3. Santa Rosa Today

This chapter describes the active transportation landscape in Santa Rosa, including a discussion of related themes that inform the recommended infrastructure projects, programs, and policies in the community.

Local Context

Demographics

Santa Rosa is home to 173,165 residents, according to 2016 American Community Survey five-year estimates. This represents more than one third of the Sonoma County population of 497,776. When compared to the county population, Santa Rosa is slightly younger, with more residents under 10 years old and between 20-34 years old, as shown in Figure 3-1.

![Figure 3-1: Population by Age in Santa Rosa and Sonoma County](image)

Santa Rosa families participate in a Kidical Mass ride
Land Use & Major Destinations

This Bicycle & Pedestrian Master Plan Update will support Santa Rosa’s Priority Development Areas (PDAs), the areas where the City plans to focus development in denser, mixed-use areas along transit routes shown in Figure 3-2. In conjunction with this development and transit service, high-quality bicycling and walking infrastructure within PDAs is intended to offer improved alternatives to driving. The existing and planned land uses in Santa Rosa will inform the recommendations in this Plan Update in an effort to maximize the number of people who will have access to walking and bicycling networks.

Major destinations in Santa Rosa include schools, parks, healthcare facilities, shopping centers, city hall, county administration, and transit stations, mapped in Figure 3-3. These destinations are dispersed throughout the four quadrants of the city, and will require a comprehensive network of active transportation facilities to allow people to walk or bicycle instead of driving. Employment density is highest in the downtown area and in northern Santa Rosa along Highway 101 where Kaiser Permanente Medical Center and several federal and county offices are located.

Transit Access

Santa Rosa is served by several transit providers and routes that offer connections to local and regional destinations. Santa Rosa CityBus and Sonoma County Transit both offer local bus service, and the Sonoma-Marin Area Rail Transit (SMART) station downtown has service to the Sonoma County Airport as well as Rohnert Park, Petaluma, Novato, and San Rafael. Golden Gate Transit also offers bus service between Santa Rosa and San Francisco. See Figure 3-4 for a map of frequently used transit routes in the city.

Many bicyclists use transit for a portion of their trip, making bicycling access to transit stops and stations an important part of the active transportation network. Between 2013 and 2018, approximately 30,000 bicycles were brought on CityBus trips each year.
Equity

Equity issues are an important part of all planning processes, including development of this Plan Update. Historically, communities with large populations of people of non-white races or ethnicities and low income households have received less investment from their local governments, including an uneven spatial distribution of facilities and safety improvements for people walking and bicycling. A review of citywide factors related to walking, bicycling, and equity identified neighborhoods that are disproportionately burdened by pollution or other negative impacts. These and other considerations informed the projects and prioritization recommended in this Plan Update.

Income and Vehicle Access

While Sonoma County has a higher median household income at $66,833 than the state of California at $63,783, Santa Rosa is slightly less affluent than both the county and state with a median household income of $62,705. Median income varies widely between cities in Sonoma County, as shown in Figure 3-5. The other two large cities—Rohnert Park and Petaluma—have median household incomes of $60,333 and $80,907 respectively. All median income figures are from the American Community Survey 2016 5-year estimates.

Just two percent of households in Santa Rosa lack access to a vehicle, as shown in Figure 3-6. Nearly 80 percent of households have access to two or more vehicles. These rates are nearly identical to countywide vehicle access.

With such widespread vehicle access, few households rely on walking or bicycling out of necessity. To create significant shifts in trips away from driving, walking and bicycling must be convenient and comfortable options to attract more people.

Figure 3-5: Median Household Income

Figure 3-6: Vehicles Available
Communities of Concern

As part of the San Francisco Bay Area’s long-range integrated transportation and land use/housing strategy, Plan Bay Area, the Association of Bay Area Governments (ABAG), and the Metropolitan Transportation Commission (MTC) analyzed the distribution of benefits and burdens that would result from implementation of the region’s preferred planning scenario. To conduct this analysis, ABAG and MTC, along with extensive input from an Equity Working Group and other stakeholders, identified “Communities of Concern” throughout the Bay Area region that meet at least four thresholds listed in Table 3-1.

Table 3-1: Community of Concern Factors and Thresholds

<table>
<thead>
<tr>
<th>Factor</th>
<th>% of Regional Population</th>
<th>Community of Concern Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minority Population</td>
<td>54%</td>
<td>70%</td>
</tr>
<tr>
<td>Low Income (&lt;200% of poverty)</td>
<td>23%</td>
<td>30%</td>
</tr>
<tr>
<td>Limited English Proficiency Population</td>
<td>9%</td>
<td>20%</td>
</tr>
<tr>
<td>Zero-Vehicle Households</td>
<td>9%</td>
<td>10%</td>
</tr>
<tr>
<td>Seniors 75 and Older</td>
<td>6%</td>
<td>10%</td>
</tr>
<tr>
<td>Population with a Disability</td>
<td>18%</td>
<td>25%</td>
</tr>
<tr>
<td>Single-Parent Families</td>
<td>14%</td>
<td>20%</td>
</tr>
<tr>
<td>Cost-Burdened Renters</td>
<td>10%</td>
<td>15%</td>
</tr>
</tbody>
</table>

Source: Appendix A: Detailed Methodology, Plan Bay Area (2013).

In the City of Santa Rosa, the three Communities of Concern include the Roseland neighborhood southwest of the Highway 101 and SR 12 interchange, an area north of College Avenue and west of Highway 101, and the downtown area east of Highway 101 between College Avenue and Sonoma Avenue. See Figure 3-7 for a map of Communities of Concern. The walking and bicycling improvements recommended in this Plan Update will consider the benefits and burdens of those projects on these communities.

CalEnviroScreen

The California Office of Environmental Health Hazard Assessment developed the CalEnviroScreen tool to help identify communities that are disproportionately burdened by multiple sources of pollution. It combines pollution data (such as ozone concentrations and drinking water contaminants) with population indicators (such as birth weight and educational attainment).

This is also a tool used in California’s Active Transportation Program grant application scoring. Communities that score in the most burdened 25 percent of the state are considered to be disadvantaged and receive a small advantage in the competitive funding process. Areas in Santa Rosa that meet this threshold are mapped in Figure 3-8.
COMMUNITIES OF CONCERN

SANTA ROSA BICYCLE & PEDESTRIAN MASTER PLAN UPDATE 2018

FIGURE 3-7

DESTINATIONS + BOUNDARIES

- City Hall
- SMART Station
- Park
- City Limits
- Urban Growth Boundary

Map produced February 2018.
CalEnviroScreen 3.0
SANTA ROSA BICYCLE & PEDESTRIAN MASTER PLAN UPDATE 2018

FIGURE 3-8

SCORE (PERCENTILE)

- 1 - 25% (Lowest Scores)
- 26 - 50%
- 51 - 75%
- 76 - 100% (Highest Scores)

*Scoring is based on environmental, health, and socioeconomic conditions. Areas with higher scores are faced with more adverse conditions and areas with lower scores are faced with less adverse conditions.

DESTINATIONS + BOUNDARIES

- City Hall
- SMART Station
- Park
- City Limits
- Urban Growth Boundary

Map produced February 2018.
Biking and Walking Today

Existing Bicycle Network

The California Department of Transportation (Caltrans) designates four classes of bicycle facilities: Class I shared use paths, Class II bicycle lanes, Class III bicycle routes, and Class IV separated bikeways. The City’s current bicycle network has approximately 113 miles of bikeways, and has grown by 40 percent since the last Bicycle and Pedestrian Master Plan Update in 2010 (see Table 3-2). Descriptions of each bikeway class are included in the following section, and bikeways are mapped in Figure 3-9 through Figure 3-14 to show where they currently exist in Santa Rosa.

<table>
<thead>
<tr>
<th>Bikeway Type</th>
<th>2010 Miles</th>
<th>2018 Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class I Shared Use Paths</td>
<td>13</td>
<td>30.9</td>
</tr>
<tr>
<td>Class II Bicycle Lanes</td>
<td>46</td>
<td>69.2</td>
</tr>
<tr>
<td>Class III Bicycle Routes</td>
<td>18</td>
<td>12.8*</td>
</tr>
<tr>
<td>Class III Bicycle Boulevards</td>
<td>0</td>
<td>0.3</td>
</tr>
<tr>
<td>Class IV Separated Bikeways</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>77</td>
<td>113.2</td>
</tr>
</tbody>
</table>

*Several miles of Class III bicycle routes were upgraded to Class II bicycle lanes

Class I Shared Use Paths

Class I shared use paths are paved trails completely separated from the street. They allow two-way travel by people bicycling and walking, and are often considered the most comfortable facilities for children and inexperienced riders as there are few potential conflicts between people bicycling and people driving.

There are currently 30.9 miles of Class I shared use paths in Santa Rosa.
Class II Bicycle Lanes

Class II bicycle lanes are striped preferential lanes on the roadway for one-way bicycle travel. Some bicycle lanes include a striped buffer on one or both sides to increase separation from the traffic lane or from parked cars, where people may open doors into the bicycle lane. Buffered Class II bicycle lanes were recently installed on 3rd Street from Morgan Street to B Street, where 3rd Street passes underneath Santa Rosa Plaza.

There are currently 69 miles of Class II bicycle lanes and 0.2 miles of buffered bicycle lanes in Santa Rosa.

Class III Bicycle Routes

Class III bicycle routes are signed routes where people bicycling share a travel lane with people driving. Because they are shared facilities, bicycle routes are only appropriate on quiet, low-speed streets with relatively low traffic volumes. Some Class III bicycle routes include shared lane markings or “sharrows” that recommend proper bicycle positioning in the center of the travel lane and alert drivers that bicyclists may be present. Others include more robust traffic calming features to promote bicyclist comfort and are known as “bicycle boulevards.” The Santa Rosa Fire Department should be included in discussions about new or altered features on bicycle boulevards, to ensure access for emergency responders is maintained.

There are currently 12.8 miles of Class III bicycle routes in Santa Rosa and 0.3 miles of bicycle boulevard on Jennings Avenue.
Class IV Separated Bikeways

Class IV separated bikeways are on-street bicycle facilities that are physically separated from motor vehicle traffic by a vertical element or barrier, such as a curb, bollards, or vehicle parking aisle. They can allow for one- or two-way travel on one or both sides of the roadway.

No Class IV separated bikeways exist in Santa Rosa.

Existing Support Facilities

Support facilities are also needed to attract and maintain bicyclists by considering their needs throughout their journey. People are less likely to ride their bicycles to destinations without secure bicycle parking. Other support facilities include showers or lockers at destinations, repair stations with basic tools, and wayfinding or guide signs to help bicyclists navigate along the way.

A complete bicycle network must include secure bicycle parking at each end of every trip. Bicycle parking can generally be divided into two categories: short-term bicycle racks and long-term higher-security parking.

The City has installed short-term bicycle parking throughout downtown on sidewalks, plazas, and in parking garages. These racks have been funded primarily through the Transportation Fund for Clean Air, provided by the Bay Area Air Quality Management District. Currently, 62 bicycle racks are installed through downtown Santa Rosa, as shown in Figure 3-15.

Long-term bicycle parking is available in the form of on-demand bike lockers. BikeLink, a private vendor, has installed 80 lockers at 12 locations across the city listed in Table 3-3. To use the lockers, bicyclists purchase a BikeLink card online or at one of three vendors in the city. Once activated, the card can be loaded with funds to purchase time at 3-5 cents per hour.
From September 2017 to October 2018, the 12 bicycle lockers at the Santa Rosa Downtown SMART station combined averaged more than 100 rentals per month (each locker is rented an average of 9.14 times per month). At the Santa Rosa North station, the four lockers combined averaged just over 20 rentals per month (each locker rented an average of 5.08 times per month). The average rental length at Santa Rosa Downtown is just over 11 hours, while lockers at the Santa Rosa North station are rented for an average of 15 hours. At both locations, nearly all rentals occur on weekdays—93 percent at Santa Rosa Downtown and 98 percent at Santa Rosa North.

Table 3-3: Bicycle Locker Locations

<table>
<thead>
<tr>
<th>Locker Location</th>
<th>Spaces</th>
</tr>
</thead>
<tbody>
<tr>
<td>Santa Rosa Junior College</td>
<td>36</td>
</tr>
<tr>
<td>Bailey Field</td>
<td>4</td>
</tr>
<tr>
<td>Tauzer Gym</td>
<td>4</td>
</tr>
<tr>
<td>Pioneer Hall</td>
<td>4</td>
</tr>
<tr>
<td>Quinn Swim Center</td>
<td>4</td>
</tr>
<tr>
<td>Doyle Library</td>
<td>8</td>
</tr>
<tr>
<td>Plover Hall</td>
<td>8</td>
</tr>
<tr>
<td>Analy Village</td>
<td>4</td>
</tr>
<tr>
<td>SMART – Santa Rosa Downtown</td>
<td>12</td>
</tr>
<tr>
<td>SMART – Santa Rosa North</td>
<td>4</td>
</tr>
<tr>
<td>Sonoma County Permit Resource Management</td>
<td>12</td>
</tr>
<tr>
<td>Sonoma County La Plaza</td>
<td>8</td>
</tr>
<tr>
<td>Sonoma County Hall of Justice</td>
<td>8</td>
</tr>
</tbody>
</table>
EXISTING BIKEWAYS

DOWNTOWN

SANTA ROSA BICYCLE & PEDESTRIAN MASTER PLAN UPDATE 2018

FIGURE 3-10

DESTINATIONS + BOUNDARIES

- City Hall
- SMART Station
- Shopping Center
- School
- Hospital
- Park

Map produced February 2018.
FIGURE 3-12
EXISTING BIKEWAYS

DESTINATIONS + BOUNDARIES

- City Hall
- SMART Station
- Shopping Center
- School
- Hospital
- Park
- City Limits
- Urban Growth Boundary

Map produced February 2018.
SOUTHWEST QUADRANT
SANTA ROSA BICYCLE & PEDESTRIAN MASTER PLAN UPDATE 2018

FIGURE 3-13
EXISTING BIKEWAYS

- **Class I Shared-Use Path**
- **Class II Bike Lane**
- **Class III Bike Route**

DESTINATIONS + BOUNDARIES

- **City Hall**
- **SMART Station**
- **Shopping Center**
- **School**
- **Hospital**
- **Park**
- **City Limits**
- **Urban Growth Boundary**

Map produced February 2018.

City of Santa Rosa
SOUTHEAST QUADRANT
SANTA ROSA BICYCLE & PEDESTRIAN MASTER PLAN UPDATE 2018

FIGURE 3-14
EXISTING BIKEWAYS

- Green: Class I Shared-Use Path
- Blue: Class II Bike Lane
- Purple: Class III Bike Route

DESTINATIONS + BOUNDARIES

- City Hall
- SMART Station
- Shopping Center
- School
- Hospital
- Park
- City Limits
- Urban Growth Boundary

Map produced February 2018.
FIGURE 3-15

- Bicycle Rack
- Class I Shared-Use Path
- Class II Bike Lane
- Class III Bike Route

DESTINATIONS + BOUNDARIES

- City Hall
- SMART Station
- Shopping Center
- School
- Hospital
- Park

Map produced February 2018.
**Existing Pedestrian Network**

There are many features that contribute to a convenient and comfortable walking environment. Significant investments and commitments to future improvements have been made that continue to enhance the pedestrian experience in Santa Rosa.

**Funding Commitments**

In the 2017-2018 Capital Improvement Program (CIP), Traffic Safety and Transportation projects focus on street rehabilitation, traffic safety, bicycle and pedestrian safety, and street lighting. Projects related to improving circulation and safety for all users were funded at almost $3 million, representing approximately 24 percent of the total budget request for transportation projects. These projects include traffic signal improvements, sidewalk installations, pedestrian signal installations, traffic calming, and bikeway improvements.

$1,500,000 has been committed to date for LED streetlight replacements, which last longer and require less maintenance than alternatives. This will allow the city to improve and expand lighting, creating a more comfortable walking environment.

The City has also committed $1.2 million from the General Fund in an ongoing effort to implement facility improvements for people with disabilities, in compliance with the Americans with Disabilities Act (ADA). These improvements often include sidewalk gap closures, pavement repairs, or curb ramps.

**Sidewalks**

Sidewalks form the backbone of the pedestrian transportation network. Most streets in the City have sidewalks or pathways on at least one side. Within the City limits, sidewalk maintenance is the responsibility of the property owner. Some parts of the City are not required to provide sidewalks. These include rural hillside developments, such as portions of the Fountaingrove area, or areas previously built out while under County jurisdiction and subsequently annexed into the City, such as the Castlerock subdivision and Roseland community.

**High Visibility Crosswalks**

Crosswalks are a legal extension of the sidewalk and provide guidance for pedestrians who are crossing roadways by defining and delineating their path of travel. Crosswalks are not required to be marked, however marked crosswalks alert drivers of a pedestrian crossing point and increase yielding to pedestrians. Markings can be standard parallel lines or the “continental” high visibility pattern shown in the image above, which enhances visibility of the crossing and is becoming best practice. Crosswalks in school zones are yellow.

The City conducted a review of uncontrolled crossings in 2014, which evaluated 185 crossing locations. The study included a robust data collection effort, and made detailed recommendations for each location to improve accessibility and comfort, including additional pavement markings for visibility, beacons or traffic controls, and visibility improvements such as parking removal or vegetation maintenance. The City was recently awarded a Highway Safety Improvement Program (HSIP) grant to implement the recommended improvements at approximately 100 of the uncontrolled crossings. Unfunded locations will be carried forward in this Bicycle & Pedestrian Master Plan Update.
Pedestrian Hybrid Beacons

Pedestrian hybrid beacons are used to enforce motorist yielding to pedestrians at uncontrolled crosswalk locations. The beacon, when activated by a person wishing to cross, flashes yellow before displaying a solid red signal to motorists, requiring them to stop. Pedestrians are then shown a WALK signal, and may cross the road. When the WALK phase is complete, the beacon flashes yellow before returning to a dark inactive state. Operation of the beacon is illustrated in the graphic below.

Santa Rosa recently installed a hybrid beacon at this crossing on Montgomery Drive at Spring Lake Village.

Rectangular Rapid Flashing Beacons

Rectangular Rapid Flashing Beacons or RRFBs increase visibility of uncontrolled or midblock crosswalks with bright LED lights activated by a pedestrian push button.

Santa Rosa has multiple RRFBs throughout the City, including at 3rd Street and Courthouse Square.

Barriers to Active Transportation

Two freeways cross the City, dividing it into four quadrants. Highway 101 runs north-south through Santa Rosa, and State Route (SR) 12 runs east-west. The SMART rail line also runs north-south through the City, west of Highway 101. These transportation features create challenges for people walking and bicycling in some places, as crossings are limited.
Bicycle and Pedestrian Trips

The most consistent bicycling and walking data comes from American Community Survey 5-year estimates, which record the mode of transportation people use to commute to work. Over the most recent five years of available data, shown in Table 3-4, bicycling in Santa Rosa has remained steady just above one percent while walking has decreased slightly from 3.3 percent to 2.6 percent.

<table>
<thead>
<tr>
<th>Year</th>
<th>Bicycle Mode Share</th>
<th>Walking Mode Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>1.2%</td>
<td>3.3%</td>
</tr>
<tr>
<td>2013</td>
<td>1.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>2014</td>
<td>1.0%</td>
<td>2.7%</td>
</tr>
<tr>
<td>2015</td>
<td>1.2%</td>
<td>2.8%</td>
</tr>
<tr>
<td>2016</td>
<td>1.3%</td>
<td>2.6%</td>
</tr>
</tbody>
</table>

In addition to reviewing data on mode of transportation to work, the City of Santa Rosa also conducts bicycle and pedestrian counts at locations around the city. In 2018, counts conducted on the SMART Trail at 9th Street and at Sebastopol Road reported an average of 576 pedestrians and 53 bicyclists using the trail each day. Active transportation use was highest on weekdays, and peaked from approximately 7 – 10 a.m. and from 3 – 6 p.m., suggesting residents may be using the path to commute to work.

By comparison, counts conducted in 2016 on the nearby Joe Rodota Trail showed a daily average of 265 people bicycling along that trail. These counts showed consistent use during both weekdays and weekends, with weekend days showing peak hours similar to the SMART trail. This suggests the Joe Rodota Trail is used for both commuting to work and for weekend recreational use.

Hourly counts of people walking and bicycling were also gathered from multiple agencies in Santa Rosa that collect this data, including the Sonoma County Transportation Authority (SCTA), and the Metropolitan Transportation Commission (MTC). From these hourly counts, average daily walking and bicycling trips were extrapolated and compared to identify cross streets that currently have the most people walking and bicycling in the City. Locations with high bicycling activity are listed in Table 3-5 and locations with high walking activity are listed in Table 3-6. Four locations are popular for both bicycling and walking:

- Mendocino Avenue and Pacific Avenue
- Sonoma Avenue and Brookwood Avenue
- Mendocino Avenue and Steele Lane
- Santa Rosa Avenue and 2nd Street

<table>
<thead>
<tr>
<th>Street</th>
<th>Cross Street</th>
<th>Daily Bicycle Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sandia Rosa Creek</td>
<td>Stony Point Road</td>
<td>807</td>
</tr>
<tr>
<td>Joe Rodota Trail</td>
<td>Prince Memorial Greenway</td>
<td>711</td>
</tr>
<tr>
<td>Joe Rodota Trail</td>
<td>Dutton Avenue</td>
<td>629</td>
</tr>
<tr>
<td>Humboldt Street</td>
<td>College Avenue</td>
<td>561</td>
</tr>
<tr>
<td>Mendocino Avenue</td>
<td>Pacific Avenue</td>
<td>546</td>
</tr>
<tr>
<td>Sonoma Avenue</td>
<td>Brookwood Avenue</td>
<td>546</td>
</tr>
<tr>
<td>Joe Rodota Trail</td>
<td>South Wright Road</td>
<td>386</td>
</tr>
<tr>
<td>Santa Rosa Avenue</td>
<td>2nd Street</td>
<td>379</td>
</tr>
<tr>
<td>Mendocino Avenue</td>
<td>Steele Lane</td>
<td>350</td>
</tr>
<tr>
<td>Stony Point Road</td>
<td>Sebastopol Road</td>
<td>307</td>
</tr>
</tbody>
</table>
Table 3-6: Top Ten Pedestrian Count Locations

<table>
<thead>
<tr>
<th>Street</th>
<th>Cross Street</th>
<th>Daily Walking Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Santa Rosa Avenue</td>
<td>2nd Street</td>
<td>2,511</td>
</tr>
<tr>
<td>Mendocino Avenue</td>
<td>Pacific Avenue</td>
<td>2,432</td>
</tr>
<tr>
<td>B Street</td>
<td>4th Street</td>
<td>1,964</td>
</tr>
<tr>
<td>Davis Street</td>
<td>4th Street</td>
<td>1,071</td>
</tr>
<tr>
<td>Middle Rincon Road</td>
<td>Badger Road</td>
<td>1,032</td>
</tr>
<tr>
<td>Sonoma Avenue</td>
<td>Brookwood Avenue</td>
<td>825</td>
</tr>
<tr>
<td>Morgan Street</td>
<td>4th Street</td>
<td>767</td>
</tr>
<tr>
<td>Mendocino Avenue</td>
<td>Steele Lane</td>
<td>679</td>
</tr>
<tr>
<td>Yulupa Avenue</td>
<td>Bethards Drive</td>
<td>639</td>
</tr>
<tr>
<td>Davis Street</td>
<td>6th Street</td>
<td>567</td>
</tr>
</tbody>
</table>

Programs

Programs help support walking and bicycling by sharing information, promoting comfort, and creating a vibrant active transportation culture. Communities that have the highest rates of walking and bicycling consistently use a “5Es” approach, with four types of programs complementing Engineering improvements:

- **Education** - providing safety education for people walking, riding bicycles, and driving, as well as education about the environmental and health benefits of active transportation and the facilities available in the community
- **Encouragement** - promoting bicycling and walking as fun and efficient modes of transportation and recreation
- **Enforcement** - enforcing laws and good behavior for people walking, bicycling, and driving
- **Evaluation** - monitoring the success of the effort through counts, surveys, and review of relevant data

The City and its partners have been carrying out the following programs in recent years to support bicycling and walking.

**Safe Routes to School**

The City participates in the Sonoma County Safe Routes to School (SRTS) program, led by the Sonoma County Bicycle Coalition with support from Sonoma County Department of Health Services and SCTA. Many schools participate in program activities, including in-school bicycling and walking safety education, student and family bicycle rodeos, Walk and Bike to School Days, and more. The SRTS program also includes evaluation components to measure changes in walking and bicycling rates along with program activity effectiveness. Over the last four years, the City and its partners have conducted walking audits or other program activities at 20 elementary and middle schools in Santa Rosa. During the 2017-2018 school year, all five public high schools were reviewed for bicycle and pedestrian access.
Bike to Work Day

Bike to Work Day, celebrated in May each year, is a day when people are encouraged to try bicycling to work. Coordinated by the Sonoma County Bicycle Coalition, civic organizations and local business partners host “energizer stations” along popular commute routes to offer snacks and other giveaways to people who participate. In 2017, nearly 1,000 people visited 12 energizer stations in Santa Rosa as part of Bike to Work Day. The City participates by staffing a downtown Energizer station in front of City Hall.

Free Ride Trip Reduction Incentive Program

The City sponsors a “Free Ride – Trip Reduction Incentive Program” for employers in the city to encourage commute alternatives such as bicycling, walking, transit, and carpooling. Incentives include discounted transit passes and a chance to win a $50 gift card. Approximately 1,532 people are signed up for the program. To date, more than 263,536 one-way bicycle commute trips and more than 74,150 one-way walking commute trips have been recorded.

There is also a guaranteed ride home component, where a registered participant may get a free taxi ride home in an emergency. This reduces the need to commute by car because a person is worried they might need to pick up a sick child from school or for some other emergency.

These incentives are part of the City’s Transportation Demand Management (TDM) program and administered by the Santa Rosa Transit Division through a Transportation Fund for Clean Air grant.

Emergency Ride Home

The SCTA recently launched a program offering employees anywhere in the county a free ride home to encourage active transportation commuting in addition to carpooling and transit. If a family emergency arises, the carpool driver must leave unexpectedly, or your bike is stolen, for example, you can take a taxi or app-based rideshare home and be reimbursed up to $125.

Targeted Enforcement

The Santa Rosa Police Department conducts targeted enforcement to address behaviors that contribute to bicycle or pedestrian crashes on an ongoing basis, as funding and resources are available. The Department recently secured a grant from the Office of Traffic Safety to fund education and enforcement activities, including:

- Traffic safety education presentations on bicycle and pedestrian safety
- Additional patrols at intersections with increased incidents of bicycle or pedestrian collisions
- Speed limit, red light, and stop sign enforcement

Similar targeted enforcement efforts in the past have focused on reducing illegal turns by drivers, failures to yield to pedestrians in crosswalks, and bicyclist helmet laws.
Collisions

Data on bicycle- and pedestrian-related collisions can provide insight into locations or roadway features that tend to have higher collision rates, as well as behaviors and other factors that contribute to collisions. These insights will inform the recommendations in this Plan Update to address challenges facing people bicycling and walking.

Collision data involving people walking and bicycling was acquired from the Statewide Integrated Traffic Records System (SWITRS), where the California Highway Patrol and local law enforcement agencies upload collision reports. Ten years of data were evaluated, from September 1, 2007 through August 31, 2017.

A total of 9,706 collisions were reported in Santa Rosa during the study period, 6.5 percent of which involved people bicycling and 5.9 percent of which involved people walking.

**Bicycle-Related Collisions**

During the study period, 628 collisions in Santa Rosa involved a person riding a bicycle. Only four of these were fatal, but nearly 600 resulted in an injury. See Table 3-7 and Figure 3-17.

### Table 3-7: Annual Bicycle Collisions in Santa Rosa

<table>
<thead>
<tr>
<th>Year</th>
<th>Bicycle Collisions</th>
<th>Injuries</th>
<th>Fatalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007*</td>
<td>18</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>65</td>
<td>55</td>
<td>2</td>
</tr>
<tr>
<td>2009</td>
<td>76</td>
<td>71</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>70</td>
<td>67</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>64</td>
<td>62</td>
<td>1</td>
</tr>
<tr>
<td>2012</td>
<td>75</td>
<td>71</td>
<td>1</td>
</tr>
<tr>
<td>2013</td>
<td>59</td>
<td>58</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>47</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>63</td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>56</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>2017*</td>
<td>35</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>628</strong></td>
<td><strong>591</strong></td>
<td><strong>4</strong></td>
</tr>
</tbody>
</table>

*2007 data reflects September 1 through December 31. 2017 data reflects January 1 through August 31.

Overall during the study period, fewer than one percent of bicycle collisions were fatal. Over seven percent resulted in severe injury, and approximately five percent did not result in any injury. Figure 3-16 shows collision severity for the study period.
BICYCLE COLLISIONS

SANTA ROSA BICYCLE & PEDESTRIAN MASTER PLAN UPDATE 2018

FIGURE 3-17

BICYCLE COLLISIONS

from January 2007 to December 2016

- 1 - 2
- 3 - 8
- 9 - 25
- 26 - 47

DESTINATIONS + BOUNDARIES

City Hall
SMART Station
Shopping
School
Hospital
Park
Current City Limits
Urban Growth Boundary

Map produced April 2018.
Source: TIMS.
As shown in Figure 3-18, no bicyclists under 10 years old were involved in collisions during the study period. Bicyclists between 10 and 54 years old are overrepresented among collision victims compared to the general population, with 10-19 showing the largest discrepancy.

Nearly 80 percent of collisions occurred during daylight hours, and an additional 15 percent occurred at night where street lights were present and functioning.

Examining only those bicycle collisions that occurred within 500 feet of a school, 74 of 146 collisions occurred during school hours between 7 am and 4 pm, and 19 of those school-hour collisions involved bicyclists under 18 years old.

The majority of the bicycle-involved collisions during the study period were attributed to three violations that lend insight into behaviors that contribute to collisions:

- Violating the right of way of a driver (25 percent)
- Wrong side of the road (24 percent)
- Improper turning (18 percent)

When evaluating the locations where bicycle-involved collisions are more likely to occur, six locations approach an average of one collision every two years, as shown in Table 3-8.

<table>
<thead>
<tr>
<th>Location</th>
<th>Bicycle-Involved Collisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corby Ave &amp; Hearn Ave</td>
<td>12</td>
</tr>
<tr>
<td>College Ave &amp; Mendocino Ave</td>
<td>8</td>
</tr>
<tr>
<td>Mendocino Ave &amp; Pacific Ave</td>
<td>6</td>
</tr>
<tr>
<td>Sonoma Ave &amp; South E St</td>
<td>6</td>
</tr>
<tr>
<td>1st St &amp; Santa Rosa Ave</td>
<td>5</td>
</tr>
<tr>
<td>3rd St &amp; Santa Rosa Ave</td>
<td>5</td>
</tr>
</tbody>
</table>
Pedestrian-Related Collisions

During the study period, 573 collisions in Santa Rosa involved a person walking. Thirty-three of these were fatal collisions, and over 500 resulted in an injury. See Table 3-9 and Figure 3-21.

Table 3-9: Annual Pedestrian Collisions

<table>
<thead>
<tr>
<th>Year</th>
<th>Pedestrian Collisions</th>
<th>Injuries</th>
<th>Fatalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007*</td>
<td>23</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>45</td>
<td>43</td>
<td>1</td>
</tr>
<tr>
<td>2009</td>
<td>54</td>
<td>49</td>
<td>4</td>
</tr>
<tr>
<td>2010</td>
<td>49</td>
<td>46</td>
<td>1</td>
</tr>
<tr>
<td>2011</td>
<td>66</td>
<td>56</td>
<td>8</td>
</tr>
<tr>
<td>2012</td>
<td>74</td>
<td>69</td>
<td>4</td>
</tr>
<tr>
<td>2013</td>
<td>51</td>
<td>47</td>
<td>3</td>
</tr>
<tr>
<td>2014</td>
<td>48</td>
<td>45</td>
<td>3</td>
</tr>
<tr>
<td>2015</td>
<td>49</td>
<td>44</td>
<td>4</td>
</tr>
<tr>
<td>2016</td>
<td>69</td>
<td>66</td>
<td>4</td>
</tr>
<tr>
<td>2017*</td>
<td>45</td>
<td>41</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>573</td>
<td>528</td>
<td>33</td>
</tr>
</tbody>
</table>

*2007 data reflects September 1 through December 31. 2017 data reflects January 1 through August 31.

Overall during the study period, just under six percent of pedestrian collisions were fatal. Nearly 15 percent resulted in severe injury, and only about three percent did not result in any injury. Figure 3-19 shows collision severity for the study period.

As shown in Figure 3-20, pedestrians between 10 and 54 years old are overrepresented among collision victims compared to the general population.

Figure 3-19: Pedestrian Collision Severity

Figure 3-20: Collisions by Pedestrian Age Range

Just under 60 percent of collisions occurred during daylight hours, and an additional 38 percent occurred at night where street lights were present and functioning.

Examining only those pedestrian collisions that occurred within 500 feet of a school, 49 of 138 collisions occurred during school hours between 7 am and 4 pm, and 16 of those school-hour collisions involved pedestrians under 18 years old.

Over 80 percent of the pedestrian-involved collisions during the study period were attributed to two violations that lend insight into behaviors that contribute to collisions:

- Violating the right-of-way of a pedestrian (44 percent)
- Pedestrian violation (37 percent)

When evaluating the locations where pedestrian-involved collisions are more likely to occur, two locations average more than one collision every two years, as shown in Table 3-10.

Table 3-10: Top Pedestrian Collision Intersections

<table>
<thead>
<tr>
<th>Location</th>
<th>Pedestrian-Involved Collisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>3rd St &amp; D St</td>
<td>10</td>
</tr>
<tr>
<td>McConnell Ave &amp; Mendocino Ave</td>
<td>7</td>
</tr>
</tbody>
</table>
FIGURE 3-21

PEDESTRIAN COLLISIONS
from January 2007 to December 2016

1 - 2
3 - 7
8 - 17
18 - 47

DESTINATIONS + BOUNDARIES

- City Hall
- SMART Station

Shopping
School
Hospital
Park
City Limits
Urban Growth Boundary

Map produced February 2018.
Source: TIMS.
High-Injury Network

To identify street segments in the City where serious collisions are occurring at a greater frequency, a high-injury network was developed based on the number and proximity of collisions that resulted either in death or severe injury to a person bicycling or walking. The City’s street network was evaluated for segments where three or more fatal or severe injury collisions occurred that met a threshold for concentration.

For bicycle-involved collisions, this threshold was set at 0.5 fatal or severe-injury collisions per 1,000 feet. For pedestrian-involved collisions, the threshold is one fatal or severe-injury collision per 1,000 feet. These high-injury network segments are listed in Table 3-11 and Table 3-12, and mapped in Figure 3-22.

Table 3-11: High Injury Bicycle Corridors

<table>
<thead>
<tr>
<th>Street</th>
<th>Start/End</th>
<th>Fatal &amp; Severe Injury Collisions</th>
<th>Collisions per 1K ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mendocino Ave</td>
<td>Elliott Ave to 10th St</td>
<td>5</td>
<td>1.0</td>
</tr>
<tr>
<td>Santa Rosa Ave</td>
<td>Petaluma Hill Rd to Colgan Ave</td>
<td>3</td>
<td>0.9</td>
</tr>
<tr>
<td>Guerneville Rd/ Steele Ln</td>
<td>Dutton Ave to Rowe Dr</td>
<td>5</td>
<td>0.8</td>
</tr>
<tr>
<td>Sebastopol Rd</td>
<td>Mattson Rd to Dutton Ave</td>
<td>6</td>
<td>0.6</td>
</tr>
<tr>
<td>Stony Point Rd</td>
<td>College Ave to Campbell Dr</td>
<td>5</td>
<td>0.5</td>
</tr>
<tr>
<td>Montgomery Dr</td>
<td>Farmers Ln to Mission Blvd</td>
<td>3</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Table 3-12: High Injury Pedestrian Corridors

<table>
<thead>
<tr>
<th>Street</th>
<th>Start/End</th>
<th>Fatal &amp; Severe Injury Collisions</th>
<th>Collisions per 1K ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Santa Rosa Ave</td>
<td>Charles St to Mill St</td>
<td>3</td>
<td>4.7</td>
</tr>
<tr>
<td>3rd St</td>
<td>Gate Way to Stony Point Rd</td>
<td>3</td>
<td>2.6</td>
</tr>
<tr>
<td>Santa Rosa Ave</td>
<td>Court Rd to Bellevue Ave</td>
<td>4</td>
<td>2.2</td>
</tr>
<tr>
<td>Piner Rd</td>
<td>Bay Village Cir to Coffey Ln</td>
<td>3</td>
<td>2.1</td>
</tr>
<tr>
<td>Mendocino Ave</td>
<td>McConnell Ave to 4th St</td>
<td>9</td>
<td>1.6</td>
</tr>
<tr>
<td>Farmers Ln</td>
<td>Long Dr to Sonoma Ave</td>
<td>3</td>
<td>1.4</td>
</tr>
<tr>
<td>Guerneville Rd/ Steele Ln</td>
<td>Coffey Ln to Mendocino Ave</td>
<td>8</td>
<td>1.3</td>
</tr>
<tr>
<td>Stony Point Rd</td>
<td>Glenbrook Dr to Sebastopol Rd</td>
<td>5</td>
<td>1.3</td>
</tr>
<tr>
<td>4th St</td>
<td>Mendocino Ave to College Ave</td>
<td>4</td>
<td>1.2</td>
</tr>
<tr>
<td>3rd St</td>
<td>Hwy 101 to E St</td>
<td>3</td>
<td>1.2</td>
</tr>
<tr>
<td>Range Ave</td>
<td>Bicentennial Way to Guerneville Rd</td>
<td>5</td>
<td>1.1</td>
</tr>
<tr>
<td>College Ave</td>
<td>Link Ln to Mendocino Ave</td>
<td>5</td>
<td>1.0</td>
</tr>
</tbody>
</table>
HIGH INJURY NETWORK
SANTA ROSA BICYCLE & PEDESTRIAN MASTER PLAN UPDATE 2018

FIGURE 3-22

COLLISION CORRIDORS
As determined by the rate of roadway collisions resulting in severe injury between 2007 and 2017

- Bicycle and Pedestrian
- Bicycle
- Pedestrian

DESTINATIONS + BOUNDARIES
- City Hall
- SMART Station
- Shopping
- School
- Hospital
- Park
- City Limits
- Urban Growth Boundary

Map produced April 2018.
Source: TIMS.
User Experience and Perceived Comfort

Traffic stress is the perceived sense of danger associated with riding in or adjacent to vehicle traffic. Studies have shown that traffic stress is one of the greatest deterrents to bicycling. The less stressful—and therefore more comfortable—a bicycle facility is, the wider its appeal to a broader segment of the population. A bicycle network will attract a large portion of the population if it is designed to reduce stress associated with potential motor vehicle conflicts and if it connects people bicycling with where they want to go.

Bikeways are considered low stress if they involve very little traffic interaction by nature of the roadway’s vehicle speeds and volumes (e.g., a shared, low-traffic neighborhood street) or if greater degrees of physical separation are placed between the bikeway and traffic lane on roadways with higher traffic volumes and speeds (e.g., a separated bikeway on a major street).

Types of Bicyclists

Research indicates that the majority of people in the United States (56-73 percent) would bicycle if dedicated bicycle facilities were provided. However, only a small percentage of Americans (1-3 percent) are willing to ride if no facilities are provided. This research into how people perceive bicycling as a transportation choice has indicated that most people fall into one of four categories, illustrated below.

**Bicycle Level of Traffic Stress**

To better meet the needs of the “Interested, But Concerned” cyclist, planners developed the Bicycle Level of Traffic Stress (Bicycle LTS) analysis as an objective, data-driven evaluation model to help identify streets with high levels of traffic stress. The analysis uses roadway network data (i.e. posted speed limit, street width, number of travel lanes, intersection conditions, presence and character of bikeway facilities, and land use context) to determine bicyclist comfort level.

The combination of these criteria creates four levels of traffic stress for the existing roadway network. The lower the number, the lower the stress and the higher the level of comfort for people on bicycles. LTS 1 & 2 roads are typically the roadways that appeal to the “Interested, but Concerned” cyclists.

**Level 1: All Ages and Abilities**

Level 1 includes off-street shared use paths and some very low-stress roadways suitable for all ages and abilities. The Joe Rodota Trail is an example of a Level 1 facility. Level 1 makes up six percent of the entire network in Santa Rosa.

**Level 2: Average Adult**

Level 2 includes roadways that are comfortable enough that the mainstream adult population would ride a bicycle on them. Humboldt Street from College Ave to Lewis Road is an example of a Level 2 street. Level 2 makes up 68 percent of the entire network in Santa Rosa.

**Level 3: Confident Adult**

Level 3 includes arterial roadways with bicycle facilities that are probably only comfortable for an experienced, confident bicyclist. Yulupa Avenue from Creekside Road to Montgomery Drive is an example of a Level 3 street. Note that having standard Class II bicycle lanes does not outweigh other factors such as traffic volume and speeds for this road to be considered low-stress. Level 3 makes up 11 percent of the entire roadway network in Santa Rosa and 43 percent of arterial streets.

---

2 The Level of Traffic Stress (LTS) analysis used for Santa Rosa is adapted from the 2012 Mineta Transportation Institute (MTI) Report 11-19: Low-Stress Bicycling and Network Connectivity.
Level 4: Fearless Adult
Level 4 includes arterial roadways with no bicycle facilities ridden only by strong or fearless bicyclists.

Santa Rosa Avenue from Maple Ave to W Third Street is an example of a Level 4 street

Level 4 makes up 15 percent of the entire roadway network and 57 percent of arterial streets.

Results
The level of traffic stress scores shown in Figure 3-24 illustrate the low stress connections and gaps throughout Santa Rosa. The Bicycle LTS results map approximates the user experience for the majority of Santa Rosa residents, however people may have differing opinions of traffic stress depending on their own experiences. While a majority of Santa Rosa’s entire network scored a Level 1 and 2 (74 percent total), these facilities are minor local roads or off-street paths typically surrounded by higher stress arterials where most average adults would not feel comfortable riding. When only arterial roadways are examined, which serve as the direct connections to most destinations, nearly 57 percent are Level 4.

Figure 3-23: Bicyclist Level of Traffic Stress on All Roads vs Arterials
Multi-use trails offer a low stress route that helps cut across these barriers, however the majority of residents may not feel comfortable bicycling outside their immediate neighborhood using local streets. This means that getting from residential areas to major destinations may not be possible given most people’s tolerance for mixing with traffic—even on streets that have bicycle lanes.