

CHAPTER 6 A CITY THAT WORKS



6.1 PURPOSE OF THE CHAPTER

This chapter presents a framework for governing future decisions about how the City will provide a safe and inter-connected community, deliver services and infrastructure, maintain and improve Novato's circulation network, and protect the community from natural and artificially created hazards. It also seeks to maintain and improve community facilities, infrastructure and services, and provide effective and responsive governance. This chapter addresses the requirements of the state-mandated circulation and safety elements and partially addresses the requirements of the land use and conservation elements of the general plan.

The City That Works chapter includes the following sections.

- 6.2 Mobility. Provides an overview of Novato residents' travel characteristics, the existing circulation network and traffic operations, and parking, transit, bicycle and pedestrian facilities. The section describes improvements to the City's roadway, bicycle and pedestrian network proposed to accommodate future development and reduce greenhouse gas emissions. This section includes requirements of the circulation element. (p. 6-4)
- 6.3 Safety and Hazards. Describes environmental and human-caused hazards, including earthquake, landslide, flood, sea level rise, and fire, and potential risks to the community. This section includes requirements of the safety element and requirements related to flooding of the land use and conservation element. (p. 6-16)
- **6.4 Public Services and Facilities.** Identifies public facilities and services provided by the City of Novato and other public agencies. (p. 6-36)
- **6.5 Governance.** Describes the City's commitment to principles of good governance and the effective delivery of services. (p. 6-41)

The City installed wayfinding signs in 2014 to support a distinct identity for the Downtown and help visitors find destinations.

THE CITY THAT
WORKS CHAPTER
PROVIDES AN
OUTLINE FOR
PROVIDING A
SAFE, INTERCONNECTED, AND
WELL-GOVERNED
COMMUNITY.

 6.6 Goals, Policies, and Programs. Identifies goals, policies and programs to provide for a safe and convenient multi-modal circulation network, minimize hazards and risks to life and property, maintain and enhance the City's infrastructure and services, and foster a transparent, collaborative and community-based local government. (p. 6-44)

6.2 MOBILITY

Mobility, or the ability to readily move from one place to another, is made possible in Novato through a transportation system that encompasses roadways, transit routes, pedestrian paths and sidewalks, and bicycle paths, lanes and routes. The goal of a well-planned and integrated transportation network is to provide safe and convenient travel for all users—including children, seniors, and persons with disabilities—whether travelling by bus, SMART train, vehicle, bicycle or foot. A balanced, multi-modal transportation system also works to limit congestion, reduce greenhouse gas emissions, and improve public health by reducing air pollution and encouraging physical activity.

The State adopted the California Complete Streets Act in 2008, which requires cities to plan for a balanced, multimodal transportation network. Complete Streets are designed to meet the needs of all users, including motorists, pedestrians, bicyclists, children, persons with disabilities, seniors, movers of commercial goods, and users of public transportation.



Available data indicate that Novato residents rely primarily on vehicles for their transportation needs. According to US Census data, 73 percent of Novato residents drive to work alone and 11 percent carpool, as shown in Figure CW-1.

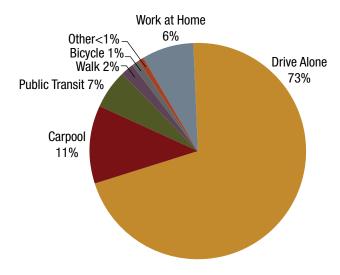
Approximately 10 percent of residents travel to work by alternative modes of transportation. Seven percent take public transit, two percent walk to work, and one percent bike.

School traffic is known to be a significant contributor of vehicle trips in Marin County, where over 21 percent of morning peak period trips are school-related. Safe Routes to School data for Novato elementary and middle

schools show that approximately 59 percent of school trips are taken in a family vehicle and 11 percent of students carpool to school. About 17 percent of students walk to school and 5 percent bike.

Novato's climate and topography provide ideal conditions for many people to walk and bike. Continuing efforts to build a comprehensive network that supports all travel modes is important to encourage more residents and employees to walk and bike to work, school and other destinations.

FIGURE CW-1 NOVATO RESIDENTS' TRAVEL MODE TO WORK



Source: 2011-2015 American Community Survey 5-Year Estimates

EXISTING ROADWAY SYSTEM

Novato's roadway system includes highways, arterials, collectors and local streets as shown in Map CW-1, which is based on the California Road System Map. The City is served by two freeways. US Highway 101 passes through Novato as it connects Marin County to San Francisco to the south and Sonoma County to the north. State Route (SR) 37 begins at US 101 in Novato and extends east, connecting to Interstate 80 in Vallejo. There are six US 101 interchanges that serve the City: San Marin Drive-Atherton Avenue; DeLong Avenue; Rowland Avenue; Novato Boulevard-SR 37; Ignacio Boulevard-Bel Marin Keys Boulevard; and Alameda del Prado.

Local streets are classified by the California Road System Map according to three general types that reflect a roadway's volume, local access (number and type of curb cuts and driveway access), posted speeds, parking, median type, traffic control and other characteristics. The three street classifications in Novato are shown in Figure CW-2.

FIGURE CW-2 ROAD CLASSIFICATIONS

Arterial: An arterial is a higher-speed and higher-capacity roadway that links the community to the larger regional roadway network. Novato's arterials include San Marin Drive, Atherton Avenue, Redwood Boulevard, De Long Avenue, Novato Boulevard, South Novato Boulevard, Wilson Avenue, Mill Road, Rowland Boulevard, and Ignacio Boulevard.



Collector: A collector is a relatively low-speed, low-volume street that provides access within and between neighborhoods. Collectors usually serve short trips and are intended to collect trips from local streets and distribute them to arterial streets. Examples of collector streets in Novato include Olive Avenue, Grant Avenue, Center Road, Sutro Avenue, Indian Valley Road, Bel Marin Keys Boulevard, Main Gate Road, and Hamilton Parkway.



Local: Remaining streets are considered local streets as they serve local traffic, feeding into the collector and arterial streets. The City Council can choose to designate local roads as rural streets to maintain the rural character of certain neighborhoods, allowing reduced pavement width and exclusion of curbs, gutters and/or sidewalks.



Novato's roadway system is largely determined by the City's location and topography. Because the City is surrounded by ridges and open space, there is only one roadway – Novato Boulevard — connecting western Marin to the City. Highway 101 provides the only northern and southern access to Novato from other communities, and State Route 37 provides the primary eastern access. This roadway system makes Novato greatly dependent on well-functioning highways for both local and regional travel.

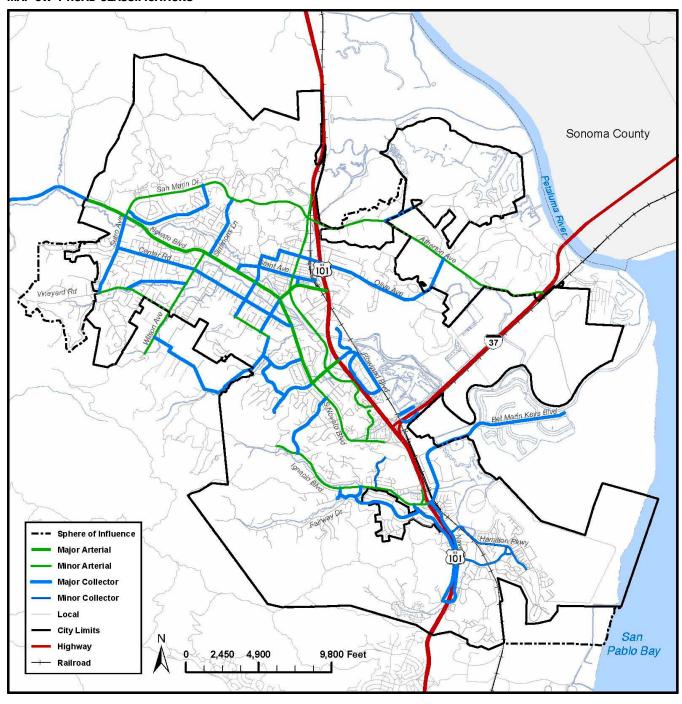
Truck Routes

The City of Novato's Municipal Code prohibits any vehicle exceeding the maximum gross weight limit of five tons from traveling or parking on any City street except on streets designated as truck routes as follows:

- Redwood Boulevard (from Rowland Boulevard to San Marin Drive)
- Atherton Avenue
- DeLong Avenue (from Redwood Boulevard to US 101)
- Diablo Avenue (easterly of Novato Boulevard)
- Novato Boulevard (northwesterly of Diablo Avenue)
- Rowland Boulevard (from Redwood Boulevard to US 101)
- San Marin Drive

Trucks are allowed to travel on prohibited streets for the purpose of making pick-ups or deliveries to a location on that street. Passenger buses and vehicles used for the purpose of installing, maintaining or repairing public utilities are exempt from weight restrictions.

MAP CW-1 ROAD CLASSIFICATIONS



EXISTING TRAFFIC OPERATIONS

Intersection Operations

Traffic engineers have historically used "Level of Service" or "LOS" to measure the performance of roadways and intersections. The capacity of a local street system is typically dependent upon the operation of intersections rather than the segments connecting them since conflicting vehicle movements are concentrated at intersections. Traffic analyses therefore usually focus on the points where two arterial or collector streets intersect. Level of service at intersections is ranked using a series of letter designations from LOS A to F based on traffic volumes during peak periods, delay incurred, and capacity. Generally, LOS A represents free flow conditions and LOS F represents forced flow or breakdown conditions. The level of service designation is accompanied by a measure that indicates a level of delay in average number of seconds per vehicle. The ranges of delay associated with the various levels of service are indicated in Table CW-1.

"Level of Service" (LOS) is used to describe the performance of intersections at various times of the day. LOS measures the length of delay before a motorist may move through the intersection.

TABLE CW-1 INTERSECTION LEVEL OF SERVICE CRITERIA

LOS	SIGNALIZED INTERSECTIONS	ALL-WAY STOP-CONTROLLED INTERSECTIONS
А	Delay of 0 to 10 seconds. Most vehicles arrive during the green phase and do not stop at all.	Delay of 0 to 10 seconds. Upon stopping, drivers are immediately able to proceed.
В	Delay of 10 to 20 seconds. More vehicles stop than with LOS A, but many drivers still do not have to stop.	Delay of 10 to 15 seconds. Drivers may wait for one or two vehicles to clear the intersection before proceeding from a stop.
С	Delay of 20 to 35 seconds. The number of vehicles stopping is significant, although many still pass through without stopping.	Delay of 15 to 25 seconds. Drivers will enter a queue of one or two vehicles on the same approach, and wait for vehicle to clear from one or more approaches prior to entering the intersection.
D	Delay of 35 to 55 seconds. The influence of congestion is noticeable, and most vehicles have to stop.	Delay of 25 to 35 seconds. Queues of more than two vehicles are encountered on one or more approaches.
Е	Delay of 55 to 80 seconds. Most, if not all, vehicles must stop and drivers consider the delay excessive.	Delay of 35 to 50 seconds. Longer queues are encountered on more than one approach to the intersection.
F	Delay of more than 80 seconds. Vehicles may wait through more than one cycle to clear the intersection.	Delay of more than 50 seconds. Drivers enter long queues on all approaches.

Source: Transportation Research Board, Highway Capacity Manual 2000.

Vehicles queue up at the busy Redwood Boulevard and San Marin Drive intersection.



General Plan policies establish standards for acceptable levels of service for intersections in Novato. Intersections with traffic signals or four-way stop signs should operate at LOS D or better. For intersections with stop signs on side streets only, LOS E is acceptable.

Traffic studies prepared for the General Plan Existing Conditions Report found that nearly all of the 41 intersections studied at that time operated at acceptable levels of service. The two exceptions were the stop-controlled intersections of South Novato Boulevard and Redwood Boulevard and Alameda del Prado and Nave Drive. Both of these intersections operated at LOS E during the morning peak period.

Roadway and Freeway Operations

Several roadway and freeway segments in Novato are part of the Marin County Congestion Management Program (CMP) network. The Transportation Authority of Marin, which serves as the region's congestion management agency, has established LOS standards for designated roadways in Marin County. Unlike the LOS standards set by the Novato General Plan, which focus on intersections, the CMP LOS standards focus on roadway segments. The standards affecting Novato include a LOS E requirement for US 101 and a LOS D requirement for SR 37 and designated CMP major arterial segments of Novato Boulevard, South Novato Boulevard and Bel Marin Keys Boulevard.

The Transportation Authority of Marin evaluates road segment and freeway operations biennially. All of the designated road segments in Novato and the State Route 37 segment operate at LOS A or B. The Highway 101 segment in Novato (north of Atherton Avenue to the Sonoma County border) operates at LOS A during the AM peak period and southbound PM peak period and at LOS F during the northbound PM peak period. LOS F reflects forced-flow, "bumper-to-bumper" congested conditions. Because this highway segment is "grandfathered," it is not required to meet the LOS E

standard. All roadway and freeway segments meet the thresholds required by the Marin County CMP.

Measuring Traffic Impacts with Vehicle Miles Traveled (VMT)

In 2013, Governor Brown signed Senate Bill 743. Among other things, SB 743 addresses transportation impacts under the California Environmental Quality Act (CEQA). Specifically, SB 743 requires the Governor's Office of Planning and Research (OPR) to amend the CEQA Guidelines to provide an alternative to LOS for evaluating transportation impacts. Particularly within areas served by transit, those alternative criteria must "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." Measurements of transportation impacts may include vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated. Vehicle Miles Traveled (VMT) is a measurement of the number of miles traveled by vehicles within a specified region for a specified time period.

FUTURE ROADWAY OPERATIONS

Land use and transportation must be coordinated so that the capacity of the transportation system accommodates the traffic generated by the development of the community. In order to understand the relationship between land use and transportation, a traffic forecasting model was prepared for the General Plan based on the development forecasts presented in the Land Use chapter. With these traffic projections it is possible to estimate how much traffic will be generated by new development, what traffic problems will occur, and what roadway improvements, if any, could relieve traffic congestion and enhance multi-modal use. Table CW-2 presents a list of projects in Novato that, when implemented, will accommodate traffic generated by development consistent with the General Plan, enabling the roadway system to operate safely and efficiently for all users.

TABLE CW-2 FUTURE ROADWAY IMPROVEMENTS

[To be listed when the Draft Environmental Impact Report is certified.]

PARKING

Vehicle parking facilities have a significant impact on the attractiveness and accessibility of neighborhoods, commercial districts and communities as a whole. In Novato, parking for individual land uses is generally provided directly on-site. Many commercial uses, including office buildings, shopping centers, and community and medical facilities, provide parking lots for their employees' and customers' use.

Residential Parking

On-street parking is typically provided on both sides of the street in residential neighborhoods, on local roads, on collector streets and occasionally along the city's arterials. While an abundance of parking is generally available in the city's residential neighborhoods, some of the city's older multi-family developments provide more limited on-site parking, resulting in greater use of on-street parking in these areas.

Downtown Parking

Parking downtown generally consists of public on-street spaces and parking in private lots that serve businesses. There are two small off-street public parking lots in the Downtown—the Civic Center lot and the Zenk lot on Reichert Avenue between Grant Avenue and De Long Avenue. The Millworks/Whole Foods development includes 26 spaces available to the general public during business hours in addition to the parking spaces dedicated to Whole Foods' customers and Millworks residents.

Concerns about the availability of parking tend to be focused on the downtown area. The City conducts an annual parking survey to determine the occupancy level of on-street parking spaces. The City's most recent analysis indicates that 81 percent of on-street parking spaces downtown are occupied during the peak parking period from noon to 1:00 p.m. on weekdays. An occupancy rate of 90 percent and above indicates a parking shortage.

Vacant parking spaces along Grant Avenue, between Redwood Boulevard and Reichert Avenue, and along adjacent streets are more difficult to find during the weekday lunchtime hour. However, parking spaces are often available a short walk away, suggesting that management and enforcement of existing parking spaces is key to ensuring the most convenient spaces are available to shoppers and visitors.

PARK-AND-RIDE LOTS

There are five park-and-ride lots in Novato. The facilities provide short- and long-term parking for commuters, transit riders and bicyclists. Four of the facilities are located along the US 101 and SR 37 corridors and are owned and operated by Caltrans. These facilities are located at the Alameda del Prado, Rowland Boulevard, and Atherton Avenue interchanges. Another park-and-ride lot located at the Hamilton Town Center is temporarily being used for parking by transit riders.



Parking spaces in the Downtown are in high demand during the weekday lunchtime hour.

BICYCLE AND PEDESTRIAN NETWORK

Novato residents and visitors walk and bicycle throughout the City for recreation and for access to schools, employment sites, transit, and shopping. The City's climate and mostly flat topography are conducive to walking and bicycling, and the City's well-developed network of bicycle and pedestrian facilities and amenities provides safe and convenient routes for biking and walking. Maintaining and expanding the bicycle and pedestrian network helps to reduce the number of vehicles on the road, reduces pollution and greenhouse gas emissions, and encourages a healthy and active lifestyle for Novato residents, workers and visitors.

Bicycle Network

Novato has three different classifications of bikeways. Class I paths provide a completely separated right-of-way for exclusive use by bicyclists, pedestrians and other active transportation users. Class II bike lanes, such as those on Redwood Boulevard, provide a striped and stenciled lane for one-way travel on a street. Class III bike routes provide for shared use of the vehicular travel lane, typically on lower-volume roadways.

Altogether, Novato has approximately 33 miles of bikeways within the City's boundaries, as shown in Figure CW-3. Map CW-2 shows existing and proposed bikeways.

FIGURE CW-3 EXISTING BIKEWAY MILEAGE

CLASS	BIKEWAY TYPE	DESCRIPTION		TOTAL MILEAGE
I	Shared-use Path	A paved path completely separated from a street. It is usually shared with pedestrians and other active transportation users.		5.34
II	Bicycle Lanes	A striped and stenciled lane for one-way bicycle travel on a street.	LANE BIKE	24.06
III	Bicycle Routes	Provides for shared use with motor vehicle traffic and identified only by signing and/ or pavement markings.	FE	3.65
All Bikewa	iys			33.18

Bicycle racks can be found at various businesses, employment centers, schools, transit stops and parks throughout Novato. Bicycle lockers for long-term bicycle parking are available at the park-and-ride lots at Alameda del Prado and Rowland Boulevard. The City of Novato has adopted requirements for bicycle parking for new multi-family and commercial development and requires showers and change facilities in large, newly-developed and expanded employment centers.

The Novato Bicycle/Pedestrian Plan, adopted in 2015, provides for a recommended citywide network of sidewalks, bicycle paths, lanes and routes, along with pedestrian- and bicycle-related programs and support facilities. The City's Community Based Transportation Plan (CBTP), also adopted in 2015, identifies bike and pedestrian needs focused on improvements for increased access to transit bus facilities. The goal of both plans is to make bicycling, walking and transit use a more viable transportation option for people who live, work and recreate in Novato.

Pedestrian Network

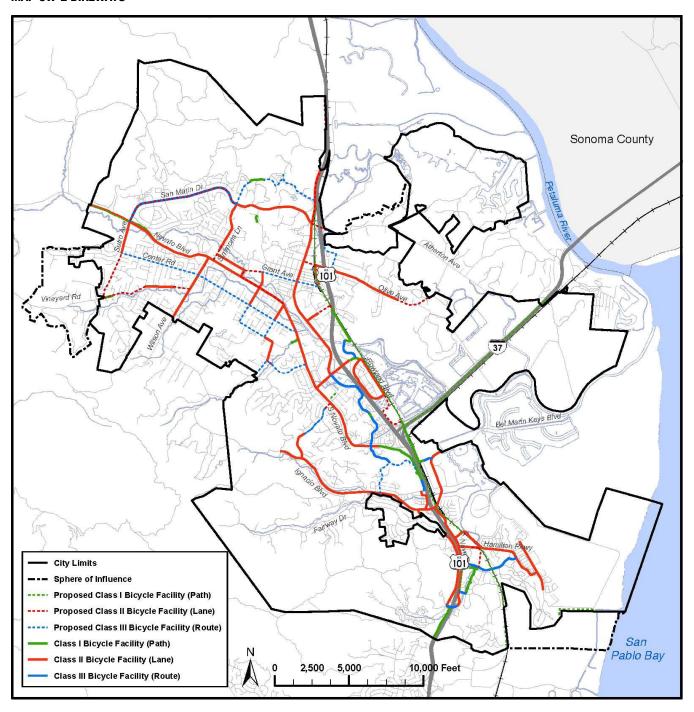
A neighborhood is walkable when people can travel safely on foot to many destinations. Convenient walking distance is a quarter to half mile, a walk that would take 10 to 15 minutes. Novato has many walkable neighborhoods, and sidewalks are provided on the majority of streets in the city. Downtown is walkable because of its small blocks, nearby services and destinations, and access to transit services. While the Downtown and surrounding neighborhoods have nearly complete sidewalk coverage, outlying residential neighborhoods have varying coverage. Crosswalks, curb ramps, lighting and signs help to make walking safe in the city, and amenities such as street trees, landscape plantings, benches, and transit shelters contribute to a pleasant pedestrian experience.

Safe Routes to School

The Safe Routes to Schools program was initiated in Marin County in 2000 as an effort to reduce congestion and encourage healthy exercise and transportation habits among school-aged children. Eleven public and private Novato schools and over 5,400 students participated in the program during the 2016/2017 school year.

Safe Routes to Schools promotes walking and biking to school through education and incentives. The program addresses parents' safety concerns by educating children and the public, partnering with traffic law enforcement, and developing plans to create safer streets. The City participates in the construction of safe pathways to Novato schools, and the Novato Police Department provides bicycle education and safety programs.

MAP CW-2 BIKEWAYS



TRANSIT NETWORK

In Marin County, there is local and regional bus service and ferry service to San Francisco. Marin Transit is responsible for providing local transit service within Marin County, including Novato. The agency provides local and express bus service linking Marin to Sonoma County cities and San Francisco, and provides service to 134 bus stops in Novato. Bus transfers in Novato take place at the transit facility on Redwood between DeLong and Grant Avenue. Reconstruction of this facility will be completed in 2017.

Marin Transit's 2016-2025 Short Range Transit Plan aims to improve the transit system by strengthening connectivity in major transit corridors, including Highway 101, and preparing for Sonoma Marin Area Rail Transit (SMART) service. Improvements may include increasing the frequency of bus service and reducing the length of time to reach destinations. Marin Transit intends to extend Downtown Novato routes north to serve the North Novato-San Marin train station and evaluate changes to Hamilton services to serve employment areas at Hamilton Landing and Bel Marin Keys.

SONOMA MARIN AREA RAIL TRANSIT (SMART)

SMART passenger service began in 2017. SMART provides service to Novato residents and businesses at three stops, a Novato North—San Marin Station located on Redwood Boulevard, a Downtown Novato station on Grant Avenue, and a Novato South—Hamilton Station located just north of Main Gate Road.

SMART currently operates 17 round trips per weekday between the Sonoma County Airport north of Santa Rosa and San Rafael, with service at 12 train stations. SMART operates five round trips per weekend day as well. A SMART pathway system will link segments constructed by SMART with existing segments to create a continuous bicycle-pedestrian pathway.

6.3 SAFETY AND HAZARDS

Novato is vulnerable to a range of public safety threats including both natural and human-made hazards. Earthquakes, flooding, storms, landslides and fires pose serious and real threats to the city. Planning is critical to identify potential hazards and provide policies and regulatory actions to reduce the community's risk of death, injury, property damage and economic and social disruption.

GEOLOGIC AND SEISMIC HAZARDS

Earthquakes

Novato is located in the seismically active San Francisco Bay region, an area with a long history of tectonic movements. The region sits on the boundary between two of the Earth's major tectonic plates—the Pacific and North American Plates—which move inexorably past each other at a rate of about 2 inches per year. Much of this motion is accommodated from time to time by sudden slip on faults, producing an earthquake. Although the

SMART STATIONS CLOVERDALE HEALDSBURG WINDSOR SONOMA COUNTY AIRPORT SANTA ROSA NORTH SANTA ROSA DOWNTOWN ROHNERT PARK COTATI PETALUMA NORTH PETALUMA DOWNTOWN **NOVATO SAN MARIN NOVATO DOWNTOWN NOVATO HAMILTON** MARIN CIVIC CENTER **SAN RAFAEL LARKSPUR** FUTURE STATIONS

The SMART train will eventually link 16 stations from Cloverdale in northern Sonoma to the Larkspur Ferry terminal in southern Marin.

San Andreas fault is the main origin of slip, other faults splay out from the plate boundary throughout most of California. Active and potentially active faults in the Novato area include the San Andreas, Burdell Mountain, Tolay, Rodgers Creek, and Hayward fault zones, as shown on Map CW-3. The nearest potentially active fault is the Burdell Mountain fault, which is located to the north of the city.

An active fault is defined as one which has had surface displacement over the past 11,000 years. The San Andreas, Hayward, and Rodgers Creek faults are all active faults.

The San Andreas fault, located about 9.5 miles west of the city limit, was the source of the magnitude 7.8 earthquake in 1906. The most recent large earthquake on the San Andreas fault was the magnitude 6.9 Loma Prieta earthquake in 1989. The Loma Prieta earthquake caused intense seismic activity throughout the Bay Area, collapsing a double-decked freeway in West Oakland and destroying buildings in San Francisco's fill-based Marina District.

The U.S. Geological Survey estimates the probability of a large earthquake of magnitude 6.7 or greater on the northern San Andreas fault within the next 30 years is about 21 percent. Earthquakes of this magnitude can kill and injure many people and cause extensive damage to buildings, roads, bridges and utilities.

The Rodgers Creek fault is the closest active fault, lying 4.8 miles to the east of Novato. The active Hayward fault is 13.7 miles to the southeast. There is a 31 percent chance that a large earthquake will occur within the Hayward-Rodgers Creek fault system within the next 30 years.

Both the Burdell Mountain and Tolay faults are considered potentially active faults, which mean that there is evidence of surface displacement within the last 1.6 million years, but not within the past 11,000 years.

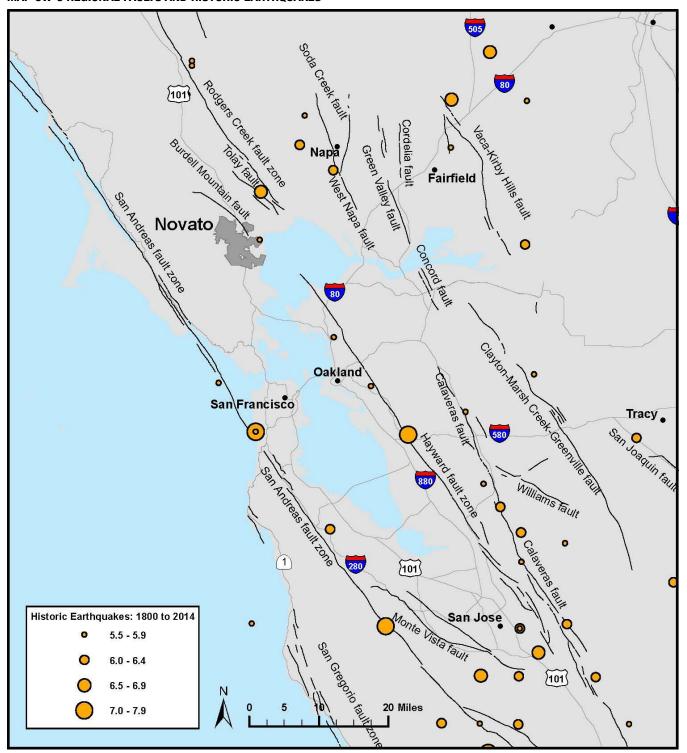
Damage in earthquakes is mainly from shaking. The intensity of shaking that a structure will experience during an earthquake depends upon the magnitude of the earthquake, the proximity to the epicenter, and the type of ground materials beneath the structure. Soft soils amplify the shaking, while hard bedrock does not.

All buildings located in Novato are vulnerable to earthquake damage, but depending upon construction, some buildings are expected to perform better than others. One and two story wood-frame buildings generally perform well, but they may shift if not bolted to the foundation or partially collapse if cripple walls (short walls that occur between the foundation and first floor to create a crawl space) are not braced. Homes with rooms built over garages and homes built on hillsides are also vulnerable to collapse if walls are not reinforced or braced. Unreinforced masonry buildings are very likely to be damaged during earthquakes. While current building codes address seismic safety, they are designed to protect occupant lives during an earthquake. Newly constructed buildings can still be significantly damaged during a major earthquake.

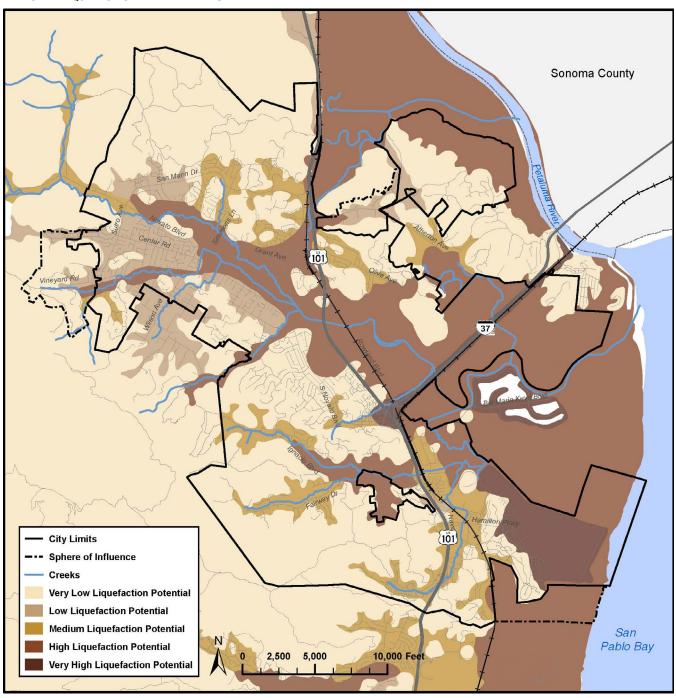
Structures built in areas of water-saturated granular sediment or fill material are susceptible to liquefaction. The ground shaking from an earthquake transforms the material from a solid state to a temporarily liquid state. Liquefaction is a serious hazard because buildings in areas that experience liquefaction may sink or suffer major structural damage. Most single and multi-family homes under 10 stories are unlikely to have foundations stable enough to withstand liquefaction even if they can withstand ground shaking. Areas in Novato with soils susceptible to liquefaction are primarily located in low-lying area of fill fronting San Pablo Bay, as shown in Map CW-4.

Although an earthquake on the Hayward and Rodgers Creek fault complex, which runs beneath San Pablo Bay, could create a tsunami, there is believed to be little potential for a tsunami to affect Novato.

MAP CW-3 REGIONAL FAULTS AND HISTORIC EARTHQUAKES



MAP CW-4 LIQUEFACTION HAZARD AREAS



Source: MarinMap, 2016

Landslides

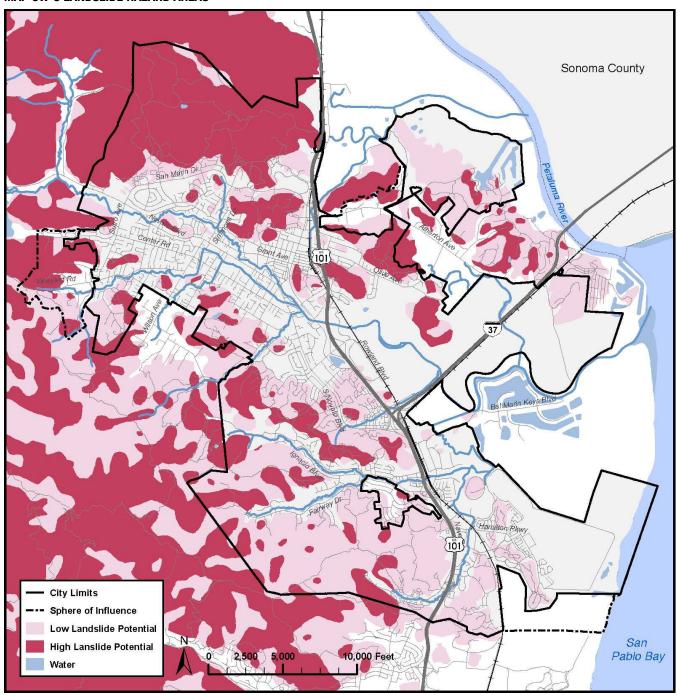
Landslides are a potential hazard to structures, roads and utilities on hillsides in Novato. Landslides can move slowly, as in hillside creep, or can move quickly and disastrously, as is the case with debris flows.

Almost every landslide has multiple causes. Landslides can be initiated in slopes already on the verge of movement by rainfall, erosion, earthquake, and disturbance by human activities. Factors that indicate the probable formation and relative risk of landslide and slope instability include:

- Slope Steepness: Most landslides occur on moderate to steep slopes.
- Slope Material: Loose, unconsolidated soils and soft, weak rocks are more hazardous than are firm, consolidated soils or hard bedrock.
- Water Content: Increased water content increases landslide hazard by decreasing resistance to sliding and adding weight to the materials on a slope.
- Vegetation Coverage: Abundant vegetation with deep roots increases slope stability.
- Proximity to Areas of Erosion or Man-Made Cuts: Undercutting slopes may greatly increase landslide potential.
- Earthquake Ground Motions: Strong ground shaking may trigger landslides in marginally stable slopes or loosen slope materials and thus increase the risk of future landslides.

Map CW-5 shows the areas in Novato where landslides may occur.

MAP CW-5 LANDSLIDE HAZARD AREAS



Source: MarinMap, 2016

FLOODING

Novato Creek, along with its tributaries such as Warner and Arroyo Avichi Creeks, is a major source of flooding in Novato. Heavy rains occasionally cause flood damage in Novato. Properties upstream of the confluence of Novato, Warner, and Arroyo Avichi Creeks have been particularly susceptible to flooding. Heavy rains in 1980, 1982, 1983, 1986, 1989 and 1998 caused flooding and damage to buildings in these areas. Other areas with high flood danger include Ignacio, Arroyo San Jose, and Vineyard Creeks. See Figure ES-1 in the Environmental Stewardship chapter for a map of these creeks.

Flooding along Novato Creek usually occurs in three stages: 1) when the water levels rise above storm drains water backs up, resulting in flooded roads and property; 2) when Warner Creek and Arroyo Avichi rise and overflow their banks at the confluence with Novato Creek; and 3) when Novato Creek itself rises to a level where it overflows at low points in its banks. In addition, localized flooding occurs periodically in certain locations due to creek blockages such as fallen trees and debris. The frequency and severity of flooding has been reduced as a result of flood control improvements for Novato, Warner and Avichi Creeks over the years.

Much of the Bayfront lands are in agricultural, conservation or open space uses and flood frequently. These areas are reclaimed marshlands which had been near high tide level when drained. Since reclamation, the loss of water within the bay mud has led to subsidence, and many areas are now below mean sea level and require pumping to drain.

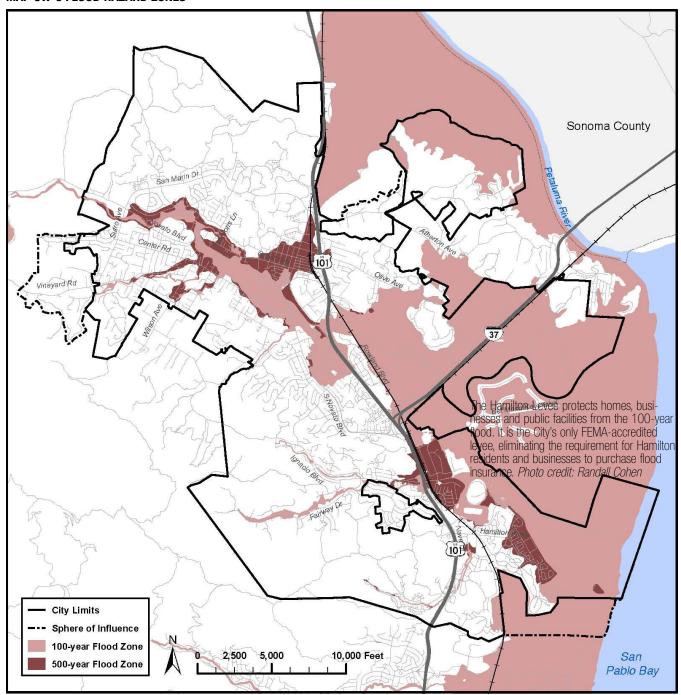
Congress passed the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973 to address the increasing cost of flood-related disaster relief. The intent of National Flood Insurance Program is to reduce the need for large, publicly-funded flood control structures and disaster relief by restricting development on floodplains.

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program to provide subsidized flood insurance to communities that comply with FEMA regulations and limit development on floodplains. FEMA issues Flood Insurance Rate Maps (FIRM) for communities participating in the flood insurance program. The FIRM maps delineate flood hazard zones in the community.

The FIRM maps play several critical roles. First, the maps are used by local and county agencies to identify and plan for local or area flood protection. Second, the maps are used by the banking and insurance industries to determine if flood insurance is mandated for a specific property or area. Lands located within the Areas of Special Flood Hazard (areas subject to 1 percent chance of flooding in any given year) require that flood protection insurance be secured for federally-regulated or insured loans. Lastly, the maps are used at the federal and state level to plan for waterway projects that are administered by the US Army Corps of Engineers. The most current FIRM maps were updated and published in 2016.

Map CW-6 shows the areas of Novato that are prone to flooding, as identified by FEMA. Areas in the 100-year flood zone have a 1 percent chance of flooding in any given year, while areas in the 500-year flood zone have a 0.2 percent chance of flooding.

MAP CW-6 FLOOD HAZARD ZONES



Source: FEMA Flood Hazard Zone, 2016

All of Marin County, including Novato, is under the jurisdiction of the Marin County Flood Control and Water Conservation District, which is responsible for managing stormwater and flooding problems in the County. The District also maintains weather monitoring stations, stream gauges and precipitation gauges throughout the County. The District identifies eight zones within the County in order to focus on issues in specific watersheds. The City of Novato and a sizeable amount of unincorporated area around the City comprise Zone 1.

Hamilton Levee

The FEMA-accredited Hamilton Levee is situated on low-lying land below sea level. The area behind the levee includes detached single family homes, townhouses and condominiums, senior living units, rehabilitated hangars converted to commercial space, a community center, an amphitheater and park facilities. The levee is located at the eastern edge of development and protects the development from the waters of San Pablo Bay. In addition a secondary, outer levee and the raising of wetlands elevation between the levees provide additional protection to the developments. Storm drainage water is pumped via two pump stations with adequate flow capacity, powered by diesel engines from the developments into the bay.

In the highly unlikely event of a levee failure during flooding conditions or a severe storm, combined with a high tide, parcels could be threatened with immediate flooding. An imminent threat of levee failure could require a rapid evacuation of affected residents in a short period of time, with little to no advanced warning. The Hamilton Levee protection zone is shown in Figure CW-7.



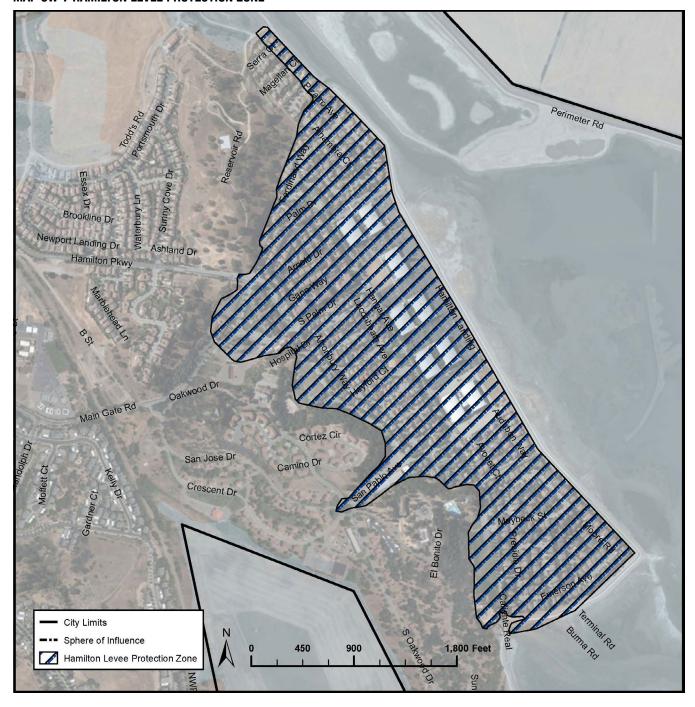
Novato Creek Dam

Novato is subject to potential flooding resulting from the failure of the Novato Creek Dam at Stafford Lake. This earthen dam, built in 1950, is designed to withstand an earthquake of a magnitude up to 8.25 on the San Andreas Fault with an epicenter 10 miles away. The area that would be inundated in the hypothetical event of a sudden failure of the dam is shown in Map CW-8.

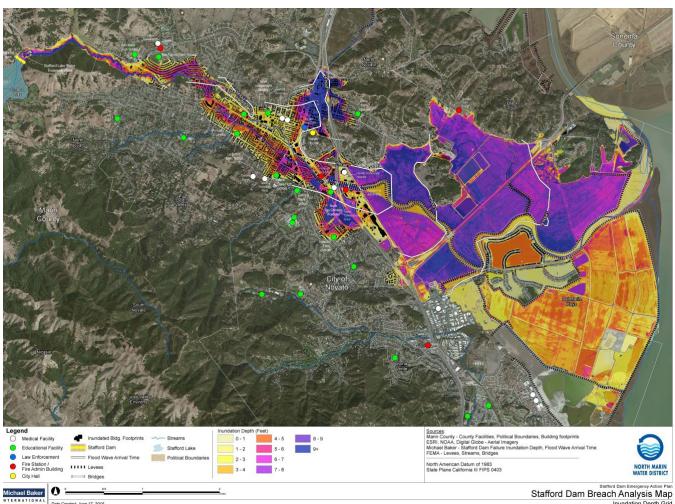
The California Department of Water Resources considers downstream hazards of the dam to be extremely high, with considerable loss of life and major impacts to critical infrastructure or property should the dam fail when operating with a full reservoir.

Novato Creek Dam is owned and maintained by the North Marin Water District. According to the Department of Water Resources, the dam is certified and may safely impound water. It is also in satisfactory condition, with no existing or potential dam safety deficiencies.

MAP CW-7 HAMILTON LEVEE PROTECTION ZONE



MAP CW-8 STAFFORD LAKE DAM INUNDATION AREA



FIRE HAZARDS

CAL FIRE identifies fire hazard severity zones (FHSZ) based on the severity of the fire hazard expected to prevail there. These areas are based on factors such as fuel type (vegetation that is fire prone), slope, aspect, and fire weather. There are three zones, based on increasing fire hazard: medium, high and very high. As shown in Figure CW-4, very high fire hazard severity zones are found in the southwest area of Novato, in the open space preserves and along creek corridors where homes have been built on hill-sides covered with grasslands and oak woodlands.

In addition to the State identified FHSZ, local fire authorities using similar criteria have designated certain State Responsibility Areas (SRA) & Local Responsibility Areas (LRA) to also be a significant risk from wildfires. The term *wildland urban interface* (WUI) is commonly used to describe an area where urban development has been located in proximity to open space

or wildland areas. Development located within a wildland-urban interface experiences high risk of wildland fire. The wildland urban interface areas in Novato, as identified by CAL FIRE and the Novato Fire Protection District (NFPD), are shown in Figure CW-5. Development within the wildland urban interface is subject to specific requirements for vegetation management and for ignition resistive construction features including but not limited to and exterior siding, windows, roofs, eaves, vents, decks, and exterior doors.

The Novato area has experienced catastrophic wildland urban interface fires in the past, and NFPD routinely responds to wildland urban interface fires annually. In 1923 Novato experienced its largest recorded fire burning some 40,000 acres. In 1926, it was reported in the local newspaper that "rings of fire" were burning in the dry summer oak woodland areas, creating fears of one day losing the entire town. That same year the Novato Fire District was formed. The fuel, weather, and topographic conditions that support the ignition and spread of wildland fires are still present within the District and wildland fires have consumed hundreds of acres of land in the last several decades. The largest wildland fire in Marin County in recent years was the Mt. Vision fire of 1995. This fire, located in Inverness Park in West Marin County, destroyed 59 homes and consumed 12,000 acres. Additional information on wildfire hazards can be found in the City of Novato's Hazard Mitigation Plan and Emergency Operations Plan and the Novato Fire Protection District's 2009 All Risk Standards of Cover.

Structure fire risk is greatest in older structures and neighborhoods built before modern WUI building codes for fire safety and building systems were in place. Wood-frame apartment buildings and condominiums are at risk, as are Downtown buildings made of wood that do not have adequate firewalls. Closely-spaced mobile homes in the City's mobile home parks are also at increased fire risk.

The North Marin Water District (NMWD) has adopted minimum fire flow standards of 1,000 gallons per minute at hydrants, as specified by Title 22 of the State of California Administrative Code. In addition, NMWD continues to upgrade storage and the water delivery system to assist in fire suppression. NFPD has adopted a similar fire flow standard to ensure that there exists sufficient water flow in fire hydrants throughout Novato, based on peak demand.

Novato Fire Protection District

The City of Novato, as well as surrounding unincorporated areas, are served by the Novato Fire Protection District (NFPD), an independent special fire district formed in 1926. The NFPD provides fire protection services, emergency medical services, and fire and rescue response for vehicle accidents and hazardous material incidents.

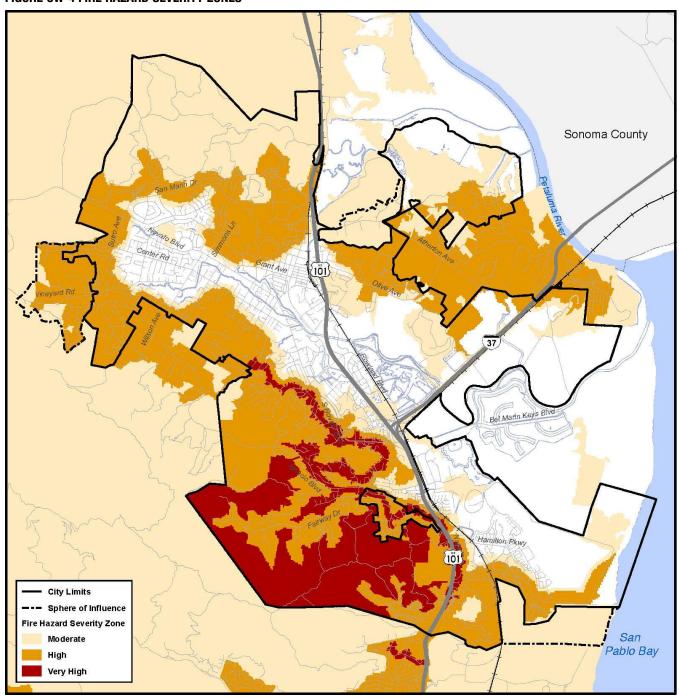
The City of Novato and the Novato Fire Protection District operate a joint Emergency Operations Center located in the NFPD Administrative Office at 95 Rowland Way. The Center facilitates a coordinated response during a major emergency or disaster. The City's Emergency Operations Plan guides the planned response to emergency situations as well as coordination with other governmental agencies when required.

The City prepares evacuation routes in cooperation with the NFPD which are intended for use by first responders. Actual evacuation routes may need to be modified in the field during emergencies. Evacuation policies and procedures are addressed in the City's Emergency Operation Plan. The City has established minimum roadway widths for various types of roadways within Novato. These standards are contained in Chapter 5 of the Novato Municipal Code and in the locally adopted NFPD Fire Code Ordinance, by reference in its roadway and driveway standards.



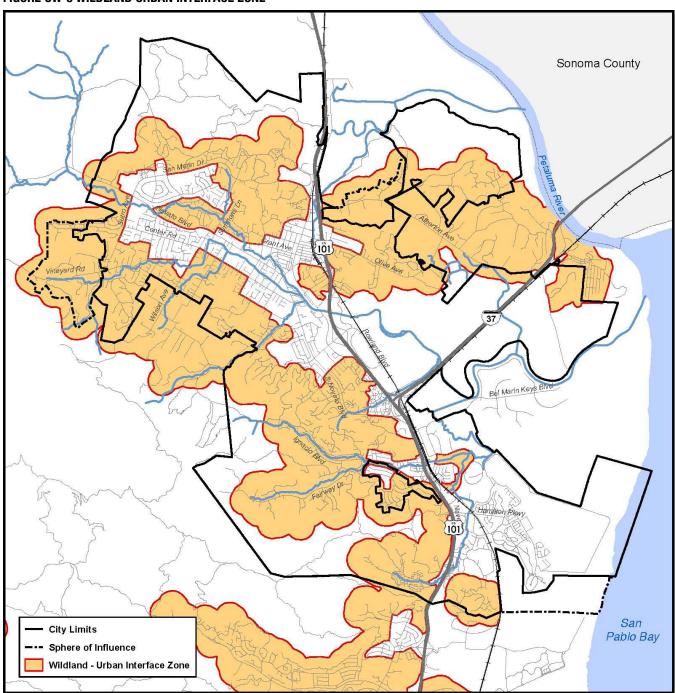
The Novato Fire Protection District provides fire protection services, emergency medical services, and fire and rescue response for vehicle accidents and hazardous material incidents.

FIGURE CW-4 FIRE HAZARD SEVERITY ZONES



Source: MarinMap, 2016

FIGURE CW-5 WILDLAND URBAN INTERFACE ZONE



Source: MarinMap, 2016

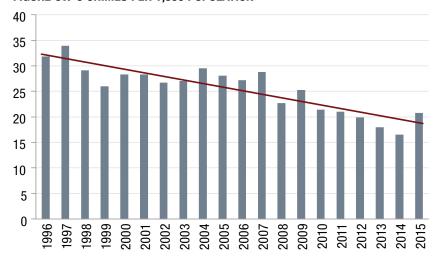
POLICE SERVICE

The Novato Police Department (NPD) provides professional and proactive street patrol, investigative services, traffic enforcement, narcotics enforcement, a 911 dispatch center, and emergency services and preparedness. The NPD keeps the community safe through education, enforcement and working closely with neighborhoods. There are approximately 78 staff in the department, including 60 sworn personnel and a robust volunteer program.

The NPD has developed a number of community-oriented programs including the Minors Access to Alcohol Prevention and Bicycle/Pedestrian Safety programs. The Novato Response Team is a special police team focused on crime prevention and intervention. The Team meets with residents to provide crime prevention tips, visits schools to mentor youth and reduce gang involvement, and works with property owners of multifamily housing to ensure the safety of their residents and the surrounding community.

Currently, Novato experiences historically low crime rates. There has been an overall decrease in the crime rate over the past 20 years as shown in Figure CW-6.

FIGURE CW-6 CRIMES PER 1,000 POPULATION



The Novato Police Department has worked hard to reduce crime rates to historically low layers

CLIMATE CHANGE ADAPTATION AND RESILIENCE

The Earth's climate is warming, mostly due to human activities such as changes in land cover and emissions of certain pollutants. Greenhouse gases are the major human-induced drivers of climate change. These gases warm the Earth's surface by trapping heat in the atmosphere.

The evidence that the climate is warming is unequivocal. Global surface temperatures have increased 0.9 °C (1.6 °F) relative to the 1951-1980 average temperatures. Seventeen of the 18 warmest years in the 136-year record have occurred since 2001, and the year 2016 ranks as the warmest

Emissions scenarios used in the General Plan are the same as those used by the Intergovernmental Panel on Climate Change's Fifth Assessment Report and are called Representative Concentration Pathways, or RCPs. There are four RCPs: 2.6, 4.5, 6.0, and 8.5. Each represents a set of possible underlying socioeconomic conditions, policy options, and technological considerations, spanning from a low-end scenario that requires significant emissions reductions resulting in zero global emissions by 2080 (RCP 2.5) to a high-end, "business-asusual." fossil-fuel-intensive emissions scenario (RCP 8.5). The low-end scenario is most closely aligned with California's ambitious greenhouse gas reduction targets and the aspirational goals of the United Nations Framework Convention on Climate Change 2015

Paris Agreement. Thus far, global

ness-as-usual trajectory.

emissions continue to follow the busi-

on record (NASA/GISS, 2018). Consistent with global observations, annual average air temperatures have increased by about 1.8 °F in California, with temperatures rising at a faster rate beginning in the 1980s.

As temperatures continue to rise, California faces serious climate impacts, including:

- More intense and frequent heat waves
- More intense and frequent drought
- More severe and frequent wildfires
- More severe storms and extreme weather events
- Greater river flows
- Shrinking snowpack and less overall precipitation
- Accelerating sea level rise
- · Ocean acidification, hypoxia, and warming

The Cal-Adapt.org web portal provides resources to help communities understand how climate change will raise temperatures and exacerbate extreme heat events, drought, wildfire, and coastal flooding in their area. The Cal-Adapt tool shows projections for two possible climate futures, one in which greenhouse gas emissions peak around 2040 and then decline (RCP 4.5) and another in which emissions continue to rise strongly through 2050 and plateau around 2100 (RCP 8.5). Both futures are considered possible depending on how successful the world is at reducing emissions and atmospheric carbon dioxide.

Average Maximum Temperatures

Overall temperatures are projected to rise substantially throughout this century. The historical (1990-2005) annual maximum mean temperature for Novato is 70.8°F. Under the low emissions (RCP 4.5) scenario, the maximum mean temperature in Novato is expected to rise about 3 °F by 2050 and nearly 5 °F by 2100 (see Table CW-3). Under the high emissions (RCP 8.5) scenario, the maximum mean temperature is projected to rise 8 °F to about 79°F by 2100.

Warmer temperatures will increase the demand for air conditioning and cooling systems. A common proxy used to understand the demand for energy needed to cool buildings is Cooling Degree Days (CDD). A Cooling Degree Day is defined as the number of degrees by which a daily average temperature exceeds a reference temperature, in this case 65 °F, which loosely represents the average daily temperature above which space cooling is needed. According to the Cal-Adapt modeling tool, the average number of Cooling Degree Days increases from an historical average of 406 CDD in Novato to 715 CDD by 2050 and more than doubles to 956 CDD by 2100 under the RCP 4.5 scenario. Under the high emissions scenario, that average more than quadruples to 1,768 CDD.

TABLE CW-3 AVERAGE TEMPERATURES AND WARMING IMPACTS IN NOVATO

	HISTORICAL	LOW EMISSIONS SCENARIO (RCP 4.5)		HIGH EMISSIONS SCENARIO (RCP 8.5)	
	AVERAGE (1990-2005)	2040-2050 AVERAGE	2090-2099 AVERAGE	2040-2050 AVERAGE	2090-2099 AVERAGE
Annual Average Maximum Temperature	70.8°F	73.9°F	75.3°F	74.3°F	79.1°F
Annual Average Minimum Temperature	46.7°F	48.4°F	49.5°F	48.8°F	53.9°F
Annual Cooling Degree Days	406 CDD	715 CDD	956 CDD	785 CDD	1,768 CDD
Annual Heating Degree Days	2,691 HDD	2,191 HDD	1,844 HDD	2,226 HDD	1,205 HDD
Annual Extreme Heat Days	3.8 days	9 days	10 days	9 days	29 days

Source: Cal-Adapt, 2018

Average Minimum Temperatures

The historical annual minimum mean temperature for Novato is 46.7°F. Under the RCP 4.5 scenario, the minimum mean temperature is expected to rise about 2°F by 2050 and 3°F by 2100. Under the RCP 8.5 scenario, the maximum mean temperature is projected to rise 7°F by the end of the century.

Warmer temperatures should reduce the demand for energy for space heating, and the Cal-Adapt tool shows a decrease in the projected number of Heating Degree Days (HDD). A Heating Degree Day is defined as the number of degrees by which a daily average temperature is below the reference temperature. The historical annual number of Heating Degree Days in Novato is 2,691 HDD. That number is projected to decrease about 19 percent by 2050 and 31 percent by 2100 under the RCP 4.5 scenario. Under the RCP 8.5 scenario, the number of Heating Degree Days declines by 55 percent by the end of the century.

Overall, the models project an increase of about 310 Cooling Degree Days and a decrease of about 500 Heating Degree Days by mid-century under a low emissions scenario. Considering that most heating systems use natural gas and most cooling systems use electricity, which is a cleaner energy source in Novato, this is somewhat positive news for future mitigation of greenhouse gas emissions.

Extreme Heat Days

As the climate changes, some of the more serious threats to public health will stem from more frequent and intense extreme heat days and longer heat waves. Extreme heat events are likely to increase the risk of mortality and morbidity due to heat-related illness, such as heat stroke and dehydration, and exacerbation of existing chronic health conditions.

An extreme heat day is defined as a day in April through October where the maximum temperature exceeds the 98th historical percentile of maximum

temperatures based on daily temperature data between 1961-1990. In Novato, the extreme heat threshold is 97.7°F.

Cal-Adapt projects a significant increase in the number of extreme heat days for Novato, as detailed in Table CW-3. Between 1990-2005, there was an average of 3.8 days above 97.7°F. That average is projected to increase to 9 days by 2050 under the RCP 4.5 scenario. By the end of the century, the average number of extreme heat days is expected to increase to 13 days and could be as many as 32 days under the high emissions scenario.

Those most at risk and vulnerable to heat-related illness are the elderly, infants, the socially or economically disadvantaged, those who work outdoors, and individuals with chronic conditions such as heart and lung disease, diabetes, and mental illnesses. In Novato, where the senior population is expected to nearly double by 2040, heat-related illness is of significant concern. Currently, about 19 percent of Novato's population is age 65 or older. Approximately one third of Novato's population is expected to be age 65 or older by 2040 (ABAG Projections 2017).

Rainfall

The historical annual mean rainfall for Novato is 32.3 inches. Under the RCP 4.5 scenario, annual mean rainfall is expected to rise about 3 inches by 2050 and through 2090, as shown in Table CW-4. Under the RCP 8.5 scenario, annual mean precipitation is projected to increase nearly 8 inches by 2090. As discussed in the section on flooding, climate scientists warn that climate change could increase the frequency and intensity of atmospheric river storms in northern California, potentially producing more frequent and severe flooding (Dettinger, 2011). While the expected increase in rainfall may exacerbate local flooding, the projections also mean that local water resources may not be negatively impacted by climate change. Sonoma County, which supplies about 80 percent of Novato's water, will likely see an increase in rainfall of 6 inches by mid-century and at least 7 inches by the end of century.

TABLE CW-4 AVERAGE ANNUAL RAINFALL

LOCATION	HISTORICAL AVERAGE (1990-2005)	LOW EMISSIONS SCENARIO (RCP 4.5)		HIGH EMISSIONS SCENARIO (RCP 8.5)	
		2040-2050	2080-2090	2040-2050	2080-2090
Novato	32.3"	35.0"	35.3"	33.8"	39.8"
Sonoma County	46.1"	52.4"	53.4"	51.1"	58.4"

Source: Cal-Adapt, 2018

Sea Level Rise

The San Francisco Bay is vulnerable to a range of natural hazards, including storms, extreme high tides, and rising sea levels resulting from global climate change. Flooding already poses a threat to communities along the Bay and there is compelling evidence that these risks will increase in the future. As temperatures rise globally, sea levels are rising mainly because ocean water expands as it warms, and water from melting of major stores

of land ice and glaciers flow into the ocean. In the past century, average global sea level has increased by 7 to 8 inches. Sea level at the San Francisco tide gauge has risen by about 7 inches since 1900.

Rising seas put new areas at risk of flooding and increase the likelihood and intensity of floods in areas that are already at risk. The State's *Sea Level Rise Guidance Document* (2018) projects a "likely" (66% probability) increase in sea level at the San Francisco tide gauge of 10 inches by 2040. By the end of the century, sea levels are likely to rise by 2.4 feet under a low emissions scenario (RCP 2.6) and 3.4 feet under a high emissions scenario (RCP 8.5). Flooding will be more severe when combined with storm events.

The *Marin Shoreline Sea Level Rise Vulnerability Assessment* (2017) provides a detailed mapping of buildings, infrastructure, habitats, natural resources, and other assets along Marin's bayside shoreline that will be impacted by sea level rise under various sea level rise and storm scenarios and determines how vulnerable these assets are to temporary flooding and permanent inundation. Vulnerability is based on an asset's exposure, sensitivity, and adaptive capacity to rising bay waters and storm surge threats. If an exposed asset is moderately or highly sensitive to sea level rise impacts, with low to no adaptive capacity, the asset is considered vulnerable.

The Vulnerability Assessment notes that development in Novato is largely inland and that much of the community's bayfront consists of unincorporated areas and managed stormwater, agricultural, utility and marsh lands. These lands could buffer Novato from sea level rise for several decades, and thus most assets may not experience saltwater flooding until the end of the century.

The Vulnerability Assessment analyzes sea level rise impacts in the near, medium and long term with sea level rise of 10, 20 and 60 inches, respectively. According to the assessment, very little of the community will be directly impacted in the near to medium term, even with an additional 100-year storm surge. Much of the exposed acreage is marshland that is typically used for public services, such as flood control or wastewater management, and are owned by a few, mostly public, property owners. There are no residential, commercial or industrial parcels vulnerable to sea level rise in the near and medium term (10 to 20 inches of sea level rise). With 5 feet of sea level rise, tidal flooding could impact 3 percent of commercial parcels, 5 percent of industrial parcels, and 4 percent of residential parcels.

The report identifies the following key issues related to sea level rise in Novato:

- In the near term, major roadways that could be vulnerable to sea level rise include State Route 37, US Highway 101, Redwood Boulevard and Rowland Way. A few other roads could be impacted with additional storm surge.
- Fewer than 20 buildings could expect tidal impacts in the near and medium term, and these may be mechanical buildings or small out buildings that exist in or near the marshlands. In the medium-term with

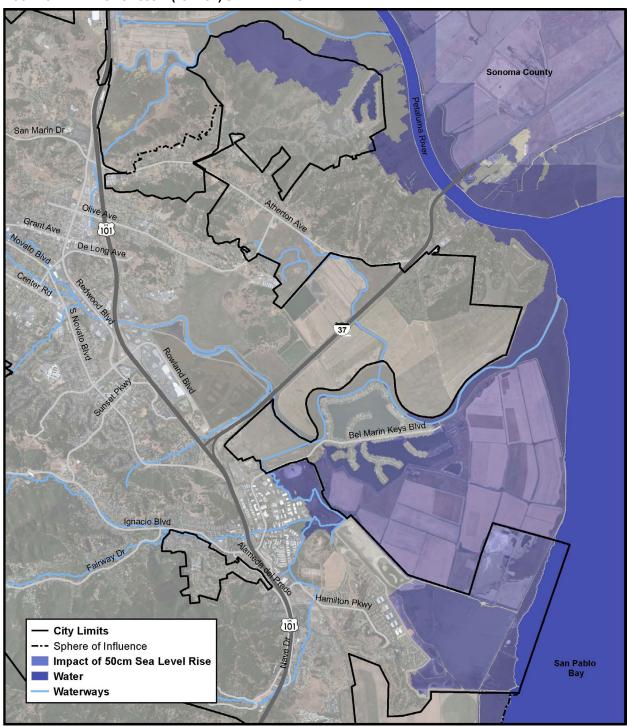
a 100-year storm surge, several buildings at the storage facility in northeast Novato could flood.

- The Novato Sanitary District wastewater treatment plant is vulnerable
 just before 3 feet of sea level rise, but storm impacts may impact the
 plant sooner. The water will not likely be high enough to impact the
 treatment process, but electrical components may be lower and saltwater corrosion of the tanks and buildings could take a toll over time.
- The Northern Marin Water District is vulnerable to sea level rise, storm surges, and rain events significant to back up Rush Creek.
- PG&E transmission towers in Novato's marshlands are already showing the effects of subsidence. As sea level rise continues, subsidence will worsen.
- Several hundred acres of tidal and stormwater marshlands could expect high salinity concentrations and water levels. These occurrences could push marshland inland where feasible. Local habitat could be affected, including habitat for endangered and threatened species. In addition, some marsh and bayside pathways may be flooded in the near term during high tide.
- Most of the vulnerable working lands in Novato are leased out to ranchers for grazing. As this area floods more consistently, less grazing will be possible, and animal waste may enter the bay when tidewaters retreat.

Figure CW-7 shows areas vulnerable to flooding in the Novato vicinity with a 20-inch sea level rise. Figure CW-8 illustrates potential flooding from 20-inch sea level rise with an additional 20-year storm.

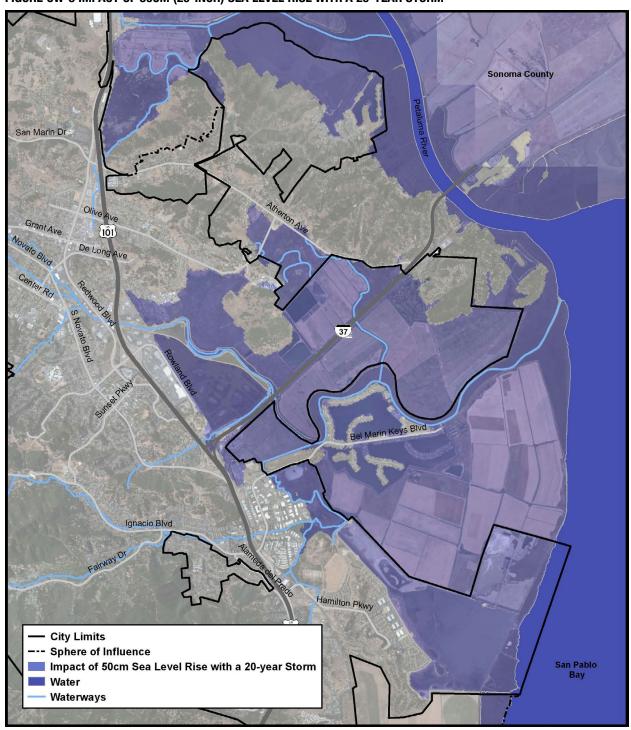
Strategies for long-term adaptation to sea level rise include barriers (seawalls, levees, tidal gates), elevated development (buildings, roads), floating development, floodable development, nature-based solutions (horizontal levees, wetlands and dunes) and managed retreat. Planning for sea level rise involves not only protecting existing structures and resources but ensuring new projects are designed to adapt to potential sea level rise.

FIGURE CW-7 IMPACT OF 50CM (20-INCH) SEA LEVEL RISE



Source: Our Coast Our Future, November 2015

FIGURE CW-8 IMPACT OF 50CM (20-INCH) SEA LEVEL RISE WITH A 20-YEAR STORM



Source: Our Coast Our Future, November 2015

Wildfire

Wildfire is a serious hazard in California. Several studies have indicated that the risk of wildfire will increase with climate change. According to Cal-Adapt, the historical annual average area burned by wildfire in Novato is about 100 acres. That amount is not expected to increase much by the end of the century, as shown in Table CW-5. However, in Marin County the average area burned is expected to increase under both low and high emissions scenarios throughout the century. By 2090, the models predict an increase in burned areas in Marin County of about 35 percent.

An increase in wildfire intensity and extent will increase public safety risks, property damage, fire suppression and emergency response costs, watershed and water quality impacts, vegetation conversions, and habitat fragmentation.

TABLE CW-5 ANNUAL AVERAGE AREA BURNED

LOCATION	HISTORICAL AVERAGE (1990-2005)	LOW EMISSIONS SCENARIO (RCP 4.5)			HIGH EMISSIONS SCENARIO (RCP 8.5)		
		2020- 2030	2040- 2050	2080- 2090	2020- 2030	2040- 2050	2080- 2090
Novato	101 acres	109 acres	113 acres	103 acres	111 acres	106 acres	90 acres
Marin County	1,399 acres	1,502 acres	1,562 acres	1,878 acres	1,436 acres	1,685 acres	1,883 acres

Source: Cal-Adapt, 2018

Adaptive Capacity

Adaptive capacity is the current ability of a community to address the potential impacts of climate change. Novato has existing policies, plans, programs, resources, and institutions that are already in place to adapt to climate change and reduce potential impacts. The City's *Climate Change Action Plan* contains measures to adapt to climate change. Resources to address flooding and fire prevention and protection are described in Section 6.3 of the City That Works chapter. Mitigation of greenhouse gas emissions to reduce climate change impacts is discussed in Section 3.8 of the Environmental Legacy chapter. In addition, the City has an emergency operations plan which can be activated for a variety of emergency situations, including flooding, storms, wildfire, and public health crises. The City has several facilities, including the Margaret Todd Senior Center and City Hall, that can operate as cooling centers during extreme heat days and heat waves.

6.4 PUBLIC SERVICES AND FACILITIES

Novato residents and businesses are served by a variety of public services and facilities. Many services are provided by public agencies other than the City of Novato: water supply is provided by the North Marin Water District; wastewater collection and treatment, and trash collection and recycling

are provided by the Novato Sanitary District; fire protection is provided by the Novato Fire Protection District; schools are provided by the Novato Unified School District; post-secondary education is provided by the Marin Community College District; and libraries are provided by the Marin County Free Library District. The Pacific Gas & Electric Company provides electricity and natural gas distribution, and MCE provides an alternative electricity source. City facilities include the City Hall, the administrative offices building, the police station, and the Corporation Yard. The location of these facilities is shown on Figure CW-9. City recreational and cultural facilities are described in the Living Well chapter.

The City maintains a high level of communication and cooperation with other provider agencies, but each of them retains independent decision-making authority. Because the City cannot compel other agencies to take any specific actions or to comply with City policy, the General Plan does not include standards for public services and facilities provided by other agencies.

WATER

The Novato Municipal Water District (NMWD) provides water service for the City of Novato as well as the surrounding unincorporated areas and portions of West Marin. Approximately 80 percent of the Novato water supply comes from the Russian River through the NMWD's wholesale water supplier, the Sonoma County Water Agency. The remaining 20 percent comes from local runoff into Stafford Lake that is treated at the NMWD Stafford Water Treatment Plant, and a lesser amount of recycled water developed in cooperation with Novato Sanitary District and Las Gallinas Valley Sanitary District. The District has no local, developed groundwater supply source. The large 245,000 acre-feet water supply storage capacity in Lake Sonoma allows the City to "weather" drought years and will help to buffer the impacts of greater extremes in rainfall expected to result from climate change.

The NMWD's Urban Water Management Plan addresses the District's water system and includes a description of the water supply sources, magnitudes of historical and projected water use, and a comparison of water supply to water demands during normal, single-dry and multiple-dry years. The Plan is prepared in accordance with the Urban Water Management Act and is updated every five years.

Lovely Stafford Lake provides about 20 percent of Novato's water supply.



Stafford Lake lies four miles west of downtown Novato and collects the runoff from 8.3 square miles of watershed land adjacent to the upper reaches of Novato Creek. The lake has a surface area of 230 acres and holds 4,450 acre-feet or 1,450 million gallons (MG) of water. Water from Stafford Lake is fed into the 6 million gallons per day (MGD) treatment plant located just below the dam. In FY 2015, 1,759 acre feet (573 MG) of water was produced from the new Stafford Lake Water Treatment Plant.

Russian River water originates from both the Eel River and the Russian River watersheds northeast of the City of Ukiah (Lake Mendocino) and west of Healdsburg (Lake Sonoma). The Coyote Dam and Lake Mendocino impounds the Eel River diversions and winter runoff from the local watershed. Warm Springs Dam and Lake Sonoma impound winter runoff from the Dry Creek and Warm Springs local watersheds. Lakes Mendocino and Sonoma combined can store 367,500 acre feet to meet the regions' water supply needs, which totaled 45,868 acre feet in FY 2015. Releases from the lakes flow to a point about 10 miles upstream of Guerneville, where six deep Ranney Collector wells draw river water that has been filtered through 60 to 90 feet of natural sand and gravel to perforated pipes located at the bottom of each well. The thick layer of sand and gravel through which the water must pass before reaching the intake pipes provides a highly-efficient, natural filtration process which, with chlorination treatment, produces a clear, potable, bacteria-free water. This water is then fed directly into the SCWA aqueduct system. In FY 2015, North Marin received 6,067 AF (1,928 MG) of Russian River water.

NMWD has an agreement in place with SCWA to provide sufficient supply to meet Novato's current and future water supply needs. However, there continue to be competing interests for Russian River water, principally to protect steelhead and salmon listed as threatened or endangered species under the Endangered Species Act.

Water demand has been decreasing in the NMWD service area in recent years and is substantially less than what the NMWD has projected in its most recent 2010 Urban Water Management Plan. This is due to higher conservation and lower levels of development than originally expected. The Water District has already met the State-mandated goal to reduce per capita water use by 20 percent by 2020. Building code and District regulations for high efficiency water fixtures and water-efficient landscapes will continue to reduce per capita water use.

The water supply is adequate to meet the demand under General Plan growth projections. New development offsets new water demand through the water connection rate structure which funds the reclaimed water infrastructure.

WASTEWATER

The Novato Sanitary District (NSD) is the wastewater service provider for the City of Novato and surrounding unincorporated area. In 2010, NSD completed a new consolidated wastewater treatment facility which combines the flows from two former treatment plants. The total permitted capacity for the new treatment facility is 7.0 million gallons per day (MGD).

The City owns and maintains:

- 152 miles of streets, sidewalks, curbs, gutters and drainage
- 2,350 drainage catch basins and drop inlets
- 2 storm drain pump stations
- 33 traffic signal systems
- 16,400 traffic signs
- 90 acres of landscaped median islands and roadside landscapes
- 4,500 streetlights
- 149 vehicles and large pieces of equipment
- 115 acres of developed parks
- 22 acres of athletic fields
- senior center
- child care center
- swimming pool
- gymnastics/teen center
- 2 racquetball courts
- 2 gymnasiums
- 2 museums

In 2012, NSD completed a new recycled water treatment facility with a treatment capacity of 1.7 MGD (peak). The plant can provide over 150 million gallons of water annually for large landscapes, including Stone Tree Golf Course, Fireman's Fund, a cemetery, parks and schools. The District's goal is beneficial reuse of all of its treated wastewater.

NSD's collection system consists of over 240 miles of sewer lines and 40 pump stations. The District continues to work on upgrades of the collection system and provides grants to homeowners to replace their sewer laterals.

SOLID AND HOUSEHOLD HAZARDOUS WASTE AND RECYCLING

Weekly garbage service is provided to Novato residents by Novato Disposal Service, Inc. through a contract with the Novato Sanitary District. Commercial collection is provided up to 6 days per week. Novato Disposal Service provides weekly residential curbside recycling, including yard waste and food waste composting. The Novato Recycling and Buyback Center accepts residential recyclable waste, and a household hazardous waste facility at the same location accepts household hazardous and electronic waste.

Solid waste from Novato is taken to the Redwood Landfill and Recycling Center located north of the Novato city limit. The landfill is permitted to accept 2,140 tons of material per day and has a design capacity of 26,077,000 cubic yards. The estimated closure date of the landfill is 2036. Redwood has plans to install a landfill gas to energy plant, expand its composting facility, and build a construction and demolition materials recovery facility.

SCHOOLS

The City of Novato is served by the Novato Unified School District (NUSD) which operates seven elementary schools, one K-8 school, one K-8 charter school, two middle schools, two high schools, one alternative high school and one K-12 independent study program. School facilities are shown in Figure CW-9. All of the NUSD schools currently have sufficient space for all enrolled students. According to the 2012 NUSD Facility Master Plan, the majority of schools are operating below capacity.

The Facility Master Plan projects future student enrollment for a ten-year period. These projections are based on historical and projected birth data (used to project future kindergarten students), residential development and student migration rates. The plan projects that school enrollment will decrease by approximately seven percent through 2022. This is based on current and projected declining local birth rates. Declining birth rates are also being realized across the nation, California, and Marin County. Projected district enrollment for the 2021-22 school year is 7,349 students.

The College of Marin, established in 1926, is a public community college that serves Marin County residents. The college has two campuses, the Kentfield Campus and the Indian Valley Campus in Novato. The College of Marin acquired Indian Valley College in 1985 to form the Indian Valley Campus, which occupies a 333 acre site containing 22 buildings.

Approximately 8,730 credit and non-credit students enrolled in the college for the fall 2016 semester. The college has been experiencing declining enrollment since 2013, but the decline has tapered off.

CITY FACILITIES

City Hall is both a symbol of Novato and the seat of local government. Originally built in 1896 as Novato's first Presbyterian Church, the historic structure was restored in 2009. City Hall anchors the Civic Center, which includes a new administrative office building and City Green. The 23,000 square-foot administrative building, built in 2014 to LEED Silver standards, is a modern building designed to complement the historic City Hall next door. The police station is located across the street on Machin Avenue.

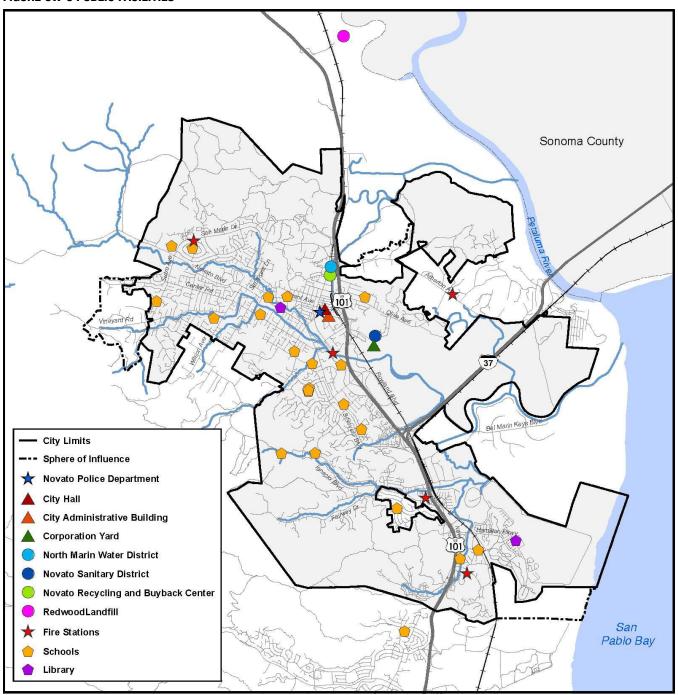
In addition to office buildings and recreational facilities, which are described in the Living Well chapter, the City owns and maintains 152 miles of streets, 144 miles of storm drains, 115 acres of active use park land, 90 acres of landscaped median islands and roadside landscapes, and thousands of street signs and drainage catch basins. The City recently converted all of its 4,500 streetlights and exterior public facility lights to high efficiency LED technology.

The City also owns several vacant and historic buildings. These include the Hamilton Theater and Bachelor Officers' Quarters in Hamilton and the Novato Community House, Simmons House, Scott House and Hanen House in Downtown. In 2016, the City concluded negotiations with the federal government to release several Hamilton properties from deed restrictions that had previously hindered their redevelopment. The historic Downtown properties will require significant funding to renovate and are part of an ongoing master planning process.



The design of the new 23,000 square-foot administrative building complements the historic City Hall next door.

FIGURE CW-9 PUBLIC FACILITIES



6.5 GOVERNANCE

The City of Novato's government embraces its role of providing excellent municipal services, preserving the City's heritage and resources, and managing change. Effective governance requires a transparent, collaborative and community-based local government that includes thoughtful leadership, a skilled and professional staff, and an informed and engaged community.

Principles of good local governance include:

Community Participation: Community members are at the center of public activity and are involved in the decision making process. The local government utilizes commissions, committees, boards and other groups to provide informed recommendations. All voices, including those of the less privileged and most vulnerable, are heard and considered in the decision-making process. The voices of neighborhoods and those directly impacted are considered as well as the broader community. There is always an honest attempt to consider all interests in arriving at what is in the best interest of the community and on how this can be achieved. The aim is always to achieve this through civil discourse.

Responsiveness: Public services are delivered, and requests and/or complaints are responded to.

Use of Resources: The best possible use is made of the resources available. Results and systems are evaluated to determine whether it is possible to enhance services.

Openness and Transparency: Decisions are made in accordance with rules and regulations and in consideration of public input. Information used to make decisions is made available to the public who are encouraged to be actively involved and contribute throughout the decision making process.

Ethical Conduct: The public good is placed before individual interests. Conflicts of interest are declared in a timely manner and persons involved abstain from taking part in relevant decisions.

Professional Development: Professional skills of staff are continuously maintained and strengthened and there is a commitment to training and development. Elected officials are supported and motivated to continuously improve their knowledge through conferences and training.

Innovation and Openness to Change: New and efficient solutions to problems are sought and advantage is taken of technology to enhance service delivery. There is a readiness to pilot and experiment with new programs and to learn from the experience of others.

Sound Financial Management: Prudence is observed in financial management, including in the use of loans, in the estimation of resources, revenues and reserves, and in the use of funds. Budgets are prepared with consideration of City Council input and identified goals and objectives in the Council's Strategic Plan, and are reviewed in public meetings. Risks are properly estimated and managed. The local government participates in inter-agency and public/private partnerships when it is lawful, appropriate, and more cost-effective and efficient to provide services.



City Hall is the symbol of Novato and seat of the local government.

Accountability: All decision makers take responsibility for their decisions. Decisions are reported on and explained.

CIVIC ENGAGEMENT

The City of Novato has a long, rich history and practice of public outreach and engagement efforts. The City was the first in Marin to televise its City Council meetings, was an early adopter of video streaming Council meetings online, and it also adopted a larger public noticing radius than all nearby jurisdictions for development projects. In the past few years, the City has made key strides in building more robust tools for outreach and engagement, including revamping its website and launching an online forum, Open Novato, that provides another avenue for community members to provide input on citywide issues. The City's communications efforts are broad, integral to all City departments and services, and ultimately affect the success or failure of a project, program, or initiative.

The City strives to create an open process through which it can respond to its constituents' needs while balancing competing interests and differing views. It is also committed to treating all individuals with respect and being responsive and thoughtful in all interactions.

Novato was the first Marin city to televise and livestream council meetings.



CITY COUNCIL AND STAFF

Novato is a general law city governed by a Council-Manager form of government. The City Council is elected by the community to make policy decisions for the City. The City Council sets policies and priorities, approves the budget, and addresses issues affecting the Novato community. City Council members are elected at large to overlapping, four-year terms. The Council members annually select the Mayor and Mayor Pro Tem (Vice Mayor). The Mayor signs official documents, chairs the Council meetings, and acts as the official head of the City at public and ceremonial occasions.

The City Council appoints the City Manager, City Attorney, and City commissions, boards and committees. In the Council-Manager form of government, the City Council sets policy and the City Manager oversees the management and operations of all City departments and services.

COMMUNITY REPRESENTATION

The City has a variety of commissions, boards and committees that represent various community interests and perspectives. These bodies make

recommendations to the City Council, and in some circumstances, have approval authority. They are comprised of community members – residents, business representatives, and other stakeholders. The City Council appoints most members to City commissions, boards and committees for two or three-year terms.

The City's commissions, boards, and committees include the following:

- Bicycle/Pedestrian Advisory Committee
- Design Review Commission
- Economic Development Advisory Commission
- Housing, Zoning and Building Codes Appeals Board
- Measure F Oversight/Citizens Finance Committee
- Multicultural Advisory Commission
- Novato Streetscape Committee
- Planning Commission
- · Police Advisory and Review Board
- Recreation, Cultural & Community Service Advisory Commission
- Street Improvement Oversight Advisory Committee
- Traffic Safety Advisory Committee

In addition, the Council appoints community members to represent Novato on the following commissions and boards:

- Marin County Aviation Commission
- Marin County Commission on Aging
- Mosquito and Vector Control District
- Novato Community Television (NCTV) Board of Directors

COUNTY AND REGIONAL PARTNERSHIPS

Part of the City's decision-making process involves having strong partnerships and relationships with outside agencies and organizations. The City commonly works on issues of mutual interest with other Marin County and Bay Area jurisdictions and agencies. These partners include:

Marin County Organizations

- Marin County Animal Control Program
- Marin County Council of Mayors and Councilmembers
- Marin County Flood Control Zone 1
- Marin County Storm Water Pollution Prevention Program
- Marin Emergency Radio Authority
- Marin General Services Authority
- Marin Hazardous and Solid Waste Joint Powers Authority
- Novato Watershed Program
- Safe Routes to School Marin
- Transportation Authority of Marin County

Regional and Statewide Organizations

- Association of Bay Area Governments
- Community Development Block Grant (CDBG)/HOME Priority Setting
- · League of California Cities
- MCE
- Metropolitan Transportation Commission
- North Bay Watershed Association
- Sonoma-Marin Area Rail Transit District (SMART)

6.6 GOALS, POLICIES AND PROGRAMS

MOBILITY

Goal MO 1: Provide a safe and efficient circulation system that accommodates all users and maintains acceptable levels of service.

MO 1: Land Use and Transportation Coordination. Manage community growth and infrastructure projects so development can be adequately served by transportation facilities.

MO 1a: **Traffic Model.** Continue to maintain a Citywide traffic model to evaluate the balance between development and transportation. Continue to assess the cumulative traffic impacts of development proposals on the City's transportation system.

MO 1b: **Roadway Improvements.** Adopt a list of improvements (Table CW-2) that accommodates future growth consistent with the General Plan, enabling the roadway system to operate safely and efficiently. Prioritize construction of roadway improvements based on consideration of relevant factors including, but not limited to, funding availability, periodic analysis of traffic service levels, the location of new development, and safety considerations. Explore opportunities for innovative traffic management techniques where appropriate when considering intersection upgrades, such as roundabouts.

MO 1c: **Funding.** Ensure that development contributes to funding and/ or implementing traffic mitigation measures. Continue to maintain and periodically update the Citywide Traffic Impact Fee.

MO 1d: **Construction Impacts on Streets.** Explore methods and options to secure funding for street maintenance based upon impacts associated with use.

MO1e: **Traffic Signal Timing.** Optimize traffic signal timing and demand coordination to improve traffic flow and reduce fuel consumption, pollution and greenhouse gas emissions.

MO 2: Level of Service Standards. Establish traffic Level of Service (LOS) standards as follows for use in evaluating the impacts of proposed development projects so the project can be redesigned or effective mitigation measures can be implemented, making improvements to the roadway system, and determining appropriate traffic impact fees. Continue to consider LOS standards in evaluating the merits of proposed development or traffic infrastructure projects in addition to consideration of standards associated with Vehicle Miles Traveled (VMT) in the required environmental review process.

Acceptable LOS standards for intersections in the City are:

- a. At intersections with signals or four-way stop signs: operation at LOS D,
- b. At intersections with stop signs on side streets only: operation at LOS E.
- **MO 3: Highway Improvements.** Support Caltrans and regional efforts to improve Highways 101 and 37 to accommodate needed capacity and sea level rise given the City's reliance on regional transportation links.
- MO 4: Environmental Design of Transportation Improvements. Seek to reduce impacts of new transportation improvements on open space lands, recreational facilities and neighborhood integrity. When transportation improvements are expected to have negative impacts, seek to reduce them through design changes or mitigation. Review proposed transportation improvements to ensure that adequate measures will be implemented to reduce, to the maximum extent feasible, any anticipated air quality, noise, visual, or other impacts.
- **MO 5: Continuation of Streets.** Facilitate the continuation of streets and bicycle and pedestrian paths through developments, wherever reasonable and feasible, to distribute traffic, improve emergency response options and connect neighborhoods.
- MO 6: Through Traffic on Existing Local Streets. Reduce through traffic on existing local streets, as needed and feasible, to preserve the peace and quiet of residential areas. Slow traffic through traffic calming techniques where advisable and feasible.
 - MO 6a: **Traffic Calming Guidelines.** Develop traffic calming design guidelines that establish evaluation and prioritization criteria, including review by local emergency responders and the public. Consider inclusion of warranted projects in the capital improvement program budgeting process as funding permits.
 - MO 6b: Clausing Avenue. Retain the existing no-access strip at the terminus of Clausing Avenue to preclude vehicular, bicycle and pedestrian access from Landing Court.
- **MO 7: Design for Complete Streets.** Incorporate Complete Streets practices in the planning, design and operation of the City's circulation network, where feasible, consistent with the other objectives, policies and programs of the General Plan.



Complete streets are those that serve all users, including bicyclists, pedestrians and motorists.

MO 7a: **Performance Standards.** Establish a set of performance standards for multimodal circulation, monitoring performance over time and through the development review process. Such performance standards may include multimodal level of service "grades" such as the 2010 Highway Capacity Manual or through establishment of a checklist set of criteria.

MO 7b: **Exemption Process.** Create a formal exemption process. Factors to consider may include, but not be limited to, community and user input, community character, continuity of facilities, the disproportionate cost of the improvement, the probable future use of the facility over the long term, absence of current and future need, and if significant adverse impacts of the proposed infrastructure outweigh the positive effects associated therewith.

MO 7c: **Training.** Provide training for City staff on Complete Streets best practices on an ongoing basis.

MO 7d: **Traditional Site Design.** Consider the use of traditional site design in areas with established patterns or sufficiently large development areas to use those principles successfully. Elements of traditional site design include:

- a. grid street systems
- b. narrower traffic lanes on local streets, with limited on-street parking
- rounded street corners with "bulb outs" at key intersections, where appropriate
- d. absence of large radius intersection corners.

MO 7e: **Narrow Streets.** Review and evaluate the standards for rural streets in Chapter V of the Novato Municipal Code to ensure that standards for narrower street widths for new development appropriately balance considerations of neighborhood character and emergency access.

MO 7f: **Community Input.** The use of survey tools to ascertain public opinion on proposed Complete Streets improvements is encouraged.

MO 8: Enhance Multimodal Infrastructure. When developing plans for new or retrofitted roadways, incorporate infrastructure as appropriate that enhances multimodal circulation in addition to auto circulation, such as sidewalks, pedestrian paths, bike lanes, pedestrian refuge islands, accessible curb ramps, transit shelters, and pedestrian-scale lighting.

MO 8a: **Design Standards.** Revise the development standards of the Municipal Code to include complete streets design principles to aid in the design and assessment of new or retrofitted roadways. Revised design standards shall be drafted in a manner providing flexibility to address a wide range of street and neighborhood contexts.

MO 8b: **Pedestrian and Bicycle Facilities.** Incorporate pedestrian and bicycle facilities into the design and construction of roadway



The Novato Police Department analyzes traffic accident data to identify potential improvements to the roadway system.

improvements where practicable, in accordance with the adopted Bicycle and Pedestrian Master Plan. Construct bike facilities according to the standards established by Caltrans and/or other nationally recognized design standards consistent with good engineering practices, adjusting as necessary to minimize impacts to environmentally sensitive areas.

MO 9: Traffic Safety. Improve the safety of the roadway system.

MO 9a: **Accident Analysis.** Periodically analyze the locations of traffic accidents to identify problems and use this information to set priorities for improvements as a part of the City's Capital Improvement Program.

MO 9b. **Uncontrolled Crosswalks.** Continue to use and update as appropriate the City's Crosswalk Prioritization Criteria to evaluate requests for new crosswalks and related improvements.

MO 10: Vehicle Parking. Provide sufficient vehicular parking and discourage installation of excess parking to minimize land area devoted to paved parking.

MO 10a: **Parking Standards.** Revise parking standards as needed. Consider revisions to promote parking for carpools, low-emission vehicles and non-vehicular travel.

Goal MO 2: Encourage sustainable mobility systems that reduce dependence on low-occupancy automobiles.

MO 11: Higher Density/Intensity Land Uses Adjacent to Public Transit. Encourage higher density/intensity land uses such as offices, mixed use, multiple family residences, public services, and commercial retail centers near transit routes and facilities to reduce vehicle trips.

MO 12: Transportation Demand Management. Promote measures to reduce travel demand. Larger projects with substantial trip generation should implement Transportation Demand Management to reduce traffic impacts.

MO 12a: **Trip Reduction Program.** Review and amend as necessary the existing Travel Demand Reduction Ordinance applicable to businesses in new or remodeled commercial development.

MO 12b: **City Employees.** Create and implement a Trip Reduction Incentive Program for City staff to increase participation in alternative modes of transportation to and from work.

MO 12c: Ride Sharing and Car Sharing Programs. Facilitate ride sharing programs for employment centers, including City staff, and city-wide car-sharing programs.

MO 12d: **Preferred Parking.** Require designated parking for clean air vehicles, including low-emitting and carpool/van pool vehicles, in new or expanded non-residential developments adding 10 or more parking spaces as required by the California Building Code.

Goal MO 3: Support local and regional transit that is efficient, convenient and safe.

MO 13: Improved Transit. Work with the Marin Transit District to provide improved headways, longer service hours, expanded service areas, and safe, convenient, and comfortable facilities throughout the City.

MO 13a: **Implement Plans.** Work with the Marin Transit District to implement and periodically update local transit assessments and improvement plans such as the Novato Transit Needs Assessment (2011) and the Novato Community-Based Transportation Plan (2015).

MO 13b: **Route and Schedule Changes.** Request that Marin Transit and the Golden Gate Bridge, Highway and Transportation District notify the City of proposed route or schedule changes.

MO 13c: Emerging Transportation Services and Technologies. Encourage the development of car sharing services and other new services in Novato by private providers as lawful and appropriate.

MO 14: Transit Facilities. Encourage use of public transit through improvements to supporting facilities at transit stops and park and ride lots, including but not limited to new or improved shelters, lighting, 'next bus' rider information technology, bicycle parking, and enhanced pedestrian facilities surrounding transit stops.

MO 14a: **Bus Shelters and Benches.** Encourage attractive, well-lighted and comfortable bus shelters or benches placed in convenient locations that are compatible with surrounding neighborhoods.

MO 14b: City Projects. Identify appropriate locations for bus stops, benches and shelters whenever possible and practical in City Capital Improvement Projects. Consider enhanced facilities in key areas serving a large ridership.

MO 14c: **Referrals to Transit Agencies.** Refer new City infrastructure projects and major new private development projects to the transit agencies for their review and input in the development review process.

MO 15: Transit Improvements in New Development. Encourage and where possible require the provision of bus stops, bus shelters, benches, turnouts, and related facilities in major new commercial, industrial, residential, and institutional developments that might be served by transit when supported by transit agencies. **Y**

MO 16: SMART Rail. Work with transportation agencies to create safe, convenient and integrated transit services to maximize use of the rail service, when feasible. Improve connectivity to the SMART stations and bicycle/pedestrian path.

MO 16a: **Expand Access.** Coordinate with and support efforts of SMART and TAM in seeking opportunities to fund and construct improvements that expand multimodal access to Novato's rail stations.

MO 16b: **Linkages from Stations.** Coordinate with Marin Transit to ensure that effective transit linkages are in place between SMART stations and the City's primary activity and employment centers.

MO 16c: **Multi-Use Path.** Coordinate closely with SMART to ensure that the planned on- and off-street segments of the SMART multi-use path safely and conveniently tie into the City's existing and planned bicycle and pedestrian network. **Y**

MO 17: Park and Ride. Support construction of park and ride facilities to increase transit ridership and carpooling.

MO 17a: **Park and Ride Sites.** Identify additional sites for park-and-ride commuter lots that are directly accessible to major arterials and Marin County transit lines and/or freeway interchanges. Consider the possibility of shared parking at locations such as office campuses.

MO 17b: Park and Ride Lot Development. Identify mechanisms to provide for and seek developer participation in construction of park and ride facilities by requiring land to be set aside for park-and-ride lots or sharing parking lots where possible, or including the cost of park and ride facilities into the City traffic fee ordinance, to the extent that new development or renovated existing employment centers increase demand for such facilities.

Goal MO 4: Provide a safe and convenient bicycle and pedestrian network that accommodates all ages and abilities.

MO 18: Comprehensive Bicycle Network. Establish and maintain a bicycle network that is consistent with the adopted Bicycle/Pedestrian Plan.

MO 18a: **Bicycle/Pedestrian Plan.** Periodically update the City's Bicycle/Pedestrian Plan.
▼ ▼

MO 18b: **Route Maps.** Post information depicting Novato's bicycle routes on the City's website. To the extent practical, also provide copies of route maps and/or links to cell phone applications identifying local bicycle routes. **Y** ♥

MO 18c: **Safety Programs.** Continue the bicycle safety programs offered by the Police Department and the Safe Routes to School Program. Work with schools and community organizations to expand both youth and adult cyclist training and orientation programs. **Y**

MO 18d: **Traffic Signal Detection.** As intersections are improved on adopted bicycle routes, ensure that traffic signals include bicycle detectors that function for both steel and non-steel framed bicycles as practicable.

MO 18e: **Maintenance.** As staffing resources permit, develop a program to regularly inspect and maintain all bicycle lanes, paths and bicycle parking facilities.



Bike safety is of primary concern when designing new bike facilities.

MO 18f: **Marin Bicycle Advisory Committee.** Continue to participate in the Transportation Authority of Marin's Bicycle and Pedestrian Advisory Committee.

MO 18g: **Funding.** Utilize grant funding and other means, as appropriate, to acquire rights-of-way needed for a comprehensive bike route system and to provide bike racks and other bicycle-related facilities.

MO 19: Bicycle Parking. Assure the provision of adequate bicycle parking to encourage bicycle use. **Y** ♥

MO 19a: Bike Parking in New Development. Continue to require new development and use changes to provide adequate bicycle parking.

MO 19b: **Bike Parking Requirements.** Review existing bicycle parking standards and amend as necessary. **Y** ♥

MO 19c: **Bike Parking at Transit.** Work with public transit providers to place bicycle parking at transit facilities and bus stops (including secure, weatherproof bike parking at key locations) and to ensure that all transit vehicles are equipped to carry bicycles.

MO 19d: **Bike Parking at Public Locations.** Provide adequate bicycle parking at park-and-ride lots, schools, the library, parks, City offices, and commercial areas as feasible.

MO 19e: **Bike Fleet for City Employees.** Provide fleet bicycles and encourage their use among City staff for short trips to meetings or site visits.

MO 20: Safe and Convenient Pedestrian Facilities. Promote, provide and maintain a safe and convenient pedestrian system, including consideration of lighting, sidewalk condition, road surface conditions, roadway crossings, access points, signage, shade landscaping, and street furniture.

MO 20a: **New Development and City Projects.** Require new development projects to include a sidewalk, path or shoulder on all property street frontages as deemed appropriate by City staff, and routinely include projects to close gaps in the pedestrian system on existing streets through the City's Capital Improvement Program.

MO 20b: **Safety Enhancements.** Provide pedestrian safety enhancements where appropriate and feasible, such as bulb-outs, separated pedestrian paths, high-visibility signs and markings, pedestrian warning signals and other amenities in areas with high volumes of pedestrian traffic or safety concerns.

MO 20c: **Traffic Signal Timing for Pedestrians.** Continue as appropriate to review traffic signal timing to ensure adequate crossing times for all users at signalized intersections.

MO 21: School Traffic and Circulation. Collaborate with schools to identify and prioritize transportation improvements that strengthen pedestrian and bicycle safety for students traveling to and from schools. ▼ ◆



Crossing guards at San Jose Middle School ensure students' safety.

MO 21a: **Safe Routes to School Plan.** Assist with the preparation and updating of Safe Routes to School (SR2S) plans for schools that serve the Novato population.

MO 21b: **New and Existing Development.** As part of the development review process, ensure, as legally permissible, that new and existing development projects that are substantially renovated provide bicycle and pedestrian improvements to facilitate the implementation of adopted Safe Routes to School plans.

MO 21c: **Funding.** Actively pursue grants and other funding sources to complete improvements identified in Safe Routes to School plans.
▼ ●

MO 22: Accessibility Improvements. Create an accessible circulation system that is consistent with guidelines established by the Americans with Disabilities Act (ADA), allowing mobility-impaired users such as the disabled and seniors to safety and effectively travel within and beyond the City.

MO 22a: **Identify Access Barriers.** As staffing resources are available, review transportation corridors to identify barriers encountered by persons with disabilities, including locations where there are not ADA-compliant curb cuts and ramps, and address such obstacles in the Capital Improvement Program to the extent that funding is available.

MO 22b: **ADA Training.** Provide staff training on accessibility needs and best practices for improving access and circulation for those with disabilities.

MO 22c: **Eliminate Access Barriers.** Continue to make accessibility improvements that eliminate barriers created by utility infrastructure (such as poles that obstruct accessibility).

MO 22d: **Paratransit.** Encourage the transit agencies to provide cost-effective paratransit and other transit options that enable the mobility of the disabled and older adults. Work with transit providers to provide, where feasible, bus stops at facilities providing senior services, such as the Margaret Todd Senior Center.

Goal MO 5: Take an influential role in shaping and implementing regional transportation decisions.

MO 23: Regional Transportation Planning. Participate in regional transportation planning efforts to further Novato's transportation objectives.

MO 23a: **Transportation Authority of Marin.** Continue to provide City Council and staff representation to the Transportation Authority of Marin and other regional transportation planning agencies. Work with the Transportation Authority of Marin to carry out the Congestion Management Plan.

MO 23b: **Regional Transportation Plans**. Continue to review, analyze, and monitor the effects of regional transportation plans on the use of all transportation modes. Support regional transportation policies and programs that increase the use of public transit, carpools, bicycles and other multi-modal modes of transportation appropriate for Novato.

MO 23c: **Public Participation and Education in Transportation Decisions.** Actively seek public participation in the preparation and review of regional and local transportation plans.

MO 23d: **Transportation Funding.** Actively pursue funding for all transportation objectives and improvements consistent with the General Plan from federal, state and county governments and local traffic impact fees. Work with other Marin County jurisdictions, the State, the Metropolitan Transportation Commission, and the League of California Cities to lobby for increased funding for alternative transportation modes.

Goal MO 6: A local airport with minimal off-site impacts.

MO 24: Gnoss Field. Encourage the maintenance of Gnoss Field as a general aviation airport, consistent with the Gnoss Field Airport Land Use Plan. Support safety improvements and oppose improvements that could increase noise impacts to Novato residents and businesses.

MO 24a: **Review Planning Documents.** Continue to monitor the environmental effects of Gnoss Field by reviewing and responding, as appropriate, to all EIRs and related planning documents.

SAFFTY AND HAZARDS

Goal SH 1: Maintain high levels of public safety and emergency preparation.

SH 1: Seismic and Geologic Hazards. Reduce the risk of loss of life, personal injury and property damage resulting from seismic and geologic hazards including ground shaking, land sliding, liquefaction and slope failure.

SH 1a: **Geotechnical Evaluation.** Require preparation of a report by an engineering geologist or geotechnical engineer for new construction and grading as required by City code on sites in seismically and geologically hazardous areas and for all critical (high occupancy, health or emergency response) structures. These reports should include, but not be limited to: evaluation and recommendations to mitigate the effects of ground shaking, landslides, surficial debris flows, expansive soils, subsidence and settlement, fault displacement, and Bay mud areas. Implement the recommendations of geotechnical reports through the planning, grading and building permit processes.

SH 1b: **Slope and Soil Instability.** Enforce existing regulations and procedures to identify and avoid or mitigate potential hazards relating to geologic and soil conditions. Require repair, stabilization, or avoidance of landslides, or areas of soil creep or possible debris flow, as a condition of project approval. Require financial protection for public agencies and individuals as a condition of development approval where geological conditions indicate a potential for high maintenance costs.

SH 1c: **Grading Ordinance.** Review and consider revising the Grading Ordinance as necessary to address new regulations and best practices.

SH 2: Flood Hazards. Reduce the risk of loss of life, personal injury and property damage resulting from flooding by properly maintaining storm drainage systems, natural flood control channels and waterways and regulating runoff from new construction and development projects. Encourage flood control measures that retain the natural features and conditions of watercourses to the maximum feasible extent.

SH 2a: **New Development.** Condition new development to maintain post development peak runoff rate and average volume similar to the predevelopment condition to the maximum extent practicable. Require runoff rate/volume analysis of projects where deemed necessary by City staff. Require new development to cover the costs of drainage facilities needed for surface runoff.

SH 2b: **Development within 100-year Flood Zone.** Require all development in the 100 year flood zone to comply with the floodplain regulations in the Novato Municipal Code.

SH 2c: **Flood Insurance Rate Maps.** Use the most recent Federal Emergency Management Agency's Flood Insurance Rate Maps [FIRM] to identify 100-Year Flood Events and calculate flow rates within identified stream channels.

SH 2d: **National Flood Insurance Program.** Continue to participate in the National Flood Insurance Program Community Rating System. Monitor updates to FIRM maps and inform affected property owners.

SH 2e: Rising Sea Level.

- 1. Consider the potential for sea level rise when processing development applications that might be affected by such a rise. Use current Flood Insurance Rate Maps and National Oceanic and Atmospheric Administration (NOAA) recommendations associated with base flood elevation adjustments for sea level rise in the review of development proposals. Adopt requirements to assess sea level rise risks on new development and infrastructure.
- 2. Prepare a guidance document for incorporating sea level rise into the City's capital planning process.
- 3. Work with local, County, state and regional agencies with Bay and shoreline oversight and with owners of critical infrastructure and facilities in the preparation of a vulnerability assessment and then a plan for responding to rising sea levels. Make sure all local stakeholders are kept informed of such planning efforts.
- 4. Consider developing flood control projects and modifying the City's land use regulations for areas subject to increased flooding from sea level rise.
- 5. Update GIS (Geographic Information System) maps to include new data as it becomes available; utilize GIS as a tool for tracking sea level rise and flooding, and make available to the public.

SH 2f: **Enhanced Floodwater Storage.** Support measures to manage, protect and increase the floodwater storage capacity where appropriate.



The former Mission Lodge, at the corner of De Long Avenue and Redwood Boulevard, flooded in 1982.

SH 2g: **Erosion Control.** Enforce measures to minimize soil erosion and volume and velocity of surface runoff both during and after construction through implementation of the Grading Ordinance.

SH 2h: **Storm Drainage System.** Maintain unobstructed water flow in the storm drainage system to the maximum extent feasible. Continue to carry out annual inspection and maintenance of drainage systems, including siltation and detention facilities.

SH 2i: **Storm Drainage Master Plan.** Prepare and adopt a Novato Storm Drain Facilities Master Plan as a basis for planning and constructing improvements and for establishing fees.

SH 2j: **Novato Creek Watershed.** Actively participate in the County's Novato Creek Watershed Project and support efforts to implement sediment reduction projects that minimize the need for creek dredging.

SH 2k: Cooperation with Marin County. Continue to work with Marin County Flood Control and Water Conservation District and the Marin County Stormwater Pollution Prevention Program (MCSTOPPP) to minimize negative impacts of storm runoff.

SH 21: Funding Sources.

- Work with Marin County Flood Control, North Marin Water District, Novato Sanitary District and Flood Control District Zone No. 1 in pursuing all available sources of funding to finance improvements to storm drainage facilities.
- 2. Periodically assess the need to establish improvement districts and other financing mechanisms to fund storm drainage and water-course improvements to minimize flood hazards.
- 3. Consider an increase in the stormwater runoff fee and pursue other funding opportunities to cover staff costs of meeting new mandates of the National Pollution Discharge Eliminate System (NPDES).
- 4. Monitor and pursue funding opportunities for the preparation of climate change vulnerability and adaptation studies.

SH 2m: Dam and Levee Safety.

- Work with the North Marin Water District and Marin County Flood Control and Water Conservation District to ensure that the design and location of dams and levees are in accordance with all applicable design standards.
- Complete an accurate inventory of levees and shorelines, including associated structures such as access roads, tide gates and culverts.
- Review new levees for seismic and hydrological safety. [For levees that provide flood protection, FEMA requires that the levees are designed in accordance with the US Army Corps of Engineers (USACE) engineering standards.]
- 4. Maintain the Hamilton levee's FEMA accreditation.

5. Review and if needed, modify Chapter 5 of the Municipal Code for conformance with the regulating agencies. Amendments should reference their authority over dam safety.

SH 2n: **Flood Protection Easements.** Ensure the retention of flood protection easements held by public agencies on private property to prevent development in these areas.

SH 3: Fire Hazards. Reduce the risk of loss of life, personal injury and property damage resulting from wildland and urban fire hazards through code enforcement and coordination with the Novato Fire Protection District.

SH 3a: Fire Risk in New Development.

- Review all development proposals for fire risk, and require mitigation measures to reduce the probability of fire. Require all new development and substantial remodels to meet the adopted state and local fire codes. Refer all applications for new development that is subject to NFPD regulation to the District for review, comment and conditions of approval.
- 2. Encourage attractive native and drought-tolerant, low-maintenance landscaping responsive to fire hazards.
- 3. Require adequate access for emergency vehicles, adequate street width and vertical clearance, driveway access and parking restrictions for new development.
- 4. Ensure new development meets the peak load water supply standard for fire hydrants of the Novato Fire Protection District.
- All development that includes private access roads or fire roads shall provide recorded access rights and keys to any gates to the Novato Fire Protection District.

SH 3b: **Fire Sprinklers.** Continue to enforce the Fire Safety Ordinance requirements for sprinkler systems for new commercial/industrial and residential development and substantial remodels.

SH 3c: **Wildland-Urban Interface.** Require new development within Wildland-Urban Interface (WUI) areas shown on Figure CW-5 to develop and implement a Vegetation Management Plan in accordance with City and Fire District regulations and requirements.

SH 3d: **Vegetation Management.** Manage public lands as appropriate and feasible to minimize the chances of a wildfire affecting residences and businesses while maintaining habitat functions and values. Request that the Marin County Open Space District and other public agencies assess and reduce the wildland fire hazards on their holdings within and adjacent to the City.

SH 3e: **Traffic Signals.** Ensure that new traffic signals include a system which allows emergency vehicles to change the signal.

SH 3f: **Fire Hazard Mitigation.** Actively implement the applicable elements of the Novato Fire Protection District All Hazards Mitigation Program.



Development near open space is especially vulnerable to fire hazards.



The Novato Police Department dispatch center receives and handles calls, including 911 calls, twenty-four hours a day. There were more than 42,000 calls for service in 2015.

SH 3g: **Defensible Space.** Encourage all private property owners, particularly in the Wildland-Urban Interface, to maintain the vegetation on their property in a condition that will not contribute to the spread of a fire. Recommendations for private property owners could include, but need not be limited to, the following:

- Maintain a 30-foot defensible space around all buildings and structures:
- Remove all portions of trees within 10 feet of chimneys and stovepipe outlets;
- Remove materials or plants that may act as a fuel or a conveyance
 of fire (such as dead/dying wood on trees adjacent to/overhanging
 structures, leaves, pine needles, etc. on rooftops or elsewhere on
 the property); and
- Install spark arrester in chimney and/or stovepipe outlets.

SH 3h: **Update Fire Safety Ordinance.** Consider updating the Fire Safety Ordinance (Novato Municipal Code Chapter 5-21) to reflect current Novato Fire Protection District fire protection standards, including vegetation management, roadway and driveway design, and fire-resistant construction.

SH 3i: **Critical Facilities.** Ensure new essential public facilities and critical facilities are located outside Very High Fire Hazard Severity Zones as feasible unless adequate mitigation can be incorporated into the design.

SH 3j: **Emergency Accessibility.** Review existing road widths within the Very High Fire Hazard Severity Zone to determine if on-street parking should be restricted on certain roads to preserve emergency accessibility.

SH 4: Building Hazards. Reduce the risk of loss of life, personal injury and property damage resulting from structural, electrical or fire damage to structures through code enforcement and public education.

SH 4a: **Building Code Enforcement.** Review and inspect new development, building additions and remodels, enforcing the State Uniform Building Code and local amendments.

SH 4b: **Code Updates.** Continue to update the City's building and fire codes and train both staff and the public on new code provisions.

SH 4c: **Resale Inspection Program.** Continue the City's residential resale inspection program that requires inspection of existing residential property by a building inspector prior to the close of escrow as a buyer protection and code compliance tool.

SH 5: Hazardous Materials. Minimize risks and health impacts from environmental and human-induced disasters.

SH 5a: **Measures to Reduce Hazards.** Consider measures to protect the public health from the hazards associated with the transportation, storage, and disposal of hazardous wastes. Continue to refer land use

and transportation decisions and other programs involving hazardous materials regulations to the appropriate regulatory agencies.

SH 6: Police and Community Safety. Provide a high level of service to the community by working to reduce crime and improve the safety of the community.

SH 6a: **Community-oriented Police Services.** Seek opportunities to enhance current community-oriented policing programs and opportunities to collaborate with other departments, organizations and community groups within the City of Novato.

SH 6b: Civilian Employees and Equipment. Maintain sufficient civilian employees and equipment to support sworn staff.

SH 6c: **Development Review.** Review development proposals that have potential for safety concerns and may affect demand for police services such as financial institutions, check cashing businesses, bars/nightclubs and extended hour businesses and implement mitigating measures to maintain adequate police services and community safety. Implement Crime Prevention Through Environmental Design (CPTED) principles when reviewing new development proposals.

SH 6d: **Mental Health Training.** Consider utilizing civilian employees specially trained to provide services to those with substance or mental illness who are in crisis.

SH 7: Emergency Management. Minimize exposure to all hazards through emergency management, planning and training.

SH 7a: Emergency Response and Hazard Mitigation Plans. Periodically update the City's Emergency Operations Plan and Local Hazard Mitigation Plan to coordinate with emergency plans of other governmental agencies and respond to changing conditions. Incorporate the likelihood of sea level rise and extreme heat and storm events in the Local Hazard Mitigation Plan.

SH 7b: **Emergency Facilities.** Identify essential emergency facilities and critical utilities and ensure that they will function in the event of a disaster, eliminate hazardous features and identify alternative facilities if needed. Work with utilities, health providers and school districts to ensure their continued operations and coordination in the event of a disaster.

SH 7c: **Potential Earthquake Damage.** Minimize potential earthquake damage to existing publicly owned buildings and emergency facilities through strengthening building structures, eliminating hazardous features, or relocating facilities to safer buildings where feasible.

SH 7d: **Interagency Cooperation.** Continue to cooperate with the appropriate federal, state and local agencies to practice and implement effective emergency plans.

SH 7e: **Public Information.** Provide information to the public on ways to reinforce buildings to reduce damage from earthquakes and what to do in the event of an earthquake.

SH 7f: **Public Safety Education.** Provide hazard awareness and safety training programs such as Community Emergency Response Teams (CERT) training.

PUBLIC FACILITIES AND SERVICES

Goal PF 1: Provide well planned, maintained and adequate public infrastructure, buildings and landscaping.

PF 1: Management of Public Facilities and Infrastructure. Manage City facilities and infrastructure in a safe, functional and well-maintained manner as practicable.

PF 2: Planning and Budgeting for Public Facilities and Infrastructure. Manage public infrastructure and facilities in conjunction with new development through continued planning and budgeting for public facilities and coordination with other agencies for the services which the City does not provide.

PF 2a: **Capital Improvements Program.** Prepare and adopt an annual Capital Improvements Program reflecting City needs and resources.

PF 2b: **Maintenance Costs.** Continue to evaluate the operating and maintenance costs of infrastructure improvements needed to support the development allowed in the General Plan.

PF 2c: **Public Buildings.** Ensure that the public buildings in Novato are adequate to provide services for the Novato community under the development provided for in the General Plan and to meet staffing needs.

PF 2d: **Parks and Landscaping.** Identify funding to adequately maintain City parks, medians, and landscaping.

PF 2e: **Impact Fees.** Establish and update impact fees for new development based on City and agency standards for public buildings and facilities.

PF 3: Water Supply. Work with the North Marin Water District to ensure an adequate water supply for new and existing development.

PF 3a: **Water Conservation.** Assist the North Marin Water District in implementing water conservation programs for Novato residents and businesses. Use treated wastewater for irrigation of City facilities and expansion of the recycled water system to the maximum extent practical. **Y**

PF 4: Utilities. Continue to require the undergrounding of utilities along property frontages of new development, maximize the use of utility set-aside funds and other funding mechanisms for undergrounding electric utilities and work with utility companies to remove inactive utility lines and facilities.



Stafford Grove Park is a mini-park close to Downtown.

GOVERNANCE

Goal GV 1: Develop a respected and valued City organization that is efficient and collaborative, promotes community involvement and is proactive, responsible, and ethical.

GV 1: Effective Governance. Practice effective governance through a planning, budgeting and implementation process that is publicly accessible, understandable, predictable and timely.

GV 1a: Role of the General Plan and Strategic Plan. Consider the General Plan policies and priorities in updating the City Council's Strategic Plan.

GV 2: Leadership. Provide responsive and effective leadership at the Council, Commission and staff levels, including opportunities to work collaboratively with other local, regional and state agencies to accomplish the City's objectives.

GV 3: Fiscal Sustainability. Ensure a fiscally and organizationally sustainable city organization.

GV 3a: **Budget and Capital Improvement Plan.** Prepare an annual budget and capital improvement program which reflect General Plan priorities.

GV 3b: **Long Range Planning.** Prepare and maintain a long term financial plan which anticipates future financial circumstances. Continue to maintain and utilize a 5-year forecast model.

GV 3c: Infrastructure Maintenance. Consider establishing new revenue sources to adequately fund infrastructure maintenance.

GV 4: Technology and Communications. Implement technology and communications initiatives to improve the efficiency and effectiveness of city operations as well as maximize opportunities to be transparent, effectively inform and meaningfully engage the community.

GV 5: Community Participation. Encourage, support, and enhance public participation and civil discourse, with consideration of differing opinions, in the formulation and review of policies, new development, and in all City operations and activities, especially neighborhood level planning. City communications should be easily accessible to the public, including those with special needs.

GV 6: Diversity. Make efforts to reflect on Boards and Commissions and among City employees the characteristics of the Novato community.

GV 6a: **Hispanic Outreach.** Promote outreach and involvement of the Hispanic community.

GV 7: Volunteerism. Encourage and support residents and businesses to volunteer with the City, particularly through service on appointed boards and commissions. Create volunteer opportunities within City departments and foster community projects through partnerships with neighborhoods and service groups.