

2 COMMUNITY CHARACTERISTICS AND DEMOGRAPHICS

2.1 LOCATION AND GEOGRAPHY

The County of Santa Clara, also referred to as “Silicon Valley”, is unique because of its combination of physical attractiveness and economic diversity. With its numerous natural amenities and one of the highest standards of living in the country, the County has long been considered one of the best areas in the United States in which to live and work. (County of Santa Clara 2016)

Santa Clara County encompasses 835,449 acres (1,305 square miles), is located at the southern end of the San Francisco Bay (Santa Clara County General Plan 2015), and comprises the fertile Santa Clara Valley, which is fringed on the east by the Diablo Range and on the west by the Santa Cruz Mountains. The northwestern portion of the county comprises the Baylands, salt evaporation ponds, salt marsh, and wetlands. The county enjoys a Mediterranean climate, staying temperate year round, staying warm and dry through late spring, summer, and early fall. Precipitation ranges from an average 12 inches in downtown San Jose to more than 60 inches in the Santa Cruz Mountains. The Santa Clara Valley is generally divided into two geographic regions, the North Valley and the South Valley. The predominantly urban North Valley houses approximately 90% of the county’s residents and 13 of its 15 cities (Santa Clara Valley Habitat Agency 2012). The South Valley is primarily rural, with the exception of Morgan Hill, Gilroy, San Martin (unincorporated community), and scattered low-density residential areas.

Until the mid-twentieth century, orchards and other agriculture dominated the area, but in recent decades the valley has been transformed into “Silicon Valley,” a global center for high-tech development resulting from the 1990s internet boom. Since that time the county has seen extensive population growth, focused mostly in the North Valley cities of Campbell, Cupertino, Los Altos, Los Altos Hills, Los Gatos, Milpitas, Monte Sereno, Mountain View, Palo Alto, Santa Clara, Saratoga, and Sunnyvale; nearly 92% of the county population lives in its cities (U.S. Census Bureau 2014). The county has the largest population of any of the nine Bay Area counties, and it provides more than 25% of all jobs in the Bay Area (Santa Clara Valley Habitat Agency 2012).

Although the population is expected to continue to grow, the rate of growth is projected to slow (Santa Clara Valley Habitat Agency 2012). Recognizing the population boom in the 1970s, Santa Clara County implemented policies to help curtail potential sprawl and protect the county’s natural resources. Policies were enacted that focused growth inside of cities, controlling sprawl into unincorporated areas of the county.

Santa Clara County’s General Plan includes many measures to address land use issues involving the rural unincorporated areas of the county over which Santa Clara County has direct land use authority. Policy direction is to maintain the scenic rural character of these areas and to promote conservation and productive use of their natural resources for agriculture, ranching, watershed, public recreation, and wildlife habitat (Santa Clara Valley Habitat Agency 2012).

The county has a rich culture and many community facilities and attractions that serve the residents and attract visitors, including museums and art galleries, performing arts venues, educational

facilities, cultural and recreational opportunities, vineyards, orchards, and abundant natural resources.

2.2 CLIMATE AND WEATHER PATTERNS

Santa Clara County has a Mediterranean climate, with most precipitation occurring during the winter months and virtually no precipitation from spring through autumn (Santa Clara Valley Habitat Agency 2012). Annual rainfall averages are variable, depending on topography and local orographic and rain shadow effects (Figure 2.1–Figure 2.7, Table 2.1). The Santa Cruz Mountains typically have the highest precipitation totals (40–60 inches/year) compared to the relatively dry Santa Clara Valley where the city of San Jose has average totals of 12 inches. The Diablo range, though drier than the Santa Cruz Mountains, experiences greater precipitation than the adjacent valley, with totals ranging from 20 to 30 inches a year, especially at higher elevations. Various microclimates also occur in the county; for example, canyon areas of north-facing hill slopes and streams with less direct sunlight will have lower evapotranspiration, greater ambient soil moisture, and generally more moderate cooler temperatures due to higher moisture content and greater shading (Santa Clara Valley Habitat Agency 2012).

The topography of Santa Clara County, coupled with the proximity to the Pacific Ocean, greatly influences wind patterns. The prevailing flow along the Santa Clara Valley is roughly parallel to the valley's northwest-southeast axis. During the afternoon and early evening, a north-northwesterly sea breeze often extends up Santa Clara Valley, while a light south-southeasterly drainage flow often occurs during late evening and early morning (Santa Clara Valley Habitat Agency 2012). In summer a convergence zone is sometimes observed in the southern end of the Santa Clara Valley between Gilroy and Morgan Hill, when air flowing from the Monterey Bay through the Pajaro Gap gets channeled northward into the south end of the Santa Clara Valley and meets with the prevailing north-northwesterly winds (Santa Clara Valley Habitat Agency 2012). Spring and summer sees the greatest wind speeds, with sometimes strong afternoon and evening winds on summer days.

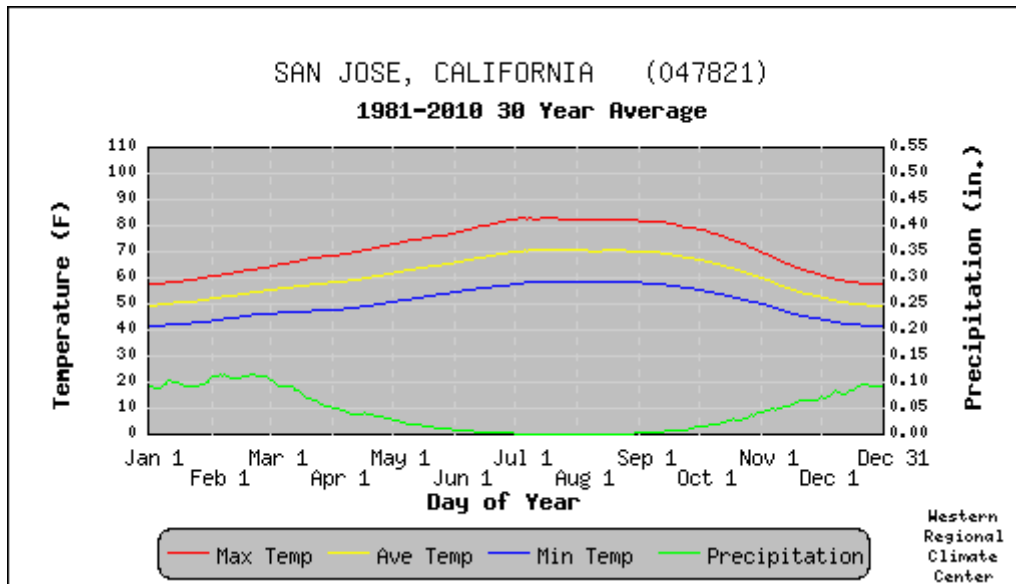


Figure 2.1. 30-year average temperature and precipitation for San Jose, 1981–2010
(Source: Western Regional Climate Center 2016a).

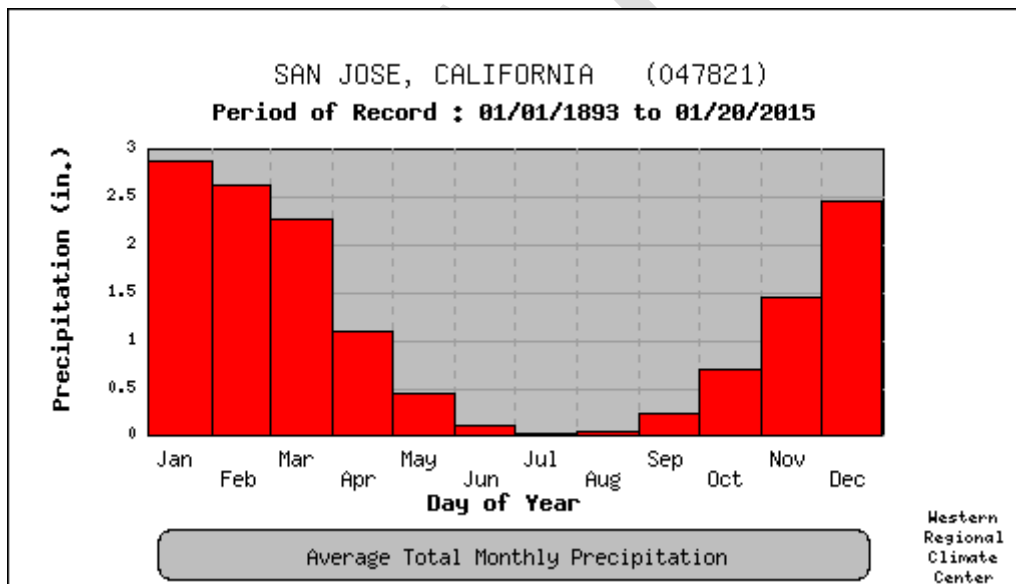


Figure 2.2. Monthly average total precipitation in San Jose
(Source: Western Regional Climate Center 2016a).

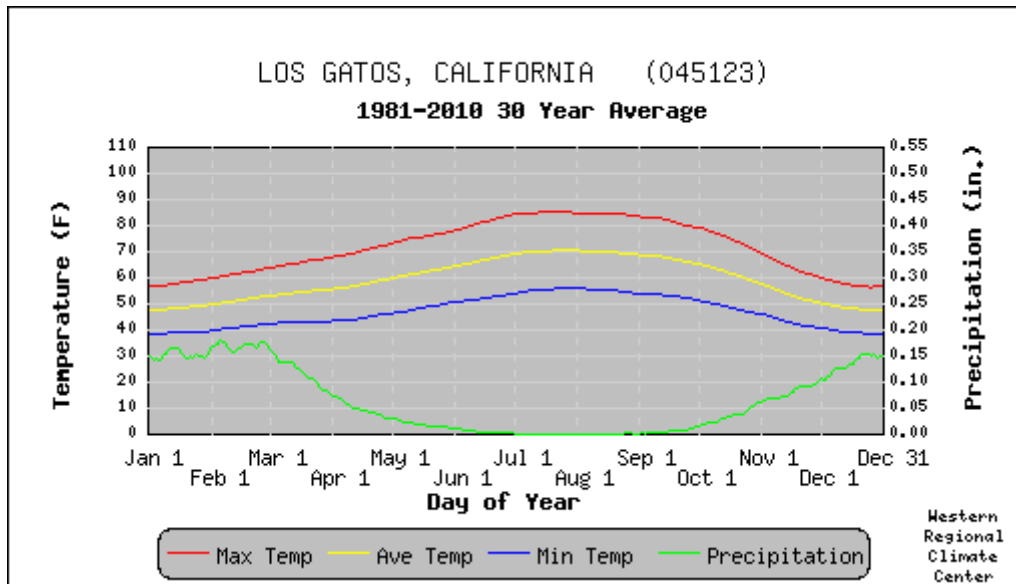


Figure 2.3. 30-year average temperature and precipitation for Los Gatos, 1981–2010
(Source: Western Regional Climate Center 2016b).

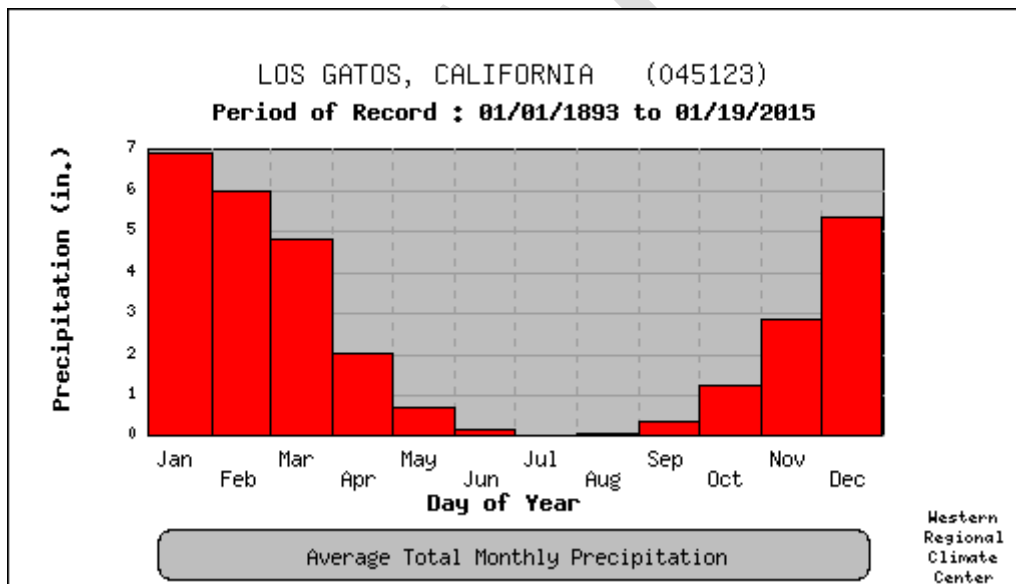


Figure 2.4. Monthly average total precipitation in Los Gatos
(Source: Western Regional Climate Center 2016b).

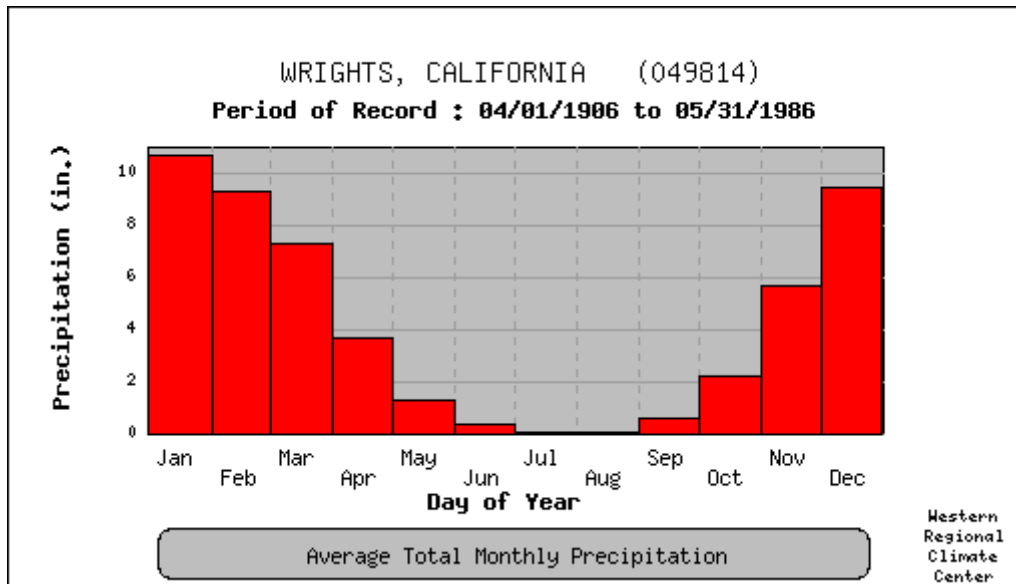


Figure 2.5. Monthly average total precipitation in Wrights (closest station to Summit Road). No temperature data available for period of record (Source: Western Regional Climate Center 2016c).

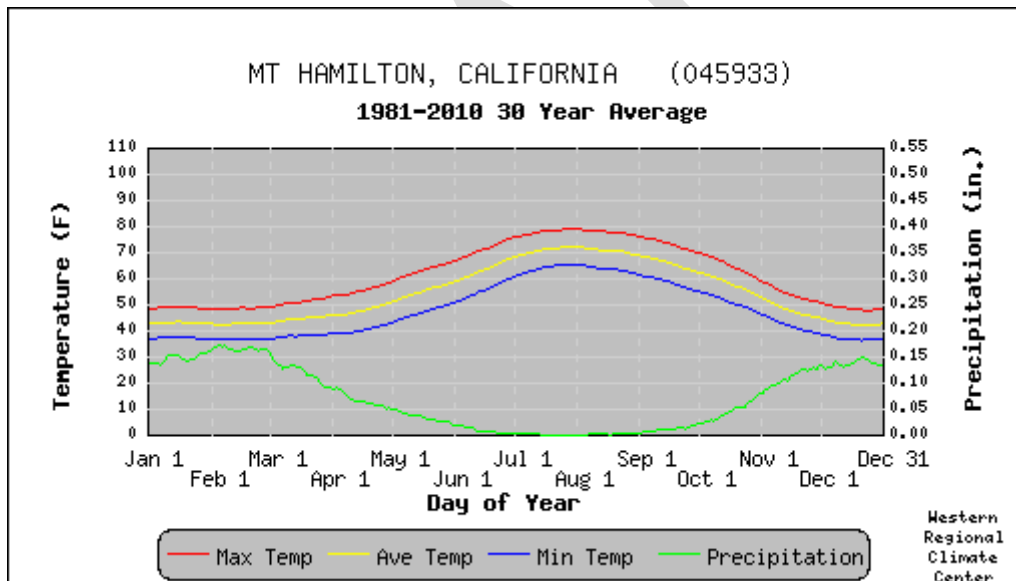


Figure 2.6. 30-year average temperature and precipitation for Mt. Hamilton, 1981–2010 (Source: Western Regional Climate Center 2016d).

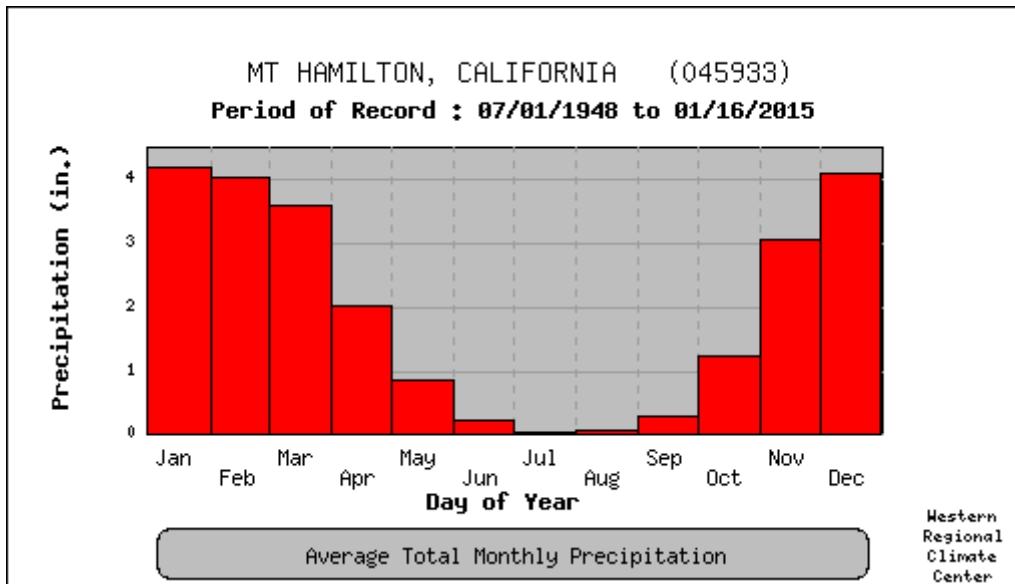


Figure 2.7. Monthly average total precipitation in Mt. Hamilton (Source: Western Regional Climate Center 2016d).

Table 2.1. Climate Averages for Four County Locations, California

Climate Measure	San Jose	Los Gatos	Wrights*	Mt Hamilton
Annual high Temperature	70.8°F	71.3°F	64.8°F	61.4°F
Annual low temperature	48.9°F	46°F	49.6°F	47.1°F
Average temperature	59.8°F	58.6°F	57.2°F	54.3°F
Average annual precipitation	14.58 inches	26.9 inches	46.32 inches	23.63 inches

°F = degrees Fahrenheit.

Source: Western Regional Climate Center 2016 (period of record 1893–2012).

*Wrights is closest station to Summit Road.

2.3 VEGETATION AND LAND COVER

Santa Clara County represents the extremes of the Bay Area region. Due to the variation in topography and soil diversity within the county, there is a wide array of natural community types and subsequently very diverse flora and fauna (Figure 2.8). The following vegetation descriptions are taken from the Santa Clara Valley Habitat Plan that provides a comprehensive account of the vegetation and habitat within the county (Santa Clara Valley Habitat Agency 2012).

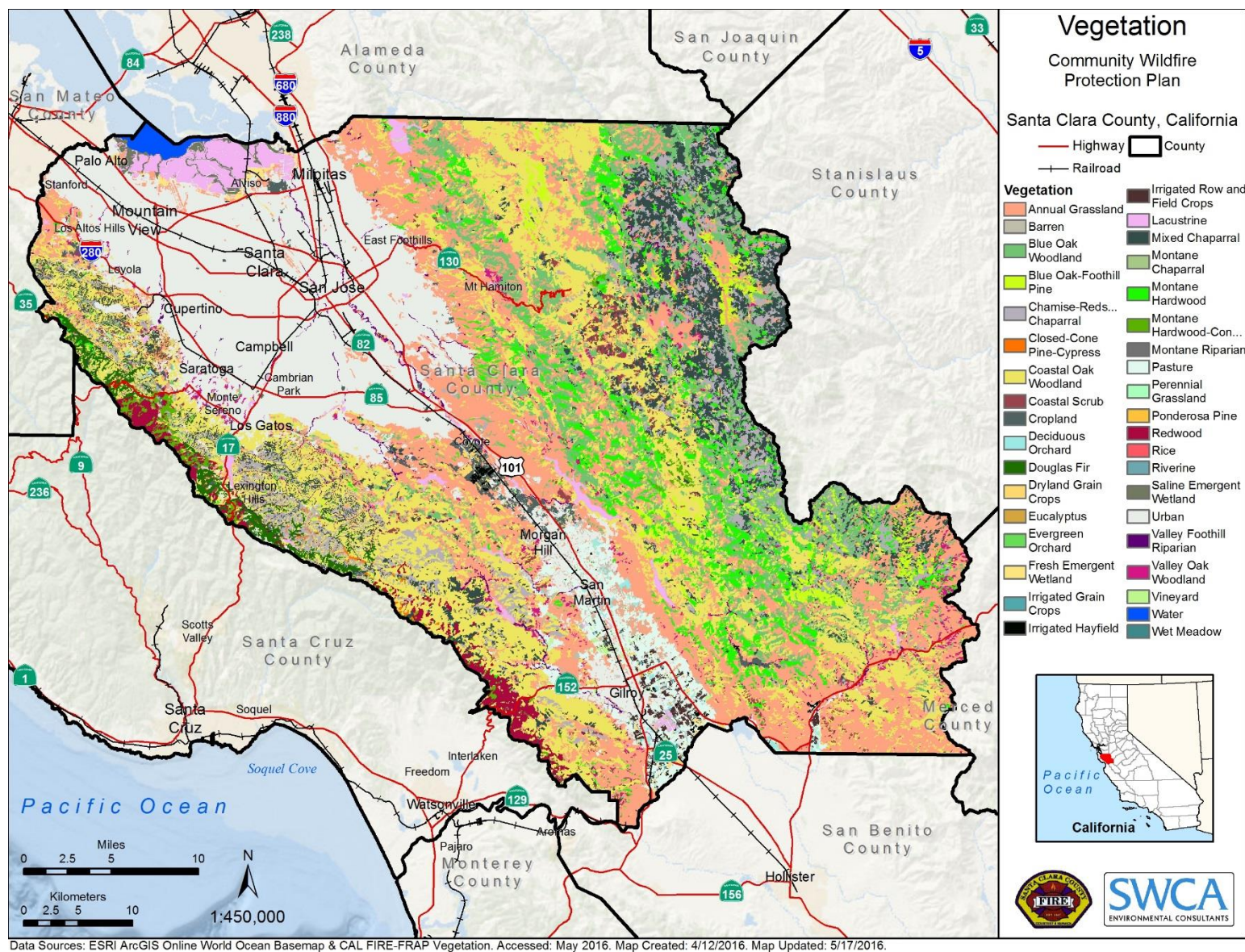


Figure 2.8. Vegetation Cover for Santa Clara County

2.3.1 GRASSLAND

Grassland in Santa Clara County consists of herbaceous vegetation dominated by grasses and forbs. Grassland in the county includes the following land cover types:

- **California annual grassland (non-native)** – found in valley bottoms, lower elevations on the eastern side of the county, and on ridges on dry south- and west-facing slopes.
- **Non-serpentine native grassland (native)** – patchily distributed in the county and generally occurs as small patches within the larger annual grassland complex.
- **Serpentine bunchgrass grassland (native)** – occurs on ultramafic soils derived from serpentinite, limited in extent in the county.
- **Serpentine rock outcrop/barrens (native)** – exposures of serpentine bedrock that typically lack soil and are sparsely vegetated, limited in extent in the county.
- **Serpentine seep** – dry areas where water penetrates the surface and creates a small wetland habitat that supports wetland vegetation.
- **Rock outcrop (non-serpentine)** – rare in the county.

Available research on the distribution of grasslands historically indicates that human use of fire may have had a profound impact on the historic distribution and extent of grasslands. Prior to European settlement, Native American burning helped shape native perennial grasslands in Santa Clara County. Keeley (2002) suggests that dense scrub or chaparral had little value to Native Americans, so they used periodic burning to clear shrubs and provide habitat for fire-tolerant native grasses. Keeley (2002) also implies that the current mosaic of grassland is likely a result of historic vegetation management that favored open grasslands over chaparral. Following European settlement, the combination of livestock grazing, drought, and spread of aggressive grasses and herbs dramatically reduced the abundance of native grasses and the extent of native grasslands throughout California (Bartolome et al. 2007).

Periodic fire is an important influence on the grassland community. Historically and prehistorically, fires from both lightning strikes and human ignition kept woody vegetation from invading grassland (where the soil conditions are appropriate) and converting it to coastal scrub or oak woodland. Prehistoric burning promoted a spatially patchy grasslands in a mosaic with woody vegetation (Keeley 2002). Prior to Native American occupancy and their frequent burning, Ford and Hayes (2007) speculate that many of the grasslands within the range of coyotebrush (*Baccharis pilularis*) would have been brushlands. It is believed that in the absence of frequent extensive fire and moderate or higher intensity livestock grazing, much of the grassland will succeed to northern coastal scrub and eventually mixed woodland, except on the hottest south-facing slopes and shallow soils.

Prescribed burning is considered an important management tool in grasslands and other natural communities; however, such burning is becoming increasingly difficult to implement due to cost, safety concerns from expanding urban and rural development, and difficulty obtaining permits because of air quality concerns. It has not been feasible in most places to burn frequently enough to control the spread of woody species into existing grassland or to reduce the cover of woody vegetation within grasslands because of the natural resistance and resilience of the woody plants

to a single burn (Ford and Hayes 2007). Livestock grazing has continued on most rangelands in Santa Clara County and is regarded as generally beneficial in maintaining suitable habitat conditions for many special-status grassland-dependent species.

Grassland is considered a fire-tolerant community, since the low-intensity prescribed fire moves so quickly that the fire burns only above the lower few centimeters of material, leaving much unburned or only charred on the ground. Immediately following a grassland fire, areas typically see an increase in annual forb germination and flowering and an increase in overall productivity in response to the light and nutrients made available by the removal of the thatch layer during the following growing season (Harrison et al. 2003). In grasslands that are already dominated by non-native annual grasses, non-natives may increase their dominance following fire by outcompeting natives for the newly available space and light. Native grasses may increase their dominance in serpentine grasslands following fire through the same mechanism (Harrison et al. 2003).

2.3.2 CHAPARRAL AND NORTHERN COASTAL SCRUB

Chaparral shrub communities are found in rocky, porous, nutrient-deficient soils and steep slopes throughout Santa Clara County and are dominated by densely packed evergreen woody shrubs, 1.5 to 4 meters tall. Northern coastal scrub is characterized by low shrubs 0.5 to 2 m tall interspersed with grassy openings. Dominant shrubs in this community in Santa Clara County are chamise (*Adenostoma fasciculatum*), manzanita (*Arctostaphylos* spp.), scrub oak (*Quercus berberidifolia*), and ceanothus (*Ceanothus* spp.).

Native Americans frequently burned shrublands to encourage grass and forb development (Keeley 2002). Many of the plants in the chaparral and northern coastal scrub communities have evolved to be dependent on periodic fire for regeneration (Holland 1986; Hanes 1988; Schoenherr 1992). In fact, communities dominated entirely by chamise cannot sustain themselves in the absence of fire (U.S. Fish and Wildlife Service 2002). Some chaparral species have fire adaptations such as peeling bark or volatile oils that promote fire (Schoenherr 1992), or species like manzanita and ceanothus have adapted to frequent fire by resprouting from basal burls or woody root crowns. Other species have seeds that require fire to initiate growth (U.S. Fish and Wildlife Service 2002; Rundel and Gustavson 2005). Fire occurrence that is too frequent, however, can lead to the elimination of these communities altogether and promote annual grassland succession.

The succession of grassland to scrub in this region has been described as occurring within 5 years in the absence of fire or grazing. In order to return chaparral areas to grasslands, active management including manual clearing, herbicides, and repeated burning under optimum conditions would be needed.

Fire suppression policies and growth of human habitation in chaparral and shrub communities pose a great threat to these communities. With buildup of fuel over many years, the risk of catastrophic fire is greatly increased (U.S. Fish and Wildlife Service 2002). Such a fire can kill threatened and endangered wildlife, which might otherwise be able to escape. Severe topsoil erosion is also a problem after these intense fires (Schoenherr 1992).

2.3.3 OAK WOODLAND

Oak woodlands are a common cover type found in Santa Clara County. A number of oak-dominated woodlands can occur:

- **Valley oak woodland** – common in the valley floors but also along ridge tops.
- **Mixed oak woodland and forest** – most geographically widespread of all oak woodlands in the county.
- **Coast live oak woodland and forest** – commonly found abutting grassland areas.
- **Blue oak woodland** – present in scattered locations mostly in the low to mid-elevation hills on dry or well-drained north- or northeast-facing slopes.
- **Foothill pine-oak woodland** – often occurs along valley floors within chaparral communities in the eastern foothills and also adjacent to other oak land cover types and on serpentine soils.
- **Mixed evergreen forest** – occurs on the west side of the Santa Clara Valley, usually on north-facing slopes.

Oak-dominated woodlands are thought to have been more prevalent in Santa Clara County historically and have become fragmented as a result of urban development and agricultural uses (Grossinger et al. 2006).

Oak woodland is a fire-adapted ecosystem, and fire has likely played a large role in maintaining this community type in the study area. Fire creates the vegetation structure and composition typical of oak woodlands, and this natural community has experienced frequent, low-severity fires that maintain woodland or savannah conditions. In the absence of fire, the low or open understory that characterizes the land cover type is lost. Ultimately, closed canopy oak forests are replaced by shade-tolerant species because oaks cannot regenerate and compete in a shaded understory. Soil drought may also play a role in maintaining open tree canopy in dry woodland habitat.

A recent influence on oak woodlands is sudden oak death. The disease, first identified in 1995, has since spread to 12 counties and killed hundreds of thousands of oaks. Research indicates that coast live oaks (*Quercus agrifolia*) and black oaks (*Q. velutina*) appear to be the most susceptible to this disease (Rizzo et al. 2003). Sudden oak death, caused by the pathogen *Phytophthora ramorum* (*Phytophthora ramorum*), is a serious threat to oak woodlands and mixed evergreen forests in northern California. The pathogen can kill adult oaks and madrone (*Arbutus menziesii*); California bay (*Umbellularia californica*), buckeye (*Aesculus* spp.), and maple (*Acer* spp.) host the pathogen without being killed by it. Blue oak (*Quercus douglasii*) and valley oak (*Q. lobata*) have not shown symptoms of the pathogen.

2.3.4 RIPARIAN FOREST AND SCRUB

Riparian areas of Santa Clara County are broken down into the following:

- **Willow riparian forests, woodland, and scrub** – occur in or along margins of active channels on intermittent and perennial streams.

- **Central Californian sycamore alluvial woodland** – generally present on broad floodplains and terraces along Coyote Creek and Pacheco Creek.
- **Mixed riparian woodland and forest** – occur in or along margins of active channels on intermittent and perennial streams.

These vegetation types are found in association with riverine watercourses along streambanks and floodplains and surrounding open water bodies. Much of the existing stream network has been largely developed with human intervention and creation of canals and ditches.

Several invasive, non-native plant species are found in riverine land covers within the study area. One of the most prevalent is giant reed (*Arundo donax*), which is often found in large pure stands. Other invasive, non-native plants potentially found in the study area include blue gum eucalyptus (*Eucalyptus globulus*), acacia (*Acacia* spp.), fennel (*Foeniculum vulgare*), periwinkle (*Vinca* spp.), French broom (*Genista monspessulana*), black locust (*Robinia pseudoacacia*), English ivy (*Hedera helix*), Algerian ivy (*H. canariensis*), Cape ivy (*Delairea odorata*), Himalayan blackberry (*Rubus armeniacus*), weeds, curly dock (*Rumex crispus*), thistle, blackwood acacia (*Acacia melanoxylon*), tree-of-heaven (*Ailanthus altissima*), glossy privet (*Ligustrum lucidum*), fig, and poison hemlock (*Conium maculatum*).

2.3.5 CONIFER WOODLAND

There are three conifer-dominated vegetation communities that occur in Santa Clara County:

- **Redwood forest** – coast redwood (*Sequoia sempervirens*) occurring primarily in the Santa Cruz Mountains. Adjacent cover types are mixed oak woodland and mixed evergreen woodland. Occurs in areas that receive substantial rainfall >35 inches per year. Redwood-dominated overstory and tanoak (*Notholithocarpus densiflorus*), madrone, and California bay understory trees; hazelnut (*Corylus cornuta* var. *californica*), thimbleberry (*Rubus parviflorus*), and black huckleberry (*Vaccinium ovatum*) in the shrub layer. In riparian areas, California bay and bigleaf maple (*Acer macrophyllum*) are common, California nutmeg (*Torreya californica*) may occur, and ferns such as sword fern (*Polystichum munitum*) often form a dense layer.
- **Ponderosa pine (*pinus ponderosa*) woodland** – restricted distribution within the county, only occurring on three high elevation ridges in Henry W. Coe State Park—Pine Ridge, Middle Ridge, and Blue Ridge—and extending downslope into north-facing canyons and valleys.
- **Knobcone pine woodland** – consists of dense stands of knobcone pines (*Pinus attenuata*) that regenerate following fire. Uncommon in the county, occurring only in the Santa Cruz Mountains on ridge top sites, often on serpentine-derived soils. Knobcone pine is an obligate fire-climax species—fire is required to melt the resin that seals the cones, releasing the seed, and fire also creates the bare mineral soil required for the seeds to germinate. Stands of knobcone pine are therefore even-aged, dating back to the last stand-replacing fire.

Prior to European settlement, the Santa Clara Valley supported a mosaic of plant and wildlife communities and the upland regions were heavily forested with redwoods and pine and oak

woodlands. In the mid to late 1800s, the foothill forests and woodlands were heavily thinned to support regional population growth.

A major factor influencing the distribution of conifer-dominated land cover types is fire intensity and frequency. The combination of logging and burning at the end of the nineteenth century resulted in the conversion of conifer-dominated forests (redwood and Douglas fir) in the Santa Cruz Mountains to chaparral and oak-dominated woodlands. Periodic stand-replacing fire is required for the regeneration of knobcone pine woodland.

2.3.6 IRRIGATED AGRICULTURE

This cover type encompasses all areas where the native vegetation has been removed for irrigated agriculture (not including rangeland). The cover types included are:

- **Orchards** – apricot, prunes, and walnuts predominantly.
- **Vineyards** – occur throughout the county but predominantly in the southern portion.
- **Agriculture (developed)** – i.e., greenhouses, nurseries, Christmas tree farms; occurs in small patches throughout the county.
- **Grain, row crops, hay, and pasture** – abundant throughout the Santa Clara Valley south of San Jose.

Father Junípero Serra gave Santa Clara Valley its name when he consecrated the Mission Santa Clara de Asis in 1777 (National Park Service 2006). The establishment of the mission also heralded the beginning of large-scale agriculture in the Santa Clara Valley. Soon, the Guadalupe River dam (located near Mission Santa Clara) was constructed for irrigation of wheat, corn, bean, and other crops. Fruit trees and grapes were also cultivated.

Population growth in the county has been continuous since 1850. In order to facilitate the sustained growth in 1870, Los Gatos Creek was diverted to meet water demands for agriculture. Improved access to railroads also led to increased agricultural production in the county at that time. Agricultural products included carrots, almonds, tomatoes, prunes, apricots, plums, walnuts, cherries, pears, grapes, and lumber for the world market (National Park Service 2006). The rural nature of the Santa Clara Valley lasted through to World War II, after which time the amount of cultivated lands was reduced to make room for urban expansion.

2.3.7 DEVELOPED

A large portion of Santa Clara County is composed of developed lands. Developed land cover types include:

- Urban-suburban
- Rural-residential
- Barren
- Landfill
- Golf courses/urban parks
- Ornamental woodland

Vegetation found in the urban-suburban land cover type is usually in the form of landscaped residences, planted street trees (e.g., elm [*Ulmus* spp.], ash [*Fraxinus* spp.], sweet gum [*Liquidambar* spp.], pine [*Pinus* spp.], palm [*Arecaceae*]), and parklands. Most of the vegetation is composed of non-native or cultivated plant species. The major urban-suburban area in the study area is San Jose, located in the northern portion of the Santa Clara Valley. Other urban-suburban areas include areas within Morgan Hill and Gilroy.

2.3.8 *STREAMS AND WATERSHEDS*

Major streams in the County include Coyote Creek, Guadalupe River, Uvas Creek, Llagas Creek, Pajaro River, Pacheco Creek, and their various tributaries.

Major Watersheds in the County are shown in Figure 2.9:

Visit Santa Clara Valley Water District website for more information on watersheds in the County:
<http://www.valleywater.org/Services/WatershedInformation.aspx>

2.3.9 WILDLIFE

Wildfire management is an important component of wildlife management because of the impacts, both adverse and beneficial, that wildfire can have on wildlife habitat. The focus of most wildlife management is on the preservation of biodiversity; fire management and the application of prescribed fire can play an integral part in the preservation of biodiversity.

2.4 LAND USE PLANNING

2.4.1 URBAN ENCROACHMENT

Santa Clara County has been a leader in urban planning for decades, starting with the adoption in the early 1970s of the Countywide Urban Development Policies and the use of city USA boundaries. In the 1990s, Santa Clara County and interested cities worked together to adopt urban growth boundaries for several cities, delineating areas intended for future urbanization (Santa Clara Local Area Formation Commission 2015). Though strong efforts have been implemented by many county cities to prevent geographic expansion, many have still accommodated substantial residential growth. The city of Milpitas's population increased by 43% between 1990 and 2015, with no increase in land area, the city of Sunnyvale's population increased by 26% with a less than 5% increase in land area, and the City of Santa Clara by 29% with no increase in land area (Santa Clara Local Area Formation Commission 2015). Table 2.2 shows the population densities of the county's cities.

The WUI is closely inter-related to urban sprawl, which, according to the American Planning Association is characterized by low-density residential and commercial development at the urban fringe (Santa Clara Local Area Formation Commission 2015). Sprawl is often contrasted with "smart growth," which is generally defined as focusing moderate to higher density development near existing infrastructure, especially transit. Smart growth has been promoted throughout the county to counter the effects of urban sprawl on the county's natural resources; this in turn helps to prevent the expansion of the WUI. Because of the economic draw of the Santa Clara Valley, however, reduced expansion has led to housing production being out of pace with the expansive job market. As a result, commuting brings its only fire-related concerns with increased evacuation concerns.

Table 2.2. Population Densities of Cities within Santa Clara County

Jurisdiction	Population	City Square Miles	Residents per Square Mile
Campbell	41,857	6.09	6,873
Cupertino	59,756	11.32	5,279
Gilroy	53,000	16.56	3,200
Los Altos	30,036	6.52	4,607
Los Altos Hills	8,341	9.00	927
Los Gatos	30,505	11.39	2,678
Milpitas	72,606	13.56	5,354
Monte Sereno	3,451	1.61	2,143
Morgan Hill	41,779	12.91	3,236
Mountain View	77,914	12.20	6,386
Palo Alto	66,912	25.96	2,578
San Jose	1,016,479	180.67	5,626
Santa Clara	120,973	18.18	6,654

Jurisdiction	Population	City Square Miles	Residents per Square Mile
Saratoga	30,799	12.78	2,410
Sunnyvale	148,028	22.88	6,470

Source: Department of Finance (DOF) 2015 Population Estimates, Santa Clara Local Area Formation Commission 2015 City Area Estimates.

2.4.2 CONVERSION OF HISTORICAL SUMMER VACATION HOMES

A large number of homes, particularly in the Lexington Basin, originated as summer homes that were built in the last century, that are now being used as full-time residences. Redwood Estates, for example, was established as a summer home community in the mid-1920s designed for wealthy Bay Area residents to escape to the cooler Santa Cruz Mountains during the summer.

Figure 2.10 shows two still captures taken from a real estate promotional video for Redwood Estates filmed in 1926.

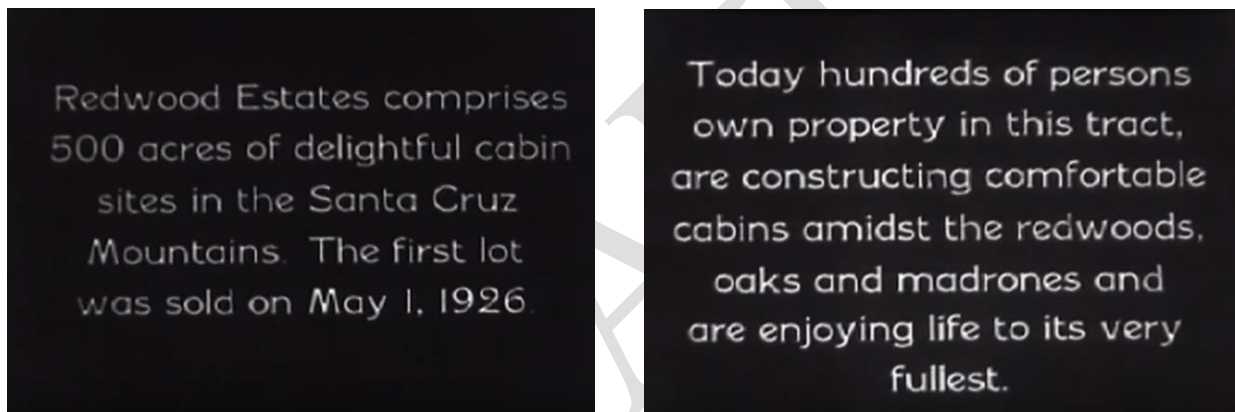


Figure 2.10. Two slides taken from a promotional film created by a real estate company for the Redwood Estates in 1926 (*Source: YouTube*).

The implication of this twentieth century summer home development to wildfire management is that many of these homes were built in the WUI before WUI codes were enacted and many have structural ignitability issues related to construction materials and close adjacency to neighboring properties. In addition, many homes have been built on parcels without planning permission and as such are not documented in county assessor records. This is a concern for emergency responders, particularly in the event of mandatory evacuation.

2.4.3 GENERAL PLANS/LOCAL HAZARD MITIGATION PLANS

Santa Clara General Plan

The Santa Clara General Plan (Santa Clara County 1994) provides a general overview of wildfire hazard in terms of emergency response and direction for local and county hazard planning. The General Plan can serve to reduce the threat of natural or human-caused disasters by directing land use policies for hazard prone areas (i.e., reducing population in areas prone to wildfire). Its policies can direct government agencies to carry out community and agency education programs, alerting citizens and staff as to what to do in the event of an emergency.

The General Plan identifies that much of the mountainous areas of Santa Clara County are considered “high or extreme fire hazard areas,” due to a variety of factors, including:

- climatic factors, such as rainfall, humidity, and wind patterns;
- volume of naturally occurring “fuel” for fires, such as brush, dead trees, and grasses that ignite easily and burn hotly;
- steepness of slopes; and
- inaccessibility and lack of available water supplies for fire suppression.

The following four areas are identified as the main concerns related to wildfire hazard that need to be addressed through policy and planning:

- access issues;
- water supply;
- building requirements; and
- defensible space.

In order to address these concerns, the General Plan identified a series of policies and implementation (also found on page P-23 of General Plan Book B) shown in Appendix D.

2.4.4 SANTA CLARA VALLEY HABITAT CONSERVATION PLAN

The Santa Clara Valley Habitat Agency is responsible for administering and implementing the Santa Clara Valley Habitat Plan, a federally approved Habitat Conservation Plan and state approved Natural Communities Conservation Plan. The Habitat Plan provides for the protection and recovery of 18 plant and animal species of special conservation concern e.g., species listed by the federal or state government as threatened or endangered. The jurisdictions participating in the Habitat Plan include the cities of Gilroy, Morgan Hill and San Jose, Santa Clara County, the Santa Clara Valley Transportation Authority and the Santa Clara Valley Water District. Permits are required for discretionary projects affecting habitat and species covered by the Habitat Plan. Fees are collected to compensate for impacts on covered species and habitats. The fees in turn, are used to acquire properties with equivalent habitat to compensate for the losses. These properties become part of the conservation reserve system that will eventually encompass over 46,000 acres of oak woodland, serpentine grassland, annual grassland and other habitat types.

The area covered by the conservation plan is shown in Figure 2.11

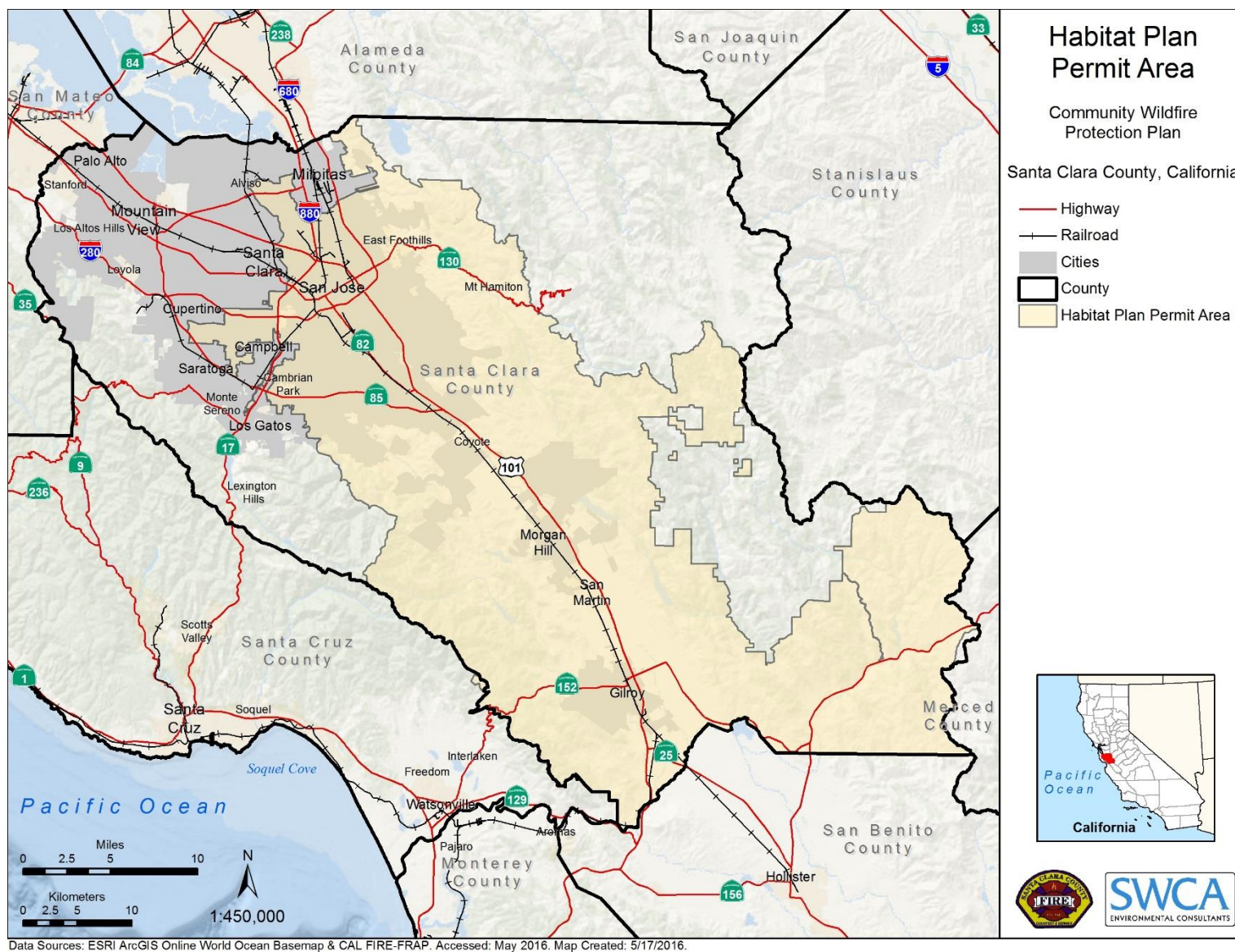


Figure 2.11. Habitat Conservation Plan Permit Area

The Habitat Plan acknowledges the potential negative impacts of wildfire and associated suppression activities on nearly all of the wildlife and plant species designated for protection. It also acknowledges the potential impacts of measures undertaken to reduce wildfire risks on the same species and their habitats. There is a need to find a balance between habitat management to reduce wildfire risk and preservation of habitat qualities that benefit the protected species. There is also a need to inform wildfire suppression organizations about the resources to be protected in the event of a fire on a conservation reserve.

The Habitat Agency has prepared guidelines for fuel treatments that incorporate the Habitat Plan's requirements for protecting covered habitats and species (Harris 2016). The guidelines will be used to plan fuel treatments within conservation reserves. They may also be used to plan fuel treatments outside of reserves or to place conditions on discretionary projects if fuel reduction is proposed as part of the project. The following projects may be subject to the permit requirements of the Habitat Plan:

- Land development within the Habitat Plan boundaries requiring discretionary approval from participating jurisdictions.
- Vegetation management projects subject to environmental analysis pursuant to the California Environmental Quality Act.
- Vegetation management that is a covered activity under the Habitat Plan such as management within county parks and land managed by the Santa Clara Valley Open Space Authority.

Fuel treatments proposed by the CWPP may be subject to the Habitat Plan permit requirements if they are funded by public agencies such as CAL FIRE or otherwise require discretionary permits from participating jurisdictions. In these cases, planning those treatments to be consistent with the Habitat Agency's guidelines would be advisable. *It is the intent of this CWPP that if and when fuel treatments are planned within the conservation plan area and/or within habitats or potentially affecting species covered by the Habitat Plan that those treatments will conform to the degree possible to the recommendations of the Habitat Agency's guidelines (Harris 2016-incorporated here by reference).*

The ultimate spatial distribution of conservation reserves cannot be anticipated at this time. The likelihood that a property will be acquired will depend not only on the habitat involved but also on the willingness of the property owner to sell or grant a conservation easement. Some properties, such as some county parks and land owned by the Santa Clara Valley Open Space Authority, have already been enrolled in the conservation reserve system and other properties are currently under consideration for acquisition.

The Habitat Agency intends to aggressively pursue implementing fuel treatments within its conservation reserves. County parks are already being effectively managed to reduce fuels, primarily through grazing and use of prescribed fire. Depending on where reserves are located there may be opportunities to incorporate them into community fuel breaks planned under the CWPP. This can be facilitated by continued active involvement by the Habitat Agency in the CWPP implementation phase.

2.5 POPULATION

According to Census estimates (U.S. Census Bureau 2014), the population of Santa Clara County is 1,894,605 people, with a 6.3% increase in population from 2010 to 2014. Population density is 1,451 persons per square mile. As of July 2014, there were an estimated 614,714 households in the county, with an average 2.94 persons per household. Almost half (47.3%) of the population aged 25 years or older hold a Bachelor's degree or higher; the tech industry is a considerable employer and draw to the area. According to a 2014 report by the U.S. Conference of Mayors, Santa Clara County was reported to have the highest median household income in the nation at \$93,854, compared to \$51,939 nationally (U.S. Census Bureau 2014; U.S. Conference of Mayors 2014).

2.5.1 SOCIOECONOMIC COMPONENTS

Historical, Cultural, or Local Icons

There are 107 properties and districts listed on the National Register of Historic Places in Santa Clara County, including five National Historic Landmarks (National Register of Historic Places 2016). Many of these sites are located in the urban areas of the county, but some are located within the WUI, for example, Paul Masson Mountain Winery in Saratoga (built in 1901), the Picchetti Brothers winery southwest of Cupertino (built between 1880 and 1920), and Villa Montalvo in Saratoga (built in 1912).

Important Economic or Employment Locations

During 2015, total jobs grew by 4.2% in Santa Clara County, as compared to 4.6% in San Francisco-San Mateo, and 2.8% in the East Bay. The pace of annual growth rate was 3.1% in California and 1.9% in the United States (Bay Area News Group 2016). The technology industry is a major employer in the county with more than 6,500 high technology companies, including many of the largest tech companies in the world, among them hardware manufacturers AMD, Cisco Systems, and Intel; computer and consumer electronics companies Apple Inc. and Hewlett-Packard; and internet companies eBay, Facebook, Google, and Yahoo. Most of what is considered to be Silicon Valley is located within Santa Clara County (California Employment Development Department 2016).

Commuter Patterns

With a mean travel time to work of 25.6 minutes (U.S. Census Bureau, 2014), a large majority of the population likely work within the county. However, Santa Clara County also attracts a large number of commuters. Among workers in Santa Clara County, 280,000 live outside the county (Santa Clara Weekly 2015). A 2013 Census Bureau report states that Santa Clara County has among the highest number of commuters (208,965) coming from another county in the nation. Reports in 2013 were that 64,696 workers commute in from Alameda County, 50,215 from San Mateo County, 17,215 from Santa Cruz County, 11,526 from Contra Costa County, and 19,087 from San Francisco County (U.S. Census Bureau 2013). Conversely, 109,287 residents of Santa Clara County leave the county for work, with 41,522 going to San Mateo County, 38,339 to Alameda County, and 9,570 to San Francisco County (U.S. Census Bureau 2013). Commuter traffic is a huge concern for residents, particularly related to evacuation and ignition concerns along major commuter routes like Highway 17.

2.6 OPEN SPACE AREAS

Figure 2.12 shows the open space areas throughout the County.

2.6.1 *SANTA CLARA COUNTY OPEN SPACE AUTHORITY*

The Santa Clara Open Space Authority conserves the natural environment, supports agriculture and connects people to nature, by protecting open spaces, natural areas, and working farms and ranches for future generations. The Open Space Authority maintains the following three open space preserves:

- Coyote Valley Open Space Preserve
- Rancho Cañada del Oro Open Space Preserve
- Sierra Vista Open Space Preserve

2.6.2 *MIDPENINSULA REGIONAL OPEN SPACE DISTRICT*

The Midpeninsula Regional Open Space District is a regional greenbelt system in the San Francisco Bay Area comprising over 60,000 acres of land in 26 open space preserves. The following Preserves are located in Santa Clara County:

- Bear Creek Redwoods Open Space Preserve
- Coal Creek Open Space Preserve
- El Sereno Open Space Preserve
- Foothills Open Space Preserve
- Fremont Older Open Space Preserve
- Los Trancos Open Space Preserve
- Monte Bello Open Space Preserve
- Picchetti Ranch Open Space Preserve
- Rancho San Antonio Open Space Preserve
- Saratoga Gap Open Space Preserve
- Sierra Azul Open Space Preserve
- St Joseph's Hill Open Space Preserve

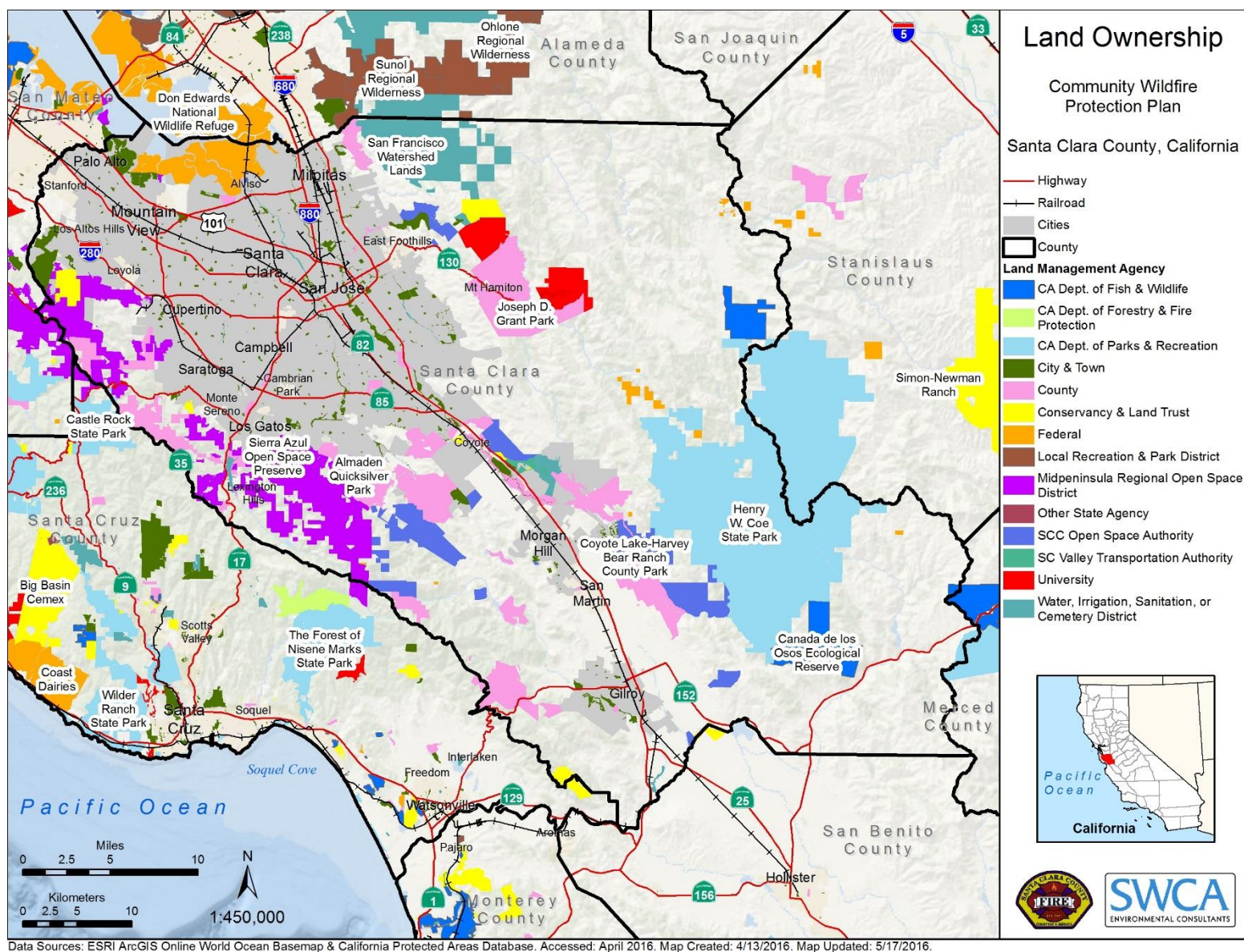


Figure 2.12. Landownership map showing open space areas throughout the County and beyond County boundaries.

2.7 ROADS AND TRANSPORTATION

As outlined in the Santa Clara County General Plan, an adequate transportation system is essential to the county's economy, environment, and overall quality of life (Santa Clara County 1994). The Transportation section of the General Plan provides measures to reduce congestion in the county, improve air quality, encourage compact urban development, and improve social and economic well-being. Specific to the CWPP, roads and transportation are important for evacuation purposes and emergency response, but they also contribute to patterns of ignition, as they bring people in contact with the wildlands. Santa Clara County is currently updating the Circulation and Mobility Element of the General Plan, which will provide updates and policies to support and implement road improvements to the county's expressways and unincorporated road system. Emergency response would be a component of those updates.

Many subdivisions in the county are located within a private road network. Maintenance of these private roads is a concern for emergency response because poorly maintained roads, steep grades, and unsurfaced routes may be inaccessible to some emergency apparatuses. Some of these communities have a road committee that provides oversight of road conditions.

Santa Clara County's main airport is Norman Y. Mineta San Jose International Airport with numerous international connections. Santa Clara Train Station is served by the California Department of Transportation (Caltrans) and provides service throughout Santa Clara Valley and the Bay Area. The San Jose Diridon Station is the transit hub for Santa Clara County/Silicon Valley. This station serves Altamont Commuter Express (ACE), Amtrak Capitol Corridor, Amtrak Coast Starlight, VTA, Light Rail, Highway 17 Express) and Monterey-San Jose Express. The Santa Clara Valley Transportation Authority operates the regional light rail system connecting towns throughout the valley.

Santa Clara County has an extensive freeway system and separate expressways. The expressways are maintained as county roads, not by Caltrans. The major state highways in the county are U.S. Route 101 that runs through the center of the valley, State Route 17 that runs from San Jose through the Santa Cruz Mountains to Santa Cruz, Interstate 280 that connects San Jose to San Francisco, Interstate 880 that connects San Jose with Oakland to the north, Interstate 680 that connects San Jose to communities to the northeast and State Route 85 (West Valley Freeway) that connects south San Jose to Mountain View and all the West Valley Cities.

2.8 ADJOINING COUNTIES

Santa Clara County shares borders with Santa Cruz and San Mateo Counties to the west, Stanislaus and Merced Counties to the east, San Benito County to the south, and Alameda County to the north. Many residents of those adjoining counties travel into Santa Clara County for work and leisure, and a large number of residents reside very close to the county boundary and as such wildfire concerns are shared across those county boundaries. Although this document is a countywide CWPP and risk assessment analysis was completed only for lands within the Santa Clara County boundary, the Core Team recognizes that fire does not stop at jurisdictional boundaries. The Core Team is concerned about management of fire and fuels in those boundary areas, as such the team welcomed input from those residents during the community workshops and

on the community survey. Some of the primary concerns of residents of adjoining counties are highlighted in the community comments in Appendix A. Project recommendations included in Section 6 are designed to address specific concerns of both Santa Clara County residents and residents who live close to the county boundary.

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