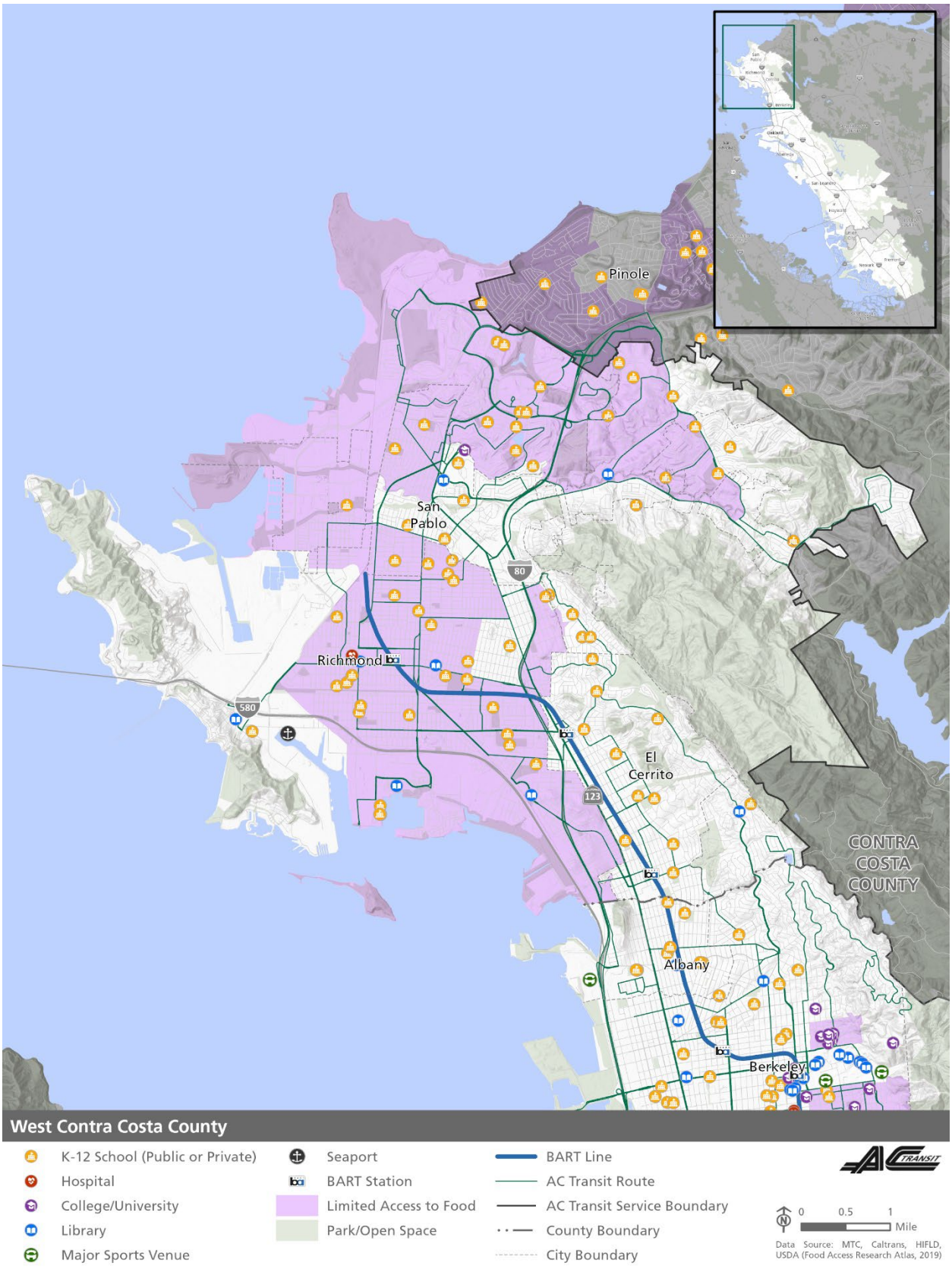


Figure 22 Access to Basic Services (Oakland-Alameda-Berkeley)

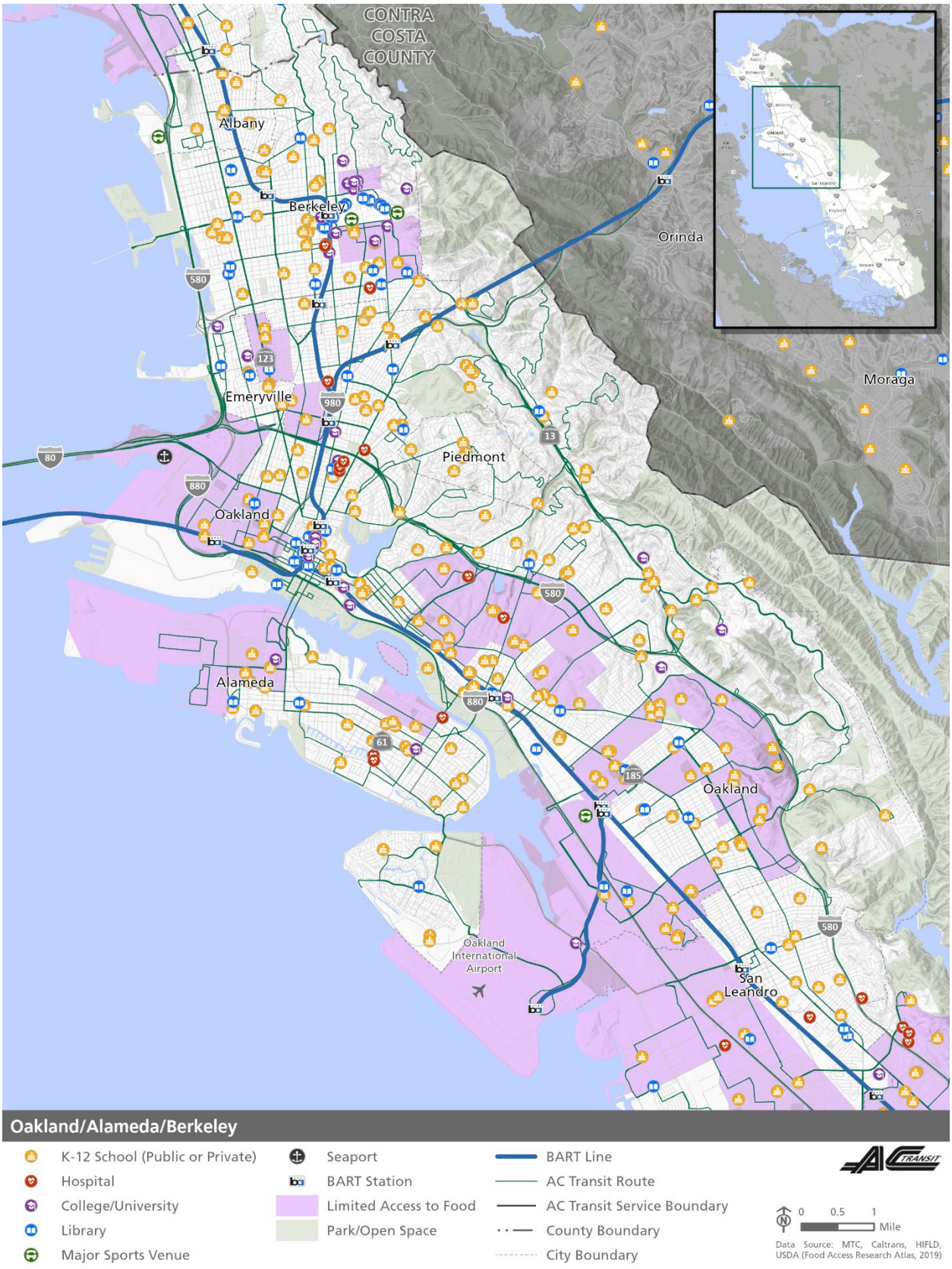


Figure 23 Access to Basic Services (Hayward - San Leandro)

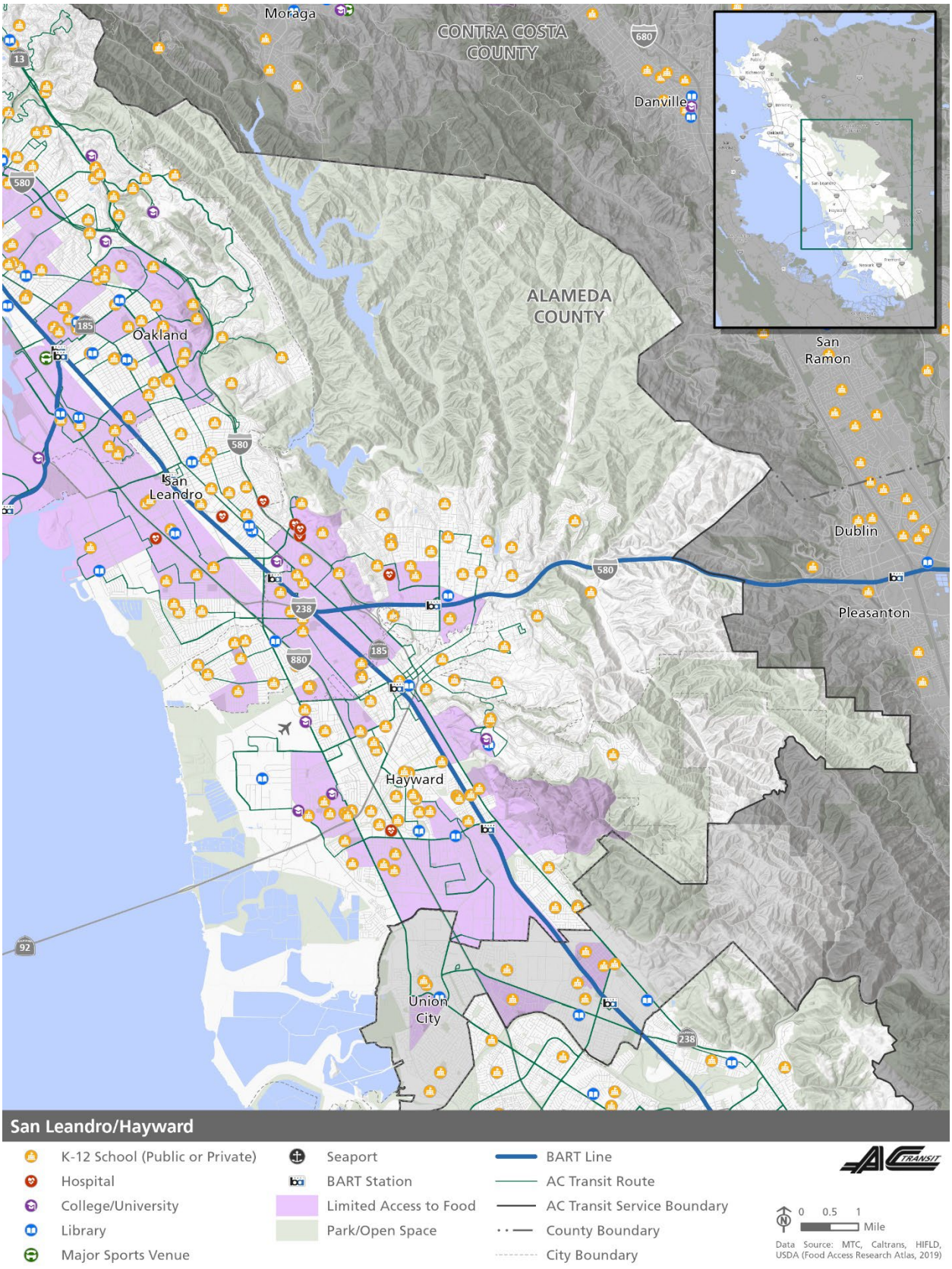
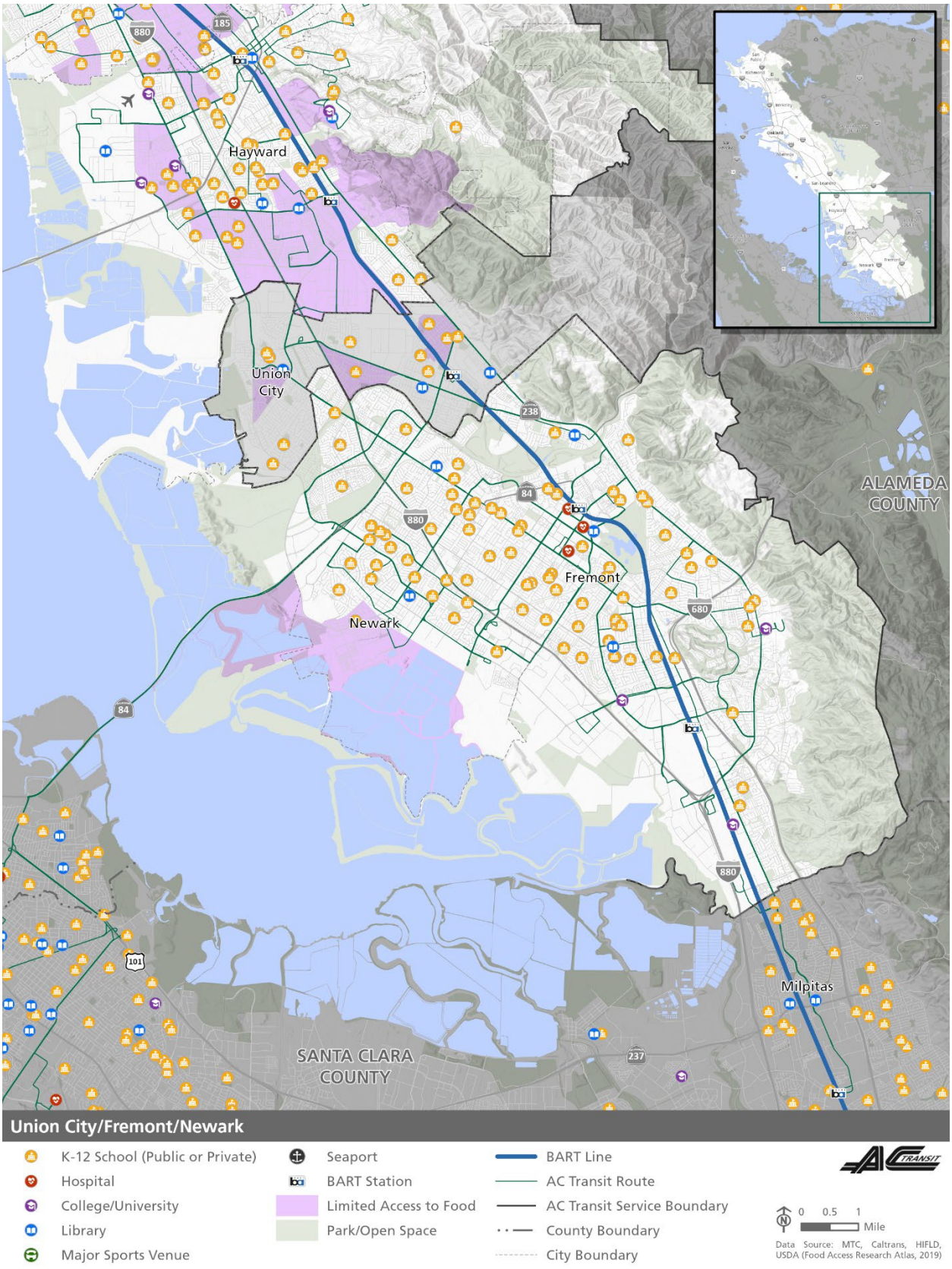


Figure 24 Access to Basic Services (Fremont - Newark - Union City)



West Contra Costa County

As shown in **Figure 21**, while the transit network is generally less dense in West Contra Costa County, most major activity centers are served by transit. In particular, K-12 schools and libraries are very well served. Many West Contra Costa County shopping centers are located along BART and AC Transit routes. Although larger commercial areas and schools are accessible via transit, northern San Pablo and most of Richmond are designated as having limited access to food.

Oakland-Alameda-Berkeley

The Oakland-Alameda-Berkeley subarea is shown in **Figure 22**. This subarea contains numerous services and activity centers that are generally well-served by transit. In particular, K-12 schools and higher education institutions are very accessible via transit. Areas with limited access to food in this subarea include West Oakland, East Oakland north of the Fruitvale BART station, west Alameda, and southeast Oakland next to San Leandro. The areas immediately north and south of the UC Berkeley campus are also designated as having limited access to food.

Hayward-San Leandro

The transit network in the Hayward-San Leandro subarea, while less dense than the Oakland-Alameda-Berkeley subarea, provides connectivity to schools, universities, libraries, and health centers, as shown in **Figure 23**. However, many areas are designated as having limited access to food, including western San Leandro, Ashland, Cherryland, south Hayward, and portions of San Lorenzo.

Fremont-Newark-Union City

Access to basic services for the Fremont-Newark-Union City subarea is shown in **Figure 24.** Compared to the other subareas, fewer schools in the Fremont-Newark-Union City subarea are directly served by transit. Portions of Newark are areas designated as having limited access to food. There are no areas in Fremont that are designated as having limited access to food.

In summary, most major basic services within the AC Transit service area are well served by transit, particularly in Oakland and Berkeley. However, basic services in more suburban or less densely populated cities such as Richmond, Hayward, San Leandro, and Fremont are comparatively less accessible by transit. Areas designated as having limited access to food are found throughout the service area. West Oakland, East Oakland, and the Western Costa County and Hayward-San Leandro subareas have significant areas with limited access to food. Transit services can play an important role in connecting these areas with grocery stores and other essential services, particularly for lower-density communities.

4. EMPLOYMENT AREAS AND COMMUTE PATTERNS

4.1 Employment Areas and Major Employers

Public transportation is essential in providing access to jobs and job centers. **Figure 25 through Figure 28** show the 2019 (pre-pandemic) employment density within the service area. As shown, the highest employment concentrations in the service area are found in downtown Oakland. . Key employment concentrations for each subarea are as follows:

West Contra Costa County
- Hilltop Area, Richmond
- Chevron, Richmond

Oakland-Alameda-Berkeley
- Downtown Oakland
- Downtown Berkeley
- Emeryville
- Pill Hill, Oakland

Hayward-San Leandro
- West San Leandro
- West Hayward

Fremont-Newark-Union City
- Central Pacific Business Park, Union City
- Central Fremont
- Warm Springs, Fremont

Table 17 documents the major employers in Alameda County with 1,000 or more employees per the Employment Development Department of the State of California. Employers with more than 10,000 employees include University of California, Berkeley and Tesla and Western Digital Corporation, both located in Fremont.

Table 18 documents the major employers in Contra Costa County per the Employment Development Department of the State of California. With the exception of the Chevron refinery in Richmond, most large employers in Contra Costa County are located outside of the AC Transit service area.

Figure 25 Employment Density, 2019 (West Contra Costa County)

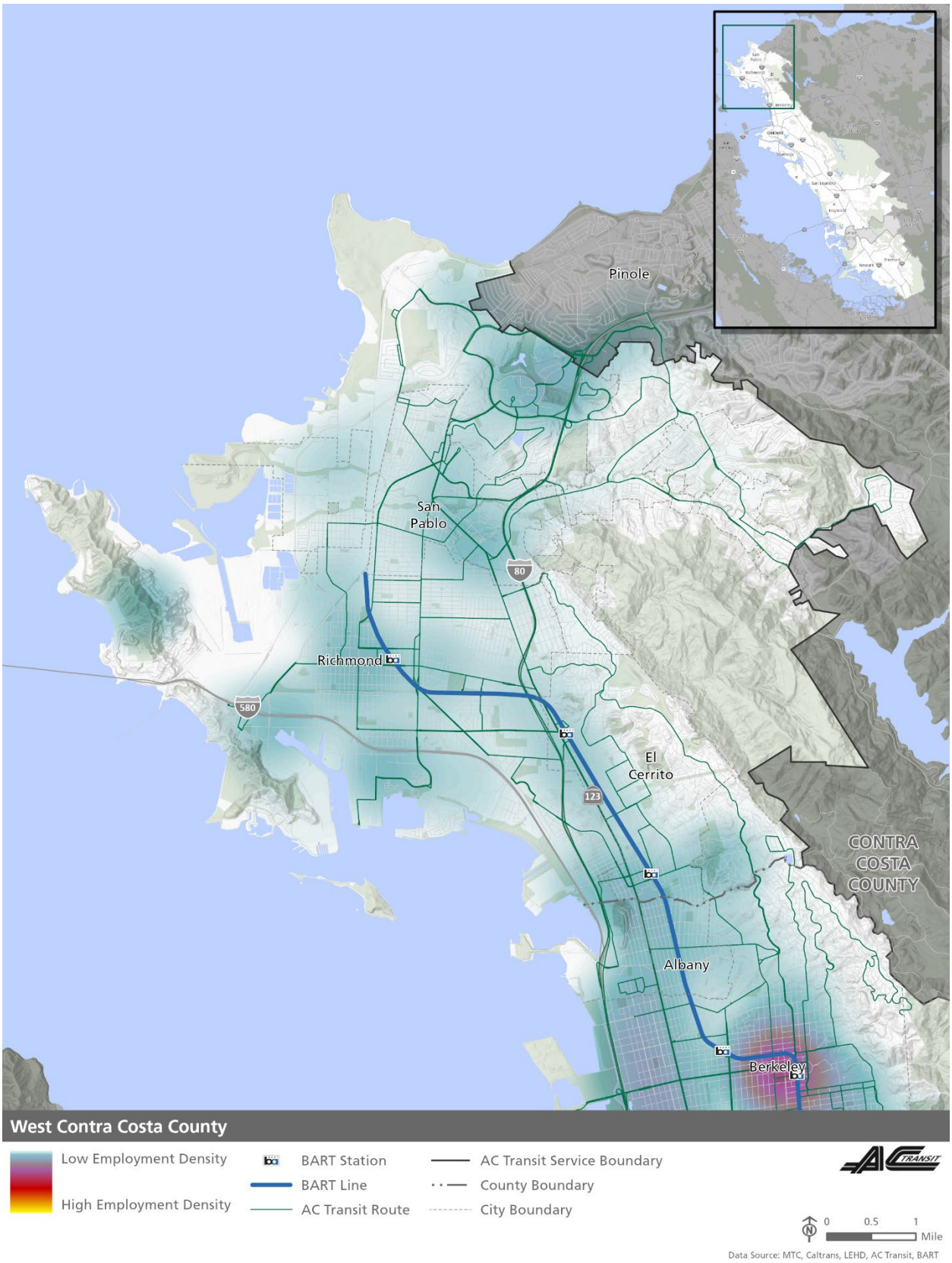


Figure 26 Employment Density, 2019 (Oakland - Alameda - Berkeley)

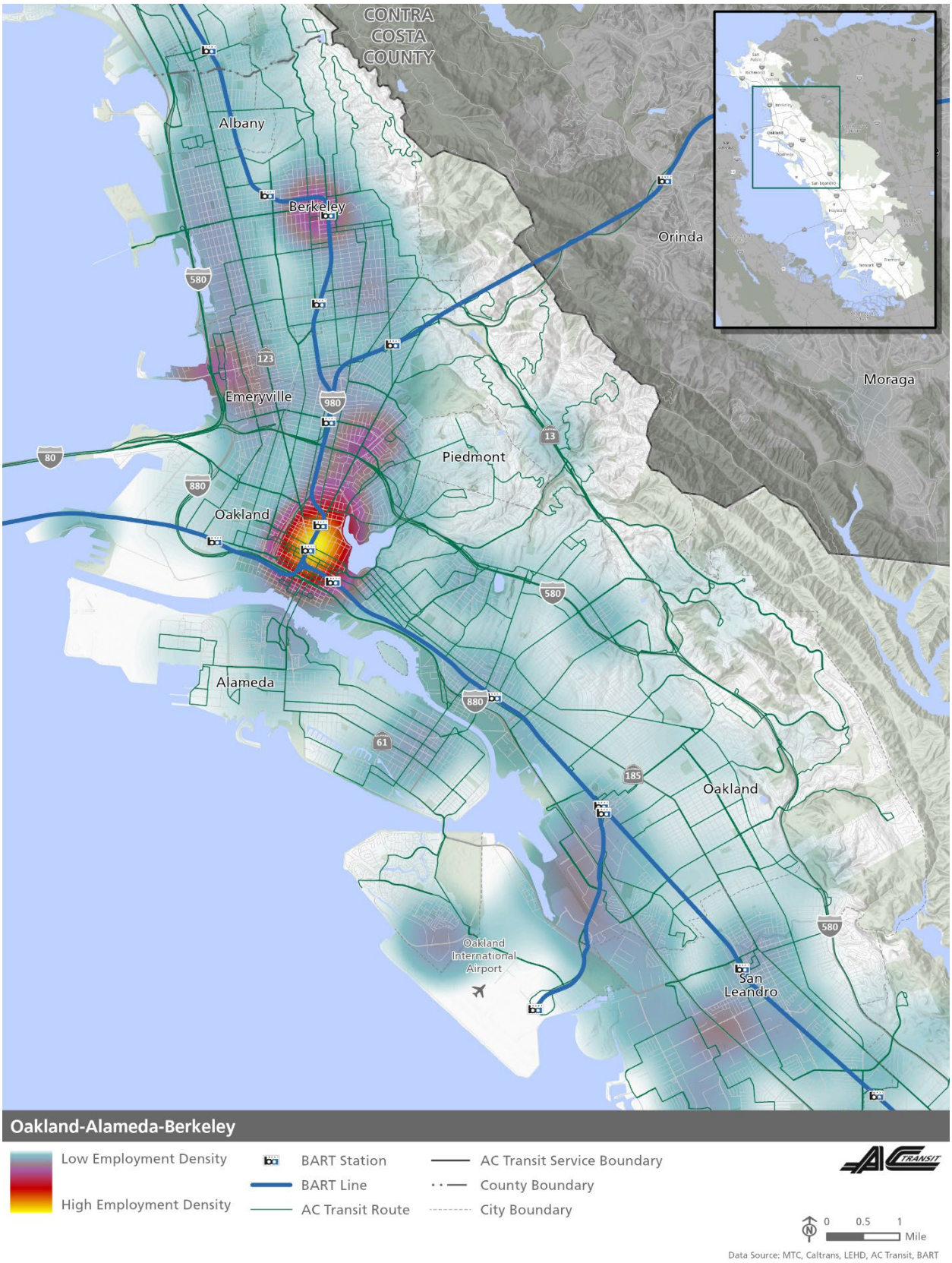


Figure 27 Employment Density, 2019 (Hayward - San Leandro)

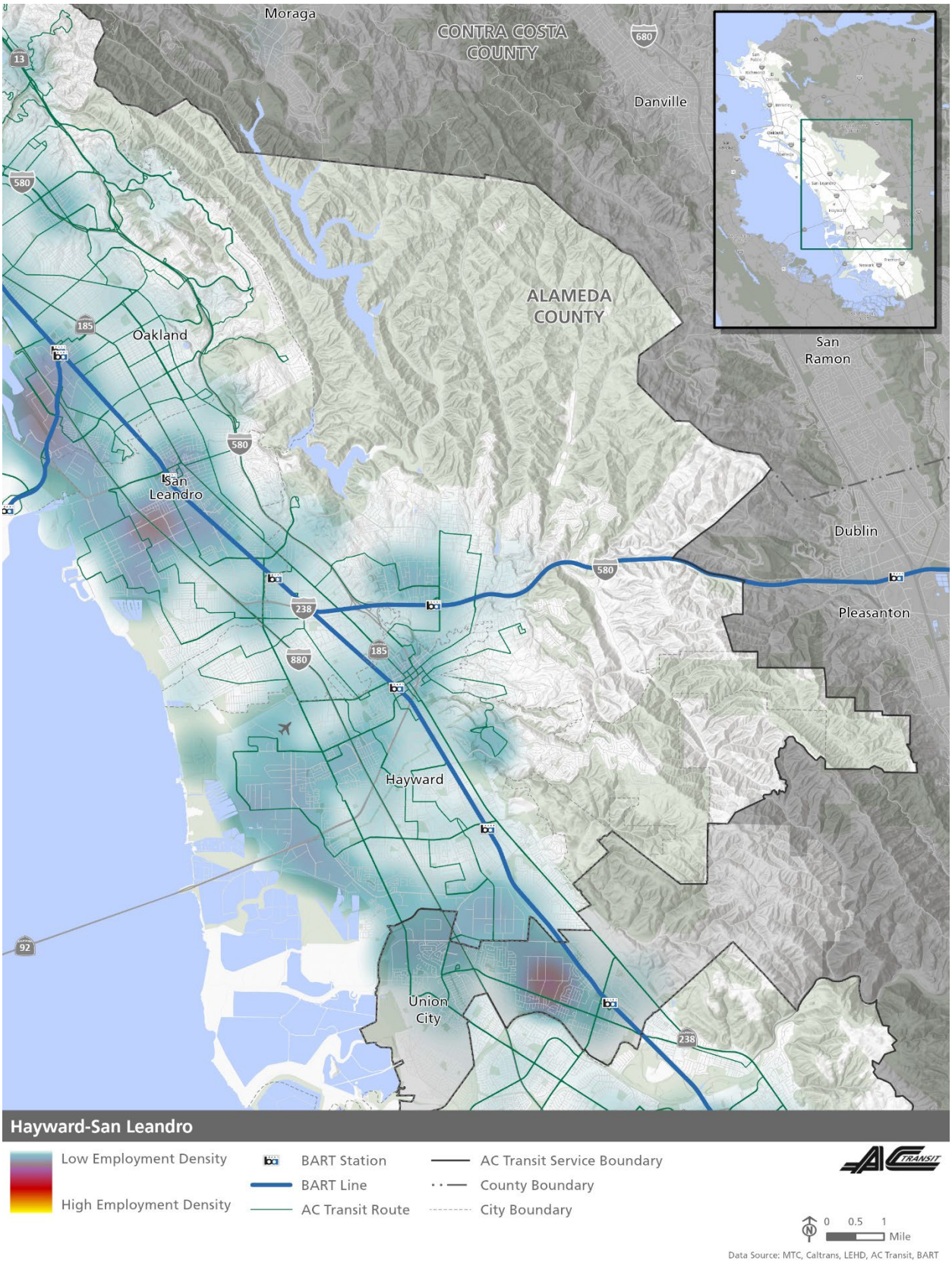


Figure 28 Employment Density, 2019 (Fremont - Newark - Union City)

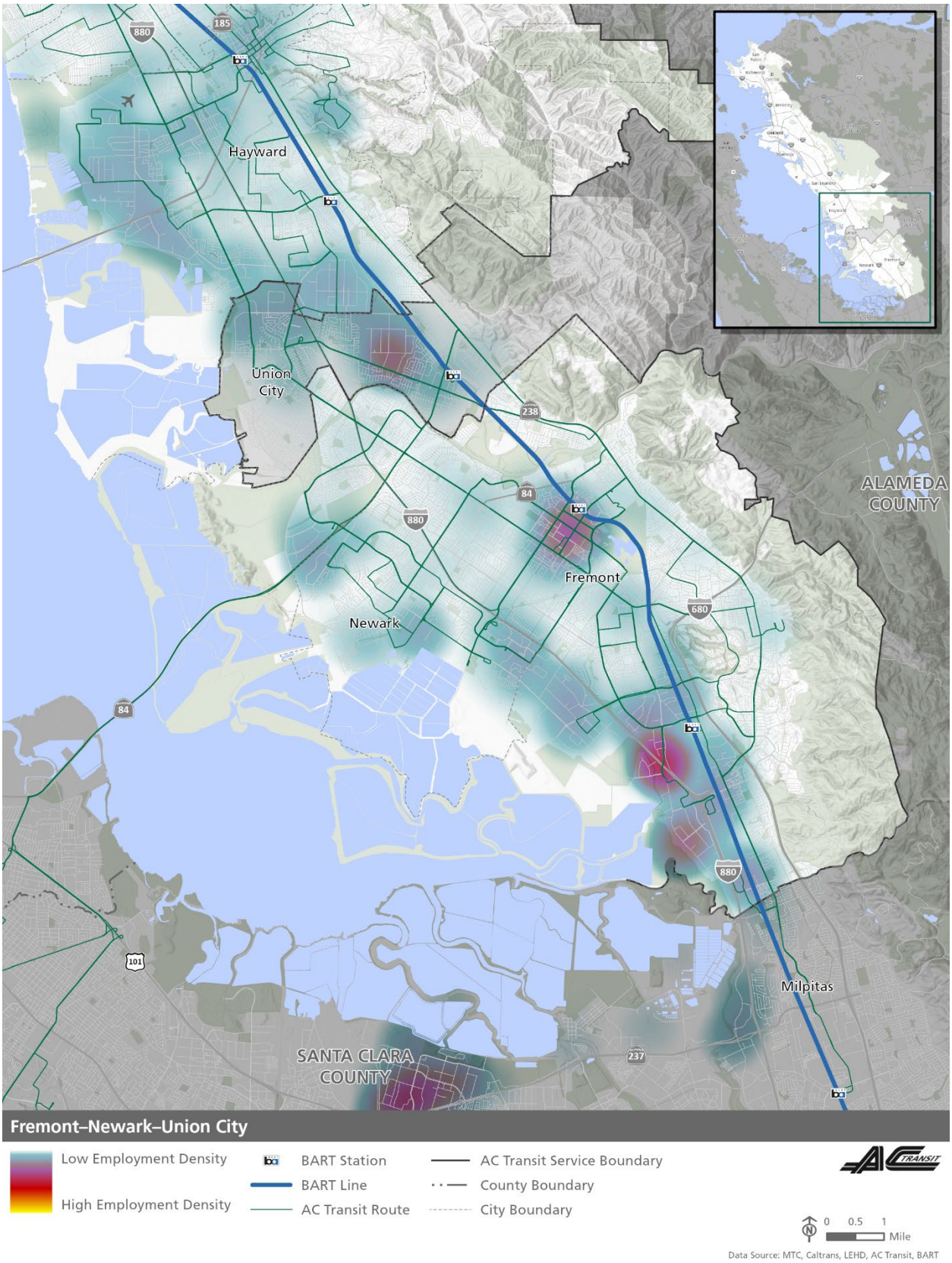


Table 17. Major Employers in Alameda County

Employer	Industry	Location (Subarea)
10,000 or more Employees		
Tesla	Automobile Manufacturing	Fremont-Newark-Union City
University of California, Berkeley	Schools	Oakland-Berkeley-Alameda
Western Digital Corporation	Computer Storage Devices	Fremont-Newark-Union City
5,000 to 9,999 Employees		
Grifols Diagnostic Solutions	Pharmaceutical Research Laboratories	Oakland-Berkeley-Alameda
Lawrence Berkeley Lab	Research and Development Laboratories	Oakland-Berkeley-Alameda
Lawrence Livermore National Lab	Research and Development Laboratories	Outside Service Area
1,000 to 4,999 Employees		
Alta Bates Summit Med Ctr Alta	Hospitals	Oakland-Berkeley-Alameda
Alta Bates Summit Med Ctr Lab	Medical Laboratories	Oakland-Berkeley-Alameda
California State University East Bay	Schools	Hayward-San Leandro
Cooper Vision Inc	Wholesale Optical Goods	Outside Service Area
Dell EMC	Computer Storage Devices	Outside Service Area
East Bay MUD	Utilities	Oakland-Berkeley-Alameda
Kaiser Permanente Oakland Medical Center	Hospitals	Oakland-Berkeley-Alameda
Peoplesoft Inc	Computer Software Manufacturers	Outside Service Area
UCSF Benioff Children's Hospital	Hospitals	Oakland-Berkeley-Alameda
Valley Care Health System	Health Services	Outside Service Area
Washington Hospital Healthcare	Health Care Management	Fremont-Newark-Union City

Note: This list of major employers was extracted from the America's Labor Market Information System (ALMIS) Employer Database, 2023 2nd Edition. Government agencies have been excluded from the list.

Table 18. Major Employers in Contra Costa County

Employer	Industry	Location (Subarea)
10,000 or More Employees		
Chevron Corporation	Oil Refineries	Outside Service Area
5,000 to 9,999 Employees		
Chevron Research & Technology	Oil Refineries	Outside Service Area
Bio-Rad Laboratories Inc	Physicians and Surgeons Equipment	Outside Service Area
Chevron Richmond Refinery	Oil Refiners	West Contra Costa County
Contra Costa Regional Medical Center	Hospitals	Outside Service Area
John Muir Health Concord	Hospitals	Outside Service Area
Kaiser Permanente Antioch	Hospitals	Outside Service Area
Kaiser Permanente Martinez	Clinics	Outside Service Area
Kaiser Permanente Walnut Creek	Hospitals	Outside Service Area
La Raza Market	Grocers (Retail)	Various
USS Posco Industries	Steel Mills	Outside Service Area

Note: This list of major employers was extracted from the America's Labor Market Information System (ALMIS) Employer Database, 2023 2nd Edition. Government agencies have been excluded from the list.

4.2 Commute Patterns

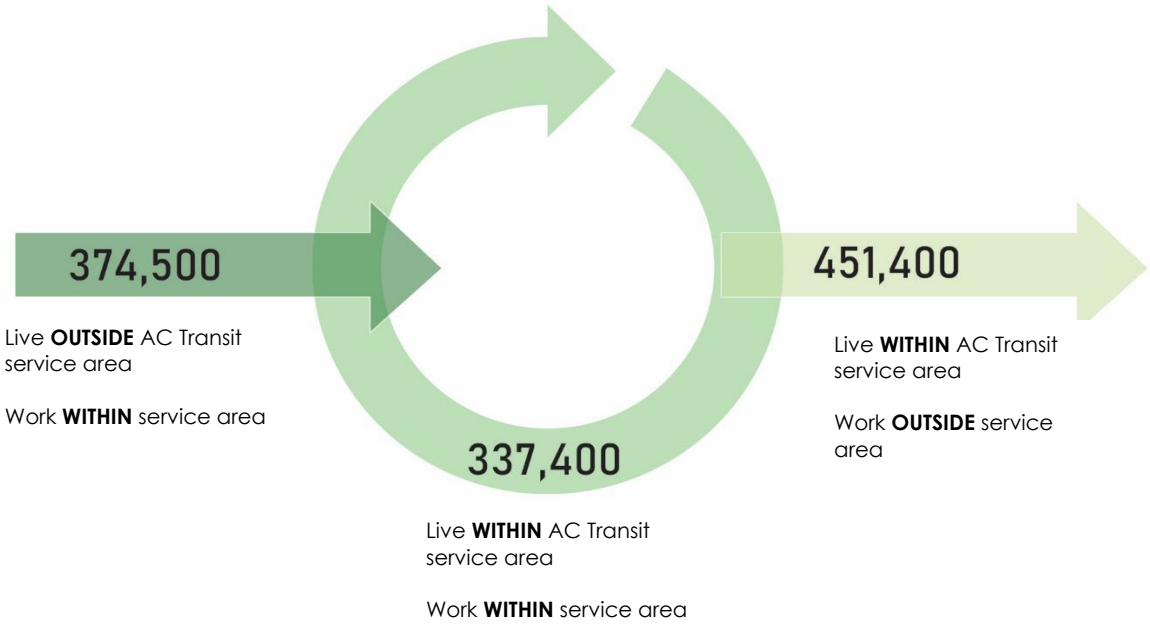
The following section provides a high-level overview of origin and destination patterns within the AC Transit service area using Longitudinal Employer-Household Dynamics (LEHD) employment data for the year 2019. As this analysis represents pre-pandemic travel patterns, a separate analysis of post-pandemic (Year 2022) origin-destination patterns is being completed using mobile data (StreetLight) and is documented in a separate technical memorandum.

A note about the data:

LEHD is a product of the Census Bureau and provides valuable information about where workers live and work. Queries can be made for many employment variables including place of work, place of residence, work industry, and commute distance. This data set is generated based on administrative records; therefore, some work locations may be over- or underrepresented. For example, if workers in Oakland have their paychecks processed in Berkeley, their job site may be shown in Berkeley instead of Oakland, if there is not a local address shown in the administrative data.

In 2019, 711,900 people were employed in the AC Transit service area, with 337,400 living and working in the service area; 374,500 employees traveled into the service area for employment. A total of 451,400 service area residents travel outside the service area for employment[11]. **Figure 29** illustrates the inflow and outflow of workers into and out of the service area.

Figure 29 Inflow and Outflow Commute Patterns, 2019



Source: 2019 LEHD

[11] *US Census Bureau, LEHD On the Map, Inflow/Outflow Analysis. Accessed online: http://onthemap.ces.census.gov/*

Commute Patterns for People Living within the Service Area

Table 19 and **Figure 30** provide details on work location for service area residents. As shown, the largest share of AC Transit service area residents work in Alameda County (43.0%). Approximately 16% of service area residents work in San Francisco County and 12.2% of service area residents work in Santa Clara County, which amounts to approximately 127,800 and 96,200 total workers, respectively.

Table 19 Work Location for Service Area Residents (2019)

Work Location	Number of Workers who Live in Service Area	Share
Alameda County, CA	339,500	43.0%
San Francisco County, CA	127,800	16.2%
Santa Clara County, CA	96,200	12.2%
Contra Costa County, CA	64,800	8.2%
San Mateo County, CA	57,000	7.2%
Sacramento County, CA	12,900	1.6%
Marin County, CA	12,100	1.5%
San Joaquin County, CA	7,200	0.9%
Solano County, CA	6,700	0.9%
All Other Locations	90,200	8.2%

Source: 2019 LEHD

Figure 30 Work Location for Service Area Residents (2019)

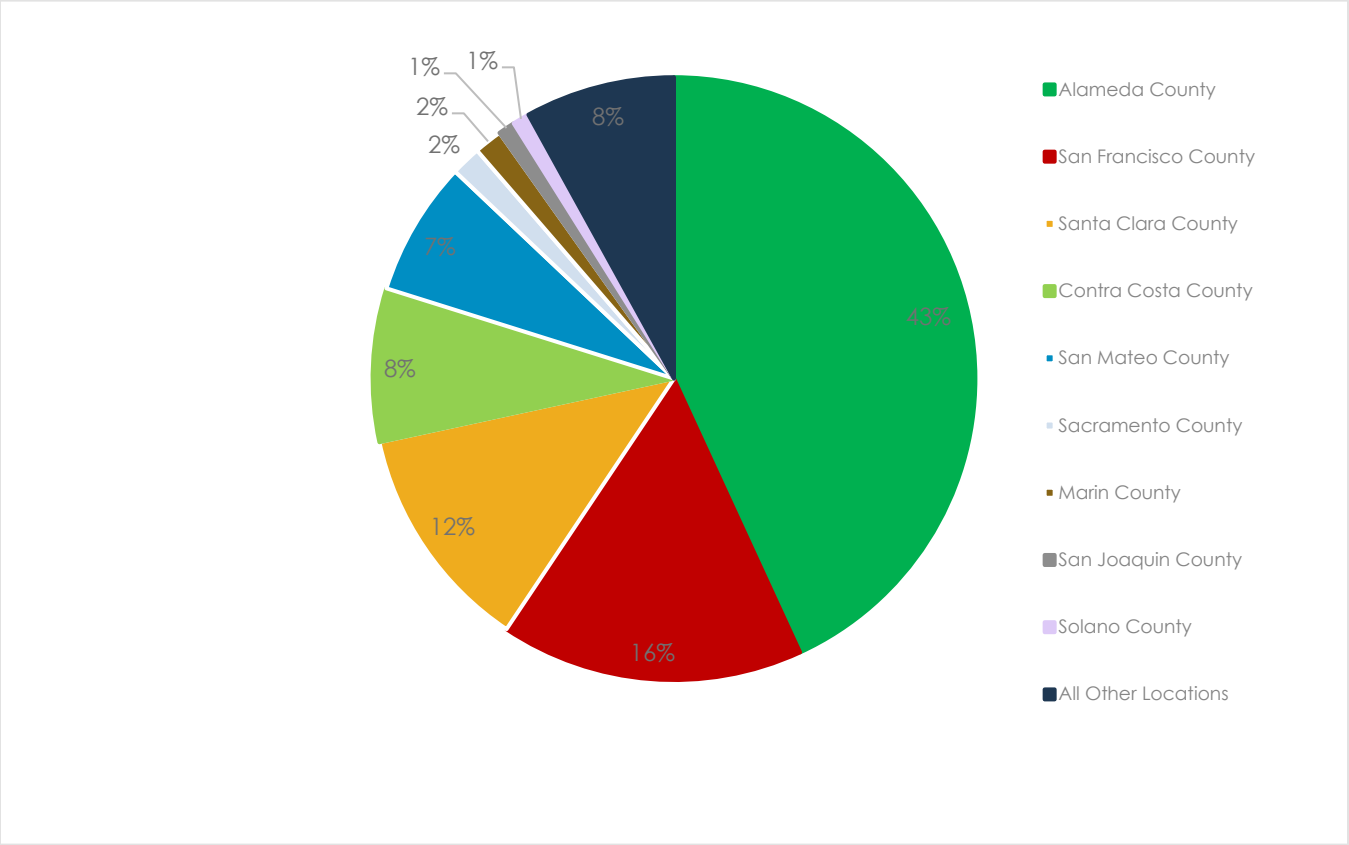


Table 20 and **Figure 31** summarize the cities in which service area residents work. The largest shares of jobs where AC Transit service area residents work are in San Francisco, Oakland, and Fremont with approximately 127,800, 111,500, and 44,500 workers, respectively. .

Table 20 Work Location by City for Service Area Residents, 2019

Work Location	Number of Workers who Live in Service Area	Share of Total for Service Area
San Francisco	127,800	16.2%
Oakland	111,500	14.1%
Fremont	44,500	5.6%
Hayward	34,900	4.4%
San Jose	34,500	4.4%
Berkeley	32,300	4.1%
San Leandro	24,900	3.2%
City of Alameda	17,200	2.2%
Palo Alto	15,400	2.0%
Union City	14,200	1.8%

Source: 2019 LEHD

Figure 31 Work Location by City for Service Area Residents (2019)

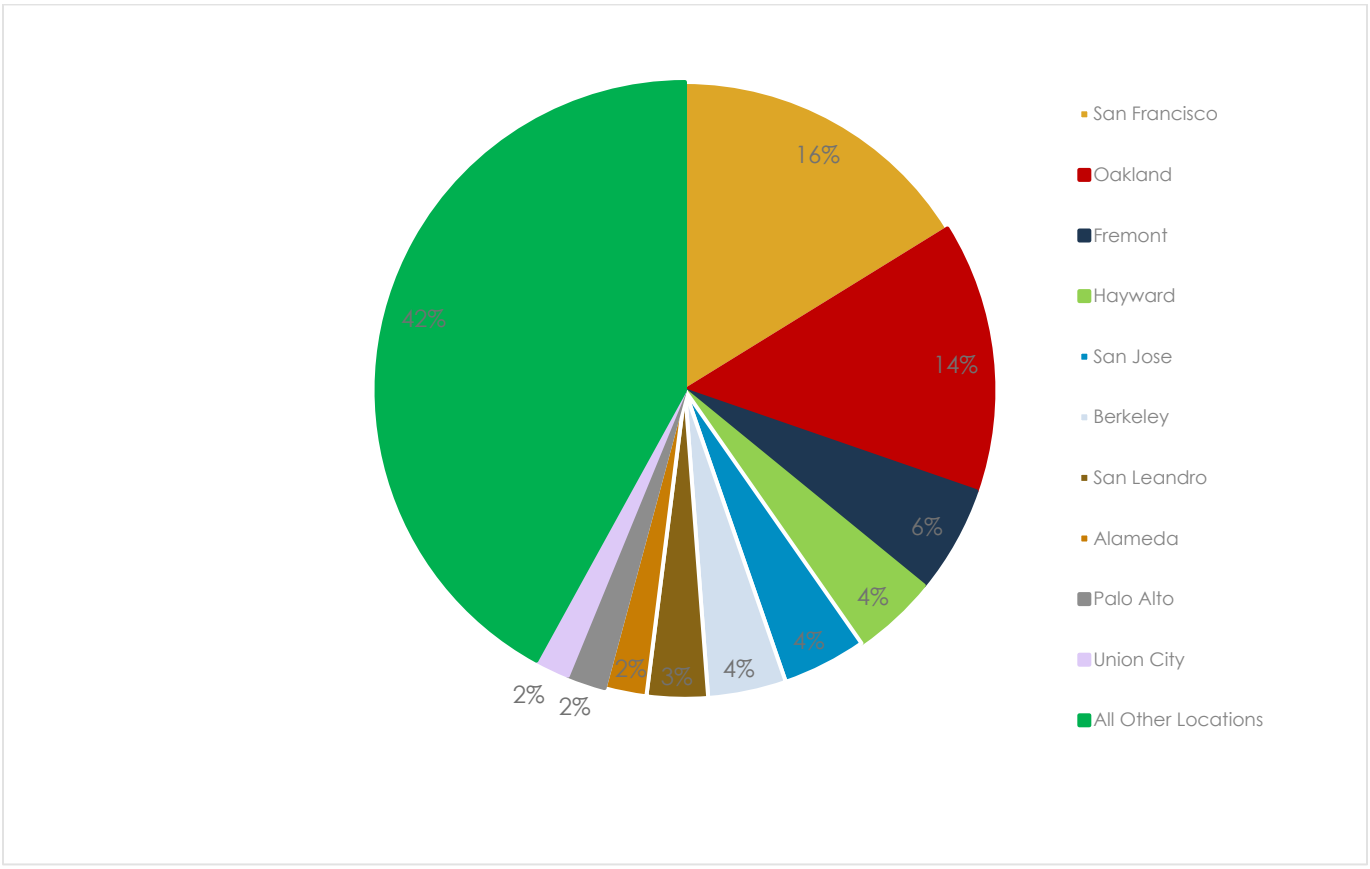


Table 21 shows the average commute distance of service area residents. Approximately 42.1% of service area residents commute less than 10 miles and 15.5% commute more than 50 miles.

Table 21 Commute Distance for Service Area Residents, 2019

Distance from Home to Work	Number of Workers	Share
Less than 10 miles	299,700	42.1%
10 to 24 miles	216,300	30.4%
25 to 50 miles	85,400	12.0%
Greater than 50 miles	110,500	15.5%

Source: 2019 LEHD

Commute Patterns for People Working within the Service Area

Table 22 and **Figure 32** illustrate where those who work within the AC Transit service area live, summarized at a county level. As shown, approximately 60% of those who work within the AC Transit service area also live within Alameda County or Contra Costa County.

Table 22 Home Location for Service Area Workers (2019)

Home Location	Number Working within AC Transit Service Area	Share of Total Workers within AC Transit Service Area
Alameda County, CA	321,000	45.1%
Contra Costa County, CA	109,000	15.3%
Santa Clara County, CA	63,900	9.0%
San Francisco County, CA	33,800	4.8%
San Mateo County, CA	27,400	3.8%
San Joaquin County, CA	23,000	3.2%
Solano County, CA	19,600	2.8%
Sacramento County, CA	16,200	2.3%
All Other Locations	97,900	13.7%

Source: 2019 LEHD

Figure 32 Home Location for Service Area Workers, 2019