Market Analysis

San Diego MTS Transit Optimization Plan

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Introduction

San Diego Metropolitan Transit System (MTS) is currently undertaking the Transit Optimization Plan (TOP) to evaluate the performance of existing transit service and to identify opportunities for network improvement. The *Market Analysis* examines regional development and demographic trends to identify areas in the region where transit is likely to be most successful.

The *Market Analysis* includes the following sections:

- **Service Area Profile**: This section provides an overview of current population and employment distribution within the service area. The profile identifies employment hubs and areas with high concentrations of residents to identify areas of high potential demand. The profile also discusses current commuting trends for San Diego residents.
- **Population Demographic Characteristics**: This segment of the *Market Analysis* provides an overview of where specific demographic groups are concentrated in the region. These demographic groups are more likely to use public transit than the overall population, so identifying where they are concentrated in the region provides insight into where transit service is likely to be most successful. This section also provides plan direction regarding Title VI considerations.
- **Travel Demand**: Based upon SANDAG travel patterns, this section discusses popular trip patterns between cities and community planning areas. The overview provides a summary of common peak hour and all-day internal and external trips within the service area. Travel demand can help provide insight into where transit service may be a competitive alternative.
- **Rider Profile**: Using the MTS Customer Satisfaction Survey and SANDAG's On-Board Survey, this section provides a profile of customers who use MTS bus and Trolley services. MTS's Customer Satisfaction Survey provides further insight on passenger perception of MTS service.
- **Population and Employment Projections**: Using SANDAG projections for regional growth, this section discusses future population and employment expansion out to the year 2050. This section includes an overview of where future growth will likely be concentrated, with specific reference to community plans and planned developments. A segment is also dedicated to discussing the future growth of San Diego's senior population and how this impacts special transit service strategies.
- **Future Development:** This section discusses several major developments that will impact transit demand in the next several years. Specific public and private projects are covered, with reference to adjacent routes that may be affected or where new transit will need to be considered.

Data Sources

The *Market Analysis* draws from three main data sources to analyze market demand for transit within MTS service area. Current population and employment data was gathered from San Diego Association of Governments (SANDAG) and the 2014 American Community Survey (ACS, US Census Bureau). ACS data also provided information on the density and distribution of certain demographic groups, including subpopulations based on age, income level, ethnicity, and vehicle availability. SANDAG also provided population and employment projections out to year 2050 based upon its Series 13 estimates, the same forecasts used in *San Diego Forward: The Regional Plan.* SANDAG's travel demand data for the years 2014, 2020, and 2025 provided information on personal vehicle and transit trips within San Diego County to show popular trip patterns within the service area.

MTS Service Area

MTS provides bus and trolley services to residents within a 570-square mile area of San Diego County (Figure 1). This includes ten cities and parts of unincorporated areas of the county with a total population of roughly 2.3 million. The service area includes the cities of Chula Vista, Coronado, El Cajon, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, Santee, and San Diego. The City of San Diego itself has over fifty different communities and is approximately 372 square miles in size.

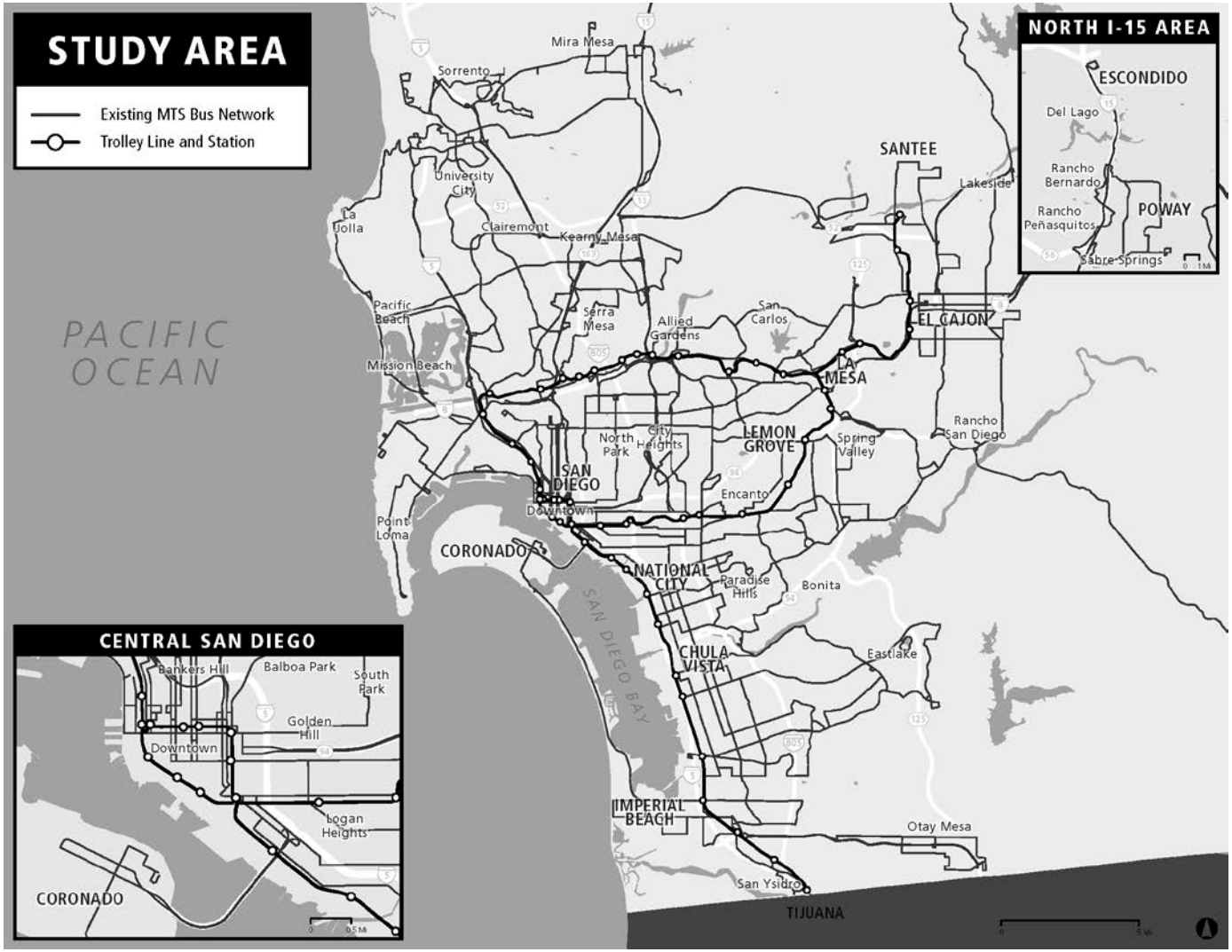
Project Context

MTS conducted a Comprehensive Operational Analysis (COA) between 2004 and 2006, which led to the implementation of major network improvements including a new frequent service network and limited stop routes for faster transit travel times. Since then, MTS has implemented new Rapid corridor services, reorganized local and express bus services along the I-15 corridor, replaced and reconstructed Trolley infrastructure, and restructured all three Trolley lines. These changes resulted in significant ridership growth. Between FY07 and FY15, annual ridership grew from 86 million to 97 million, a 13 percent increase.

In the past decade, the principles from the last COA have led to steady ridership growth, productivity improvements, and local and regional support for transit services and projects. At the same time, external forces continue to develop, including the suburbanization of job growth, infill residential development, TransNet transit project development, and major structural adjustments at the border Ports of Entry. These factors all impact MTS market capture at the local and regional level.

The *Market Analysis* focuses on how the market for transit in the region has changed based on new distribution of population and employment opportunities. The following sections provide an overview of current market trends to establish a framework and local context for the development of the Transit Optimization Plan's service recommendations.

Figure 1: TOP Study Area



Service Area Profile

The Service Area Profile analyzes the population and employment distribution within the MTS service area. This section identifies which areas may have the highest demand for transit service based upon densities of subpopulations most likely to use transit. Higher population and employment densities are often positive market indicators for generating transit ridership as higher concentrations allow transit to attract more customers for a variety of trip purposes. Additionally, the examination of regional population and employment projections will allow MTS to realign its services and resources to ensure it meets the mobility needs of current and future residents.

Current Population and Employment Density

POPULATION

The MTS service area includes over 2.3 million residents (Figure 2)[1]. The vast City of San Diego is home to 1.3 million residents, followed by Chula Vista with a population of nearly 250,000, and El Cajon with roughly 100,000 people.

Within the City of San Diego, high population densities are located in central San Diego and communities near Downtown, such as City Heights, Logan Heights, and Uptown. The communities in central San Diego feature denser development, with a greater number of multifamily complexes relative to the surrounding areas. Coastal communities such as Pacific Beach, Mission Beach, and Ocean Beach each contain small pockets of high population density and tend to serve college-aged residents. A significant number of residents are also clustered in communities surrounding the region's major universities, such as in University City (UCSD) and Mid-City (SDSU).

Southern I-5 communities such as National City and Chula Vista have large populations, with higher density development concentrated in western parts of their jurisdictions.

While there are pockets of relatively dense development within the service area, much of the region is characterized by low-density, suburban development. Population and employment clusters are largely separated, with light employment interspersed in large residential regions rather than an equal balance.

[1] A population and employment map for the Carmel Valley area is included in Appendix A: Carmel Valley Population and Employment Map.

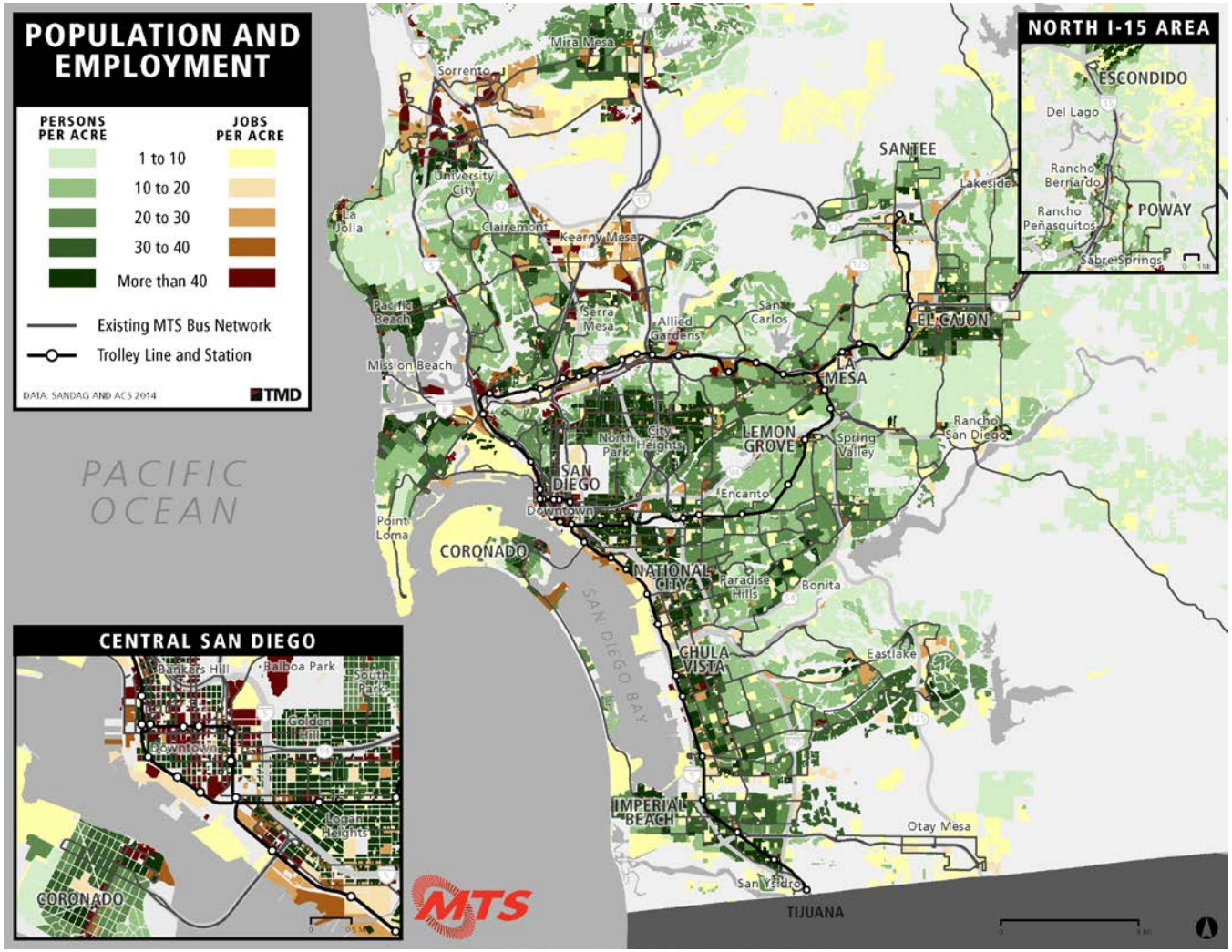
EMPLOYMENT

There are about 1.1 million jobs within the service area. The following table shows some of the top employers in the region that have main offices or a cluster of offices within the MTS service area. Major concentrations of employment span across University City, Sorrento Valley, Mira Mesa, and Kearny Mesa. The largest employer in San Diego County is the University of California, San Diego (UCSD) and its associated medical and research facilities. UCSD facilities are primarily located in areas with high population densities which make it an area that can support high levels of transit investment. Downtown and surrounding communities also form an area with both high employment and population concentrations. Table 1 below lists a number of major San Diego employers and an approximate number of employees using data from State of California Employment Development Department and SANDAG Data Surfer. Additional major employers include the County of San Diego with major concentrations of employees in Kearny Mesa and Downtown, and the US Navy with a combined total of over 20,000 personnel in various locations across the county. Some of the larger naval bases are listed below.

Table 1: Major San Diego Employers

MAJOR SAN DIEGO EMPLOYERS		
EMPLOYER	LOCATION	EMPLOYEES
UCSD	La Jolla	30,000
Sharp Healthcare	Linda Vista; South County	17,000
MCAS Miramar	Miramar	15,000
32nd Street Naval Base	Barrio Logan	10,000
Qualcomm	Sorrento Valley	9,400
Kaiser Foundation Hospital	Grantville	8,900
San Diego State University	Mid-City	6,900
Naval Medical Center	Downtown	6,500
Naval Air Station North Island	Coronado	5,500
Space and Naval Warfare Systems Center Pacific	Point Loma	5,000
General Dynamics NASSCO	Barrio Logan	2,550
Marine Corps Recruit Depot	Point Loma	2,500

Figure 2: Current Population and Employment



Population Demographic Characteristics

Certain demographic groups typically use transit service more often than the general population due to age, financial constraints, or limited access to personal vehicles. Understanding the distribution of these markets throughout the MTS service area can inform service changes to better address unmet mobility needs. An analysis of San Diego's demographic characteristics will identify specific areas with high concentrations of individuals who are likely to rely on transit the most.

This section includes analyses of the following subpopulations based on 2014 American Community Survey data:

- Youth (Ages 10-17)
- College-aged (Ages 18-24)
- Seniors (Ages 65+)
- Minority Populations
- Low-Income Households
- Zero-Vehicle Households
- Persons with Disabilities

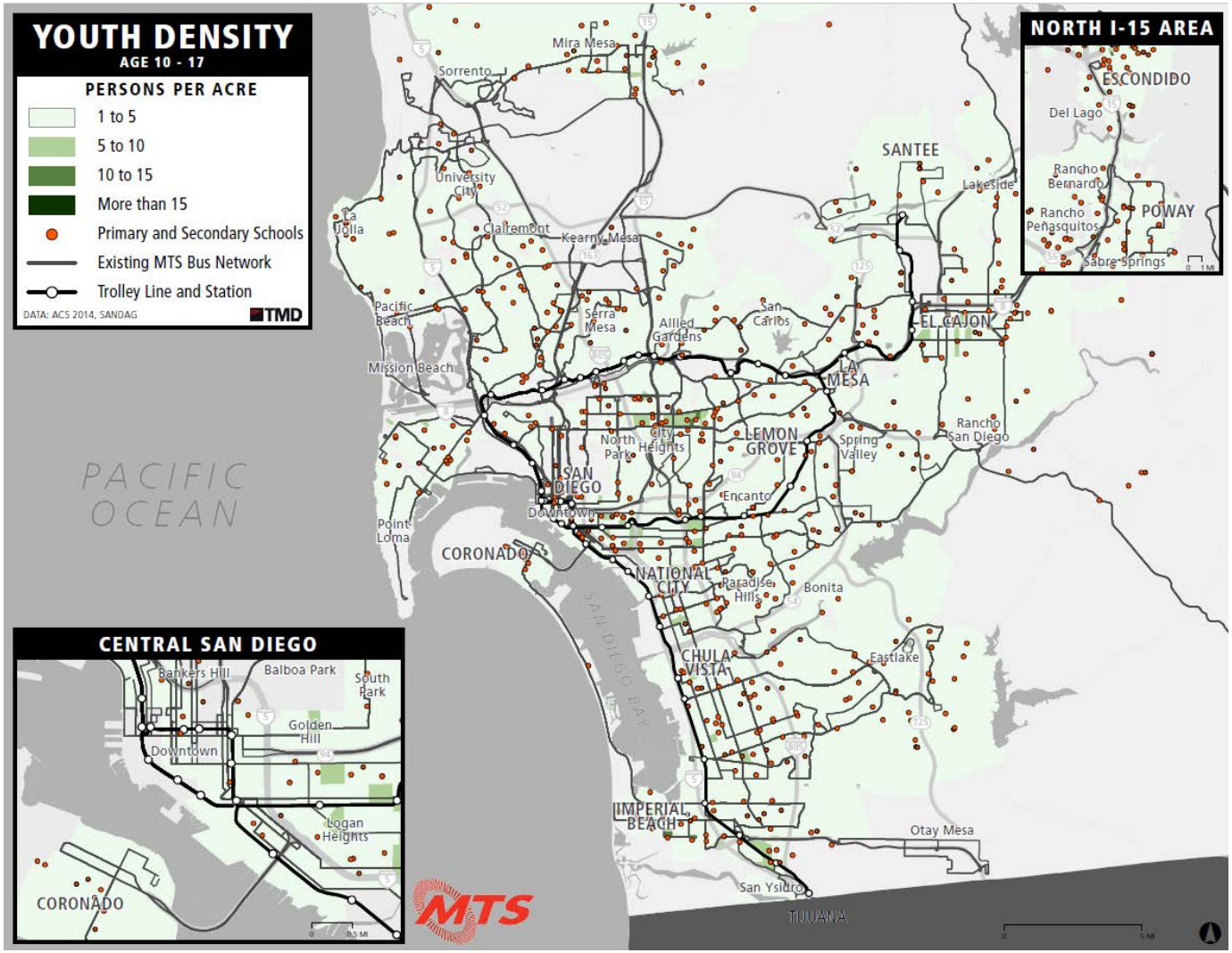
Youth (Ages 10-17)

Youth is defined as persons 10-17 years of age. Youth are typically middle school and high school students who cannot yet drive but can use public transit as a means of independent travel. There are approximately 237,000 youth in the service area, accounting for 10 percent of the total population. Introducing transit to youth allows them to familiarize themselves with transit at a young age, potentially creating long-term transit users. Encouraging transit usage amongst this age group fosters independent mobility that does not rely on the availability of a car for personal travel.

San Diego's youth population is relatively uniformly dispersed throughout the service area (Figure 3). There are some small pockets containing slightly higher concentrations of youth, such as in Imperial Beach and Mid-City. Certain areas of El Cajon, City Heights, San Ysidro, and southeastern parts of downtown San Diego feature a slight increase in youth concentration. Overall, however, there are no significant densities of youth in the region. This makes targeting transit service for this subpopulation difficult, as they are scattered with relatively equal density throughout the service area.

In accordance with federal requirements, MTS charter and school bus service requirements state that the agency may not compete with private school bus operators by providing service exclusively for students and school employees (49 C.F.R. Part 605). “School trippers” are extra trips operated to protect against overcrowding on services with schools along the route. These trips are open to all passengers. School tripper service may be operated if there is sufficient demand and resources, and if it is operated as part of the regularly scheduled transportation service with limited delay for regular customers.

Figure 3: Youth Density



College-Aged (Ages 18-24)

College-age is defined as persons 18-24 years of age. This age range largely consists of students and younger working-class individuals who temporarily have lower income levels and may be less likely to own vehicles. This subpopulation may also be more likely to seek alternative transportation modes to personal vehicle travel. There are approximately 274,000 college-aged persons in the service area, comprising 12 percent of the total population (Figure 4).

College-aged populations are highly concentrated around major San Diego universities such as University of California, San Diego (UCSD), San Diego State University (SDSU), and University of San Diego (USD). UCSD and SDSU both have total student populations of over 32,000, while USD has a total student population of over 8,000. Other significant institutions of higher learning include Cuyamaca College, Grossmont College, Mesa College, Miramar College, Southwestern College, and Point Loma Nazarene University.

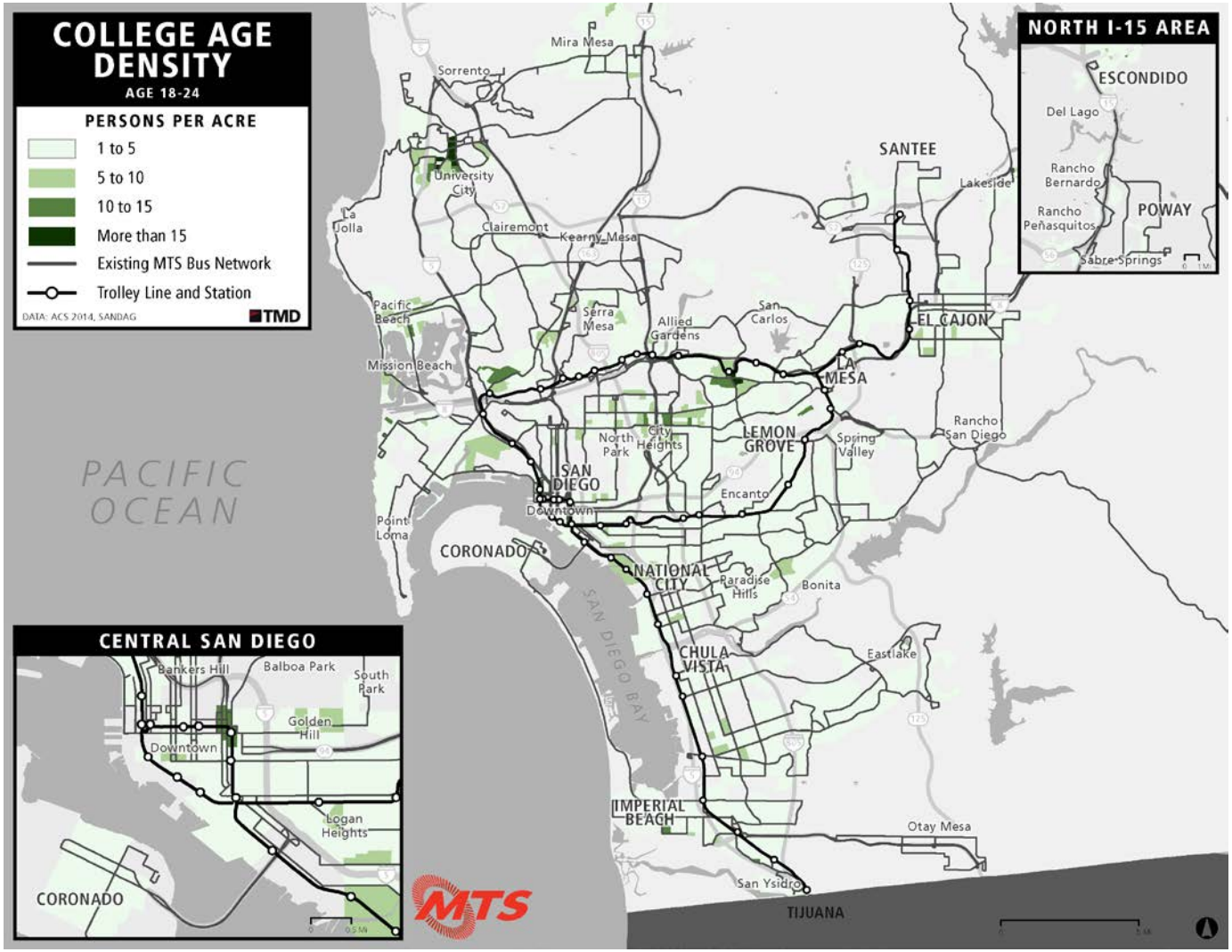
University City, La Jolla, Mission Valley, and Mid-City all feature dense college-aged populations due to the presence of major area universities. Mission Beach and Pacific Beach are not adjacent to universities but are popular housing areas for students. Other institutions in the area have significantly smaller student populations than the major universities. These smaller schools and community college districts tend to have a greater percentage of student commuters who are dispersed throughout the region.

MTS currently has a partnership program with UCSD which facilitates the U-Pass to all students. The U-Pass is a universal transit pass program that provides unlimited ridership on most regional mass transit routes provided by MTS and NCTD. The U-Pass is included in student fees and is valid during the school year.

SDSU and fifteen area educational sites also have a partnership that promotes discounted monthly passes to students. These institutions sell a total of 1,165 passes per average month. MTS offers a semester pass program to a limited number of colleges and universities, which include SDSU, USD, and four community colleges. In Spring 2016, these colleges sold over 6,000 semester passes. Appendices B and C provide an overview of bus pass sales by institution.

The semester pass is priced for students at $1.51 per class day and is calculated based upon the number of active session days within the academic calendar and rounded to the nearest dollar amount. USD and SDSU both buy down student passes by $15 and $20, respectively, giving students an additional discount off the regular pass price. The community colleges do not offer pass subsidies, but provide other benefits to students.

Figure 4: College Age Density



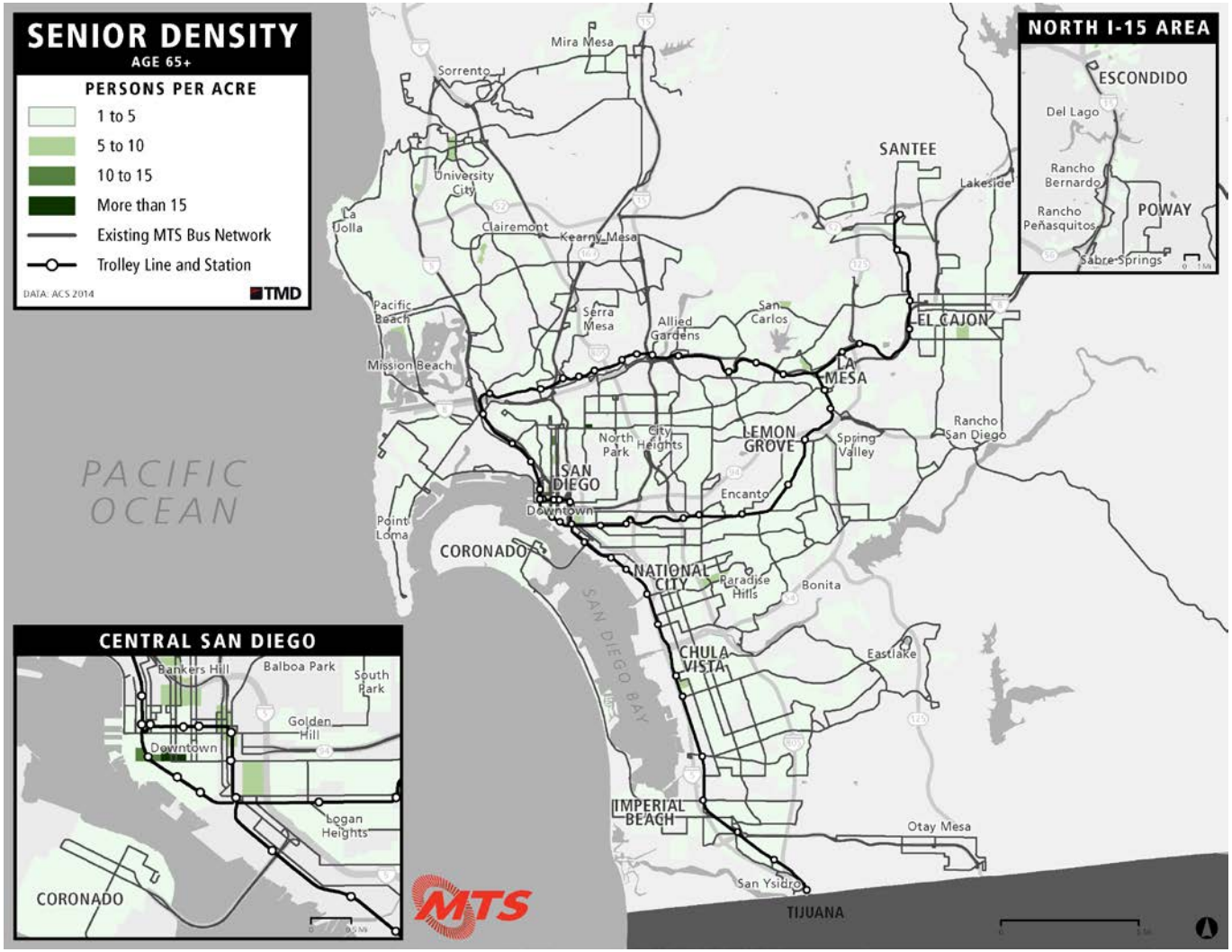
Seniors (Ages 65+)

Senior citizens are defined as persons that are 65 years or older. The senior population poses significant implications for transit service, as they tend to be more reliant on transit or paratransit services than other populations for their mobility needs. There are approximately 277,000 seniors in the service area, forming 12 percent of the total population.

The senior population in San Diego is significantly dispersed throughout the region (Figure 5). There are no major concentrations of seniors within the service area. Figure 5 shows a few small pockets of slightly increased density, which tend to be senior and assisted living homes. Many of these complexes provide their own transportation for seniors. The stretch of denser concentrations within downtown San Diego is along Market Street, where there is a greater concentration of high and mid-rise apartment buildings relative to the rest of the San Diego region.

San Diego's population is aging. In the last 10 years, the senior population increased from 8 percent to 12 percent of the total population. SANDAG predicts that by 2050, seniors will account for 20 percent of the population. This growing, dispersed senior population is aging in place, creating a challenge for senior mobility. This dispersed density limits the cost-efficiency of separate senior-based mobility to destinations such as medical facilities and grocery stores. Therefore, a key TOP mobility strategy is to make the regular fixed route network simple and easy to use, a strategy which benefits all consumers, such that it is friendly to seniors without incurring significant operating delays.

Figure 5: Senior Density



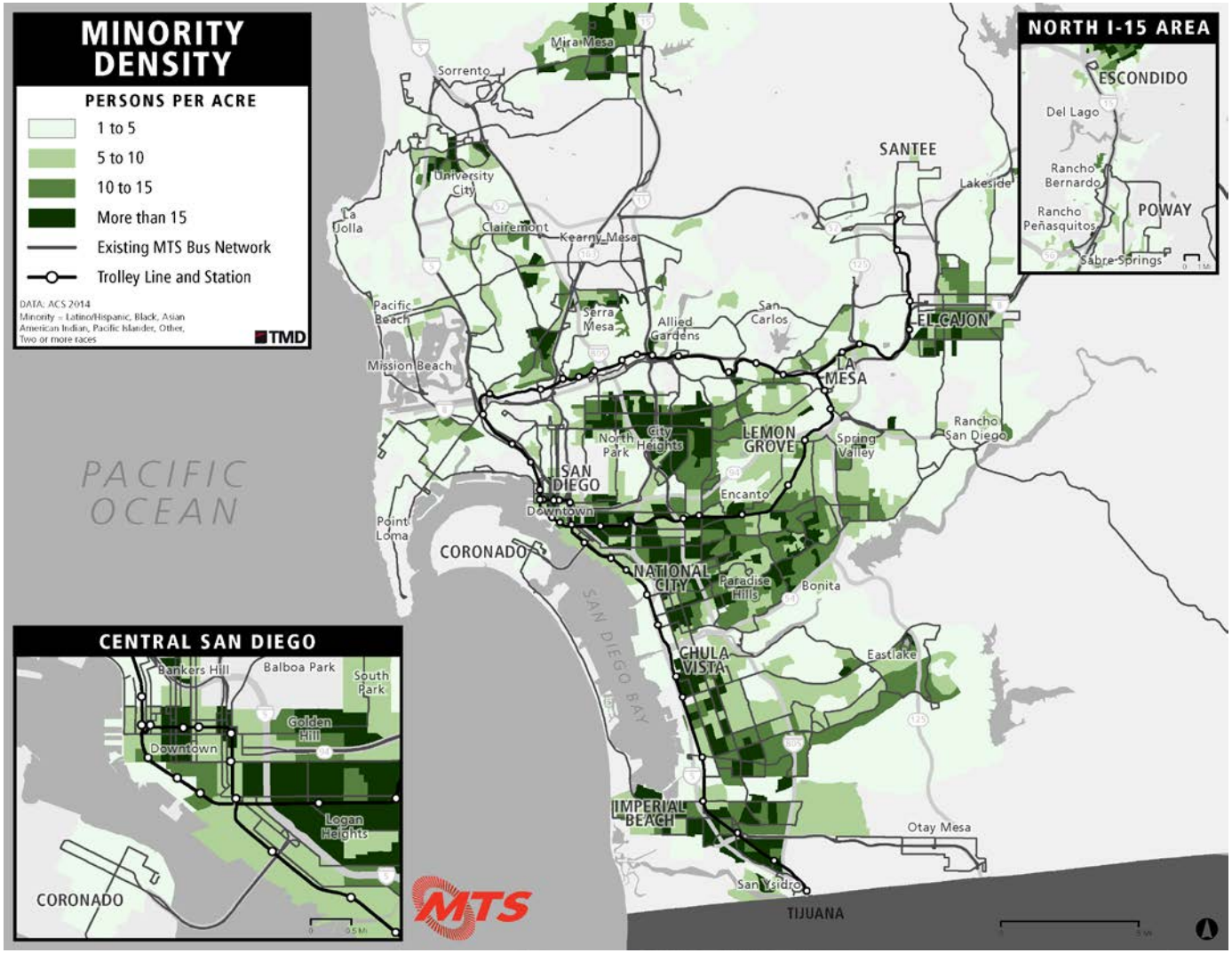
Minority Populations

Minority populations consist of all groups that identify as non-White. There are over 1.3 million minorities in the service area, forming 55 percent of the total population. Of total regional residents, 33 percent identify as Hispanic, 13 percent as Asian, 6 percent as African-American, and 3 percent as multiracial. Approximately 45 percent of residents identify as white.

San Diego is a “majority-minority” city, in which slightly more than half of the total population identifies as a minority. Significant concentrations of minority populations are located in City Heights, National City, Chula Vista, San Ysidro, El Cajon, and Mira Mesa.

Title VI civil rights regulations require that MTS identify and mitigate potential disparate impacts to minority populations as part of any major services changes, including any that might be implemented as part of the TOP. Understanding the distribution of both minority populations is especially important when considering Title VI implications.

Figure 6: Minority Density



Low-Income Households

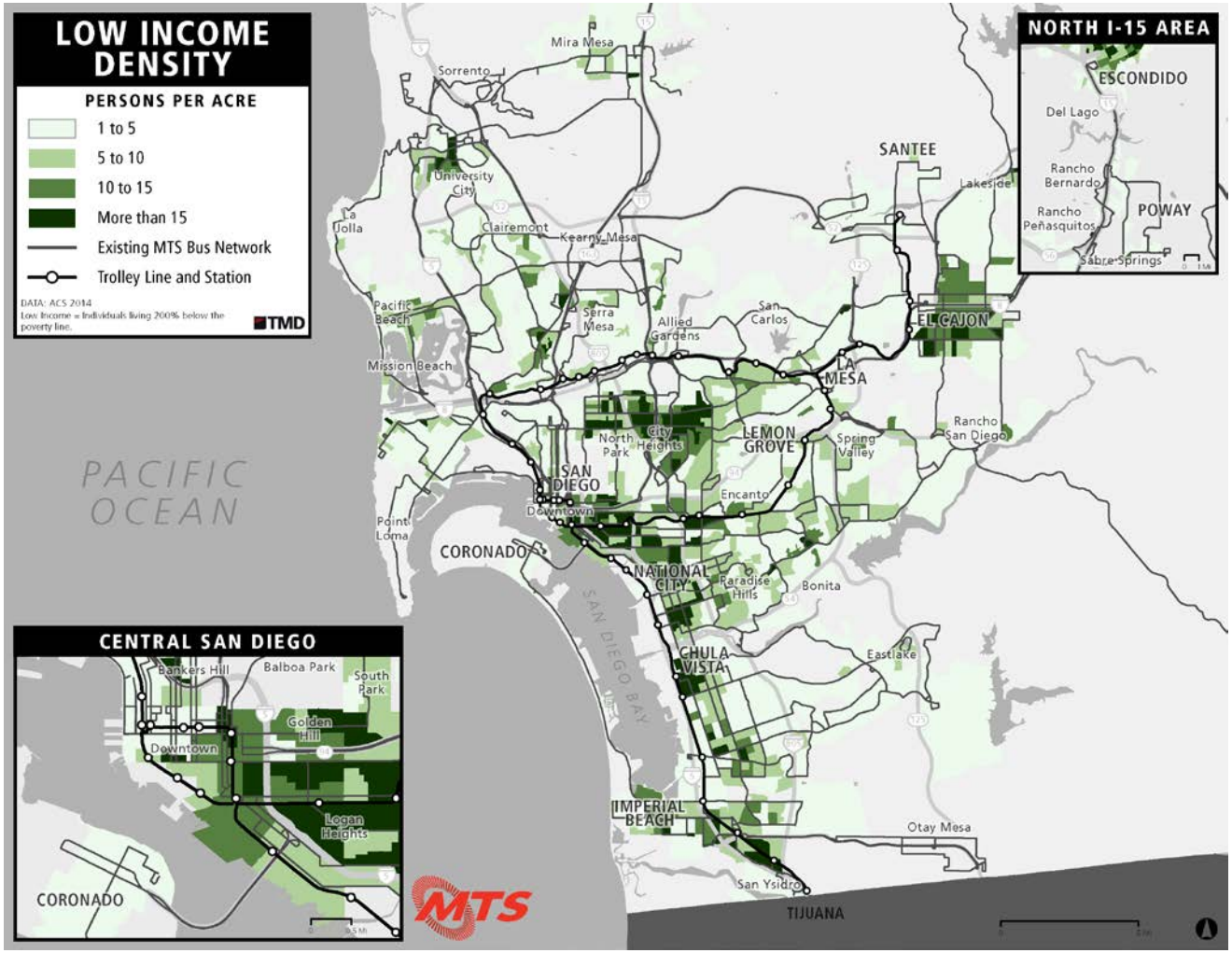
Low-income households consist of individuals living below 200 percent of the poverty line. In San Diego, roughly 32 percent, or 740,000 people, are low-income. Low-income households tend to rely on transit as an affordable mobility option for all or some members of the household. A 2015 joint study conducted by Harvard University and NYU identified length of commute as the single strongest factor in escaping poverty[2]. Access to transportation contributes to upward mobility by providing access to both school and job opportunities and basic needs such as grocery shopping, medical facilities, and social services.

In the MTS service area, low-income populations are concentrated in areas such as City Heights, El Cajon, downtown San Diego, Barrio Logan, and the western areas of National City, Chula Vista, and San Ysidro (Figure 7). There are some concentrations of low-income populations near the major universities, such as in University City, where many full-time students reside.

Title VI civil rights regulations require that MTS identify and mitigate potential disproportionate burden to low income households as part of any major service changes, including any that might be implemented as part of the TOP. Therefore, the distribution of low income households has critical Title VI implications.

[2] Chetty, Raj and Nathaniel Hendren, *The Impacts of Neighborhoods on Intergenerational Mobility: Childhood Exposure Effects and County-Level Estimates.* Harvard University, 2015.

Figure 7: Low-Income Density

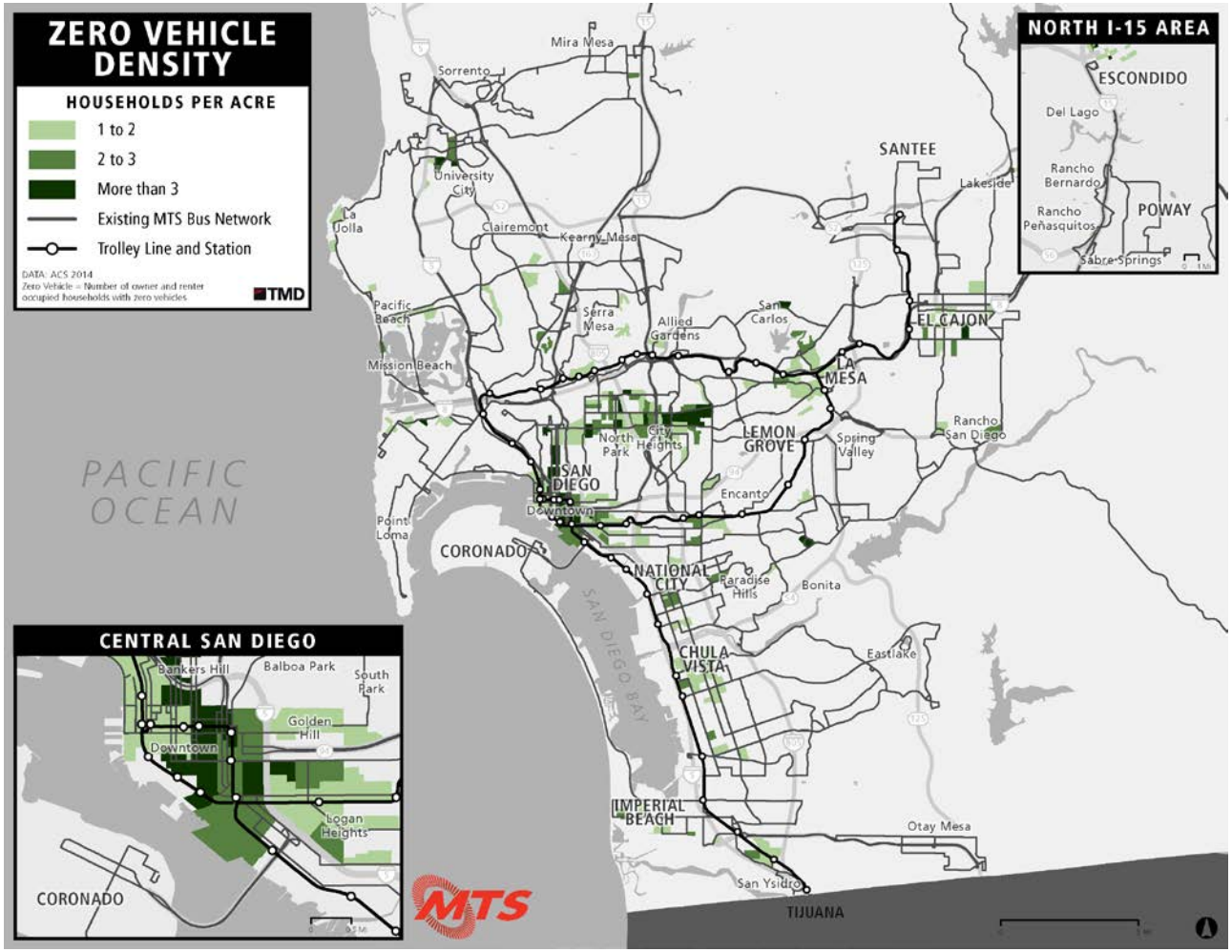


Zero-Vehicle Households

Two percent of regional households do not have access to a personal vehicle. This subpopulation of approximately 55,000 is more likely to use transit as a method of daily transportation (Figure 8).

Major concentrations of zero-vehicle households in City Heights and El Cajon reflect the high density of low-income households in those communities who may rely on more affordable modes of travel. Areas within downtown San Diego and North Park are denser, mixed-use communities that make it easy and convenient to travel without a car. Higher densities of zero-vehicle households in University City likely reflects the student population surrounding UCSD. A high concentration of zero-vehicle households in Mid-City may also reflect the SDSU student and working-class population in the area.

Figure 8: Zero Vehicle Household Density

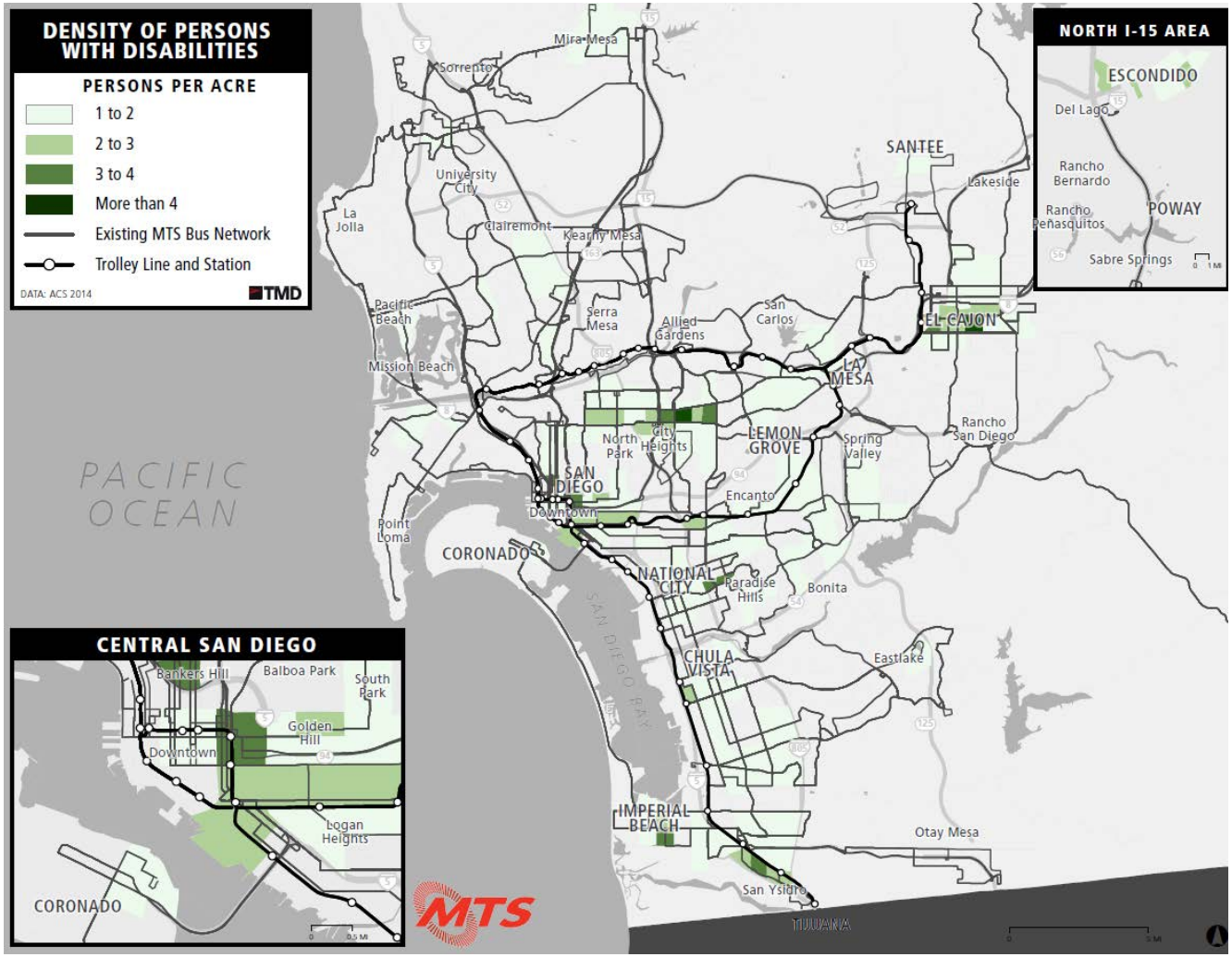


Persons with Disabilities

Persons with disabilities account for roughly 9 percent of the regional population, or 210,000 individuals. The disabled population is relatively dispersed throughout the service area, with some concentrations in City Heights, Downtown, El Cajon, Imperial Beach, and San Ysidro.

According to SANDAG's Coordinated Plan, a majority of individuals with disabilities live within a half-mile of a transit stop. MTS Access provides complementary ADA paratransit service within three-quarters of a mile from any transit stop, extending transit coverage beyond fixed-route service. While the transportation needs of persons with disabilities vary by individual, access to appropriate transportation options is a basic necessity for daily needs.

Figure 9: Density of Persons with Disabilities



Population and Employment Projections

SANDAG produces population, housing, employment, income, and land use growth forecasts to map out future regional growth. Series 13 is the MPO's latest forecast and serves as the foundation for *San Diego Forward: The Regional Plan*. Overall forecasted growth for the region includes 500,000 new jobs (+33%), 330,000 more housing units (+27%), and a population increase of 1,000,000 people (+32%) by 2050.

Population Projections

With an estimated increase of 1,000,000 people by 2050, San Diego will likely see a significant shift in its population distribution. Table 2 shows the ten cities and community planning areas with the largest expected growth in population by total number of people. Appendix B includes population projections for major communities within the service area through year 2050.

Table 2: Top 10 Areas of Projected Population Growth

TOP 10 AREAS OF SIGNIFICANT POPULATION GROWTH		
COMMUNITY	TOTAL POPULATION GROWTH 2012-2050	PERCENT CHANGE 2012-2050
Chula Vista	96,204	39%
Otay Mesa	46,088	301%
Mira Mesa	30,455	42%
Downtown	29,285	91%
College Area	28,354	137%
National City	26,154	44%
City Heights	24,985	33%
Navajo	22,021	45%
La Mesa	19,585	34%
Uptown	19,217	51%
Region	**1,000,000**	**32%**

The southern San Diego neighborhoods of Chula Vista, Otay Mesa, and National City will see a population growth of almost 170,000 people. This accounts for approximately 17 percent of total projected regional growth. In terms of total population growth, Chula Vista will see the largest population increase, as almost 10 percent of the projected regional growth will occur in Chula Vista alone. The city itself will see an increase of 39 percent between 2012 and 2050.

Otay Mesa is projected to triple in size between 2012 and 2050, adding around 46,000 people. The eastern part of the border community features large industrial parks surrounding the Otay Mesa Port of Entry, which will be served by the South Bay BRT in late 2017. Otay Mesa West consists of mostly single-family homes with some apartment complexes and will likely densify with the projected population growth.

Many of the top ten communities feature relatively high-density development that can continue to support transit with increased populations. Communities such as Downtown San Diego and Mira Mesa also feature major employment centers, fostering a greater balance of jobs and housing.

Employment Projections

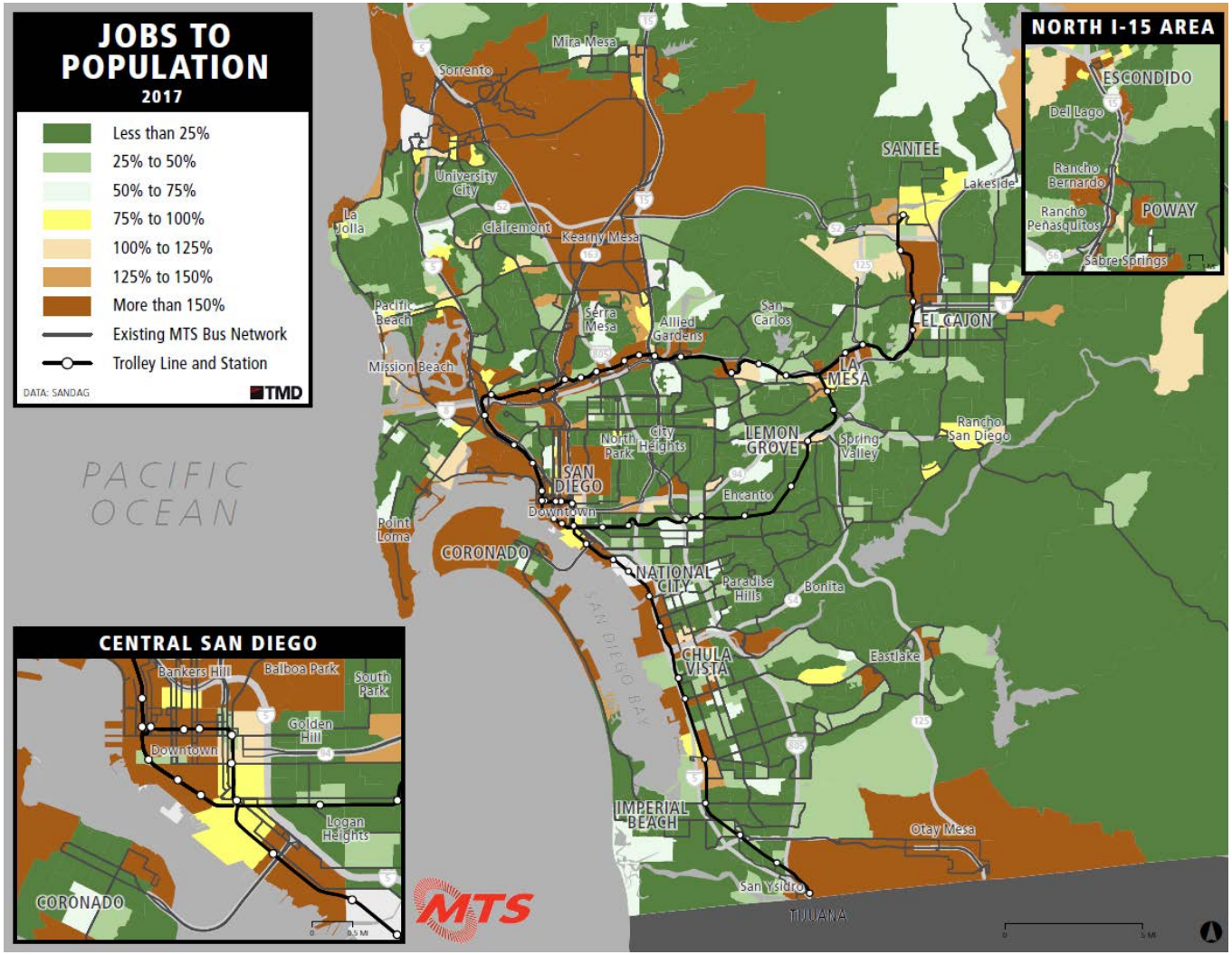
San Diego is largely characterized by relatively low-density, suburban development with major employment centers interspersed throughout the region. Areas that are expected to significantly increase in employment include Otay Mesa, Chula Vista, Downtown, National City, and La Mesa. These neighborhoods will add over 125,000 jobs by 2050, approximately 25 percent of overall regional growth.

EMPLOYMENT TO POPULATION RATIOS

Specific neighborhoods have a high concentration of jobs to residents, including communities such as Kearny Mesa, Sorrento Valley, downtown San Diego, and Otay Mesa. These areas serve as significant employment destinations for the region. Neighborhoods with an equal distribution of jobs and housing are more likely to support shorter-distance commutes that are suitable for transit.

The following map shows the degree of employment concentration relative to population size in 2017. Appendix C shows employment growth by jurisdiction through 2050, and Appendix D includes the employment to population ratios over time.

Figure 10: Jobs to Population Ratio by Community Planning Area



Senior Population Projections

Seniors currently account for approximately 12 percent of the population within MTS's service area, a 4 percent point increase from the COA. SANDAG's *San Diego Forward: The Regional Plan* projects that seniors will comprise about 20 percent of San Diego County's total population in 2050.

One in five residents will be a senior in 2050, making senior mobility a critical issue.

In an effort to facilitate transit use by riders with limited mobility, MTS currently provides a 75 percent discount for monthly transit passes for qualifying seniors (60+), the disabled, and Medicare recipients. According to MTS's *2016 Community Impact and Performance Report,* about 20 percent of daily MTS ridership uses S/D/M passes. This means that passengers who pay regular, adult fares are subsidizing S/D/M Pass holders due to lower revenue generated from the S/D/M program. SANDAG's *2015 On-Board Survey* estimated that individuals aged 60 and over account for approximately 10 percent of total bus ridership and 7 percent of Trolley ridership. With the growing senior population, this number could expand significantly. Improvements to the MTS network to make transit services more senior-friendly will slow the diversion of these riders to the more costly MTS Access service, which MTS is federally mandated to provide.

Appendix E shows the projected growth of individuals aged 60 and older. The table includes the percentage change in senior population between 2012 and 2025 as well as the overall growth of the jurisdiction. This comparison shows how much the senior population is growing relative to the area's overall growth. The table also includes the proportion of the senior population relative to the total population in 2025. Given the size of the City of San Diego, Appendix G provides an overview of senior population growth by major Community Planning Area (CPA). Appendix F shows the CPAs with projected senior populations greater than ten thousand.

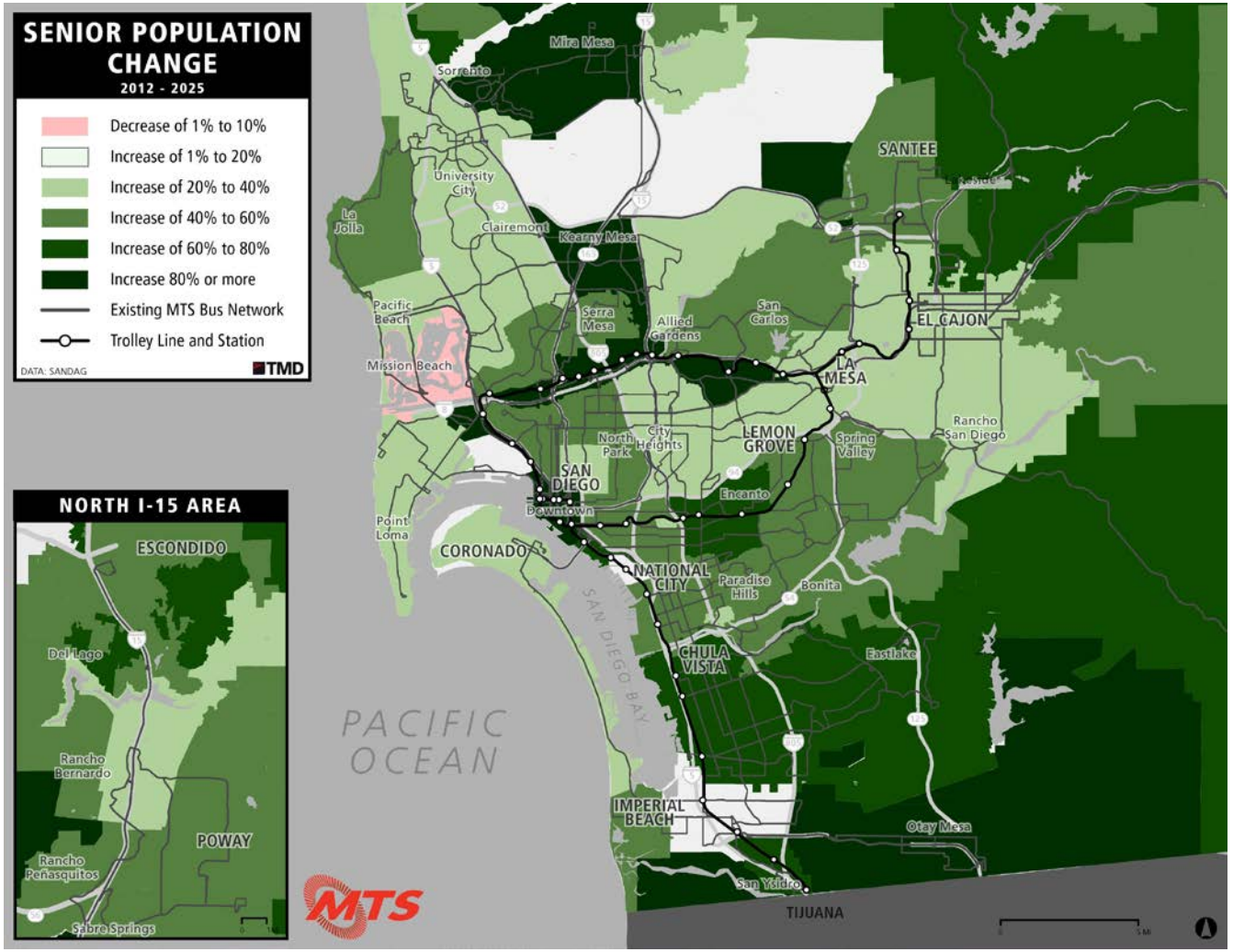
GROWTH BY JURISDICTION

Each major city within the MTS service area is projected to experience growth in senior population by at least 30 percent by 2025. This will add about 180,000 seniors to the service area. The majority of this growth will occur within the City of San Diego, which is further explored in Appendix G. A significant portion of this growth will also occur in Chula Vista, which can expect to see an additional 27,000 seniors by 2025. Escondido's senior population will grow by approximately 9,000 individuals, while both El Cajon and Santee will gain over 5,000 seniors.

The following map shows the growth in senior population between 2012 and 2025. Appendix F shows the sixteen CPAs with anticipated senior populations greater than ten thousand. In total, projected senior population growth in the City of San Diego by 2025 is nearly 115,000. The larger CPAs will see an increase of at least 3,000 seniors by 2025. Of this group, Lakeside and

Mira Mesa will experience the largest increase in senior population, both with almost 10,000 additional seniors. These areas are relatively dispersed, and challenging to serve with transit.

Figure 11: Senior Population Change 2012-2025



Travel Demand

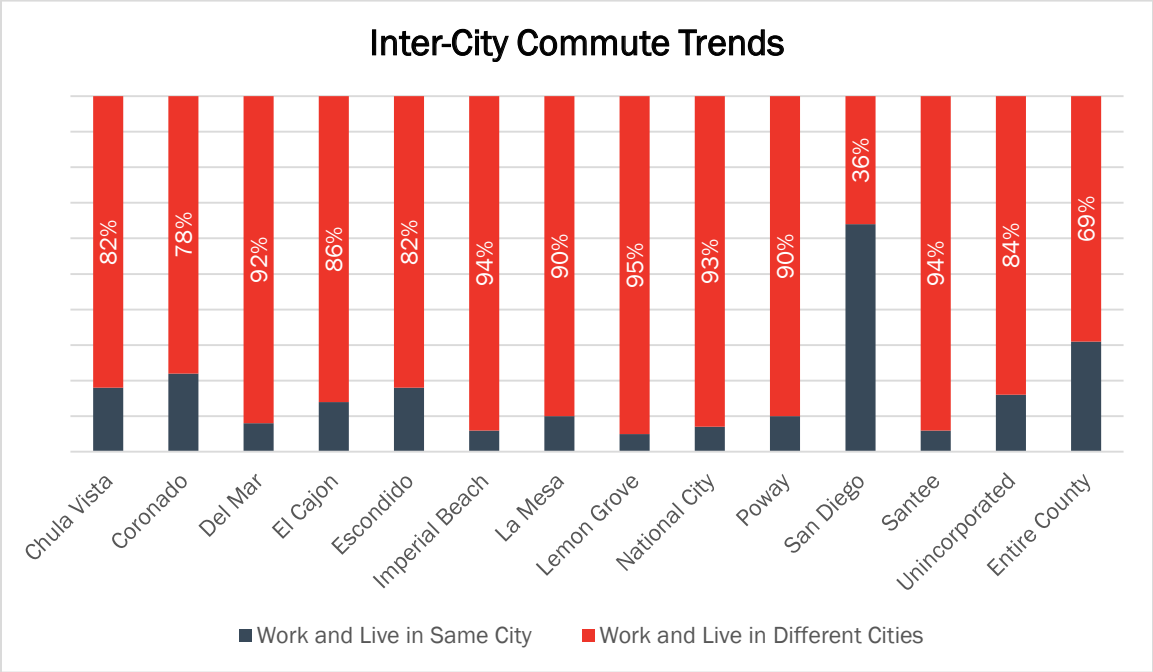
Understanding regional private vehicle travel patterns can provide insight into where transit service is needed and may be competitive. SANDAG provided general public travel pattern data for 2014, 2020, and 2025.

COMMUTING TRENDS

The majority of San Diego residents travel between cities during their commute to work. According to SANDAG, 69 percent of residents in San Diego County work and live in different cities (Figure 11).[3] The one exception to this trend is the City of San Diego, most likely due to the abundance of employment opportunities as well as the vast nature of the city itself. Overall, this trend speaks to a mismatch between housing locations and job opportunities. It reemphasizes the fact that many cities have primarily residential or retail development and that jobs are primarily clustered in a small number of concentrated areas. This disconnect between jobs and housing impacts journeys to work and commute travel which has significant implications for where and how transit service should be delivered.

[3] *SANDAG Info: Commuting Patterns in the San Diego Region provides an overview of traffic flow patterns for each city in San Diego County. The full report can be found here: http://sandag.org/uploads/publicationid/publicationid_2068_21065.pdf*

Figure 12: Regional Commute Trends



Source: SANDAG Info: Commuting Patterns in the San Diego Region

EXTERNAL TRIPS BY COMMUNITY

The following table shows the projected top ten origin CPAs and cities in 2020. These areas will have a significant number of trips originating within their community boundaries. This table reflects San Diego's concentrations of housing and employment. Communities such as Kearny Mesa and Sorrento Valley are significant employment centers. Sorrento Valley alone spans across three CPAs—Torrey Pines, University City, and Mira Mesa.

Table 3: Top 10 External Trips by Community 2020

TOP 10 EXTERNAL TRIPS BY COMMUNITY 2020	
COMMUNITY	Number of Trips
Carmel Valley	239,494
Kearny Mesa	236,142
University City	234,019
Mira Mesa	224,496
Mission Valley	220,455

TOP 10 EXTERNAL TRIPS BY COMMUNITY 2020	
COMMUNITY	Number of Trips
West Chula Vista	207,153
El Cajon	200,936
East Chula Vista	196,160
Escondido	194,339
Torrey Pines	183,554

ALL DAY TRAVEL

The following figures show the top daily travel patterns within the service area. This includes travel patterns for the years 2014, 2020, and 2025. These figures show the total daily trips between CPAs and cities, thus focusing on movements of relatively longer distance than travel internal to a CPA.

Figure 13: Vehicle Travel Patterns 2014

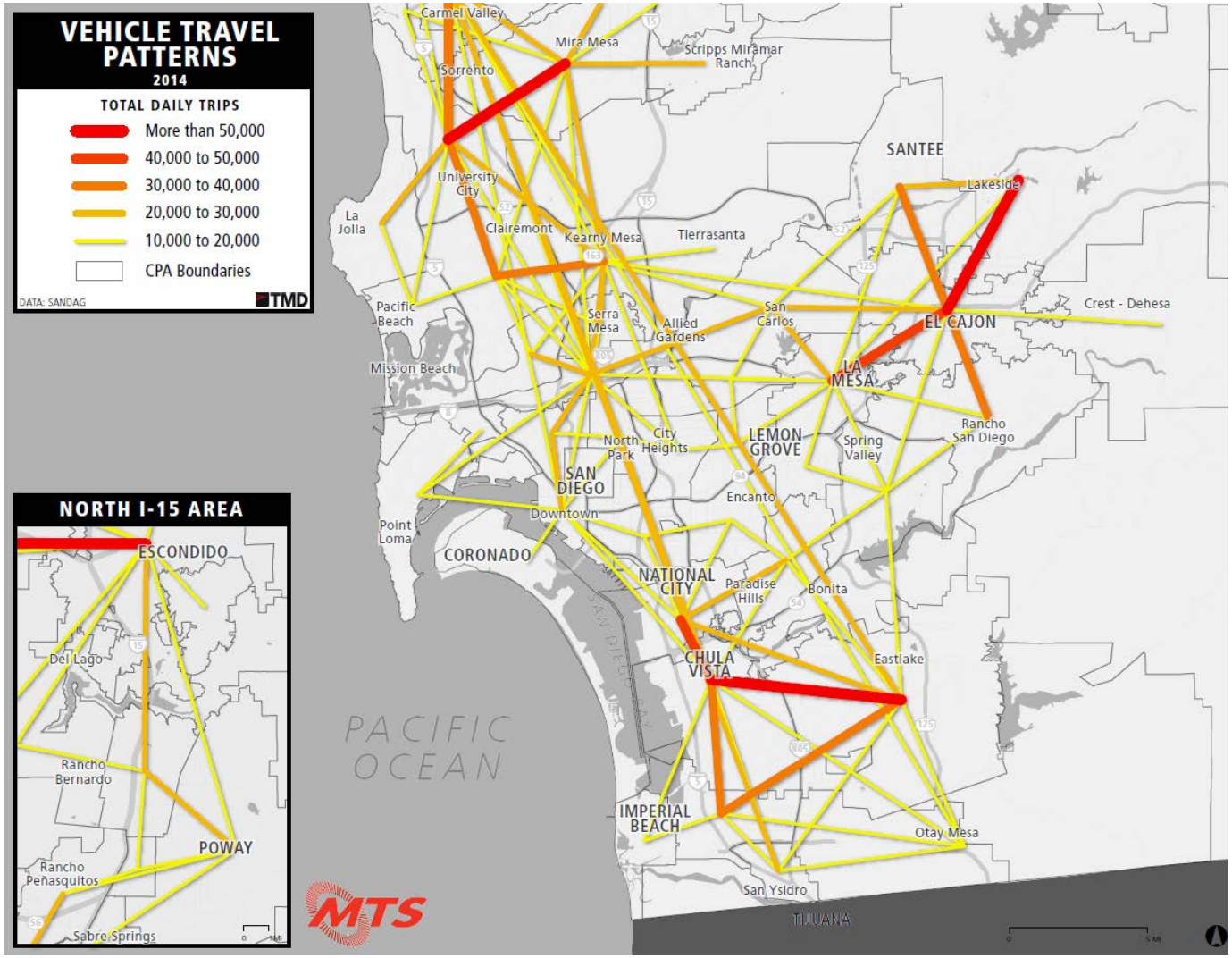


Figure 14: Vehicle Travel Patterns 2020

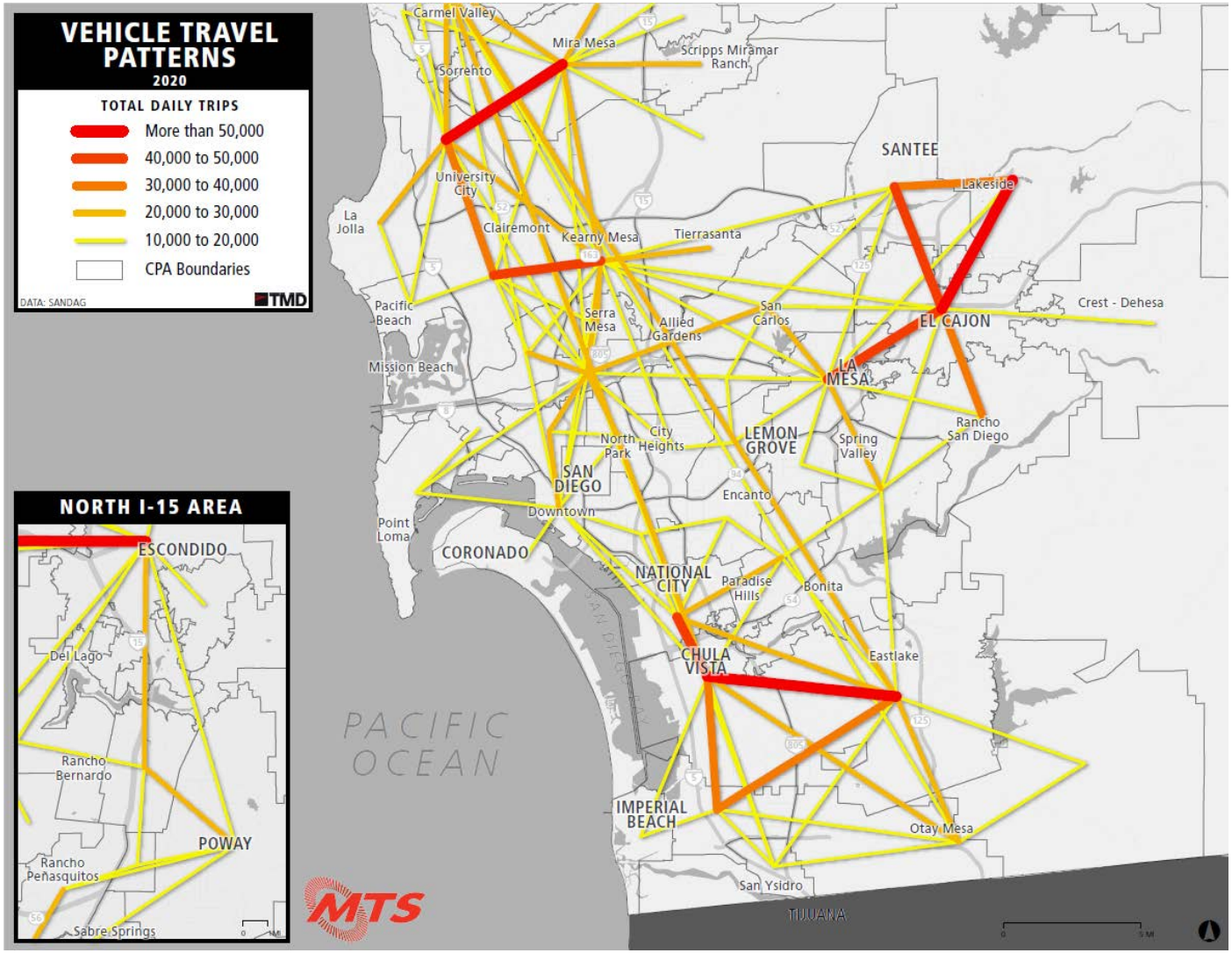
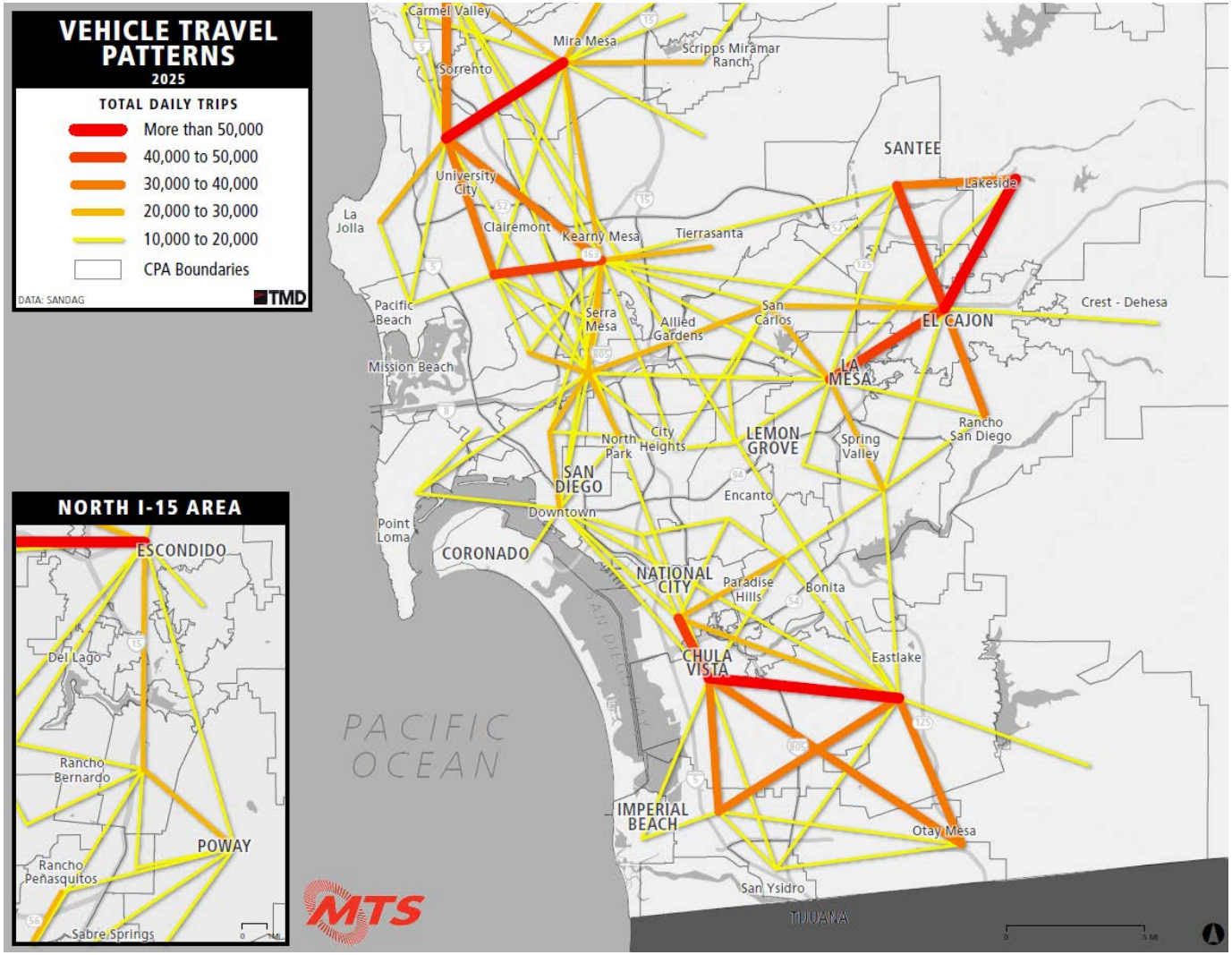


Figure 15: Vehicle Travel Patterns 2025



INTERNAL COMMUNITY TRAVEL PATTERNS

Travel within a community's boundary represents several trip purposes. This may include everyday travel for errands, shopping, dining, and more. These trips are local in nature and could lend themselves to spontaneous transit usage given their shorter distance especially if destination parking is challenging. The following table shows the top cities and CPAs with a high ratio of internal trips to population.

Table 4: Internal Trip to Population Ratio by City

INTERNAL TRIP TO POPULATION RATIO BY COMMUNITY			
JURISDICTION	TRIPS	2020 POPULATION	TRIPS PER PERSON
Kearny Mesa	53,822	7,781	6.9
Mission Valley	47,078	24,894	1.9
National City	62,342	48,483	1.3
Santee	59,497	48,450	1.2
La Mesa	61,102	54,866	1.1
Chula Vista	287,173	341,178	0.8
Poway	50,026	59,458	0.8
El Cajon	102,761	125,295	0.8
Escondido	165,214	246,897	0.7
Lakeside	51,665	81,087	0.6

At the top of the list are two significant CPAs within the city of San Diego. Kearny Mesa is a large employment hub with a low population relative to the number of trips daily. Vehicle trips within this community are likely employees using their vehicle for midday trips and after work errands. Kearny Mesa is home to Convoy Street, a popular dining destination with several strip malls. The Kearny Mesa Transit Center serves this area, but the community as a whole lacks the distinct walkability of other neighborhoods such as North Park or Downtown.

Mission Valley is another community that will likely see significant growth in the coming years. The community is home to the University of San Diego, several large retail locations, and plans for additional multifamily developments.

The following figures show internal vehicle travel patterns by community planning area for years 2014, 2020, and 2025. The figures show a slight increase in internal trips between 2014 and 2025 in communities throughout the region. East and west Chula Vista, University City, and Mira Mesa are among the CPAs with the largest internal trip patterns. These areas are significant employment centers for the region.

Figure 16: Internal Travel Patterns 2014

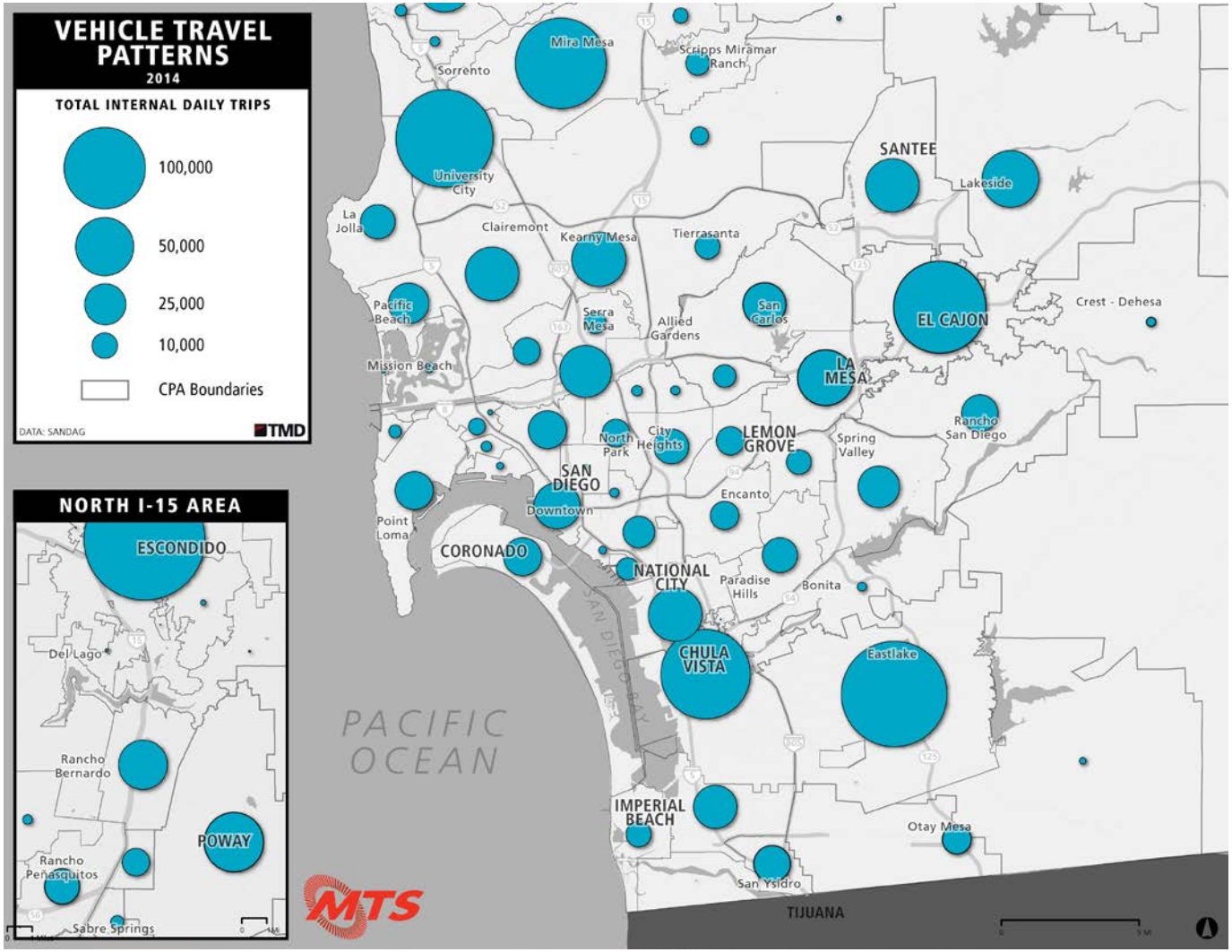


Figure 17: Internal Travel Patterns 2020

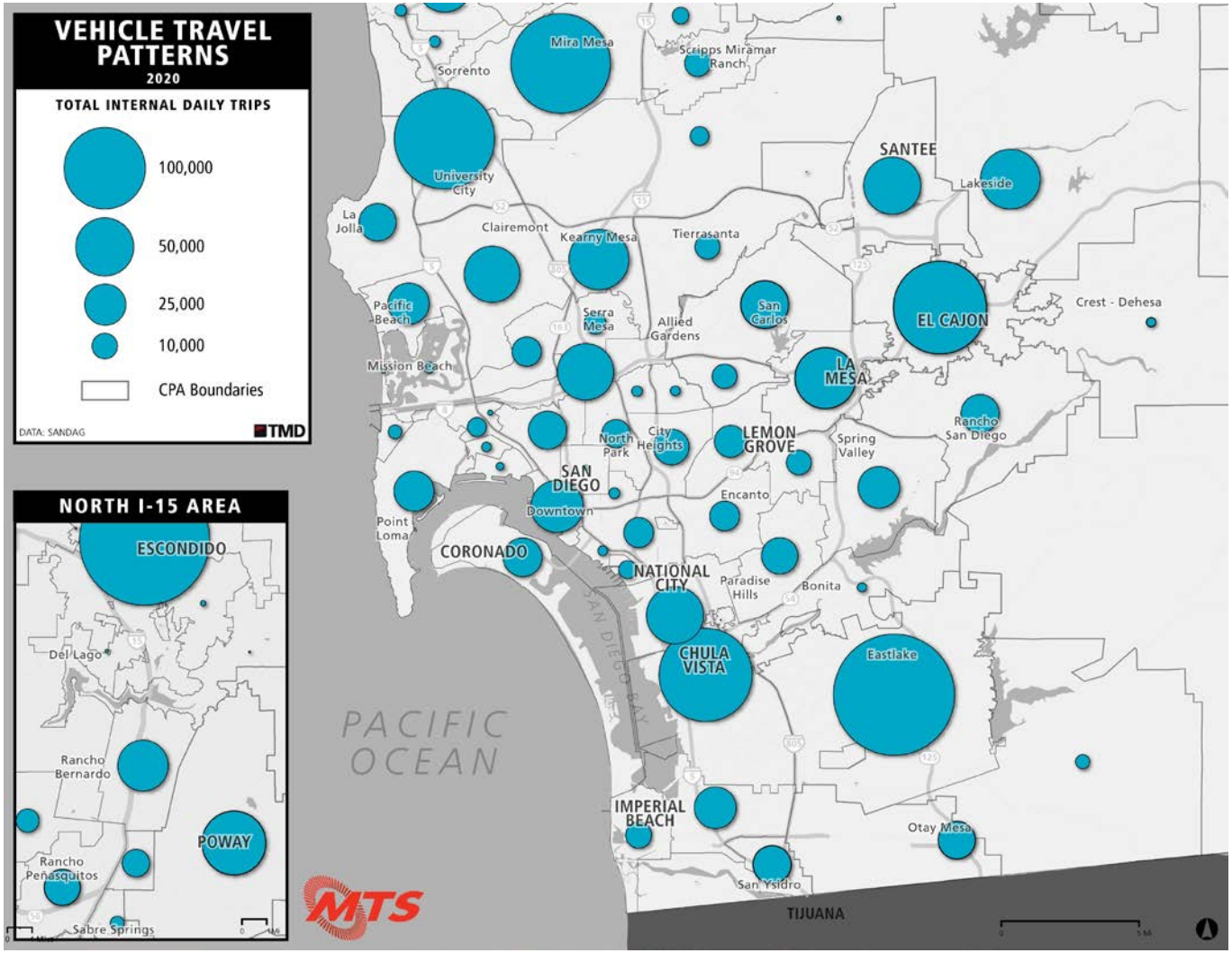
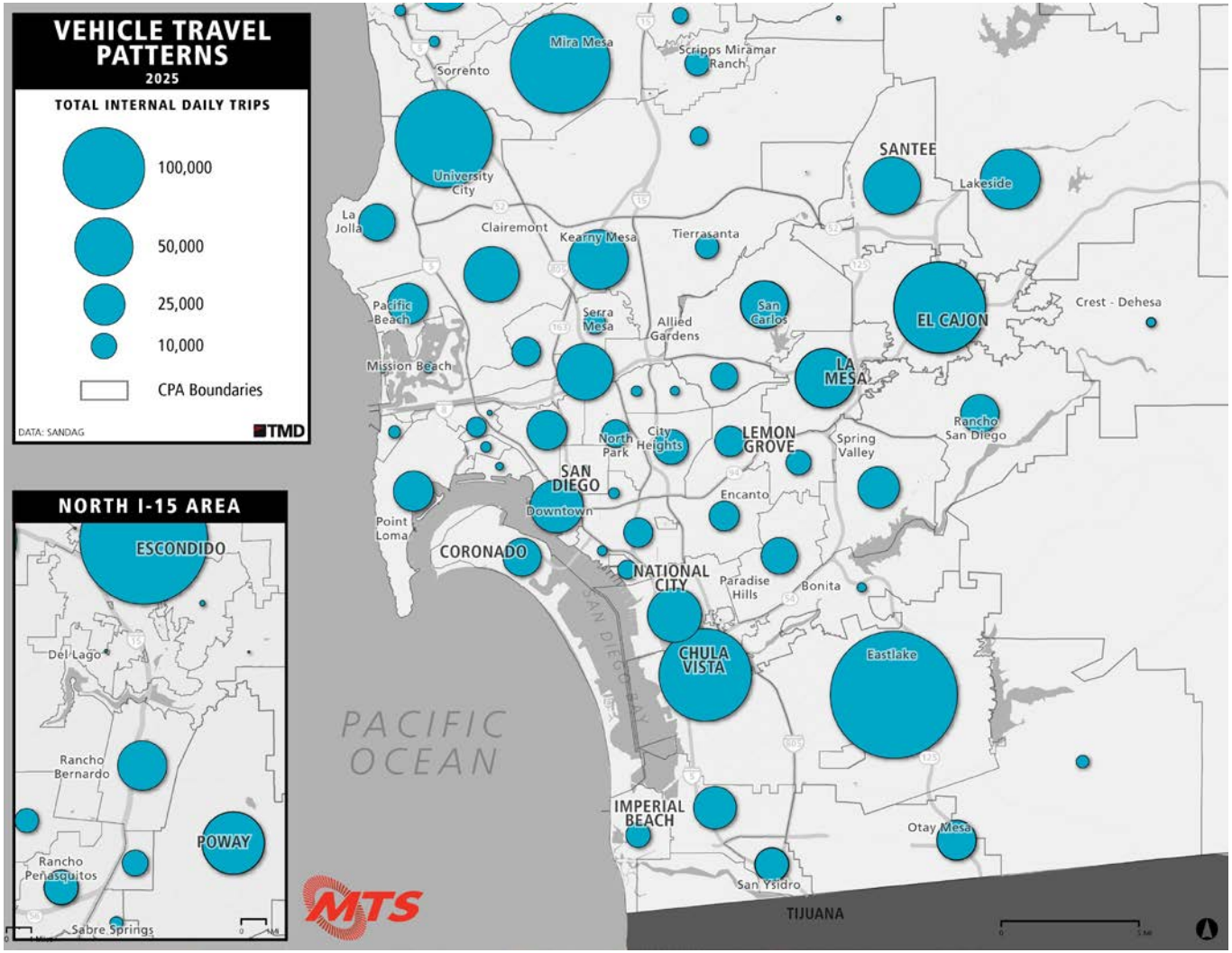


Figure 18: Internal Travel Patterns 2025



Rider Profile

MTS Customer Satisfaction Survey 2015

In March and April of 2015, MTS conducted an on-board survey of bus and Trolley riders collecting a total of 2,950 surveys. MTS has conducted similar studies in 2011 and 2013. Results from the survey provide an understanding of changing perceptions of MTS service and characteristics of MTS riders.

FACTORS AFFECTING TRANSIT USE

The top three reasons respondents use MTS are "no car to use" (69 percent), "save money" (34 percent), and "no driver's license" (31 percent).[4] This differs greatly from 2013 where the top three reasons were "save money" (73 percent), "no car to use" (66 percent), and "price of fuel" (38 percent). Price of fuel is almost a dollar lower than it was in 2013 which likely explains why it does not appear as a major ridership factor in 2015.

On average, bus riders are more likely to cite transit dependency as a reason for transit use than trolley riders. Approximately 72 percent of bus riders stated not having a car as one of the top three reasons for transit use compared to 65 percent of Trolley riders. These transit dependent populations are likely to use transit on a regular basis.

CUSTOMER SATISFACTION

Service frequency experienced the steepest decline in rider satisfaction, with 27 percent of riders indicating they were not satisfied with bus and trolley frequency compared to 10 percent in 2013. MTS's survey territory is split into four areas, including East County, South Bay, Central Urban Zone, and I-15 Corridor. More than 20 percent of passengers in each of the four zones cited dissatisfaction with service frequency, representing a system-wide concern rather than isolated issue.

From 2013 to 2015, the percent of riders who are "satisfied" or "very satisfied" with MTS service dropped seven points. The survey attributes this drop in satisfaction with the decline in gasoline prices and an increase in rider expectations due to changing travel needs.

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[4] Respondents were asked to list their top three reasons so percentages can total over 100 percent.

SANDAG On-Board Survey 2015

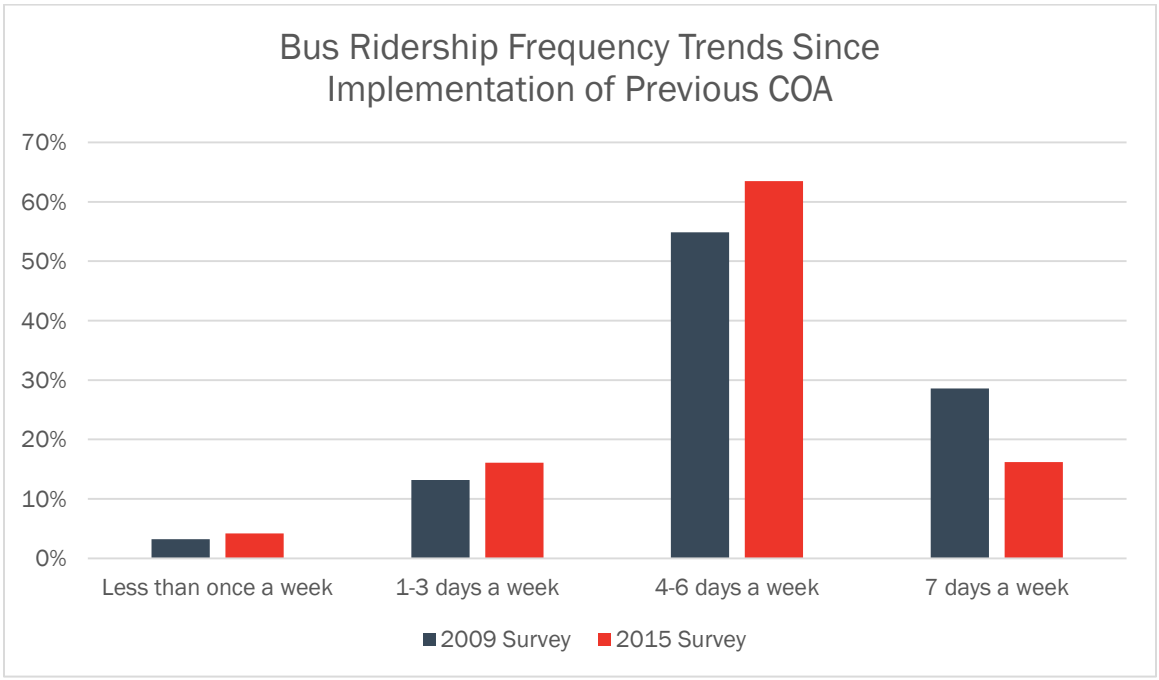
Between February and December of 2015, SANDAG carried out an on-board survey of transit passengers in San Diego County. While MTS's Customer Satisfaction Survey measured customer needs and feedback on improvements, SANDAG's On-Board Survey aimed to better understand transit customers' profile and travel patterns. In total, SANDAG conducted 33,900 origin-destination surveys and 88,000 on-to-off count surveys throughout the region. The on-to-off count surveys identified individuals' boarding and alighting patterns as a supplement to the origin-destination surveys. SANDAG previously conducted this survey in 2009, shortly after the last COA's service changes were implemented.

RIDERSHIP FREQUENCY

According to the 2015 on-board survey, approximately 80 percent of MTS bus passengers use transit four days a week or more. About 16 percent of bus riders use transit seven days a week, down from 29 percent in 2009.[5] Similarly, about 74 percent of Trolley riders use transit four days a week or more. Approximately 15 percent of Trolley passengers use transit seven days a week, down from 23 percent in 2009.

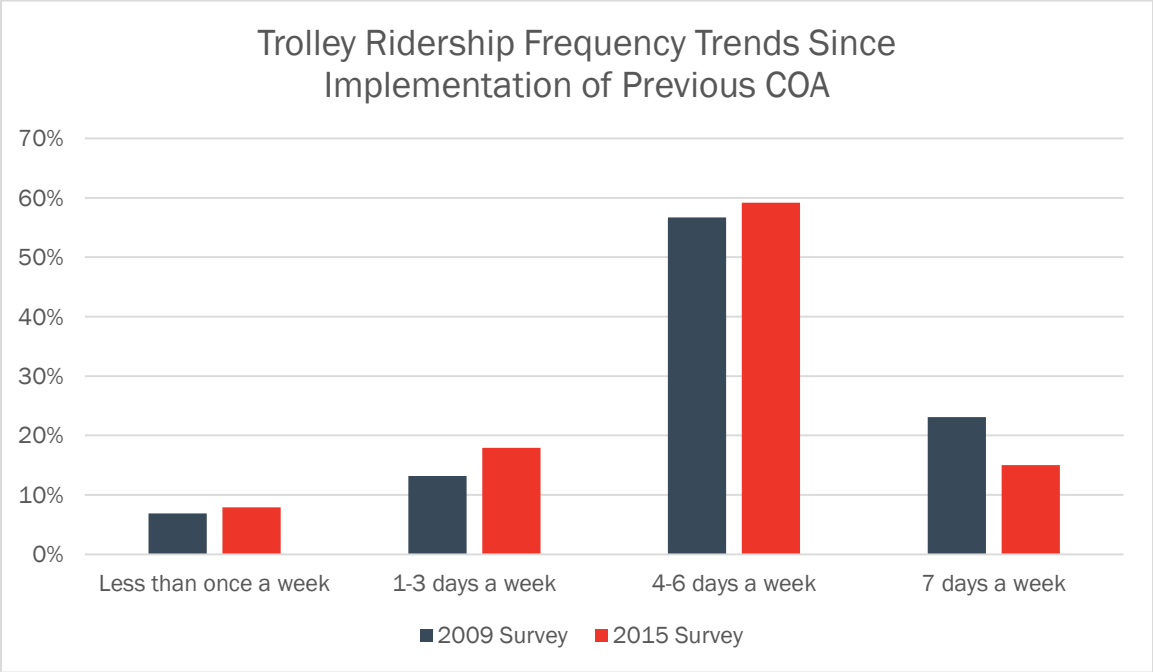
[5] MTS implemented Sunday service cutbacks in June 2009 which was while the on-board survey was being conducted (April-December 2009), and this may have influenced how often riders used MTS services.

Figure 19: Bus Ridership Frequency Trends since Implementation of the COA



Source: SANDAG On-Board Survey 2015

Figure 20: Trolley Ridership Frequency Trends since Implementation of the COA



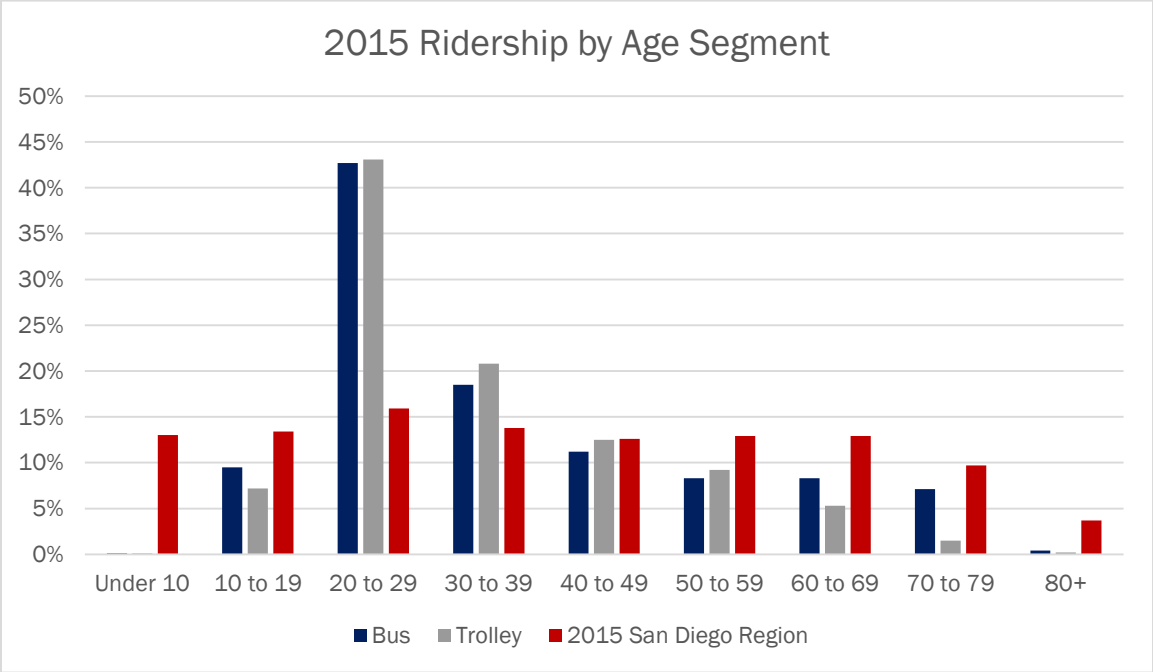
Source: SANDAG On-Board Survey 2015

RIDERSHIP BY AGE SEGMENT

SANDAG compared ages of bus and trolley riders with the ages of the general San Diego regional population, as shown in Figure 20. SANDAG's survey found that younger individuals under the age of 19 represent approximately 26 percent of the region, and account for 10 percent of bus ridership and 7 percent of Trolley ridership. Young adults aged 20-29 form a significant segment of both bus and Trolley ridership segments (43 percent) when compared to their regionwide population of 16 percent. Approximately 31 percent of bus riders and 27 percent of Trolley riders are college-aged individuals (18-24 years old). Individuals aged 30-59 account for 39 percent of the population, and represent 38 percent of bus ridership and 43 percent of Trolley ridership.

Senior age groups tend to be underrepresented in ridership relative to their proportion of the population. The senior population, aged 60 years or older, represent 10 percent of bus ridership and 7 percent of Trolley ridership, but account for 26 percent of the San Diego region.

Figure 21: Ridership by Age Segment and Section



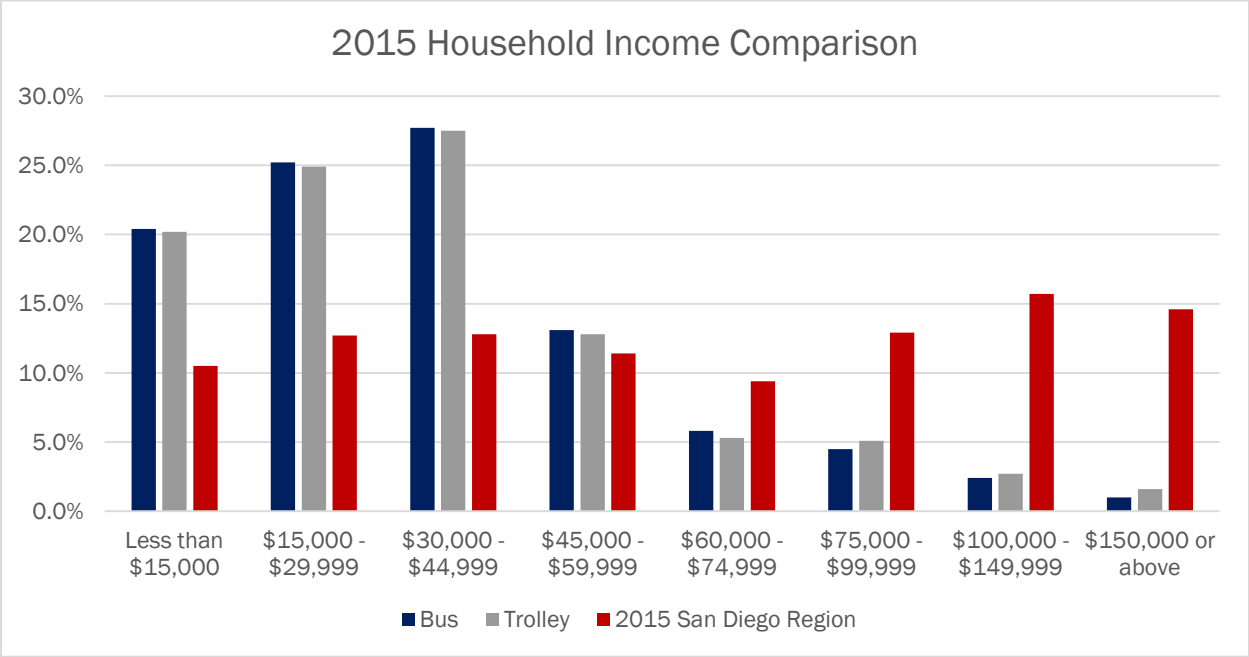
Source: SANDAG On-Board Survey 2015

HOUSEHOLD INCOME

SANDAG's survey provided insight on bus and Trolley ridership by income bracket. In 2015, twenty percent of both bus and trolley passengers had household incomes of less than $15,000 a year, Riders earning less than $45,000 are represented in MTS ridership in proportions twice as large as their percentage of the overall population.

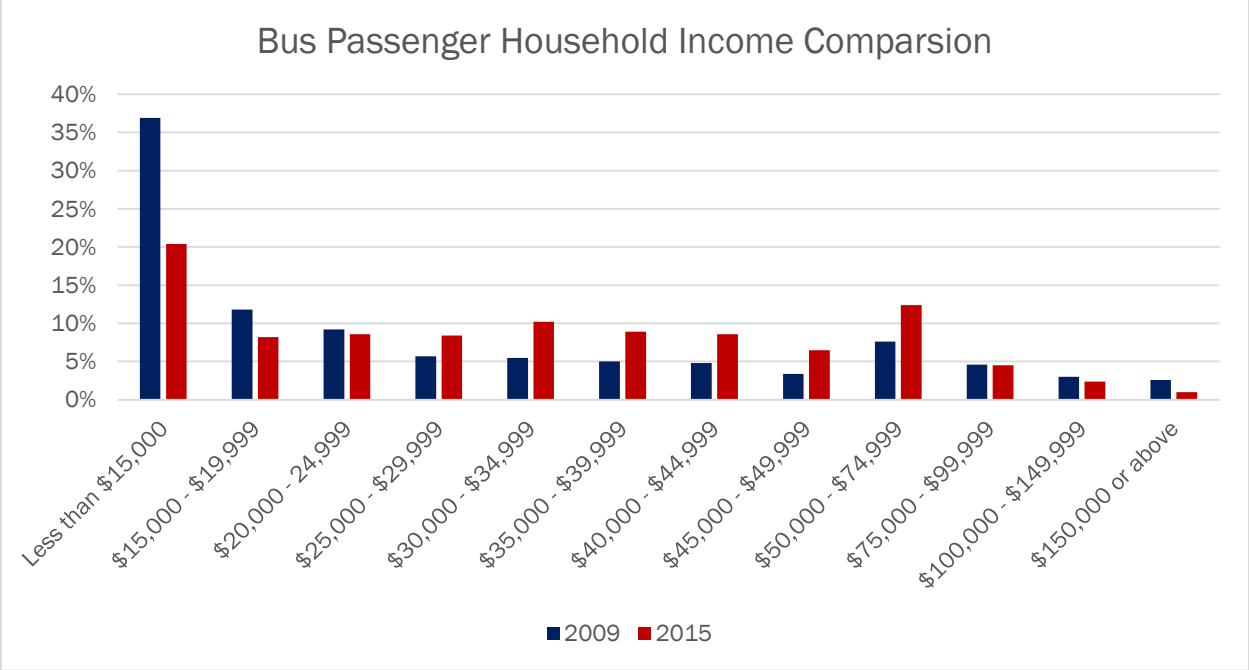
In 2009, approximately 26 percent of bus passengers and 29 percent of Trolley passengers had household incomes greater than $40,000. In 2015, approximately 35 percent of bus passengers and 37 percent of Trolley passengers had household incomes greater than $40,000. There is a significant increase in passengers who are likely able to afford alternative modes of travel and choose to make transit part of their daily lifestyle. There is little difference in income distribution between bus and Trolley riders.

Figure 22: 2015 Household Income Comparison



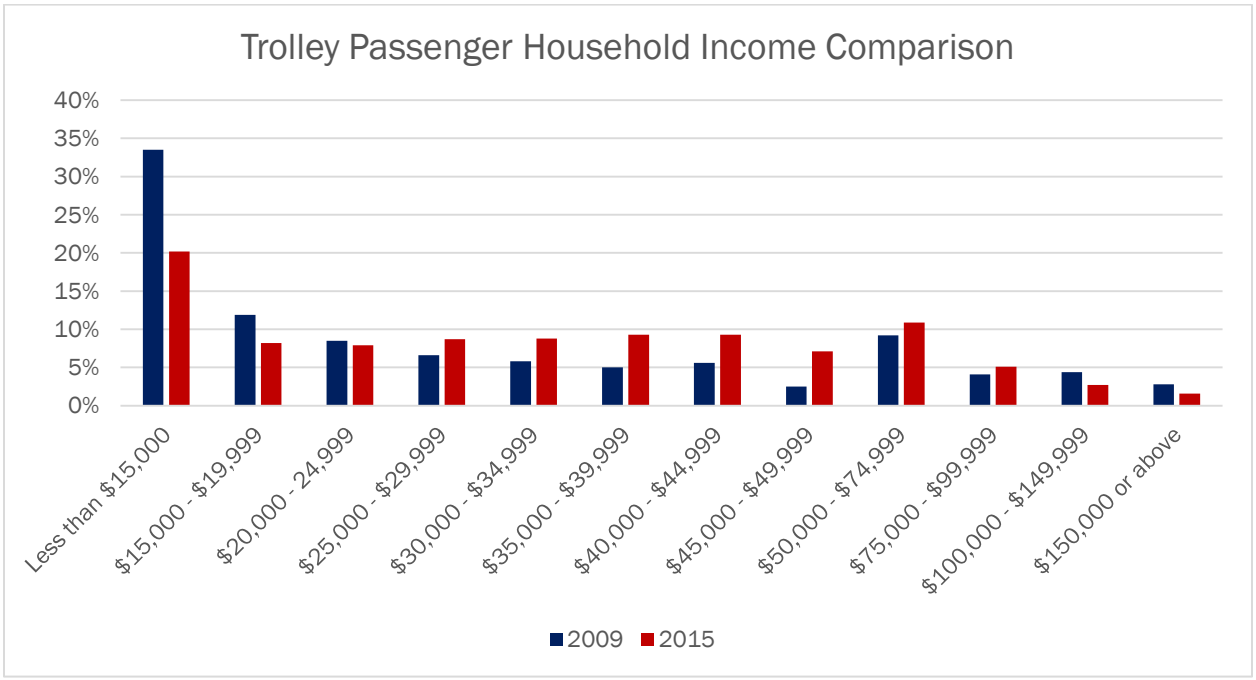
Source: SANDAG On-Board Survey 2015

Figure 23: 2009-2015 Bus Passenger Household Income Comparison



Source: SANDAG On-Board Survey 2015

Figure 24: 2009-2015 Bus Passenger Household Income Comparison



Source: SANDAG On-Board Survey 2015

Future "Urban Centers"

SANDAG's Smart Growth Concept Map locates existing, planned, and potential smart growth areas within San Diego County. SANDAG identified ten areas as "urban centers" which reflect the projections in Series 13. SANDAG defines urban centers as subregional business, civic, commercial, and cultural centers that draw people from throughout the region. These areas include medium to high levels of employment and mid- and high-rise residential, office, and commercial buildings.[6] SANDAG's "urban center" designation includes minimum residential and employment targets of 40 dwelling units per acre and 50 employees per acre, and minimum transit service characteristics that include Trolley, SPRINTER, or Rapid service. Appendix J includes additional designations of smart growth place types. The ten identified urban centers include locations in Chula Vista, El Cajon, La Mesa, National City, Barrio Logan, Navajo/Grantville, University City, and Uptown.

For these urban centers to realize sustainable mobility greenhouse gas goals, spontaneous lifestyle transit will be needed for both local and regional travel.

CHULA VISTA

Chula Vista is the second largest city within MTS's service area. Through 2050, Chula Vista's population is expected to increase by nearly 40 percent. By 2020, the city will expand by 15 percent, adding over 37,000 people. Employment in Chula Vista is projected to increase by 27 percent through 2020 and up to 75 percent by 2050. SANDAG identified two significant urban centers within Chula Vista, the northwest urban core and eastern urban center. The northwest urban core is bounded by two existing Trolley stations, while the eastern urban center will soon be served by the South Bay BRT. The City of Chula Vista's updated General Plan has identified these locations as transit focus areas for intensive, mixed-use development.

EL CAJON

Through 2050, El Cajon's population is expected to increase by 15 percent, adding a total of 15,000 people. El Cajon is currently the third largest city in the area and is projected to maintain

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[6] Spontaneous-use lifestyle transit service is required for these urban centers to be truly successful as smart growth centers with sustainable development. In areas with spontaneous-use transit service, riders to not need to plan their trip, they can simply walk out and catch the next bus. This begins to happen at frequency levels of 15 minutes, and is more successful at frequencies of 12 minutes or better. With high frequency service, residents are able to make transit use part of their daily lifestyle, using it for live-work-play mobility.

this ranking behind the City of San Diego and Chula Vista. El Cajon's employment is projected to increase by 30 percent by 2050, adding over 10,000 jobs. The City of El Cajon has identified the area surrounding the El Cajon Transit Center as a target for development and higher density housing, making downtown El Cajon a significant urban center for smart growth. Much of the area is currently undergoing redevelopment, and San Diego Forward includes plans for increased rapid service and high-frequency local bus routes.

LA MESA

Population growth in La Mesa is anticipated to expand at a rate of 34 percent through 2050. Employment in the area is expected to grow by 45 percent. This growth will add nearly 20,000 people and 11,000 jobs by 2050. SANDAG's designated urban center within La Mesa is centered around the Grossmont Trolley Station, a transit-oriented development with commercial space and 527 residential units.

NATIONAL CITY

National City's population is expected to expand by 44 percent by 2050, while employment is projected to grow by 46 percent. Downtown National City has been identified as a smart growth area, with an anticipated 4,000 new dwelling units. This area is within walking distance of the 8th Street Trolley Station and has several routes that operate with 12-15 or 30-minute frequency along National City Boulevard and 8th Street.

BARRIO LOGAN

Barrio Logan currently has a small population and is expected to grow by 170 percent by 2050, adding approximately 9,000 people. SANDAG forecasts employment will grow by 41 percent, adding 4,000 jobs. This area is particularly significant due to its proximity to downtown San Diego. The Barrio Logan Community Plan has designated this area for mixed-use development and is currently served by the Blue Line and high-frequency local bus routes.

NAVAJO/GRANTVILLE

The Navajo area is expected to grow by 45 percent, adding nearly 20,000 people. Employment in Navajo will increase by 23 percent, adding 4,000 jobs. Much of the growth in this community is expected to occur in Grantville, which encompasses part of the Navajo, Tierrasanta, and College Area communities. The Navajo Community Plan designates this area for industrial, commercial, mixed-use, and multi-family uses. The area is currently served by the Grantville Trolley Station and frequent local bus. San Diego Forward cites high frequency local bus and potential Purple Line Trolley extensions to be phased in by 2050.

UNIVERSITY CITY

University City is currently a major employment hub and has a large student population surrounding UCSD. The community population is expected to grow by 12 percent, with an

anticipated 30 percent increase in employment. This will add approximately 7,000 residents and 26,000 jobs. Among the projected employment increases, University City ranks the highest in terms of number of jobs, followed by Chula Vista and Kearny Mesa. SANDAG designates the area just east of UCSD's campus as an urban center due to high development pressure and the location of the future Mid-Coast Trolley. The University City Community Plan designates this area for regional and neighborhood commercial, institutional, scientific research, and high- and medium-high density residential. Two recently approved projects include an additional 750,000 square feet of commercial and 800 residential units. Developments on the horizon include 340,000 square feet of office use and a proposed 472 residential units near UTC.

UPTOWN

Uptown is expected to increase in population by 51 percent, adding approximately 20,000 residents. Employment will grow by 25 percent, adding nearly 8,000 jobs. The Uptown CPA includes the Hillcrest, Mission Hills, and University Heights neighborhoods. SANDAG designates a central part of the Uptown community as an urban center, with two mixed-use transit corridors feeding into the area. The Uptown Community Plan designates this area for mixed-use, multi-family residential, commercial, and medium- to high-density residential. The area is currently served by existing high-frequency local bus and rapid services.

Future Development

Planned developments are relevant not only for identifying future population concentrations and trip generators, but also indicate where construction detours and delays may occur and opportunities to improve transit infrastructure may be possible. According to MTS's *2015 Customer Satisfaction Survey,* fixed route bus ridership decreased slightly, in part due to construction delays on major routes. Table 4 provides an overview of San Diego developments that may impact MTS service in the near future.

STREET DESIGN

Vision Zero and the University Avenue Mobility Project (UAMP) are two street design efforts within MTS territory. San Diego's City Council voted to adopt Vision Zero in October 2015, which aims to reduce traffic deaths in San Diego to zero by 2025. The Vision Zero strategy will implement techniques to slow vehicle speeds and prioritize bike and pedestrian safety. Vision Zero has identified eight major corridors within the city that include Fifth Avenue, Broadway, El Cajon Boulevard, Euclid Avenue, Garnet Avenue, Imperial Avenue, Market Street, and University Avenue. According to Circulate San Diego's analysis of SANDAG's Series 13 forecast, the half-mile areas surrounding these eight corridors will see a 51 percent growth in overall population by 2030. These corridors will also contain 61 percent of expected growth in the City of San Diego and 25 percent of all growth in the county.

The UAMP proposes several multi-modal improvements along approximately 16 blocks of University Avenue between Florida Street and Boundary Street. The project cites improvements such as enhanced pedestrian crossings, curb extensions and pop outs, turn pockets, transit-only lanes, and transit stop consolidation. These improvements will greatly improve bus operations, increasing speed and reliability while reducing dwell time; making transit a more competitive choice for community and regional travel.

These complete streets strategies ultimately aim to provide a more pedestrian and transit-friendly environment. There are a significant number of MTS bus routes that operate along these designated corridors and may be impacted by this redesign. With the implementation of these traffic calming strategies, overall vehicle speed will be decreased. This will allow pedestrians to access transit facilities without having to contend with speeding vehicles or streets that are dangerous or difficult to cross. Through the UAMP, MTS buses will be allocated

Complete Streets need to make transit a more competitive choice for community and regional travel by improving the customer access, wait, and travel experience through reduced delay and increased reliability.

space to be shared with bicycles outside general traffic lanes along a significant portion of University Avenue. While decreased vehicle speeds may positively influence the pedestrian experience, it also has the potential to slow bus service through shared lanes with cyclists. Slower speeds will increase agency operating costs and add travel time, negatively impacting the passenger experience. Having to share lanes with buses will also reduce bicyclist comfort.

AREA PLANS

The East Village IDEA District, El Cajon Transit District, and Chula Vista Bayfront are larger plans for significant hotspots around San Diego. These projects encompass larger tracts of land and feature several long-term plans for increasing mixed-use development in the area. The IDEA District is an urban initiative aimed at establishing a design and technology innovation hub with over 13,000 jobs spanning 35 blocks in San Diego's Upper East Village. This initiative's first phase includes a mixed-use city block with 292 housing units, office space, retail, and restaurants. The IDEA district is located adjacent to the Blue and Orange Trolley lines running along Park Blvd.

Other area plans such as the El Cajon Transit District Specific Plan and Chula Vista Bayfront Master Plan are also located adjacent to MTS Trolley service. The El Cajon Transit District Specific Plan project will result in a General Plan amendment and thus does not currently have any specific planned developments. The amendment aims to facilitate smart growth development and mobility improvements. The proposed Chula Vista Bayfront master plan

includes an eighteen-acre park, commercial recreation development, 1,000 hotel units, 1,500 residential units, retail, and mixed-use commercial and office space.

In addition to the redevelopment of the Chula Vista Bayfront, the Port of San Diego has chosen a dual developer team to undertake the redevelopment of Harbor Island. The area plan is pending approval from the California Coastal Commission. If approved, the previous rental car parking lot would be redeveloped to include several hotels totaling approximately 1,500 rooms, marinas, shops, restaurants, office space, and recreational facilities and open space.

INTERNATIONAL TRAVEL FACILITIES

Other major developments on the horizon include Otay Mesa East and the redevelopment of San Diego International Airport's Terminal 1 and parking facilities. The Airport Development Plan identifies improvements to meet demand through 2035, when projected air operations levels are expected to reach capacity on the airport's single runway.

The Port of Entry (POE) at Otay Mesa East is currently under development, and the first phase of the project is open to vehicle traffic on State Route 11. The project will establish toll roads that lead directly to the new POE. The construction of the new POE itself is the third segment of the project and the extent of its pedestrian crossing facilities is unknown. Otay Mesa East will likely divert commercial and personal vehicle traffic from Otay Mesa, rather than pedestrian traffic.

Table 5: Public Development and Area Plans

PUBLIC DEVELOPMENTS AND AREA PLANS			
PROJECT	LOCATION	PHASING	AFFECTED ROUTES
Vision Zero	8 main corridors within the City of San Diego	Includes a series of projects through 2025	1, 2, 3, 4, 5, 7, 9, 10, 11, 13, 27, 30, 50, 110, 120, 150, 215, 235, 280, 290, 901, 923, 955, 992
University Ave Mobility	North Park along University Avenue between Florida and I-805	Completion expected late 2018	7, 10
East Village IDEA District	35 city blocks in San Diego's Upper East Village Neighborhood	Multiple developments over 12 years	2, 3, 4, 5, 235
El Cajon Transit District	Downtown El Cajon bounded by I-8, Main, and El Cajon Blvd	No currently planned projects	815, 816, 833, 848, 871/872, 874/875
Chula Vista Bayfront	Chula Vista	Four-phase plan over 24 years	-

Harbor Island	East Harbor Island off Harbor Drive	Project in development	923, 992
Otay Mesa East	5 miles east of Otay Mesa Port of Entry	Second phase to be completed late 2016	-
SD Int'l Airport Parking Structure	Harbor Drive	Completion expected summer 2018	923, 992
SD Int'l Airport Terminal 1 Redevelopment	Harbor Drive	Review and planning process to be complete in spring 2017	923, 992

Source: MTS List of Planned Developments, MTS System Map

PRIVATE DEVELOPMENT

Several large mixed-use developments are currently in the planning process or under construction. They are located throughout the service area, including downtown San Diego, Mission Valley, Carmel Valley, and Chula Vista. These mixed-use projects vary from hotels and business centers to apartment complexes and parks.

Liberty Station, while mostly built-out in the last ten years, will add three hotels to the existing area for a total of 650 units. Downtown's Pacific Gateway will add offices, retail space, a museum, park, and 1,390 hotel rooms.

Chula Vista's Millenia and Mission Valley's Riverwalk will be built out over the next twenty years. Millenia is a mixed-use development that spans 210 acres and will ultimately include 3,000 homes and apartment units. Millenia's first apartment building is open for occupants, which will be accompanied by business, retail, and civic districts. Millenia, and Chula Vista in general, could prove a significant epicenter for the San Diego-Tijuana mega region.

Riverwalk (aka Levi-Cushman Master Plan) will ultimately replace Mission Valley's Riverwalk Golf Club with up to 4,000 residential units, offices, and hotels. Riverwalk, plus five other significant projects in the area will add a total of 10,600 new units to Mission Valley in the coming years. These projects include Civita, Town and Country, Camino Del Rio, the Union-Tribune project, and Hazard Center.

One Paseo will add 608 apartment and condominiums to Carmel Valley, a largely suburban neighborhood. The project will also include space for offices and retail. The project is adjacent to Del Mar Highlands Town Center and is not currently served by transit.

AFFORDABLE HOUSING

In the recent November 2016 election, San Diego voters approved Measure M, which increased the maximum number of affordable housing units the City and public agencies such as the San Diego Housing Commission are allowed to help develop, construct, or acquire. The measure increased the maximum number of units by 38,680, from the previous limit of 3,247. While the measure does not guarantee these affordable units will be built, there are several affordable housing projects on the horizon. Given that mobility is the number one factor in persons escaping poverty,[7] the need to locate affordable housing near not

It is critical that affordable housing developments be located not just near a transit stop, but a stop with convenient, frequent access into the overall transit network.

[7] Chetty, Raj and Nathaniel Hendren, *The Impacts of Neighborhoods on Intergenerational Mobility: Childhood Exposure Effects and County-Level Estimates.* Harvard University, 2015.

just transit, but within a one-quarter mile (5-minute walk) of the frequent transit network cannot be overstated. The alternative of dragging transit to off-network locations is very expensive[8] and ineffective in addition to resulting in long travel times for passengers. For the most part, service area cities and the county are doing a good job of locating affordable housing to take advantage of the MTS frequent transit network and in many cases locating adjacent to Trolley stations.

National City's Paradise Creek is an affordable housing development projected to open by the end of 2016. The 201-unit complex is located approximately one-quarter mile from the 24th Street Transit Center, served by the Blue Line Trolley. The recently approved Cornerstone Place development in El Cajon will provide 70 units of affordable housing. This complex has access to several bus routes within one-quarter mile that operate between 30 and 60 minute frequencies. The El Cajon Transit Center, which offers more frequent bus and Trolley service, is located less than a mile away.

The Jacobs Center for Neighborhood Innovation has long been involved in the "Diamond neighborhoods" in Southeastern San Diego, which include the communities of Chollas View, Emerald Hills, Lincoln Park, Mountain View, Mount Hope, North Encanto, Oak Park, South Encanto, Valencia Park, and Webster. Previous developments in the area include Market Creek Plaza, Chollas Creek Park, and most recently the Trolley Park Terrace, which includes 52 units of affordable housing directly adjacent to the Euclid Transit Center. Currently, the Jacobs Center is working on the Euclid Market + Complete Streets project, which will focus solely on the area surrounding the Euclid Transit Center. Nearby, Affirmed Housing's recently approved affordable housing development at Euclid and Hilltop will provide 84 units located one third of a mile from the Euclid Transit Center.

A new mixed-income development in North Park will include 118 market-rate units and 76 affordable senior apartments near El Cajon Boulevard. Downtown's Atmosphere development will open in 2017 and features 205 affordable housing units. Fifty-one of these units will provide supportive housing for homeless adults and seniors.

[8] The net cost of operating one fixed route bus to serve the off-network location for one year is between $250,000 and $500,000 depending upon farebox revenue and other factors – this cost becomes even more daunting when factored over the 20-year (or more) life of an affordable housing development. The additional transit cost to locate on the existing frequent network is most likely $0 or a net revenue generator by filling available seats.

Table 6: Private Development

PRIVATE DEVELOPMENT			
PROJECT	LOCATION(S)	PHASING	AFFECTED ROUTES
Pacific Gateway	Downtown bounded by Broadway, Pacific Highway, and Harbor	First phase completed by 2019	923, 992
Riverwalk	Mission Valley at Riverwalk Golf Club	Three-phase plan over 20 years	6, 20, 25, 41, 88, 120, 928
One Paseo	Carmel Valley at Del Mar Heights Road and El Camino Real	First phase completed by 2019	-
Liberty Station	Downtown bounded by Rosecrans, Nimitz and Barnett	Current phase completion by late 2018	28, 923
Millenia	Eastlake bounded by 125, Birch, Hunte, and Eastlake Parkway	First phase open for occupants	703, 709, South Bay Rapid
Kaiser Hospital	Kearny Mesa at Ruffin and Clairemont Mesa	Opening in 2017	20, 25, 235, 928
Jacobs Center Redevelopment	Southeastern San Diego at Euclid & Market	Affordable housing complex opened in Oct 2016, complete streets construction is ongoing	3, 4, 5, 13, 60, 916/917, 955
Euclid & Hilltop	Southeastern San Diego at Euclid & Market	Approved 2016	916, 917, 955
Cornerstone Place	El Cajon at Douglas & Sunshine	Approved 2015	815, 816, 872, 888, 894
Paradise Creek	National City at Hoover & W 21st	Opening late 2016	-
North Park Senior Apartments	North Park at Texas and Howard near El Cajon Blvd	Opening late 2017	1, 6, 215
Atmosphere	Downtown at Fourth and Beech	Opening 2017	3, 120

Source: MTS List of Planned Developments, MTS System Map

Key Findings

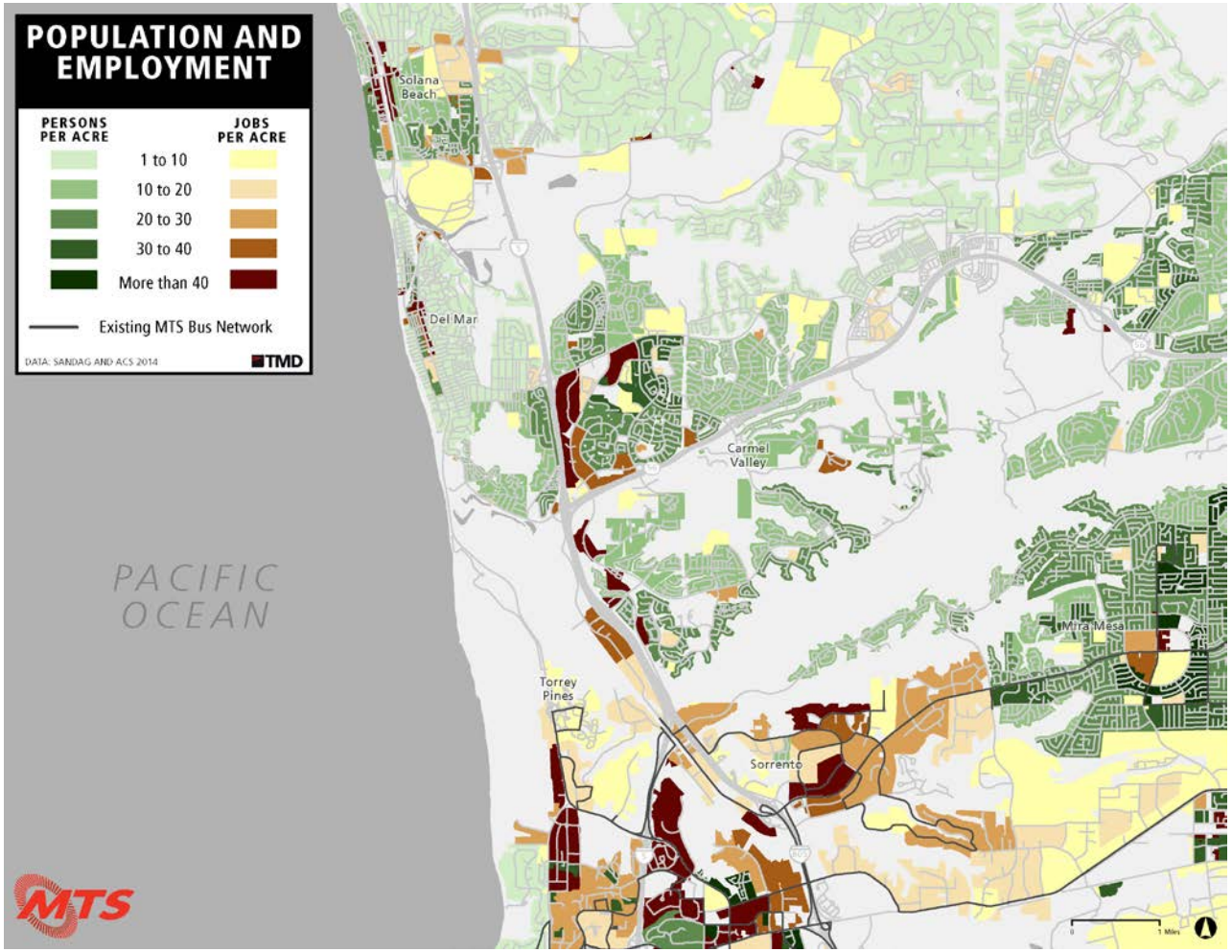
San Diego will experience significant growth in the coming years, specifically in the MTS service area. This growth will impact the type of rider who uses transit, as well as how potential riders are able to access it. MTS service will need to reflect and react to the changing development patterns. For the region to absorb this growth in population and jobs without deterioration in San Diego's quality of life and further congestion transit will need to play an increasing role in mobility as outlined in SANDAG's *San Diego Forward: The Regional Plan.* MTS should consider starting to implement these strategies within its limited current funding as part of the TOP.

San Diego's population is expected to age significantly in the next few decades, with the senior population accounting for 20 percent of total population in 2050. This segment of the population will likely age in place, a popular trend among the current senior population, leading to a dispersed senior population that is difficult to serve. The TOP refinement of the current transit network and service tiers should consider the senior customer experience in order to mainstream senior mobility where cost-effective.

A significant part of the MTS service area is characterized by largely suburban development outside of the urban core with pockets of denser development in key areas. Employment and population are largely segmented, with overlap only in certain communities such as downtown San Diego, University City, and Chula Vista. As a result, employees tend to commute out of the community where they live to a neighboring community in which they work.

SANDAG's projections show that future growth in the region will trend towards denser, compact development and away from further suburban sprawl. The encouragement of smart growth concepts will allow for denser communities and more opportunities for transit-oriented development. Specific areas that are expected to grow significantly include areas of Downtown, Chula Vista, Mission Valley, and University City. Transit's role in mobility will continue to grow with concentrated, mixed-use development.

Appendix A: Carmel Valley Population and Employment Map



Appendix B: Series 13 Population Growth Forecast

POPULATION GROWTH				
JURISDICTION	2012	2020	2035	2050
Barrio Logan	4,792	5,371	9,493	12,948
Carmel Valley	34,814	35,977	36,488	36,315
Chula Vista	249,382	287,173	326,625	345,586
City Heights	75,252	78,416	86,003	100,237
Clairemont Mesa	78,462	81,498	86,765	94,965
College Area	20,735	25,437	48,012	49,089
Coronado	23,187	23,634	24,165	24,219
Downtown	32,326	37,479	55,470	61,611
El Cajon	100,562	102,761	109,383	115,465
Encanto	47,706	52,961	59,488	63,881
Escondido	146,089	165,214	172,892	173,625
Golden Hill	15,954	16,980	20,095	21,492
Imperial Beach	26,609	27,506	30,369	31,691
Kearny Mesa	5,711	7,781	8,280	8,235
Kensington-Talmadge	13,971	14,905	18,307	18,574
La Jolla	30,000	31,356	35,965	37,053
La Mesa	58,296	61,102	70,252	77,881
Lemon Grove	25,603	26,884	28,673	30,903
Linda Vista	31,813	35,050	39,480	49,276
Midway	4,672	4,751	10,452	12,805
Mira Mesa	73,230	90,338	103,999	103,685
Mission Beach	4,574	4,939	5,709	5,621
Mission Valley	19,038	24,894	34,282	36,640

POPULATION GROWTH				
JURISDICTION	2012	2020	2035	2050
National City	58,967	62,342	73,329	85,121
Navajo	48,827	55,296	68,707	70,848
Normal Heights	15,926	16,675	18,519	19,251
North Park	46,106	48,114	52,072	61,015
Ocean Beach	13,651	14,054	15,431	16,405
Old Town	834	843	778	996
Otay Mesa	15,323	27,715	57,112	61,411
Pacific Beach	40,670	43,247	49,053	53,175
Poway	48,382	50,026	53,062	53,149
Tierrasanta	30,594	31,250	31,394	31,277
Torrey Highlands	7,402	10,157	10,255	10,339
Torrey Hills	7,179	8,459	8,497	8,430
Torrey Pines	6,647	6,800	7,081	7,457
University City	68,092	74,186	75,842	75,926
Uptown	37,855	39,810	49,807	57,072

Appendix C: Series 13 Employment Growth Projections

EMPLOYMENT GROWTH				
JURISDICTION	2012	2020	2035	2050
Barrio Logan	9,293	11,206	12,093	13,134
Carmel Valley	14,723	16,318	16,930	17,298
Chula Vista	65,340	82,953	99,599	114,550
City Heights	8,574	9,132	9,997	11,903

EMPLOYMENT GROWTH				
JURISDICTION	2012	2020	2035	2050
Clairemont Mesa	19,592	21,171	23,023	24,622
College Area	14,539	15,487	16,969	17,363
Coronado	12,377	12,377	12,515	12,536
Downtown	67,290	76,503	85,464	99,372
El Cajon	38,393	41,410	45,201	49,825
Encanto	4,158	4,726	4,857	4,890
Escondido	48,874	53,528	57,762	59,111
Golden Hill	1,806	1,973	2,122	2,183
Imperial Beach	3,665	4,555	4,839	4,857
Kearny Mesa	88,830	97,612	103,844	106,197
Kensington-Talmadge	1,615	1,764	1,922	1,952
La Jolla	14,775	15,673	15,912	16,207
La Mesa	25,233	28,673	33,309	36,552
Lemon Grove	6,774	7,320	8,033	8,656
Linda Vista	14,086	15,643	16,910	17,960
Midway	15,223	16,778	17,866	18,100
Mira Mesa	75,275	83,882	87,944	93,095
Mission Beach	2,108	2,113	2,135	2,135
Mission Valley	45,197	53,673	57,826	59,447
National City	27,373	30,287	32,817	39,839
Navajo	17,811	19,602	21,142	21,972
Normal Heights	1,663	1,746	1,898	2,034
North Park	7,108	8,069	9,047	11,444
Ocean Beach	2,525	2,774	3,020	3,348
Old Town	5,108	5,354	5,758	5,758

EMPLOYMENT GROWTH				
JURISDICTION	2012	2020	2035	2050
Otay Mesa	14,007	17,817	22,559	34,368
Pacific Beach	12,210	13,008	13,880	14,698
Poway	30,851	34,010	35,708	37,173
Tierrasanta	2,980	3,343	3,697	4,313
Torrey Highlands	2,388	2,989	4,235	4,238
Torrey Hills	3,883	4,100	4,269	4,269
Torrey Pines	11,437	11,724	12,891	13,730
University City	89,637	98,137	105,636	116,117
Uptown	29,695	32,607	34,974	37,147

Appendix D: Employment to Population Ratios by Jurisdiction

EMPLOYMENT TO POPULATION RATIOS				
JURISDICTION	2012	2020	2035	2050
Barrio Logan	194%	209%	127%	101%
Carmel Valley	42%	45%	46%	48%
Chula Vista	26%	29%	30%	33%
City Heights	11%	12%	12%	12%
Clairemont Mesa	25%	26%	27%	26%
College Area	70%	61%	35%	35%
Coronado	53%	52%	52%	52%
Downtown	208%	204%	154%	161%
El Cajon	38%	40%	41%	43%
Encanto	9%	9%	8%	8%
Escondido	33%	32%	33%	34%

EMPLOYMENT TO POPULATION RATIOS				
JURISDICTION	2012	2020	2035	2050
Golden Hill	11%	12%	11%	10%
Imperial Beach	14%	17%	16%	15%
Kearny Mesa	1555%	1254%	1254%	1290%
Kensington-Talmadge	12%	12%	10%	11%
La Jolla	49%	50%	44%	44%
La Mesa	43%	47%	47%	47%
Lemon Grove	26%	27%	28%	28%
Linda Vista	44%	45%	43%	36%
Midway	326%	353%	171%	141%
Mira Mesa	103%	93%	85%	90%
Mission Beach	46%	43%	37%	38%
Mission Valley	237%	216%	169%	162%
National City	46%	49%	45%	47%
Navajo	36%	35%	31%	31%
Normal Heights	10%	10%	10%	11%
North Park	15%	17%	17%	19%
Ocean Beach	18%	20%	20%	20%
Old Town	612%	635%	740%	578%
Otay Mesa	91%	64%	39%	56%
Pacific Beach	30%	30%	28%	28%
Poway	64%	68%	67%	70%
Tierrasanta	10%	11%	12%	14%
Torrey Highlands	32%	29%	41%	41%
Torrey Hills	54%	48%	50%	51%
Torrey Pines	172%	172%	182%	184%

EMPLOYMENT TO POPULATION RATIOS				
JURISDICTION	2012	2020	2035	2050
University City	132%	132%	139%	153%
Uptown	78%	82%	70%	65%

Appendix E: Growth in Senior Population 2012-2025 by Jurisdiction

SENIOR POPULATION GROWTH (AGE 60+)					
JURISDICTION	2012 SENIOR POPULATION	2025 SENIOR POPULATION	2012-2025 SENIOR GROWTH	2012-2025 JURISDICTION GROWTH	PERCENT OF 2025 POPULATION
Chula Vista	37,040	64,320	74%	27%	20%
Coronado	4,802	6,397	33%	3%	27%
El Cajon	16,915	22,816	35%	4%	22%
Escondido	22,738	32,194	42%	17%	19%
Imperial Beach	4,080	6,384	56%	8%	22%
La Mesa	11,577	15,976	38%	6%	26%
Lemon Grove	4,347	6,244	44%	7%	23%
National City	8,531	12,724	49%	9%	20%
Poway	9,618	13,958	45%	6%	27%
San Diego	209,756	322,814	54%	15%	21%
Santee	9,668	14,959	55%	13%	24%
Total	339,072	518,786	53%	15%	21%

Source: SANDAG Series 13 Forecast

Appendix F: Senior Population Growth 2012-2025 in Top 16 CPAs

TOP 16 COMMUNITIES IN SENIOR POPULATION GROWTH (AGES 60+)					
COMMUNITY PLANNING AREA	2012 SENIOR POPULATION	2025 SENIOR POPULATION	2012-2025 PERCENT CHANGE	2012-2025 CPA GROWTH[9]	SEGMENT OF 2025 POPULATION[10]
Clairemont Mesa	16,166	22,618	40%	6%	27%
Downtown	5,919	11,172	89%	41%	25%
Encanto	6,383	10,697	68%	15%	20%
La Jolla	10,368	14,603	41%	9%	45%
Lakeside	14,191	23,873	68%	21%	27%
Mira Mesa	11,737	21,474	83%	31%	22%
Navajo	13,389	20,871	56%	20%	36%
Nestor	10,200	16,037	57%	6%	25%
Peninsula	8,181	10,898	33%	7%	26%
Rancho Bernardo	11,302	14,436	28%	3%	35%
Rancho Peñasquitos	7,107	10,480	47%	3%	23%
Skyline-Paradise Hills	11,112	17,184	55%	8%	23%
Spring Valley	10,112	14,982	48%	10%	22%
University	8,479	11,628	37%	10%	16%
Uptown	8,099	12,400	53%	16%	28%
Valle De Oro	9,374	12,914	38%	5%	30%

[9] Percentage change in total population for each community planning area.

[10] Percentage of seniors aged 60+ out of the total 2025 projected population for each community planning area.

Appendix G: Growth in Senior Population 2012-2025 by CPA

SENIOR POPULATION GROWTH (AGES 60+)					
COMMUNITY	2012	2025	2012-2025 PERCENT CHANGE	2012-2025 CPA GROWTH[11]	PERCENTAGE OF 2025 POPULATION[12]
Barrio Logan	486	829	71%	11%	16%
Carmel Mountain Ranch	1,923	2,813	46%	2%	21%
Carmel Valley	3,897	5,713	47%	4%	16%
City Heights	7,011	9,667	38%	5%	12%
Clairemont Mesa	16,166	22,618	40%	6%	27%
College Area	2,515	5,072	102%	61%	15%
Downtown	5,919	11,172	89%	41%	25%
Eastern Area	5,856	8,040	37%	8%	20%
Encanto	6,383	10,697	68%	15%	20%
Greater Golden Hill	1,762	2,797	59%	10%	16%
Greater North Park	6,312	9,319	48%	7%	19%
Kearny Mesa	848	1,573	85%	41%	19%
Kensington-Talmadge	2,492	3,245	30%	10%	21%
La Jolla	10,368	14,603	41%	9%	45%
Lakeside	14,191	23,873	68%	21%	27%
Linda Vista	4,568	7,192	57%	16%	20%
Midway-Pacific Highway	594	1,535	158%	51%	22%
Mira Mesa	11,737	21,474	83%	31%	22%
Miramar Ranch North	1,322	1,905	44%	2%	15%
Mission Beach	773	937	21%	19%	17%

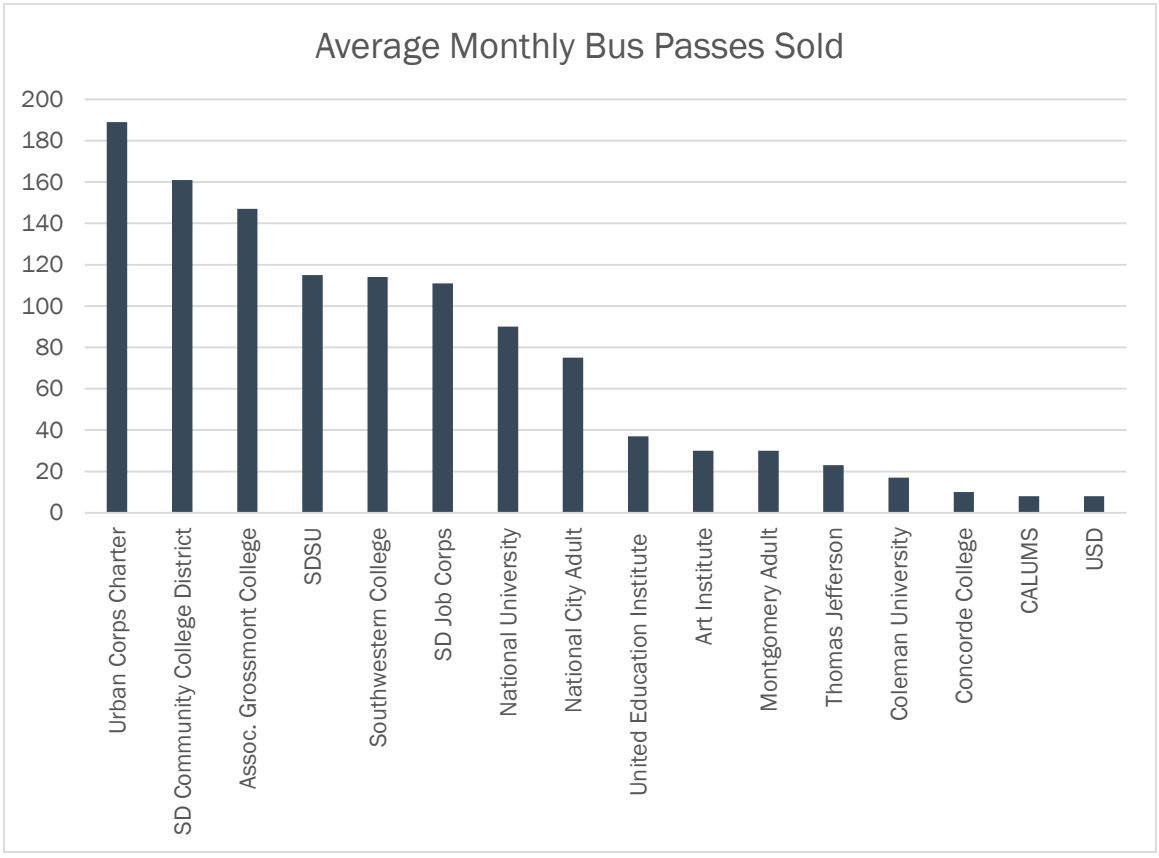
[11] Percentage change in total population for each community planning area.

[12] Percentage of seniors aged 60+ out of the total 2025 projected population for each jurisdiction.

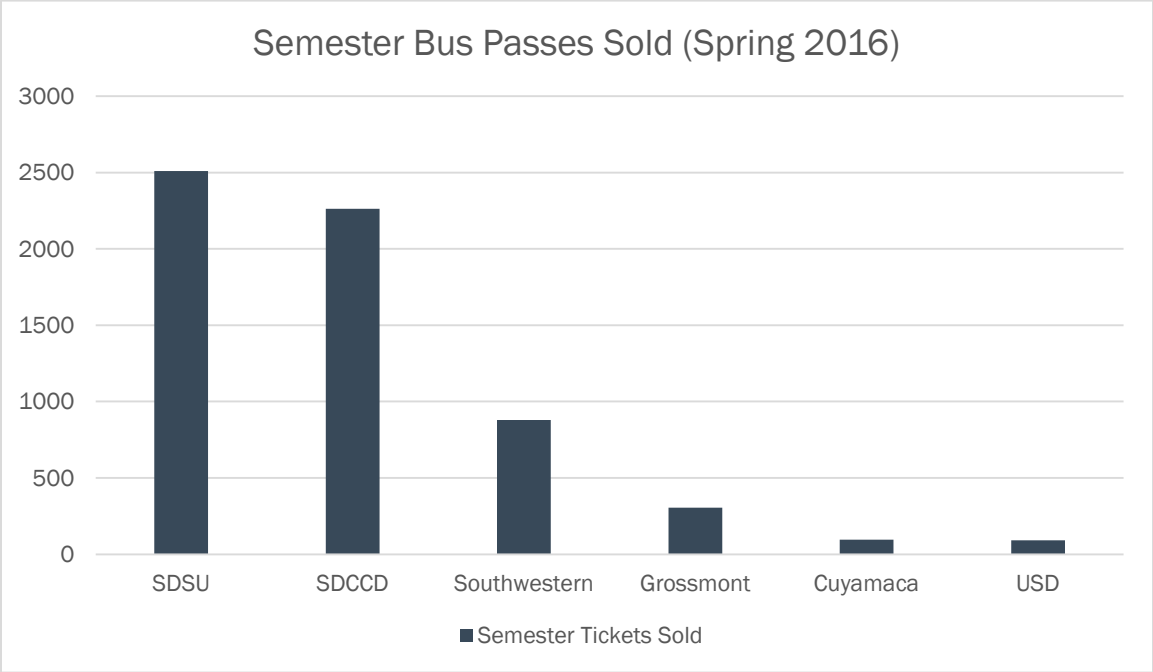
SENIOR POPULATION GROWTH (AGES 60+)					
COMMUNITY	2012	2025	2012-2025 PERCENT CHANGE	2012-2025 CPA GROWTH[11]	PERCENTAGE OF 2025 POPULATION[12]
Mission Valley	2,727	5,771	112%	44%	21%
Mountain Empire	1,943	2,856	47%	11%	31%
Navajo	13,389	20,871	56%	20%	36%
Nestor	10,200	16,037	57%	6%	25%
Normal Heights	1,703	2,086	22%	9%	12%
North Mountain	1,032	1,650	60%	13%	47%
Ocean Beach	1,523	1,957	28%	5%	14%
Otay	522	1,632	213%	113%	13%
Otay Mesa	1,125	4,521	302%	121%	13%
Pacific Beach	5,383	6,546	22%	8%	15%
Pacific Highlands Ranch	642	2,800	336%	188%	18%
Pala-Pauma	1,135	1,952	72%	25%	25%
Peninsula	8,181	10,898	33%	7%	26%
Rancho Bernardo	11,302	14,436	28%	3%	35%
Rancho Peñasquitos	7,107	10,480	47%	3%	23%
Sabre Springs	1,138	1,739	53%	2%	16%
San Dieguito	5,981	8,765	47%	10%	25%
San Ysidro	3,545	5,925	67%	5%	20%
Scripps Miramar Ranch	3,585	5,013	40%	5%	24%
Serra Mesa	3499	5,070	45%	7%	22%
Skyline-Paradise Hills	11,112	17,184	55%	8%	23%
Southeastern San Diego	5,619	8,761	56%	5%	15%
Spring Valley	10,112	14,982	48%	10%	22%
Sweetwater	3,086	4,398	43%	6%	31%

SENIOR POPULATION GROWTH (AGES 60+)					
COMMUNITY	2012	2025	2012-2025 PERCENT CHANGE	2012-2025 CPA GROWTH[11]	PERCENTAGE OF 2025 POPULATION[12]
Tierrasanta	4,327	6,027	39%	2%	19%
Torrey Highlands	913	1,744	91%	38%	17%
Torrey Hills	525	898	71%	18%	11%
Torrey Pines	1,975	2,750	39%	4%	40%
University	8,479	11,628	37%	10%	16%
Uptown	8,099	12,400	53%	16%	28%
Valle De Oro	9,374	12,914	38%	5%	30%

Appendix H: Average Number of Monthly College Student Bus Passes Sold



Appendix I: Semester College Student Bus Passes Sold Spring 2016

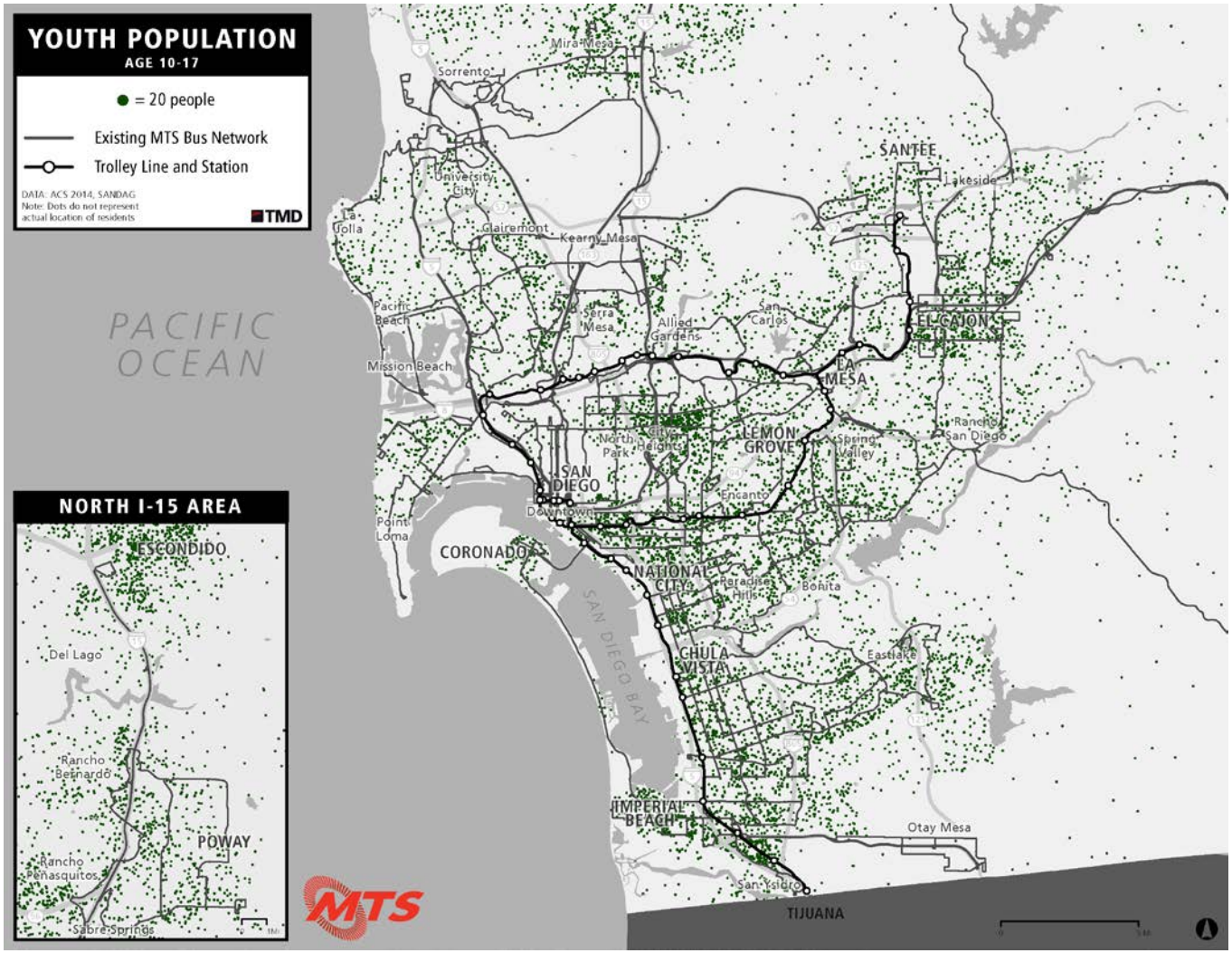


Appendix J: Land Use and Transportation Targets

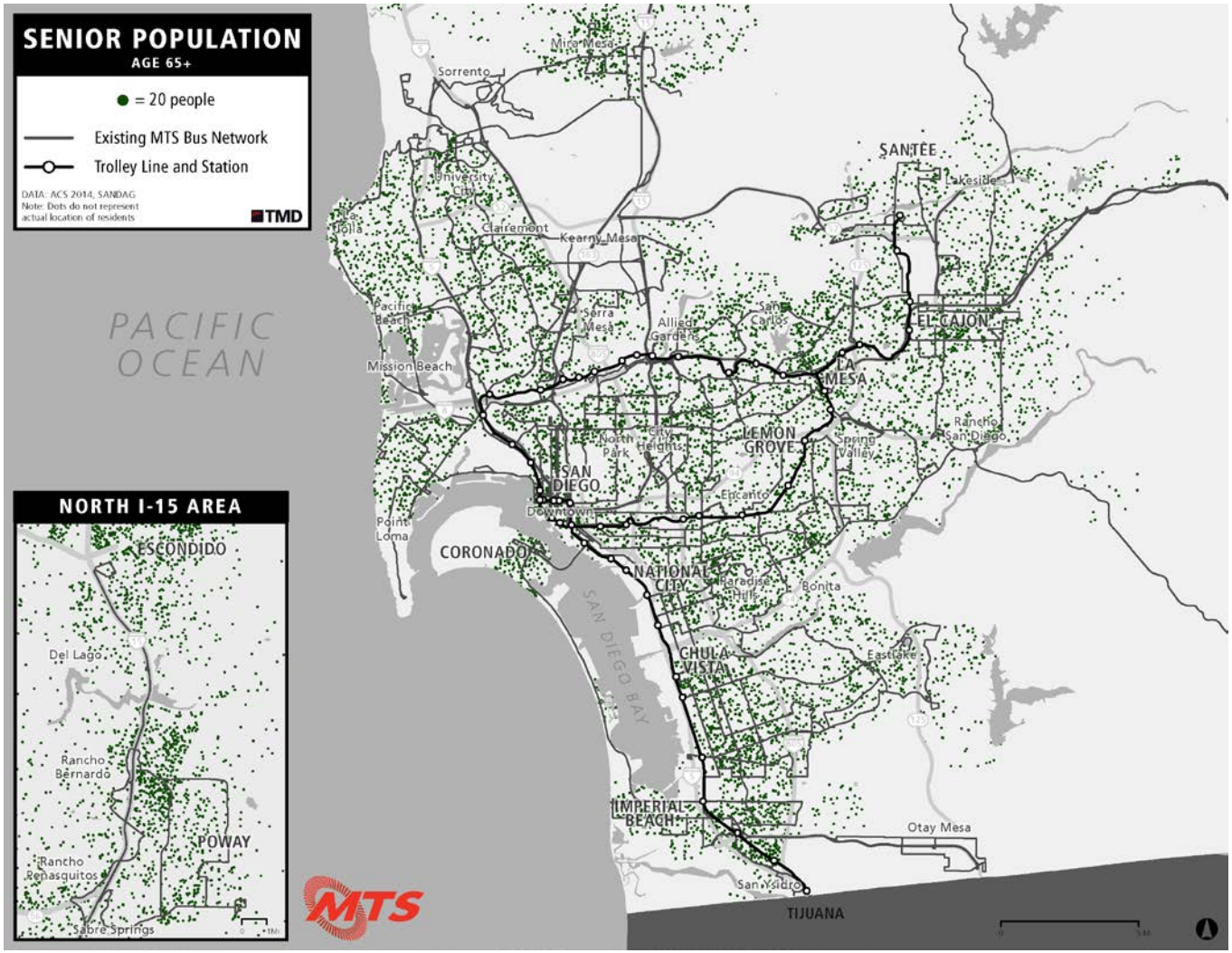
LAND USE AND TRANSPORTATION TARGETS			
SMART GROWTH PLACE TYPE	MINIMUM RESIDENTIAL TARGET	MINIMUM EMPLOYMENT TARGET	MINIMUM TRANSIT SERVICE
Metropolitan Center	75 dwelling units/acre	80 employees/acre	COASTER, AMTRAK, Metrolink, Trolley, SPRINTER, or Rapid Service
Urban Center	40 dwelling units/acre	50 employees/acre	Trolley, SPRINTER, or Rapid Service
Town Center	20 dwelling units/acre	30 employees/acre	Trolley, SPRINTER, Rapid Service, or Streetcar/Shuttle
Community Center	20 dwelling units/acre	N/A	High-Frequency Local

LAND USE AND TRANSPORTATION TARGETS			
SMART GROWTH PLACE TYPE	MINIMUM RESIDENTIAL TARGET	MINIMUM EMPLOYMENT TARGET	MINIMUM TRANSIT SERVICE
			Bus or Streetcar/Shuttle within Urban Area Transit Strategy Boundary
Rural Village	10.9 dwelling units/acre	N/A	N/A
Special Use Center	Optional	45 employees/acre	Trolley, SPRINTER, or Rapid Service
Mixed-Use Transit Corridor	25 dwelling units/acre	N/A	High-Frequency Local Bus or Streetcar/Shuttle

Appendix K: Youth Dot Density Map



Appendix L: Senior Dot Density Map



Appendix M: Persons with Disabilities Dot Density Map