

Traffic Safety and *Active Transportation* in Santa Clara County

A data brief on the impact of motor vehicle collisions, active transportation, and air quality in Santa Clara County



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Traffic Safety and Active Transportation in Santa Clara County, May 2014

Improving traffic safety and increasing active transportation have the potential to reduce morbidity and mortality by decreasing injury and deaths from motor vehicle collisions, preventing chronic disease, and improving air quality.¹ This brief examines motor vehicle collisions, active transportation, and air quality in Santa Clara County.

Data in this brief are presented as counts, age-specific rates per 100,000 people, and age-adjusted rates per 100,000 people. For more information on how these indicators are calculated, please see the technical notes at the end of the brief.

Key findings:

- Although the total number of motor vehicle collisions decreased over the past decade, the number of collisions involving bicyclists is on the rise. The number of pedestrian-involved collisions remained stable over the past 10 years.
- The number of emergency department visits due to motor vehicle collisions has increased.
- The rate of motor vehicle traffic collisions involving bicyclists and pedestrians was highest among individuals ages 15 to 24. Pedestrians represent a disproportionate share of fatal motor vehicle traffic collisions, relative to the percentage of pedestrian-involved collisions.

Why traffic safety matters

In the U.S., unintentional injury is one of leading causes of death. Injuries from motor vehicle collisions are a major cause of unintentional injury deaths across all age groups.² Despite the decline in motor vehicle collisions and nonfatal motor vehicle occupant injuries, an estimated 2.6 million motor vehicle occupants of all ages were treated in emergency rooms for nonfatal injuries in the U.S. in 2012.^{3,4} Pedestrian deaths in California accounted for 13% of all pedestrian deaths in the U.S. in 2012.⁵ Furthermore, motor vehicle deaths have a significant economic impact. In California, motor vehicle deaths cost \$36 million in medical costs and \$4.4 billion in work loss costs in 2012.^{6,*} The Centers for Disease Control and Prevention (CDC) has identified motor vehicle injuries as a “winnable battle” due to its significant impact on health and the potential for great progress in improving outcomes in this area.⁷

Traffic safety in Santa Clara County

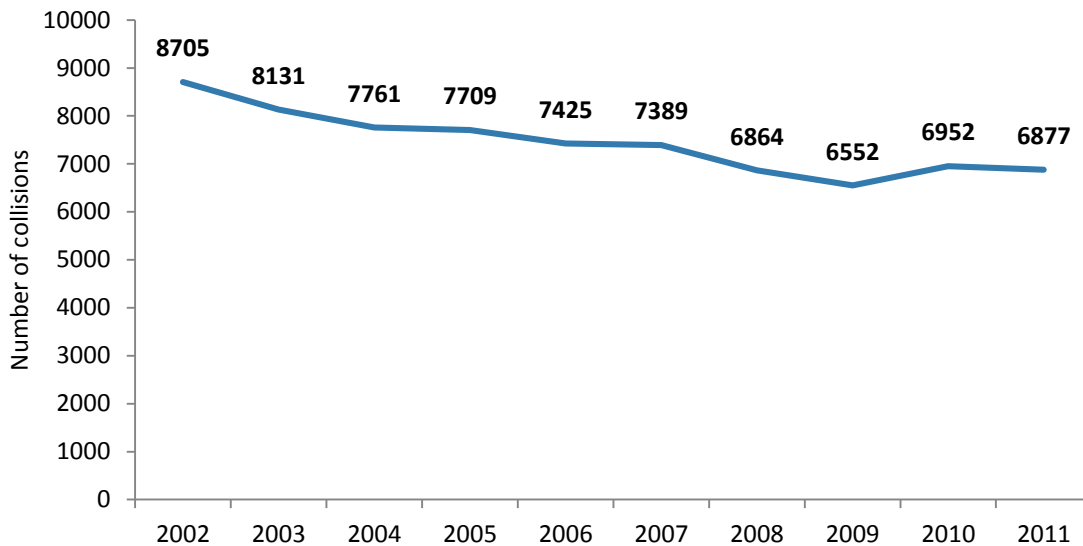
Trends for motor vehicle traffic safety in Santa Clara County are similar to those nationwide. In 2012, motor vehicle traffic collisions were one of the top ten leading causes of injury deaths among all age groups. Motor vehicle traffic collisions ranked first in the leading causes of injury deaths among ages 5 to 14 and ages 25 to 34, and ranked second among ages 15 to 24 and ages 35-44, 45-54, 55-64, 65-74, 75-84, 85 and older.⁸ In Santa Clara County, motor vehicle deaths cost an estimated \$1.4 million in medical costs and \$172 million in work loss costs in 2012.^{6,*}

* Costs expressed in 2010 California prices

Motor vehicle traffic collisions[†]

From 2002 to 2011, the overall number of motor vehicle traffic collisions in Santa Clara County declined from 8,705 to 6,877, a 21% decrease.⁹ Of the 6,877 collisions in 2011, two thirds (65%) involved another motor vehicle, 18% involved other types of collisions (non-collision, train, animal, fixed object, other object), 10% involved bicyclists, and 7% involved pedestrians. One in three (33%) collisions involved severe injuries and 1% of collisions involved a fatality.¹⁰ From 2007 to 2011 (combined), San Jose, Palo Alto, Santa Clara, Sunnyvale, and Milpitas had a higher number of motor vehicle traffic collisions than other cities.¹¹ The number of motor vehicle traffic collisions by cities can be found in the appendix.

Number of motor vehicle collisions in Santa Clara County, 2002-2011



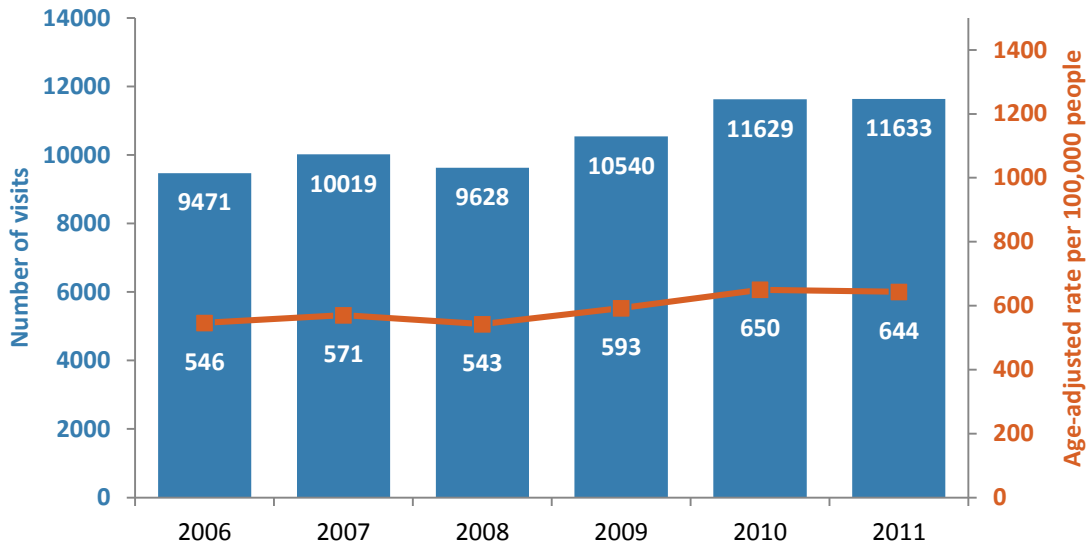
Source: California Highway Patrol, Statewide Integrated Traffic Records Systems (SWITRS), 2002-2011

Emergency room visits

Despite the decline in total motor vehicle collisions, the number (represented in the blue bars in the figure below) and age-adjusted rates (shown as an orange line in the figure below) for motor vehicle-related emergency room visits in Santa Clara County increased from 2006 to 2011.^{12,13,14} In 2011, there were 11,633 motor vehicle-related emergency room visits. More than half (58%) involved a motor vehicle occupant, 24% were bicyclists, 5% were pedestrians, 5% were motorcyclists, and 8% were other (unspecified, other motor vehicle, and other transport).¹⁵

[†] The unit of analysis for motor vehicle traffic collisions is the accident itself, which can include one or more parties responsible and one or more victims. For motor vehicle-related emergency visits, the unit is the visit for an individual patient; therefore, the number of motor vehicle-related ER visits will almost always exceed the number of collisions.

Number and age-adjusted rates of motor vehicle-related emergency room visits in Santa Clara County, 2006-2011



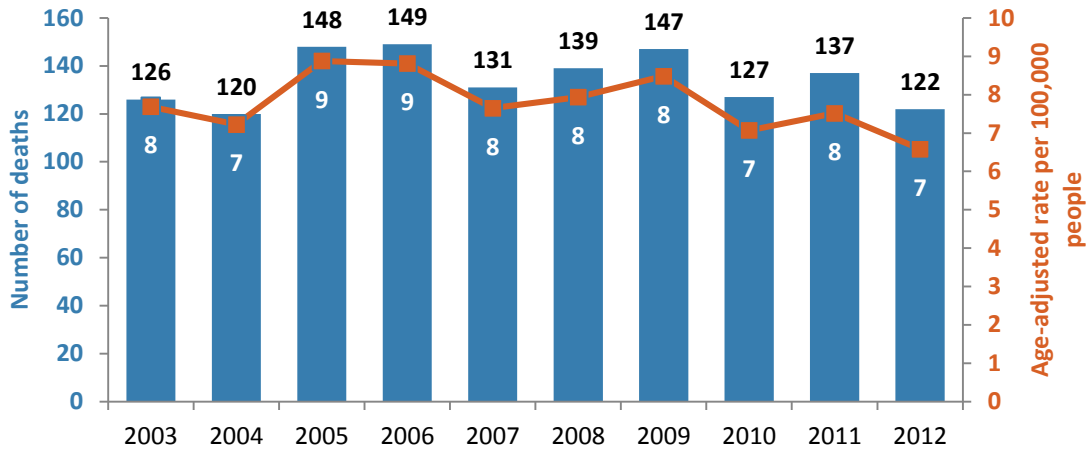
Note: The bars in blue represent the number of motor vehicle-related emergency room visits and the orange line represents the age-adjusted rate per 100,000 people.

Source: Office of Statewide Health Planning and Development, Emergency Department Data, 2006-2011; State of California, Department of Finance, Race/Ethnic Population with Age and Sex Detail, 2000-2010. Sacramento, California, September 2012; State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060. Sacramento, California, January 2013.

Motor vehicle-related deaths

The number of deaths from motor vehicle collisions in Santa Clara County was steady from 2003 to 2012, ranging from approximately 120 to 150 deaths per year (depicted in the figure below in blue bars).¹⁶ Age-adjusted rates have consistently ranged from 7 to 9 deaths per 100,000 people over the 10-year period (illustrated in the orange line in the figure below).^{13,14,16} In 2012, almost one-third (30%) of deaths from motor vehicle collisions were among motor vehicle occupants, 26% were among pedestrians, 11% were among motorcyclists, and 5% were among bicyclists.⁸ There was a higher percentage of deaths from motor vehicle collisions among males compared to females (63% vs. 37%).⁸

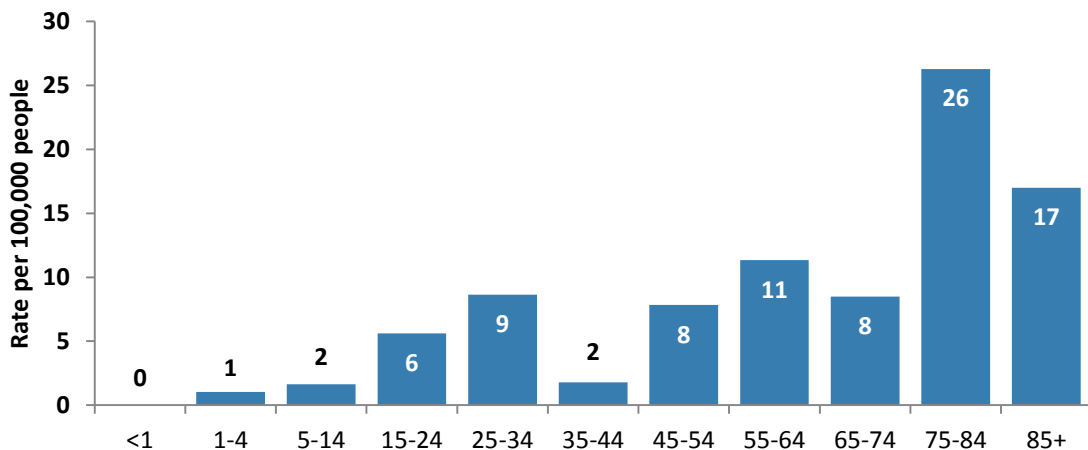
Number and age-adjusted rates of deaths from motor vehicle traffic collisions in Santa Clara County, 2003-2012



Note: The blue bars represent the number of motor vehicle traffic-related deaths and the orange line represents the age-adjusted rate per 100,000 people.
 Source: Santa Clara County Public Health Department, Death Statistical Master File, 2003-2012; State of California, Department of Finance, Race/Ethnic Population with Age and Sex Detail, 2000–2010. Sacramento, California, September 2012; State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060. Sacramento, California, January 2013.

In 2012, age-specific mortality rates due to motor vehicle traffic collisions were highest among ages 75 to 84, followed by ages 85 and older and ages 55 to 64.^{8,14} For 2010-2012 (combined), Latinos had the highest age-adjusted mortality rate due to motor vehicle traffic collisions (8.7 per 100,000 people), followed by Whites (8.6) and Asian/Pacific Islanders (4.0).^{14,17} The rate for African Americans is not reported due to the small number of deaths.

Age-specific mortality rates due to motor vehicle traffic collisions in Santa Clara County

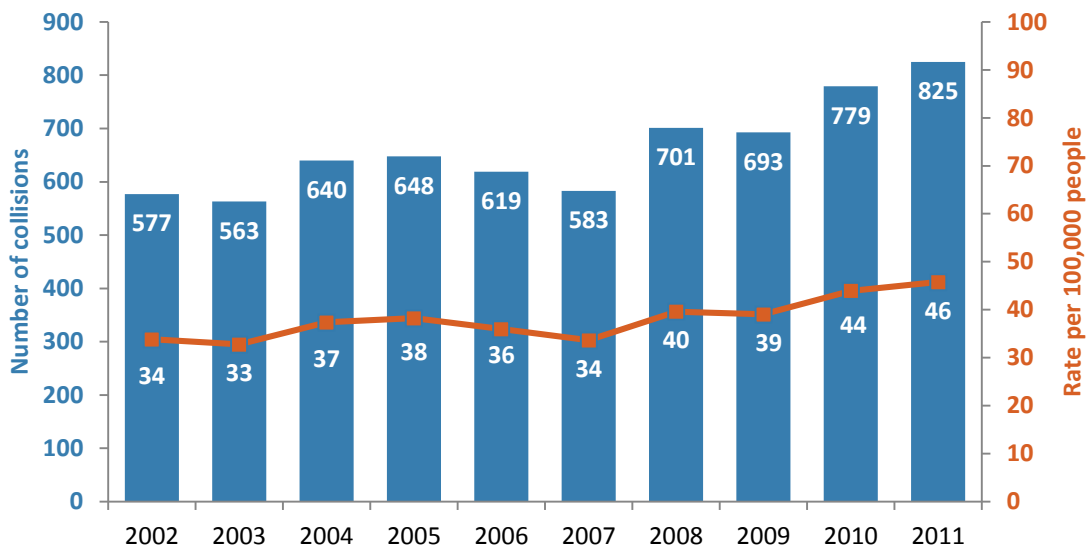


Source: Santa Clara County Public Health Department, Death Statistical Master File, 2012; State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060. Sacramento, California, January 2013.

Bicyclist-involved motor vehicle traffic collisions

While the total number of motor vehicle traffic collisions has declined, the number of motor vehicle traffic collisions involving bicyclists in Santa Clara County increased from 577 in 2002 to 825 in 2011, a 43% increase (illustrated in the graph below in the blue bars).⁹ Age-adjusted rates of collisions involving bicyclists increased from 34 to 46 per 100,000 people (shown in the figure below in the orange line).^{9,13,14} In 2011, the age-specific rate of bicyclist-involved motor vehicle traffic collisions was highest among people ages 15 to 24 (98 per 100,000 people), followed by ages 45-64 (50), and ages 25 to 44 (39).^{10,14}

Number and age-adjusted rates of motor vehicle traffic collisions involving bicyclists in Santa Clara County, 2002-2011



Note: The blue bars represent the number of motor vehicle traffic collisions and the orange line represents the age-adjusted rate per 100,000 people.

Source: California Highway Patrol, Statewide Integrated Traffic Records Systems (SWITRS), 2002-2011; State of California, Department of Finance, Race/Ethnic Population with Age and Sex Detail, 2000–2010. Sacramento, California, September 2012; State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060. Sacramento, California, January 2013.

In 2011, bicyclist-involved motor vehicle traffic collisions made up approximately 10% of all motor vehicle traffic collisions.¹⁰ However, the percentage of emergency room visits for motor vehicle traffic collisions in which a bicyclist was involved was 24% in 2011.¹² From 2002 to 2012, the number of bicycle deaths due to motor vehicle traffic collisions was low, ranging from 2 to 10 deaths per year.⁹

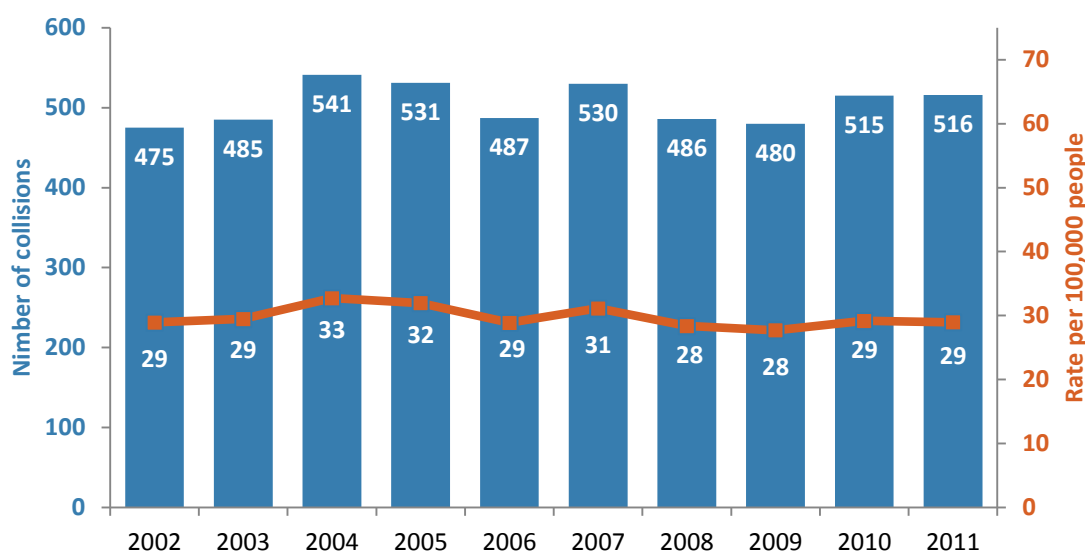
From 2007 to 2011 (combined), San Jose had the highest number of bicyclist-involved motor vehicle traffic collisions (1,635), followed by Palo Alto (411), Sunnyvale (246), and Mountain View (201). Palo Alto had the highest age-adjusted rate of bicyclist-involved motor vehicle traffic collisions at 144 per

100,000 people, followed by Los Altos Hills (136), and Los Altos (73).^{11,18,‡} The number of collisions, age-adjusted rates, and age-specific rates by city can be found in the appendix.

Pedestrian-involved motor vehicle traffic collisions

From 2002 to 2011, the number of pedestrian-involved collisions remained stable, ranging from 475 to 541 per year (shown in the blue bars in the figure below).⁹ Age-adjusted rates of pedestrian-involved collisions were also steady, ranging from 28 to 33 per 100,000 people per year (represented in the orange line in the figure below).^{8,13,14} In 2011, the age-specific rates of pedestrian-involved collisions was highest among ages 15 to 24 (48 per 100,000 people), followed by ages 65 and older (38) and ages 45 to 64 (27).^{10,14}

Number and age-adjusted rates of motor vehicle traffic collisions involving pedestrians in Santa Clara County, 2002-2011



Note: The blue bars represent the number of motor vehicle traffic collisions and the orange line represents the age-adjusted rate per 100,000 people.

Source: California Highway Patrol, Statewide Integrated Traffic Records Systems (SWITRS), 2002-2011; State of California, Department of Finance, Race/Ethnic Population with Age and Sex Detail, 2000–2010. Sacramento, California, September 2012; State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060. Sacramento, California, January 2013.

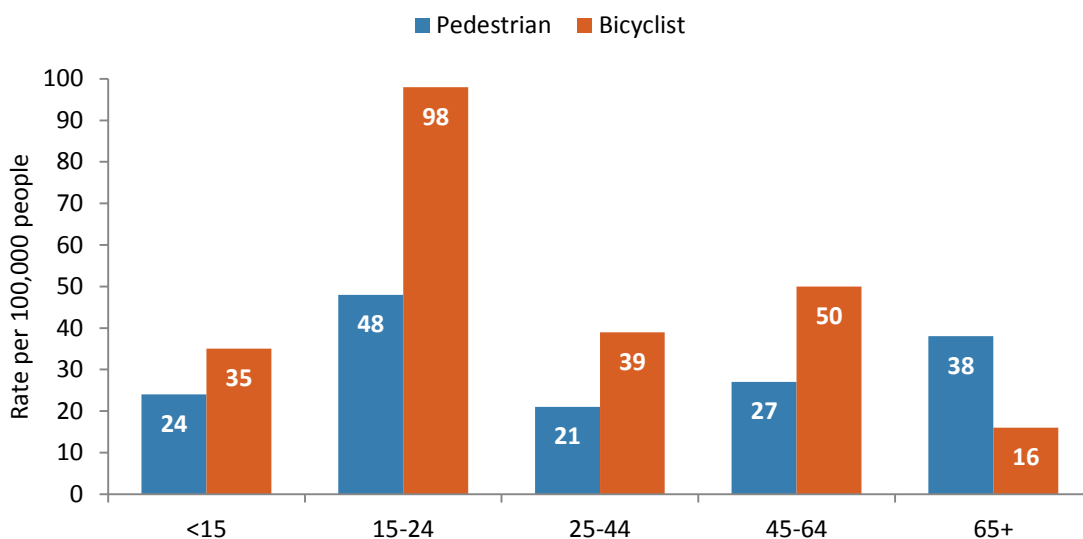
In 2011, pedestrian-involved motor vehicle traffic collisions accounted for 7% of all motor vehicle-related collisions.¹⁰ The percentage of emergency room visits for pedestrians involved in motor vehicle traffic collisions was stable from 2006 to 2011 at approximately 5% of all motor vehicle-related emergency room visits.¹⁰ However, over a three-year period (2010 to 2012 combined), pedestrian

[‡] In the 2013 Community Health Existing Conditions Report for Santa Clara County, more collisions occurred in high density areas, likely because more people ride their bikes in these areas.

deaths from motor vehicle traffic collisions represented a disproportionately higher share of total motor vehicle traffic deaths (26%).^{14,17,§}

Over a five-year period (2007 to 2011 combined), San Jose had the highest number of pedestrian-involved motor vehicle traffic collisions (1,583), followed by Santa Clara (161), Sunnyvale (148), and Palo Alto (126). Palo Alto had the highest age-adjusted rate of pedestrian-involved motor vehicle traffic collisions at 38 per 100,000 people, followed by San Jose (33), and Mountain View (32).^{11,18} Age-adjusted rates and age-specific rates by city can be found in the appendix.

Age-specific rates of motor vehicle traffic collisions involving bicyclists and pedestrians in Santa Clara County



Source: California Highway Patrol, Statewide Integrated Traffic Records Systems (SWITRS), 2011; State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060. Sacramento, California, January 2013.

Collision factors

Distracted driving

Distracted driving, defined as an activity performed by the driver other than driving that could divert his/her attention from driving, can increase the chance of a motor vehicle traffic collision. Examples include the use of a cell phone, electronic equipment, radio/CD, smoking, eating, etc.¹⁹ Nationwide, distracted driving behavior such as cell phone use and texting are prevalent. In 2011, more than two-thirds (69%) of adults reported talking on a cell phone while driving at least once in the past 30 days,

[§] For purposes of comparison between data on pedestrian-involved collisions and mortality, from 2009 to 2011 (combined), the percentage of motor vehicle traffic collisions that involved pedestrians (7%) was the same as for the data from the most recent single year (2011). For pedestrian deaths from motor vehicle traffic collisions for 2009 to 2011(combined), pedestrians represented a disproportionately higher share of total motor vehicle traffic deaths (26%).

and almost one-third (31%) reported reading or sending a text/email message at least once in the last 30 days.²⁰

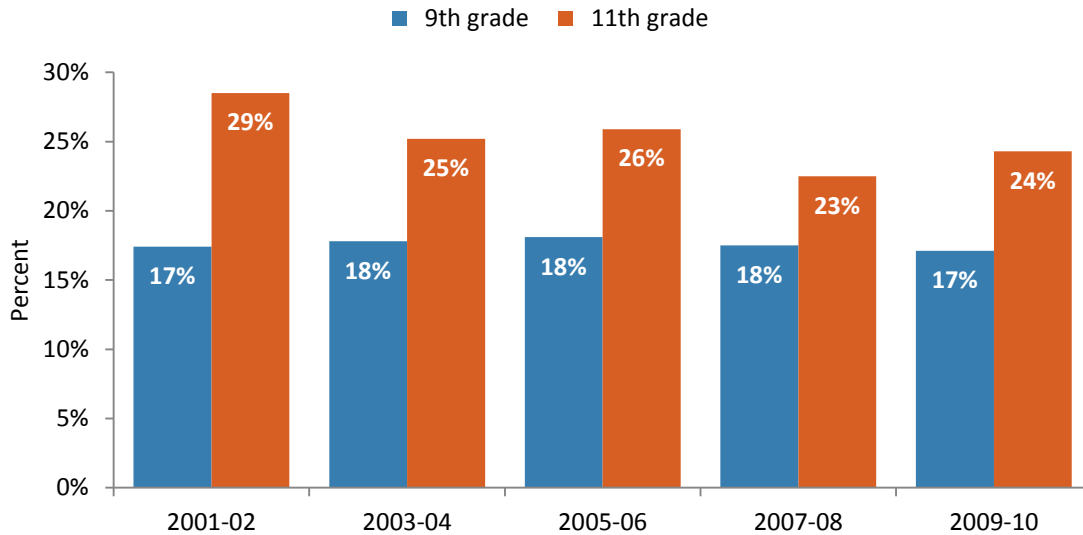
In a 2013 press release, the California Office of Traffic Safety reported that an average of 36,000 cell phone tickets were written monthly by California Highway Patrol officers and over 250 local law enforcement agencies.²¹ From 2010 to 2013, the number of citations issues by the San Jose California Highway Patrol office for cell phone use and texting averaged approximately 4,700 per year. However, the number of tickets for texting increased from 40 in 2010 to 641 in 2013.²¹ Distraction-affected collision counts are likely underreported and should be viewed with caution. Distracted driving is captured as inattention under “other associated factor” in motor vehicle traffic collisions reports. From 2009 to 2011, 12% of all collisions listed inattention (distracted driving) as the other associated factor.²³

Alcohol use

Alcohol-impaired driving is a major cause of injuries and deaths in motor vehicle collisions. In California, close to 6% of parties in motor vehicle collisions had been drinking.²⁴ However, a 2012 survey by the California Office of Traffic Safety showed that more drivers tested positive for drugs that may impair driving compared to alcohol (14% vs. 7%). The most common drug that drivers tested positive for was marijuana (7%).²⁵ In 2011, more than 1 in 10 motor vehicle traffic collisions involved alcohol in Santa Clara County.¹⁰ From 2002 to 2011, in Santa Clara County, the percentage of alcohol-involved collisions was steady.⁹

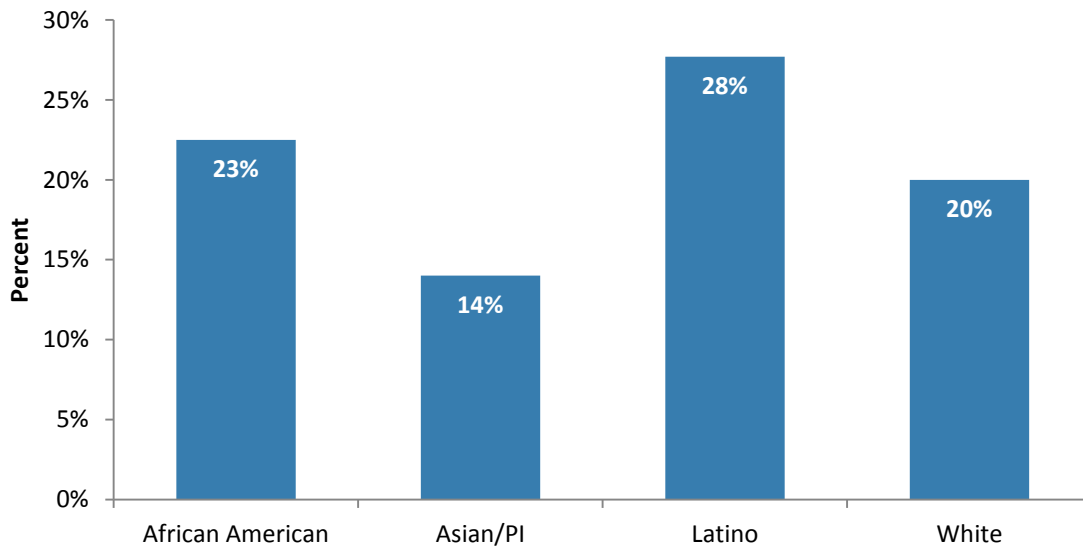
From 2001 to 2010 in Santa Clara County, the percentage of 11th graders who reported having ever driven a car when they had been drinking or having ever been in a car driven by a friend that had been drinking declined, from 29% to 24%, whereas it remained stable for 9th graders (17% to 18%).²⁶ The percentage of 11th graders reporting this behavior was consistently higher than that for 9th graders over this time period. In 2009-10, the percentage was highest among 9th and 11th grade Latino students (28%), followed by African Americans (23%), Whites (20%), and Asian/Pacific Islanders (14%).²⁷ There was little difference between males and females (20% v. 22%).²⁷

Percentage of students reporting ever having driven a car when they had been drinking alcohol or ever having been in a car driven by a friend who had been drinking alcohol by grade in Santa Clara County, 2001-2010



Source: California Healthy Kids Survey, 2001-2010

Percentage of students reporting ever having driven in a car when they had been drinking alcohol or ever having been in a car driven by a friend who had been drinking alcohol by race/ethnicity in Santa Clara County, 2009-2010



Source: California Healthy Kids Survey, 2009-10

Bicycle helmet use

A bicycle helmet is considered the most effective way to prevent a head injury in a bicycle collision.²⁸ In 2013, among all transports by Emergency Medical Services in Santa Clara County for motor vehicle

traffic collisions injuries involving bicycles, more than half (57%) of bicyclists transported were not wearing a bicycle helmet.²⁹

In 2007-08**, 53% of 7th, 9th, and 11th graders who bicycled in the last 12 months in Santa Clara County reported never/rarely using a helmet. A higher percentage of 11th graders (60%) reported never/rarely using a helmet compared to 9th graders (52%) and 7th graders (47%). A higher percentage of Latino middle and high school students (76%) who bicycled in the last 12 months reported never/rarely using a helmet, followed by African American (68%), Asian (48%), and White (35%) students.³⁰

Seat belt usage

Seat belt use is the most effective way to save lives and reduce injuries in motor vehicle-related collisions.³¹ In California, seat belt usage was 97% in 2011, higher than the national average of 85%.³² In Santa Clara County in 2011, among collisions where seatbelt data was available, 1% (15 of 1,259) of the parties responsible and 2% (22 of 937) of the victims in collisions were not wearing a seat belt.¹⁰

Unsafe speed

Speeding is one of the leading causes of traffic collisions and is especially dangerous to pedestrians and cyclists.³³ In 2011, 40% of collisions in Santa Clara County involved unsafe speed.¹⁰

Collisions near public schools

Children and adolescents are at risk for pedestrian- and bicycle-involved motor vehicle traffic collisions. In 2010 in the U.S., approximately 20% of motor vehicle related fatalities among children between the ages of 5 and 9 involved children who were pedestrians.³⁴ Bicycle-related fatalities and injuries are also high among children and adolescents, with youth and young adults ages 15 to 24 having one of the highest bicycle death rates, and children ages 5 to 14 having the highest rate of nonfatal bicycle-related injuries nationally.²⁸

In Santa Clara County from 2002 to 2011, 69% of pedestrian-involved motor vehicle traffic collisions were within a half mile of a public school and 88% were within one mile of a public school. Among bicycle-involved motor vehicle traffic collisions, 65% were within a half mile of a public school and 86% were within one mile of a public school.⁹

Collisions near senior centers

Older adults are also at high risk for pedestrian-involved motor vehicle traffic collisions. In 2010 in the U.S., 19% of all pedestrian deaths and nearly 11% of all pedestrian injuries were among seniors ages 65 and older.³⁴

In Santa Clara County in 2011, 18% of total motor vehicle traffic collisions were within a half mile of a senior center, and 43% were within one mile of a senior center.¹⁰ From 2002 to 2011 (combined), among motor vehicle traffic collision victims ages 65 and older, 22% of pedestrian- and bicyclist-

** Data used in this section from 2007-08 should be viewed with caution as percentages may have changed in the last 6 or 7 years.

involved motor vehicle collisions were within a half mile of a senior center (205 out of 932), and 46% were within a mile of a senior center (429 out of 932).⁹

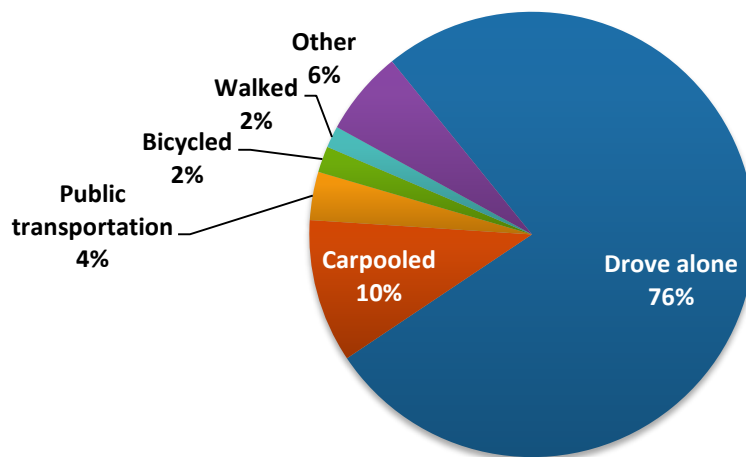
Active transportation

Active transportation, or walking and bicycling as part of daily travel, is an important way for people to incorporate physical activity into their regular routines. Studies have shown that states with higher rates of walking and biking have lower rates of chronic disease such as obesity and diabetes.³³ Studies have also found that people who use public transportation are more likely to be physically active and less likely to be obese.^{36,37,38}

Mode of transportation in Santa Clara County

In 2012, the primary mode of transportation to work in Santa Clara County was driving alone. Three-fourths (76%) of Santa Clara County residents drove alone to work, 10% carpooled, and 6% reported other means (taxicab, motorcycle, other means, worked at home). Four percent (4%) of residents took an active means of transportation to work (2% bicycled and 2% walked), and 4% of residents used public transportation.

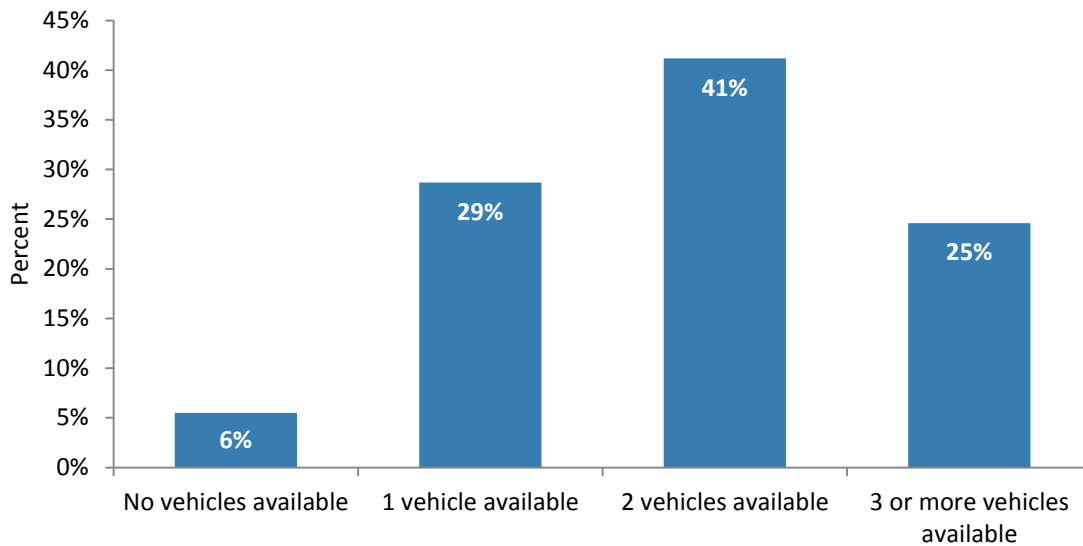
Means of transportation to work in Santa Clara County



Source: U.S. Census Bureau, 2012 American Community Survey 1-Year Estimates

The majority (94%) of Santa Clara households had one or more vehicles available per occupied housing unit and 66% had two or more vehicles.³⁹

Percentage of households with vehicles in Santa Clara County



Source: U.S. Census Bureau, 2012 American Community Survey 1-Year Estimates

Mode of transportation from school

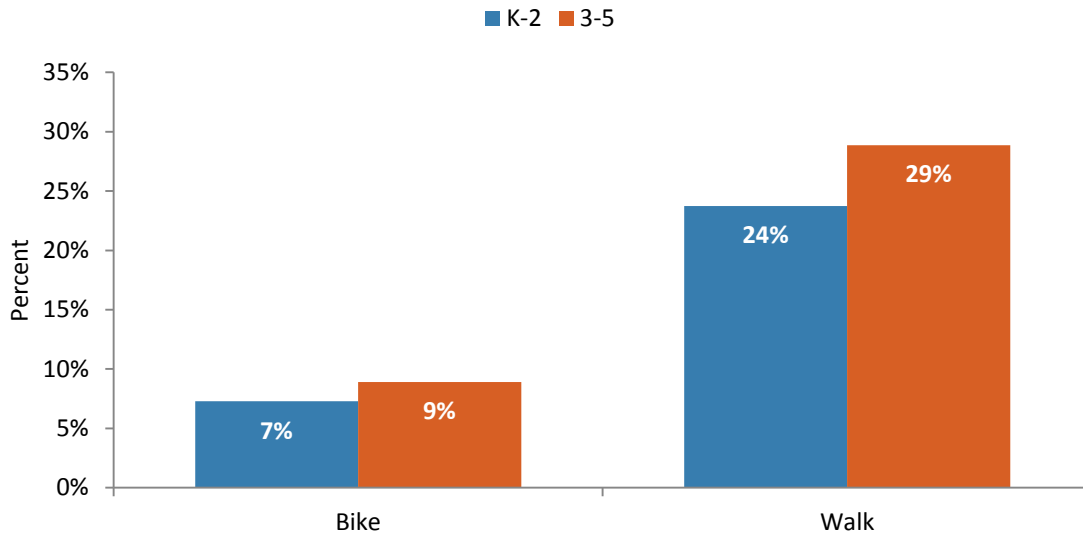
Most studies have shown that children and youth who walk and bike to school have higher levels of overall physical activity than those who travel by automobile.⁴⁰

According to the 2011-12 California Health Interview Survey in Santa Clara County, 46% of youth (ages 12 to 17) and 40% of children (ages 5 to 11) walked home from school one or more days a week. Percentages for walking were higher than those for biking (12% for youth and 14% for children).⁴¹

Safe Routes to School is a federally-funded program with the goal of increasing walking, bicycling, and other forms of active transportation to and from school. Program strategies include traffic safety education, encouragement activities such as Walk to School Days, engineering, and enforcement. A study from the National Center for Safe Routes to School found a significant increase in walking to and from school between 2007 and 2012, from 12% to 16% in the morning and from 16% to 20% in the afternoon.⁴²

In 2012, among schools that participated in the Santa Clara County Public Health Department/Traffic Safe Communities Network Safe Routes to School program, from 24% of students in kindergarten through grade 2 and 29% of students in grades 3 through 5 walked to school on the day surveyed and 7% to 9% biked to school, respectively, on the day surveyed. A higher percentage of students in grades 3 through 5 biked or walked to school than K-2 students.⁴³

Students who walked or biked to school from home on the day surveyed by grade level (in schools participating in the Santa Clara County Public Health Department/Traffic Safe Communities Network Safe Routes to School program)

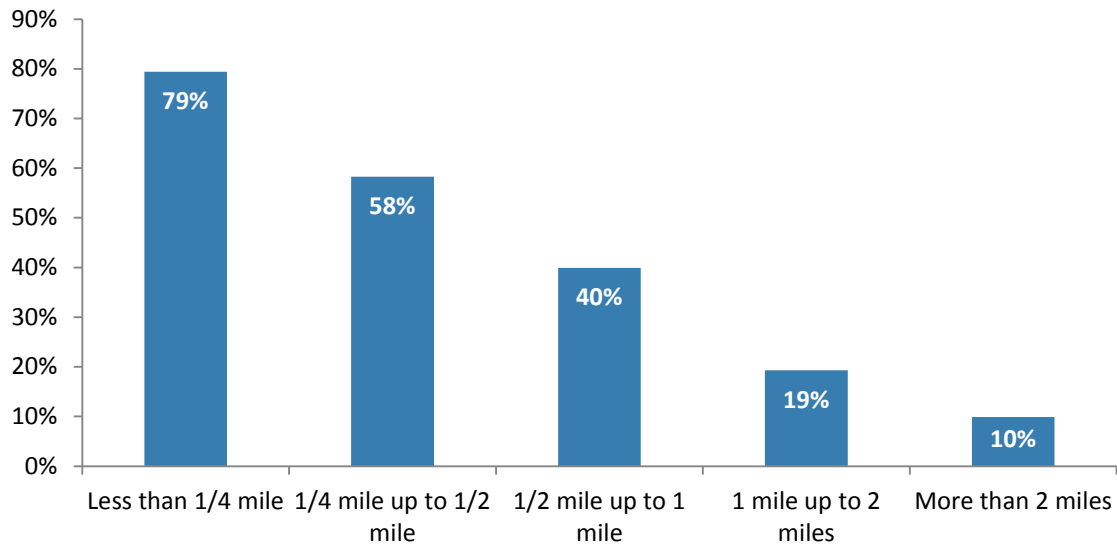


Source: Santa Clara County Public Health Department, Safe Routes to School, Student Travel Tally, 2012

In 2013, parents from schools participating in the Safe Routes to School program were surveyed^{††} about their opinions regarding their children walking and biking to school. Forty-six percent (46%) of these parents reported that their child walked or biked to or from school on most days. Walking to school was more common among children who lived closer to school: Parents of children who lived less than a quarter mile from school were most likely to report that their child walked or biked to school on most days (79%), compared to only 19% of parents of children who lived 1 to 2 miles and 10% of those who lived more than 2 miles from school.⁴⁴

^{††} Respondents were limited to the May and June data collection periods that occurred at the end of the Safe Routes to School Program.

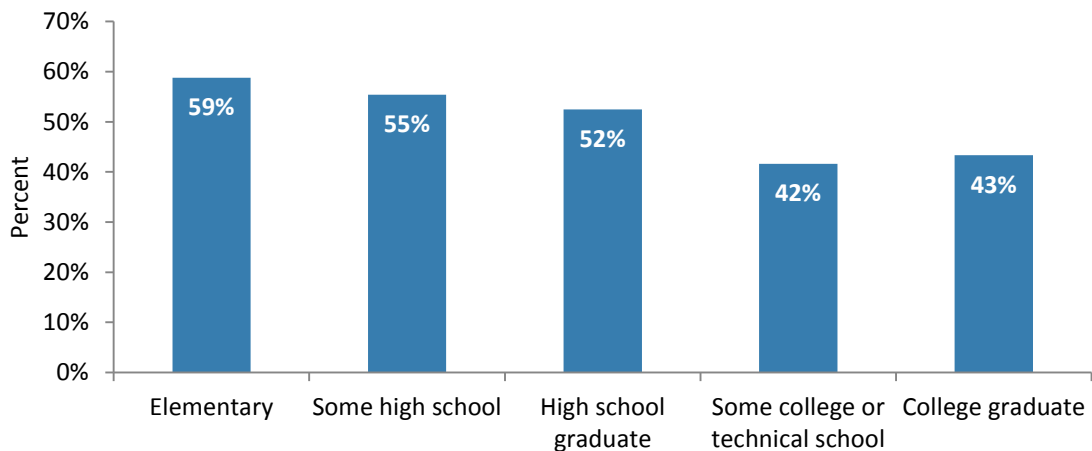
Percentage of parents reporting that their child walked or biked to school on most days by distance from home to school (in schools that participate in the Santa Clara County Public Health Department/Traffic Safe Communities Network Safe Routes to School program)



Source: Santa Clara County Public Health Department, Safe Routes to School, Parent Survey, 2013

Children of parents with lower education levels were more likely to walk or bike to school: More than half (59%) of parents with an elementary school education reported that their child walked or biked to school on most days, followed by parents with some high school education (55%), and 52% of parents who were high school graduates.⁴⁴

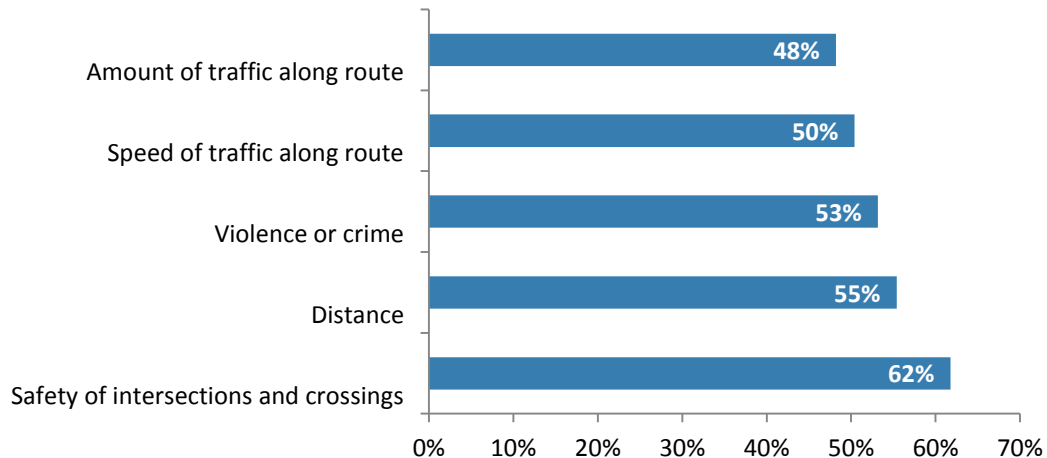
Percentage of parents reporting that their child walked or biked to or from school on most days by parent education level (in schools participating in the Santa Clara County Public Health Department/Traffic Safe Communities Network Safe Routes to School program)



Source: Santa Clara County Public Health Department, Safe Routes to School, Parent Survey, 2013

Among parents whose child did not walk or bike to or from school, 62% indicated safety of intersections and crossings as an issue that affected their decision, followed by distance (55%) and concern about violence or crime (53%).⁴⁴

Top 5 issues that affect parents' decision to not allow their child to walk/bike to/from school among parents who do not currently allow their child to walk/bike to/from school (in schools participating in the Santa Clara County Public Health Department/Traffic Safe Communities Network Safe Routes to School program)



Source: Santa Clara County Public Health Department, Safe Routes to School, Parent Survey, 2012

Air quality and climate change⁴⁵

For decades, air quality has been an important public health and environmental issue.⁴⁶ The Environmental Protection Agency (EPA) has identified 6 common pollutants known as "criteria" air pollutants including carbon monoxide, lead, nitrogen oxides, ground-level ozone, particulate (or particle pollution), and sulfur oxides. Ozone and particulate matter are the most prevalent of these threats and have been linked to health conditions such as lung cancer, asthma attacks, heart attacks, strokes, and premature death.⁴⁷

Air quality and climate change are closely connected. Greenhouse gas emissions can impact air quality by increasing ozone and particle pollution concentrations.⁴⁸ In California, the transportation sector is the largest contributor to greenhouse gas emissions (38%).⁴⁹ A reduction in the number of vehicle miles traveled through walking, biking, and the use of public transit will result in increased physical activity and improvements in population health while providing the co-benefit of lower greenhouse gas emissions, which would help to mitigate or slow the effects of climate change.⁵⁰

Air quality in Santa Clara County

The transportation sector accounts for 42% of greenhouse gas emissions in Santa Clara County.⁵¹ In 2014, Santa Clara County's air quality report met both EPA and California air quality standards. Although Santa Clara County met these standards for all of the criteria pollutants, the American Lung

Association’s yearly “State of the Air Report” gave Santa Clara County a “D” grade for ozone and 24-hour particle pollution and a “Pass” for annual particle pollution (due to the number of high ozone and high particle pollution days).⁵²

Criteria air pollutant standards across federal, state, and Santa Clara County jurisdictions

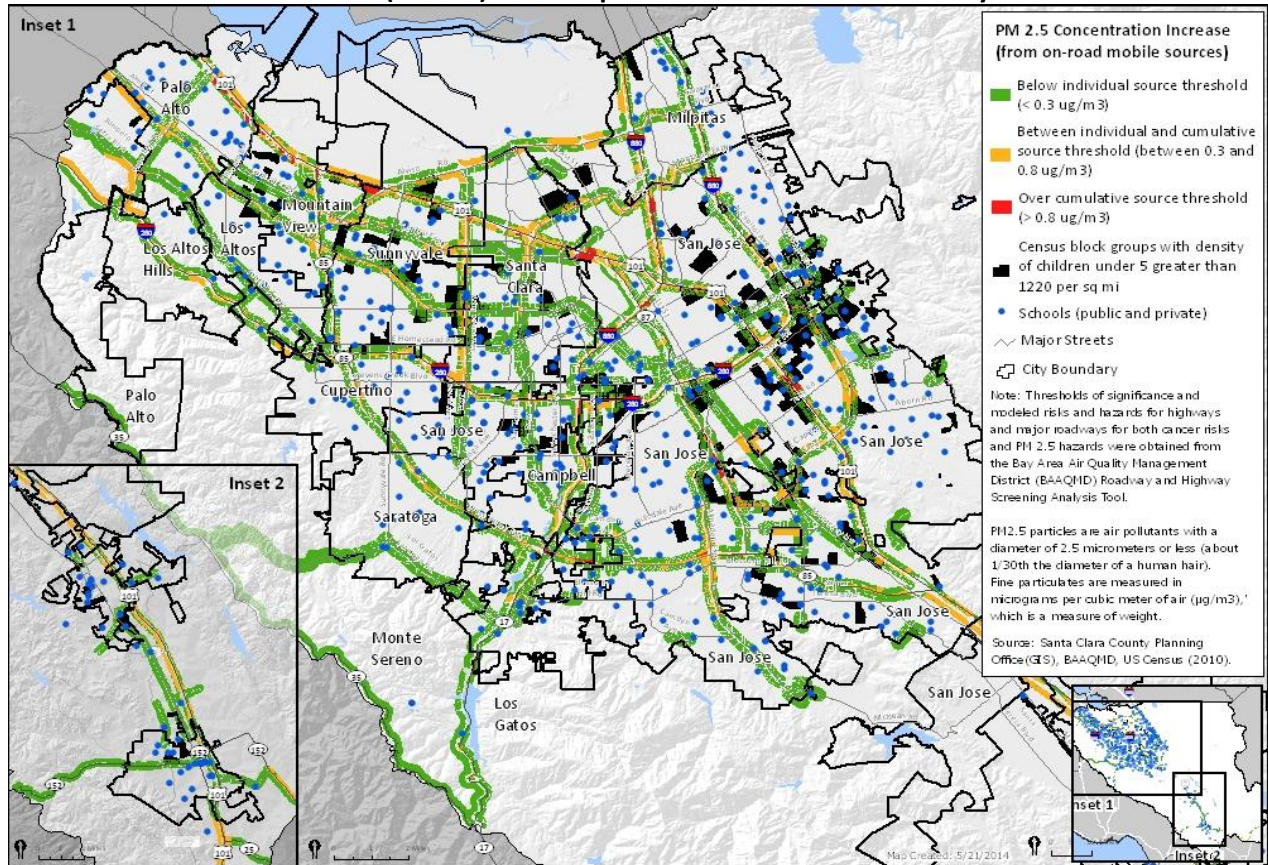
| Criteria Air Pollutant | EPA (Federal) Air Quality Standards | CA Air Quality Standards | Santa Clara County Air Quality Report | Meets EPA Air Quality Standard? | Meets CA Air Quality Standard? |
|------------------------------------|-------------------------------------|--------------------------------------|---------------------------------------|---------------------------------|--------------------------------|
| Carbon Monoxide | 9.0 ppm (8-hour avg) | 9.0 ppm (8-hour avg) | 2 ppm | Yes | Yes |
| Nitrogen Dioxide | 0.18 ppm (1-hour) | 0.100 ppm (1-hour) | 0.049 ppm | Yes | Yes |
| Sulfur Dioxide | 0.14 ppm | 0.04 ppm | 0.005 ppm | Yes | Yes |
| Ozone | 0.075 ppm (8-hour avg) | 0.070 ppm (8-hour avg) | 0.068 ppm | Yes | Yes |
| Particulate Matter (PM) 2.5 | 15 µg/m ³ (annual mean) | 12 µg /m ³ (annual mean) | 9.9 µg /m ³ | Yes | Yes |
| Particulate Matter (PM) 10 | 50 µg /m ³ (24-hour) | 150 µg /m ³ (annual mean) | 40 µg /m ³ | Yes | Yes |

Source: Santa Clara County, Community Health Existing Conditions Report, 2013

Particulate emission standards (PM 2.5) from air pollutants

Living near freeways and high volume roadways can increase exposure to air pollution from PM 2.5. The roadways in Santa Clara County that have the highest hazards from PM 2.5 emissions are Highway 101, Interstate 880, and Route 237.⁴⁵

Particulate emission standards (PM 2.5) from air pollutants in Santa Clara County



Source: Santa Clara County, Community Health Existing Conditions Report, 2013

Technical notes

Injury data are presented here as counts, age-specific rates per 100,000 people, and age-adjusted rates per 100,000 people.

Counts are the total number of events that occur in a defined period of time, such as the total number of collisions in a single year.

When comparing data between two or more populations or over a period of time, rates are often used instead of or in addition to counts, to account for differences in the size of populations. A rate is the count divided by the population at risk, and multiplied by a standard number (e.g., 100,000) to show the number affected per 100,000 people in a given population. Age-specific rates are the count in a given age group, such as the number of collisions for individuals ages 15 to 24, divided by the number of people in the population ages 15 to 24, multiplied by a standard number, e.g., 100,000.

Age-adjusted rates are a way of comparing the overall rates for indicators that are more common in some age groups than others, such as injuries. Age-adjusted rates are commonly used to compare data across subgroups (like race/ethnicity), time periods, and geographic areas like cities to account for differences in the age profile of different populations or the same population over time (i.e., the fact that there is a higher percentage of older adults in the White population than in other racial/ethnic groups in Santa Clara County). Age adjustment involves applying the age distribution of a “standard” population, in this case the 2000 projected U.S. population, to the rates. It is important to note that once an age adjustment is applied, results no longer represent the *actual* rates in a given population and so should be used only for the purposes of comparison. For more information on age adjustment, see <http://www.cdc.gov/nchs/data/statnt/statnt20.pdf>.

References

1. Centers for Disease Control and Prevention. CDC transportation recommendations. <http://www.cdc.gov/transportation/> Updated 8/2/2012. Accessed 2/20/2014.
2. Centers for Disease Control and Prevention. 10 leading causes of death and injury. <http://www.cdc.gov/injury/wisqars/leadingcauses.html> Updated 8/8/ 2013. Accessed 12/13/2013.
3. Centers for Disease Control and Prevention. Non-fatal Injury Reports, 2001-2012. <http://webappa.cdc.gov/sasweb/ncipc/nfirates2001.html> Updated 3/28/2013. Accessed 2/27/2014.
4. U.S. Department of Transportation. Fatality analysis reporting system general estimates system: 2011 data summary. National Highway Traffic Safety Administration. <http://www-nrd.nhtsa.dot.gov/Pubs/811755DS.pdf> Published 9/2012. Accessed 2/27/2014.
5. Governors Highway Safety Association. Pedestrian traffic fatalities by state, 2013 preliminary data. http://www.ghsa.org/html/publications/pdf/spotlights/spotlight_ped2013.pdf Accessed 3/19/2014.
6. Centers for Disease Control and Prevention. Data & statistics (WISQARS™): Cost of injury reports. <http://wisqars.cdc.gov:8080/costT/> Updated 5/2/2012. Accessed 2/19/2014.
7. Centers for Disease Control and Prevention. Winnable battles. <http://www.cdc.gov/winnablebattles/index.html> Updated/reviewed: 8/5/2013. Accessed 1/2/2014.
8. Santa Clara County Public Health Department, Death Statistical Master File, 2012.

9. California Highway Patrol, Statewide Integrated Traffic Records Systems (SWITRS), 2002-2011.
10. California Highway Patrol, Statewide Integrated Traffic Records Systems (SWITRS), 2011.
11. California Highway Patrol, Statewide Integrated Traffic Records Systems (SWITRS), 2007-2011.
12. Office of Statewide Health Planning and Development, Emergency Department Data, 2006-2011.
13. State of California, Department of Finance, Race/Ethnic Population with Age and Sex Detail, 2000–2010. Sacramento, California, September 2012.
14. State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060. Sacramento, California, January 2013.
15. Office of Statewide Health Planning and Development, Emergency Department Data, 2011.
16. Santa Clara County Public Health Department, Death Statistical Master File, 2003-2012.
17. Santa Clara County Public Health Department, Death Statistical Master File, 2010-2012.
18. U.S. Census Bureau, 2010 Summary File, Table QT-P2 Single Years of Age and Sex: 2010.
19. National Highway Traffic Safety Administration. Distraction.Gov. <http://www.distraction.gov/index.html> Accessed 1/2/2014.
20. Naumann RB and Dellinger AM. Mobile device use while driving — United States and seven European countries, 2011. *Morb Mortal Wkly Rep.* 2013; 62(10);177-182.
21. California Office of Traffic Safety and the California Highway Patrol. 57,000 Distracted Driving Month tickets in April: Cell phone usage rate down. <http://www.chp.ca.gov/pdf/media/13-17.pdf> Published 5/22/2013. Accessed 2/27/2014.
22. California Highway Patrol, City of San Jose, 2013.
23. California Highway Patrol, Statewide Integrated Traffic Records Systems (SWITRS), 2009-2011.
24. California Highway Patrol. *2011 Annual report of fatal and injury motor vehicle traffic collisions.* <http://www.chp.ca.gov/switrs/pdf/2011-sec5.pdf> Accessed 4/10/2014.
25. California Office of Traffic Safety. *Results of the 2012 California Roadside Survey of Nighttime Weekend Drivers' Alcohol and Drug Use.* http://www.ots.ca.gov/media_and_research/press_room/2012/doc/2012_drug_and_alcohol_roadside_survey.pdf Published 11/13/2012. Accessed 4/14/2014.
26. California Healthy Kids Survey, 2001-2010.
27. California Healthy Kids Survey, 2009-10.
28. Centers for Disease Control and Prevention. Bicycle related injuries. <http://www.cdc.gov/HomeandRecreationalSafety/Bicycle/> Updated 5/28/2013. Accessed 2/24/2014.
29. Santa Clara County Public Health Department, Emergency Medical Services (EMS), 2013
30. California Healthy Kids Survey, 2007-08.
31. National Highway Traffic Safety Administration. Lives saved in 2012 by restraint use and minimum drinking age laws. <http://www-nrd.nhtsa.dot.gov/Pubs/811851.pdf> Published 2013. Accessed 2/18/2014.
32. California Office of Traffic Safety. California traffic safety report card. http://www.ots.ca.gov/OTS_and_Traffic_Safety/Report_Card.asp Updated 2/2012. Accessed 4/10/2014.
33. Health Resources in Action. Community speed reduction and public health: A technical report. <http://hria.org/resources/reports/community-speed-reduction/2013-resources-speed-reduction.html> Updated/reviewed 12/2013. Accessed 1/2/2014.
34. Centers for Disease Control and Prevention. Pedestrian safety. http://www.cdc.gov/Motorvehiclesafety/Pedestrian_Safety/factsheet.html Updated 4/16/2013. Accessed 2/24/2014.
35. Centers for Disease Control and Prevention. Bicycle related injuries. <http://www.cdc.gov/HomeandRecreationalSafety/Bicycle/> Updated 5/28/2013. Accessed 2/24/2014.

36. Rissel C, Curac N, Greenaway M, and Bauman A. Physical activity associated with public transport use—a review and modelling of potential benefits. *Int J Environ Res Public Health*. 2012;9:2454–2478.
37. Besser LM, Dannenberg AL. Walking to public transit: Steps to help meet physical activity recommendations. *Am J Prev Med*. 2005;29:273-80.
38. Wannier M1, Götschi T, Martin-Diener E, Kahlmeier S, Martin BW. Active transport, physical activity, and body weight in adults: A systematic review. *Am J Prev Med*. 2012;42:493-502.
39. U.S. Census Bureau, 2012 American Community Survey 1-Year Estimates.
40. Robert Wood Johnson Foundation. Active living research brief. Walking and biking to school, physical activity and health outcomes. http://activelivingresearch.org/files/ALR_Brief_ActiveTransport_0.pdf Published 5/2009. Accessed 3/19/2014
41. California Health Interview Survey, 2011-12.
42. National Center for Safe Routes to School. Trends in walking and bicycling to school from 2007 to 2012. http://www.saferoutesinfo.org/sites/default/files/Trends_in_Walking_and_Bicycling_to_School_from_2007_to_2012_FINAL.pdf Published 10/2013. Accessed 3/19/2014.
43. Santa Clara County Public Health Department, Safe Routes to School, Student Travel Tally, 2012.
44. Santa Clara County Public Health Department, Safe Routes to School, Parent Survey, 2013.
45. Santa Clara County, *Community health existing conditions report*, 2013.
46. Centers for Disease Control and Prevention. Air and health. <http://ephtracking.cdc.gov/showAirHealth.action> Updated 5/21/2013. Accessed 2/18/2014.
47. Centers for Disease Control and Prevention. Air pollutants. <http://www.cdc.gov/air/pollutants.htm> Updated 9/27/2013. Accessed 1/20/2014.
48. Centers for Disease Control and Prevention. Climate and health program: Asthma, respiratory allergies, and airway diseases. http://www.cdc.gov/climateandhealth/effects/airway_diseases.htm Updated 11/29/2010. Accessed 3/28/2014.
49. California Environmental Protection Agency. Air Resources Board. California greenhouse gas inventory for 2000-2011— by category as defined in the 2008 scoping plan. http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_00-11_2013-08-01.pdf Updated 8/1/2013. Accessed 3/28/2014.
50. Maizlish N, Woodcock J, Co S, Ostro B, Fanai A, Fairley D. Health Co-Benefits and transportation-related reductions in greenhouse gas emissions in the San Francisco Bay area. *Am J Public Health*. 2013;103:703-9.
51. Bay Area Air Quality Management District. Source inventory of bay area greenhouse gas emissions. http://www.mtc.ca.gov/planning/climate/Bay_Area_Greenhouse_Gas_Emissions_2-10.pdf Published 2/2010. Accessed 1/20/2014.
52. American Lung Association. State of the air 2014: Santa Clara County. <http://www.stateoftheair.org/2014/states/california/santa-clara-06085.html> Published 4/30/2014. Accessed 5/1/2014.

Appendix: Motor vehicle traffic collisions by city

Number of motor vehicle traffic collisions by city

| City | Number of collisions |
|-----------------|----------------------|
| Campbell | 139 |
| Cupertino | 191 |
| Gilroy | 130 |
| Los Altos | 66 |
| Los Altos Hills | 30 |
| Los Gatos | 126 |
| Milpitas | 353 |
| Monte Sereno | 7 |
| Morgan Hill | 62 |
| Mountain View | 283 |
| Palo Alto | 448 |
| San Jose | 3721 |
| Santa Clara | 402 |
| Saratoga | 70 |
| Sunnyvale | 387 |

Source: California Highway Patrol, Statewide Integrated Traffic Records Systems (SWITRS), 2011

Number, age-adjusted rate, and age-specific rate of bicyclist-involved motor vehicle traffic collisions by city, 2007-2011

| City | Number of collisions | Age-adjusted rate per 100,000 people | Age-specific rate per 100,000 people | | | | |
|-----------------|----------------------|--------------------------------------|--------------------------------------|--------|-------|-------|-------|
| | | | <15 | 15-24 | 25-44 | 45-64 | 65+ |
| Campbell | 95 | 49.6 | -- | 121.1 | 35.8 | 60.7 | -- |
| Cupertino | 155 | 57.7 | 47.2 | 176.6 | 34.6 | 41.1 | -- |
| Gilroy | 74 | 29.0 | 39.8 | -- | -- | 37.8 | -- |
| Los Altos | 92 | 73.3 | 60.8* | -- | 87.2 | 59.9 | -- |
| Los Altos Hills | 46 | 135.5 | -- | -- | -- | 168.5 | -- |
| Los Gatos | 98 | 70.2 | 68.1* | 132.2* | 65.5 | 76.5 | -- |
| Milpitas | 86 | 26.3 | 12.4 | 69.6 | 23.8 | 20.6* | -- |
| Monte Sereno | 6 | -- | -- | -- | -- | -- | -- |
| Morgan Hill | 27 | 14.5 | -- | -- | -- | -- | -- |
| Mountain View | 201 | 53.8 | -- | 99.6 | 61.6 | 56.7 | -- |
| Palo Alto | 411 | 143.6 | 100.8 | 378.1 | 141.0 | 106.6 | 34.5* |
| San Jose | 1635 | 33.9 | 26.4 | 76.8 | 29.5 | 32.0 | 12.4 |
| Santa Clara | 189 | 32.9 | 20.5 | 73.5 | 28.7 | 31.2 | -- |
| Saratoga | 72 | 52.7 | -- | -- | 81.2* | 58.5 | -- |
| Sunnyvale | 246 | 36.4 | 28.5 | 58.2 | 34.6 | 42.2 | -- |

Note: (--) indicates that the number of collisions was too low to report rates. (*) indicates that the number of collisions is small and rates should be viewed with caution.

Source: California Highway Patrol, Statewide Integrated Traffic Records Systems (SWITRS), 2007-2011; U.S. Census Bureau, 2010 Summary File, Table QT-P2 Single Years of Age and Sex: 2010

Number, age-adjusted rate, and age-specific rate of pedestrian-involved motor vehicle traffic collisions by city, 2007-2011

| City | Number of collisions | Age-adjusted rate per 100,000 people | Age-specific rate per 100,000 people | | | | |
|-----------------|----------------------|--------------------------------------|--------------------------------------|-------|-------|-------|------|
| | | | <15 | 15-24 | 25-44 | 45-64 | 65+ |
| Campbell | 54 | 28.4 | -- | -- | 28.1* | -- | -- |
| Cupertino | 66 | 24.5 | -- | 67.4 | -- | -- | -- |
| Gilroy | 72 | 28.6 | 31.8 | 63.5 | -- | -- | -- |
| Los Altos | 26 | 19.4 | -- | -- | -- | -- | -- |
| Los Altos Hills | 2 | -- | -- | -- | -- | -- | -- |
| Los Gatos | 44 | 32.3 | -- | -- | -- | -- | -- |
| Milpitas | 71 | 22.6 | -- | -- | -- | -- | -- |
| Morgan Hill | 20 | 11.3 | -- | -- | -- | -- | -- |
| Mountain View | 113 | 31.6 | -- | -- | 21.7 | 27.2 | 68.8 |
| Palo Alto | 126 | 37.5 | -- | -- | 31.5 | 52.2 | 38.2 |
| San Jose | 1583 | 33.3 | 31.0 | 57.2 | 23.3 | 29.4 | 40.7 |
| Santa Clara | 161 | 28.1 | 16.7* | 54.5 | 15.3 | 29.7 | 44.5 |
| Saratoga | 23 | 15.6 | -- | -- | -- | -- | -- |
| Sunnyvale | 148 | 22.1 | 21.9 | 29.8 | 16.5 | 20.2 | 29.4 |

Note: (--) indicates that the number of collisions was too low to report rates. (*) indicates that the number of collisions is small and rates should be viewed with caution.

Source: California Highway Patrol, Statewide Integrated Traffic Records Systems (SWITRS), 2007-2011; U.S. Census Bureau, 2010 Summary File, Table QT-P2 Single Years of Age and Sex: 2010