

### 3 Fire and Emergency Services System Overview

Santa Clara County has a population of approximately 1,857,620. Of this total, about 1,763,700 reside in one of the 15 incorporated cities and 93,900 reside in unincorporated County areas. The County is 1,315 square miles in size.

Responsibility for, and delivery of, fire and emergency services in the County is complex. Some cities provide their own fire protection, some cities are included in fire districts, and some contract for services with other providers. A large portion of the unincorporated area with a small population is not served by a public fire agency beyond the protection of State Responsibility Areas (SRAs) during fire season by CAL FIRE. The 15 cities and some unincorporated areas in the County are served by nine agencies. Table 1 shows the responsible agencies and how service is provided.

*Table 1: Responsible Jurisdictions and Fire and Emergency Service Providers*

Responsible Jurisdiction	Service Provider
City of Campbell	Santa Clara County Central Fire Protection District (CCFD) Contract
City of Gilroy	Gilroy Fire
City of Los Altos	CCFD Contract
City of Milpitas	Milpitas Fire
City of Morgan Hill	CCFD Contract
City of Mountain View	Mountain View Fire
City of Palo Alto	Palo Alto Fire
City of San José	San José Fire
City of Santa Clara	Santa Clara Fire
City of Sunnyvale	Sunnyvale Public Safety
Santa Clara County Central Fire Protection District includes Cupertino, Los Gatos, Monte Sereno, part of Saratoga and some unincorporated areas	CCFD

Responsible Jurisdiction	Service Provider
<b>Los Altos Hills County Fire District includes Town of Los Altos Hills and some unincorporated areas</b>	CCFD Contract
<b>Saratoga Fire Protection District includes part of the City of Saratoga and some unincorporated areas</b>	CCFD Contract
<b>South Santa Clara County Fire Protection District (SCFD) includes some unincorporated areas in the south part of the County</b>	CAL FIRE Contract

The nine public service providers include seven municipal fire departments, one dependent fire district and CAL FIRE. Five private volunteer companies provide limited service to communities outside the service areas of public departments. American Medical Response (AMR), under contract with Santa Clara County, provides ambulance transport countywide with the exception of the City of Palo Alto, which provides ambulance transport through its fire department. Moffett Field maintains a fire department through contract with a private provider; they declined to participate in the service review.

The public fire agencies provide the following major services:

- Fire suppression
- Advanced life support medical (ALS)
- Emergency medical transport
- Fire prevention
- Hazardous materials response (Hazmat)
- Emergency preparedness

Table 2 summarizes the responsibilities of the public agencies providing these services.

Table 2: Public Fire Service Providers in Santa Clara County

Provider Agency	Area Served	Fire Suppression	Advanced Life Support	ALS Transport	Fire Prevention	Hazmat
<b>Gilroy Fire Department</b>	City of Gilroy	●	●	○	●	
<b>Milpitas Fire Department</b>	City of Milpitas	●	●		●	●
<b>Mountain View Fire Department</b>	City of Mountain View	●	●		●	●
<b>Palo Alto Fire Department</b>	City of Palo Alto, Stanford, unincorporated lands	●	●	●	●	●
<b>San José City Fire Department</b>	City of San José, unincorporated islands and lands adjacent to the City	●	●	○	●	●
<b>Santa Clara City</b>	City of Santa Clara	●	●	○	●	●
<b>Sunnyvale City</b>	City of Sunnyvale	●			●	●
<b>Central Fire Protection District</b>	Cupertino, Los Gatos, Monte Sereno, part of Saratoga, Campbell, Los Altos, Morgan Hill, Saratoga Fire District, Los Altos Hills Fire District, and unincorporated areas	●	●		●	✓
<b>CAL FIRE*</b>	South Santa Clara County Fire Protection District (SCFD), unincorporated SRAs during fire season	●	●		●	

○ When needed by County EMS protocol

✓ State certified as Type I, to handle the most severe hazardous materials incidents

\* Contract provider for the South Santa Clara County Fire Protection District

The unincorporated areas of the County are served by fire districts, city departments and volunteer companies. The volunteer fire companies are private entities. The County pays for workers' compensation insurance for the volunteer companies. CCFD, SCFD, Milpitas and San José also respond into these areas. Table 3 identifies the volunteer fire companies. The station locations for these volunteer fire companies can be found on the CCFD and SCFD boundary and station maps.

Table 3: *Volunteer Fire Companies in Santa Clara County*

Volunteer Company	Area Served
Ormsby Fire Brigade	North of Mt. Madonna Park
Casa Loma Volunteers	West of Uvas Road and south of Mt. Umunhum
Stevens Creek Volunteers	West of Cupertino
Spring Valley Volunteers	East of Milpitas
Uvas Volunteers	Croy and Uvas Road areas

The public agencies provide service from 90 fire stations with 88 engines, 21 trucks 9 rescue units and 5 ambulance units. Most stations and apparatus are staffed at the same level 24/7/365 days a year; some agencies staff additional apparatus during peak fire season AMR provides ambulance transport service. The number of ambulances in service varies by day of week and time of day based on analysis of historical service demand. The Palo Alto Fire Department staffs one ambulance on a 24-hour basis and one on a 12-hour shift.

Service demand is expressed in calls for service. Calls for service are categorized by type, as follows.

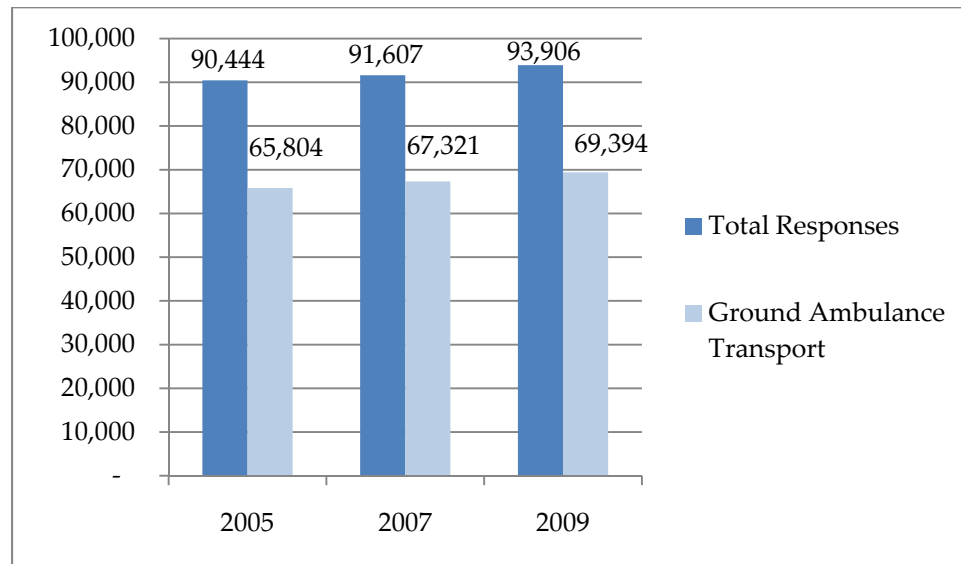
- Emergency medical
- Structure fire
- Other fire
- Rescue
- Hazmat
- False alarms
- Other

### **3.1 Emergency Medical**

The heaviest demand on the fire/emergency system is emergency medical calls. In calendar year 2009 there were a total of 93,906 responses to 911 emergency medical calls and 69,394 ground ambulance transports. Between 2005 and 2009,

total EMS responses increased by 4%, while ground ambulance transports increased by 5%. Figure 3 shows the trend in emergency medical calls from 2005 to 2009.

Figure 3: Santa Clara County Emergency Medical Calls: 2005, 2007 and 2009



Source: County EMS Agency

The emergency medical system consists of two components: initial paramedic response and ambulance transport to the appropriate medical facility. By state law, the EMS system is a county government function. Oversight and administration of the Santa Clara County emergency medical system is the responsibility of the County EMS Agency.

Santa Clara County has contracted with AMR to provide pre-hospital emergency service. AMR has entered into agreements with the public fire agencies to provide paramedic first responder service. Ambulance transport service is provided countywide by AMR with the exception of Palo Alto. The City of Palo Alto had established rights to transport prior to the change in state law granting this authority to the counties. The San José, Santa Clara City and Gilroy fire departments maintain ambulances at some fire stations and will transport when specific criteria (contained in Santa Clara County Pre-hospital Care Policy) are met.

With the exception of the City of Sunnyvale, all public fire agencies are the first responder to emergency medical calls with firefighter paramedics trained to provide advanced life support (ALS), including the administration of drugs and patient intubation. The City of Sunnyvale Department of Public Safety responds

with firefighters trained as emergency medical technicians (EMT) who provide basic life support (BLS); AMR responds with ALS paramedics.

ALS paramedic service is supplemented by AMR upon arrival of an ambulance. Departments generally have first-responder paramedic capability at all stations. The City of Santa Clara Fire Department is an exception to this, staffing three of its ten stations with firefighter/ paramedics. ALS service in Sunnyvale is provided by AMR quick response vehicles (QRVs) staffed by paramedics that are dispatched by the City but are comprised of AMR personnel.

Medical emergency response standards are established by the County for five zones based on the extent of development and population density. These are:

- Metro
- Urban
- Suburban
- Rural
- Remote

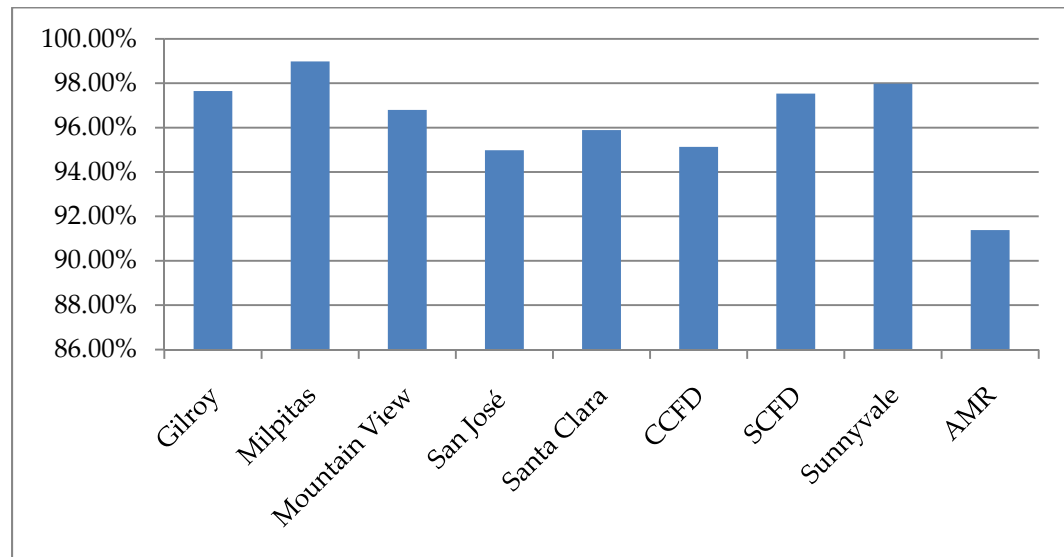
Table 4 shows the response standards for Code 3 medical calls.

*Table 4: EMS Response Standards for Code 3 Calls*

Zone	ALS First Response	Ambulance Response
<b>Metro/Urban</b>	7 minutes 59 seconds or less	11 minutes 59 seconds or less
<b>Suburban</b>	9 minutes 59 seconds or less	16 minutes 59 seconds or less
<b>Rural</b>	11 minutes 59 seconds or less	21 minutes 59 seconds or less
<b>Remote</b>	21 minutes 59 seconds or less	29 minutes 59 seconds or less

The performance standard established by the County is that response times must be met at least 90% of the time per month in each zone and for each individual response. Failure to meet the standard results in fines to the contractor. Figure 4 shows the overall performance of each provider for 2009.

Figure 4: 2009 ALS Performance by Jurisdiction\*



Source: Santa Clara County EMS Agency

\*Figures for the City of Sunnyvale are those for the Department of Public Safety's BLS response. Figures for AMR are those for ALS service provided in the Sunnyvale City Limits

Performance by the public fire agencies consistently exceeds the 90% standard; it is typically in the 95% to 98% range. When a fire service provider achieves 95% or greater compliance, fines are waived. Exceptions to the time standards are granted for calls to remote areas.

The exclusive operating agreement granted by the County to AMR terminates June 30, 2011. The County has issued an RFP for a competitive selection of an ambulance provider for a new contract. Under the structure of the RFP, the public fire agencies will be direct contractors of the County, not subcontractors of the private ambulance provider.

### 3.2 Fire Suppression

Response to calls for potential fire suppression is a critical area of service demand on fire and emergency service agencies. Responses are categorized by type including structure fires, car fires, and brush fires. The key factors in fire suppression response are the time it takes for the initial response and the number of resources responding to the incident.

Fire suppression responses are provided by engines and trucks. Engines are the predominant first responder and are equipped to pump water, set up the fire ground and prepare for suppression activities. Trucks are more specialized providing extended aerial ladders and various emergency tools.

Most fire agencies in Santa Clara County staff fire engines with a company of three firefighters. Trucks are typically staffed with a company of three or four. This is consistent with the predominant staffing pattern of suburban fire departments in California. The cities of San Jose and Sunnyvale are exceptions to this staffing pattern. As a densely populated city, San José's staffing pattern is typical of that in other major cities, with four-person engine companies and five or six-person truck companies. The City of Sunnyvale provides services through the Department of Public Safety, responding to emergency calls with a combination of staffed apparatus and police patrol personnel trained for fire and BLS response. The City of Sunnyvale Department of Public Safety staffs all apparatus with two personnel. The number of apparatus and personnel (including engines, trucks, and command staff) deployed to an incident vary based upon the nature of the call, the policies of each agency and the amount of resources available.

Fire response is measured in stages: the time the call comes into the public safety answering point (PSAP) until the time the dispatch is made to the initial response unit; the time the call is received by the initial responding unit until the unit is in route to the incident; and the travel time for the unit to arrive at the incident. The National Fire Protection Association (NFPA) publishes guidelines on fire response standards and deployment. Although not legally binding, they provide a benchmark for assessing the performance of individual departments.

The 2010 edition of NFPA 1710 provides for a travel time standard of four minutes or less 90% of the time for a single home structure fire. The NFPA recommended initial response deployment is a minimum of 15 firefighters in order to complete tasks necessary to ensure firefighter safety while executing their mission. The recommended response compliment can be comprised of a combination of engines, trucks, rescues, ambulances and command staff. In Santa Clara County the initial response deployment ranges from 9 to 24 depending on the policies of the department.

Another often-cited measure of fire suppression capability is the rating assigned to a department by the Insurance Service Office (ISO). The ISO is a company that provides information to insurance companies that may be used to establish premium costs. ISO collects and analyzes information on municipal fire-protection efforts including fire alarm and communication systems, telephone systems, staffing, and dispatching systems; the fire department, including equipment, staffing, training, and geographic distribution of fire companies; the water-supply system, including the condition and maintenance of hydrants, and an evaluation of the amount of available water compared with the amount needed to suppress fires.



ISO then assigns a Public Protection Classification from 1 to 10. Class 1 generally represents superior property fire protection and Class 10 indicates that the area's fire suppression program does not meet ISO's minimum criteria. Whether insurance companies use ISO ratings and how they impact fire insurance premiums varies depending on the insurance company. Some insurance companies do not use ISO ratings. Of the nine provider agencies: five have a rating of 2; one has a rating of 3; one is rated 4; and three agencies have ratings that vary from 3 to 9, depending on the proximity of a property to a fire station. Generally, for residential homeowners there is not a significant difference in fire insurance premiums for those departments in the 2 to 5 range of the rating scale.

Another assessment tool for fire department performance is the Commission on Fire Accreditation International (CFAI) international accreditation process for fire departments. The process evaluates a fire departments on a full range of performance evaluation categories including:

- Assessment and Planning
- Essential Resources
- External Systems Relations
- Financial Resources
- Goals and Objectives
- Governance and Administration
- Human Resources
- Physical Resources
- Programs
- Training and Competency

Each category includes a measure or index on which a judgment or division can be based, as well as indicators that define the desired level of ability to perform a particular task. This is a very detailed and time intensive process. There are five municipal fire departments to be accredited in California; one is the Santa Clara County Central Fire Protection District.

### **3.3 Mutual and Automatic Aid**

Mutual aid is characterized by one or more agencies providing support to another agency upon request. A countywide mutual aid agreement is in place in Santa Clara County and all public fire departments are a signatory to the agreement. Automatic aid is characterized by an ongoing agreement between agencies that the resources of one department will respond automatically to service calls in the other jurisdiction. Automatic aid agreements are typically established when the physical presence of a station in one jurisdiction is sufficiently close to another jurisdiction to provide a quick response. The

jurisdiction in which the incident occurs is the first responder and is responsible for the incident. Fire agencies in Santa Clara County typically have automatic aid agreements with adjacent departments. Another form of cooperation is called a “boundary drop.” This occurs when two agencies agree that the closest unit will be the first responder to an incident and take responsibility for the incident regardless of political jurisdiction. Boundary drop agreements do not exist in Santa Clara County.

### **3.4 Hazardous Materials Response**

Countywide hazardous materials response capability is provided by a limited number of departments. This arrangement is cost-effective, as not all departments need to have the specialized equipment and training necessary to handle the most serious materials. The Santa Clara County Central Fire Protection District is certified by the State as “Type 1,” the highest response capability. The City of San José has applied to the State for Type 1 certification. The Milpitas, Mountain View, Palo Alto, Santa Clara, and Sunnyvale Fire Departments maintain capability for lesser hazardous responses.

### **3.5 Fire Prevention**

Fire prevention encompasses a number of discrete activities including the following.

**Construction Services.** Checking construction plans to ensure compliance with the uniform fire code and performing inspections to ensure construction conforms to approved plans. These functions are typically performed by trained plan checkers and inspectors. In some cities this function is performed by the building division.

**Maintenance Inspections.** Annual inspections of commercial establishments and multi-family residential properties to ensure fire safety and familiarize the department with hazards located in particular properties. This function is typically performed by a combination of inspection personnel and “company inspections” where fire apparatus crews conduct inspections as a routine part of responsibilities.

**Public Education.** Provides increased awareness of the risk of fire and protective measures through media information, speaking to organizations and working with schools and neighborhood groups.

**Arson Investigation:** Investigation of fires to determine if arson may have been the cause of a fire. In some jurisdictions arson investigation is located in the police department.

Each municipal department maintains a fire prevention bureau tasked with these responsibilities. The CCFD serves as the county fire marshal and provides construction-related services to the unincorporated area of the county in addition to the municipalities it serves.

### **3.6 Emergency Preparedness**

Fire departments conduct emergency preparedness activities to maintain response capability for natural disasters or accidents including earthquakes, floods and large hazardous materials incidents. Preparedness activities typically include ensuring proper organization for effective response, maintaining and supplying an emergency operations center, stockpiling supplies necessary to manage through a prolonged emergency, public education, and working with neighborhoods to establish community-based preparedness with the goal of having the capability to sustain their households and neighborhoods for several days in the event of a significant incident. The countywide Fire Services and Rescue Master Mutual Aid Plan determines the relationships between agencies in the event of a large-scale incident.

### **3.7 Training**

All newly hired firefighters complete a basic firefighter academy prior to beginning work. Most agencies participate in the Santa Clara County Joint Fire Academy (JFA), a joint effort by the Santa Clara County Training Officers, under the direction of the Santa Clara County fire chiefs. Some departments conduct in-house academies for new firefighters. Regular training is required to maintain the readiness capability of fire and emergency service employees. Training covers strategies and tactics for fighting fire, continuing education for paramedic skills for appropriate personnel, and fire officer training. Each agency is responsible for providing training. There are different training models; some departments maintain staffed training bureaus, others rely heavily on on-duty line personnel and some contract most training. The size and quality of training facilities varies among the agencies. Some joint training is done with two or more departments and through the JFA.

### **3.8 Communications**

The three key communication activities in the delivery of fire and emergency medical services are as follows:

- **First responder fire unit dispatch.** Notification from the primary public safety answering point (PSAP) to the Secondary PSAP responsible for the initial incident response.

- **Ambulance dispatch.** Notification of the ambulance that will respond to the incident.
- **Emergency medical dispatch (EMD).** The provision of pre-paramedic arrival emergency medical directions by the communications dispatcher to persons at the emergency incident.

Emergency communications in Santa Clara County is fragmented and complicated. All 911 calls are routed to a primary public safety answering point (PSAP) depending on the location of the caller. In cities with police departments, the police communications unit is the PSAP. For cities served by the County Sheriff and the unincorporated areas, the Santa Clara County Communications Department (County Comm.) is the PSAP.

What happens once the call is received by the PSAP varies depending upon whether a city has its own police and fire departments and whether a city provides EMD through its own communications personnel. For all calls, with the exception of those in the City of Palo Alto, ambulance dispatch is done by the Santa Clara County Communications Department (County Comm.). In most cases where a police department is the PSAP, information from calls requiring an ambulance response are transferred to County Comm. to initiate an ambulance response.

The dispatch protocols are summarized according to the three key communication activities for all responsible jurisdictions in Table 5 below.

*Table 5: Fire and Emergency Medical Service Communications Protocols*

Origin of Call	Primary Public Safety Answering Point (PSAP)	First Responder Fire Dispatch/Responding Agency	Ambulance Dispatch	Emergency Medical Dispatch (E)
<b>City of Campbell</b>	Police Department	County Comm/CCFD	County Comm	County Comm
<b>City of Cupertino</b>	County Comm	County Comm/CCFD	County Comm	County Comm
<b>City of Gilroy</b>	Police Department	Police Department /Gilroy Fire Department	County Comm.	County Comm.
<b>City of Los Altos</b>	Police Department	County Comm./CCFD	County Comm.	County Comm.
<b>City of Los Altos Hills</b>	County Comm.	County Comm./CCFD	County Comm.	County Comm.

Origin of Call	Primary Public Safety Answering Point (PSAP)	First Responder Fire Dispatch/Responding Agency	Ambulance Dispatch	Emergency Medical Dispatch (E)
<b>City of Los Gatos</b>	Los Gatos/Monte Sereno Police Department	County Comm./CCFD	County Comm.	County Comm.
<b>City of Milpitas</b>	Police Department	Police Department /Milpitas Fire Department	County Comm.	County Comm.
<b>City of Monte Sereno</b>	Los Gatos/Monte Sereno Police Department	County Comm./CCFD	County Comm.	County Comm.
<b>City of Morgan Hill</b>	Police Department	County Comm./CCFD	County Comm.	County Comm.
<b>City of Mountain View</b>	Police Department	Police Department/MVFD	County Comm.	Police Department
<b>City of Palo Alto</b>	Police Department	Police Department/Palo Alto Fire Department.	Police Dept.	Police Department
<b>City of San José</b>	Police Department	San Jose Fire Department/SJFD	County Comm.	Fire Department
<b>City of Santa Clara</b>	Police Department	Police Department/Santa Clara Fire Department	County Comm.	Police Department
<b>City of Saratoga</b>	County Comm.	County Comm./CCFD	County Comm.	County Comm.
<b>City of Sunnyvale</b>	Public Safety Department	Public Safety Department/Sunnyvale Public Safety Department	County Comm.	Public Safety Department
<b>Santa Clara County Central Fire District</b>	County Comm.	County Comm./CCFD	County Comm.	County Comm.
<b>South County Fire District</b>	County Comm.	CAL FIRE/CAL FIRE	County Comm.	County Comm.
<b>Unincorporated Areas*</b>	County Comm.	County Comm./CCFD or CAL FIRE/SCFD	County Comm.	County Comm.

*Source: County Communications Department*

*\*Calls originating in the unincorporated area will go to either CAL FIRE or CCFD, depending on the location*

The fragmentation of communications among different agencies is further complicated by the use of four different radio bands and frequencies between the provider departments. The structure of the current communications is a major barrier for achieving efficiencies, reducing response times and improving the overall effectiveness of the fire/EMS system. Recognizing the difficulty of consolidating all countywide functions, an interoperability joint powers authority comprised of nearly all municipalities and representing all PSAP agencies in the County has been created to improve system-wide functionality. This JPA, the Silicon Valley Regional Interoperability Authority (SVRIA) has a goal of creating a “virtual” consolidated communications system.

SVRIA has submitted a FY 2010 UASI grant funding request for approval and the County has allocated \$810,000 to begin this process. The first phase is to develop CAD-to-CAD compatibility among all communications centers. This will enable all CAD systems to communicate with each other and create a common regional operating picture (CROP) in all communications centers, which will improve regional resource availability awareness. The second phase will allow automatic data transfer between systems, and except for EMD services, will eliminate the need to transfer calls between agencies to provide callers with fire and emergency medical services. Grant funds to begin the work will be available in 2011.