Chapter 4

Patterns & Performance

INTRODUCTION

The 2050 Santa Cruz County Regional Transportation Plan is guided by its established Goals, Policies and Targets (Appendix C). A variety of performance metrics are used to monitor progress towards these transportation goals, to understand transportation system performance and inform investment decisions.

Aligning with the five RTP Goals, the key areas of monitoring are:

- Vehicle Miles Traveled & Mode Share
- Fatalities and Serious Injuries
- Preservation and Efficiency
- Climate Resilience
- Equity

Highlights of key metrics and findings that demonstrate the performance of the transportation system in meeting the 2050 RTP Goals and Targets are illustrated below.

In addition to the transportation system monitoring and performance reported in this RTP, the Draft 2050 Monterey Bay Area Metropolitan Transportation Plan and Sustainable Communities Strategy (MTP/SCS) and in the associated Draft EIR led by AMBAG include performance modeling. All RTC projects are included in the MTP and are combined with the Monterey County and San Benito County projects and evaluated with its 12 performance measures. The investments in the 2050 MTP/SCS are expected to result in significant benefits to the region with respect to transportation and mobility, economic activity and job creation, sustainability, and environmental justice.

GOAL 1. REDUCE VEHICLE MILES TRAVELED

Reduce vehicle miles traveled (VMT) in order to establish livable communities that improve people's access to their regular needs.

TARGETS:

- *Improve people's ability to meet most of their daily needs without having to drive.*
- *Improve multimodal access and proximity to key destinations.*
- *Improve the convenience and quality of trips, especially for walk, bicycle, transit, freight and carpool/vanpool trips.*
- *Improve health by increasing the percentage of trips made using active transportation and transit.*

Target Summary Table

**See discussion below for sources and details.*

Metric	Target/Benchmark	Baseline Year	Most Recent Year	Trends (baseline year to most recent available year)
Length of urbanized area bikeway miles relative to total urbanized area arterial and collector roadway miles	Increase to 85 percent by 2035 and to 100 percent by 2050.	2010	2024	5 percentage point increase in ratio

Metric	Target/Benchmark	Baseline Year	Most Recent Year	Trends (baseline year to most recent available year)
Transit vehicle revenue miles	Increase to 30 percent by 2035 and 50 percent by 2050	2022	2025	38% Increase
Per capita vehicle miles traveled	Reduce by 20 percent by 2035 and by 25 percent by 2050.	2005	2023	18% Reduction
Percentage of reliable person miles traveled (Travel Time Reliability)	Improve 5 percent by 2035 and by 10 percent by 2050	2020	n/a	Data currently unavailable at county level
Percentage of urbanized bikeways that are separated or off-street (Class I or IV)	Increase to 20 percent by 2035 and to 30 percent by 2050	2024	2024	34%; not previously measured
Percentage of urbanized area arterials and collectors that have sidewalks with lighting on both sides	Increase to 85 percent by 2035 and 100 percent by 2050.	2025	n/a	Data currently unavailable in all local jurisdictions
Single occupancy commute trip mode share	Decrease 6.5 percent by 2035 and by 10 percent by 2050	2020	2023	11% Reduction
Active commute trips	Increase to 16 percent of total commute trips by 2035 and to 24 percent by 2050	2020	2022	15% Reduction

Vehicle Miles Traveled

A common measurement for how much travel is occurring in a region is the number of "vehicle miles traveled" (VMT), or the total miles driven by all vehicles in a specific area and timeframe. One vehicle (regardless of the number of passengers) traveling one mile constitutes one "vehicle mile." Daily total VMT represents the amount of travel for all vehicles within Santa Cruz County. Dividing that number by the county's population provides an average vehicle miles traveled each person is driving daily, which is referred to as VMT per capita.

VMT/Population = Avg. Daily Travel

VMT data can be estimated through traffic count data collected on both the highway system and the local street and road network. Latest available estimates from the 2023 Highway Performance Monitoring System (HPMS) report implemented by Caltrans shows a downward trend with projected daily VMT per capita in 2023 that is reduced by 18% compared to the 2005 base year (Figure 4.1).

The VMT per capita targets of a reduction of 20% by 2035 and 25% by 2050 (based on 2005 numbers) should be achieved and exceeded if the overall trend continues.

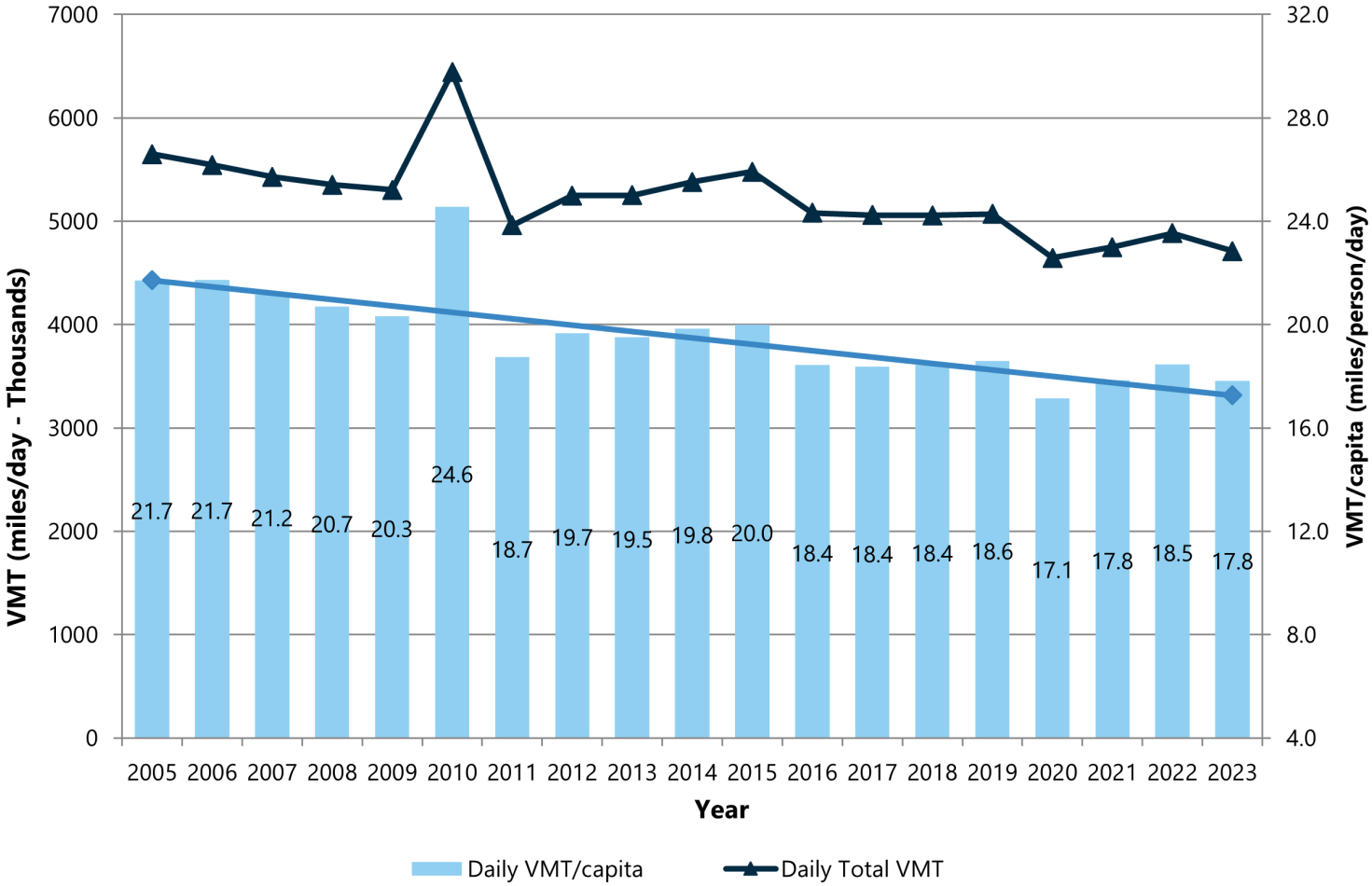


Figure 4.1 – Santa Cruz County Daily Vehicle Miles Traveled (Total and Per Capita) with trend line
Source: Highway Performance Monitoring System, Caltrans.
Data from 2010 was removed from trend line calculation due to likelihood of inaccurate count data used to determine VMT.

Daily VMT calculations are a clear way to measure progress towards a sustainable and livable community. While VMT correlates with the negative impacts of transportation (congestion, air and noise pollution, habitat loss, crashes, and hindrance to walking and biking), a robust transportation system including frequent transit, carpooling, and widespread bicycle and pedestrian facilities support healthy and affordable mobility. Metrics related to providing sustainable mode facilities and shifting mode share complete the picture of progress towards Goal 1.

Active Transportation

The quality and quantity of bicycle and pedestrian paths can greatly influence people's travel preferences, as described in Chapter 2. Beyond preferences, many people who cannot drive rely on these facilities as their main travel mode.

Pedestrian Paths

One standard used to determine the quantity of pedestrian facilities is the percentage of major roads that have sidewalks on both sides as well as street lighting. Pairing continuous and maintained sidewalks with consistent lighting creates a pedestrian facility that is easier and safer to use. Because of the low population densities and high environmental and financial cost of building sidewalks in rural areas, this target focuses on urbanized areas.

The target is for 85 percent of arterial and collector roads in urbanized areas to have sidewalks on both sides and lighting by 2035 and 100 percent by 2050.Currently, two of the local jurisdictions in Santa Cruz County have inventoried sidewalks. RTC will work to inventory sidewalks on major roads in the remaining areas and will monitor progress going forward.

Bikeways

Increasing the amount of bikeway miles that are separated from motor vehicles can make biking safer, more enjoyable, and accessible to more users thus increasing quality of life and reducing VMT. The percentage of urban bikeway miles is the length of bikeway miles relative to the length of arterials and collector roadways in the urban services areas of the county (Figure 4.2). The RTC tracks bikeway miles throughout Santa Cruz County on an annual basis in coordination with local jurisdictions. It is the major roads that are high stress and pose safety issues for bicyclists, and while using alternate side streets and paths can be preferable, traveling on the major roads often provides a more direct path of travel and access to destinations.

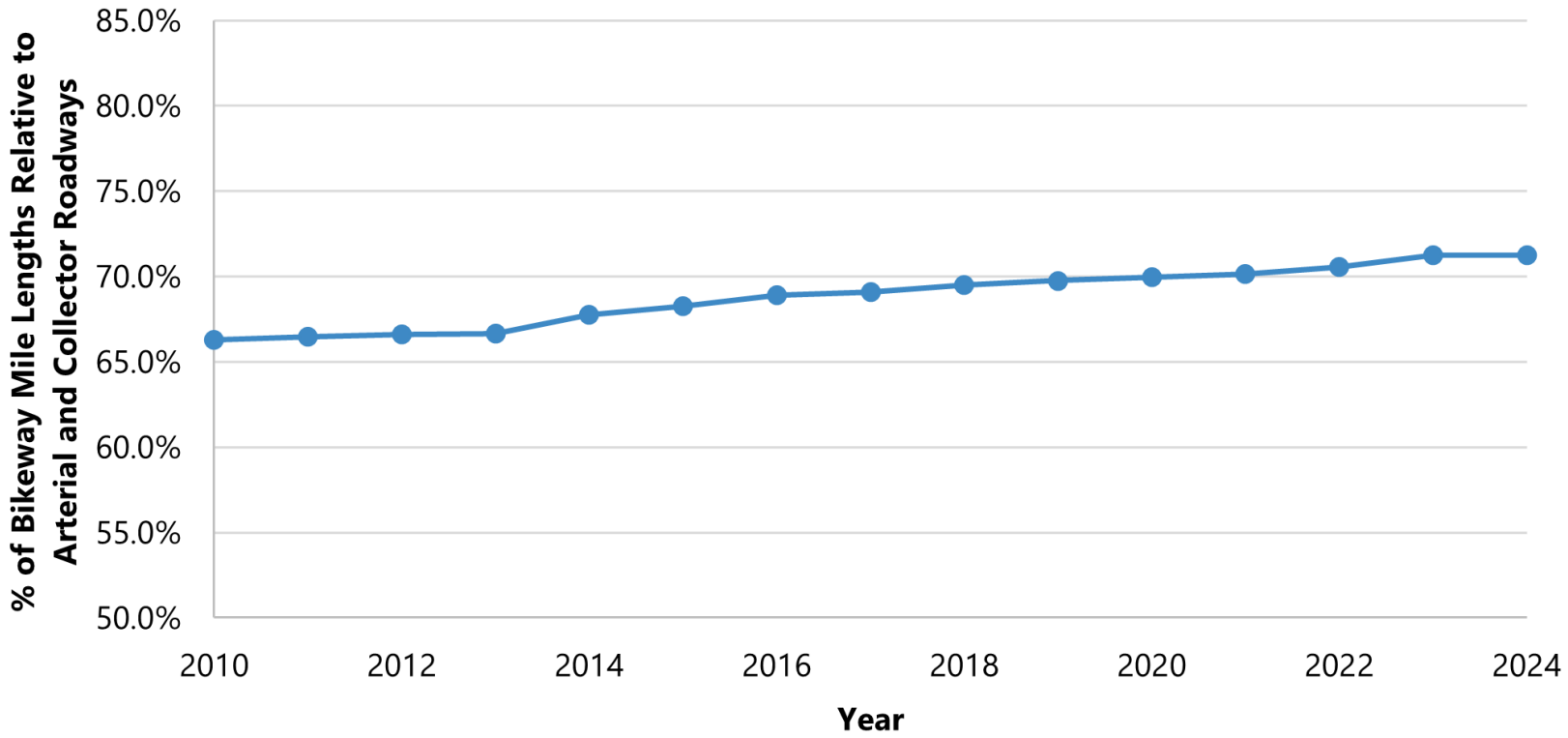


Figure 4.2 – Percentage of Bikeway Miles Relative to Lengths of Arterials and Collectors in Urban Areas
Bikeways defined as bike lanes and paved paths.
Source: SCCRTC.

The percentage of bikeway miles relative to the length of arterials and collectors within the urban areas for 2024 was 71%. Trends are falling below the goal of increasing the ratio to 85 percent by 2035 and to 100 percent by 2050.

As shown in Chapter 2, bike mode share in Santa Cruz County has been stagnant in recent years. One strategy for increasing bike mode share is to increase the number of bikeways that are separated from vehicle traffic such as Class I paved multi-use paths or Class IV separated bike lanes/cycle tracks. These facilities provide a more comfortable bicycling experience from some riders when compared with the Class II bike lanes located on roadways and adjacent to vehicle traffic.

Of all the bikeways in Santa Cruz County located in urbanized areas, 34% of them are paved multi-use paths or cycle tracks (i.e, Class IV). These include facilities like the Class I multi-use paths along the Santa Cruz Branch Rail Line between Natural Bridges and Beach Street/ Pacific Avenue, Arana Gulch in Santa Cruz, and Green Valley Road in Watsonville and the Class IV separated bike lanes on Water Street in Santa Cruz and Harkins Slough Road in Watsonville. The new target of having the percentage of bikeways that are Class I or IV be 20 percent of bikeway miles by 2035 and 30 percent by 2050 may be already surpassed, however the data available does not clearly define Class I facilities but rather includes all paved multi-use paths, some of which are narrower than 8 feet or may not be ADA accessible.

Transit Access and Service Expansion

Transit Trips

Like bicycle and pedestrian facilities, the quality and quantity (frequency) of transit options is crucial to the success of the transportation network in Santa Cruz County, and they often rely on each other to function properly.

Santa Cruz METRO is the primary public transit service that currently operates in Santa Cruz County. To measure transit access and track service expansion this RTP looks at total number of transit revenue miles. Transit revenue miles measure the distance a vehicle travels while in service, available to passengers, and carrying out its scheduled route. METRO tracks its fixed route revenue miles on an annual basis.

The 2050 Metropolitan Transportation Plan/Sustainable Communities Strategy for the Monterey Bay region includes maps of high-quality transit as well as estimates of the population's access thereto.

Data available from METRO shows an increase of revenue miles of 25% since fiscal year 2019 (pre-COVID), which restores service levels overall higher than they were even prior to the cuts that began in 2016.

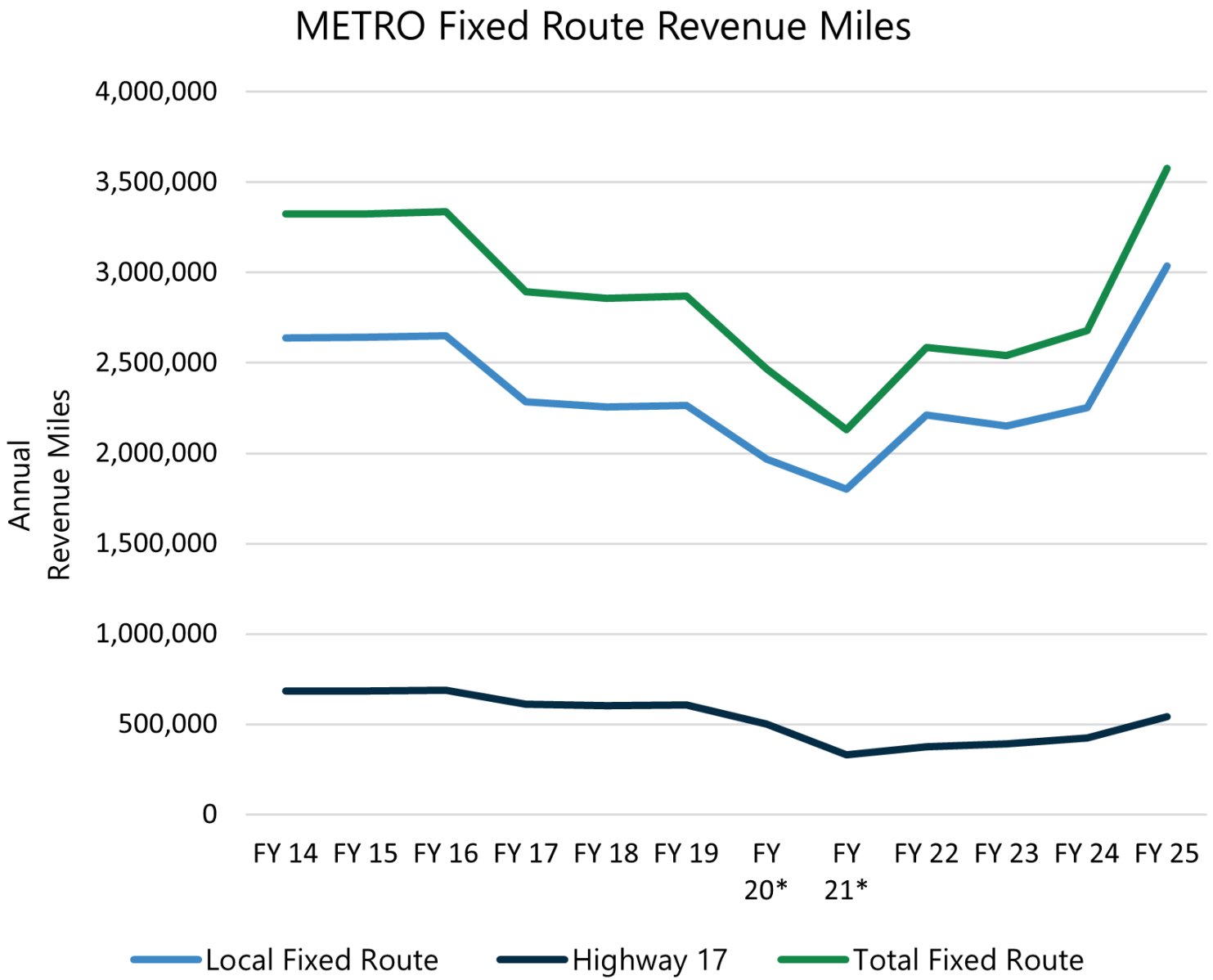


Figure 4.3 – Santa Cruz METRO Fixed-Route Revenue Miles
Source: Santa Cruz Metropolitan Transit District. *Routes and frequency of service decreased due to COVID-19 pandemic during FY 20 and FY 21

With the first wave of Reimagine METRO service changes implemented in December 2023:

- Ridership increased by 23% (Around 5 million rides per year, nearing closer to pre-pandemic levels).
- UCSC, Cabrillo College, and K-12 ridership have grown by 27%, 27%, and 148% respectively as of March 2024.
- Productivity in FY24 Q3, measured as riders per revenue hour, increased by 4% year over year.

With shorter headways (time between consecutive buses at a bus stop), more frequent service, and strong messaging and outreach, METRO is surpassing the 2035 goal of increasing transit vehicle revenue miles by 30 percent and is on track to achieve a 50 percent increase by 2050 (compared to 2022).

Travel Mode and Vehicle Miles Traveled

Understanding travel mode share and trends is another way to measure progress towards goals. While work commute trips are surveyed by the Census Bureau (see "Work Trips" below), there is no consistent surveying of all travel trips, to provide an estimate of the overall travel mode share in Santa Cruz County.

Bicycle and Pedestrian Trips

One recent source of data for all trips (not only work trips) is the National Household Travel Survey (NHTS). Its utility is in seeing the active transportation (biking and walking) share of all trips made in the county. NHTS data shows that between 2020 and 2022 there has been a 15% reduction in active transportation trips. This trend is moving in the opposite direction of the RTC's goal of increasing active transportation trips to 16 percent of total commute trips by 2035 and to 24 percent by 2050; however, it should be noted that the target is about work trips only, and it is likely that during COVID-19, a high number of recreational bike and walking trips occurred, skewing the statistics.

Mode	Travel into county	Travel out of county	Travel within county	Totals
Vehicle (including transit)	11.2%	11.9%	65.7%	**88.9%**
Active Transportation	0.2%	0.2%	10.7%	**11.1%**

Figure 4.4 – Mode Share for All Trips in Santa Cruz County
Source: National Household Travel Survey (2022)

The RTC periodically conducts bike and pedestrian observation surveys to identify behavior trends among cyclists, pedestrians, and motorists. Figure 4.5 shows countywide bicycle counts conducted at nearly 30 intersections throughout the county during peak travel periods on weekday afternoons 4:00-6:00pm between 2006 and 2024.

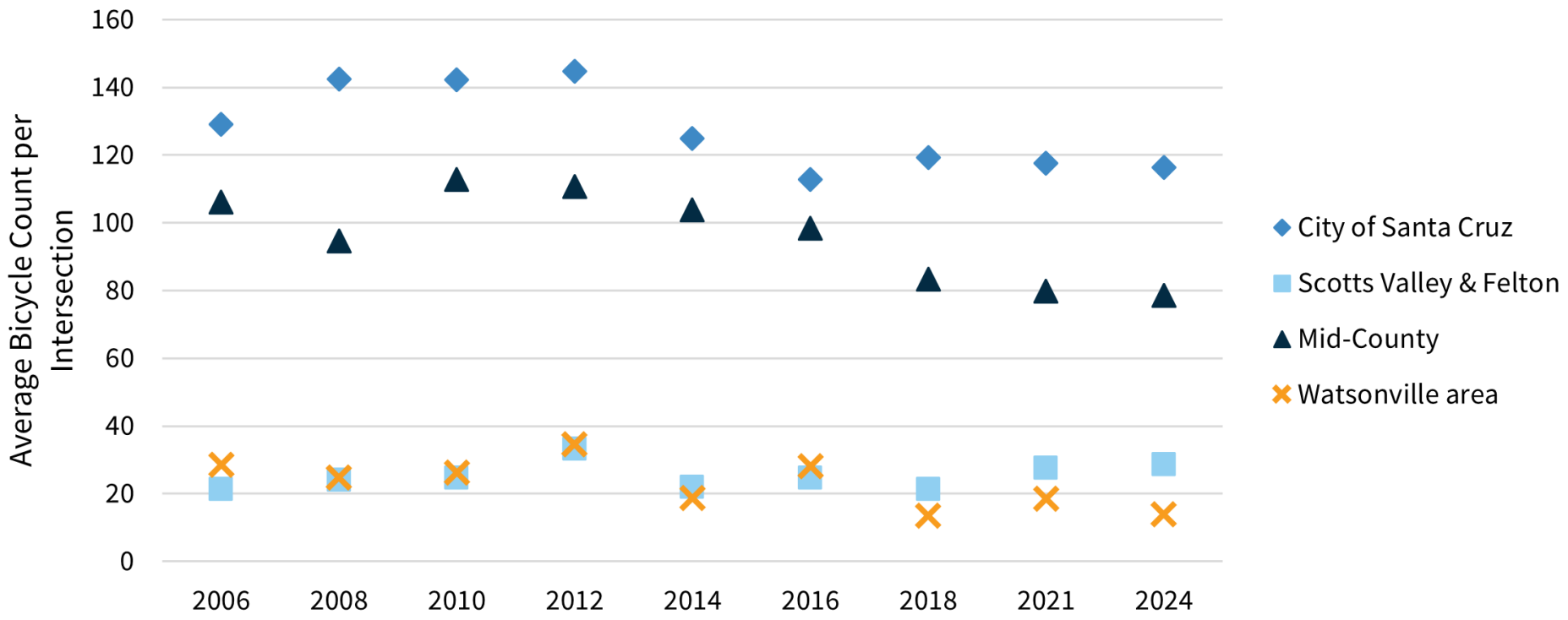


Figure 4.5 – On-Street Countywide Bicycle Counts from 2006-2024
Counts were taken for 2 hours at all locations. Not all locations were counted each year, but a reasonable balance of locations was used for comparison purposes.
Source: Community Traffic Safety Coalition and RTC.

Results show the greatest number of bicyclists in the City of Santa Cruz and mid-County. The data show fairly stagnant on-street bicycle ridership in Santa Cruz County since 2014. Important information to note is that one-day counts can be affected by weather or other fluctuations, and that the late afternoon peak travel time excludes K-12 school trips, which may have experienced an increase in bicycle mode share in recent years with the increase in e-bike use. Counts are taken only at road intersections.

Work Trips

The mode share data from the ACS presented in Figure 4.6 shows that most Santa Cruz County residents drive alone to work, and the percentage of drive-alone trips has stayed essentially constant between 2000 and 2023. The percentage of carpooling has noticeably decreased over time and the percentage of work from home has increased. Biking, walking and transit trips have not changed significantly.

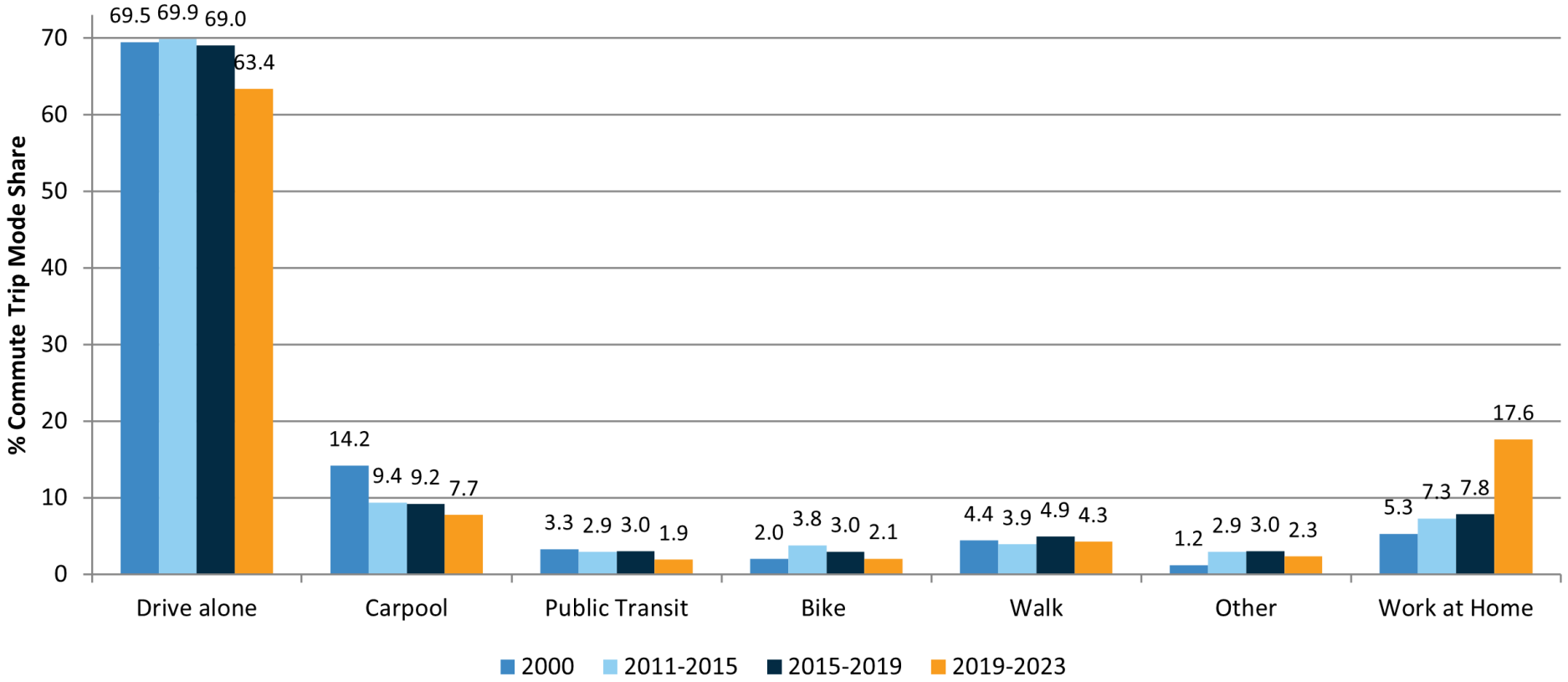


Figure 4.6 – Mode Share for Work Trips in Santa Cruz County
Source: U.S. Census Bureau, American Community Survey

The difference between reported results for travel by mode for all trips in Santa Cruz County versus work trips may be explained by an increase in active transportation trips for non-work purposes such as shopping, social, and recreation trips. Non-work trips may be shorter and more readily amenable to a shift from auto to biking and walking. Higher gasoline prices, a weak economy, and changing generational preferences may also result in less driving, according to a 2013 study by the U.S. Public Interest Research Group and Frontier Group.[1]

The 2019-2023 American Community Survey (5-year estimate) indicates that there is a significant difference between the way residents of the four cities in Santa Cruz County, as well as the unincorporated communities, travel to work (Figure 4.7). Watsonville residents used carpooling more often (16.7%) compared to the other cities (5.4% average) as an alternative to driving alone. The city of Santa Cruz has the least number of drive-alone trips (53%), and residents walk, bike, and take transit more often for work.

This is likely due to city of Santa Cruz land use patterns that provide closer proximity between jobs and housing, and there is a high bus ridership by UCSC students, lower-speed streets, and more of a connective street grid pattern making it easier and safer to walk and bike. Capitola, Scotts Valley, and the unincorporated areas have the greatest number of residents working from home but also the greatest percentage of drive-alone trips. While looking only at post-COVID data would be preferable, due to the sample size, the five-year set is the most accurate, especially for the smaller cities.

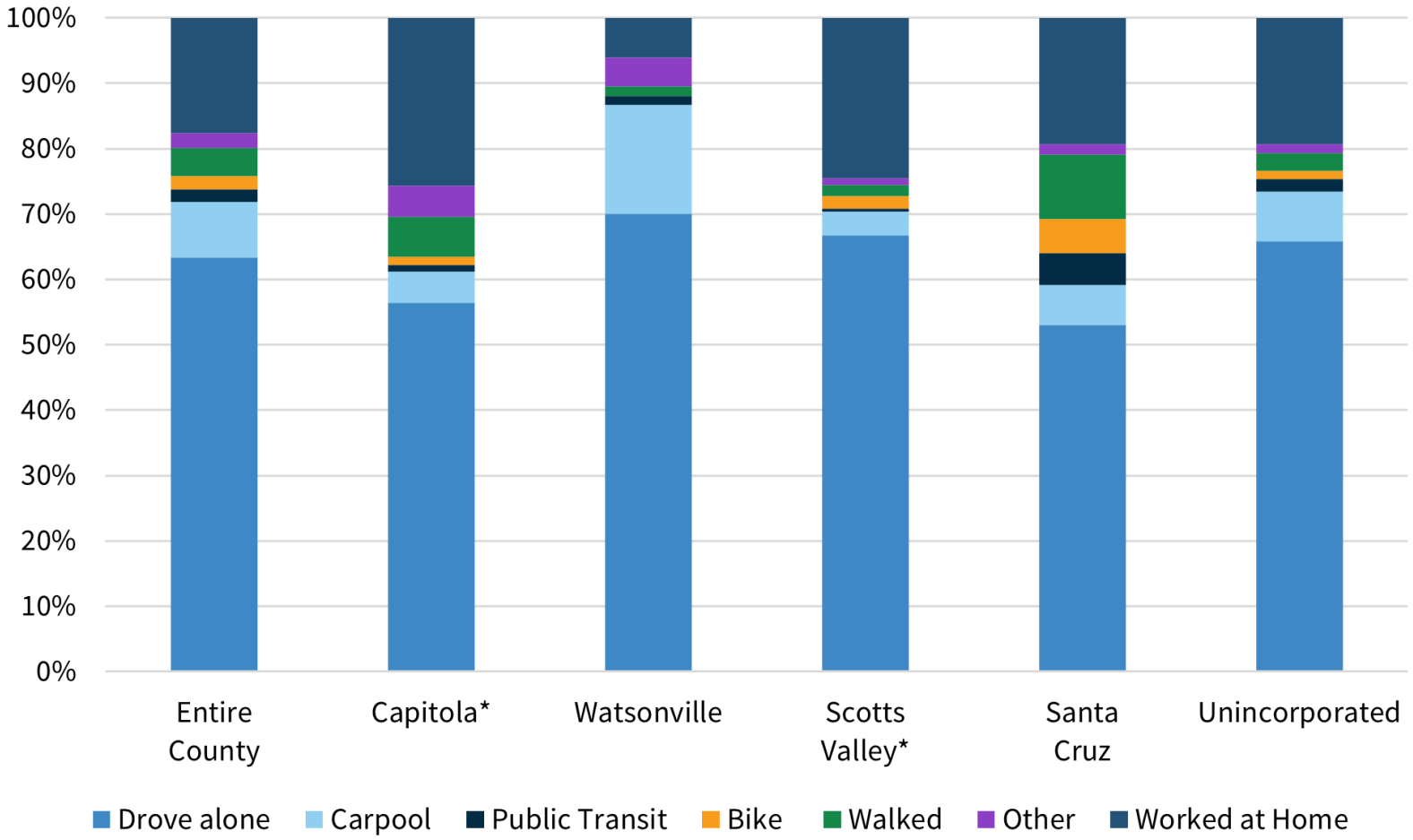


Figure 4.7 – Mode Share for Work Trips by County and City of Residence
Source: 2019-2023 American Community Survey. *High margin of error for smallest cities

School Trips

Due to safety concerns and urban sprawl, most parents drive their children to school. According to the Surface Transportation Policy Project, two-thirds of the country's children walked or biked to school 30 years ago; now, less than 10% do so.[2] This phenomenon has led to a sharp increase in short-distance trips made by car. Travel to the University of California and community college campuses also impact peak period traffic.

However, the county is seeing trends shift in a positive direction with improvements from Reimagine METRO. As of March 2024 UCSC, Cabrillo College, and K-12 ridership have grown by 27%, 27%, and 148%. UCSC and Cabrillo College also receive free METRO bus passes to encourage mode shifts and reduce congestion, emissions, and demand for parking spaces.

There are also local initiatives to advocate and implement safer routes to school and active transportation education for students and families.

Connecting the Data

Transportation facility and mode share data provides an understanding about how people get to their destinations and can help the RTC and partner agencies prioritize projects that promote transit use, biking, and walking. It can also highlight areas of the county that lack sufficient transportation choices. These insights help inform where targeted investments and programs can most effectively reduce drive-alone trips and support a more balanced and accessible transportation system. Origin-destination studies can also inform decisions and are generally performed during a major corridor study or major project.

VMT is another key indicator that when paired with travel data provides information about people's travel patterns. VMT can also serve as an indicator about how land use patterns that shorten travel distances between homes, jobs and key destinations inform travel.

Replacing vehicle trips with walking, bicycling, or transit and reducing VMT, can result in improved health through increased physical activity, a reduction in roadway congestion, thus creating more livable and sustainable communities. When comfortable and convenient alternatives are not available, people will continue to rely on driving and VMT is not likely to change significantly. People are more likely to choose alternatives to driving when those options are safe, convenient, and well-connected.

All the data for travel modes show that driving accounts for the most significant number of trips. Decreasing single-occupancy commute trip mode share by 6.5 percent by 2035 and by 10 percent by 2050 (compared to 2020) and increasing the number of active commute trips to 16 percent of total commute trips by 2035 and to 24 percent of total commute trips by 2050 will likely not be met based on past trends.

The 2050 RTP prioritizes investments that make walking, bicycling, and transit more viable, as described in Chapter 6, which can increase active transportation mode share and decrease VMT.

GOAL 2. ELIMINATE FATALITIES AND SERIOUS INJURIES

Eliminate transportation related fatalities and serious injuries for all transportation modes.

TARGETS:

- *Improve transportation safety, especially for the most vulnerable users.*

Target Summary Table

**See discussion below for sources and details.*

Metric	Target/Benchmark	Baseline Year	Most Recent Year	Trends (baseline year to most recent available year)
Traffic fatalities and serious injuries for all modes	Reduce 50 percent by 2035 and eliminate by 2050	2020	2024	9% increase
Number of high-injury intersections	Reduce 20 percent by 2035 and 50 percent by 2050.	2015	2024	12% reduction

Improving the safety of transportation users, especially the most vulnerable, such as bicyclists and pedestrians, is a priority for Santa Cruz County. The RTC has adopted a Vision Zero approach to eliminate traffic fatalities and serious injuries by 2050 for all modes and by 2035, reduce fatal and serious injuries by 50 percent (compared to 2020). The RTC uses two main sources to track transportation-related collisions and any fatalities or serious injury that occur from these incidents.

The Statewide Integrated Traffic Records System (SWITRS) is a database that collects and processes data gathered from a collision scene. It allows the RTC to monitor the number of collisions over time to assess how the investment of projects and programs is advancing this target. The RTC also uses the Transportation Injury Mapping System (TIMS), a tool for accessing and mapping statewide crash and injury data from SWITRS. Users may query by cities or counties and may view up to 10 years of the most recent data available. Data is updated quarterly.

Santa Cruz County collision data by mode is charted below. The data shows that the number of fatal and serious injury collisions for Santa Cruz County increased for motor vehicles, since the base year of 2020, but has started to trend downward (Figure 4.8). Bicyclists and pedestrians killed or seriously injured spiked in 2022, decreased in 2023, but slightly increased again in 2024. Pedestrian related incidents are slightly lower in 2024 compared to the baseline year of 2020, however, the number of bicyclists killed or seriously injured in 2024 is higher than in 2020.

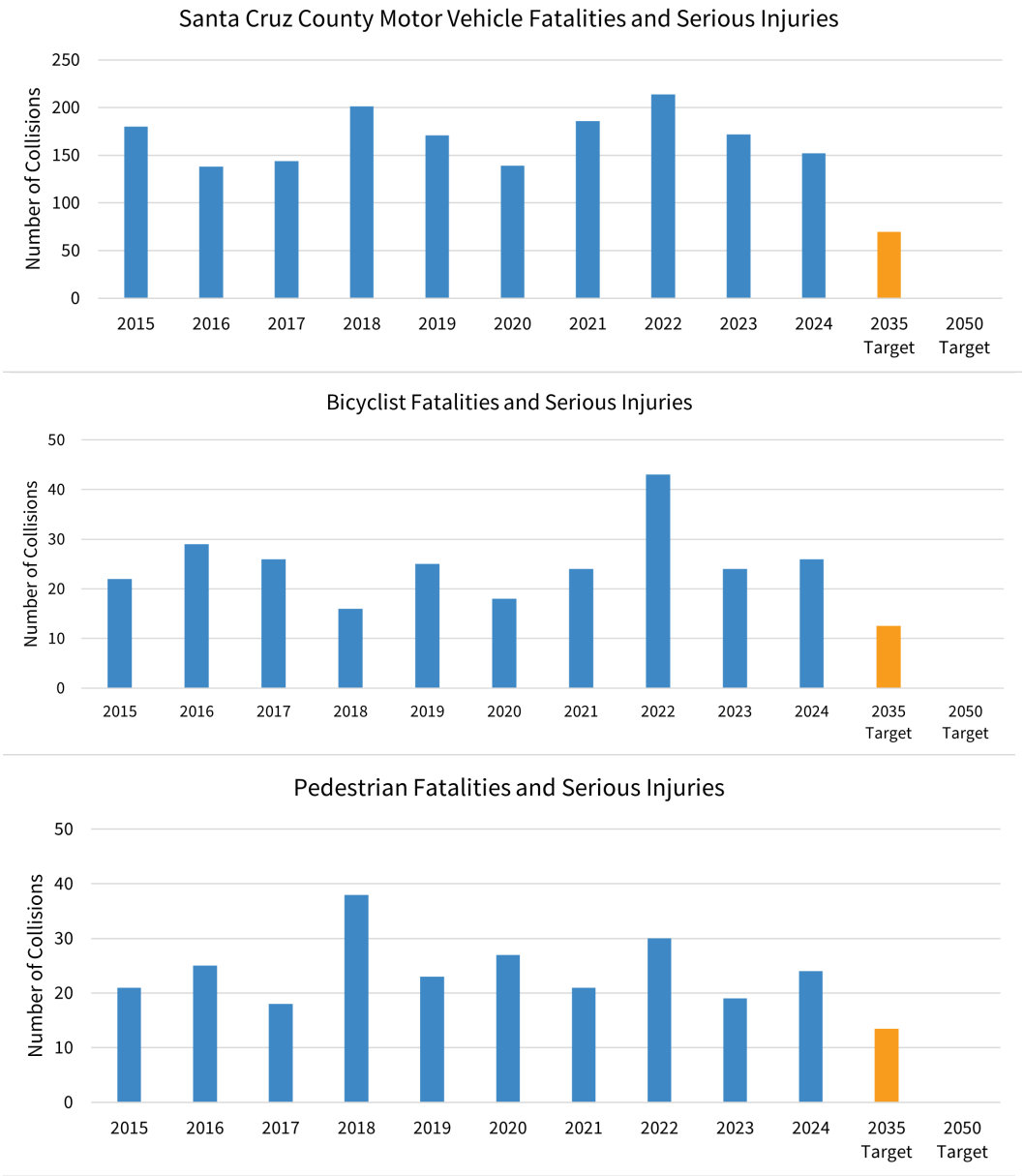


Figure 4.8 – Injury and Fatal Collisions – Motor Vehicle, Bicycle and Pedestrian in Santa Cruz County
Source: Statewide Integrated Traffic Records System (SWITRS), California Highway Patrol available through the Transportation Injury Mapping System (TIMS), Safe Transportation Research and Education Center, University of California, Berkeley.
Note: 2023 and 2024 data is provisional, but is typically 95-99% complete.

While the metric above is looking at fatalities and serious injuries, it is important to note that the total number of fatal and any level of injury crashes is much higher. In 2024, nearly 1,500 people were involved in a crash, with 78 crashes involving pedestrians and 183 crashes involving bicyclists. Of those, 5 pedestrians were killed and 1 bicyclist.

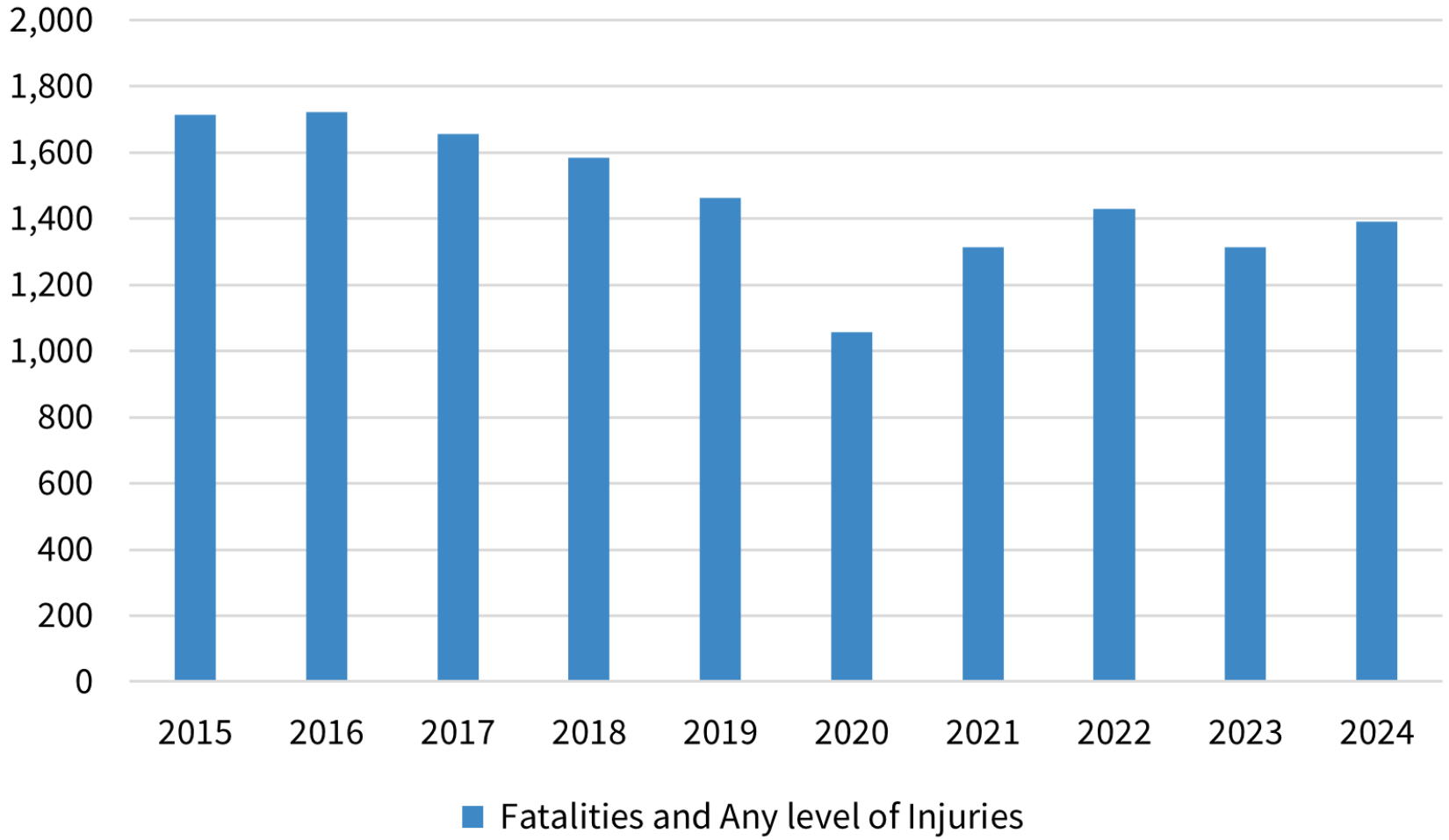


Figure 4.9 – Fatalities and All Injuries (Motor Vehicle, Bicycle and Pedestrian) in Santa Cruz County
Source: Statewide Integrated Traffic Records System (SWITRS), California Highway Patrol available through the Transportation Injury Mapping System (TIMS), Safe Transportation Research and Education Center, University of California, Berkeley.
Note: 2023 and 2024 data is provisional, but is typically 95-99% complete.

TIMS data shows that nearly 40% of pedestrian fatalities and injuries are due to drivers failing to yield to the right-of-way of pedestrians at a marked or unmarked crosswalk. For bicyclists, 24% of fatalities and injuries, are due to drivers making improper turns.

In addition to these established crash factors, vehicle weight has emerged as a significant determinant of injury severity. SUVs and pickup trucks have taller hood heights than ever before. Electric vehicles are significantly heavier than other vehicles. The heavier and taller the vehicle, the greater the risk of severe injury or death for pedestrians and bicyclists in a crash, further emphasizing the urgency of policies and infrastructure interventions, such as protected bike lanes, that reduce vehicle speeds and mitigate conflicts between modes.

The National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide references research that found that converting an existing constrained bike lane to a protected bike lane can be expected to reduce motor vehicle-bike crashes by over 50%.[3] A decade-long look at protected bike lanes in a dozen U.S. cities found that all street users—people in cars, people walking, people biking—experience safety benefits from protected bike lanes.[4] Protected bike lanes can decrease risk by 90% when compared to a major street with no bicycling infrastructure.[5] NACTO recommends that protected bike lanes be explored for all streets with daily traffic volumes over 6,000, where speeds are more than 25 mph (40 km/h), or where more than one travel lane is present in each direction.

Achieving the county's 2035 and 2050 safety targets for traffic fatalities and serious injuries for all modes will likely not be met based on current trends and will require a comprehensive approach and improvements to existing infrastructure. However, trends are moving in a positive direction for intersection safety. Between 2015 and 2024 there has been a 12% reduction in intersection related crashes. If this continues, reaching a 20% reduction by 2035 and 50% by 2050 may be possible.

In addition to infrastructure and policy solutions and transportation services, progress depends on increased public awareness and behavioral change to foster a safer, more sustainable transportation system for all users.

GOAL 3. EFFICIENCY AND MAINTENANCE

Deliver transportation improvements and maintenance cost effectively and responsive to the needs of all users of the transportation system.

TARGETS:

- *Maintain the existing system and improve the condition of transportation facilities.*
- *Re-invest in the local economy $20 million/year by 2035 and $35 million/year by 2050 (compared to 2005) from savings resulting from lower fuel consumption due to a reduction in vehicle miles traveled.*
- *Increase the amount of transportation funding by 35 percent by 2035 (compared to 2020) from a combination of local, state, and federal funds.*

Target Summary Table

**See discussion below for sources and details.*

Metric	Target/Benchmark	Baseline Year	Most Recent Year	Trends (baseline year to most recent available year)
Pavement Condition Index	Increase the percentage of pavement in good condition to 50 percent by 2035 and 80 percent by 2050	2008	2022	17% increase by 2035

Metric	Target/Benchmark	Baseline Year	Most Recent Year	Trends (baseline year to most recent available year)
Distressed transit vehicles	Reduce the number of transit vehicles in "distressed" condition to 20 percent by 2035 and to 10 percent by 2050.	2017	2024	5% distressed vehicles by 2035, 0% by 2050 (limited data points)
Re-invest in the local economy	$20 million/year by 2035 and $35 million/year by 2050	2010	2024	26% less gas sales by 2035, 64% by 2050
Amount of transportation funding	Increase by 35 percent by 2035	2020	2025	34% increase

Preserving the existing transportation infrastructure is crucial to maintaining a successful, safe, and functional transportation network. RTC tracks the condition of bicycle lanes, pavement condition, sidewalk condition, and transit vehicles. Measure D and Senate Bill 1 funds will provide a significant source of funding for maintaining and improving the condition of transportation facilities in Santa Cruz County. About 27% of the constrained RTP project list costs are designated for road and highway maintenance.

Pavement Condition

The "pavement condition index" or PCI is a measure of the average condition of the local street and road pavement on a scale of 0 to 100 where 0-24 is failed and 90-100 is excellent. The countywide PCI score as of 2022 is 55 or "at risk."

As of 2020, the unincorporated county had the lowest PCI score, 48. Relative to other counties in central California, Figure 4.10 shows that Santa Cruz is worse than average.

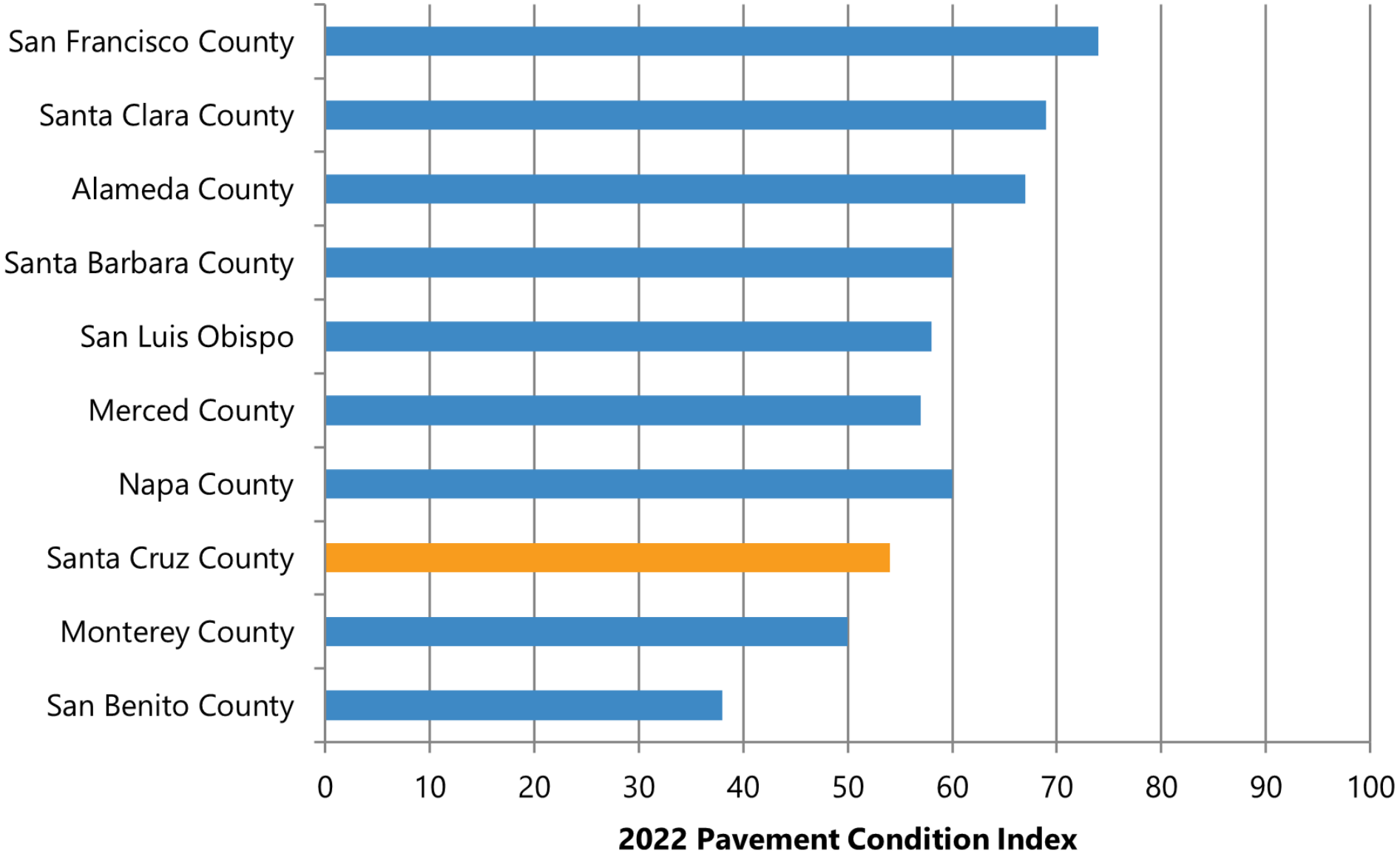


Figure 4.10 – Comparison of Santa Cruz County Pavement Condition Index with other California Counties
Source: 2022 California Statewide Local Streets and Roads Needs Assessment, Save California Streets

The RTP target is for 50 percent of pavement countywide to be in good condition by 2035 and 80 percent by 2050. With the minimum PCI score for "good" being 70, another way to phrase this goal is for the average PCI score to reach 60 by 2035 and 75 by 2050. The trend between 2008 and 2022 is that the 2035 target will be just reached, while the 2050 target will not. However, the PCI has not been increasing since 2018, which may be explained by an increase in climate-related road damage outweighing the increase in funding and maintenance work.

Transit Facilities

One measure to determine the level of "distressed" transportation facilities for Santa Cruz County is looking at Metro bus condition. Figure 4.11 shows the condition of the Metro fixed-route buses from 2005 to 2024. The number of distressed buses has slightly increased from the previous RTP update from 35% in 2020 to 40% in 2024; however, the trend since 2017, the year that SB1 and Measure D began, indicates that the targets for reducing the number of buses in distressed condition to 20 percent by 2035 and to 10 percent by 2050 will be met. To continue this trend, revenue growth for vehicle purchases must keep up with the ambitious service levels outlined in Reimagine METRO (see Transit Trips section above).

The 2050 plan invests in pavement repairs, sidewalk and bicycle lane maintenance, bus replacements, bus stops, and transit service vehicles that need upgrades and maintenance.

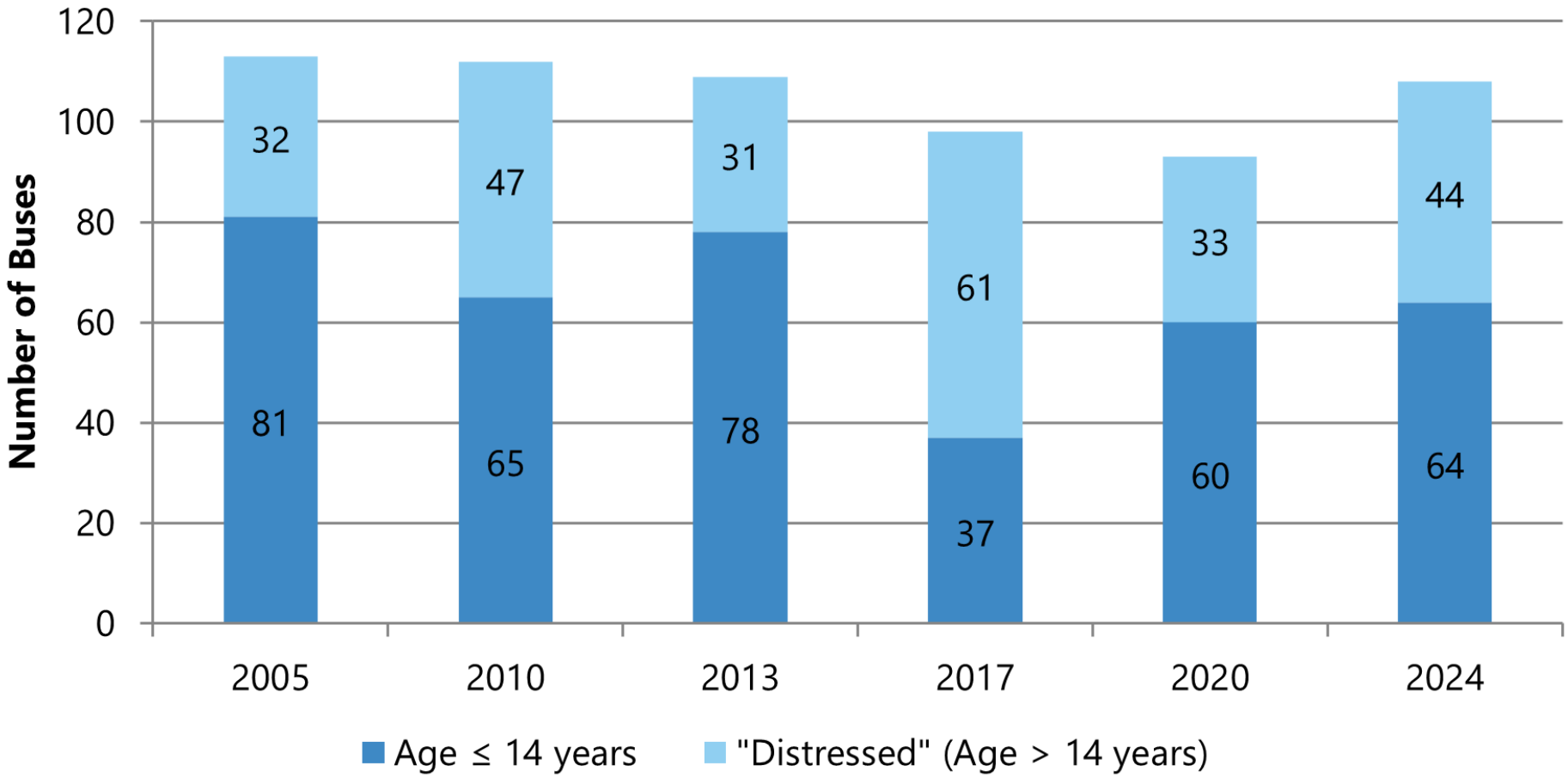


Figure 4.11 – Santa Cruz Metro Fixed-Route Bus Condition
Source: Santa Cruz Metropolitan Transit District

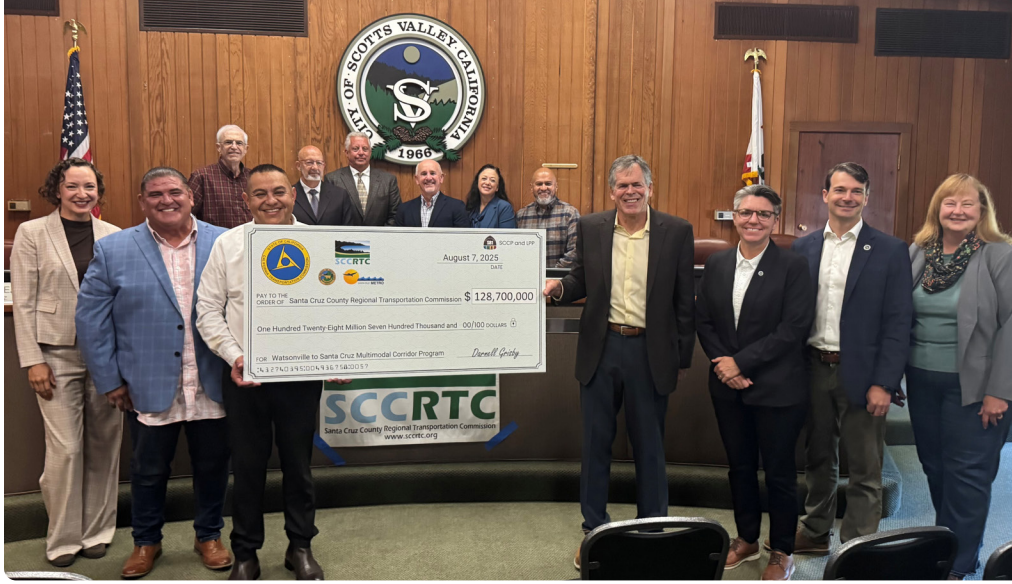
Fuel Cost Savings

With the cost of fueling a gasoline car being greater than powering an electric car – by some estimates as much as twice the cost – residents and visitors to Santa Cruz County collectively save money as the "fleet" of personal vehicles transitions to electric. The RTP target is to save consumers money as they consume less gasoline on average as well as drive less (see Figure 4.1 above). The targets will be far exceeded based on trends in gasoline sales within Santa Cruz County from 2010 to 2024. The annual savings, assuming an unescalated cost of $4 per gallon of gas, add up to $188 million in 2035 and $315 million in 2050.

Transportation Funding

After decades of state and federal underinvestment in the transportation system, a supermajority of Santa Cruz County voters approved Measure D in November 2016 which invests, as of 2025, an additional $27 million per year into the multimodal transportation system. In April 2017, the state legislature approved Senate Bill 1 (SB1) which helps stabilize transportation funding throughout the state. In the period 2025-2050, SB1 is expected to provide over $9 million in formula funds per year to Santa Cruz County for transit and transportation maintenance projects, plus an average of $22 million per year in grant funds if jurisdictions are able to put forth competitive capital projects.

As estimated in the Financial Element (Appendix D), in the year 2034-35 the amount of annual transportation funding in the county will be about $294 million. This increase is very close to the RTP target of a 35% increase in funding from 2020 to 2035.



GOAL 4. CLIMATE RESILIENCE

Establish a climate-resilient transportation system that anticipates, adapts to, and mitigates the impacts of climate change.

TARGET:

- *Reduce smog-forming pollutants and greenhouse gas emissions.*

Target Summary Table

**See discussion below for sources and details.*

Metric	Target/Benchmark	Baseline Year	Most Recent Year	Trends (baseline year to most recent available year)
Per capita greenhouse gas emissions from transportation	Reduce by 50 percent by 2035 and by 78 percent by 2050	2005	2024	24% reduction
Total greenhouse gas emissions from transportation	Reduce by 40 percent by 2035 and 70 percent by 2050	2010	2024	24% reduction
Transportation infrastructure projects with nature-based solutions funded or led by RTC	Increase to 10% by 2035 and 30% by 2050.	2025	n/a	RTC began tracking in fall 2025

Greenhouse Gas Emissions

The transportation sector is one of the largest contributors to anthropogenic U.S. greenhouse gas (GHG) emissions, with light-duty vehicles such as personal cars accounting for over half of the sector's total emissions[6]. Reducing GHG emissions from transportation relies primarily on decreasing how much people drive and advancing vehicle technologies that reduce the use of fossil fuels. In 2017, the California Air Resources Board updated the Climate Change Scoping Plan, outlining existing and proposed strategies for reducing GHG emissions across all sectors, including transportation. Additionally, Governor Newsom's Executive Order N-79-20 directs that by 2035 all new cars and passenger trucks sold in California must be zero-emission vehicles.

Both the 2050 RTP and the 2050 Metropolitan Transportation Plan – Sustainable Communities Strategy prioritize projects that promote transit use, biking, and walking as alternatives to driving to help reduce vehicle miles traveled. While improvements in vehicle technology are not under the purview of the RTC, elements like fuel sales are tracked here to illustrate how Santa Cruz County is contributing to California's broader GHG emission reduction goals for transportation.

GHG Reduction Goals

Senate Bill 375 (SB 375) requires the AMBAG region to reduce GHG emissions by a minimum of 1% by 2020 and 6% by 2035 relative to 2005 levels. Beyond that, local goals and targets aim to reduce per capita greenhouse gas emissions by 50 percent by 2035 and by 78 percent by 2050 and total greenhouse gas emissions from transportation by 40 percent by 2035 and 70 percent by 2050 (compared to 2005).

Measuring total metric tons (MT) of CO_2 generated from gasoline and diesel fuel sales in Santa Cruz County is one way to capture emissions from transportation. From 2010 to 2024 [*Note: the 2014 data point is likely not representative of fuel sales for this year given the low value compared to other years.*] the total CO_2 per capita from and the metric tons of CO_2 from transportation decreased nearly 24%. This is likely due to changes in vehicle miles traveled, speed consistency, population, and vehicle technology that affect the mix of vehicles on the road.

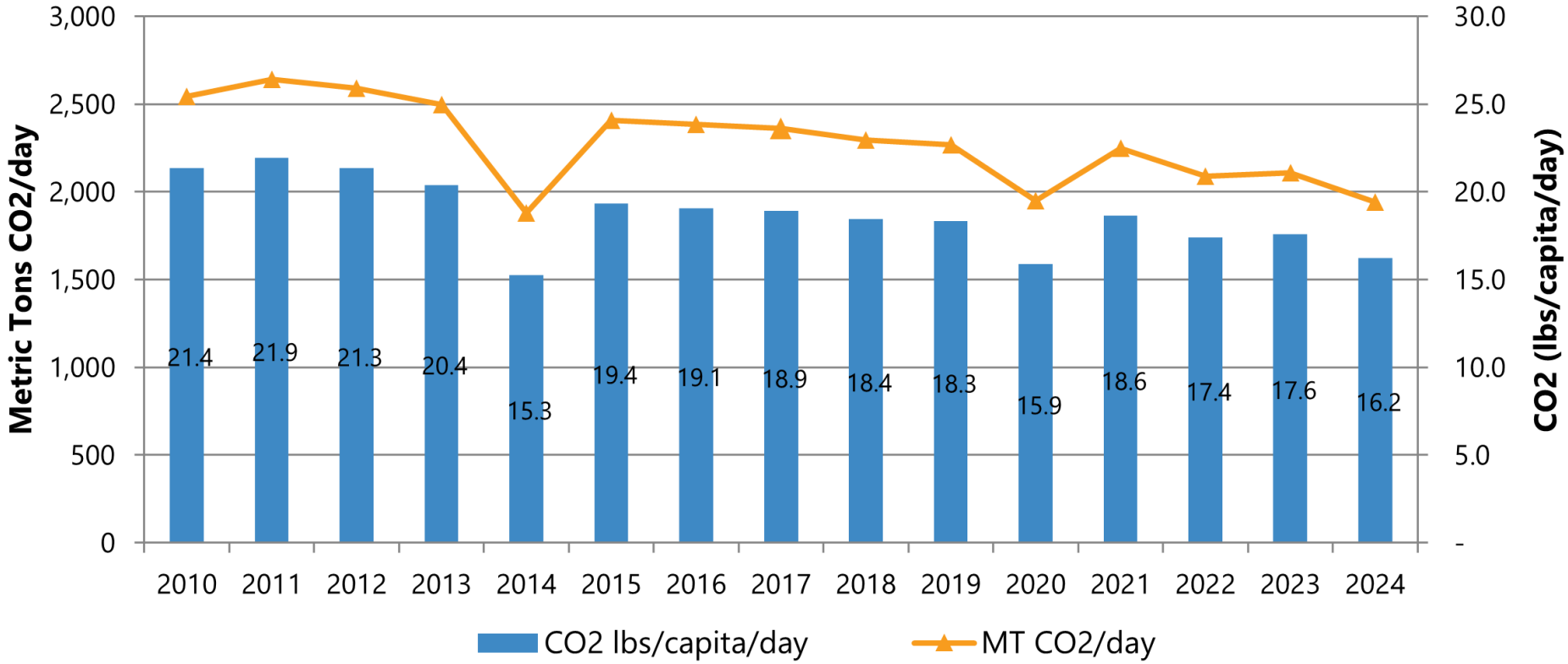


Figure 4.12 – Historic Santa Cruz County Greenhouse Gas Emissions from Transportation
Source: California Energy Commission, Annual Retail Fuel Outlet Report Results[7]

Figure 4.13 provides a comparison of the CO_2 per capita emissions in 2024 based on fuel sales data by county. Santa Cruz County is in the lower range of per capita GHG emissions relative to nearby counties.

Based on the historic Santa Cruz County Greenhouse Gas Emissions from Transportation fuel sale trends from 2010 to 2014 (excluding 2014 outlier data) and assuming similar population growth, the county is on track for a reduction of CO_2 emissions per day of 50 percent by 2035 and by 78 percent by 2050 and total greenhouse gas emissions from transportation by 40 percent by 2035 and 70 percent by 2050 (compared to 2005).

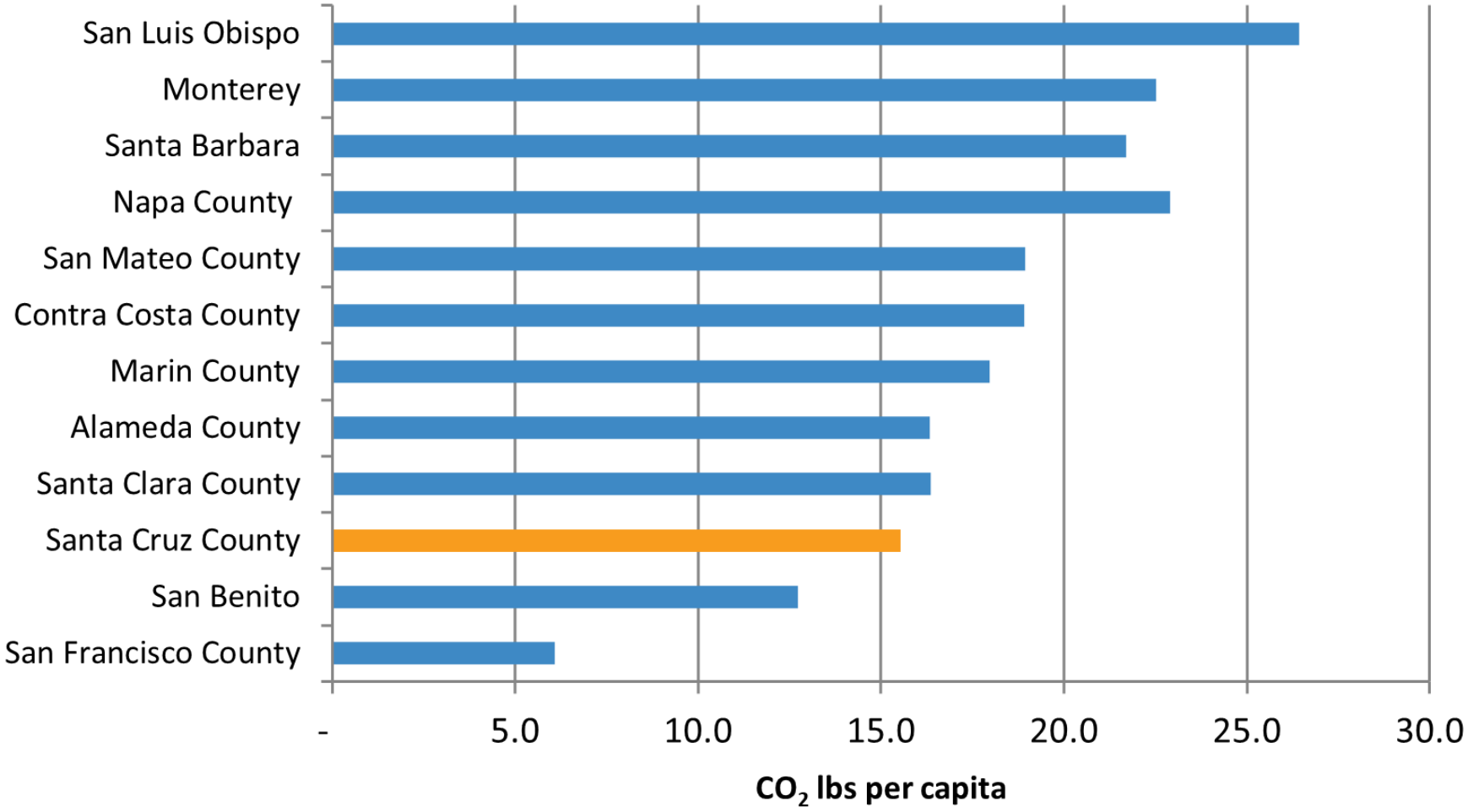


Figure 4.13 – 2024 CO_2 lbs per Capita per Day Based on Fuel Sales
Source: California Energy Commission, Transportation Fuels Data. Note: Diesel not included

VMT and GHG

GHG reductions can also be estimated using a combination of a travel demand model and the California Air Resources Board emission factors model (EMFAC2014). The AMBAG travel demand model estimates VMT based on population and traffic count scenarios, and the emission factors model takes the VMT data along with existing and projected vehicle fleet mix data to estimate CO_2 emissions.

AMBAG runs the travel demand model for the Santa Cruz, San Benito and Monterey Counties region. The AMBAG model is used for developing the Metropolitan Transportation Plan – Sustainable Communities Strategy which is developed in collaboration with the Santa Cruz County RTP (as well as the Monterey and San Benito RTPs). The greenhouse gas emission model results for the region can be found in the AMBAG 2050 Monterey Bay Area Metropolitan Transportation Plan – Sustainable Communities Strategy found on the AMBAG website (https://www.ambag.org).

Nature-Based Solutions

Nature-based solutions (NBS) use natural processes, ecosystems, and green infrastructure to improve the performance, longevity, and community benefits of transportation assets. NBS can reduce greenhouse gas emissions and air pollution from the transportation system, manage stormwater and reduce flood risk at and around roadways, prevent erosion of slopes and coastal roadbeds, increase carbon sequestration near corridors, and mitigate urban heat island effects to improve pavement lifespan and user comfort, all while enhancing biodiversity and community amenity.

NBS can be green infrastructure, landscape-based design, and ecosystem-based practices integrated into transportation project scopes. Examples include bioswales and vegetated swales alongside arterials that reduce runoff and protect pavement; permeable pavements in parking and low-traffic areas that reduce stormwater load on drainage systems; roadside tree canopy and shaded streetscapes that cool bike and

pedestrian routes and improve safety and comfort; green medians that calm traffic and provide habitat; wetlands restoration and living shorelines that protect coastal roads from erosion and sea-level rise; and salt-tolerant native revegetation that stabilizes slopes along highway embankments. These approaches are identified and considered early in project planning and design so natural processes are used wherever feasible to deliver transportation benefits alongside environmental and community co-benefits.

To establish a baseline and guide implementation, starting in 2025 the RTC will complete an inventory of how many RTC-funded projects explicitly incorporate Climate Adaptation and Resilience into design. Starting with the 2025 consolidated grant cycle, RTC scoring criteria included a new climate resiliency criterion tied to transportation outcomes. Applicants were asked to document the type and scale of climate adaptation and resiliency features proposed and the expected transportation benefits such as reduced roadway flooding and closures and decreased pavement maintenance needs.

Of the 16 projects recommended for 2025 consolidated grant funding, twelve include positive climate impacts. These projects account for 75 percent of the recommended projects and account for 92.13% of the total $15.1 million in funding, showing the RTC's commitment to prioritizing climate-beneficial work. These projects showcase a variety of nature-based solutions to help reduce emissions, improve air quality, manage stormwater, limit erosion, and cut down on urban heat.

GOAL 5. EQUITABLE TRANSPORTATION

Ensure that plans, investments, policies, and transportation decisions will reduce disparities for historically and systemically marginalized, underserved, and excluded populations.

TARGETS:

- *Enhance healthy, safe access to key destinations for transportation-disadvantaged, equity priority communities (EPC).*
- *Solicit broad public input.*

Target Summary Table

**See discussion below for sources and details.*

Metric	Target/Benchmark	Baseline Year	Most Recent Year	Trends (baseline year to most recent available year)
Transit service (vehicle revenue) miles serving EPC	Increase number of miles by 50%	2020	2025	23% increase
Transit travel times for EPC	Reduce by 15% by 2035 and 30% by 2050	2012	2023	Route 71 reduced by 7 minutes; Routes 69A/W same

Metric	Target/Benchmark	Baseline Year	Most Recent Year	Trends (baseline year to most recent available year)
Discretionary funding for projects in equity priority communities	Prioritize at least 40% of funds	2025	n/a	The RTC to track moving forward; 54% in 2025
Traffic Exposure in EPC	Reduce traffic volumes by 2% by 2035 and 5% by 2050	2020	n/a	Caltrans EQI shows areas with higher exposure. RTC to track traffic volumes by area moving forward.
Lower-income residents' household income consumed by transportation and housing	Decrease by 10% by 2050	2022	2024	Spending on transportation has not dropped significantly; spending on housing by income level not available.
Input from diverse members of the public	Increase by 85% in 2035 and 100% by 2050	2025	n/a	Number of outreach events in equity communities increased in 2025. RTC to track moving forward.
RTC staff and committees	Proportionally reflect the diversity of Santa Cruz County	2024	n/a	Current makeup is 70-100% white, compared to 55% of county population. RTC to track moving forward.

Consistent with RTP goals and policies and the RTC's Transportation Equity Action Plan, the RTC is taking several steps to proactively reduce disparities for equity priority communities*, especially related to safety and access. The cost of car ownership or inability to drive, underinvestment in public transit, and/or a lack of safe and accessible walkways and bicycle facilities can isolate people from jobs, services, medical care, and quality of life opportunities. Goal 5 is an accumulation of all the goals and policies with an equity lens applied. This includes prioritizing investments in the RTP that will reduce disparities, fill gaps in bicycle and pedestrian networks, expand transit and paratransit, build climate resilient transportation projects that reduce climate risks, and avoid, minimize, and mitigate potential displacement of low-income residents and local small businesses that can result from transportation projects. To achieve equity goals, the

*There are several criteria that can be used to identify community members who have been historically and systemically marginalized, understand, and excluded. The RTC's regional definition of Equity Priority Communities (also referred to as transportation disadvantaged communities (DACs)) includes community members who are low income, people of color or Latinx, seniors, youth, people with disabilities, or with limited English proficiency. Areas with higher concentrations of people meeting regional thresholds are shown in Figures 1.8 and 1.9 in Chapter 1.

RTC and transportation partners must also proactively engage underrepresented community members in transportation decisions -- transportation planning, setting priorities, and implementing projects that impact their lives.

Transportation Access & Service Equity

The RTP includes several projects and services that will provide healthy, safe access to key destinations for equity priority communities. These include expanded transit service, reduced transit travel times, expanded paratransit/specialized transportation, filling gaps in the pedestrian, bicycle, and transit networks, and wider distribution of Transportation Demand Management services and incentives (such as Go Santa Cruz County) along with better traveler information in accessible formats.

A significant success since adoption of the last RTP is the initial implementation of Santa Cruz Metropolitan Transit District's Reimagine METRO effort. Since the first wave of Reimagine METRO rolled out in late 2023, ridership increased 43% through summer 2025. Over 100,000 Santa Cruz residents are within a 10-minute walk of frequent transit service. METRO also increased frequency to 20 minutes or better on its most popular routes. METRO's Youth Cruz Free Program resulted in a 536% increase in youth ridership. Buses now depart between Watsonville and Santa Cruz more frequently than ever before, every ten minutes, seven days a week.

Bus travel time is another key metric used to measure the quality of transit service. Shorter travel times get people to where they need to go more quickly, respecting the value of everyone's time and potentially making a significant difference in their opportunities. Transit travel times were determined from the METRO bus schedules which are based on a realistic time for buses to travel the route.

Figure 4.14 shows the peak-time schedules of a select number of METRO bus routes, whose routing has been consistent for comparison purposes. These routes also serve the most populous equity priority areas of the county. Data shows that run times have decreased for most lines. In Winter 2024, METRO implemented major changes to many of their routes, preventing comparison after that date, however METRO estimates that overall, with more frequent service offered since 2023 and the return of the 90X planned for 2026 and implementation of rapid corridors and use of bus-only lanes at interchanges on Highway 1, travel times, especially between Watsonville and Santa Cruz, will drop.

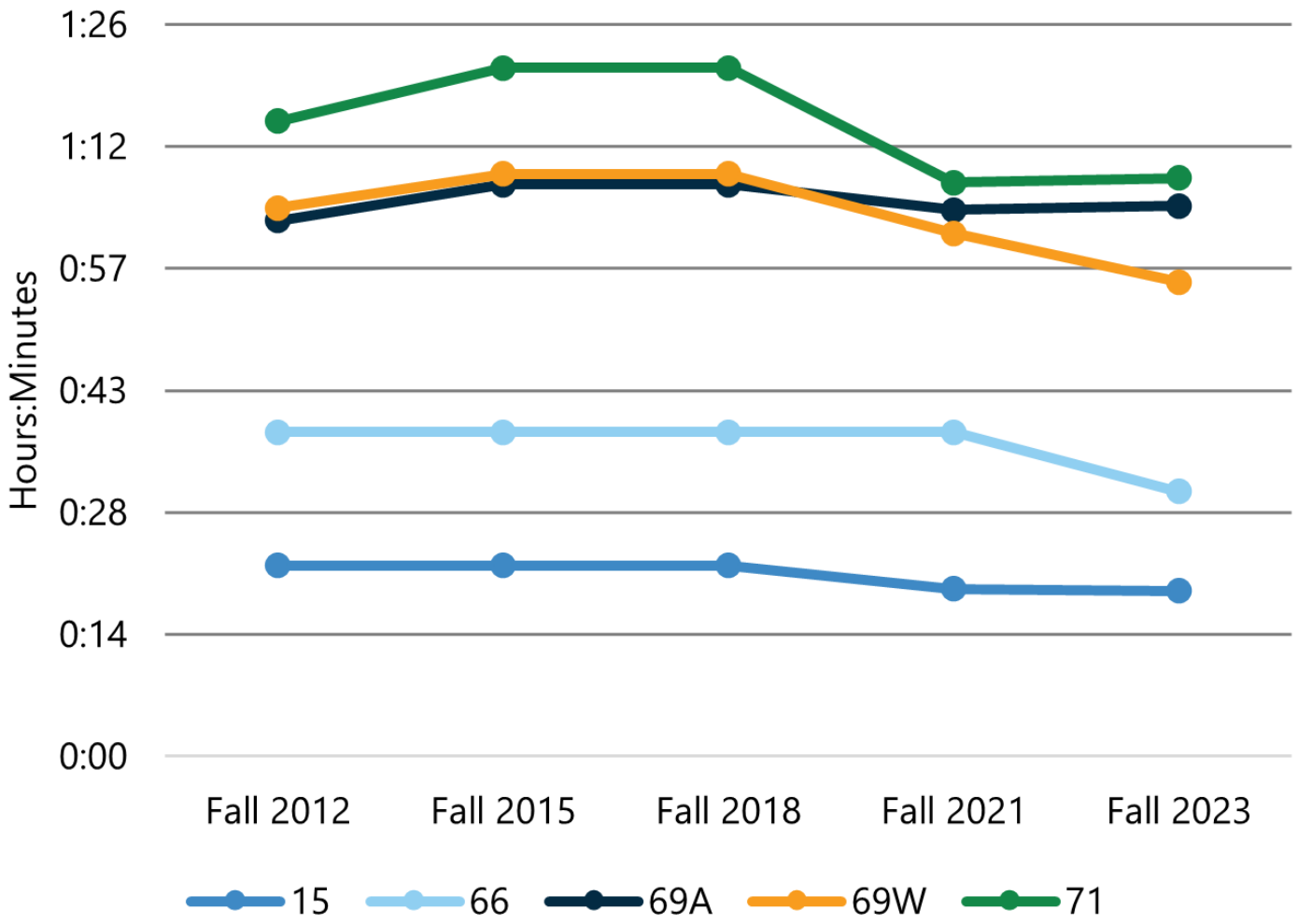


Figure 4.14 – Santa Cruz METRO Bus Travel Times
Average run time for in- and outbound trips near peak morning (8:30am) and afternoon (5:30pm) times.
Source: Santa Cruz Metropolitan Transit District

Continuation of and adding additional transit services may be dependent on METRO securing additional local, state, and federal funding above and beyond levels shown in the RTP Financial Element.

Investment and Resource Equity

The RTP sets a target to prioritize at least 40% of discretionary revenues to projects and programs in equity priority communities. The RTC has been increasingly evaluating the benefits of transportation investments.

Biannual RTC grants: Since adoption of the 2020 RTIP, the RTC has increasingly invested discretionary funds in or serving equity priority communities. In 2025, the RTC programmed 54% of its discretionary grant funding program to projects in or primarily serving equity priority communities.

Measure D:

- 20% of Measure D revenues are dedicated to transit, with over 80% of transit riders meeting the regional definition of equity priority communities.
- Highway 1 Corridors: Investments in Highway 1 have been identified as a priority for South County commuters for many years, resulting in 25% of Measure D revenues designated for highway projects, almost all of which is programmed for Highway 1 projects. Commuting between Watsonville and Santa Cruz can take over an hour, with many workers unable to afford housing closer to jobs.
- Through grant application evaluation criteria and in its own managed projects and programs, the RTC will continue pursuing the goal of at least 40% of RTC's discretionary and Measure D funds benefiting equity priority communities year after year.

Traffic Exposure

Caltrans has developed a Transportation Equity Index (EQI), which includes a Traffic Exposure Screen that identifies low-income and/or tribal area Census blocks that bear a negative traffic burden as measured by proximity, volume, and vehicle type (e.g. trucks) for all interstates, highways, principal arterials, and minor arterials in the state — or a negative safety burden as measured through a statewide crash exposure calculation. This includes Census blocks with traffic proximity and traffic volumes at or above the 80th percentile and Census blocks with a crash exposure score at or above the 80th percentile. Traffic exposure is used as a proxy for multiple environmental burdens, including diesel particulate matter, diesel exhaust, noise, and traffic safety impacts on communities. Equity priority areas in Santa Cruz County that are most greatly exposed to traffic burdens are shown below.

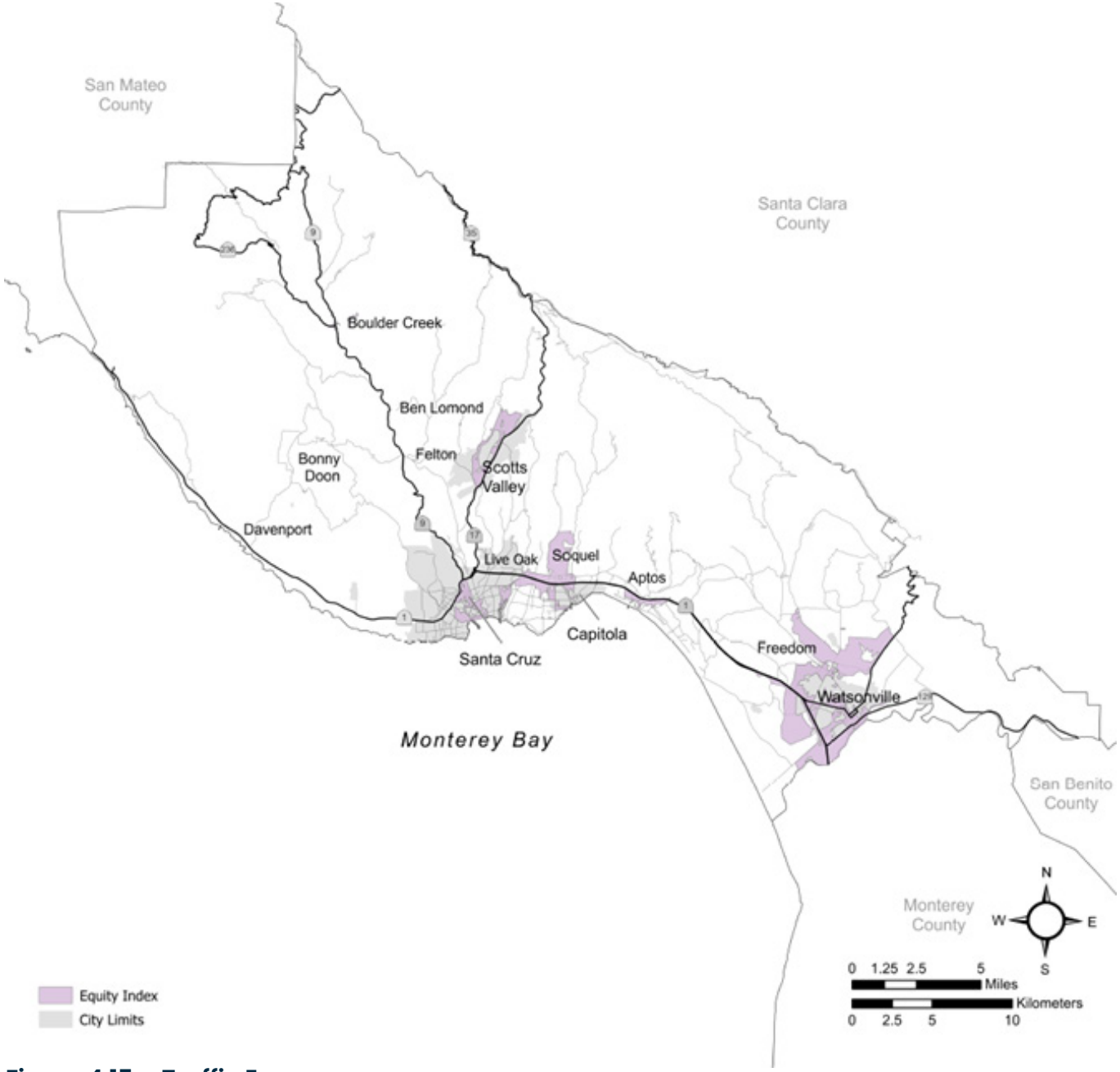


Figure 4.15 – Traffic Exposure
Source: Caltrans EQI, 2024 (https://dot.ca.gov/programs/eta/transpo-equity/eqi)

The target is set to reduce negative impacts by reducing the average daily vehicle traffic volumes on arterials and highways in equity priority communities by 2 percent by 2035 and 5 percent by 2050. The EQI provides one method of tracking this moving forward. RTC also maintains a traffic count database that can be queried in future years to measure trends of traffic counts by location.

Household Income Spent on Transportation

Household spending on transportation countywide ranges from 14 to 18.5%, with amounts differing depending on where people live and their race/ethnicity, as shown below in Figure 4.16.

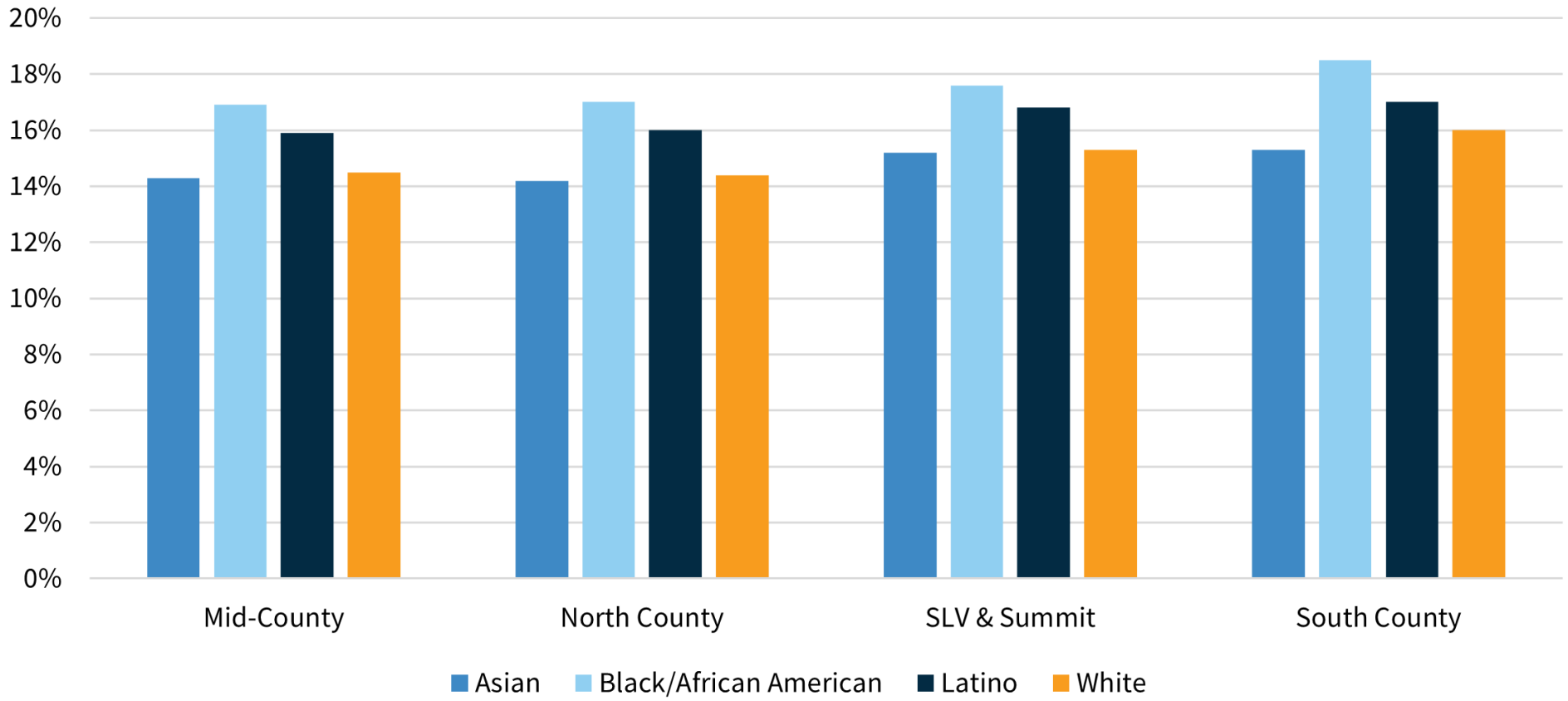


Figure 4.16 – Percentage of Household Income Spent on Transportation by Area & Race/Ethnicity
North County: Bonny Doon, Santa Cruz, Live Oak, Scotts Valley; Mid County: Capitola, Soquel, Day Valley, Aptos, Rio Del Mar; South County: Aptos Hills, La Selva, Corralitos, Freedom, Watsonville.
Source: Claritas Consumer Spending Dynamix, 2025.

African Americans living in South County spend the greatest amount of their incomes (18.5%) on transportation. Spending on personal vehicle expenses make up 89-91% of household income spent on transportation.[8]

Household spending on transportation has not dropped significantly since the baseline year of 2022. Data shows the county is not on track to decrease the share of lower-income residents household income consumed by transportation and housing by 10% by 2050. To do so, more investments need to be made in competitive alternative commute modes and implementation of the Sustainable Communities Strategy to locate more affordable, workforce housing near jobs.

Limited Mobility

Twenty-eight percent of Santa Cruz County residents, including children, elderly seniors, people with disabilities, and low-income individuals and families who cannot afford a car, do not drive a personal vehicle (Figure 1.4 in Chapter 1). For people who do not drive a personal vehicle, access to convenient transit service and safe routes to walk or ride a bike are a lifeline. Low Mobility areas are defined as any Census tract in which more than 15 percent of the population had a disability,10 percent of the population was over the age of 75, and/or 25 percent of the population had an income below poverty level.

Figure 4.17 shows the areas of the county with a higher concentration of people with low mobility due to age (over age 75 or under age 18).

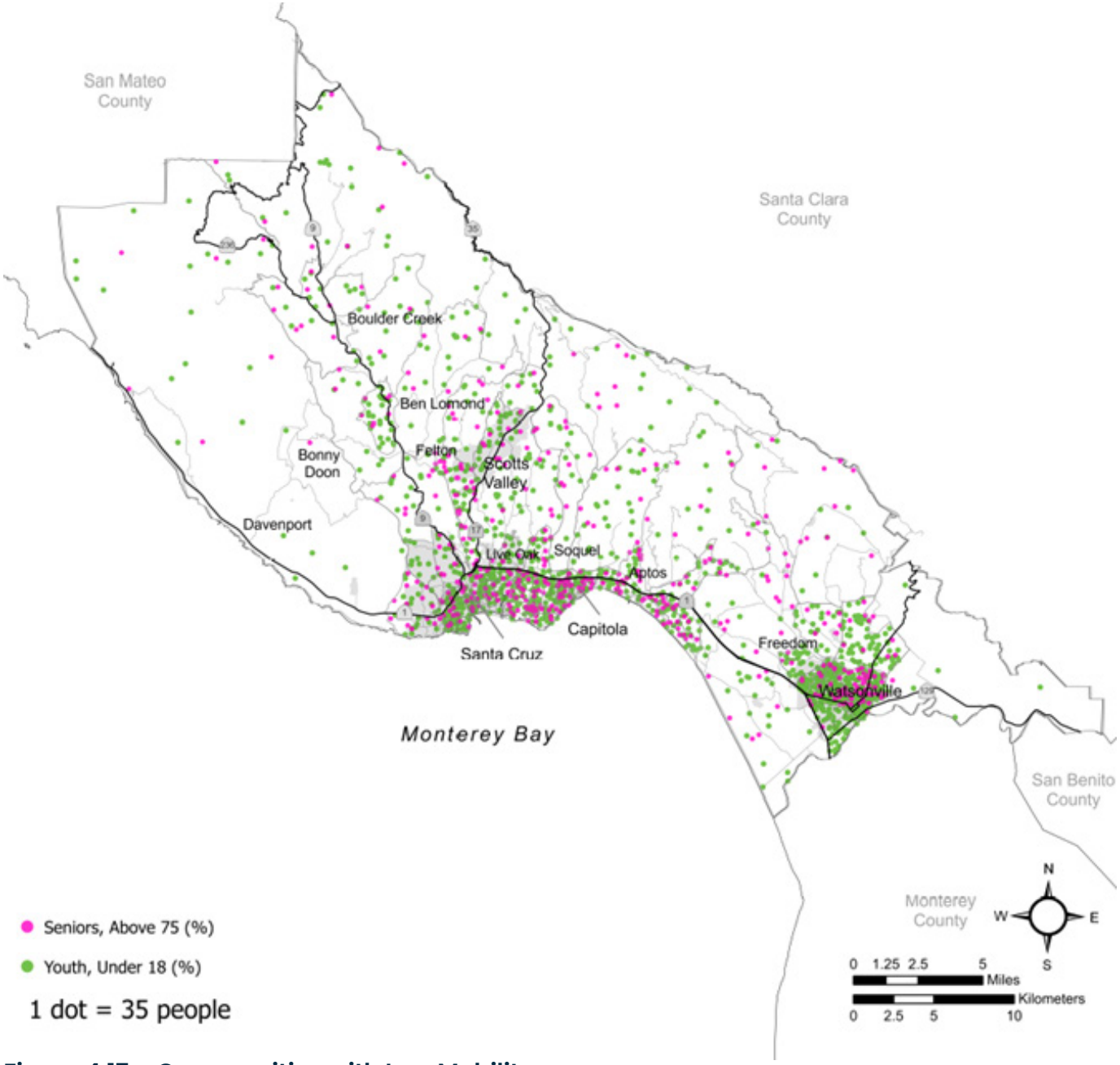


Figure 4.17 – Communities with Low Mobility
Source: U.S. Census Bureau, 2020 Census

Inclusive Participation and Representation

Barriers to participation in government engagement efforts are especially pronounced for lower income residents, people with disabilities, and people who do not speak English well. Figure 4.18 shows households where more than 20% of the households in an area "do not speak English well." 25% of Santa Cruz County residents speak Spanish at home; only 68% of residents speak only English at home. Ensuring that everyone is able to help shape transportation decisions is critical for meeting equity goals. The RTC implements a variety of equitable and inclusive communications strategies designed to give all community members, especially those in low-income, underserved, or non-English speaking communities, equal opportunities to participate and have their voices heard in all of our transportation planning and project development processes.

To ensure more diverse input, the RTC has developed an Equitable Outreach and Engagement Toolkit identifying strategies and best practices to engage underrepresented community members (included in the Santa Cruz County Transportation Equity Action Plan as its Appendix A). With a focus on equitable outreach, inclusive communication, and meaningful engagement, the RTC is working to foster stronger connections and collaboration with the diverse communities we serve, with a strong focus on our low-income, underserved, or non-English-speaking communities. With the strategies from the Equity Toolkit in mind, the RTC's engagement efforts have increased in Watsonville at community events, partnering with community-based organizations serving low income, disabled, and BIPOC communities, advertising public meetings and providing translation services in Spanish, and providing engagement surveys in Spanish. With the implementation of the Equity Toolkit, the RTC will be capable of meeting its goal of increasing input from diverse members of the public in RTC planning and project implementation activities by 85% in 2035 and 100% by 2050, by targeting at least half of all public and stakeholder outreach to equity priority communities.

In addition, the RTC has surveyed its staff and advisory committees to determine if members reflect the diversity of Santa Cruz County (Figure 4.19). While results show the RTC is meeting or surpassing representation in some areas, work is needed to better reflect the diversity of the community.

The RTC will continue to engage in targeted recruitment for RTC advisory committees to better reflect the diversity of the county and conduct equity-focused trainings with staff, board, and committee members. The RTC will also continue to increase the number of bilingual staff at outreach events and provide interpretation services for meetings and to anyone who calls the RTC wishing to discuss and provide input on transportation.

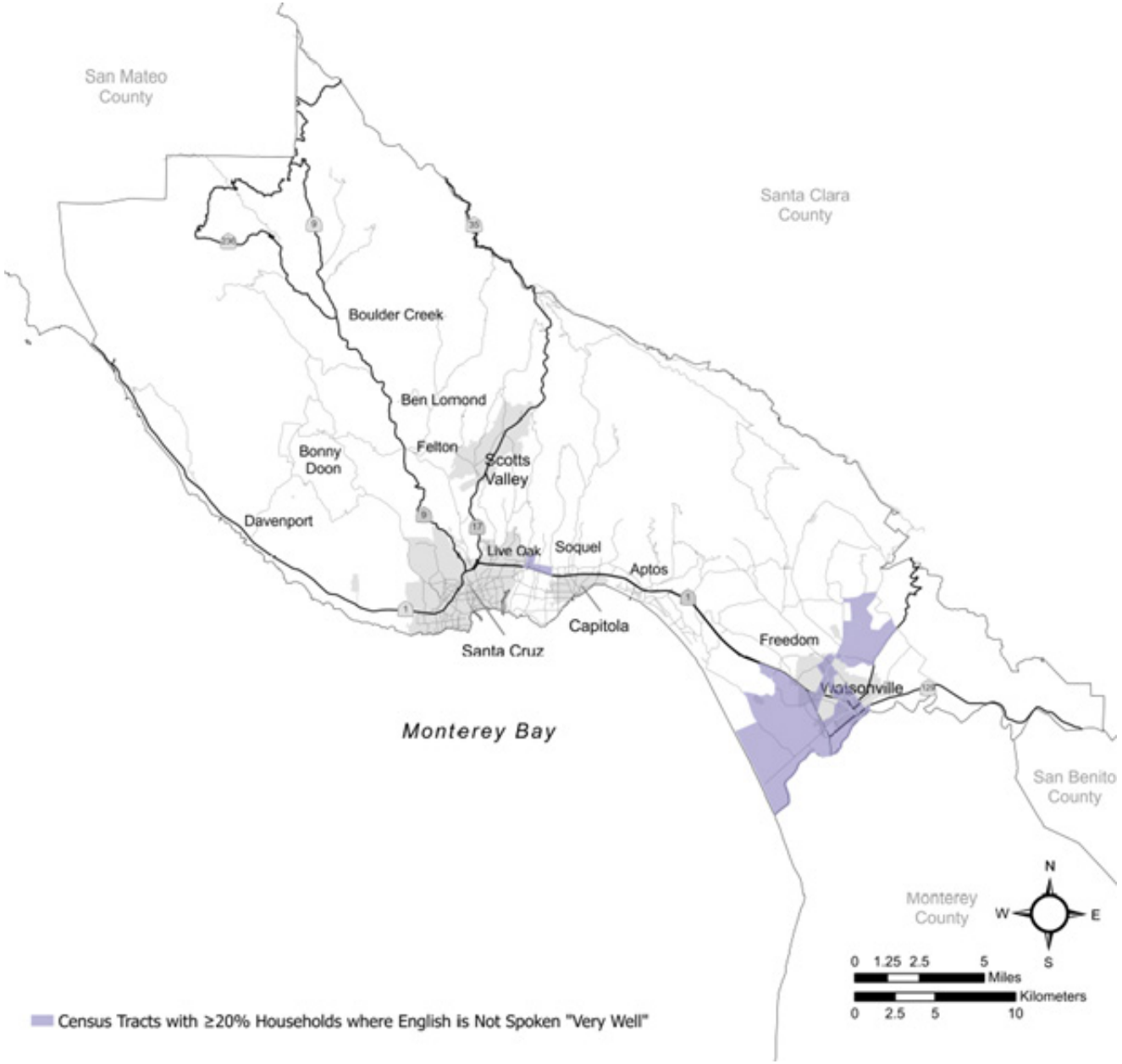


Figure 4.18 – Communities with Low Community Engagement
Note: Low Community Engagement areas defined as any Census tract in which 20 percent or more of the tract were households where English is not spoken "very well."

Body	County population	E&D TAC	Bike Comm	Measure D TOC	ITAC	Equity Workgroup	RTC Staff
# of Responses	261,547	8	11	4	10	7	20
White, (not Latino or Hispanic)	55.20%	75%	90%	100%	70%	29%	65%
Latino or Hispanic	35.20%	25%	0%	0%	10%	29%	25%
Asian or Southeast Asian	5.40%	0%	9%	25%	10%	14%	15%
Native American or Alaska Native	1.90%	0%	0%	0%	0%	29%	0%
Black or African American	1.50%	0%	0%	0%	0%	14%	0%
Native Hawaiian or other Pacific Islander	0.20%	0%	0%	0%	0%	0%	0%
Middle Eastern or North African	NA	0%	0%	0%	10%	0%	0%
Two or More Races	4.60%	0%	9%	25%	20%	14%	10%
Decline to State	NA	0%	9%	0%	0%	0%	5%

Figure 4.19 - Representation on RTC Committees and Staff, 2024.
Not all committee or staff members responded to the survey. Totals shown reflect responses which were received from both members and alternates, Fall 2024.

Notes for Chapter 4

1 Tony Dutzik and Phineas Baxandall, "A New Direction: Our Changing Relationship with Driving and the Implications for America's Future," U.S. PIRG Education Fund, and Frontier Group (Spring 2013), http://www.uspirg.org/sites/pirg/files/reports/A%20New%20Direction%20vUS.pdf.

2 Barbara A. McCann and Reid Ewing, "Measuring the Health Effects of Sprawl: A National Analysis of Physical Activity, Obesity and Chronic Disease," Smart Growth America, Surface Transportation Policy Project (2003).

3 Federal Highway Administration. *Developing Crash Modification Factors for Separated Bicycle Lanes.* Publication Number. FHWA-HRT-23-078. USDOT, 2023. https://highways.dot.gov/media/33856.

4 Marshall, Wesley E., and Nicholas N. Ferenchak. "Why cities with high bicycling rates are safer for all road users." *Journal of Transport & Health* 13 (June 2019). https://doi.org/10.1016/j.jth.2019.03.004.

5 Teschke, Kay et al. "Route Infrastructure and the Risk of Injuries to Bicyclists: A Case-Crossover Study." *American Journal of Public Health* 102, no. 12 (2012): 2336–2343. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3519333/.

6 U.S. Environmental Protection Agency. "Fast Facts on Transportation Greenhouse Gas Emissions." Last modified June 6, 2025. http://epa.gov/greenvehicles/fast-facts-transportation-greenhouse-gas-emissions.

7 CA Energy Commission, 2019 California Annual Retail Fuel Outlet Report Results, https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-retail-fuel-outlet-annual-reporting.

8 Claritas Consumer Spending Dynamix, datasharescc.org.