



Comprehensive Operational Analysis

MARKET ASSESSMENT
JANUARY 2016

PREPARED BY:



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Market Assessment

Introduction

The market assessment provides an understanding of population and employment characteristics, ridership characteristics, growth trends, and local planning goals in the Santa Cruz METRO service area. Factors such as land use type and density, pedestrian amenities, and geography all have a significant impact on the effectiveness of transit within Santa Cruz County. It is important to evaluate these factors throughout the county so that METRO can efficiently allocate resources in areas with differing market demands for transit.

Santa Cruz METRO Service Area Overview

Santa Cruz County is home to 265,000 people and 128,000 jobs within 607 square miles. The biggest cities within the county include Santa Cruz City and Watsonville. UC Santa Cruz draws a significant amount of young adults to the region and affects local and regional travel patterns. The county is connected to San Jose and Silicon Valley in the East via Highway 17, and with Gilroy via 152. Highway 1 is the major North/South connecting road. The limited regional connections along narrow, twisty, mountainous roads result in traffic congestion issues.

Santa Cruz METRO currently operates 33 fixed routes throughout Santa Cruz County and on-demand ParaCruz paratransit service. The METRO system consists of local and regional routes and is based out of four transit centers – the Santa Cruz METRO Center in downtown Santa Cruz, the Capitola Mall Transit Center, the Watsonville Transit Center, and the Cavallaro Transit Center in Scotts Valley. One fixed route operates along Highway 17 between Santa Cruz and San Jose where it connects to Amtrak and other bus services (this route requires a special fare). A table summarizing each METRO route is provided on the next page.

Route	Description	Category	Frequency	Span
3	Mission / Natural Bridges	Local	60	6:50 AM – 5:50 PM
4	Harvey West / Emeline	Local	60	6:45 AM – 4:45 PM
8	Emeline	Local	1 trip	7:35 AM
10	UCSC Via High	UCSC	30	6:50 AM – 7:20 PM
121	UCSC / East Side Direct	UCSC	1 trip	7:10 AM
15	UCSC via Laurel West	UCSC	15	6:40 AM – 8:50 PM
16	UCSC via Laurel East	UCSC	15	6:25 AM – 11:15 PM
17	AMTRAK Hwy 17 Express	Highway 17	20-60	4:45 AM – 10:55 PM
19	UCSC via Lower Bay	UCSC	30	7:30 AM – 11:30 PM
20	UCSC via Westside	UCSC	30	7:20 AM – 10:20 PM
30	Graham Hill / Scotts Valley	Local	2 trips	6:45 AM – 2:15 PM
33	Lompico SLV / Felton Faire	Rural	2 trips	6:53 AM – 2:50 PM
34	South Felton	Rural	2 trips	7:25 AM – 3:30 PM
35	San Lorenzo Valley	Intercity	2 trips	6:00 AM – 11:00 PM
40	Davenport / North Coast Beaches	Rural	4 trips	6:40 AM – 3:25 PM
41	Bonny Doon	Rural	4 trips	5:50 AM – 5:30 PM
42	Davenport / Boony Doon	Rural	1 trip	8:30 AM
54	Capitola / Aptos / La Selva Beach	Local	1 trip	5:35 PM
55	Rio del Mar	Local	60	7:30 AM – 4:30 PM
56	La Selva	Local	2 trips	8:00 AM – 1:55 PM
66	Live Oak via 17th	Intercity	60	6:45 AM – 10:00 PM
68	Live Oak Via Broadway / Portola	Intercity	60	6:15 AM – 6:30 PM

TABLE 1: METRO TRANSIT SUMMARY

69A	Capitola Rd. / Watsonville Via Airport	Intercity	60	7:07 AM – 6:00 PM
69W	Capitola Rd. / Cabrillo / Watsonville	Intercity	60	6:37 AM – 8:37 PM
71	Santa Cruz / Watsonville	Intercity	15-30	6:10 AM – 11:45 PM
72	Corralitos	Local	60	5:45 AM – 6:45 PM
74	Ohlone Parkway / Rolling Hills	Local	60	6:10 AM – 6:10 PM
74S	PVHS Watsonville Hospital	Local	2 trips	7:00 AM – 3:10 PM
75	Green Valley	Local	60	5:15 AM – 7:15 PM
77	Civic Plaza / Pajaro	Local	60	6:30 AM – 6:30 PM
79	East Lake	Local	60	6:25 AM – 5:45 PM
91X	Commuter Express Santa Cruz / Watsonville	Intercity	30	6:25 AM – 5:45 PM

TABLE 1: METRO TRANSIT SUMMARY CONTINUED

Market Area Profile

Population and Employment Density

Existing Population

Santa Cruz County has a population of 265,000 about 30 percent of which is located in small towns or unincorporated areas. The county experienced 3.6 percent growth between 2000 and 2013; however the growth rate vastly differed between areas of the county. The change in population in each city between 2000 and 2013 is shown in the table below. The three cities that saw the largest percent growth between 2000 and 2013 (Felton, Soquel, and Live Oak) were also the three smallest cities in 2000.

Total Population by City				
LOCATION	2000	2010	2013	% GROWTH 2010-2013
SANTA CRUZ COUNTY	255,602	262,382	264,808	3.60%
SANTA CRUZ CITY	54,593	59,946	61,245	12.18%
WATSONVILLE	44,265	51,199	51,544	16.44%
SAN LORENZO VALLEY	28,673	23,195	23,629	-17.59%
SCOTTS VALLEY	11,385	11,580	11,618	2.05%
SOQUEL	5,081	9,644	10,218	101.10%
CAPITOLA	10,033	9,918	9,982	-0.51%
LIVE OAK	6,229	8,392	8,454	35.72%
APTOS	9,396	6,220	5,763	-38.67%
FELTON	1,051	4,057	4,185	298.19%
OTHER AREAS	84,896	78,231	78,170	-7.92%

TABLE 2: TOTAL POPULATION BY CITY
SOURCE: U.S. CENSUS AND AMERICAN COMMUNITY SURVEY

Population and employment density is highest near major arterial streets – along Highway 1 and the Soquel corridor between Santa Cruz and Aptos (served by routes 54, 55, 56, 66, 66N, 69A, and 69W, 71, and 91X); and in Capitola along 41st Avenue (served by routes 12, 54, 55, 56, 66, 66N, 69A and 69W) and Bay Avenue (served once daily by route 54 and hourly by route 55). In Watsonville, population and employment density are spread out among major employers and developments at the edge of the town, in addition to downtown (Main Street between Freedom Boulevard and the Monterey County line, within walking distance to the Watsonville Transit Center). Development at the edges of Watsonville is within 0.5 miles of existing transit lines, however to some employers service is only provided hourly (such as the Watsonville Community Hospital, served hourly by intercity route 69A and by local route 74, and West Marine, served only by local route 74).

Total Population by City		
LOCATION	2000	2010
DAVENPORT	143.9	49.0
BONNY DOON	160.5	73.0
FELTON	891.2	416.3
APTOS	978.9	426.7
SOQUEL	2,097.4	893.2
SCOTTS VALLEY	2,520.4	1,003.4
SANTA CRUZ (CITY)	4,705.2	1,830.1
LIVE OAK	5,291.4	2,074.2
CAPITOLA	6,225.6	3,473.7
WATSONVILLE	7,646.6	2,106.9

Population density in the County ranges from nearly 144 persons per square mile (Davenport) to over 7,600 persons per square mile (Watsonville), and from 40 housing units per square mile (Davenport) to nearly 3,500 units per square mile (Capitola). Development patterns and market typologies associated with each of these areas vary greatly, with the least dense locations consisting primarily of rural and single family development spread out over a large area, while the more dense areas contain a variety of multifamily housing options and single-family residential.

TABLE 3: POPULATION DENSITY
 SOURCE: U.S. CENSUS AND AMERICAN COMMUNITY SURVEY

Employment

The largest employment industry sector countywide is education, health care, and social services (accounting for 24 percent of the workforce). Other large industry sectors (each accounting for about 12 percent of the labor force) include: scientific and management professionals; arts, entertainment, recreation, and accommodation; and retail trade. Watsonville has the largest population of agriculture workers, where 66 percent of agriculture workers in the county live in Watsonville, and 23 percent of the Watsonville workforce is in the agricultural industry. Manufacturing workers in San Lorenzo Valley and Scotts Valley make up a higher

than average percent of the local workforce (about 14 percent in each location, compared to nine percent Countywide). The largest employers in Santa Cruz County (as of the 2013-2014 fiscal year) are summarized in the table below.

Principal Employers, Santa Cruz County			
EMPLOYER	PRODUCT OR LOCATION	NUMBER OF EMPLOYEES	MAIN LOCATION
UNIVERSITY OF CALIFORNIA AT SANTA CRUZ	Education	1,000 - 4,999	Santa Cruz
PAJARO VALLEY UNIFIED SCHOOL DISTRICT	Education	1,000 - 4,999	Watsonville
COUNTY OF SANTA CRUZ	County Services	1,000 - 4,999	Santa Cruz
DOMINICAN HOSPITAL	Hospital	1,000 - 4,999	Santa Cruz
SANTA CRUZ BEACH BOARDWALK	Amusement/Recreation	1,000 - 4,999	Santa Cruz
CABRILLO COLLEGE	Education	1,000 - 4,999	Aptos
CITY OF SANTA CRUZ	City Services	1,000 - 4,999	Santa Cruz
THRESHOLD ENTERPRISES	Health Food Products - Wholesale	1,000 - 4,999	Scotts Valley
WATSONVILLE COMMUNITY HOSPITAL	Hospital	1,000 - 4,999	Watsonville
WEST MARINE	Marine Equipment and Sales	1,000 - 4,999	Watsonville
PLANTRONICS	Telephone Apparatus Mfg.	1,000 - 4,999	Santa Cruz
SANTA CRUZ CITY SCHOOL DISTRICT	Education	1,000 - 4,999	Santa Cruz

TABLE 4: PRINCIPAL EMPLOYERS, SANTA CRUZ COUNTY
 SOURCE: SANTA CRUZ COUNTY COMPREHENSIVE ANNUAL FINANCIAL REPORT, 2013-2014 FISCAL YEAR

Countywide unemployment peaked in 2010 at 13.3 percent, and declined to 8.7 percent in 2014 according to the California Employment Development Department. Countywide unemployment rates are typically higher during the winter months due to a decline in seasonal jobs (particularly in the agriculture and tourism industries). In July 2015 the county unemployment rate was 6.5 percent; the highest numbers of unemployed people (about 2,000 people) lived in Watsonville (8.4 percent) and Santa Cruz (5.8 percent). The highest unemployment rates were in Day Valley and the Twin Lakes CDP (10.9 percent and 11.3 percent respectively), and the lowest rate was in Aptos Hills/Larkin Valley CDP, Soquel CDP, and Capitola City (between 4.4 percent and 5.2 percent unemployed). CDP stands for Census Designated Place and is an unincorporated area with a concentration of population.

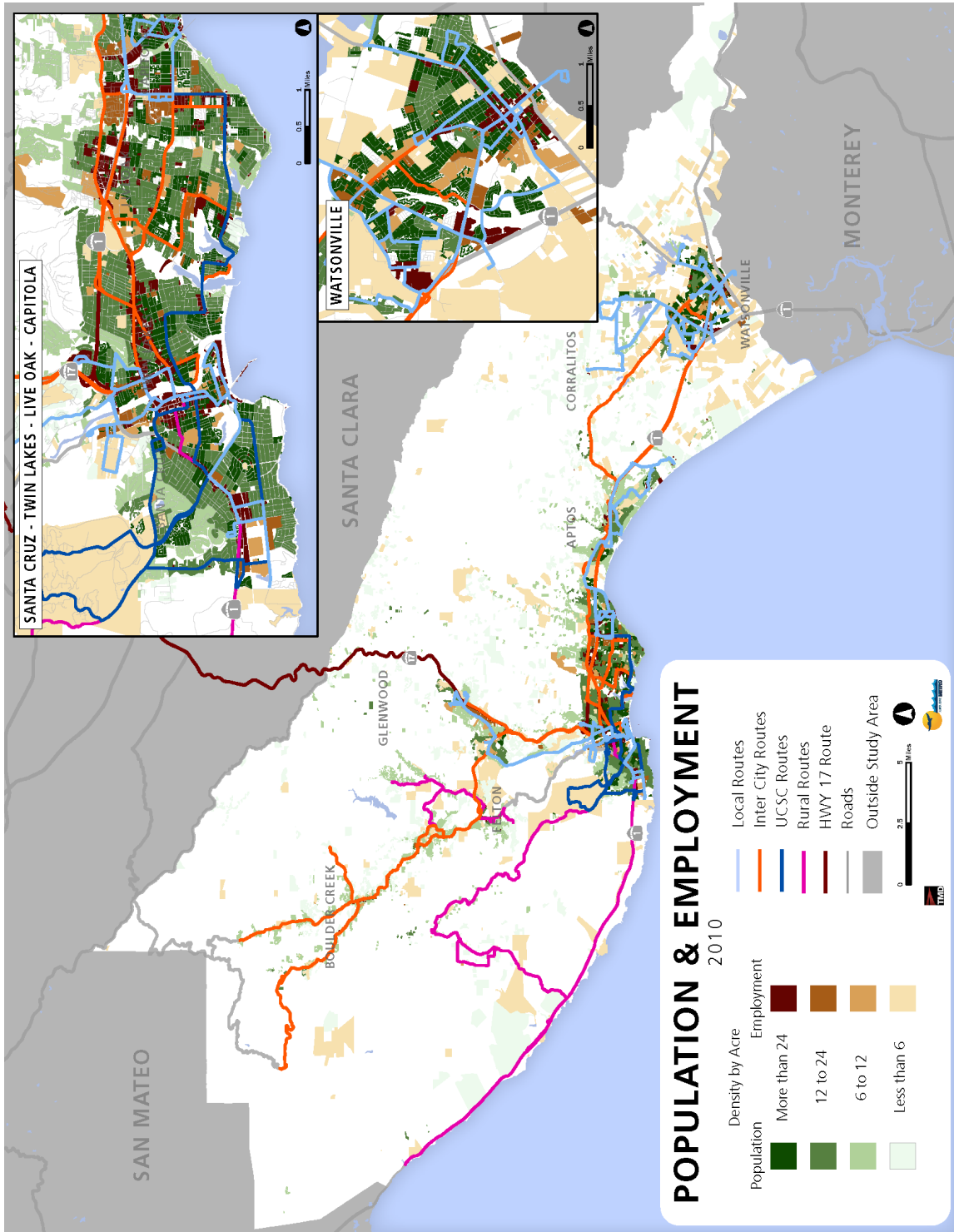


FIGURE 1: POPULATION AND EMPLOYMENT 2010

Growth Projections

The population growth rate is expected to increase by six percent every decade resulting in a total population of over 300,000 people by 2035 for the County. The number of jobs is expected to increase to match population growth. Most population and job growth is projected to occur in already urbanized areas within Santa Cruz County, particularly along the Soquel Corridor as well as the 17th Avenue and 41st Avenue corridors, all of which are served by existing transit services. However, as growth occurs, there is likely a need to increase frequency or operating hours to meet the associated potential transit demand. Of particular interest is the growth associated with the senior population, especially persons over the age of 70. According to AMBAG, this population sector is projected to grow 158 percent by 2035, and is anticipated to constitute roughly 17 percent of the County population. As transit services are an important resource for senior mobility, and tend to require a bit more coordination for seniors, future transit programs will need to consider this growth when planning.

Growth Projections, Santa Cruz County				
LOCATION	2020	2025	2030	2035
CAPITOLA	9,119	9,427	9,758	10,088
SANTA CRUZ	66,860	70,058	73,357	76,692
SCOTTS VALLEY	11,638	11,696	11,752	11,813
WATSONVILLE	59,446	61,452	63,607	65,762
BALANCE OF COUNTY	132,318	132,318	139,601	144,227
SANTA CRUZ COUNTY	279,381	287,512	298,095	308,582

TABLE 5: GROWTH PROJECTIONS, SANTA CRUZ COUNTY
 SOURCE: AMBAG 2014 REGIONAL GROWTH FORECAST

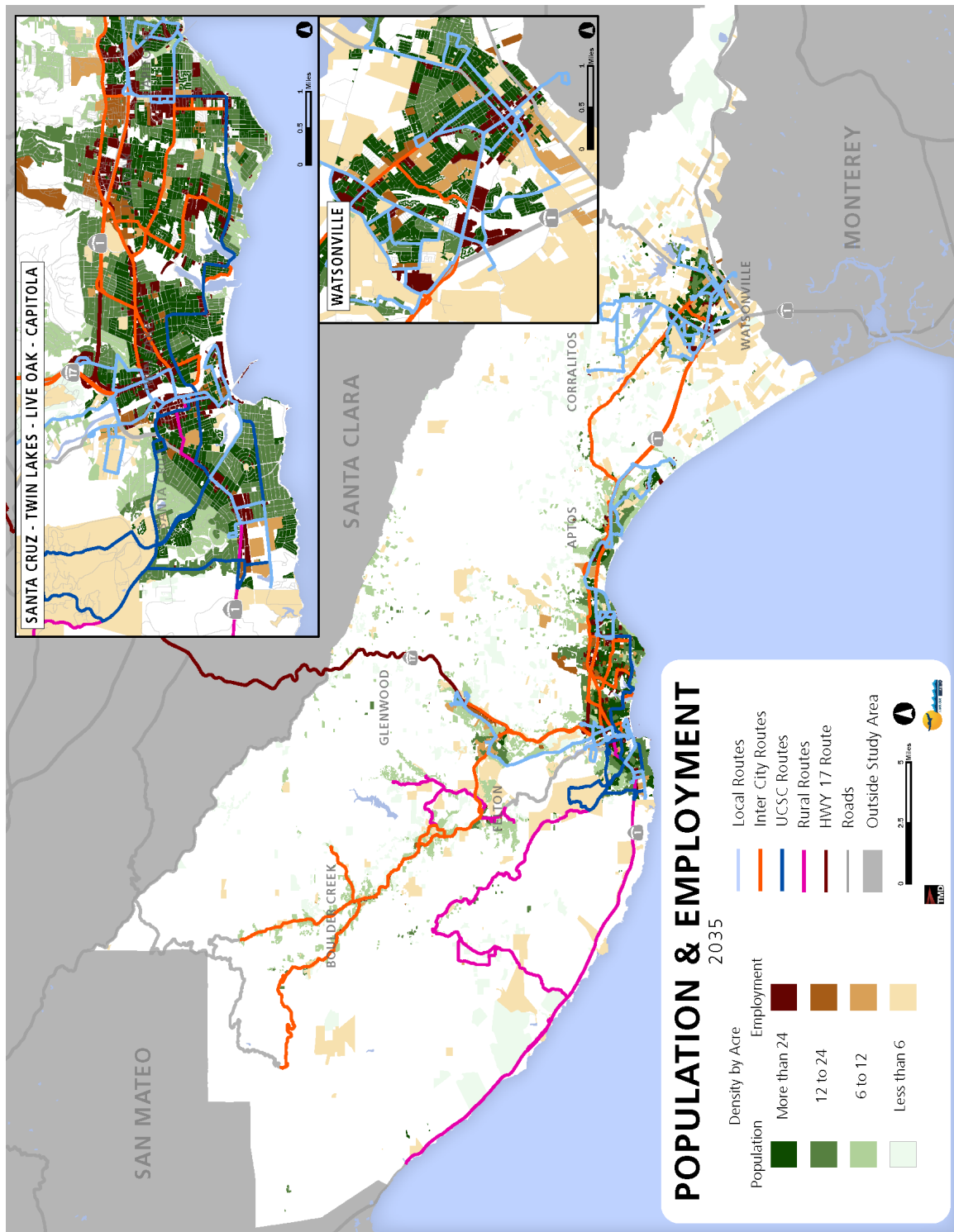


FIGURE 2: POPULATION AND EMPLOYMENT 2035

Population Demographic Characteristics

Certain demographic groups are more likely to utilize transit services due to limited access to private vehicles, financial constraints, or social norms. A review of US Census and American Community Survey data helps identify where these populations reside. This analysis will also help identify where disproportionate and disparate impacts may occur to traditionally underserved populations as a result of a change in service, as required by Title VI Federal regulations.

Minority Population

Santa Cruz County is home to a diverse population. Thirty-two percent (32 percent) of the county population identifies as Hispanic or Latino, 6 percent identifies as Asian, and 59 percent identifies as non-Hispanic white. These percentages differ greatly across the county, with Hispanic and Latinos accounting for as much as 80 percent of the population in Watsonville, 57 percent in Live Oak, and as little as 7.8 percent in the San Lorenzo Valley (where non-Hispanic whites make up 87 percent of the population). As a result of the high numbers of minority residents living in Watsonville, the minority population is spread fairly evenly throughout the city. In Santa Cruz City the minority population density is highest along Laurel and Broadway between California and Ocean Streets, and in the area between Ocean Street, Water Street, Highway 1, and the San Lorenzo River (all within 0.5 miles of the Santa Cruz METRO Center). Other high concentrations of minority populations include Portola Drive at 41st Avenue in Capitola (which is served by routes 12 and 66N operating one or two trips a day, and routes 66 and 68 with one hour frequencies), and on the UC Santa Cruz campus (served by routes 10, 12, 15, 16, 19, and 20). Local, intercity, and UCSC routes in Santa Cruz and Watsonville serve the highest concentrations of minorities in the study area, with frequencies ranging from 15 minutes to once daily.

Low-Income Households

About 15 percent of residents in Santa Cruz County live in poverty. Low-income households are typically more transit reliant than other demographic groups, resulting in a higher demand for transit. The poverty percentage is the lowest in Felton (2 percent), and the highest in Live Oak, Watsonville, and Santa Cruz (19 percent, 21 percent, and 22 percent, respectively).

The highest densities of households in poverty in Watsonville occur along Highway 129, north of 152 between Main and Lincoln, and east of the intersection of Freedom and Lincoln (which is served by intercity routes 69A, 71, and local route 77). In Santa Cruz city, high poverty density is located downtown, specifically in the area bounded by Laurel, Pacific, and Chestnut

Streets; along Front Street; and in the area bounded by Soquel Avenue, San Lorenzo Boulevard, and Ocean Street (all of these areas are within a 0.5 mile walk to the Santa Cruz METRO Center). Transit routes (local, intercity, and UCSC) in the cities of Santa Cruz and Watsonville serve the highest concentrations of people in poverty.

Zero-Vehicle Households

Zero vehicle households depend on transit or alternative modes of transportation to complete daily tasks, some by choice but most out of necessity. The cities of Santa Cruz and Watsonville have the highest concentrations of zero vehicle households (about nine percent each); Capitola and Live Oak also have higher than average concentrations. In Santa Cruz, zero vehicle households are concentrated along Broadway and San Lorenzo, west of Ocean (within walking distance to the Santa Cruz METRO Center); in Watsonville, the concentration occurs between Green Valley Road, Airport Boulevard, and Freedom Boulevard (served by intercity routes 69A and 71, and local routes 72, 74, and 75). Overall, zero vehicle households within the County are concentrated in urban / developed areas where transit is available.

Youth (Ages 10-17)

Youth tend to ride transit in greater proportions than the rest of the population, because they are independent enough to ride transit but not yet old enough to drive. Countywide, youths aged 10-17 make up ten percent of the population. The highest concentrations of youths are in Scotts Valley, Watsonville, and Live Oak where they account for about 13 percent of the total population. In Watsonville youths are concentrated around Highway 129; between Freedom and Lincoln (which is served by intercity routes 69A, 7, and local route 77); and between Green Valley Road, Airport Boulevard, and Freedom Boulevard (served by intercity routes 69A and 71, and local routes 72, 74, and 75). While the youth population in the City of Santa Cruz accounts for roughly accounting for 6 percent of the total, the absolute number of youths in the city is the highest compared to other cities within the county. The highest concentration of youths in Santa Cruz City is located along Laurel Street near Santa Cruz High School (within walking distance to the Santa Cruz METRO Center), and north of Portola Drive at 24th Avenue (which is served by routes 12 and 66N operating one or two trips a day, and routes 66 and 68 with one hour frequencies). All of these areas are within walking distance to the existing transit network.

Seniors

In Santa Cruz County, approximately 12 percent of all residents are seniors (over the age of 65). This number has grown from 10 percent in 2000. Seniors are fairly evenly spread throughout the County, with the highest concentration occurring in Aptos (16 percent) and Capitola (14 percent), and the lowest relative concentrations in Watsonville and the City of Santa Cruz (both 9 percent). For most of Santa Cruz County, the density by acre of seniors is very low due to the low overall population density in Santa Cruz County and large census block groups. As compared to other demographic groups, seniors are less concentrated in the downtown areas of Santa Cruz and Watsonville. The highest numbers of seniors live immediately southwest of Scotts Valley (served by routes 30, 35, and 35A); north of Soquel Drive between Live Oak and Capitola (served by routes along Soquel); in Corralitos (served by route 72); and in Watsonville northeast of the intersection of Highway 152 and Washbeck (served by route 79). While existing routes serve the areas within the census block groups where most seniors live, these routes may not always be easily accessible since rural areas in Santa Cruz County typically have steep, narrow roads with no sidewalks. Furthermore, the transit routes that do serve these areas are also more “lifeline” in nature, with very low frequencies. Due to the low density, seniors in rural areas may be better served by transportation mobility options other than fixed-route services.

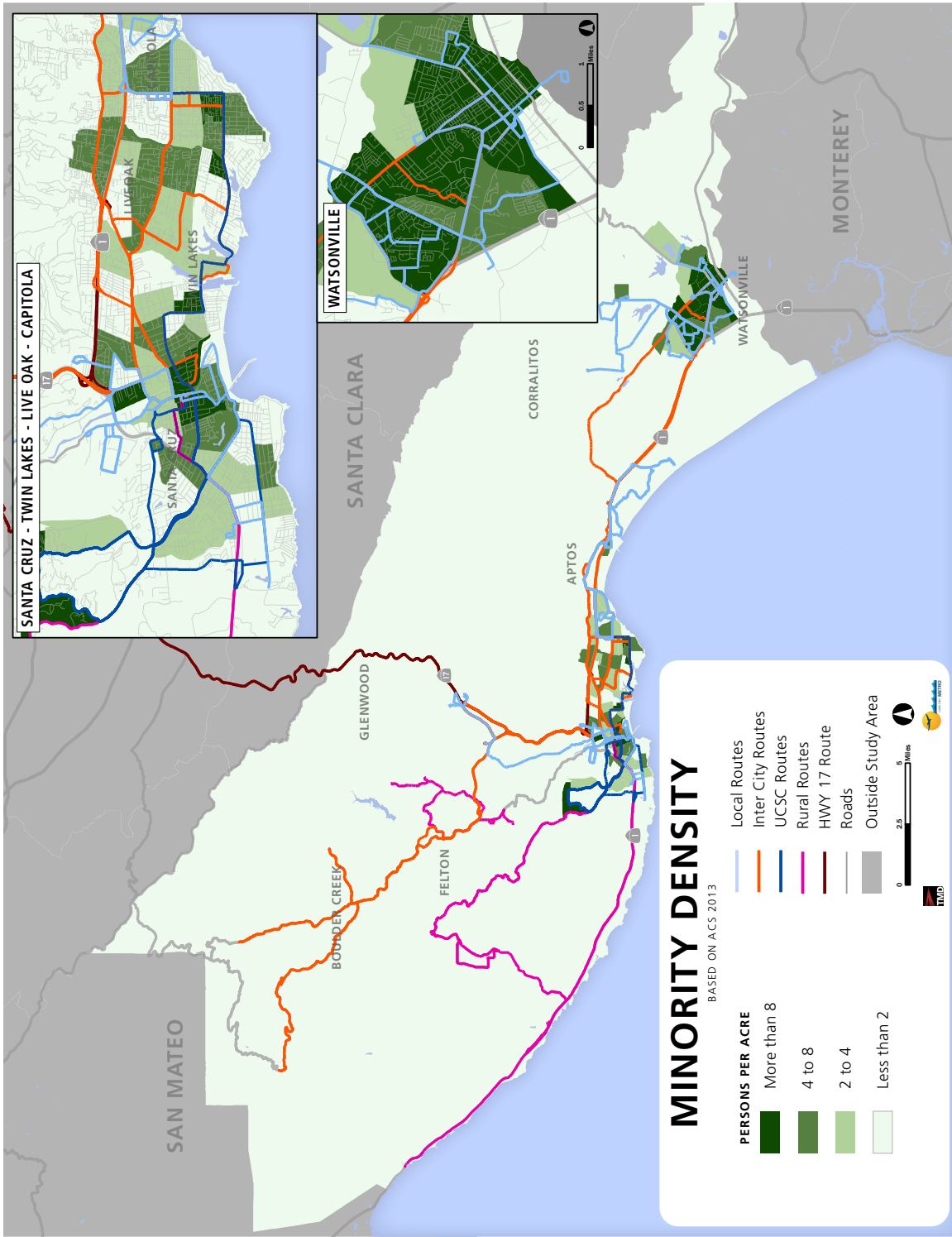


FIGURE 3: MINORITY DENSITY

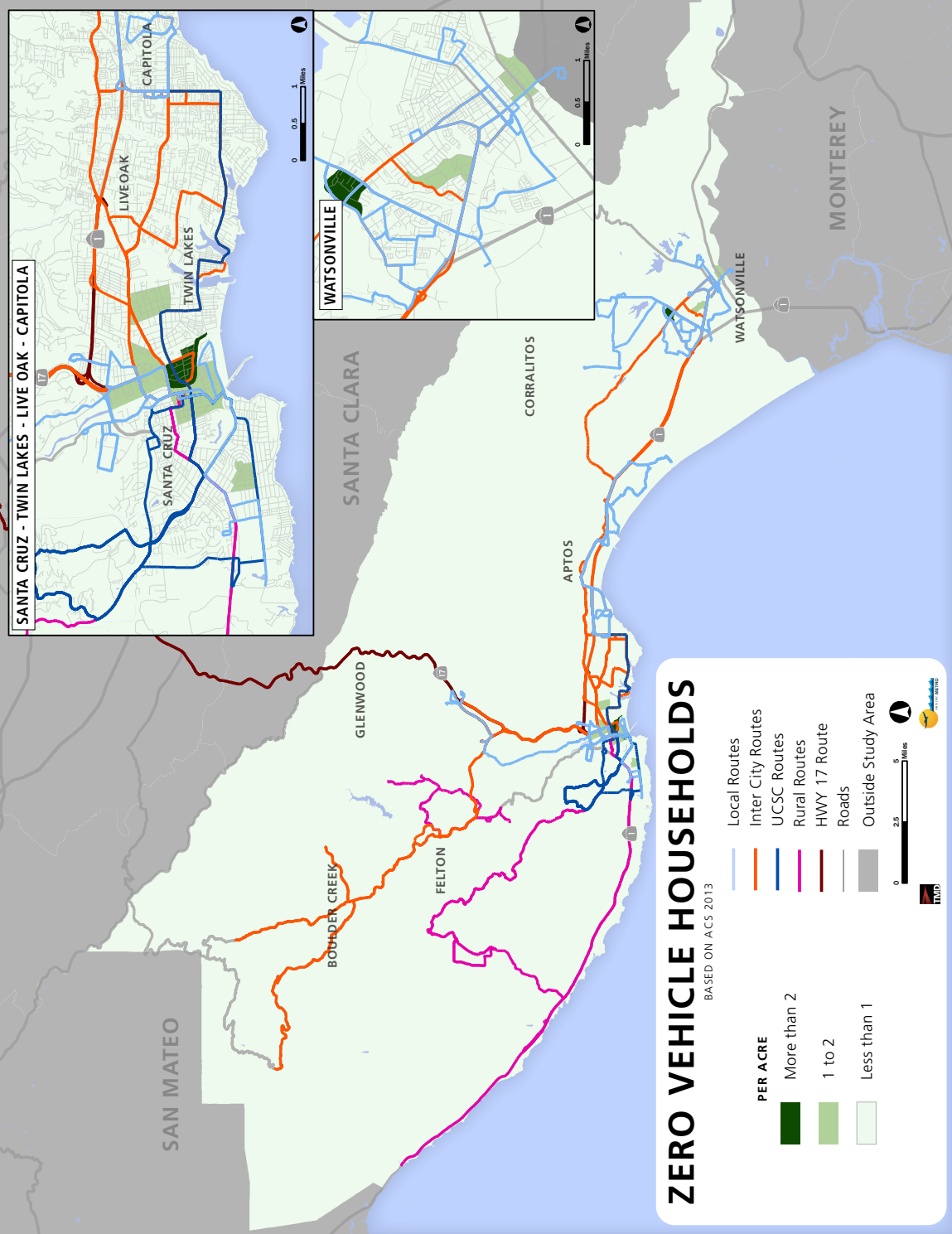


FIGURE 4: ZERO-VEHICLE HOUSEHOLDS

Young Adults (Ages 18-24)

College aged adults are also typically transit dependent. College aged residents of Santa Cruz County are mostly concentrated around UC Santa Cruz, (in the City of Santa Cruz, 29 percent of residents are between the ages of 18-24). UC Santa Cruz students may ride METRO for free with their student ID card (with the exception of the Highway 17 Express), and ridership to and from UCSC accounts for much of the ridership on the system (frequently resulting in overcrowded buses). UCSC enrollment was about 17,300 for the 2014-2015 year (with about 8,500 students commuting from off campus) and is expected to increase by about 350 students each school year. The second highest concentrations of college-aged adults are in Aptos and Watsonville, both at around 13 percent of residents. Cabrillo Community College is located in Aptos and has an enrollment of around 18,400 students. Felton and San Lorenzo Valley have the lowest concentration of college-aged residents (7 percent). In Santa Cruz, the highest concentration of college students occurs on Laurel near Santa Cruz High School (within walking distance to many routes at the Santa Cruz METRO Center); between San Lorenzo Boulevard, Broadway, and Ocean Streets (within 0.5 miles of the Santa Cruz METRO Center, and directly served by local routes 4, 8, and intercity routes 12, 66N, 68, and 69A / 69W); and north of Portola Drive at 24th Avenue (which is served by routes 12 and 66N operating one or two trips a day, and routes 66 and 68 with one hour frequencies). In Watsonville the highest concentration occurs along Highway 129 (within one mile from the Watsonville Transit Center; a majority of the area is also within ¼-mile of intercity route 69A, and local routes 77 and 79); between Freedom and Lincoln (which is served by intercity routes 69A, 71, and local route 77); and along South Green Valley Road (which is served by intercity routes 69A, 71, and local routes 72, 74, 75 and local route 74S).

Disabled Population

About nine percent of the County population is disabled. The City of Live Oak has the highest percentage of disabled persons (15 percent), and Aptos has the lowest percentage (six percent). As with the senior population, the density by acre of disabled persons is very low due to the large census block groups; an analysis of total population at the census block level better shows where disabled persons are located. The highest density of disabled persons is along Portola Drive at 24th Avenue (which is served by routes 12 and 66N operating one or two trips a day, and routes 66 and 68 with one hour frequencies), and the highest number is along Freedom Boulevard in Watsonville (served by intercity routes 69A, 71, and local route 77).

METRO offers discounted fares and passes (half the regular price) to disabled persons with the presentation of proper ID. METRO allows a companion to travel with a disabled rider at no additional cost, and children to travel with a disabled rider at the reduced fare. ParaCruz paratransit services, operated by METRO, provide transportation to qualifying individuals within ¾ mile of an operating bus route (for an extra fare). Because a majority of the disabled population lives in rural, low-density areas, non-fixed route service may provide a better transportation option for this demographic.

Transit Demand Potential

We can estimate the transit demand potential by combining the information from all of these demographic groups. Due to low density throughout most of Santa Cruz County, most of the region is characterized by a very low market potential for fixed route transit. Select areas within Santa Cruz, Watsonville, and Live Oak are the only places with relatively high market potential.

The area with the highest market potential for transit is north of Portola Drive at 24th Avenue. Several apartment complexes are located here, and there is a high concentration of people in poverty, minorities, and college students. While four routes operate along Portola by 24th Avenue, routes 12 and 66N operate only one or two trips a day, and routes 66 and 68 have a one hour frequency. As such, this area may be an opportunity for transit investment, while areas with low market potential may present an opportunity for non-fixed route transportation options.

Other areas with high market potential include the area immediately west of the Santa Cruz Transit Center; in Watsonville along Freedom Avenue; and in Watsonville along Highway 129, east of the Watsonville Transit Center. As shown previously in the Population and Employment Density maps, these areas are also the location of the greatest quantities of jobs and population, suggesting that these areas are candidates for enhanced transportation services as growth occurs.

Key observations include:

- Most areas with high market potential in downtown Santa Cruz and in Watsonville are within walking distance to at least three bus lines, with at least one line having a 15 minute frequency.
- The high potential area in Santa Cruz (immediately west of the Santa Cruz Transit Center) is within walking distance to the transit center, and is served by many local, rural, intercity, and UCSC routes.
- The high market potential area in Watsonville between Green Valley Road, Airport Boulevard, and Freedom Boulevard is served by intercity routes 69A (every hour) and 71 (every 15 or 30 minutes), and local routes 72, 74, and 75 (each with a one-hour frequency).
- The area north of the intersection of Freedom and Lincoln is served by intercity routes 69A (every hour), 71 (every 15 or 30 minutes), and local route 77 (every hour).
- The area west of the intersection of Lincoln and 152 is served by intercity route 69A (every hour) and local route 79 (every hour), and is about 0.5 miles from the Watsonville transit Center (which is served by many more routes).
- The high transit market potential area along Highway 129 is within one mile from the Watsonville Transit Center, and a majority of the area is within 0.25 miles of intercity route 69A (every hour), and local routes 77 and 79 (each running every hour), however the northeast corner is 0.5 miles from the nearest bus stop.

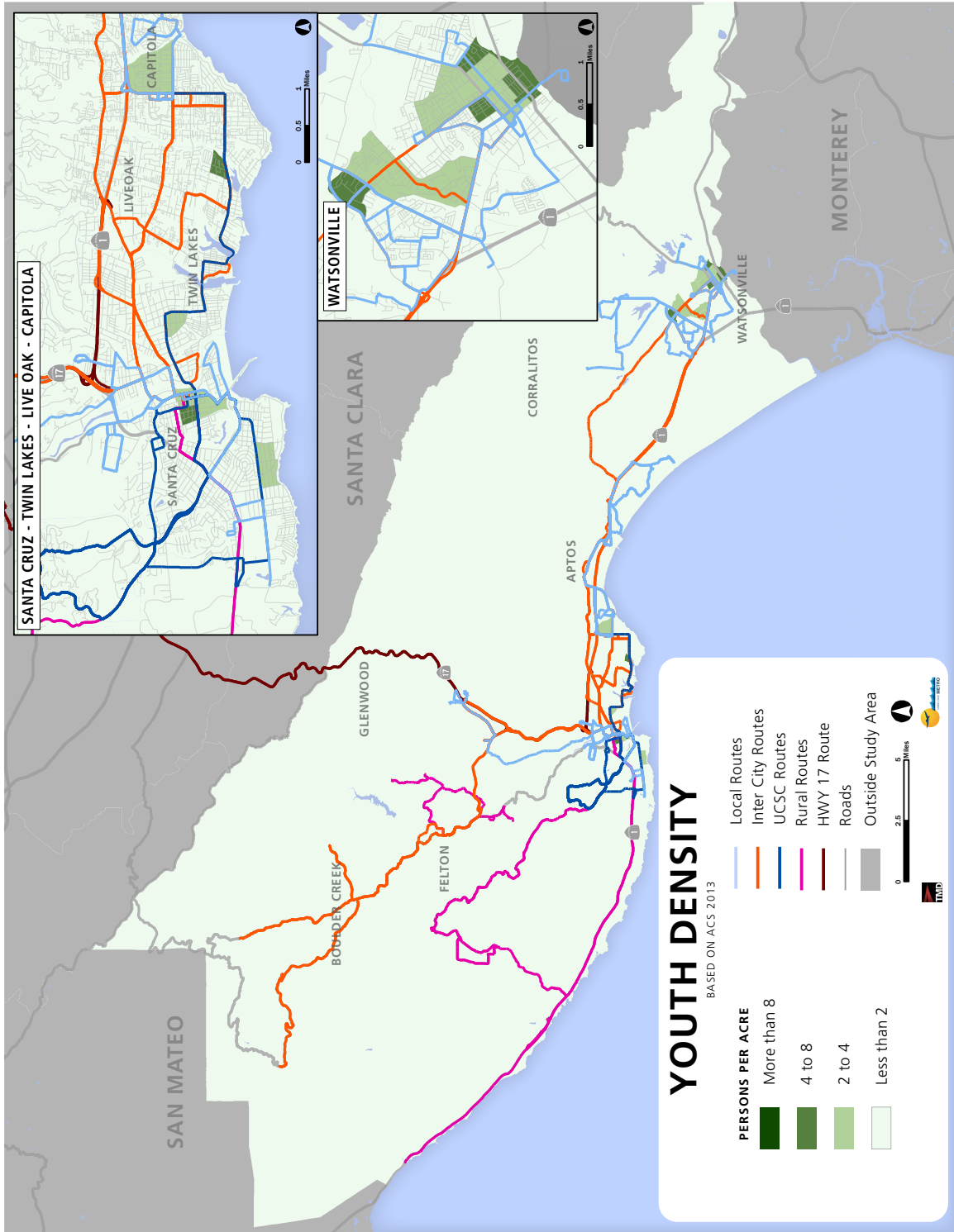


FIGURE 5: YOUTH DENSITY

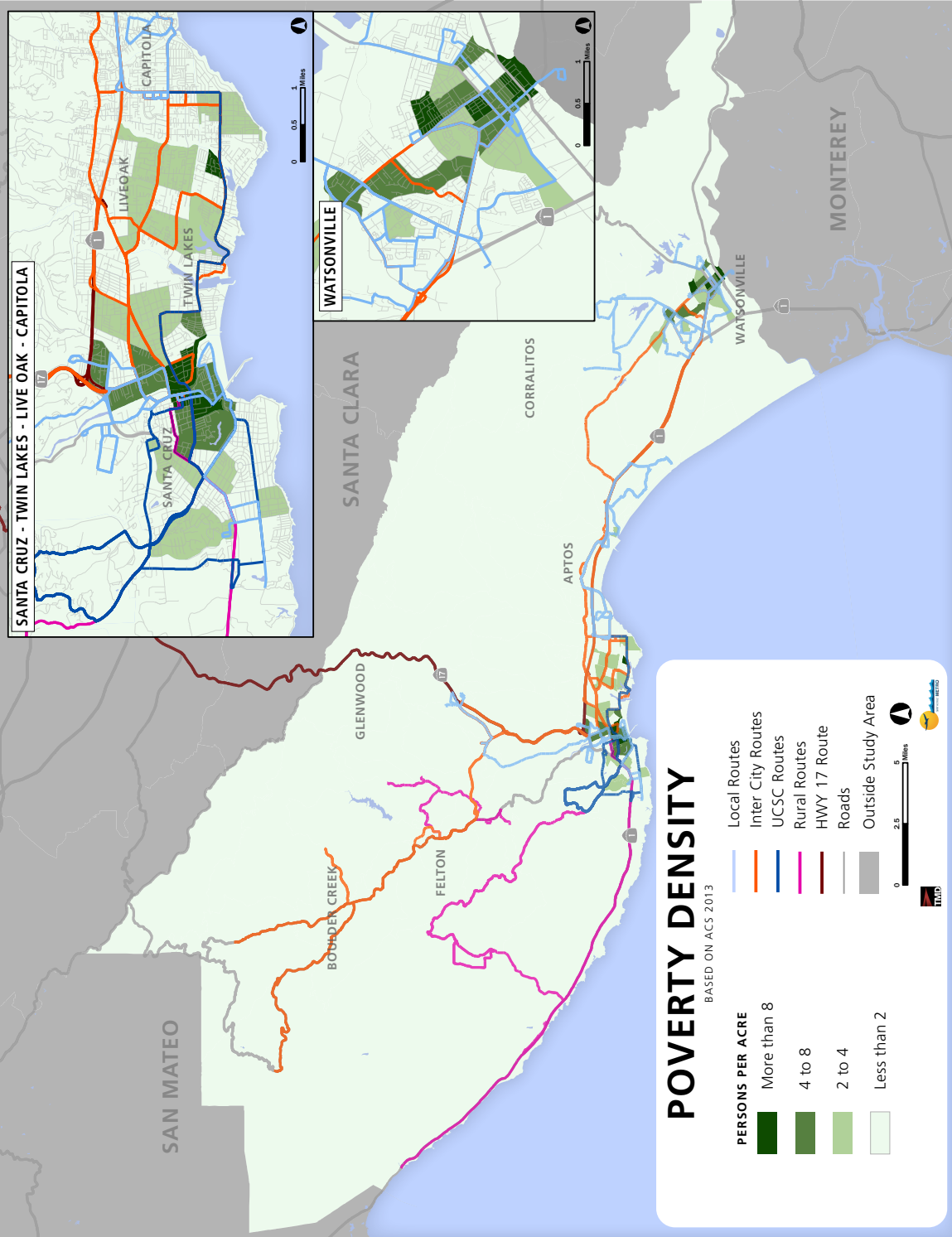


FIGURE 6: POVERTY DENSITY

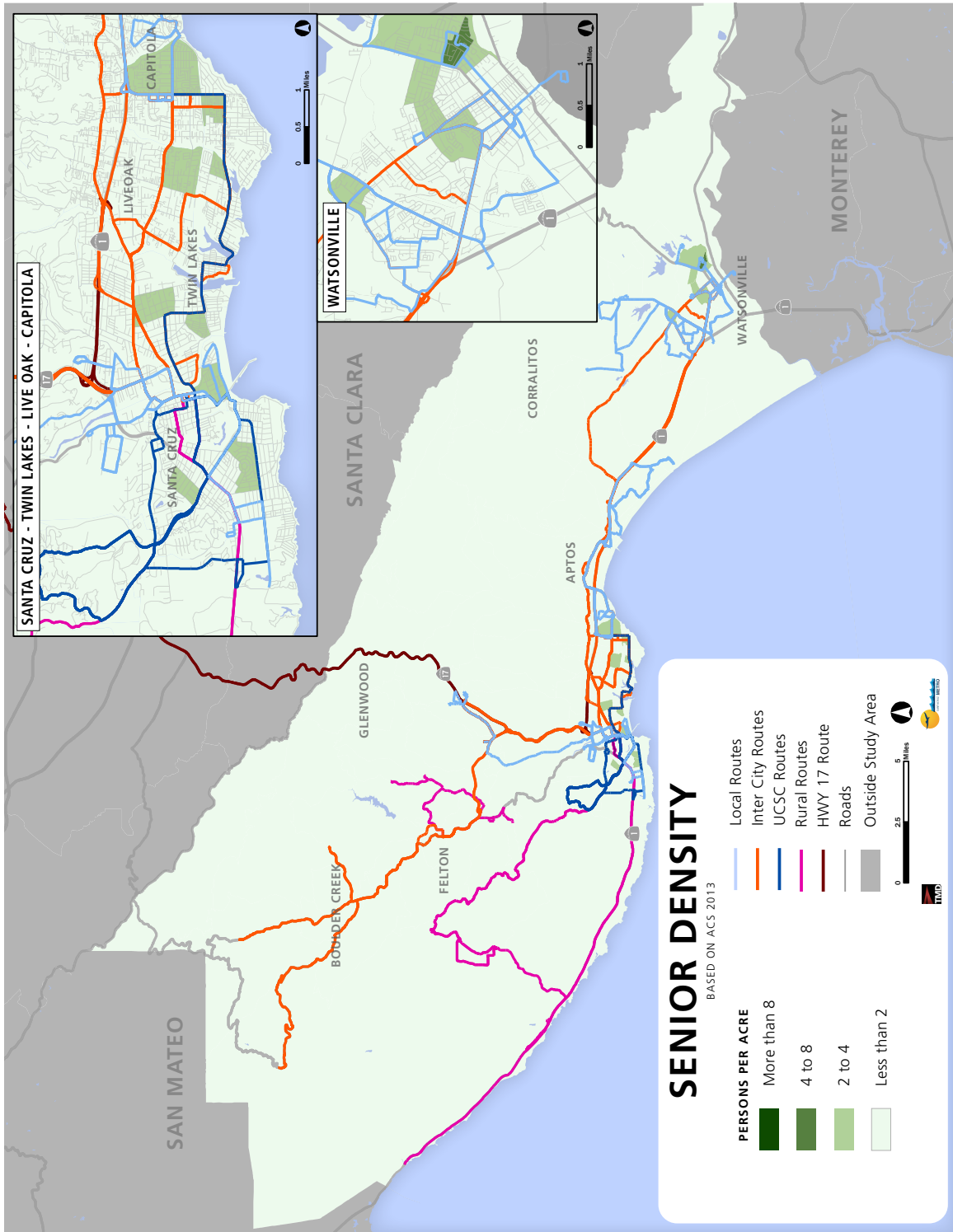


FIGURE 7: SENIOR DENSITY

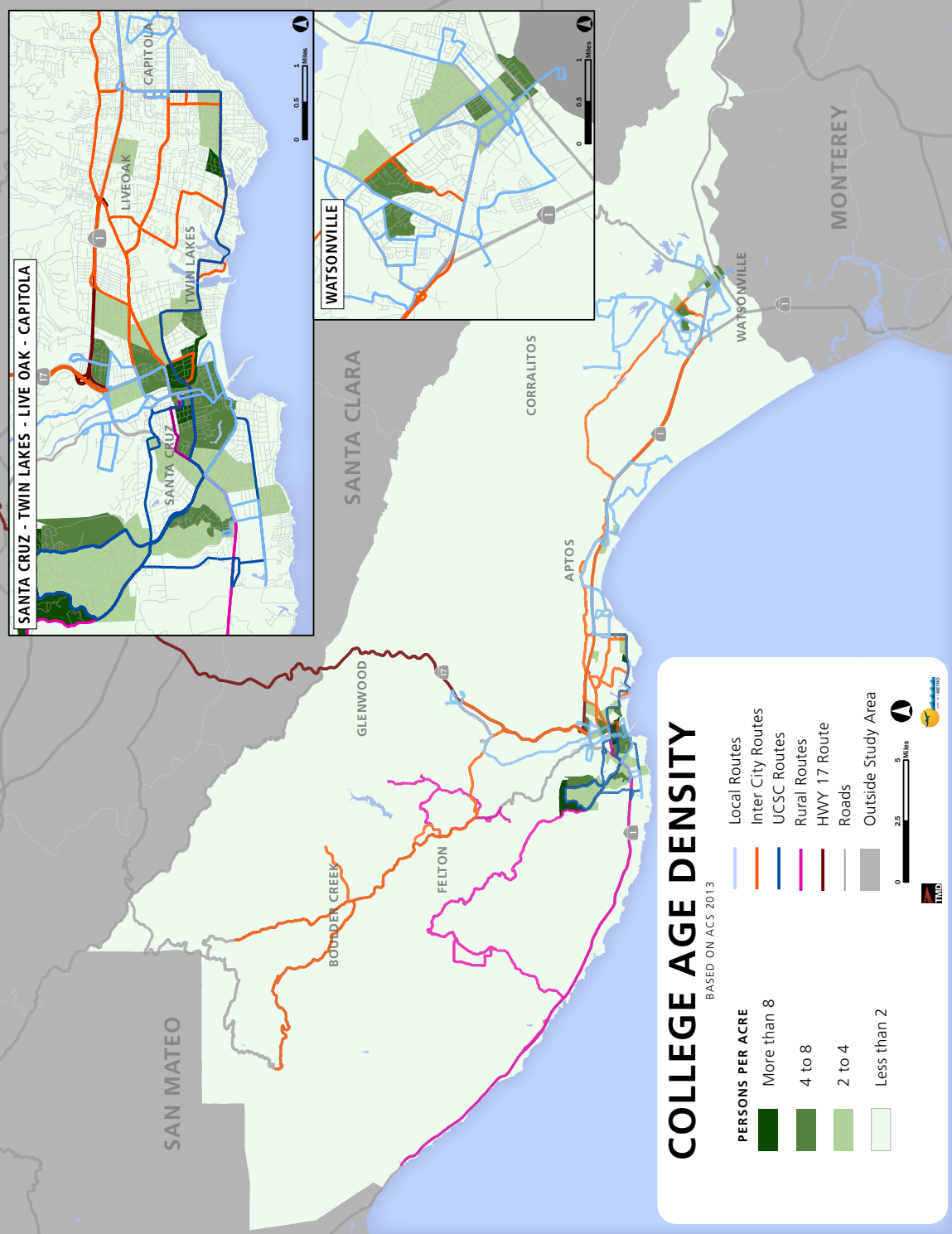


FIGURE 8: COLLEGE AGE DENSITY

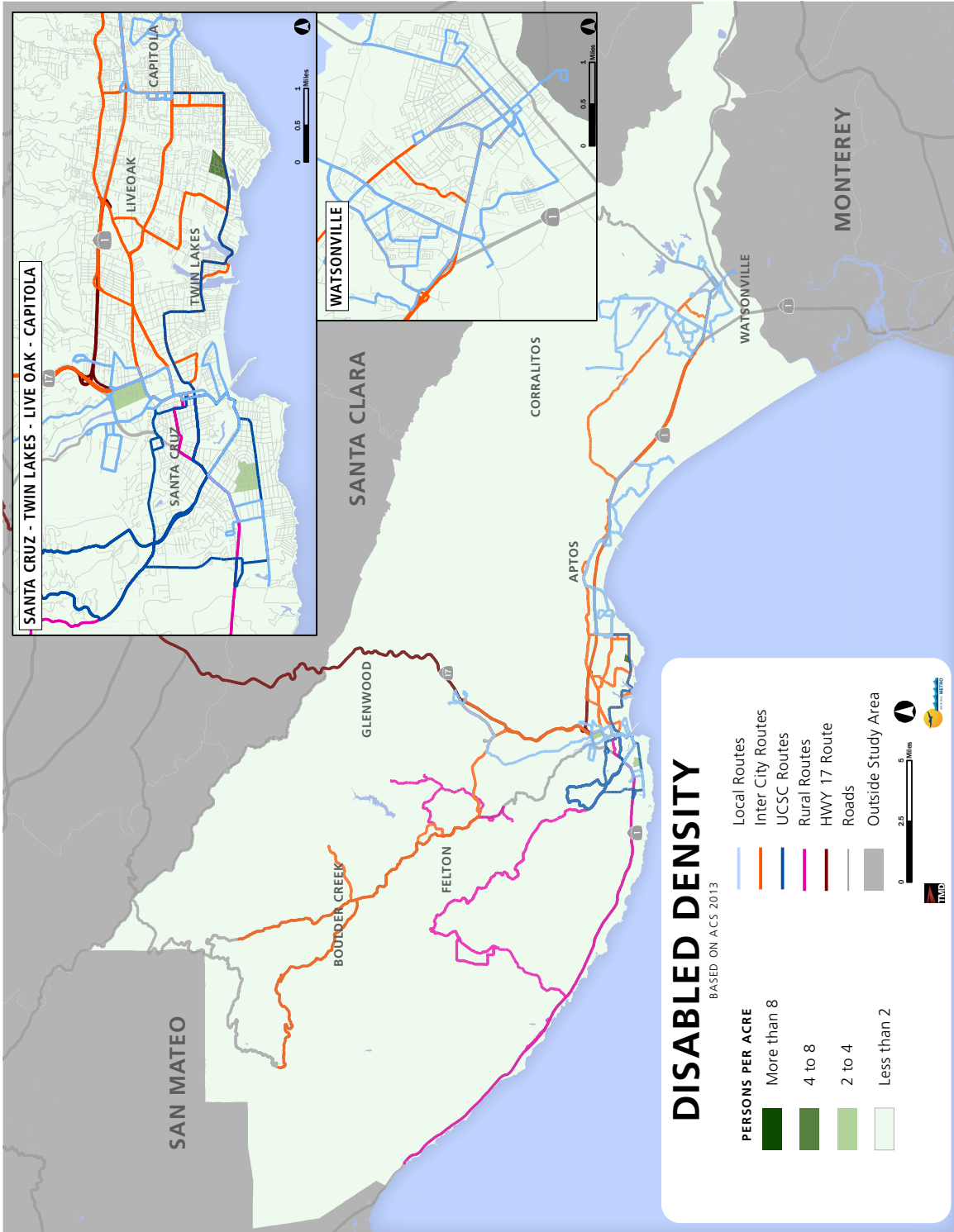


FIGURE 9: DISABLED DENSITY

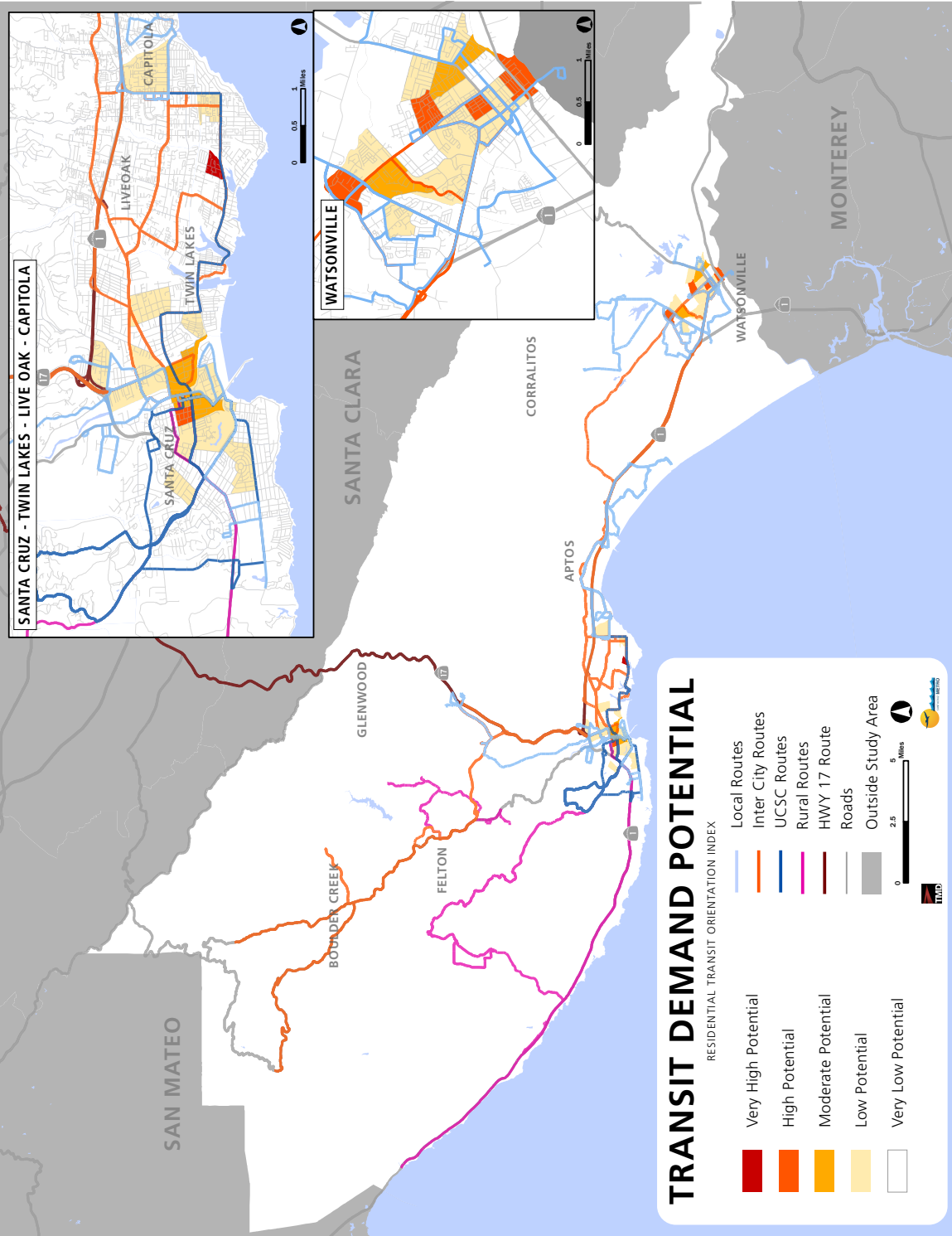


FIGURE 10: TRANSIT DEMAND POTENTIAL

Rider Profile

An on-board survey conducted in 2013 reveals many characteristics of existing system riders. Surveys were conducted on all routes, with the highest amount returned from Routes 15 and 16 (together accounting for 30 percent of surveys), followed by Routes 19 and 71 (together accounting for 19 percent). Routes 8, 54, 66N, 69W, and 77 all had five or less surveys returned (accounting for one percent of all returned surveys). A majority of METRO riders are transit dependent, with 70 percent of riders below the low-income threshold of \$25,000 (60 percent of riders have an annual household income of below \$15,000), and 82 percent of riders do not have access to a private vehicle. A majority (68 percent) of riders use transit five or more times per week, indicating that riders depend on METRO for daily needs. The table below provides information on key ridership demographics.

Ridership Demographics	
YOUTH (UNDER 16)	2.6%
YOUNG ADULTS (16-24)	62%
SENIOR (65+)	3%
LOW INCOME (UNDER \$25,000)	69.5%
DID NOT HAVE ACCESS TO PERSONAL VEHICLE	81.9%

TABLE 6: RIDERSHIP DEMOGRAPHICS
 SOURCE: 2013 METRO ON-BOARD SURVEY

Most respondents took transit to/from home, school, and work (other destinations accounted for only 20 percent of trips). The average trip length was 35 minutes, with about 50 percent of riders walking less than five minutes from the bus stop at either end of the trip. An additional 30 percent of riders walked more than five minutes at either end of the trip, about six percent bicycled, and about

four percent drove or carpoled to or from the bus stop. First and last mile connections are important factors in a transit network, and (with a large percentage of riders walking to or from stops) pedestrian infrastructure plays a role in determining ridership (several riders noted poor bus stop placement or an unsafe walk to the bus stop as limiting factors to using METRO).

The following maps show the locations of boarding and alighting points, and origin and destination points within Santa Cruz County (each point may represent multiple trips). Origins and destinations are the place a person began or ended their total trip, whereas boardings and alightings show where the person utilized transit (boarded or exited the bus). A majority of boarding and alighting locations were around the City of Santa Cruz, specifically in downtown Santa Cruz, along the Soquel corridor and at UC Santa Cruz. Origin and destination points are mostly clustered within walking distance of boardings and alightings, however some origins and destinations are far from boardings and alightings (such as those outside of the county) indicating that the rider drove or used other transit to connect to METRO.

Between Capitola and Watsonville, there were no boardings or alightings captured during the survey; likewise, none of the passenger’s origins or destinations were located along the stretch between Aptos and Watsonville. This area is much more rural than the corridor between Santa Cruz and Capitola, and has small market potential for transit. Local routes 54, 55, and 56 serve the mid-county region but do not provide direct connections to either Santa Cruz or Watsonville, and together only accounted for 1.3% of all returned surveys. Route 69W serves the northwestern corner of Aptos, and route 71 serves Soquel Drive through Aptos, however there is no direct connection between Santa Cruz/Watsonville and areas south of Highway 1 (such as Rio Del Mar and La Selva). Because of the low market demand, this area may benefit from non-fixed route commute solutions, such as organized vanpools.

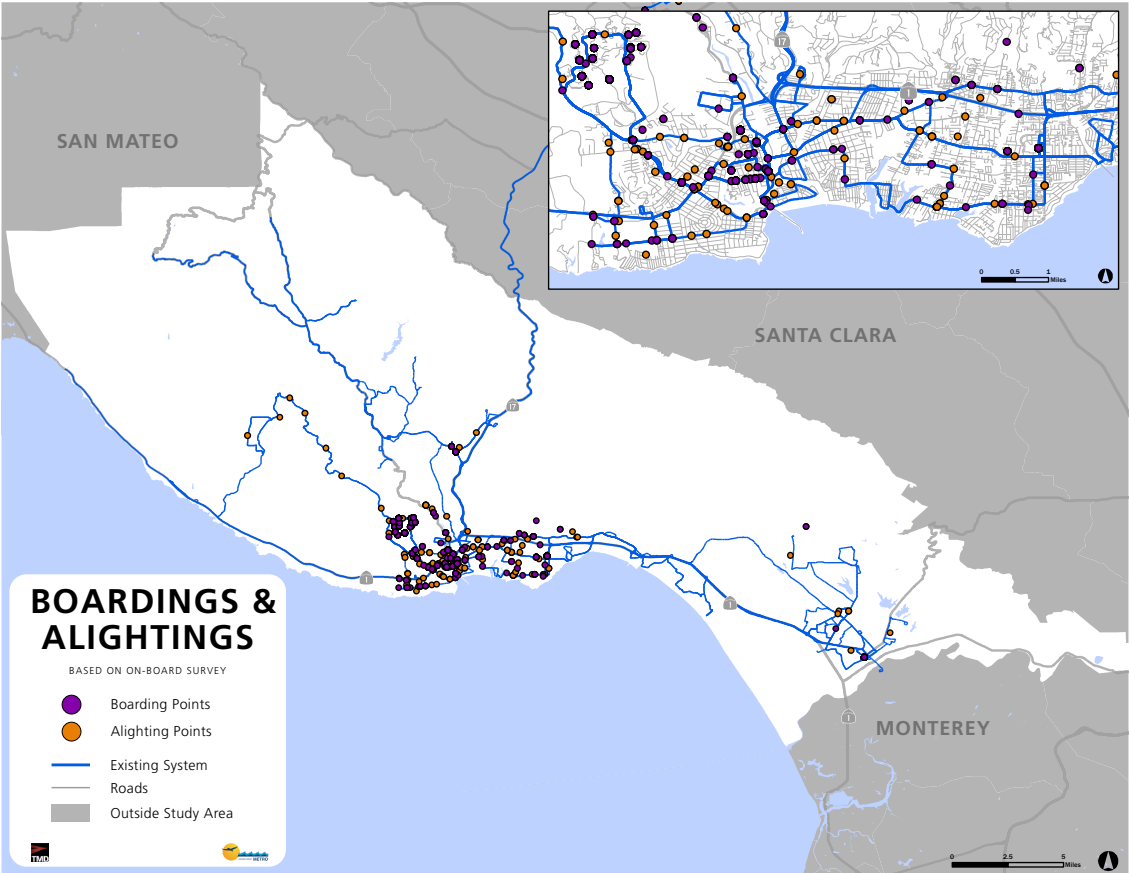


FIGURE 11: BOARDINGS AND ALIGHTINGS
SOURCE: 2013 METRO ON-BOARD SURVEY

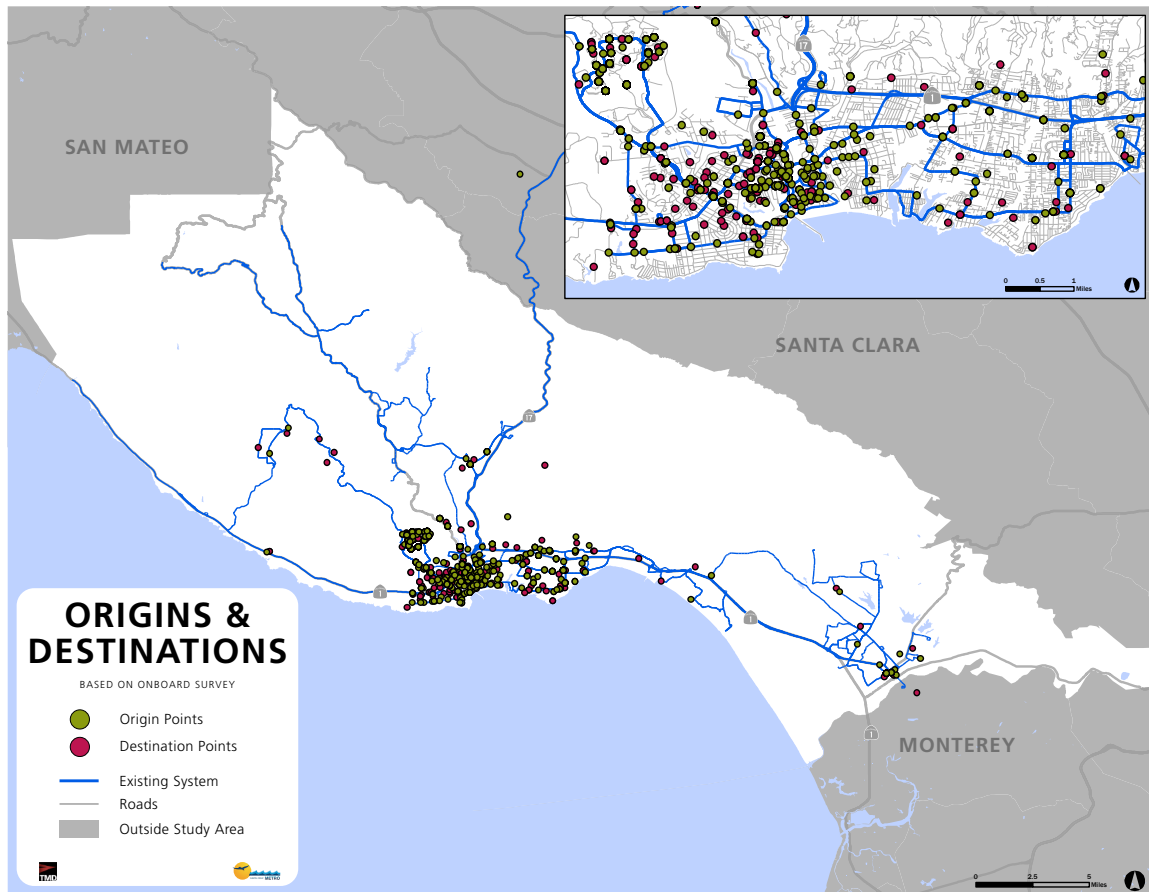


FIGURE 12: ORIGINS AND DESTINATIONS
 SOURCE: 2013 METRO ON-BOARD SURVEY

Common barriers that prevented riders from easily using METRO services were “does not travel when I need it” (20 percent of riders), “costs too much/lack of financial resources” (11 percent of riders), and “does not travel where I need to go” (11 percent of riders); however 35 percent of riders stated there were no barriers to using the service.

When asked to identify their three most desired improvements to METRO service, 55 percent of riders selected increased service frequency (accounting for 26 percent of total requests), 30 percent of riders requested real time bus arrival information (accounting for 14 percent of all requests), and 29 percent indicated shorter travel time (13 percent of all requests).

Governing Documents

Several planning documents govern the transportation and land use patterns within Santa Cruz County. Each document sets forth policies and visions for the local area, and is important to review when considering regional infrastructure and development.

Santa Cruz County General Plan

The Santa Cruz County General Plan was last updated in 1994 and provides guidelines for growth and development within the county. The General Plan is very supportive of transit use throughout the Land Use, Conservation and Open Space, and Circulation elements. Santa Cruz County aims to encourage development within urban areas, specifically commercial and high density residential developments in areas where transit exists or can easily serve. The Plan further intends to reduce private vehicle use by encouraging walking, biking, transit, and car-pooling through the establishment of mixed use development, carpools, park and rides, bike and pedestrian infrastructure, and reduced parking facilities.

The General Plan specifically expresses support for changes in METRO service that would better serve schools, further development of the Highway 17 Express and other inter-county bus service, special summer services for tourists (such as park and ride shuttles and routes aligned with maximum coastal access), and transit to rural areas that will provide better access to jobs, education, and other services. The Plan supports future transit improvements, such as signal priority for buses and studies on the feasibility of a passenger rail service.

Sustainable Santa Cruz County Plan

The Sustainable Santa Cruz County plan (prepared in 2014) is a document that complements the county and city General Plans and further guides development in Santa Cruz County through 2035. The Plan's primary goal is to reduce the production of greenhouse gas emissions, and as a side-effect, improve other aspects of community life. The Plan focuses on areas within an urban and rural services boundary around the communities of Live Oak, Soquel, and Aptos (but many of the principals can be applied countywide). General strategies include: locating housing, employment, and services centers closer together; encouraging new development in already developed areas; placing a higher priority on pedestrian and bike infrastructure; all while continuing to strengthen the economy and support job growth.

A main strategy is to reduce vehicle miles traveled (VMT) by locating daily activities closer together. The plan outlines three development types encouraged within the plan area: neighborhood activity centers, corridor infill, and village center infill. Each type is located within already developed areas and includes mixed use facilities, with multimodal transportation amenities. The goal is to provide 10-20 minute walking, biking, and transit access to activity and employment centers so that short distance daily trips can be accomplished without the need to drive a car.

The major employment centers in the Plan area are the Dominican and Sutter/Palo Alto Medical Foundation, 41st Avenue, Cabrillo College, and Capitola Mall. These centers are connected via Highway 1 and Soquel Drive, major north-south corridors. East-west connections are limited due to topography and the highway and railway right-of-ways, but include 41st Avenue and State Park. Many streets within the study area were ranked with a “D” Level of Service rating; however, the Plan develops a new street performance system (to prioritize bike, pedestrian, and transit facilities) and develops classifications for streets (again promoting varying levels of multimodal infrastructure on different street types).

The Plan identifies primary transit corridors as Soquel Drive (north-south), and along 17th and Capitola (east-west) passing by most employment centers. Secondary transit corridors would run east-west along 7th, 41st, Bay, Park, Mar Vista, and State Park. Corridors in the Plan area currently served by METRO include Soquel Drive (15 minute headways), Capitola Avenue between Soquel and 41st (30 minute headways), and Portola Drive between 17th and 41st (30 minute headways); the Plan recommends increasing bus frequency along these corridors. Additional recommendations for transit include adding signal priority, queue jumps, off-vehicle fare payment, real time bus information, and improving the pedestrian network.

Unified Corridors Plan

The Unified Corridors Plan is a project currently under development that will identify transportation projects that best utilize Highway 1, Soquel Avenue/Drive, and the Santa Cruz Branch Rail Line as one multimodal transportation corridor.

Phase I of the project will develop multimodal transportation modeling tools and performance measures. Phase II will prioritize transportation projects along this corridor. An online survey and a public workshop were conducted to facilitate public involvement.

Survey respondents identified safety, travel times, and travel reliability as the most important factors on Soquel Avenue/Drive and Highway 1 (workshop participants also placed a high emphasis on transit improvements). Those surveyed most often used an automobile on these corridors, and used Highway 1 and Soquel Drive most frequently. The corridors were respectively used to access job and commercial centers, and local streets and neighborhoods, while the Santa Cruz Branch Rail Line was used to access recreational areas and beaches.

When asked to identify necessary transit improvements, over 70 percent of survey respondents listed passenger rail service. About 45 percent indicated more frequent transit service (reduced headways), and around 30 percent said dedicated bus lanes and adding transit fare prepay technology. Many respondents and workshop participants also indicated the need for well-visible buffered bike lanes or paths, and new sidewalks and pedestrian crossings. The most commonly requested automobile improvement was improved signal timing, and over 40 percent of respondents stated that park and ride lots are a needed improvement. Workshop participants noted many similar necessary improvements, and specifically requested express

transit between Live Oak and Watsonville and better transit connections with VTA transit service in Santa Clara County.

If the suggested corridor improvements were made, 14 percent indicated they would ride transit (as opposed to about 4 percent currently). The largest mode share increase was bicycling (jumping from 18 percent to 41 percent).

Characteristics of Santa Cruz County Communities

UC Santa Cruz

UCSC enrollment was about 17,300 for the 2014-2015 year (with about 8,500 students commuting from off campus) and is expected to increase by about 350 students each school year. The campus is located northwest of downtown Santa Cruz in the hills, which make travel to, from, and within campus difficult (leading to the popularity of bus service on campus).

UCSC has plans to increase the use of two off-campus facilities. The Coastal Science Campus at the west end of Delaware includes the Long Marine Lab and the Seymour Marine Discovery Center, and soon a new Coastal Biology Building will provide instruction space for students in Fall 2017. The Coastal Sciences Campus is a 0.4 mile walk from the nearest bus stop (Route 3), and a 0.7 mile walk from the nearest bus stop with a direct connection to UCSC (Route 20) along a road with no sidewalk. The roadway inside the Coastal Science Campus has been reconstructed to allow transit bus access, and this may be a future area of ridership demand.

Another building, at 2300 Delaware, is scheduled to be renovated from a primarily administrative space (with regular 8:00 am-5:00 pm commuters) to a research space (with more students commuting at irregular hours). Displaced administrative staff from 2300 Delaware and staff from three other Westside locations (2155 Delaware, 250 Natural Bridges, and 1201 Shaffer Road), totaling around 400-500 employees, will likely be relocated to the Enterprise Technology Center at 100 Enterprise Way in Scotts Valley in 2016. 2300 Delaware is served by routes 3 and 20, directly adjacent to the building. The Enterprise Technology Center in Scotts Valley is served by routes 30 and 35A, however route 30 only operates two trips per day, and route 35A stops 0.6 miles away (and would require employees to cross a narrow bridge with not sidewalk). Both 30 and 35A provide a connection to the Cavallaro Transit Center in Scotts Valley and the Santa Cruz METRO Center, but neither route provides a direct connection to the UCSC campus.

UC Santa Cruz presents a unique demographic profile within the area. As an educational institution, information regarding the students tends to not be included in US Census data; as such, information regarding the demographic analysis, including transit demand potential index, does not necessarily include the UCSC area. Given the current policies in place for on-campus residents that prohibit students from bringing a vehicle on-site, nearly all of the 9,000 resident students are reliant upon METRO transit services in some capacity. Further, students that do reside off-campus in non-university sponsored housing may also choose not to have a vehicle due to the ability to bike and use transit. Additionally, as the university is the largest employer in the County, the roughly 4,000 total employees is likely to increase as facilities continue to expand. As a result, the areas including and directly adjacent to the UCSC campus facilities are likely to be associated with high levels of transit demand. This is supported by the high levels of ridership currently seen on METRO transit routes (which will be discussed in detail in the Fixed Route Service Evaluation study document).

Santa Cruz City

Santa Cruz is the largest city in Santa Cruz County, with a population of 61,000. Most points of interest in Santa Cruz (such as employment centers, schools, and new development) are located downtown between Highway 1 and Ocean Street, or along the Soquel corridor.

Downtown Santa Cruz is designed with a mix of core, suburban and rural land use patterns, where streets vary from grid patterns (core) to more meandering and spread out layouts (suburban and rural). While the core and some of the suburban areas are walkable, roads at the edge of town are missing sidewalks creating pedestrian disconnects. These areas include east of Ocean between Soquel and Highway 1, north and south of High Street, south of Bay Street, and along the west end of Delaware. UCSC is expanding the Coastal Science Campus at the end of Delaware, which will not be easily accessible by walking due to the disconnected sidewalk network.

Most recent and planned development in the city of Santa Cruz is multifamily (mostly apartments), commercial (including several hotels), or mixed use. A few single family homes and small subdivisions are under construction or planned, as well as one large industrial facility; only one office development has been constructed. In several cases new development is occurring on (and densifying) previously developed land. As shown, nearly all of these new developments are located on or near existing transit routes. Depending on the routes serving these locations, operational enhancements may be warranted that would result in increased ridership by attracting more lifestyle/choice riders or the tourist populations.

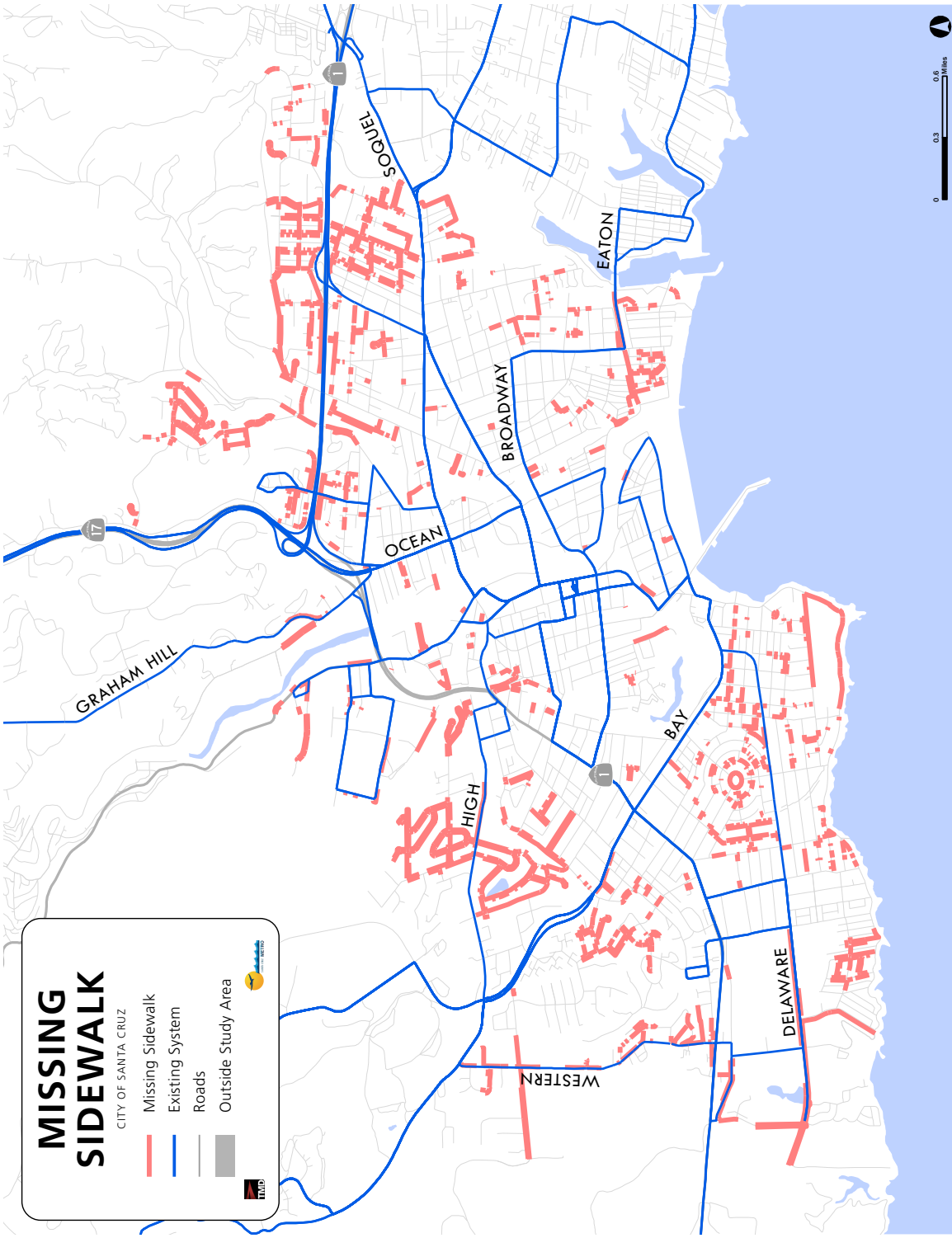


FIGURE 13: MISSING SIDEWALKS, SANTA CRUZ CITY



FIGURE 14: POINTS OF INTEREST, CAPITOLA

Capitola

Capitola is mostly built out, and most new developments are single family homes or residential and commercial remodels. Major developments include separate existing retail spaces remodeled into a Target and Whole Foods, an expansion of the Toyota dealership, the remodel and expansion of a senior apartment complex, and the remodel of office space into a self-storage business. New developments include a 55-unit mixed-use apartment and commercial complex, and an 84-room hotel. These developments are all located along 41st Avenue within half a mile south of the Capitola Mall. Routes 12, 66, and 66N serve the area south of the Mall, and routes 12, 54, 55, 56, 66, 66N, 69A, and 69W serve new development at Capitola Mall.

Scotts Valley

Scotts Valley, located on Highway 17 northeast of the City of Santa Cruz, has a population of 12,000. A majority of (new and historic) development in Scotts Valley is single family detached homes. The road network is car-centric, and the terrain here makes walking outside of the (small) downtown difficult.

The largest new development consists of 40 single family homes. Several small apartment complexes (largest is 20 units), one large hotel (119 rooms), two office buildings, and one shopping center are also under construction or awaiting approval. Vacant lots with preliminary concept plans, and projects identified in the General Plan’s housing element include several very high density multifamily housing units and large shopping centers, however these projects may be far from completion. No major mixed-use developments are planned, as per the city’s list.

Most new development is located along Mount Hermon Road and Scotts Valley Drive. The transit center, located next to the parking lot of the Kings Village Shopping Center, is directly across the street from the Scotts Valley Senior Center and within walking distance to Scotts Valley Middle School and several small shopping centers.

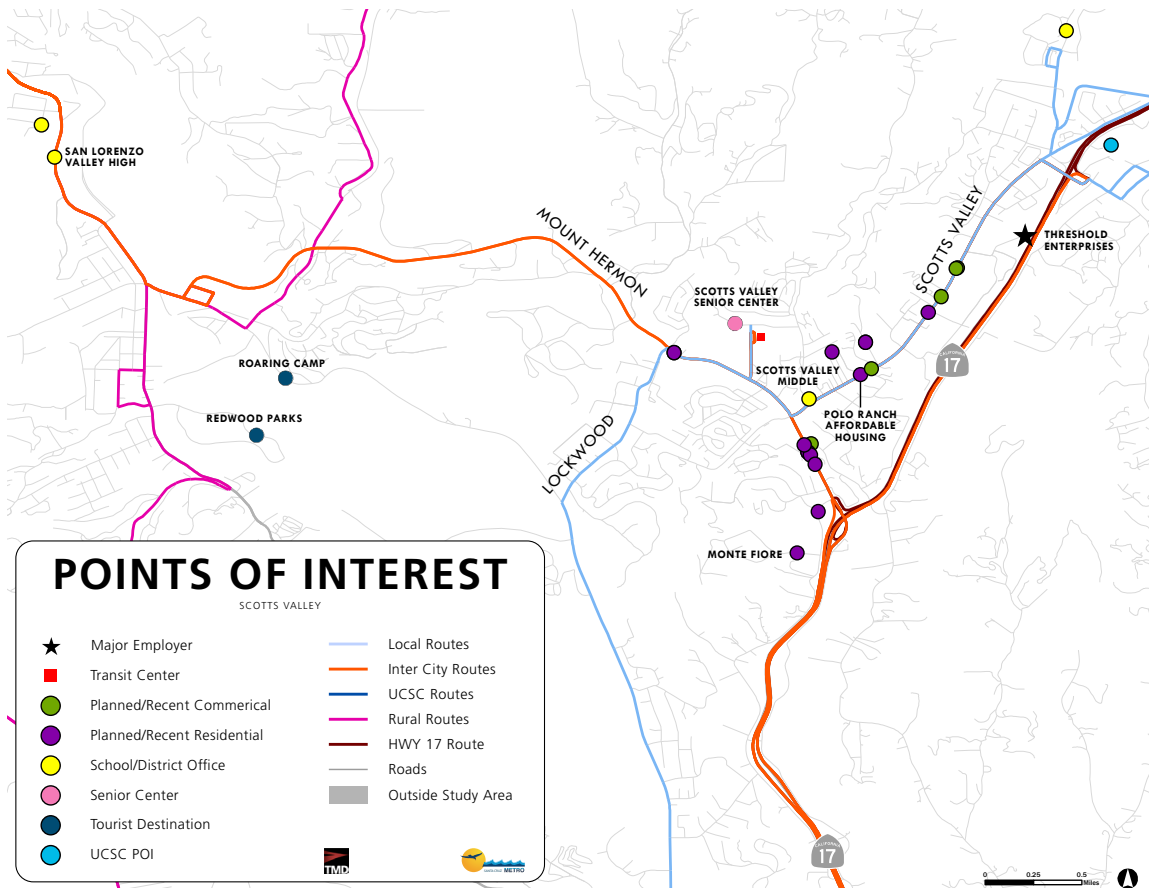


FIGURE 15: POINTS OF INTEREST, SCOTTS VALLEY

Watsonville

Watsonville is the second largest city in Santa Cruz County, with a population of 52,000. The eastern half of the city is designed in a grid pattern with sidewalks on most streets, and is on relatively flat terrain, making walking and biking to or from transit fairly easy. Sidewalks are missing on smaller streets on the western half of Watsonville, where there is a higher market potential for transit and where several METRO routes operate. Employment centers and schools are spread out around Watsonville, but almost all are located within walking distance to an existing transit line (Watsonville Community Hospital is served by lines 69A (hourly), 74 (hourly), and 74S (twice daily); West Marine has less accessible transit service and is located 0.5 miles from local routes 74 (hourly) and 74S (twice daily)). Hourly service would make traveling to these locations difficult, especially if only served by a local line. While there is recent and planned development in the City of Watsonville, the city has not updated the list of projects since 2011.

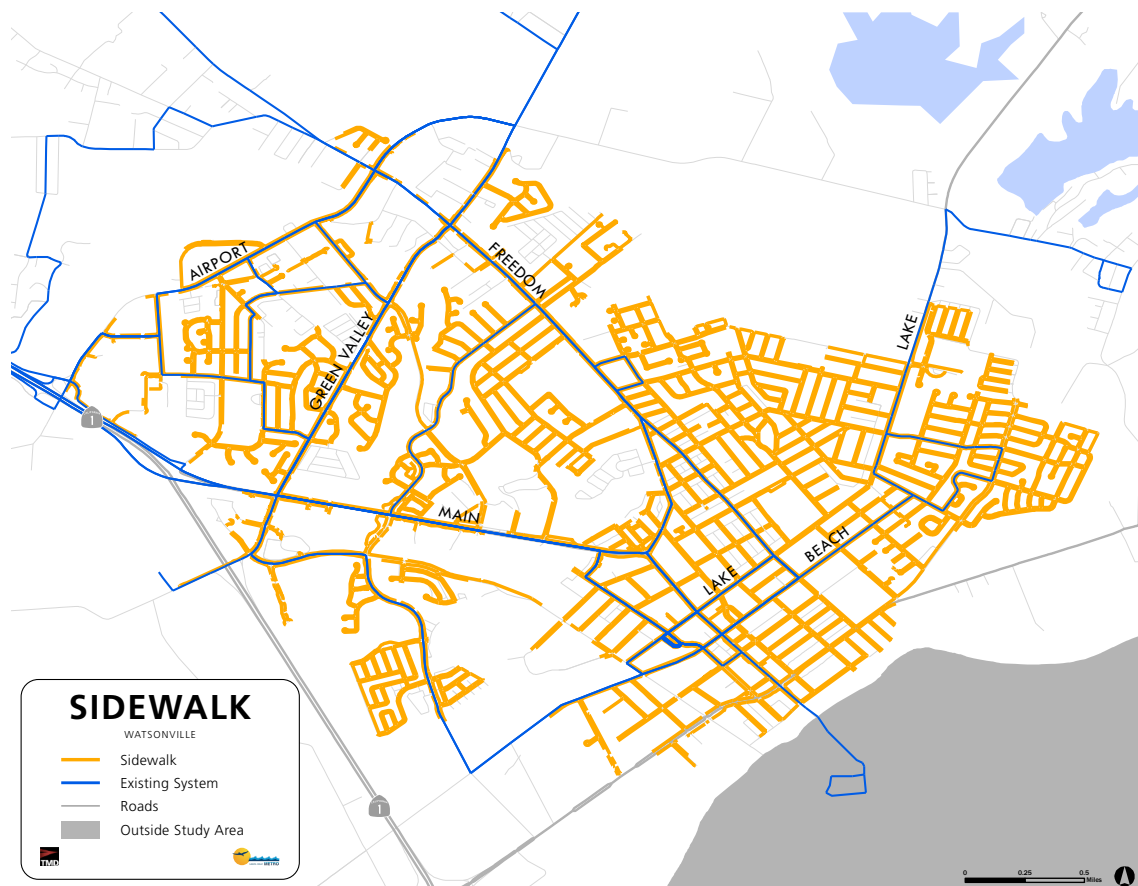


FIGURE 16: SIDEWALKS, WATSONVILLE

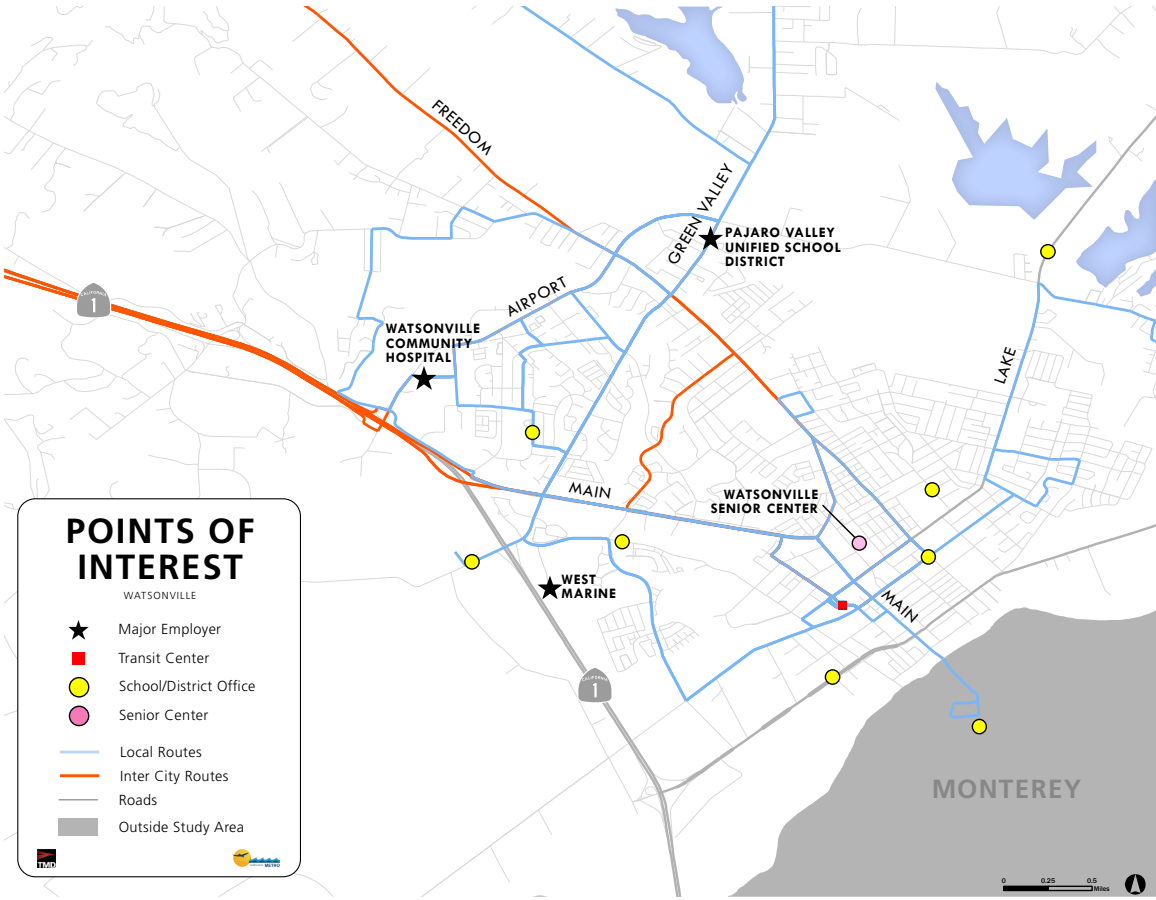


FIGURE 17: POINTS OF INTEREST, WATSONVILLE

Market Typologies

Market typologies serve as generalized characterizations of the varying market conditions within the region. Each typology incorporates findings from population and employment densities as well as development and land use patterns. Each market typology has different opportunities and challenges for transit and serves as a thematic guide to inform transit service decisions. Utilizing typologies ultimately offers an efficient method for categorizing community mobility needs and identifying the best-fit solutions.

In Santa Cruz County, there are four primary typologies – Downtown Core, Core, Suburb and Rural. From a land quantity perspective, the vast majority of the county is classified as rural and undeveloped, however the greatest populations are found in the more developed core and suburban areas. Classifications change rapidly between the varying communities, with even some areas of developed more “urban” areas having more rural characteristics.

Downtown Core

LOCATIONS

Downtown Santa Cruz and Downtown Watsonville

CHARACTERISTICS

High number of activity centers and most dense population and employment. Sustainable development patterns, including pedestrian facilities that support walkability and a transit supportive grid street network.

IMPLICATIONS FOR TRANSIT

High population and employment densities, combined with close proximity to key destinations, make transit highly effective. In general, downtown core areas typically generate more lifestyle transit use.

Core

LOCATIONS

Live Oak, Santa Cruz, Capitola and Watsonville

CHARACTERISTICS

Areas located on the periphery of the downtown core, and with lower densities than the downtown core. Auto-centric nodal development in these areas are connected by higher-speed arterials and highways, and street network is mostly transit supportive.

IMPLICATIONS FOR TRANSIT

Attracting ridership in these areas depends upon the ability to compete with the automobile with respect to travel time. As such, automobile travel is typically a more attractive option.

Suburban

LOCATIONS

Live Oak, Capitola, Soquel, Aptos, Scotts Valley, Santa Cruz and Watsonville

CHARACTERISTICS

Low density and mostly single family residential development are the dominant development patterns. Disjointed pedestrian facilities, lack of emphasis on pedestrian access, and non-linear street patterns result in a non-transit supportive street network.

IMPLICATIONS FOR TRANSIT

Higher concentrations of car ownership will increase difficulty of generating ridership (however, there are a few exceptions where there is a higher than average low-income or zero vehicle household density). In general, commute-oriented transit is typically a focus of suburban areas.

Rural

LOCATIONS

Scotts Valley, Ben Lomond, Boulder Creek, Bonny Doon and Davenport

CHARACTERISTICS

Remote or underdeveloped areas outside of the main city or town centers are the primary development pattern. Minimal or non-existent pedestrian facilities, coupled with low density development patterns and non-transit supportive street networks, make these areas more difficult to implement effective transit services.

IMPLICATIONS FOR TRANSIT

Overall, these areas have a limited market for transit use due to low population and employment density. The dispersed development, topography and lack of pedestrian facilities make transit use less attractive to residents.

Tourism Industry

The county's General Plan encourages the growth of visitor accommodations in appropriate areas, and suggests METRO routes for maximal coastal access and special peak-season (summer) tourist shuttles.

According to a 2010 visitor profile survey, most Santa Cruz County tourists are from California (specifically Northern California), and many have been to the area during previous trips. County tourists have a median household income of \$77,900 and an average age of 41.2 years. Over 80 percent of visitors were traveling for vacation or pleasure, and peak tourist season is during the summer. Over 70 percent of visitors ate in restaurants, went to the beach, and visited local attractions. The most popular attractions were the Santa Cruz Boardwalk (which 64 percent of tourists visited), Santa Cruz Wharf (53 percent), and Downtown Santa Cruz (40 percent). Other common attractions included Capitola Village, Roaring Camp, Redwoods and State Parks, and Capitola Mall. The main destination of most visitors was Santa Cruz City (53 percent) followed by San Lorenzo Valley (14 percent), and Capitola (9 percent).

Santa Cruz County visitors mostly used private vehicles to travel within the county: 69 percent drove a personal car, and 12 percent drove a rental car during their visit. Thirty seven percent (37 percent) walked to some destinations. Transit use was not specifically accounted for, however a statistic measuring "tour or other bus" use suggests that transit use is very low among tourists (only six percent had used this method of transportation during their visit).

Most lodging in the county is in the City of Santa Cruz, specifically near the Beach Boardwalk and along Ocean Street. While these hotels are along METRO routes, no route goes directly to the Boardwalk, and walking time to downtown is roughly the same as taking the bus. Similarly, there are no direct transit routes to the more remote tourist destinations in the mountains. While it is possible that transit use among tourists is low because transit routes to major tourist destinations are not direct and convenient, this low usage may also be because travel to the region nearly necessitates a vehicle.

Tourists ranked parking and traffic as the two biggest issues when visiting Santa Cruz County (giving traffic a score of only 2.5 out of 5). Improving local transit service and making it more accessible would help alleviate both of these issues for tourists.



FIGURE 18: LODGING LOCATIONS

Regional Connectivity

Santa Cruz County is mountainous, making connections throughout the region limited. There are six highways in the county, most of which are two-lanes and wind across the mountains. Highway 1 is the only major north-south highway, and carries the highest volume of traffic. Highway 17 connects the City of Santa Cruz to San Jose and carries the second highest volume. Other highways (in order of high-low traffic volume) include 152 (Watsonville to Gilroy), 129 (Watsonville to Route 101), 9 (Santa Cruz to Los Gatos), and 236 (Highway 9 to Big Basin).

The county General Plan expresses support for strengthening intercounty bus service. Express bus service is operated on Highway 17 to Santa Clara County by Santa Cruz METRO with additional funding from Amtrak and VTA. This route provides a connection to the San Jose Diridon Station, where transit options are available for transportation to destinations across the Bay Area. Large passenger airports serving the area are located in San Jose, Monterey, Oakland, and San Francisco. Monterey-Salinas Transit provides connections from Santa Cruz and Watsonville to cities within Monterey County (a detailed description is provided below).

Greyhound buses also stop in Santa Cruz and Watsonville, providing connections to the Bay Area and to Southern California. The 2014 Regional Transportation Plan notes that there is no transit service between Watsonville and Gilroy, which may be a good alternative route for transit service to the Bay Area without using Highway 17.

Rail service in Santa Cruz County is limited to excursion trips, however Amtrak (with stations at Salinas and San Jose) and Caltrain (providing service to the Bay Area Peninsula from San Jose) are rail services in nearby counties. Transit connection is available to the San Jose Diridon Station via the Highway 17 Express bus. The Santa Cruz County Regional Transportation Commission is interested in creating a transit rail service on existing track between Westside Santa Cruz and Pajaro. A draft report in 2015 found passenger rail service to be feasible, with a timeline for service implementation taking around 11 years. Monterey County is also interested in pursuing passenger rail transit service.

Other transit providers in the region include UC Santa Cruz Shuttles, Monterey-Salinas Transit, and the Santa Clara Valley Transportation Authority.

UC Santa Cruz Shuttle and Vanpool System

UC Santa Cruz operates fixed route and demand response service on the UC campus and to downtown Santa Cruz. Most service is provided in both directions along Heller, McLaughlin, and Hagar Drive where the routes overlap with frequencies of less than 10 minutes during peak student travel times. METRO routes 10, 12, 15, 16, 19, and 20 also travel along these streets, with headways as short as every 15 minutes. Most buses operate between 6:00am and 11:00pm (the Loop route); however some services are available later into the evening. Shuttle ridership was around 2.2 million during the 2014-2015 fiscal year, with daily ridership between 10,000-14,000 during the academic year, and below 2,000 during the summer. All shuttles are free, and most are open to the public (with the exception of the Night Owl and Bike Shuttles).

Shuttle services that extend off campus include the Night Owl Downtown and the Westside and Downtown Bike Shuttles. The Night Owl shuttle has around 38,000 annual riders and operates between 11:30pm and 1:15am Sunday-Thursday (with a daily ridership of around 100), and from 11:30pm until 2:50am on Fridays and Saturdays (with a daily ridership above 400). The bike shuttles bring bikers (and their bikes: a bike is required in order to ride) up the hill to campus in the mornings and have a daily ridership around 220 passengers during the school year, and an annual ridership around 43,000.

The UC Santa Cruz Transportation and Parking Services (TAPS) department also facilitates the establishment of vanpools. Currently, between 20 and 23 routes are operating with an average ridership of 10-11 passengers per van. Ten routes travel to and from Watsonville, three routes serve Aptos, and two routes (each) serve San Jose and the San Lorenzo Valley. Other locations served include Campbell, Los Gatos, and Monterey. Most vanpools arrive UCSC between 7 and 8 am, and depart between 4 and 5 pm.

Monterey Salinas Transit (MST)

MST operates 54 fixed routes and paratransit service throughout Monterey County. Some fixed routes extend into Southern Santa Cruz County, with connections to major employment centers and tourist destinations within the Monterey County (such as Salinas, Monterey, Pajaro, Castroville, Moss Landing, King City, Big Sur, and others) and to San Jose. Route frequencies vary widely across the system (from 15 to 120 minutes, limited trips per day, or on call). Routes 27, 28, 29, and 78 provide direct connections into Santa Cruz County and are summarized below.

Route 27: Watsonville-Marina

This route operates weekday service via Moss Landing and Castroville with 120 minute headways between 6:00 and 20:00.

Route 28: Watsonville-Salinas

This route also travels via Moss Landing and Castroville with 120 minute headways. The schedule is spaced evenly with route 27 to provide 60 minute headways between Watsonville, Moss Landing, and Castroville. This route operates weekdays and Saturdays between 6:30 and 22:30, and Sundays between 6:30 and 20:00.

Route 29: Watsonville-Salinas

This route operates via Las Lomas and Prunedale on 120 minute headways spaced evenly with route 28, providing 60 minute headways to Salinas. Route 29 operates on weekdays between 5:45 and 20:30.

Route 17: Presidio-Santa Cruz Express

This route connects Santa Cruz, Cabrillo College, and Aptos with destinations and transfer points in Monterey County: Moss Landing, Castroville, Sand City, and Monterey). One AM and one PM trip operate per day in each direction. Weekend service is provided, but the routing and times are different.

Santa Clara Valley Transportation Authority (VTA)

VTA operates bus and light rail service in Santa Clara County with multiple connections to other Bay Area regional transit services (Altamont Commuter Express, Amtrak, Caltrain, BART, AC Transit, SamTrans, San Jose Airport and others). Service is provided seven days a week with over 80 total routes (including local, limited, and express service). Connections to VTA service from METRO are available via the Highway 17 Express at the San Jose Diridon Station. VTA contributes funding to the operation of the Highway 17 Express, and honors METRO Highway 17 passes as fare for local buses (and provides a discount for express buses).

Travel Patterns

A review of the region’s travel patterns can help better define the corridors that are the most traveled, and thus potentially the best candidates for enhanced transit service and what type of transit is best suited for a roadway. Understanding the relationship between vehicle-trips and transit provides context for where various travel demand may exist.

Common Commute Trips	
SANTA CRUZ - SANTA CRUZ	6,708
WATSONVILLE - WATSONVILLE	4,414
SANTA CRUZ - LIVE OAK	2,552
SANTA CRUZ - SAN JOSE	2,365
SANTA CRUZ - WATSONVILLE	2,136

TABLE 7: COMMUTE TRIPS
SOURCE: 2013 LEHD DATA

Commute Trips

According to the Regional Transportation Plan, a majority (77 percent) of Santa Cruz County employed residents commute to jobs within the county, 17 percent commute to the Bay Area, and 5 percent to Monterey County. Most (85 percent) of those employed in Santa Cruz County live in the county, while 8 percent commute from Monterey and 5 percent commute from the Bay Area. The average travel time to work in Santa Cruz County in 2010 was 26 minutes. Based on 2013 Census Longitudinal Employer-Household Dynamics (LEHD) data, the most common origin-destination pairs for daily commute trips are presented in Table 7.

METRO operates three local Santa Cruz routes and five local Watsonville routes. Routes between Santa Cruz and Live Oak include 12, 66, 66N, 68, 69, 71, and 91X, and frequencies range from one trip a day to 15 minute headways during peaks. The jointly operated Highway 17 Express provides service between Santa Cruz and San Jose seven days a week, with 32 trips per direction each weekday (and a frequency of about every 20 minutes during peak hours, and 60

minutes during off-peak). Between Santa Cruz and Watsonville routes 69, 71, and 91X operate (each with a 30 minute frequency, or better during peak periods)

A majority of commute trips are to or from the City of Santa Cruz. Most of these trips are within the city itself, and a majority are intra-county trips. Most trips across county boundaries are to Santa Clara County, and a majority of these trips are made by residents of Santa Cruz City who work elsewhere.

The second largest trip generating area is Watsonville. Watsonville commutes occur in a similar pattern to Santa Cruz City commutes, however there is proportionally less travel between San Jose, and proportionally more travel between Monterey County.

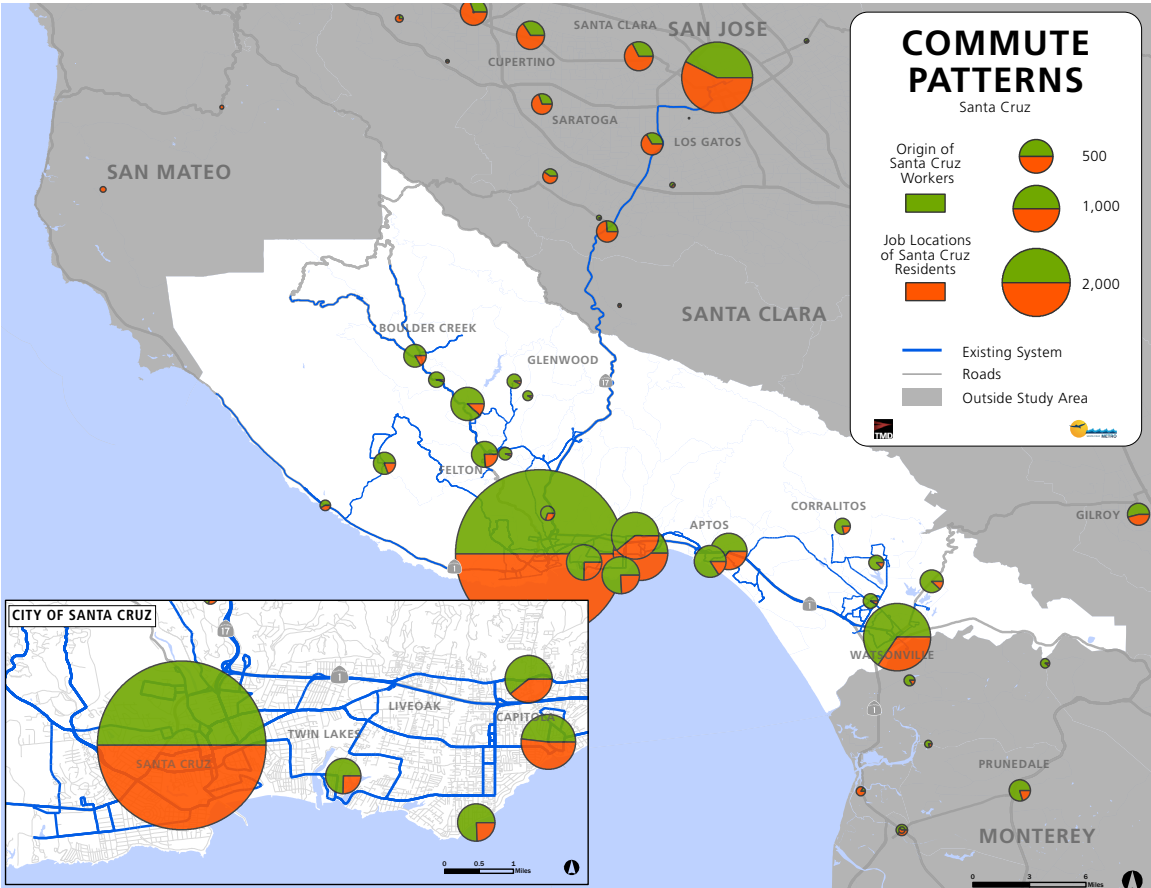


FIGURE 19: COMMUTE PATTERNS, SANTA CRUZ
SOURCE: 2013 LEHD DATA

Most commuters (71 percent) in Santa Cruz County drive alone to work. This number is the highest in Felton (86 percent) and lower in the denser areas of Santa Cruz City (60 percent) and Watsonville (67 percent). The percentage of carpoolers is highest in Live Oak (22 percent) and in Watsonville (19 percent) - around twice the county average of ten percent. Countywide three percent of commuters utilize transit, however this use is mainly concentrated in Santa Cruz City (five percent), Capitola (three percent), Watsonville (two percent), and Felton (one percent); all other areas have less than one percent transit use. Ten percent of Santa Cruz County commuters biked or walked to work, but these uses are again concentrated in specific areas (primarily Santa Cruz City, followed by Watsonville, Capitola, and Aptos).

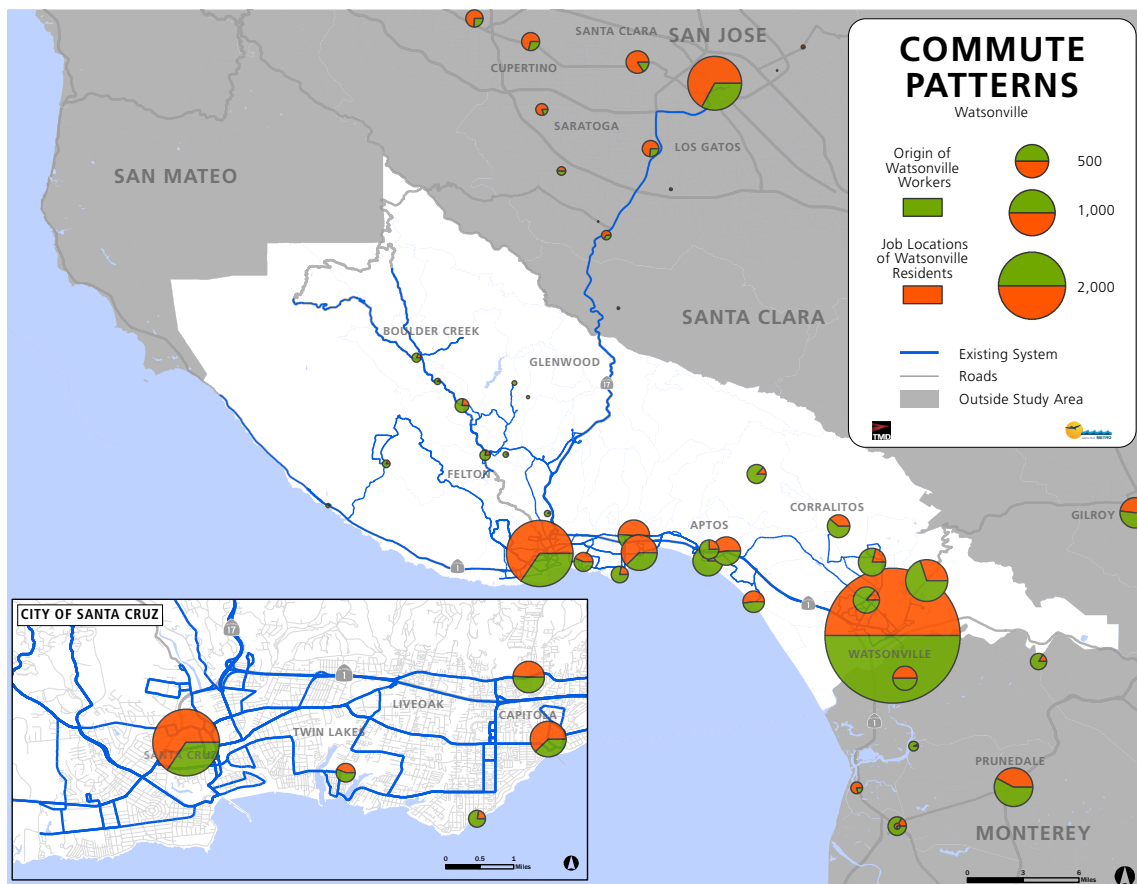


FIGURE 20: COMMUTE PATTERNS, WATSONVILLE
 SOURCE: 2013 LEHD DATA

Traffic Volumes

The highest traffic volume is carried by Highway 1, the major north-south connecting road across the county. 98,000 vehicles per day travel on the most congested segment, near Bay Avenue and Porter Street. Congestion is most noticeable during the peak hours, and during early afternoon. The primary direction of commute during the morning peak (between Watsonville and Santa Cruz) is northbound. On summer weekends traffic volume reaches to 95,000 per day in the most congested segments of Highway 1 as a result of tourist trips. Highway 17, which connects the City of Santa Cruz to San Jose, carries the second highest volume of traffic (above 60,000 vehicles per day) and is also frequently congested. During the morning peak, most traffic is northbound to San Jose (and most traffic during the afternoon peak is southbound). Other highways (in order of high-low traffic volume) include 152 (Watsonville to Gilroy), 129 (Watsonville to Highway 101), 9 (Santa Cruz to Los Gatos), and 236 (Highway 9 to Big Basin). Current METRO transit service is provided along all of these highways with the exception of Highway 129.

Arterial streets also carry much of the traffic in Santa Cruz County and serve as corridors for many METRO bus routes. The largest, 41st Avenue in Capitola, carries 44,000 vehicles per day and is served by existing METRO routes 12, 54, 56, 68, 69A, and 69W. Mission Street (utilized by routes 3, 40, and 42 utilize), Mt. Herman Road (utilized by routes 30, 35, 35A), and Ocean Street (utilized by routes 4, 8, 17, 30, 35, and 68) each carry around 36,500 vehicles per day. Soquel Avenue/Drive and Freedom Boulevard together provide an alternative to Highway 1 between Watsonville and Santa Cruz, and carry between 18,000-30,000 vehicles per day. On both of these roadways, METRO operates transit service through routes 54, 55, 56, 69W, 71, and 91X.

Travel times peak during the morning and evening commute hours, and are high at around 1:00 pm. Because buses utilize the same highways and arterial streets as other traffic, this increase in travel times affects transit operations and can prove to be a disincentive for residents to use transit in lieu of a private vehicle. For example, the 7:30 AM northbound 91X takes one hour and ten minutes to reach Santa Cruz from Watsonville, as opposed to fifty minutes during off-peak trips (northbound travel on Highway 1 between Highway 129 (in Watsonville) to Ocean Street (in Santa Cruz) takes between 24 and 30 minutes by car during the morning peak; this is 10 to 15 minutes longer than during other travel times); the use of transit does not provide a quicker option. In some cases, creative strategies could be implemented to improve bus travel times and make transit more attractive (such as bus on shoulder, traffic signal priority, and queue jumps).

Market Assessment Findings

The market assessment has revealed some key findings about demographics, travel patterns, and transit users in the Santa Cruz METRO service area.

These characteristics aid in identifying where transit services can be most effective.

- Most development in Santa Cruz County is focused in the southwest area of the county, along the coastline between Santa Cruz and Watsonville, and is multifamily, commercial, or mixed-use. These areas also have the highest concentrations of demographics that are typically more likely to ride transit (minorities, low income populations, zero vehicle households, youths, and college aged residents). These areas are candidates for improving frequency and possibly operating hours, where there are transit-supportive densities and populations.
- With very strict vehicle regulations for students in UCSC housing (both on- and off-campus), the university population increases the transit demand of the region dramatically. As student populations grow in the coming years, coupled with increasing employment associated with facility expansion, the impact on the METRO transit program will intensify and increase the need for improved transit service between the campus and other areas of Santa Cruz.
- Most commute trips begin and end within the county; however, a significant proportion of commute and other trips begin or end in Santa Clara County (primarily San Jose), and a small proportion begin or end in Monterey County (primarily Prunedale). This indicates that there is market potential for additional or expanded transit options into these larger destinations, and potential demand for vanpools into other cities outside of Santa Cruz County where fixed-route services may not be the most cost effective option.
- Tourism is a large driver of the local economy. Most tourists drive private vehicles to popular attractions in the county, resulting in congestion on summer weekends along Highways 1 and 17 and other areas. This finding suggests that there may be opportunities to provide attractive transit services, alternative transportation, or other incentives to local seasonal visitors once they have arrived to the area, or expanded services to the airport to allow for alternative travel options at the start of their trip.
- Highway 1 and the Soquel Corridor are the main connecting roads in the urban area. The Soquel Corridor connects most of the major employment centers and is a primary transit corridor, along with 17th Street and Capitola Drive. The existing traffic congestion along these roadways presents frustration for commuters, both in private vehicles and transit vehicles. As a result, creative solutions for public transit along this corridor should be explored that makes it a more attractive option for local and regional commuters. Reducing travel times for transit passengers would not only retain existing passengers, but likely would attract more “choice” or “lifestyle” riders in the area.

- Land topography in Santa Cruz County makes walking or biking difficult, even in urban areas (due in part to a lack of infrastructure). Topography limits road connectivity throughout the county as well. Rural roads are steep, narrow, and windy, which may make transit vehicle access difficult. As a result, despite the potential for some transit demand from specific populations, fixed-route services would likely prove inefficient and unable to serve all populations. These areas are typically better served with more specialized options, such as flex route services or other creative solutions.
- METRO riders indicated that the biggest barrier to riding METRO service is that it does not provide service when needed and listed increased service frequency as the most preferred service improvement. This suggests that increased ridership can be achieved by increasing frequency and operating hours, rather than increasing coverage.
- METRO routes provide service coverage to most areas identified as having a high transit market potential, and to most developed areas within the county (including areas with low potential). Service to many these areas (including areas of high potential) is infrequent or indirect, which will likely result in low transit use (especially when compared with the previous finding). Areas with a low market potential may be served better by non-fixed route transit services.

Next Steps

Upon the completion of the Market Assessment, a detailed Fixed Route Service Evaluation will be completed that analyzes route performance and frequency in more detail. This interim working document completes the existing conditions analysis, bridges the gap between the underlying market conditions and how transit services are impacted. The linked findings from both study documents will be used to formulate recommendations for how Santa Cruz METRO can best allocate the limited transit resources available, and ensure that an adequate level of service is being provided to meet the needs of the area's residents. Additionally, the detailed Fixed Route Service Evaluation will serve as a basis for the development of Service Design Standards and Guidelines, which will help METRO monitor the performance of the transit services and help guide future service changes as market and financial conditions change.