



# SAN RAFAEL GENERAL PLAN 2040

## Existing Transportation Conditions

August 2019

Fehr and Peers Transportation Consultants

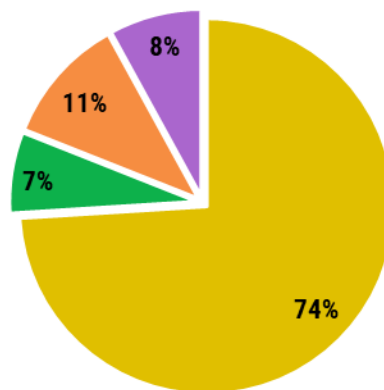
Prepared for the City of San Rafael

This report provides baseline information on the transportation system to be used in the City of San Rafael General Plan Update Project and accompanying Program Environmental Impact Report. The report examines the vehicular, transit, bicycle, and pedestrian components of the city's overall transportation system.

The City of San Rafael General Plan addresses the circulation of residents and visitors in a multi-modal framework. The General Plan addresses the correlation between the quality of the transportation network and the quality of life, while preserving the city's character.

### **Travel Characteristics**

Based on the 2013-2017 American Community Survey, in San Rafael, Marin County, and the State of California, most residents commute by automobile (drive alone or in carpool) to get to work. The share of commuters driving to work is slightly higher in San Rafael (about 74 percent) compared to Marin County (about 73 percent) and lower than California (about 84 percent). Public transportation accounted for the next highest share (about 11 percent). In San Rafael, more residents use public transportation to get to work compared to Marin County (about 10 percent) and California (about 5 percent). Walking and biking accounted for seven percent of the mode share in San Rafael. In San Rafael, more residents walk or bike to work compared to Marin County (about six percent) and California (about five percent). About eight percent of San Rafael residents work from home. **Chart 1** displays the method of travel to work for residents of San Rafael.



■ Drive (Alone and Carpool) ■ Walk/Bike ■ Public Transit ■ Work from Home

*Chart 1: Method of Travel to Work*

Source: American Community Survey, 2013-2017.

Marin County travel data collected for the Transportation Authority of Marin (TAM) indicate that the average daily trip length<sup>1</sup> for San Rafael, according to the TAM data, is 8.2 miles, slightly higher than the overall county average of 8.1 miles and 19 percent higher than the Bay Area average of 6.9 miles.

The TAM travel data also shows that Marin County imports workers, a reflection of the high cost of housing. About 35 percent of the approximately 125,000 employees who work in Marin County live outside the county, with the highest share of imported workers coming from Sonoma, Contra Costa, and San Francisco counties.

### Street System

The City's street system (totaling 245 miles) serves as the primary channel for all modes of travel. Roadways are organized using a hierarchical system, whereby individual roadways are classified by their intended function within the overall roadway network. These classifications – highways, arterials, and collectors – define the desired functional and operational characteristics of a roadway, such as traffic volume capacity and level of service. **Figure 1** presents the location of important roadways within the City of San Rafael.

United States Highway 101 (US 101) and Interstate 580 (I-580) provide regional access in, to, and out of the City of San Rafael. Both highways are owned, operated, and maintained by Caltrans. US 101 is a major north-south highway that runs through the states of California, Oregon and Washington. US 101 has four lanes in each direction in San Rafael and carries approximately 202,000 vehicles per day. I-580 is a freeway that extends from San Rafael east across the San Francisco Bay, via the Richmond-San Rafael Bridge, and through the East Bay to its eastern terminus at I-5 on the east side of Livermore. I-580 has two lanes in each direction through San Rafael and carries about 77,000 vehicles per day just east of US 101.

Congestion levels on US 101 as well as at the junction of US 101/I-580 can cause freeway traffic to detour onto city streets during peak travel periods or when incidents occur on the freeway. This can increase congestion levels on parallel city street such as Las Gallinas Avenue, Los Ranchitos Road, Lincoln Avenue, Grand Avenue, Andersen Drive, Francisco Boulevard East, and Francisco Boulevard West. As there is not currently a direct connector between northbound US 101 and eastbound I-580, freeway traffic along this route must use local city streets including the Bellam Boulevard interchange. The Transportation Authority of Marin (TAM) has recently launched a study to plan and design a grade-separated connector between northbound US 101 and eastbound I-580.

The location and layout of development within the City of San Rafael have resulted in a primarily east-west roadway network. Major east-west roadways include Lucas Valley Road, Manuel T. Freitas Parkway, Second Street, Third Street, Bellam Boulevard, and Andersen Drive. Lincoln Avenue, Point San Pedro/N. San Pedro Roads, and D Street are other important facilities that provide access between the central part and the northern and southern parts of the city.

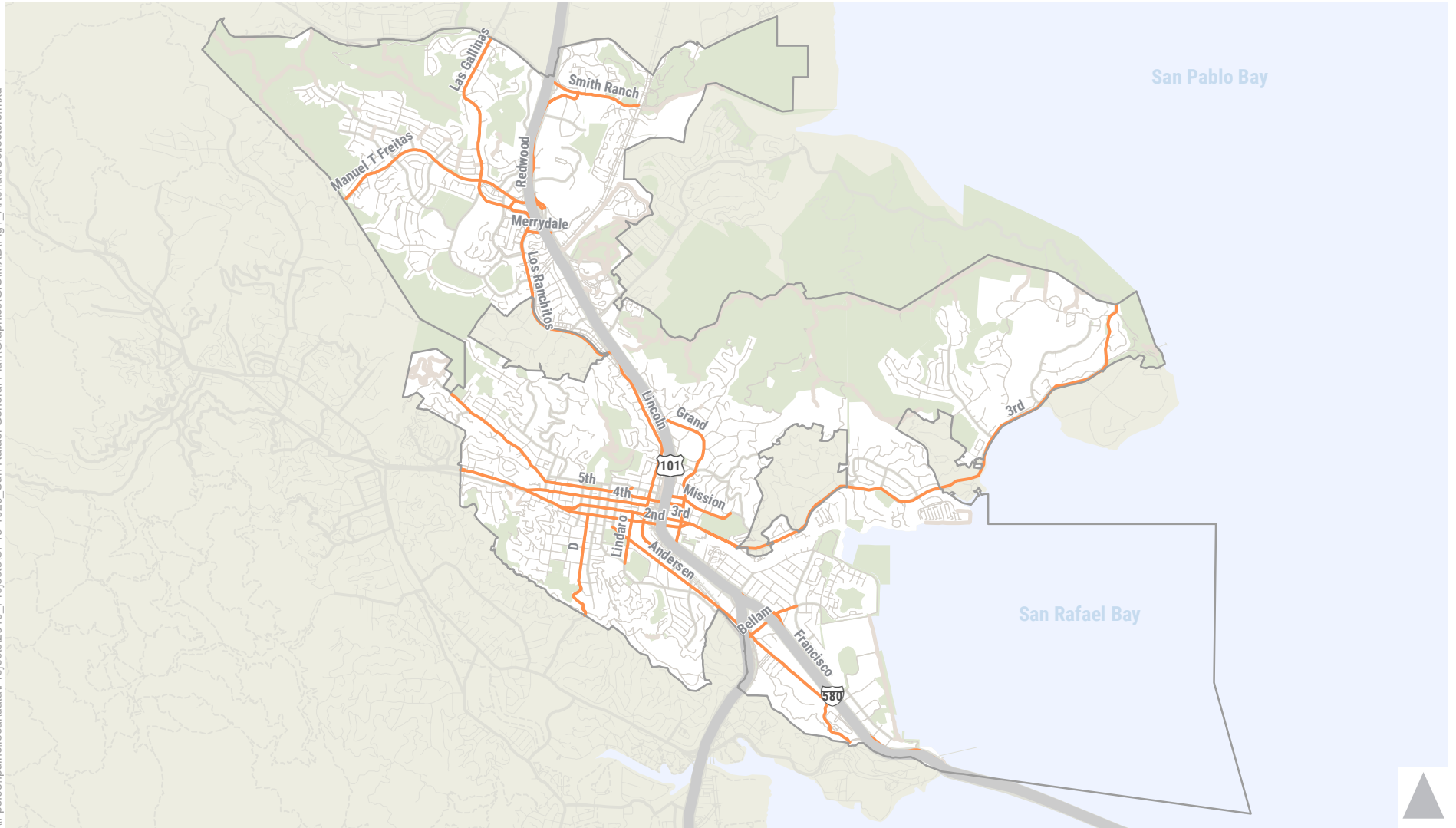
Downtown San Rafael is served by an extensive system of regional and local streets. Within Downtown San Rafael, the roadway network is a grid-based network of lettered north-south streets and numbered east-west streets. Many of the core Downtown blocks are 360 feet by 360 feet

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<sup>1</sup> Average daily trip length represents the average trip length for a single trip as opposed to VMT, which represents the distance traveled by one or more trips.

with roadway widths ranging from about 40 to 52 feet. Downtown San Rafael contains 53 signalized intersections and one rapid rectangular flashing beacon (RRFB) at the Fifth Avenue/Cottage Avenue intersection to facilitate safe pedestrian crossings. Downtown roadways serve a variety of users, including people traveling by foot, bike, bus, and vehicle, as well as delivery trucks serving Downtown Businesses and residences. The multimodal roadway network proves to be a dynamic environment for users of all types.

The following streets and portions thereof in or adjacent to Downtown San Rafael are designated as truck routes: Francisco Boulevard, Jordan Street, Lincoln Avenue from the north line of Third Street to its intersection with Irwin Street, San Pedro Road, Second Street, Third Street, DuBois Street from Irwin Street to Woodland Avenue, Fourth Street from its westerly terminus to Second Street, Irwin Street from Third Street to Woodland Avenue, Lindero Street from Third Street to Jordan Street, Lovell Avenue from Irwin Street to Jordan Street, and Woodland Avenue from its easterly terminus to Irwin Street.



- Arterials
- City Boundary



Figure 1  
Existing Street System

### Road Segment Data Collection

To provide a baseline for the transportation analysis, traffic counts were collected at 41 roadway segments within the City of San Rafael during a weekday in May 2019. The roadway counts were collected for 24 hours. During the counts, weather conditions were generally dry, no unusual traffic patterns were observed, and the San Rafael City Schools were in full session. **Figure 2** displays the observed daily traffic volumes for the 41 study roadway segments.

### Existing Roadway Volumes and Capacity Utilization

Daily roadway operations are evaluated under existing conditions at 41 study roadway segments within San Rafael. To evaluate traffic conditions on these roadway segments, a grading system called Level of Service (LOS) is used to measure and describe the operation of a local roadway network. The LOS grading system qualitatively characterizes traffic conditions associated with varying levels of traffic based on a ratio of daily traffic volumes to roadway capacity. LOS varies from LOS A, indicating free flow traffic conditions with little or no delay, to LOS F, representing over-saturated conditions where traffic flows exceed design capacity of the facility, resulting in long queues and delay for drivers who may need to wait through multiple signal cycles at intersections.

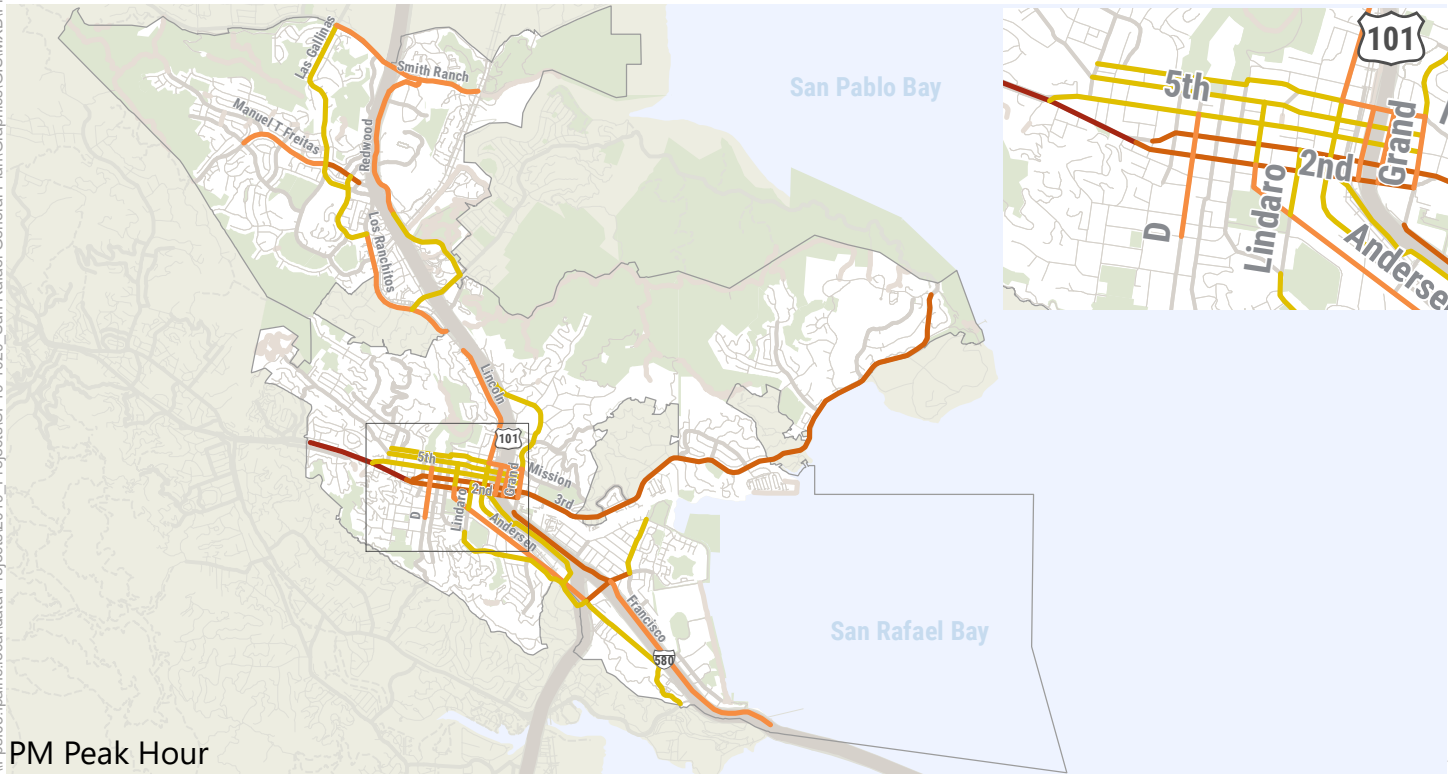
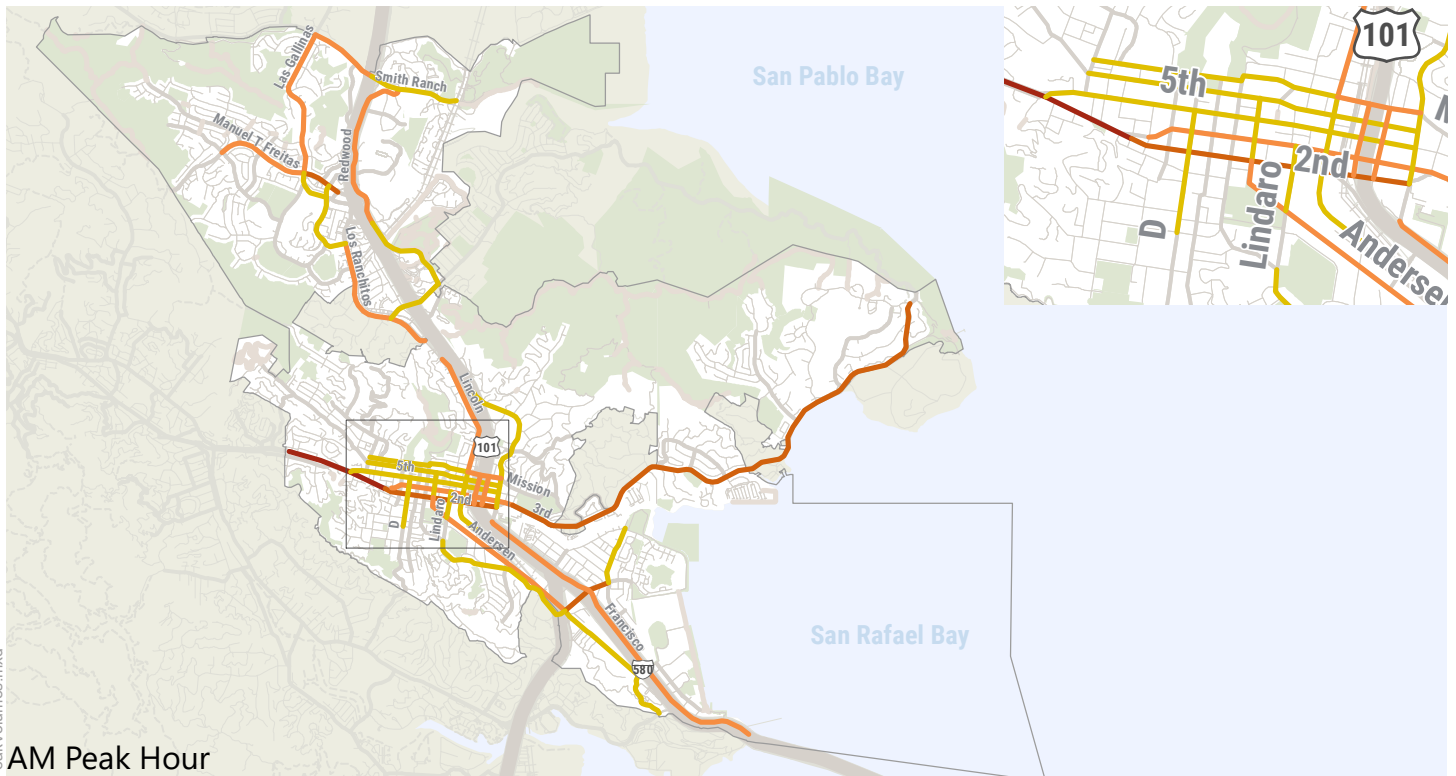
Existing daily roadway segment LOS is shown on **Figure 3**. Most roadways operate at LOS D or better, which indicates that most roadways within San Rafael have available capacity. Only four of the 41 study roadway segments operate at worse than LOS D. These four roadway segments are all located within Downtown San Rafael and serve a variety of users, including people traveling by foot, bike, bus, and vehicle, as well as delivery trucks serving Downtown Businesses and residences.

### Existing Vehicle Miles Traveled

Vehicle miles traveled (VMT) is a measure of traffic flow, determined by multiplying the number of automobile trips within a given geography by the average trip length. Unlike LOS, which is a measure of automobile delay, VMT is a measure of automobile travel and the resulting emissions. For the purposes of this EIR, VMT is estimated for a typical weekday. The efficacy of this measure is a result of several factors:

- VMT is relatively easy to measure by counting traffic on roadways at different locations. It is one of the few measures of transportation performance that has been consistently and comprehensively monitored and documented over time.
- VMT bears a direct relationship to vehicle emissions, although this relationship is becoming more complex as vehicular technologies evolve. State and federal policies pertaining to vehicle efficiency and formulation of vehicle fuels suggest that on a per VMT basis, emissions for most pollutants and greenhouse gases will decline relative to today. However, even with these per VMT improvements due to fuel and vehicle technology changes, lower VMT will mean lower emissions.
- VMT can be influenced by policy in a number of different ways. Land use projects that are close to high quality transit service, located in highly walkable or bikeable areas, have higher densities, include a mix of project uses, support a better citywide jobs-housing balance (i.e., provide housing in a job rich area, or vice versa), and/or are close the core of the city (shorter trip distances to services) would generate less VMT than projects that do not have these characteristics.

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Volumes

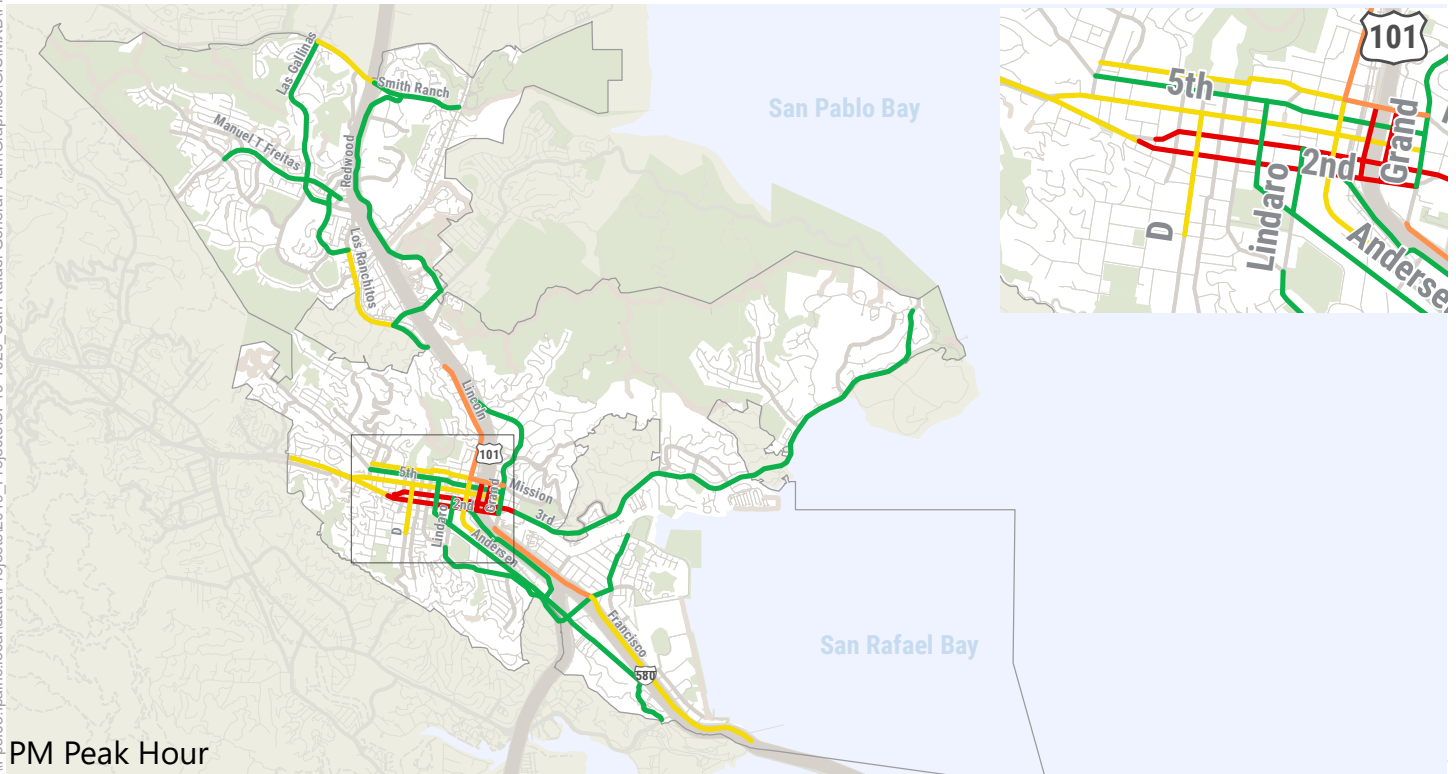
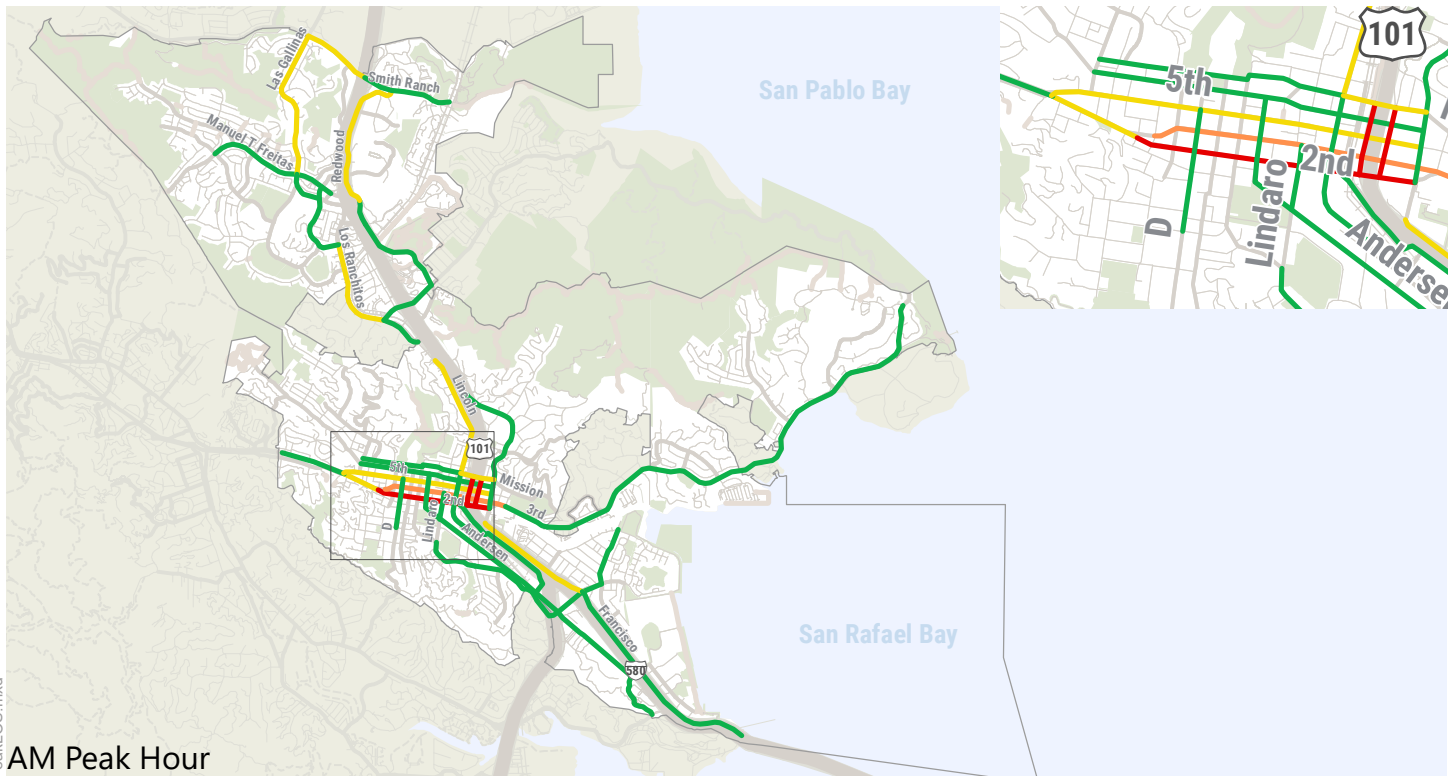


Figure 2

Existing Road Segment Peak Hour Traffic Volumes



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Level of Service

- C or better
- D
- E
- F



Figure 3  
Existing Road Segment Peak Hour LOS



The primary tool used for calculating VMT is the Transportation Authority of Marin (TAM) Travel Demand Model, an activity-based travel demand model covering Marin County that was developed based on the regional travel model developed by the Metropolitan Transportation Commission (MTC). Travel data extracted from the MTC model indicate that most jurisdictions in Marin County have a Vehicle Miles Traveled (VMT) per capita value for home-based trips that is higher than the Bay Area as a whole, with San Rafael residents generating 6 percent greater VMT per capita than the regional average. However, San Rafael residents generate approximately 15 percent less VMT per capita than the County average. **Chart 2** displays VMT per capita of residents of San Rafael compared to residents of other jurisdictions in Marin County, as well as the average VMT per capita for the County and region.

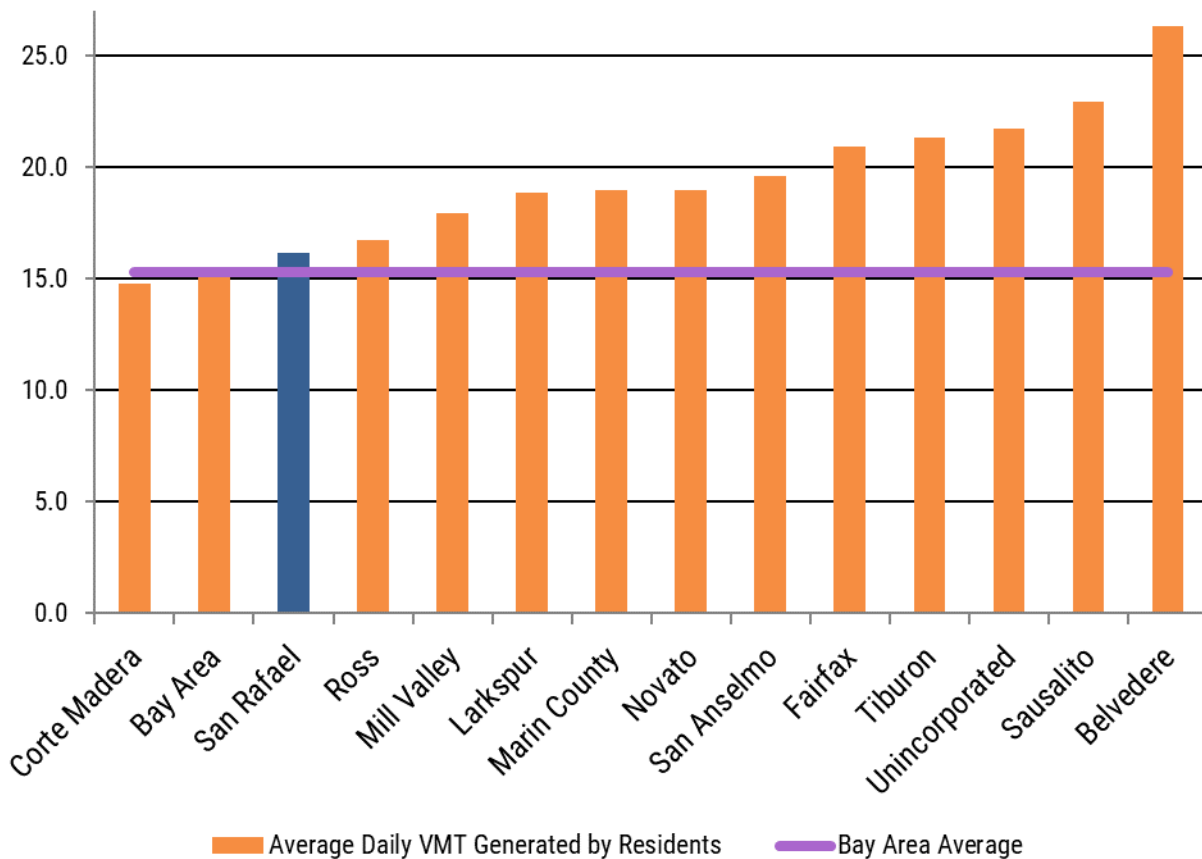


Chart 2: Resident-Generated VMT per Capita for City, County, and Region

Travel data extracted from the MTC model indicate that most resident-generated VMT within San Rafael is work-related (approximately 59 percent), followed by shopping (approximately nine percent) and other purposes. **Chart 3** displays San Rafael resident-generated VMT per capita by trip purpose.

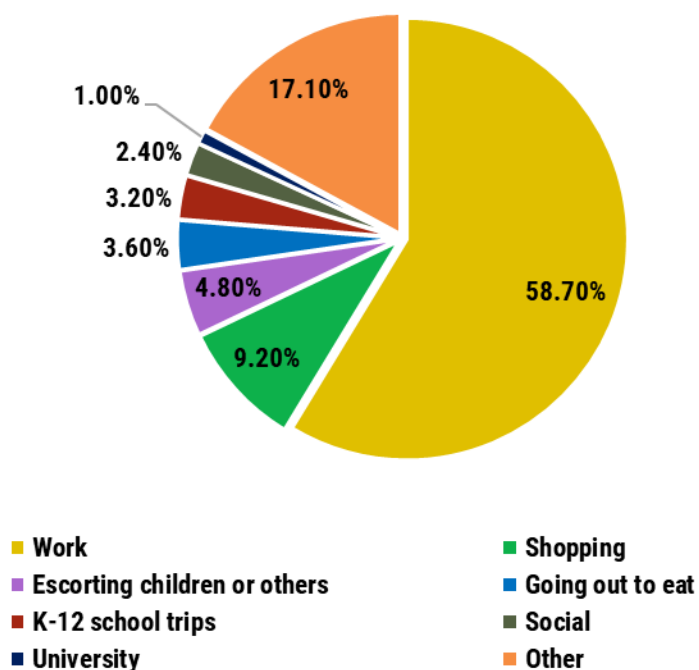


Chart 3: Resident-Generated VMT by Trip Purpose

### Pedestrian Facilities

The City's existing pedestrian network is displayed in the San Rafael Bicycle & Pedestrian Master Plan (2018 Update).

Sidewalks exist on most roadways within the City of San Rafael. Portions of Downtown San Rafael, particularly along Fourth Street and Fifth Avenue from Lincoln Avenue to the West End, are walkable, pedestrian-friendly streets.

Most signalized intersections have standard crosswalk treatments, which consist of two 12 inch wide white stripes that delineate the sides of the pedestrian walking area. Several intersections have high-visibility crosswalks that are marked using the continental pattern of crosswalk striping, which consists of a series of wide strips parallel to the curb for the length of the crossing. This includes intersections around the Transit Center/SMART station, along Fourth Street in the West End, on Second Street, Grand Avenue, Fifth Avenue, and Mission Avenue.

Within some areas, especially in older areas of San Rafael, sidewalks are nonexistent or discontinuous. Narrow sidewalks, sidewalks with traffic signals or utility poles centered in the sidewalks, and sidewalks that do not have wheelchair ramps prevent some users from accessing the existing sidewalks. Additionally, portions of sidewalk are used by both pedestrians and bicyclists due to the limited bicycle network. Overgrown vegetation and illegal parking can also inhibit access to sidewalks in some areas.

Streets that have higher traffic volumes, vehicle speeds, greater vehicle turning volumes, and/or attached sidewalks without a buffer present a less comfortable pedestrian environment. Examples of these streets include Second Street, Third Street, Hetherton Street, Irwin Street, Andersen Drive, Francisco Boulevard West, and Francisco Boulevard East.

The San Rafael Bicycle and Pedestrian Master Plan (2018 Update) identified pedestrian network gaps and difficult crossing locations (i.e., crossing length, pedestrian visibility, signal timing, lack of curb ramps, etc.) based on public comments. These locations include intersections near the Transit Center (Hetherton Street, Irwin Street, Second Street, and Mission Avenue), along Grand Avenue, and at several locations in the West End.

The City of San Rafael had the second highest frequency of pedestrian collisions of 104 comparably sized cities in California, based on 2016 rankings by the state Office of Traffic Safety. According to data analyzed for the San Rafael Bicycle & Pedestrian Master Plan (2018 Update), 1 in 10 collisions in San Rafael involves a pedestrian, and 65 percent of pedestrian-involved collisions in San Rafael occurred in the Downtown area.

### **Bicycle Facilities**

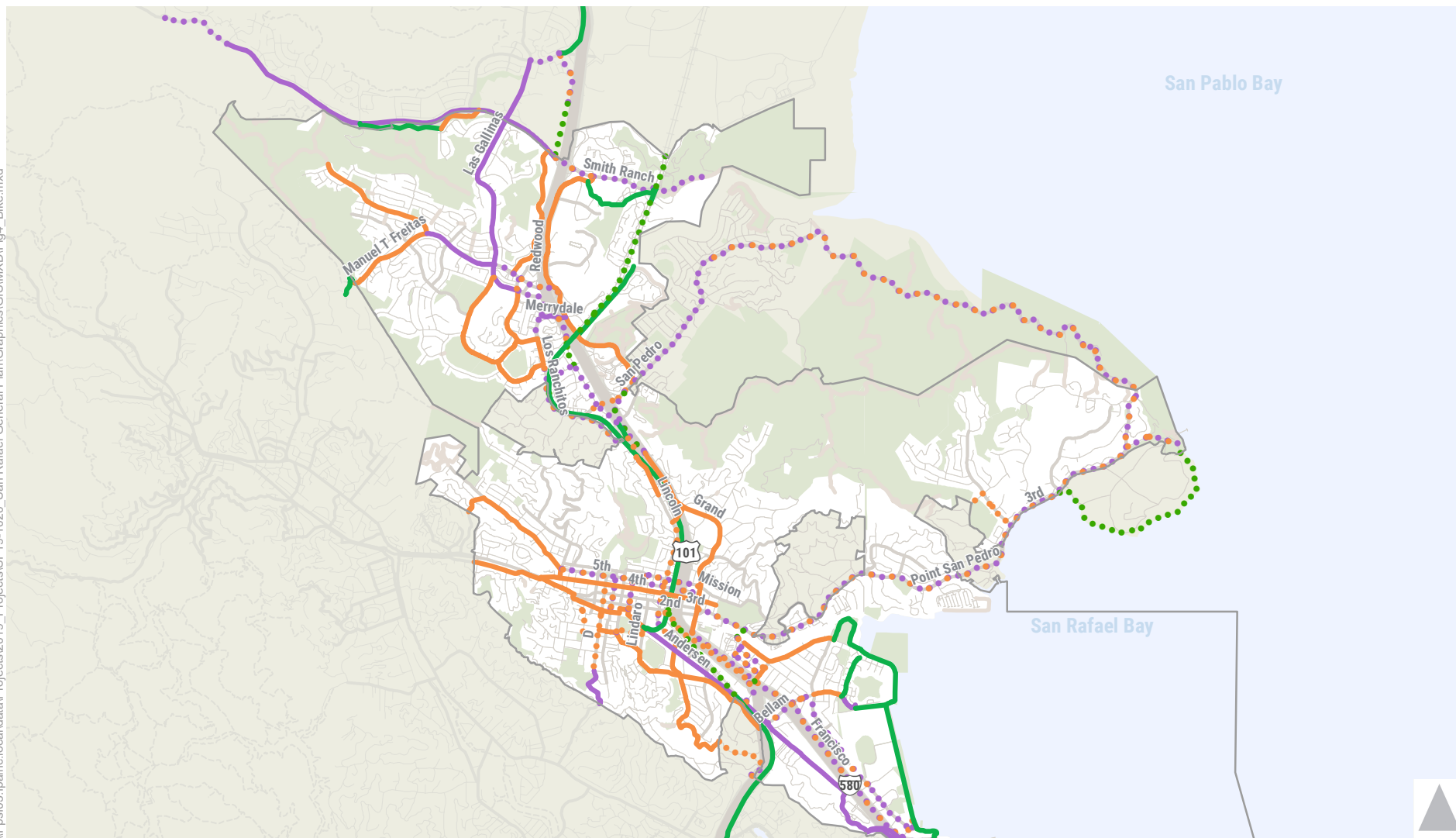
Caltrans recognizes four classifications of bicycle facilities.

- Class I – commonly referred to as a bike path or bikeway, is a facility separated from automobile traffic for the exclusive use of bicyclists.
- Class II – commonly referred to as bike lanes, are dedicated facilities for bicyclists immediately adjacent to automobile traffic.
- Class III – commonly referred to as bike routes, are on-street routes where bicyclists and automobiles share the road.
- Class IV – commonly referred to as cycle tracks or protected bike lanes, are facilities that combine elements of Class I and Class II facilities to offer an exclusive bicycle route immediately adjacent to a roadway similar to a Class II facility, but provides a physical separation from traffic with raised curb, plastic delineators, or parked automobiles.

**Figure 4** displays the locations of existing and proposed bicycle facilities within the City of San Rafael, as designated in the San Rafael Bicycle & Pedestrian Master Plan (2018 Update).

The City of San Rafael has a limited number of Class I (paths) or Class II (dedicated on-street lanes) facilities in the existing bicycle network. Most existing facilities are designated as Class III where bicyclists and automobiles share a travel lane. There are no existing Class IV (cycle track) facilities. Of the 331 miles of roadway within the City, 12 percent of these roadways have space dedicated for the use of bicycles. Outside of the Downtown area, primary bicycle facilities include a Class I facility parallel to the SMART rail line that connects the northern portions of San Rafael with the Downtown area; several Class II facilities, including along Las Gallinas Avenue, Lucas Valley Road, Los Ranchitos Road, Northgate Drive, and Manuel T. Freitas Parkway; and Class III facilities along several local roadways, including Los Gamos Drive, Civic Center Drive, and Point San Pedro Road. There are no existing Class IV facilities within the City of San Rafael.

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- | Existing  |   | Proposed   |   |
|---|---|--|---|
| <span style="color: green;">—</span> Class I      | <span style="color: orange;">—</span> Class III | <span style="color: green;">●●●</span> Class I       | <span style="color: purple;">●●●</span> Class II        |
| <span style="color: purple;">—</span> Class II    | <span style="color: blue;">—</span> Class IV    | <span style="color: green;">●●●</span> Class I or II | <span style="color: orange;">●●●</span> Class II or III |
| <span style="color: grey;">—</span> City Boundary |   | <span style="color: orange;">●●●</span> Class III    |   |



Figure 4  
Existing Bicycle Facilities

Through Downtown, bicycle facilities are limited to Class III shared routes on Fourth Street, Fifth Avenue, D Street, and Grand Avenue. Bicycle access to and from the Downtown area is limited due to a combination of topographic challenges and limited bicycle infrastructure. The primary bicycle routes to and from the Downtown area are described below.

*To/from the north:* North-south bicycle routes are provided by a Class I path adjacent to the SMART rail line and a Class III route along Grand Avenue. There are no alternate north-south bicycle routes due to the hills and lack of roadways and paths north of Downtown.

*To/from the west:* An east-west bicycle route is provided via a Class III shared facility on Greenfield Avenue. Greenfield Avenue runs parallel to Second Street, the major arterial providing access into San Rafael from San Anselmo.

*To/from the south:* North-south bicycle access to/from the south of Downtown is provided by a Class II lane on Andersen Avenue or a Class III shared route on D Street. Anderson Avenue provides access to the major north-south regional bikeway via the Cal Park Tunnel. D Street is the only roadway that continues over Wolf Grade into Larkspur and Greenbrae. The hilly terrain of Wolfe Grade is used by road cyclists who often share the lane with auto traffic in both directions.

*To/from the east:* A combination of Class II lanes and Class III shared route facilities are provided on Point San Pedro Road, which becomes Third Street just east of Downtown. This route is the only major east-west bicycle route connecting to Downtown. There are some bicycle facility gaps between Point San Pedro Road, Third Street and the Downtown area, primarily due to the demand for multiple lanes along the same route to provide auto access to and from US-101 and lack of sufficient space for dedicated bicycle facilities along those major auto routes.

According to data analyzed for the San Rafael Bicycle & Pedestrian Master Plan (2018 Update), 1 in 10 collisions in San Rafael involves a bicyclist. The City of San Rafael has the eighth highest frequency of bicycle collisions of 104 comparably sized cities in California, based on 2016 rankings by the state Office of Traffic Safety. For bicycle collisions involving cyclists younger than 15, San Rafael ranks in the top 10 of the 104 comparably-sized cities. The highest collision density occurs on roadways adjacent to the Transit Center/SMART Station/Highway 101 area and within the Downtown Core.

### Public Transit

The City of San Rafael's transit network includes rail service, regional bus service, and local bus service. **Figure 5** displays the City of San Rafael's existing transit facilities and network. Transit service within San Rafael is concentrated in the Downtown area.

#### Rail Service

Sonoma-Marin Area Rail Transit (SMART) provides passenger rail service in Marin and Sonoma counties. SMART's initial 43 miles of rail corridor includes 10 stations, from Downtown San Rafael to the Sonoma County Airport. Each two-car SMART train has spaces for up to 24 bikes. SMART stations also have bike storage including bike racks and secured bike lockers. SMART also provides rail transit service that is accessible to passengers with disabilities.



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- Marin Transit
- Golden Gate Transit
- SMART Rail
- City Boundary
-  SMART Stations
-  Ferry Terminal



Figure 5  
Existing Transit Facilities and Network

## TRANSPORTATION

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SMART offers a 31-Day Pass for unlimited rides for 31-consecutive days from the date of first use. The 31-Day Pass is available through Clipper and costs \$200 for adults and \$100 for seniors, youth, and persons with disabilities.

SMART's Eco Passes are unlimited, flat rate passes available only to employers, colleges or institutions to load onto Clipper cards for their employees, students, or members. Eco Passes qualify as an employer-sponsored transit benefit, which means employees can use pretax wages to purchase them. Passes are available in four, six, or twelve month increments.

One-way fares can be purchased either through Clipper or a SMART eTickets app. One-way fares range from \$3.50 to \$11.50 depending on trip distance, with 50% discounts provided for seniors, youth, and persons with disabilities.

SMART served about 723,000 passengers during its first year of operations beginning on August 25, 2017. Twenty-nine (29) percent of all passengers boarded at the San Rafael Downtown station, which equates to about 700 daily passenger boardings on weekdays. Since 2017, the Transportation Authority of Marin (TAM) and Lyft have offered a \$5 discount for all "Lyft Line" rides to and from SMART stations in Marin County. The program is designed to support access to and from Marin's SMART stations and encourage carpooling options to reduce congestion and pollution. TAM has also partnered with Whistlestop to ensure this service is available to all users, including providing rides with wheelchair accessible vehicles.

A southern extension of SMART rail to the Larkspur Ferry Terminal is under construction and is scheduled to be complete by late 2019. The station is located north of Sir Francis Drake Boulevard and west of Larkspur Landing Circle.

### Regional Bus Service

The Golden Gate Bridge and Highway Transportation District (GGBHTD) directly operates two fixed-route transit services: Golden Gate Transit (GGT) regional bus service and Golden Gate Ferry (GGF).

Regional bus service began in 1972 and is provided on 26 fixed routes. These routes fall into three categories:

- **Basic** routes provide daily service throughout the day and evening between San Francisco, Marin, Sonoma, and Contra Costa counties.
- **Commute** routes provide weekday service primarily during morning and afternoon peak periods between San Francisco, Marin, and Sonoma Counties.
- **Commute Shuttle** routes provide weekday service primarily during morning and afternoon peak periods and are designed to supplement other GGBHTD services.

Basic routes that stop at the San Rafael Transit Center include routes 30 (San Rafael to San Francisco), 40 and 40X (San Rafael to El Cerrito, as well as El Cerrito BART Station), 70 (Novato to SF) and 101 (Santa Rosa to San Francisco).

Commute routes that stop at the San Rafael Transit Center include routes 27 (San Anselmo to San Francisco) and 44 (Lucas Valley to San Francisco).



### Local Bus Service

Marin Transit provides a total of 29 fixed route, including nine local routes, six community shuttle routes, eleven supplemental school routes, two rural fixed route, and one Muir Woods shuttle service within Marin County. Marin Transit also offers Connect, an on-demand service available within Northern San Rafael. Marin Transit bus and shuttle services carried over 3.2 million passenger trips in 2017.

Marin Transit owns 95 vehicles including 32 paratransit vehicles, 18 hybrid diesel-electric buses, 12 community shuttles, ten Muir Wood shuttle vehicles, ten articulated vehicles, nine Stagecoach vehicles, two battery electric (zero emission) buses, and two supplemental school vehicles. Marin Transit acquired the two battery electric buses, which can seat 32 passengers, in September 2018. Staff are evaluating performance, reliability, cost, and scalability.

Marin Transit offers a 31-Day Pass for unlimited rides for 31-consecutive days from the date of first use. The 31-Day Pass costs \$80 for adults and \$40 for seniors, youth, and persons with disabilities. A 7-Day Pass costs \$20 for adults and \$10 for seniors, youth, and persons with disabilities. A 1-Day Pass costs \$5 for adults and \$2.50 for seniors, youth, and persons with disabilities. A one-way cash fare costs \$2 for adults and \$1 for seniors, youth, and persons with disabilities.

Marin Transit offers a six month or annual Youth Pass through participating Marin County schools. With the pass, registered Marin County students and youth ages 18 and under ride on local routes in Marin without paying any additional fare. The Youth Pass costs \$175 per six-month period or \$325 for a year.

Local transit routes that stop at the San Rafael Transit Center include nine fixed route, four community shuttle, and one West Marin Stagecoach route. Fixed routes 22, 23, 23X, and West Marin Stagecoach route 68 connect the San Rafael Transit Center to destinations to the west via Fourth Street and Red Hill Avenue. Fixed route 23, 23X, 29, 35, and 36 connect the San Rafael Transit Center with the Canal Neighborhood to the southeast. Fixed route 35 and Community Shuttle route 257 connect the San Rafael Transit Center with destinations to the north via Lincoln Avenue. Marin Transit Community Shuttle routes 233 and 257 connect the San Rafael Transit Center to destinations to the north via Grand Avenue.

### Transit Centers

#### *San Rafael SMART Station*

The Downtown San Rafael SMART station is bounded by Fourth Street, Third Street, and Tamalpais Avenue. It is located just north of the San Rafael Transit Center located between Third Street and Second Street. Presently the southern terminus of the SMART line, it serves more boardings (29 percent) than any other station along the SMART line. For current SMART riders using a Clipper card, free shuttle service to the Larkspur Ferry Terminal is available.

#### *Civic Center SMART Station*

The Civic Center SMART station is bounded by Civic Center Drive and Merrydale Road and located underneath US-101. It is located just west of the Marin County Civic Center. This station is less utilized than the San Rafael SMART Station with only six percent of total boardings along the SMART line.

### San Rafael Transit Center

The San Rafael Transit Center (SRTC) serves as the regional transit hub for Marin County. It connects rail service, bus service, airporter service, and taxi service. Transfers are provided to San Francisco, Sonoma and Contra Costa counties.

The current 17-bay transit center serves 9,000 boardings and alightings on over 500 buses on a typical weekday. Nearly half of the trips made by weekday riders have origins or destinations within the downtown San Rafael area. Just over half are transferring between buses or between bus and rail at the transit center. With 16 bus bays occupied during peak times, the SRTC is currently operating at or beyond its capacity.

A multi-year process to develop a new transit center for San Rafael has been underway since early 2018. The current transit center will be affected by the extension of Sonoma Marin Area Rail Transit (SMART) system to Larkspur. Five alternative station concepts were developed initially as part of the planning process. The planning process subsequently narrowed the number of station concepts to three alternatives that are being evaluated in the environmental review.

### **Shared Mobility Options**

According to the Shared-Use Mobility Center, shared mobility is defined as transportation services and resources that are shared among users, either concurrently or one after another. The services are grouped into five different shared mobility typologies:

- Bikesharing/Scooter-sharing
- Carsharing
- Ridesharing/Ridehailing
- Public Transit
- Microtransit (e.g., shared scooters)/Shuttles

Bikesharing, scooter-sharing, or microtransit services are not currently provided in San Rafael. They are, however, provided in many other Bay Area cities. SMART received an \$800,000 grant from the Metropolitan Transportation Commission (MTC) to fund a one-year pilot for bikeshare stations at SMART stations. The bikeshare bikes would provide SMART riders with an alternative for the “last mile” of their journey. It is anticipated that 200-300 bikes would initially be allocated at designated SMART stations. SMART is currently reviewing proposals from potential suppliers.

Carsharing and ridesharing/ridehailing activities are generally concentrated in the Downtown area. Limited carsharing options are provided by several ZipCar spaces near the San Rafael Transit Center.

Traditional ridesharing includes carpooling, vanpooling, and real-time matching of drivers and passengers through mobile apps in which the passenger pays a share of the trip cost. Ridehailing providers such as Uber and Lyft use online platforms to connect passengers with drivers who use personal, non-commercial, vehicles. UberPOOL and Lyft Line are ridesharing options that allow drivers to carry multiple passengers who split the cost of a trip.

Taxis and limos are regulated for-hire vehicles. Numerous companies provide these services in San Rafael.

## **Marin Travel Safety Plan**

The 2018 Marin Travel Safety Plan<sup>2</sup> was a collaborative effort between unincorporated Marin County and all 11 incorporated cities and towns. The purpose was to provide a systemic safety analysis for motorists, motorcyclists, bicyclists, and pedestrians on non-state arterial and collector roadways. The Plan was funded through a Systemic Safety Program grant provided by Caltrans. The intent was to provide a proactive collision analysis, identify high risk locations and collision patterns, develop a list of systemic low-cost and longer-term countermeasures, and help secure funding to address key safety issues.

During the five-year period in which crashes were evaluated, 35 percent of all crashes in the county occurred in the City of San Rafael, higher than the city's 23 percent share of the total county population. Notable collision profiles in San Rafael include high rates of pedestrian collisions involving seniors or youth under 15, bicycle collisions involving youth under 15, speed related collisions, and driving under the influence (DUI) with drivers under the age of 21. In these categories, the City of San Rafael has consistently ranked among the top 10 cities in victims killed and injured, among 105 California cities with similar-sized populations, according to the California Office of Traffic Safety.

The 2018 Marin Travel Safety Plan identified safety countermeasures for 20 corridors and 8 intersections in the City of San Rafael. Marin County received \$2.8 million in Highway Safety Improvement Program (HSIP) grant funds from Caltrans in the most recent funding cycle to implement safety countermeasures identified in the plan at 51 signalized intersections in unincorporated Marin County and within 11 incorporated cities.

## **Safe Route to School (SR2S) Program**

The Transportation Authority of Marin (TAM) administers a Safe Routes to School (SR2S) Program<sup>3</sup>, which works to relieve traffic congestion around schools by promoting alternatives to commuting to school, such as walking, biking, taking the bus and carpooling. In addition, the program helps improve safety, promote a healthy lifestyle for youth and enhance the sense of community in neighborhoods. It does this through classroom education, special events, infrastructure improvements, a crossing guard program, and other strategies.

To address the unique needs of each school district, a Task Force is formed to bring together SR2S staff, parent leaders, elected officials and staff from the local jurisdiction, traffic engineers, school district representatives, law enforcement personnel and neighborhood leaders.

The TAM SR2S program has been in operation since 2000 and involves 58 schools and more than 26,500 students in Marin County.

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<sup>2</sup> <https://www.marincounty.org/userdata/dpw/Marin%20County%20Travel%20Safety%20Plan%20-%20Final%20Report.pdf>

<sup>3</sup> <https://www.tam.ca.gov/projects-programs/safe-routes-to-school/>

### Transportation Demand Management

Chapter 5.81 of the City's Municipal Code details the City's Trip Reduction Ordinance, including trip reduction and travel demand requirements. The trip reduction requirements are imposed upon employers within the City with more than 100 employees at an individual work site. The ordinance requires these employers to disseminate trip reduction information regarding alternative modes of travel (e.g., carpools, vanpools, transit, bicycling, telecommuting, flexible work hours, etc.), conduct an annual employee trip survey that shall be submitted to the City, and designate an employee transportation coordinator to be responsible for administering the requirements of the Trip Reduction Ordinance. Should another agency (such as the BAAQMD) impose more stringent requirements on employers with the City, then any employer within the city that meets those requirements is deemed in compliance with this ordinance.

### Transportation Network Disruptions

This section provides a description of transportation network disruptions that may result from natural hazards.

#### Wildfires

The Wildland-Urban Interface (WUI) is defined as the area where human development has occurred adjacent to or within natural terrain with flammable vegetation. Many San Rafael neighborhoods along the periphery of urban development are located within the WUI and are particularly at risk for uncontrolled wildfire. Furthermore, access to these neighborhoods is commonly limited to one or two locations due to topographic features. These access constraints can impede evacuation during uncontrolled wildfire events.

The City's Wildfire Prevention and Protection Action Plan was adopted in March 2019 as a master planning document to guide continual efforts to reduce wildfire risk in San Rafael. The document incorporates lessons learned from recent wildfires, ongoing local and County efforts, existing plans, and public input, and will be executed in partnership with other city, county and community efforts. Action 32 of the Wildfire Prevention and Protection Action Plan states that the City shall "review Countywide evacuation plans and expand existing plans to address San Rafael's unique needs, neighborhoods and resources, including possible water evacuations." This effort would establish additional transportation network redundancies and potentially reduce the burden on a single egress artery during an emergency.

#### Flooding

Using data from Federal Emergency Management Administration (FEMA), the Adapting to Rising Tides (ART) program developed Bay Area Sea Level Rise and Shoreline Analysis maps needed to support consistent sea level rise assessment and adaptation around the region. The maps indicate extensive flood-prone areas within San Rafael. The effects of sea level rise are expected to exacerbate these flood risks for San Rafael in the coming decades.

The projected sea level rise for the year 2050 (the approximate time horizon of the General Plan) is 12" to 24". A conservative projection of 12" of sea level rise without additional flooding caused by storm surge would inundate significant portions of Francisco Boulevard East and Andersen Drive east of Bellam Boulevard, in addition to isolated portions of roadways within the Canal District. Alternatively, a flooding scenario of 48", which could result from 24" of sea level rise plus 24" of additional flooding from a five-year storm surge, would inundate most roadways north of I-580,

including those within the Canal District, as well as significant portions of Andersen Drive, Irwin Street, Lindaro Street, and most roadways in Downtown east of A Street. Exhibit 1 and Exhibit 2 display the extent of flooding inundation with 12" of sea level rise and 48" of sea level rise, respectively.

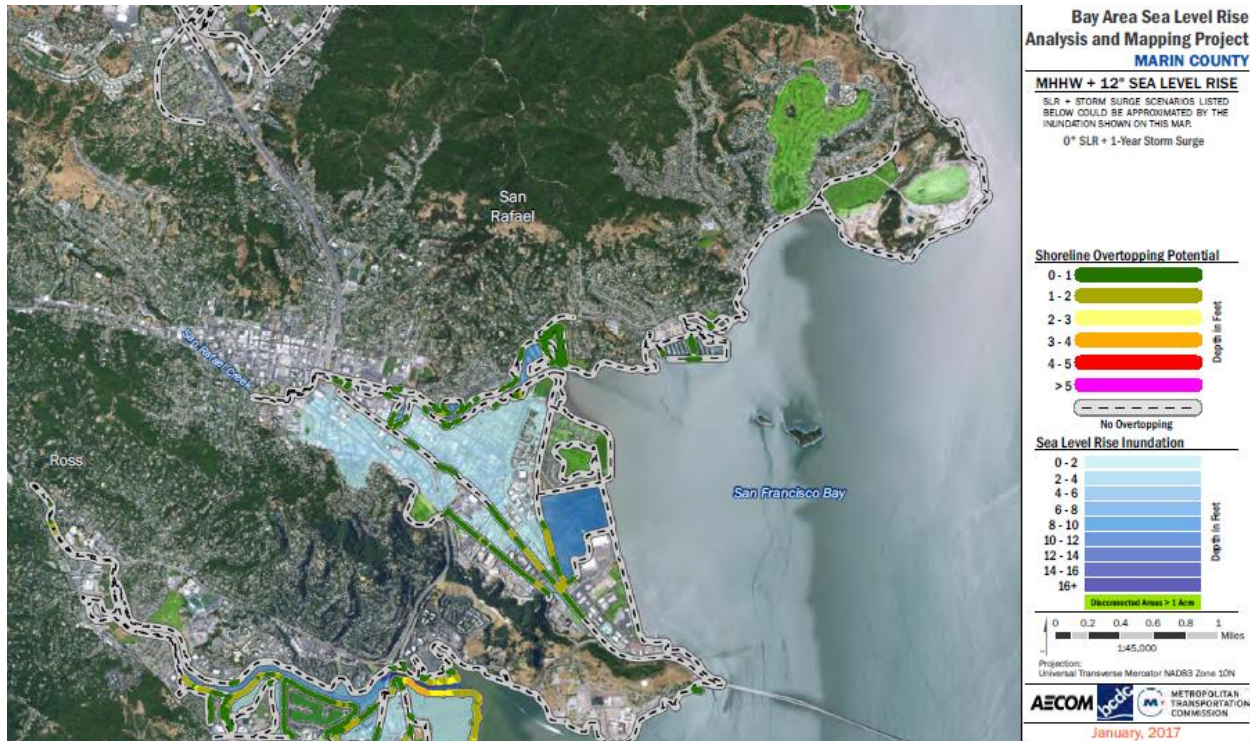


Exhibit 1: Flooding Inundation Due to 12" of Sea Level Rise

Source: ART Bay Area Sea Level Rise and Shoreline Analysis Maps, 2017.



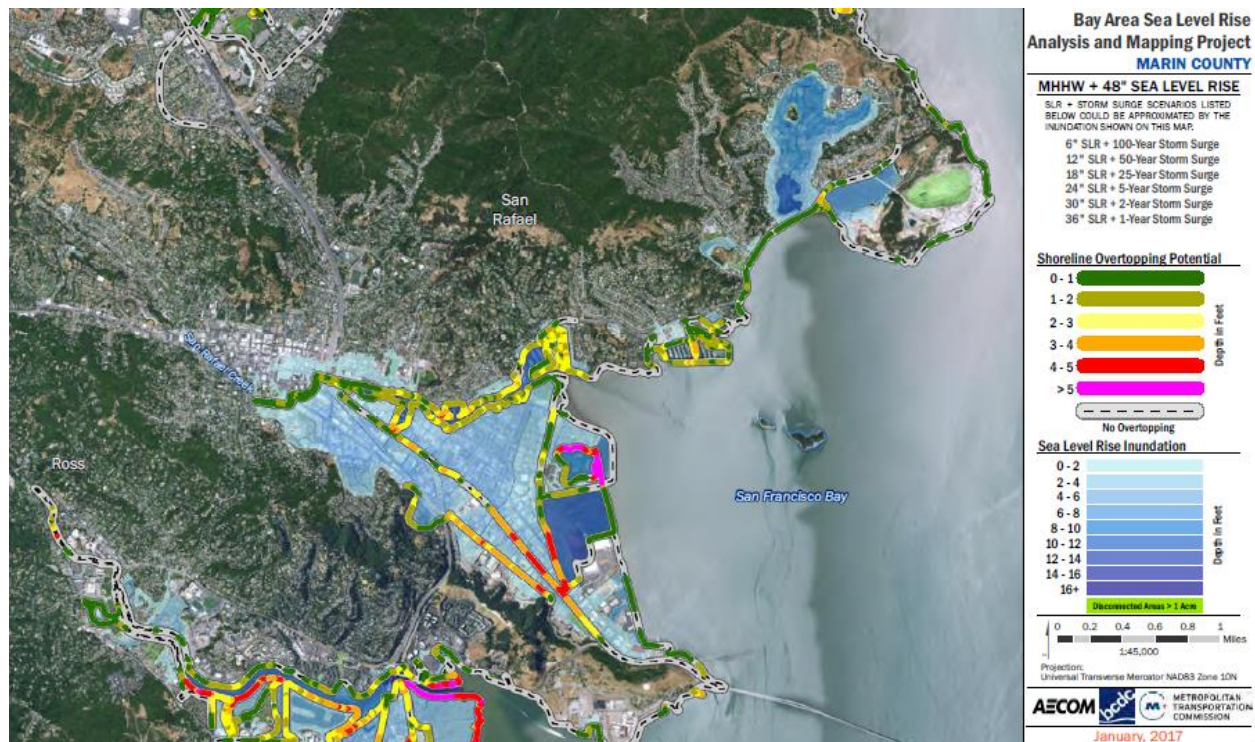


Exhibit 2: Flooding Inundation Due to 48" of Sea Level Rise

Source: ART Bay Area Sea Level Rise and Shoreline Analysis Maps, 2017.