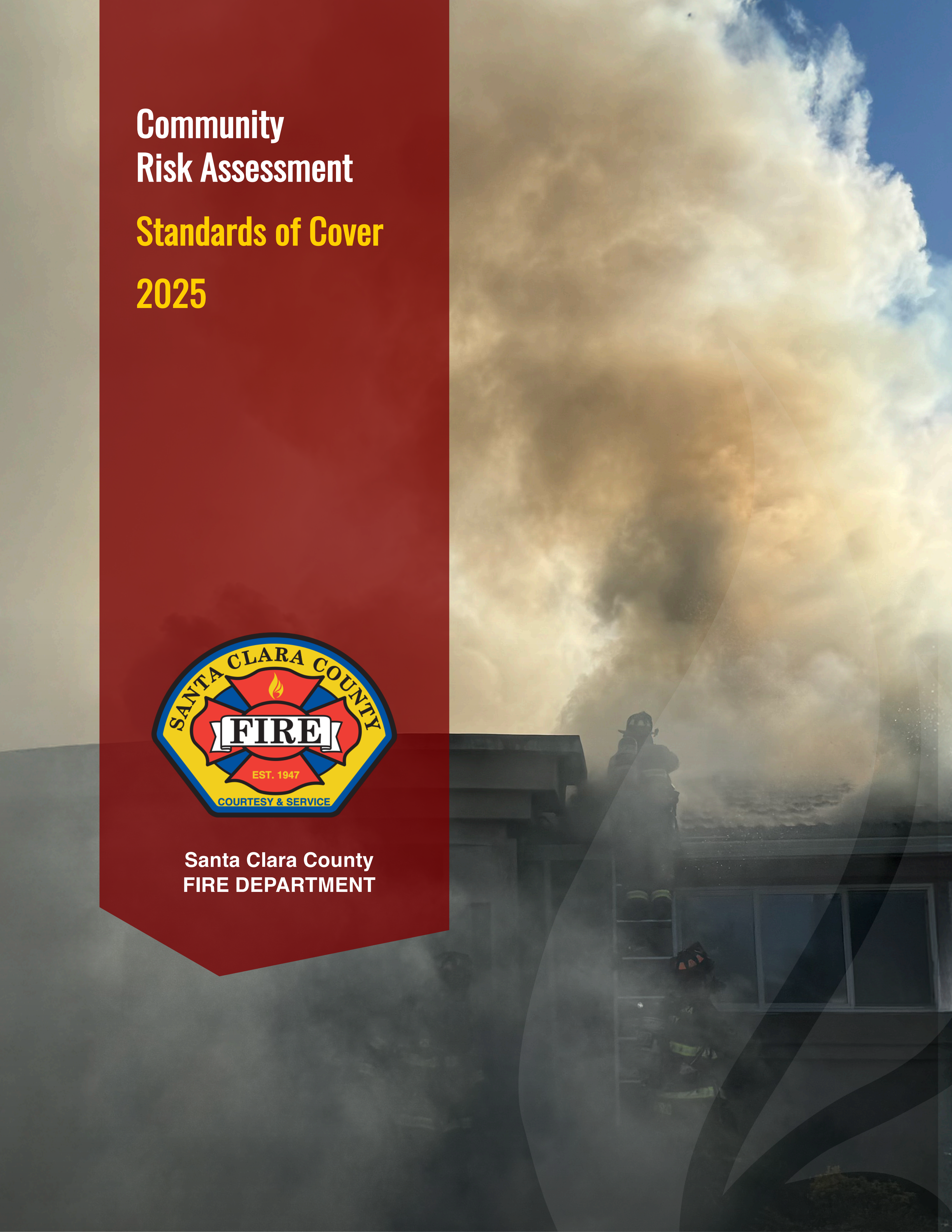
Community Risk Assessment

Standards of Cover

2025



Santa Clara County
FIRE DEPARTMENT

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Message From The Fire Chief

The Santa Clara County Fire Department, a dependent special district located in Santa Clara County, California, has an organizational culture built around the motto of "Courtesy and Service." As simple as it sounds, providing the best service we can is a complex mission. Serving the community and its ever-changing needs requires us to continuously evaluate, modify, and improve our service delivery to address the hazards inherent to the places we call home. We are committed to excellence, and as such, the Santa Clara County Fire Department has adopted the continuous improvement process outlined in the Center for Fire Accreditation International's (CFAI) Center for Public Safety Excellence's (CPSE) accreditation model since 2004. We are now in our fifth accreditation cycle, a testament to the dedication of each member to find ways to continually improve. We do this by leveraging the innovative ideas and solutions our members bring each day, from community and stakeholder input, through the recommendations from peer assessors and subject matter experts, and by adopting industry best practices.

Significant change has occurred in the last five years. We began this accreditation cycle amid the COVID pandemic and devastating California wildfires, and like so many, pivoted to maintain operations while striving to ensure the safety of our personnel. I am incredibly proud of the resilience our organization showed during this time. Many of the projects we've endeavored to complete were planned to begin prior to the pandemic. In the ensuing post-pandemic years, we have completed multiple projects that bring us back to center and help us refocus on our long-term strategic goals and priorities. For example, we replaced a fire station, purchased, constructed and moved into a modern administrative headquarters which allows for continued growth, received multiple replacement apparatus, and at the time of the publication of this Community Risk Assessment and Standards of Cover (CRA/SOC) document, had very nearly returned to full staffing for all our allocated positions. We collaborated with Santa Clara County 9-1-1 Communications to complete several major projects, including replacing our Computer-Aided Dispatch system, a project that began in 2018. This included an overhaul of our response plans to better provide risk-based dispatch, and implementation of closest-unit dispatch via automatic vehicle location technology.

Much of the work completed over the past five years was an effort to meet our strategic goals while also implementing recommendations from the last CFAI peer team who took the time to help make us a better agency. As we look forward to the coming years, we have significant work ahead of us. At the time of publishing this CRA/SOC, we will have recently executed a fire district reorganization. As part of this reorganization, the department absorbed the assets and service area of the former South Santa Clara County Fire District. In doing so, the department expanded to provide service out of four additional fire stations to a population increased by over 20,000 people, spread across an additional 292 square miles. This brings our total fire station count to 19, with 23 front-line companies, three battalions and a 24/7 safety officer, spanning 424 square miles. We'll add more details about this exciting milestone in our organizational history in our first update to this CRA/SOC. This is an exciting time for the department with many unique challenges present. Throughout it all, we look forward to working together to meet these challenges, and to continue to provide the best service possible, all with courtesy and service as our guiding principle.

Sincerely,

Suwanna L. Kerdkaew

Fire Chief

EXECUTIVE SUMMARY

FIVE-YEAR ACCOMPLISHMENTS

2020

- ✓ In March of 2020, COVID-19 began its run as a global pandemic. The district implemented procedures associated with COVID 19 that would persist for the next three years.
- ✓ In May of 2020, the district purchased and began a major renovation of a new headquarters building to replace the current headquarters facilities. The district had outgrown the current headquarters facility and needed a larger facility to relocate staff currently located in leased space. This purchase directly addresses increasing lease costs, annual maintenance costs, allows for centralized warehousing, and consolidates administrative operations into one facility centrally located in the district's service area. To minimize debt service and maximize financial benefits, the Fire District financed the acquisition and improvement costs for the facility over 30 years through a long term lease agreement with the County of Santa Clara and Santa Clara Financing Authority through the issuance of Lease Revenue Bonds.
- ✓ The district implemented the "Zonehaven" evacuation platform and interface that simplifies evacuation coordination for emergency managers and community members alike. This platform is now known as "Genasys Evac".
- ✓ The district purchased a training tractor-drawn aerial (TDA) truck, in preparation of delivery of the district's first TDA, with an estimated in-service date of Spring 2021.
- ✓ The district collaborated with Santa Clara County Communications to program and implement PRO QA's EFD fire triaging software. EFD go-live was on Monday, August 17, 2020.
- ✓ On Sunday, August 16, 2020, the "SCU Lightning Complex" wildfire began, and eventually burned over 396,624 acres in five California counties (Santa Clara, San Joaquin, Contra Costa, Alameda, and Stanislaus). District personnel responded to the incident as members of an incident management team, or as mutual aid or overhead resources.

- ✓ In November 2020, the district established the Pre-Fire Management and Wildfire Resilience Program and added the Battalion Chief—Pre-Fire Management and Wildfire Resilience position. This was the first step in creating a dedicated wildfire program that is focused on building wildfire resiliency within the communities served by the district. Program goals include partnership with local, state, and federal agencies to develop data supporting pre-fire analysis, vegetation management, and fire control techniques.
- ✓ In December 2020, the district approved an "Unmanned Aerial Systems Operations" policy, thus paving the way for creation of an Uncrewed Aerial Systems (UAS) program. Recognizing that several systems would begin to be in place, this was placed under the umbrella of a broader "Remote Hazards Assessment" Program, thus allowing for budgeting and allocating for sensor systems, fire cameras, and UAS. This provides a landing place for the hardware and technology that supports detecting, monitoring, and digesting situational awareness data provided by these systems for incident and emergency management personnel before, during, and in the recovery phases of emergency incidents that impact the district.

2021

- ✓ In April 2021, the district contracted with Lifescan Wellness, Inc. to perform annual onsite industry-specific occupational health, wellness, and fitness evaluations based on National Fire Protection Association (NFPA) 1582 and 1583 standards. This program supports the District's Healthy-in/Healthy-out initiative and commitment to its employee's.
- ✓ A new (replacement) Hazardous Materials Unit was placed in service. The department's first tractor-drawn aerial was also received and placed in service.
- ✓ Purchase of the last property parcel located under the current Winchester Fire Station and maintenance shop was completed, which completes the purchases needed to meet the Fire District's long-term goal of building a modern fire station capable of housing critical resources for the Fire District's residents and creating gender-neutral restrooms and dormitories.
- ✓ Disposal of surplus property located at Driftwood Drive in San Jose, California to fund future infrastructure/technology projects.
- ✓ Placed replacement orders for two rescue apparatus, a breathing support unit, and urban search and rescue unit.
- ✓ Remodeled kitchens and bathrooms at several fire stations.
- ✓ In June 2021, the District collaborated with the Los Altos Hills County Fire District and the City of Palo Alto to work in partnership, with each contributing resources to staff a vacant Palo Alto Fire Station during fire season in a wildland urban interface area.
- ✓ 34 cardiac monitors/defibrillators were replaced to ensure the highest level of cardio-respiratory care is delivered in the field to the patients suffering from cardiac arrest and all other cardio-respiratory ailments (including COVID-19).

2022

- ✓ In March of 2022, Fire Chief Tony Bowden retired from the Santa Clara County Fire Department. In April of 2022, Suwanna Kerdkaew was appointed Fire Chief of the Santa Clara County Fire Department.
- ✓ Purchased three type one engines, one water tender, and one aerial ladder truck.
- ✓ In late spring of 2022, a Fire Captain was allocated to the Pre-Fire Management & Wildfire Resilience Program. In addition, six extra-help personnel were hired as "Fuels Crew Members". This marked the first fire season that the Vasona Crew was in service.
- ✓ In September 2022, the District created “Service Zone 3” at NASA Ames Research Center in anticipation of a planned retrocession by the Federal Government. Although Service Zone 3 is within the District, the District does not provide service within the area because it is under exclusive and partial federal jurisdiction; therefore, services within the area are provided by the Federal Government. Should the Federal Government retrocede the area, creation of Service Zone 3 allows the District to equitably allocate the cost of providing services to the property owners in the area and not result in increased costs or decreased levels of service in areas of the District not within Service Zone 3.
- ✓ In November 2022, the District established a multi-year, multi-phased implementation plan for the UAS program.

2023

- ✓ In May of 2023, the Community Wildfire Specialist position was created and staffed, giving even more focus to community and stakeholder outreach and project planning for hazardous fire fuels mitigation projects.
- ✓ In Spring of 2023, the department purchased and placed into service the department’s first Crew Carrier to support the Pre-Management and Wildfire Resilience Program.
- ✓ The placement into service of replacement self-contained breathing apparatus (SCBA) for all fire suppression employees.
- ✓ Replacement of the Fire District’s records management system that had been in place since 2003. The new record management system integrates the national fire incident reporting system into the same system as the emergency medical patient care reporting system, creating reporting and process efficiencies.
- ✓ Finished execution of the CAD replacement project. Santa Clara County Communications went live with the new Hexagon CAD system on September 12, 2023.
- ✓ The department placed into service three engines, a rescue, and an aerial truck apparatus. Added twelve support vehicles for various divisions, which includes six hybrid utility vehicles.
- ✓ The Redwood Fire Station was completed this fiscal year with firefighters moving in on September 6, 2023.

2024

- ✓ Dell Headquarters was completed. Staff moved into new headquarters on August 5, 2024.
- ✓ Automatic Vehicle Location (AVL) dispatching of fire emergency response units was implemented in August of 2024. AVL implementation allows for the closet unit to an emergency event to be dispatched, regardless of first due.
- ✓ A second deputy fire chief was added to support span of control, high-level organizational oversight and project management.
- ✓ Operations division staff worked with our communications center to implement the "Nurse Navigator Pilot Program". This program allows individuals who call 9-1-1 for medical assistance but do not need an in-person response to be connected to a nurse who is specialty trained to work with patients to determine an appropriate path for treatment and assist in coordinating care.

2025 (running...)

- ✓ In spring of 2025, the Santa Clara County Executive proposed the dissolution of the South Santa Clara County Fire District and reorganization of the Santa Clara County Central Fire Protection District to absorb the land, facilities, and tax base of the former South Santa Clara County Fire District. In March of 2025, the Local Agency Formation Commission approved the request from the South Santa Clara County Fire District to dissolve, and approved the request from the Santa Clara County Central Fire Protection District to reorganize, as proposed above. In April 2025, the Santa Clara County Board of Supervisors approved the creation of "Service Zone 4", which would include all of the land previously encompassing the South Santa Clara County Fire District. On July 1, 2025, the Santa Clara County Fire Department began operations in the newly expanded Zone 4 territory, adding four fire stations and 292 square miles, thus expanding the department's service area from 132 square miles to a total of 424 square miles.
- ✓ The district received its first UAS units to support improved situational awareness and operational capabilities for field operations, incident management, and emergency management personnel.

INTRODUCTION AND METHODOLOGY

In December 1996, the International Association of Fire Chiefs and the International City/County Management Association jointly established the Commission on Fire Accreditation International (CFAI), which is supervised by the Center for Public Safety Excellence (CPSE). CPSE is an accrediting body for fire departments.

The primary objective of the CFAI is to develop a comprehensive system to assist local governments in evaluating risk management, setting performance goals, and integrating long-term strategic planning with the creation of a Standard of Cover (SOC) document. Developing an SOC involves a thorough process that includes assessing community expectations, conducting self-assessments, performing risk analyses, establishing response goals, and developing a performance measurement system that is aligned with the agency's mission, vision, and service delivery expectations.

CPSE defines the SOC as "those written policies and procedures that establish the distribution and concentration of fixed and mobile resources of your agency". This includes all resources dedicated to fire, emergency medical services, hazardous materials, and technical rescue responses. Despite numerous efforts by the fire service to establish national or international consensus on firefighter and paramedic response standards, only a few standards have achieved widespread adoption.

Notably, the National Fire Protection Association (NFPA) 1710: *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments,* has been adopted by several states, but not California. Although many communities theoretically embrace the staffing and response mandates outlined in NFPA 1710, achieving full compliance remains challenging for most agencies.

The Santa Clara County Fire Department (SCCFD, the Department) first initiated a self-assessment process in 2004, embarking on its journey toward international accreditation. The Department is committed to maintaining its accredited status and demonstrating its capability to deliver superior service; consequently, SCCFD pledges to submit all required documentation annually to uphold this accreditation.

The three essential components for consideration of initial accredited status are a strategic plan, a Community Risk Assessment and Standards of Cover (CRA-SOC) document, and a self-assessment.

Accreditation milestones for the SCCFD include its initial achievement in 2005, and successful renewals in 2010, 2015, and 2021, demonstrating the Department's ongoing commitment to meeting and exceeding rigorous fire and emergency response standards.

SCCFD presents its 2025 Community Risk Assessment and Standards of Cover (CRA-SOC) analysis for the five years from 2020 to 2024. The CRA-SOC reflects the CPSE's six-step process of systematically evaluating and addressing performance, outlining any recommendations for change and improvement. This report is not intended to stand alone; rather, it should be used in conjunction with the agency's five-year Strategic Plan, and its Self-Assessment Manual (SAM).

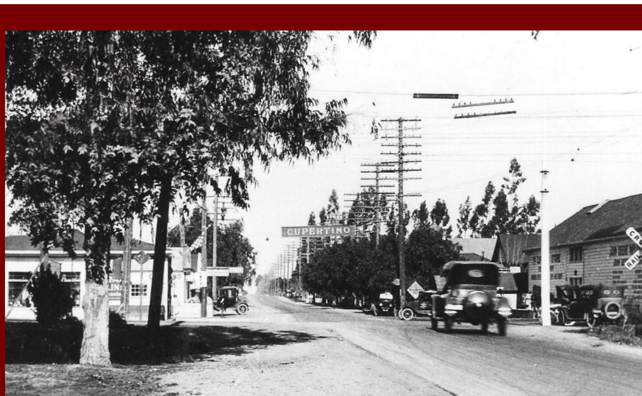
Quantitative risk assessments have been developed in many industries to determine the likelihood and consequences of various events. The fire service as an industry has adopted the routine performance of quantitative risk assessments as part of the quality-improvement process through the leadership and guidance of CPSE. Within its accreditation process, CPSE has established an all-hazards quality-improvement model to ensure that fire and EMS departments continuously seek excellence in service delivery. A cornerstone of this model and self-assessment process is the quantitative risk assessment, which allows departments to logically, systematically, and consistently classify and assess risk throughout their response jurisdictions.

As part of the initiative to assess risk in its service delivery area, SCCFD engaged in a process to analyze and evaluate the probability, consequence, and impact of multiple community hazards. This document serves as the department's primary communication tool with the community and governing bodies, providing a transparent overview of risk, demand, and performance. It presents an all-hazards community risk assessment, reviews historical and emerging service demands, and evaluates past performance to identify trends that inform future planning. In alignment with the Center for Public Safety Excellence (CPSE) model and CFAI guidelines, SCCFD conducted a structured process to analyze the probability, consequence, and impact of a broad range of community hazards. The Community Risk Assessment is organized into two major components. The first component, **Variable Analysis**, examines demographic, geographic, and historical service demand factors to identify patterns and risk drivers. The second component, **Calculated Risk Assessment**, evaluates the likelihood and impact of critical incident types, including structure fires, non-structure fires, emergency medical services (EMS), technical rescue, hazardous materials (HazMat), wildland fires, and both natural and human-caused disasters. Together, these analyses provide the foundation for deployment planning, performance measurement, and continuous improvement in service delivery.

CHARACTERISTICS OF SANTA CLARA COUNTY

Early History

The area known today as Santa Clara County possesses a rich history dating back to the prehistoric presence of the Ohlone Native American population, which archaeologists have dated to approximately 8,000 BCE. The European presence in the Valley commenced when Spanish explorers aimed to expand Spain's territory north into "Alta California" (present-day California) in the mid-1700s. Father Junipero Serra, who established missions throughout California, named the area "Santa Clara" after Saint Clare of Assisi from Italy.



Cupertino crossroads, 1920–1930s

Cali Brothers Cupertino Feed Store, 1930s

California became a state in 1850, following the end of the Mexican-American War in 1848. The Valley became associated with many firsts in the new state. At the time of statehood, Santa Clara County was one of the first counties established in California. San Jose, California's first city, was designated the first official capital of the state.

Growth and affluence in the area surged due to the advantageous combination of a railway running the length of the Valley and agricultural success from the rich soil and temperate climate. Innovations in food preservation and processing, along with the capacity to export via the railway, established agriculture as the primary source of income for the area. Additionally, the region's natural beauty attracted tourists, especially to Saratoga and Los Gatos.

The area attracted wealth, prompting new business owners to build estates in the surrounding hills. The population influx in the area created a demand for suburban housing after World War II. San Jose and other cities in the Valley began to expand and annex the surrounding regions.

Fearing annexation, many of the communities that SCCFD serves today sought to preserve their way of life by incorporating as cities or towns. Following World War II, the need for single-family dwellings overshadowed the agricultural way of life; however, these changes paved the way for new opportunities.

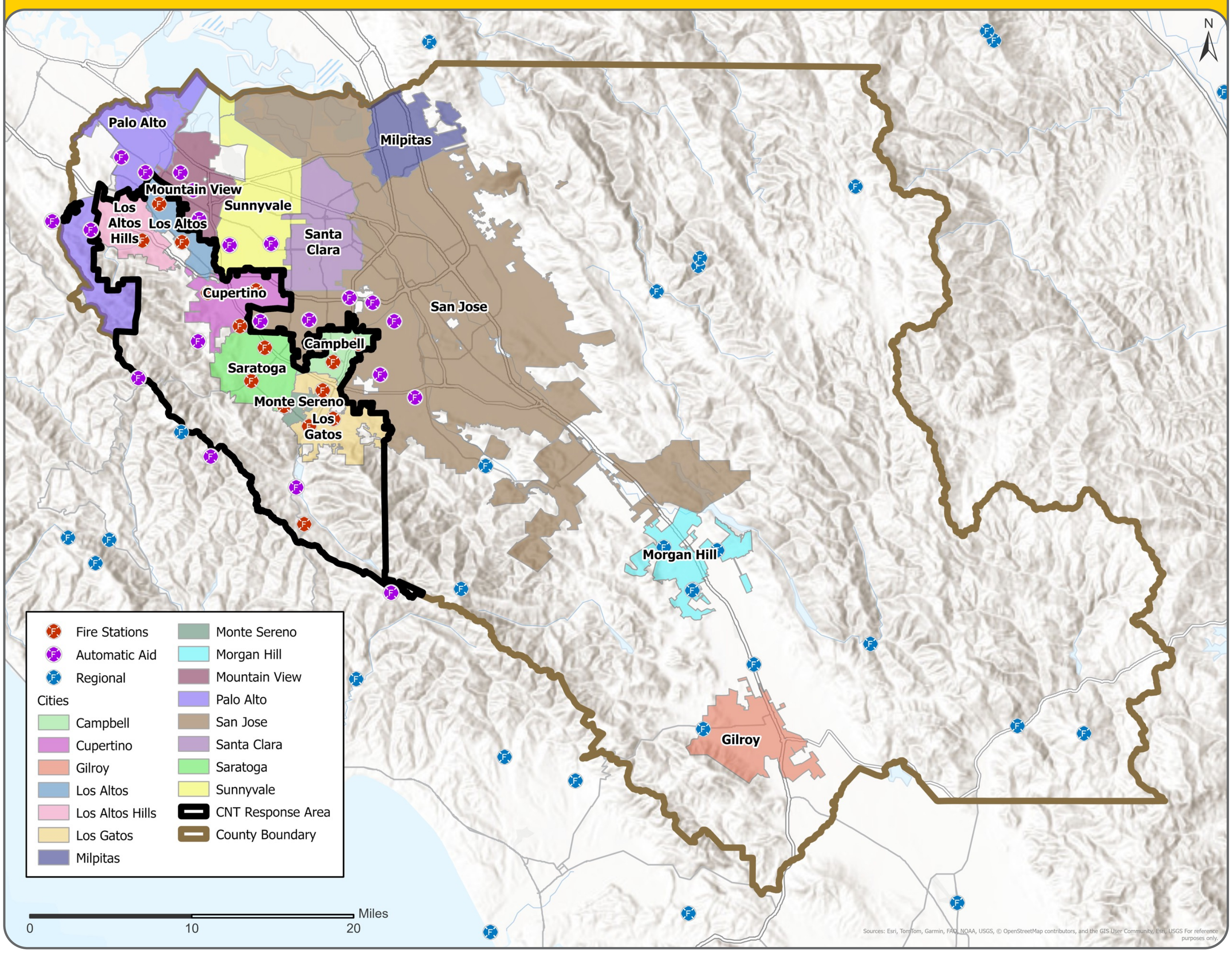
Stanford University in Palo Alto provided a space for collaboration and remarkable innovation. Radio transmission technology gave rise to other technical advancements, which would come to define the region. In 1971, Intel became the first company to successfully use silicon in its microprocessors, and the term “Silicon Valley" was coined. In 1976, the first Apple personal computer was built in Steve Jobs’ garage in Los Altos. Apple was just one of many thriving technology companies that chose to establish their operations in Cupertino.

Over the past century, the Valley has evolved from its rural and agricultural roots into the affluent, technological hub it is today. Although communities in the area share a common history of agricultural wealth and technological innovation, it is important to recognize that each of the eight cities, towns, and unincorporated areas served by SCCFD has its own unique history, character, and values, which contribute to its distinct identity.

Santa Clara County Boundaries and Communities

Figure 1 illustrates the boundaries of Santa Clara County and the Cities.

Figure 1: Santa Clara County and City Boundaries



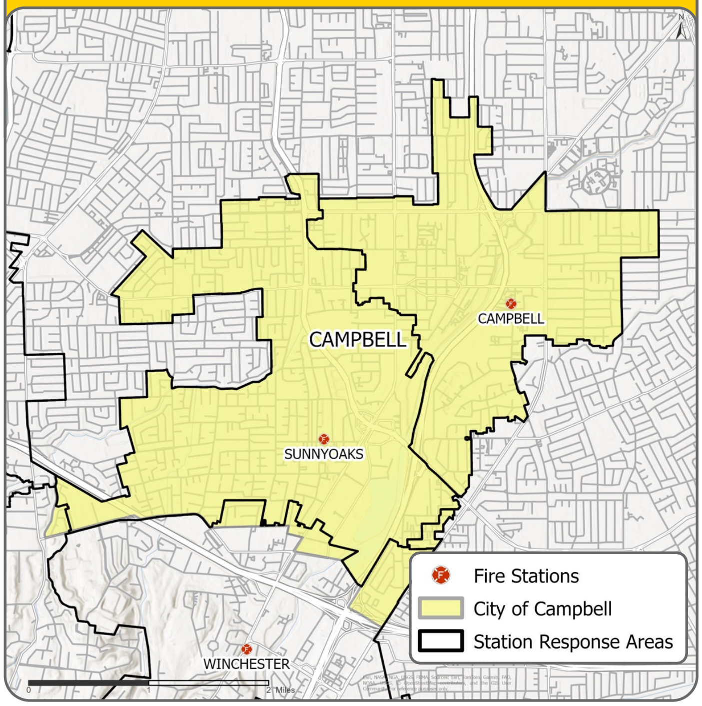
The SCCFD proudly serves the following Santa Clara County communities:

- **City of Campbell**
- **City of Cupertino**
- **City of Monte Sereno**
- **City of Los Altos**
- **City of Saratoga and the Saratoga Fire Protection District**
- **The Lexington Basin and Summit Communities**
- **Town of Los Gatos**
- **Town of Los Altos Hills and the Los Altos Hills County Fire District**

City of Campbell

Founded in 1887 by Benjamin Campbell—the same pioneer who established the sawmill in nearby Saratoga—the City of Campbell grew from humble agricultural roots into a key hub of fruit distribution and regional commerce. In 1878, Campbell sold one acre of land to the Southern Pacific Railroad for just $5. This pivotal decision positioned Campbell as a significant rail stop. It enabled the town to flourish as a center for fruit canning, drying, and shipping during the agricultural heyday of the Santa Clara Valley.

Figure 2: City of Campbell and Fire Stations



Although Campbell was not officially incorporated until 1952, its community institutions took root decades earlier. The Campbell Volunteer Fire Department was established in 1912, marking one of the city's earliest public services. In 1920, the department purchased its first fire engine—a 1913 Model T American LaFrance—demonstrating the city’s early commitment to civic infrastructure and safety.

The city also prides itself on being business-friendly, with a diverse local economy that includes medical offices, professional services, laboratories, and retail centers. Campbell offers a strategic location near Silicon Valley’s tech core, while retaining its small-town character and livability. As of 2025, Zillow® estimates the median home value in Campbell at $1,276,600. **Figure 2** illustrates the demographic profile of the City of Campbell.

The City of Campbell has contracted with SCCFD since 1993. It is home to two stations: the Campbell and Sunnyoaks Stations **(Figure 2)**. The current 10-year contract is effective until 2028. Campbell is unique in that it is located in the Valley and has no wildland-urban interface. Challenges to protect the city include high-density housing, a significant number of facilities with HazMat, and Highway 17.

Figure 3: Demographic Profile—City of Campbell

KEY FACTS

43,959	18,385	7,212.8	2.48	17,530	76.3
Total Population	Housing Units	Population Density	Average Household Size	Total Households	Diversity Index

ANNUAL GROWTH RATE

0.78%	6.11%	0.50%
Population	Group Quarters	Households

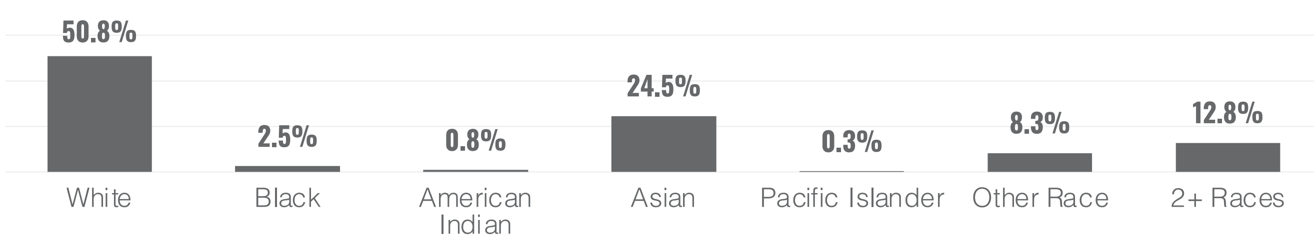
EDUCATION

5.3%	12.1%	19.63%	63.0%
No High School Diploma	High School Graduate	Some College / Associate's Degree	Bachelor's / Grad / Prof Degree

INCOME

$1,276,600	$79,684	$340,338
Median Home Value	Per Capita Income	Median Net Worth

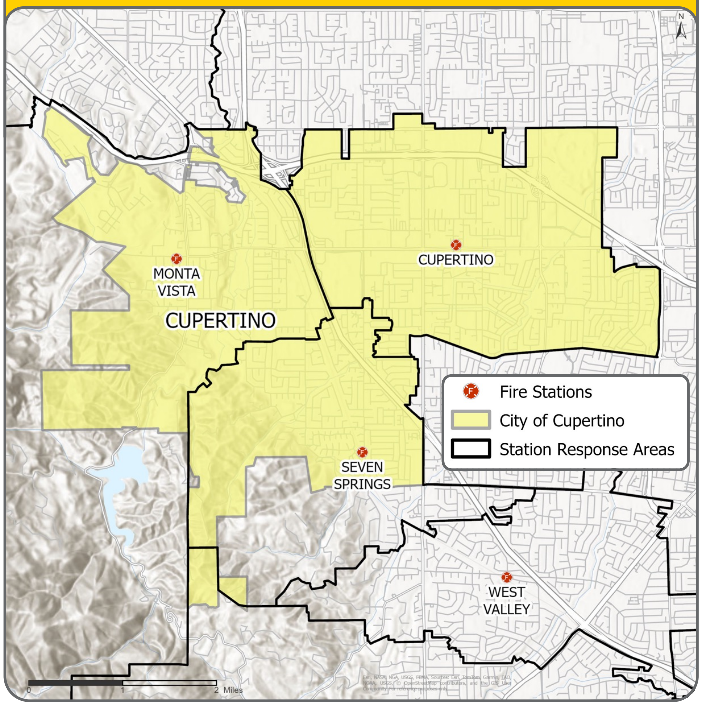
ETHNICITIES



City of Cupertino

The City of Cupertino derives its name from the nearby Stevens Creek, once known as Arroyo San José de Cupertino, named by Spanish explorers. In the 1880s, the Cupertino Wine Company adopted the name, which gradually took root in the community. By 1904, the local post office and general store formalized "Cupertino" as the area's official name.

Figure 4: City of Cupertino and Fire Stations



Initially a quiet agricultural settlement, Cupertino's fertile soil and favorable climate attracted settlers in the late 19th century. Vineyards flourished, making winemaking a primary local industry. However, a destructive blight in the late 1800s destroyed nearly 75% of the grape crops and devastated the wine economy. Residents responded by shifting to orchard farming—particularly apricots, plums, and walnuts—which sustained the region for decades. Remnants of Cupertino's viticultural heritage remain today in the working wineries along Montebello Road, located in the foothills west of the Santa Clara Valley.

Cupertino remained predominantly rural until the post-World War II boom, when returning veterans, industrial growth, and the rise of the technology sector brought rapid population growth and suburban development. Facing pressure from unplanned expansion and annexation by neighboring cities, residents rallied to preserve their community. Their efforts led to Cupertino's official incorporation on October 10, 1955, when it became the 13th city in Santa Clara County.

Today, Cupertino has a population exceeding 60,000 and covers about 11.3 square miles. It is internationally recognized as the headquarters of Apple Inc. As of 2025, the city's median home value is estimated at $2,504,333, according to Zillow®. **Figure 5** illustrates the demographic profile of the City of Cupertino.

Fire protection has been provided to the area since SCCFD was formed in 1947. Cupertino is served by three SCCFD stations: Cupertino, Seven Springs, and Monta Vista **(Figure 4)**. Challenges to protecting the area include two main freeways, I-280 and State Route 85; an extensive wildland-urban interface; and vulnerable wildland areas in the hills, such as the Fremont Older Open Space Preserve, Rancho San Antonio County Park and Open Space Preserve, and Stevens Creek County Park.

Figure 5: Demographic Profile—City of Cupertino

KEY FACTS

60,381	21,701	5,362.8	2.91	20,615	49.6
Total Population	Housing Units	Population Density	Average Household Size	Total Households	Diversity Index

ANNUAL GROWTH RATE

0.32%	–0.26%	0.18%
Population	Group Quarters	Households

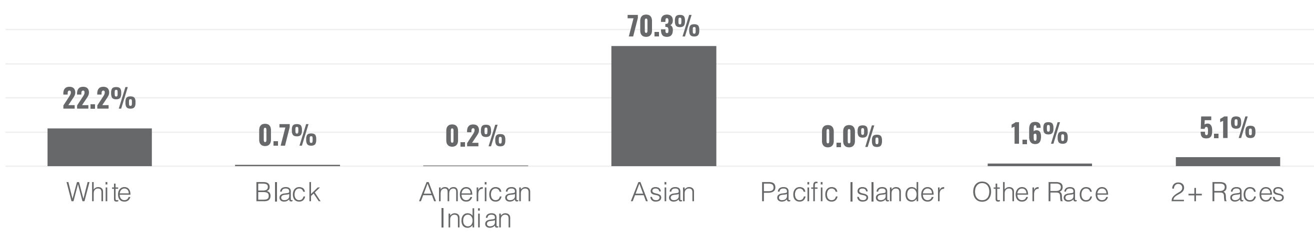
EDUCATION

2.2%	3.9%	10.0%	83.9%
No High School Diploma	High School Graduate	Some College / Associate's Degree	Bachelor's / Grad / Prof Degree

INCOME

$2,504,333	$92,168	$403,336
Median Home Value	Per Capita Income	Median Net Worth

ETHNICITIES



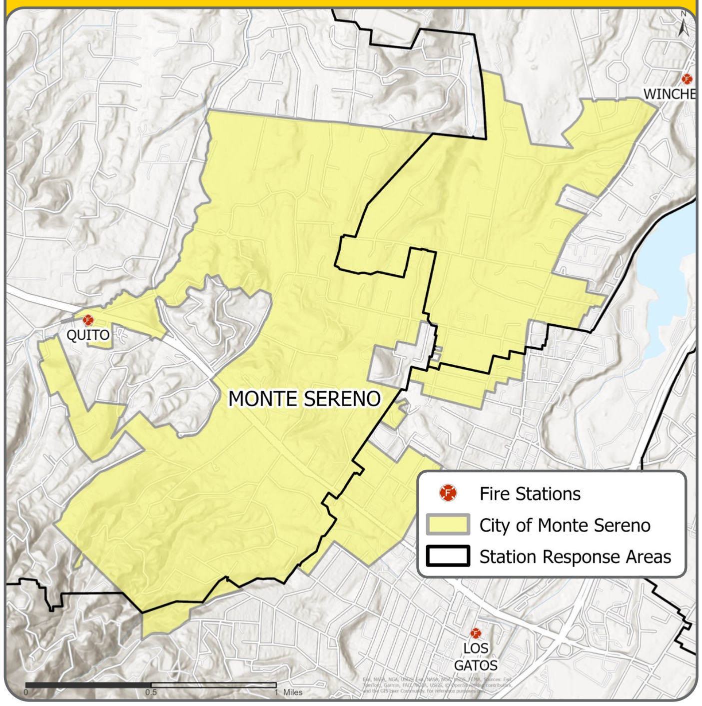
City of Monte Sereno

MONTE SERENO
CALIFORNIA

Nestled against the foothills of the Santa Cruz Mountains, Monte Sereno began taking shape in the early 20th century as a rural agricultural enclave. The area's gently rolling terrain, rich soil, and scenic beauty made it ideal for orchards, dairies, and livestock ranches. Ranch-style homes dotted the hillsides, reflecting a self-sufficient lifestyle rooted in open spaces and agricultural productivity.

As the decades passed, Monte Sereno attracted not only working farmers but also artists, writers, and professionals seeking refuge from the bustle of nearby cities. Summer cottages and estate homes emerged, establishing the city's enduring reputation as a serene, semi-rural retreat. Among its more notable early residents was writer John Steinbeck, who lived and worked in Monte Sereno in the 1930s.

Figure 6: City of Monte Sereno and Fire Stations



By the mid-20th century, the broader Santa Clara Valley was undergoing rapid suburban expansion. Monte Sereno, lacking formal boundaries and local governance, was increasingly vulnerable to annexation by neighboring cities, such as Los Gatos and Saratoga. Concerned about losing their community's character and control over local land use, residents voted to incorporate as an independent city in 1957.

Since its incorporation, Monte Sereno has remained committed to preserving its residential-only character. The city has no commercial zoning and no traffic lights. It maintains strict development standards that emphasize low-density housing, open space, and tree preservation. This deliberate approach to planning has helped Monte Sereno retain a peaceful, small-town atmosphere, despite being surrounded by the energy and growth of Silicon Valley.

Today, Monte Sereno is home to approximately 3,500 residents and covers about 1.6 square miles. Known for its tree-lined streets, estate homes, and proximity to Los Gatos and the Santa Cruz Mountains, it offers a quiet, affluent lifestyle with easy access to outdoor recreation, excellent schools, and regional amenities. As of 2025, the median home value in Monte Sereno is estimated at $4,279,865, according to Zillow®. **Figure 7** illustrates the demographic profile of the City of Monte Sereno.

Monte Sereno has one fire station, Quito Station **(Figure 6)**. The SCCFD has provided protection since the area was originally incorporated into the fire district. Challenges to protecting the area include the wildland urban interface, large homes, and narrow roads that can result in poor emergency access and egress in some mountainous regions.

Figure 7: Demographic Profile—City of Monte Sereno

KEY FACTS

3,479	1,300	2,143.2	2.84	1,223	56.1
Total Population	Housing Units	Population Density	Average Household Size	Total Households	Diversity Index

ANNUAL GROWTH RATE

0.25%	-100.00%	-0.38%
Population	Group Quarters	Households

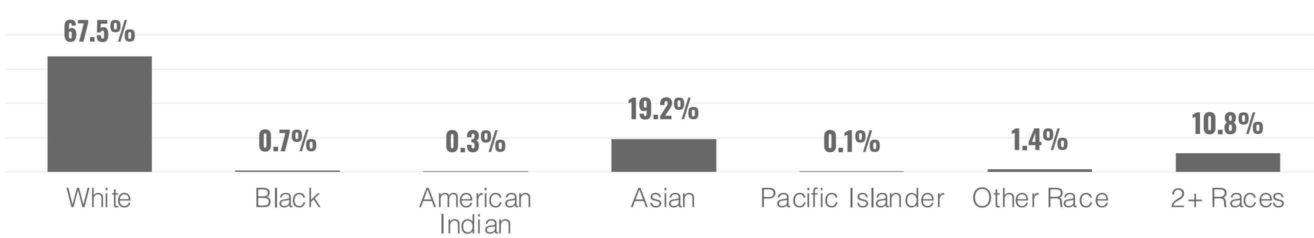
EDUCATION

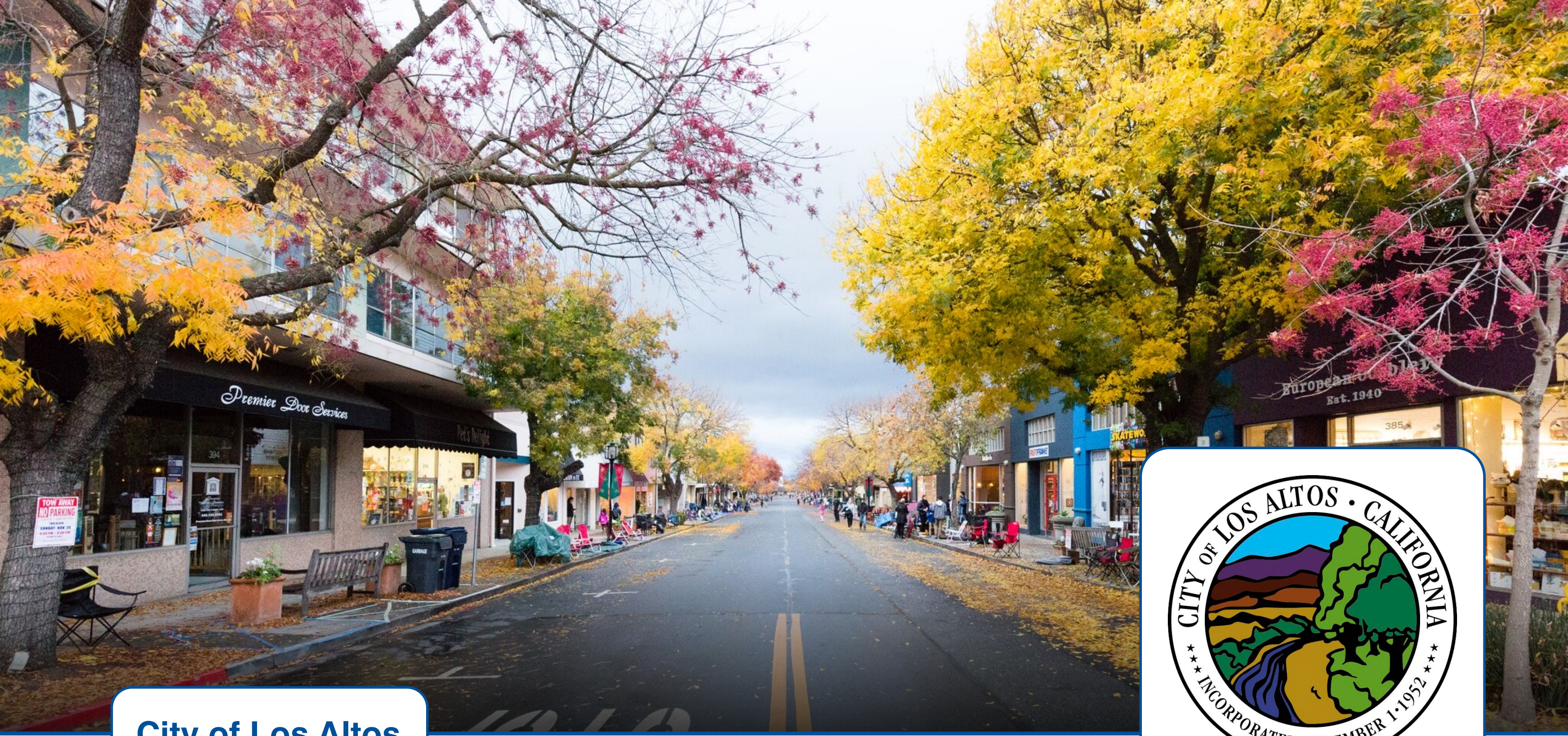
0.8%	3.3%	10.0%	85.8%
No High School Diploma	High School Graduate	Some College / Associate's Degree	Bachelor's / Grad / Prof Degree

INCOME

$4,279,865	$114,333	$1,871,946
Median Home Value	Per Capita Income	Median Net Worth

ETHNICITIES

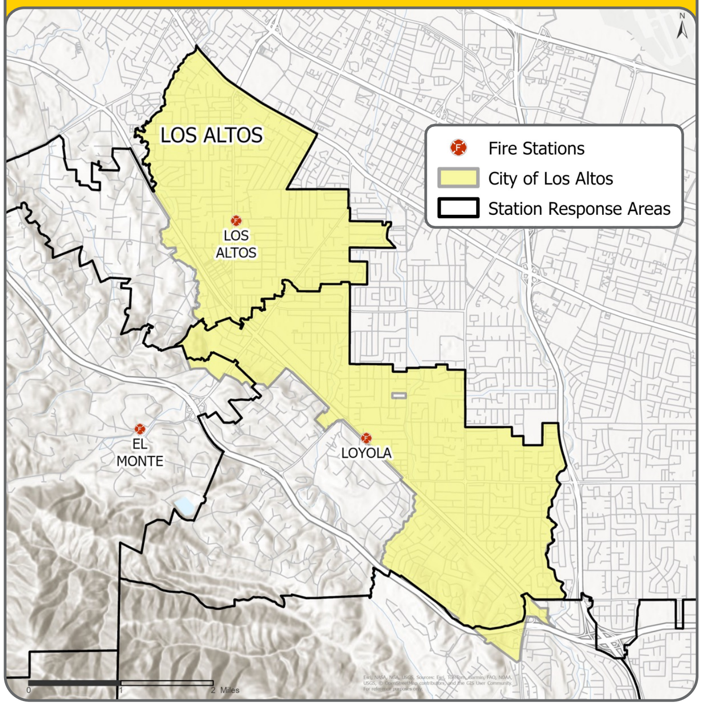




City of Los Altos

The history of Los Altos began in 1906, when a Southern Pacific Railroad executive and his development company purchased 140 acres of land between Palo Alto and Mountain View. Their goal was to establish a new town that would support the railroad's cutoff line between Mayfield (now part of Palo Alto) and Los Gatos. The town was named "Los Altos" (Spanish for "the heights"), in reference to its elevated location at the base of the Santa Cruz Mountains.

Figure 8: City of Los Altos and Fire Stations



Originally envisioned as a commuter suburb with easy rail access, Los Altos remained a quiet rural area until after World War II, when suburban expansion throughout Santa Clara County dramatically increased the population. In response to growing development and a desire for local control, residents voted to incorporate in 1952, making Los Altos the 11th city in Santa Clara County. By the 1960s, rail service was phased out and replaced by Foothill Expressway, which became the city's main north-south artery.

Today, Los Altos covers nearly 7 square miles and is known for its tree-lined streets, spacious residential lots, and highly rated public schools. The city has successfully preserved its small-town charm, while offering access to modern amenities and proximity to major

Silicon Valley employers. The downtown district features boutique shops, cafes, and restaurants, serving as a gathering place for both residents and visitors.

Various architectural styles can be found throughout the city, but ranch-style homes remain the predominant type of housing, contributing to Los Altos' cohesive and low-density character. The city emphasizes residential preservation, green spaces, and quality of life as central pillars of its planning approach. As of 2025, the median home value in Los Altos is estimated at $4,483,305, according to Zillow®. **Figure 9** illustrates the demographic profile of the City of Los Altos.

Los Altos began contracting with SCCFD for service in 1996. The current 10-year contract is in effect until December 31, 2026. There are two fire stations located in the city: The Los Altos and Loyola Stations **(Figure 8)**.

Figure 9: Demographic Profile—City of Los Altos

KEY FACTS

31,625	11,783	4,849.0	2.80	11,162	61.7
Total Population	Housing Units	Population Density	Average Household Size	Total Households	Diversity Index

ANNUAL GROWTH RATE

0.85%	4.14%	0.30%
Population	Group Quarters	Households

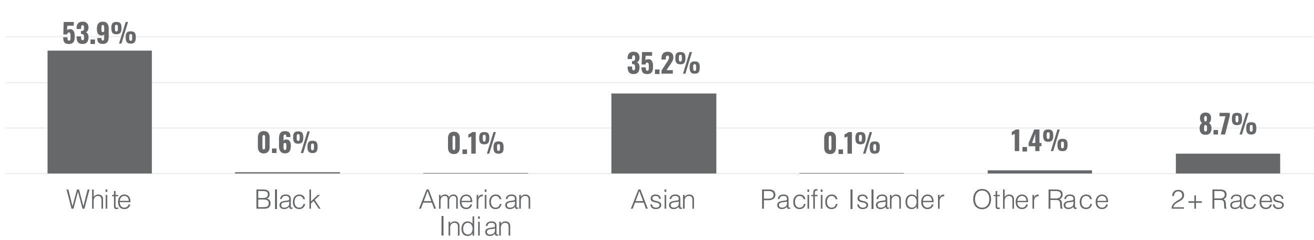
EDUCATION

0.8%	3.5%	8.0%	87.8%
No High School Diploma	High School Graduate	Some College / Associate's Degree	Bachelor's / Grad / Prof Degree

INCOME

$4,483,305	$113,395	$1,512,000
Median Home Value	Per Capita Income	Median Net Worth

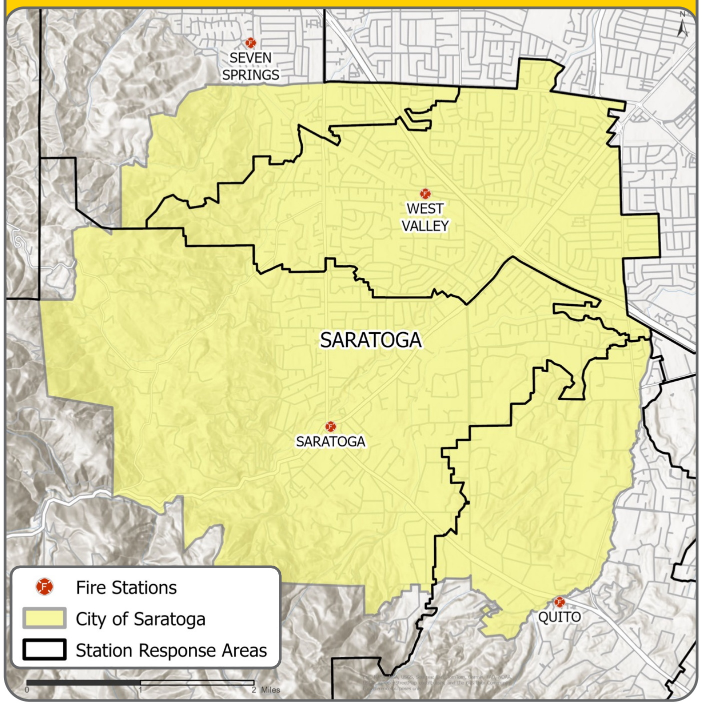
ETHNICITIES



City of Saratoga and the Saratoga Fire District

Saratoga's roots trace back to 1848, when pioneer Benjamin Campbell—also the founder of the nearby City of Campbell—established a sawmill along Saratoga Creek. The mill became a key economic driver for the fledgling settlement, supplying lumber to the fast-growing towns of the Santa Clara Valley. Nestled in the foothills of the Santa Cruz Mountains, the area quickly gained a reputation for its natural beauty and mild climate, drawing settlers in search of opportunity and tranquility.

Figure 10: City of Saratoga and Fire Stations



A defining moment in Saratoga's early identity came in 1860 with the discovery of a mineral spring in the area. Its waters were found to share chemical properties with those of Saratoga Springs, New York, a prominent 19th-century health resort. Capitalizing on this connection, the community officially adopted the name "Saratoga" in 1865. Within a year, the Congress Springs Resort opened, attracting health seekers and affluent visitors from throughout the region. The resort era helped shape Saratoga's emerging image as a destination of quiet luxury and refinement.

As the 20th century unfolded, Saratoga evolved from a rural, agriculture-based settlement into a prestigious residential enclave. Orchards and vineyards gave way to estate homes and landscaped neighborhoods, as business leaders and professionals from the rapidly industrializing Santa Clara Valley chose Saratoga for its charm, exclusivity, and scenery. One of the city's most iconic landmarks, Villa Montalvo, was established in 1912 by U.S. Senator James Phelan. Today, the estate serves as a vibrant cultural center that hosts art exhibits, concerts, and artist residencies, reinforcing Saratoga's ongoing commitment to the arts.

By the 1950s, urban expansion radiating out from San Jose caused Saratoga residents to become concerned about losing their community's autonomy through annexation. In 1956, they voted to incorporate, establishing Saratoga as an independent city with control over its own planning and development.

Today, Saratoga spans 12.78 square miles and is home to approximately 29,000 residents. The city remains known for its quiet, residential character, excellent public schools, and proximity to parks and open spaces. Its blend of historic estates, cultural amenities, and natural beauty make it one of the most desirable communities in the region. According to Zillow®, the estimated median home value in Saratoga in 2025 is $3,891,500. **Figure 11** illustrates the demographic profile of the City of Saratoga.

Long before the city of Saratoga was founded, the Saratoga Fire Protection District existed. Established in 1924, the SFD is an independent special district governed by an elected board of directors. In 1947, the CFPD was formed; at this time, the area northeast of the SFD was annexed into the CFPD's boundaries. The third boundary was created in 1956 when the city of Saratoga was incorporated. The SCCFD, by contract, has provided fire and emergency services for the SFD since 2008.

Figure 11: Demographic Profile—City of Saratoga

KEY FACTS

31,051	11,264	2,429.6	2.85	10,830	58.7
Total Population	Housing Units	Population Density	Average Household Size	Total Households	Diversity Index

ANNUAL GROWTH RATE

0.34%	–2.89%	0.07%
Population	Group Quarters	Households

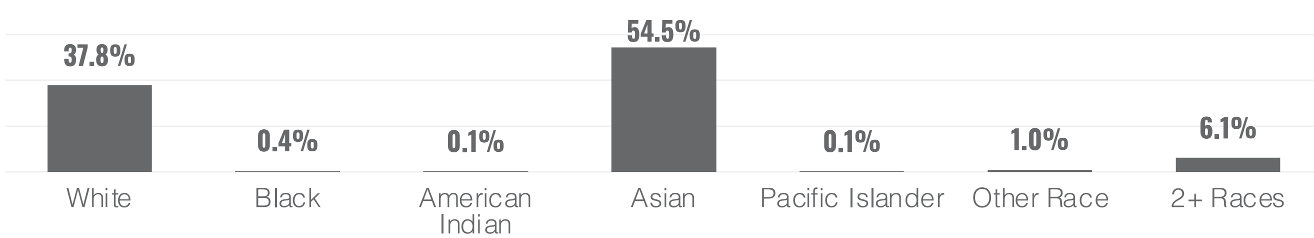
EDUCATION

2.1%	5.7%	10.6%	81.6%
No High School Diploma	High School Graduate	Some College / Associate's Degree	Bachelor's / Grad / Prof Degree

INCOME

$3,891,500	$107,483	$1,743,892
Median Home Value	Per Capita Income	Median Net Worth

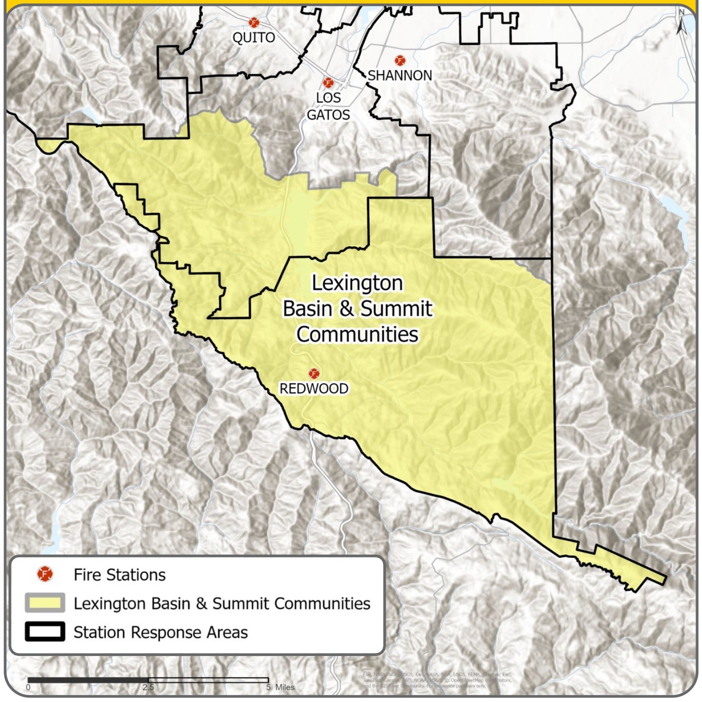
ETHNICITIES



Lexington Basin and Summit Communities

Stretching from the southern edge of Los Gatos to the summit of the Santa Cruz Mountains, the Lexington Basin is a region steeped in history and natural beauty. Nestled among redwood forests and winding mountain terrain, this area was once home to thriving communities built around lumber mills, stagecoach travel, and early railroads. Today, Highway 17 cuts through the basin, carrying more than 66,000 daily commuters "over the hill" between the Santa Clara Valley and the coast.

Figure 12: Lexington Basin and Summit Communities and Fire Stations



Interestingly, beneath the surface of Lexington Reservoir lie the remains of two lost towns, Lexington and Alma. Once bustling settlements in the mid-19th century, these towns served as key hubs in the early economic development of Santa Clara County. Lexington was founded in 1847 and was the site of the county's first sawmill. By the late 1850s, both towns had grown to support populations of roughly 200 residents each and included essential businesses such as hotels, post offices, saloons, blacksmith shops, and multiple redwood sawmills.

A stagecoach road linking the Santa Clara Valley to Santa Cruz passed directly through Alma and Lexington, making them vital waypoints in the region's transportation network. However, the fortunes of both towns began to fade by the 1880s, as the South Pacific Coast

Railroad rerouted traffic away from the basin. Although the railroad carried passengers, lumber, and fruit between Alameda and Santa Cruz in under four hours, it bypassed Lexington altogether.

The final blow came with the construction of Highway 17 in 1940, which bypassed Alma and further accelerated the towns' decline. By 1950, only about 50 families remained in Alma and fewer than a dozen in Lexington.

In 1952, the Santa Clara Valley Water Conservation District completed the Lexington Dam to support the region’s growing postwar water needs. The construction of the reservoir submerged both towns and the historic Santa Cruz Highway beneath 130 feet of water. Today, remnants of these towns—including foundations and roadbeds—occasionally reemerge when water levels drop during periods of drought.

Despite the disappearance of Alma and Lexington, the basin remains a place of quiet resilience. Modern residents live in scattered mountain communities throughout the area, preserving the legacy of those who built lives in these remote hills. The surrounding open space is now home to popular hiking, biking, and equestrian trails that draw outdoor enthusiasts year-round, offering a glimpse into the rugged and storied past of the Lexington Basin. **Figure 13** illustrates the demographic profile of the Lexington Basin.

The Lexington Basin and Summit Communities are home to one SCCFD station: Redwood Station **(Figure 12).** The area experiences a high number of vehicle collisions and technical rescues along the State Highway 17 corridor, has a significant wildland-urban interface, and has access and egress challenges for its residents due to the mountain road infrastructure.

Figure 13: Demographic Profile—The Lexington Basin

1.1%	13.1%	19.1%	66.7%
No High School Diploma	High School Graduate	Some College / Associate's Degree	Bachelor's / Grad / Prof Degree

$ INCOME

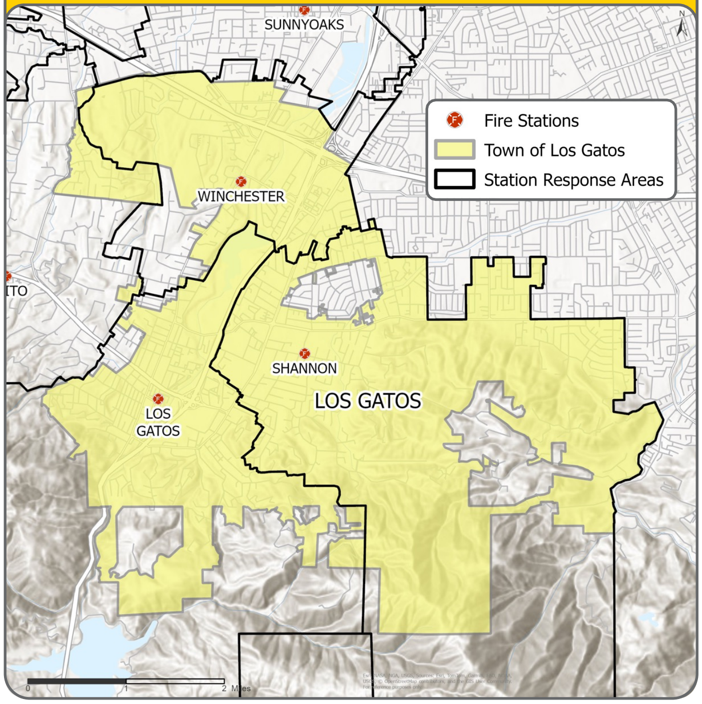
$200,001	$108,710	$1,390,565
Median Household Income	Per Capita Income	Median Net Worth

Town of Los Gatos

Incorporated in 1887, the Town of Los Gatos is one of the oldest municipalities in Santa Clara County. Its early development was spurred by the arrival of the South Pacific Coast Railroad from San Francisco, which connected the community to major economic hubs and helped transform it into a center of trade, agriculture, and tourism.

Los Gatos initially thrived on wheat farming, logging, orchards, and fruit canning—key industries in what was once known as the "Valley of Heart's Delight." The town's natural beauty and location at the base of the Santa Cruz Mountains soon attracted artists, writers, and San Francisco residents seeking a scenic retreat. Its name—Spanish for "The Cats"—was inspired by the mountain lions and bobcats that once roamed the nearby hills.

Figure 14: Town of Los Gatos and Fire Stations



Throughout the 20th century, Los Gatos gradually transitioned from a rural settlement into a suburban destination known for its walkable downtown, historic architecture, and cultural vibrancy. It gracefully adapted to the evolving economy of Silicon Valley and welcomed new businesses and tech companies, all while preserving its distinctive, small-town charm.

Today, Los Gatos spans approximately 14 square miles and is home to over 33,500 residents. The town features a balanced mix of residential neighborhoods, boutique commercial areas, and light industrial zones. Its economy benefits from both a thriving tourism sector and its role as the headquarters for major companies such as Netflix. **Figure 15** illustrates the demographic profile of the Town of Los Gatos.

With a strong sense of community, high-performing schools, extensive parks and open spaces, and ongoing investment in its historic core, Los Gatos continues to reflect a blend of heritage and innovation. As of 2025, the median home value is estimated at $2,611,084, according to Zillow®.

Los Gatos joined the SCCFD in 1970, after the Santa Clara County Board of Supervisors conducted a study on fire protection in the region and determined that the services provided by the CFPD, or SCCFD, would be more cost-effective.

Los Gatos is home to three stations within its town limits: the Los Gatos, Winchester, and Shannon Stations **(Figure 14)**. Challenges for protection include the Highway 17 corridor, which runs through the Santa Cruz Mountains, significant wildland-urban interface areas, and emergency access in and out of the Lexington Basin and Summit Communities.

Figure 15: Demographic Profile—Town of Los Gatos

KEY FACTS

33,600	**13,839**	**2,881.0**	**2.53**	**13,076**	**58.9**
Total Population	Housing Units	Population Density	Average Household Size	Total Households	Diversity Index

ANNUAL GROWTH RATE

0.97%	**3.99%**	**0.32%**
Population	Group Quarters	Households

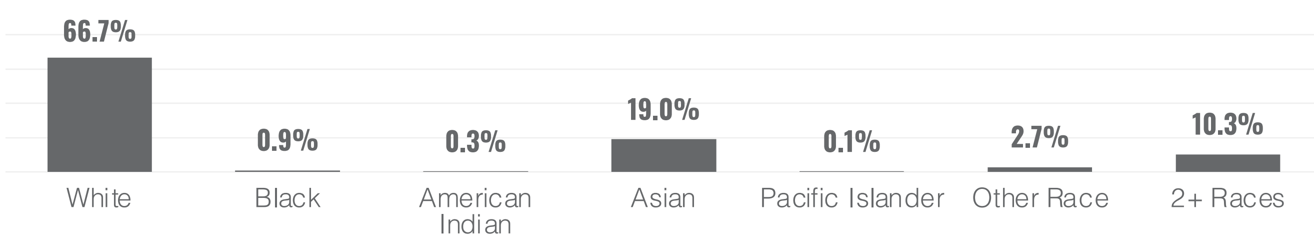
EDUCATION

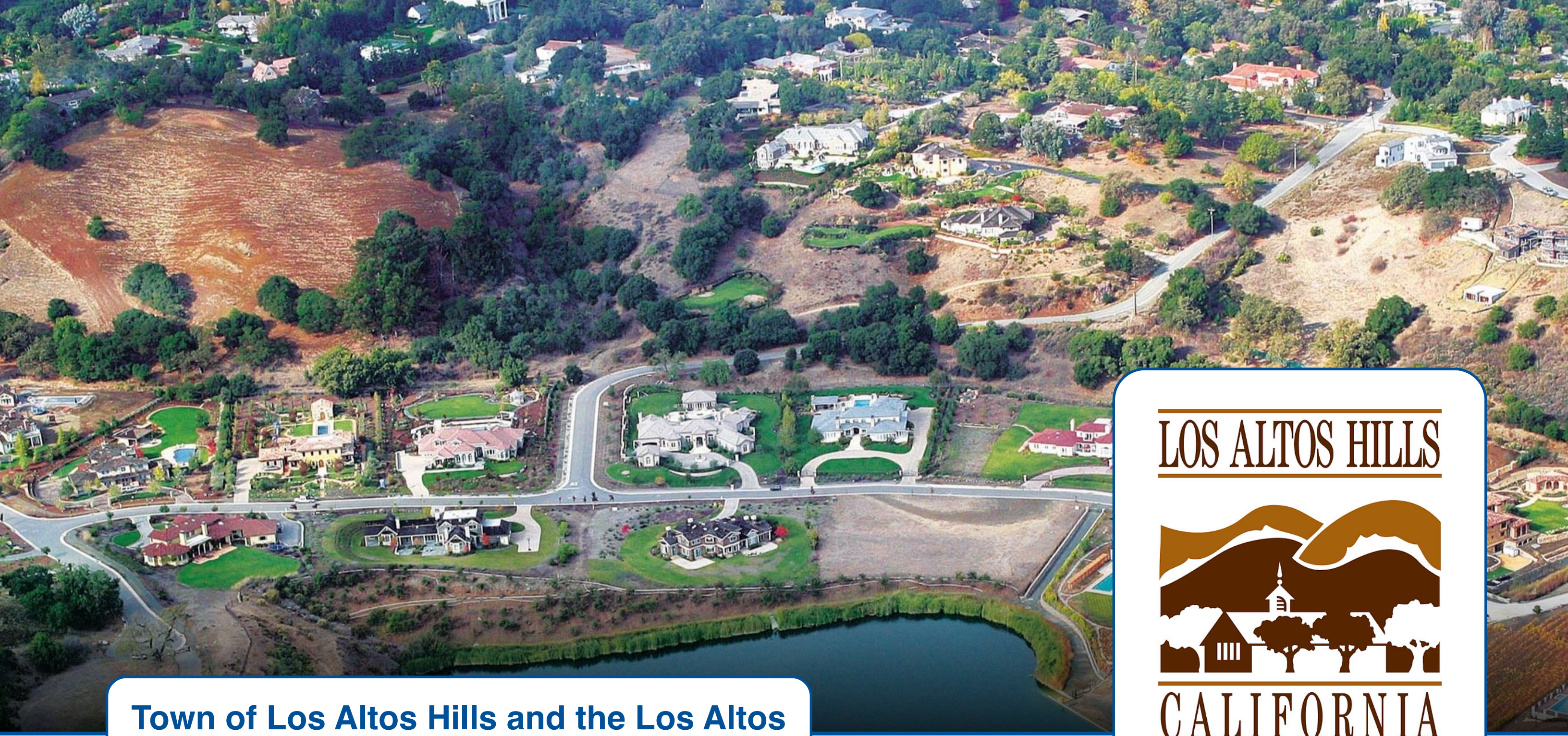
1.9%	**6.3%**	**14.6%**	**77.2%**
No High School Diploma	High School Graduate	Some College / Associate's Degree	Bachelor's / Grad / Prof Degree

INCOME

$2,611,084	**$100,328**	**$1,002,954**
Median Home Value	Per Capita Income	Median Net Worth

ETHNICITIES

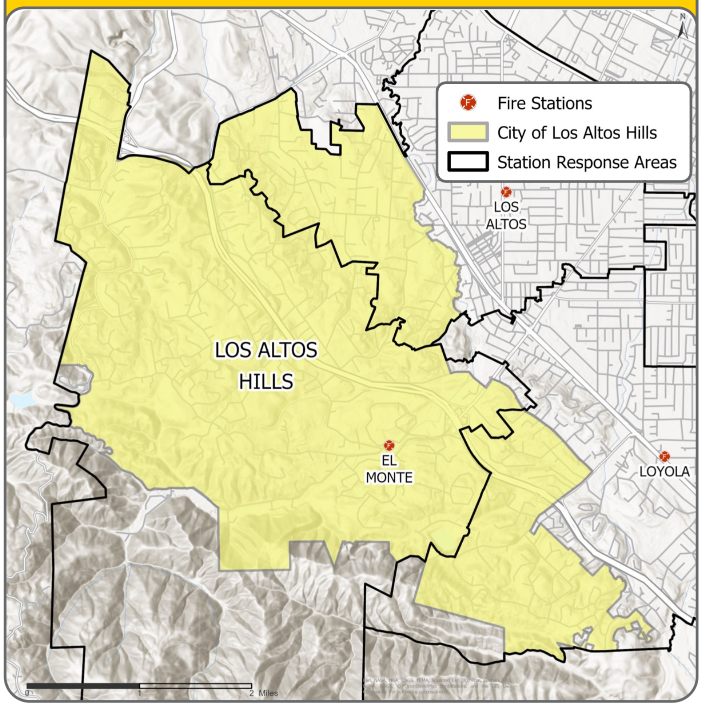




Town of Los Altos Hills and the Los Altos Hills County Fire Protection District

Los Altos Hills was officially incorporated as a town in 1956, the result of a grassroots effort to preserve the area's rural character against the rising threats of development. This original vision of preservation, outlined in the "Green Sheets" document, remains a priority. Instead of sidewalks, the town features a trail system that connects neighborhoods and homeowners to the nature they are passionate about protecting. The city planners wisely designed streets with cul-de-sacs to minimize through traffic. Historic properties with rich histories from the late 1800s continue to hold a prominent place in the community.

Figure 16: Town of Los Altos Hills and Fire Stations



The Westwind Barn, situated among rolling, open hills, hosts numerous community events and offers equestrian programs for residents. The nearby 55-acre Byrne Preserve provides open space for horse riding and hiking. These are just two examples that reflect Los Altos Hills residents' conservation efforts and priorities.

Although preserving the town's rural character has long been a priority, population size, home size, and property values have dramatically increased over the past 60 years. In the 1960s, the average home size was 3,000 square feet; now, some homes exceed 20,000 square feet. Today, Zillow® estimates the median 2025 home value to be $5,971,560. Los Altos Hills comprises about 9 square miles. **Figure 17** illustrates the demographic profile of

Town of Los Altos Hills.

Fire protection in the Town of Los Altos Hills falls under the jurisdiction of the Los Altos Hills County Fire District, a dependent special district established in 1939 by Santa Clara County Board of Supervisors and governed by an appointed Board of Commissioners. The City of Los Altos and the Los Altos Hills County Fire District began contracting with SCCFD for fire service in 1996. The current 10-year contract is effective until December 31, 2026.

The district is home to one station: El Monte Station **(Figure 16)**. Challenges to protect the area include the large, divided Freeway 280, significant wildland urban interface, Foothill Junior College, large homes, and parts of the sprawling, 3,800-acre Rancho San Antonio Preserve, among others.

Figure 17: Demographic Profile—Los Altos Hills

KEY FACTS

31,625	11,783	4,849.0	2.80	11,162	61.7
Total Population	Housing Units	Population Density	Average Household Size	Total Households	Diversity Index

ANNUAL GROWTH RATE

0.85%	4.14%	0.30%
Population	Group Quarters	Households

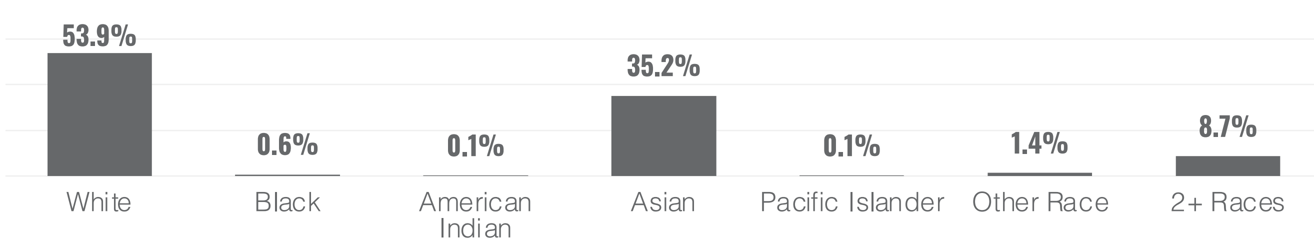
EDUCATION

0.9%	3.2%	8.2%	87.7%
No High School Diploma	High School Graduate	Some College / Associate's Degree	Bachelor's / Grad / Prof Degree

INCOME

$5,971,560	$113,707	$1,633,600
Median Home Value	Per Capita Income	Median Net Worth

ETHNICITIES



SECTION I

ORGANIZATIONAL ASSESSMENT

OVERVIEW OF THE SANTA CLARA COUNTY FIRE DEPARTMENT

History of the Fire Department

The Santa Clara County Fire Department (SCCFD) is an all-risk public safety organization that has evolved through fire district consolidations and city and fire district contracts.

In 1947, two agencies, the Cottage Grove Fire District and Oakmead Farms Fire District, consolidated to form the Santa Clara County Central Fire Protection District (CFPD, also known as the Santa Clara County Fire Department). This consolidation resulted from California Department of Forestry and Fire Protection (CAL FIRE) withdrawing from the Valley floor when its contract with Santa Clara County was terminated in 1947. That same year, an election authorized SCCFD to provide fire suppression services to the unincorporated areas stretching from Highway 9 east across the Valley to Mount Hamilton and south to the Almaden area.


Los Gatos Station, 1950s


Structure Fire, Early 1950s


Structure Fire, 1960s

In the late 1940s, five stations served the largely agricultural areas surrounding the cities. In the 1950s, the district service area expanded to 10 stations. In the 1960s, two stations were built, and three stopped functioning, bringing the total to nine stations in the district. In 1970, SCCFD consolidated with the Burbank Fire District. The Alma Fire District and the Town of Los Gatos were also annexed into the fire district, adding five additional stations.

In 1977, SCCFD contracted with the cities of Campbell, Milpitas, San Jose, and Santa Clara to service portions of the district referred to as "Zone 1." San Jose provided fire protection and services for most unincorporated areas in the eastern part of the CFPD. The development of the city of San Jose essentially split the district geographically; through a mutual agreement, Zone 1 would be served by the City of San Jose Fire Department via a direct tax pass-through, allowing the residents in those areas to be better served based on proximity to San Jose fire resources. Five fire stations and assigned personnel were transferred to San Jose. The “Zone 2” designation remains the intrinsic service area for SCCFD today. The Driftwood location for Department headquarters was purchased in the latter part of the 1970s.

Before 1982, the Santa Clara County Fire Marshal’s Office operated as a Santa Clara County department. Following Proposition 13, this department was eliminated, and the SCCFD established its Fire Prevention Division. In 1987, the fire chief was appointed to serve as the Santa Clara County fire marshal. SCCFD began providing fire marshal services to county facilities and unincorporated county areas via a county contract.

In 1991, SCCFD purchased and occupied a new administrative headquarters on Winchester Boulevard in Los Gatos. Contracts became a more reliable source of revenue to help mitigate fluctuations in property values, with the added benefit of progressing toward a more comprehensive regional resource model.

In 1993, the City of Campbell, followed by Morgan Hill in 1995, and Los Altos and the Los Altos Hills County Fire District in 1996, contracted for fire services with SCCFD. Merging personnel, facilities, and equipment from Campbell, Morgan Hill, and Los Altos into SCCFD made it the second-largest fire agency in Santa Clara County. In 1997, on its 50th anniversary of service, the Department officially adopted the name “Santa Clara County Fire Department” to more accurately reflect the area it served and avoid confusion with agencies with similar names in adjacent counties.

In 2008, following a three-year administrative management agreement, the Saratoga Fire District contracted with SCCFD for services. In September 2010, SCCFD annexed 32,000 acres of an underserved area along the western edge of Santa Clara County into the fire district.

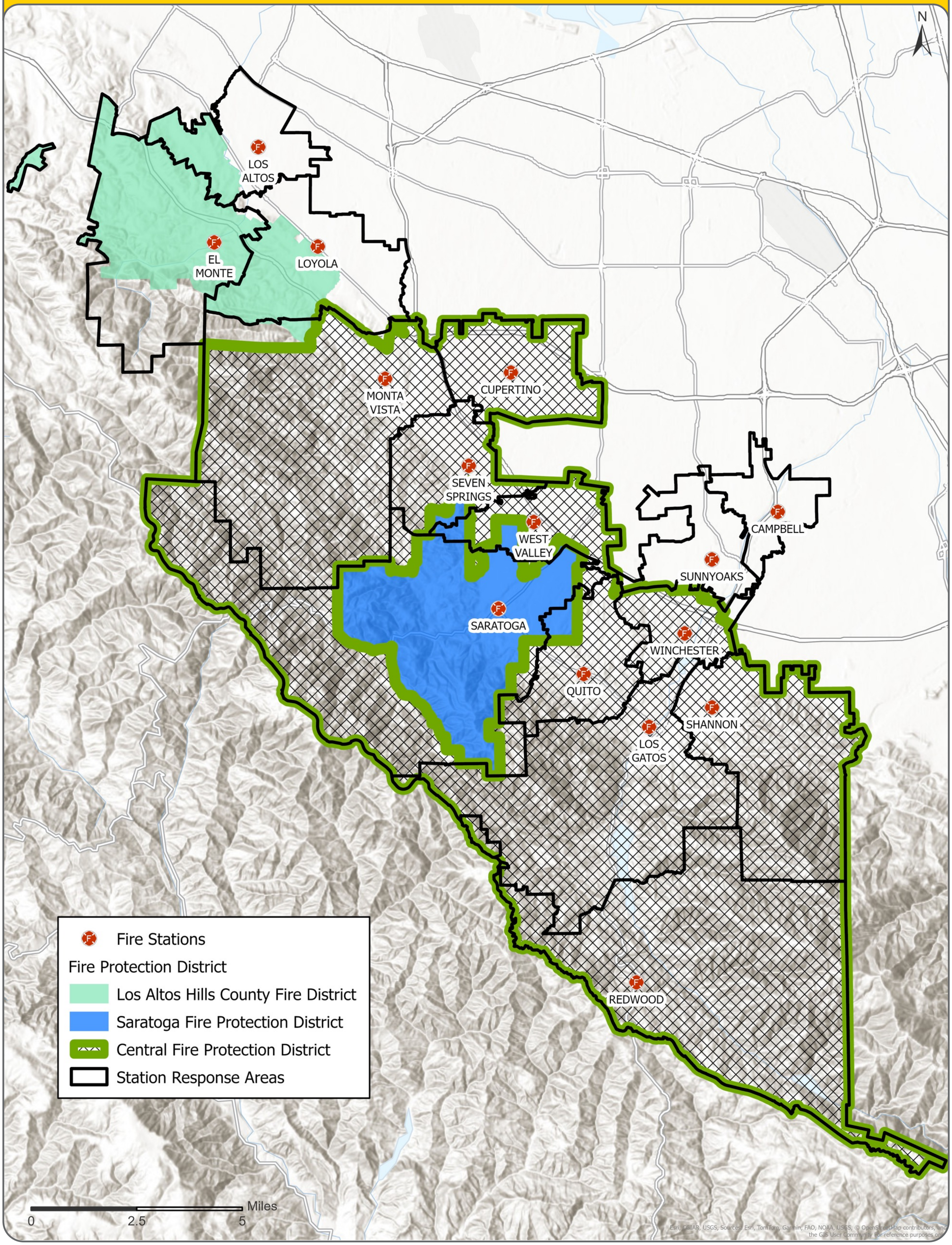
In 2013, the City of Morgan Hill did not renew its contract with SCCFD for services. That same year, Santa Clara County contracted with SCCFD to provide executive leadership at the Office of Emergency Services, which is now known as the Office of Emergency Management (OEM). In late 2017, the county contracted with SCCFD to deliver executive leadership at Santa Clara County 9-1-1 Communications.

In anticipation of a planned retrocession by the federal government, the district in September 2022, created “Service Zone 3” at NASA’s Ames Research Center located at Moffett Field. Moffett Field is a joint civil-military airport located in an unincorporated part of Santa Clara County, California, United States, between northern Mountain View and northern Sunnyvale. Although Service Zone 3 is within the district, SCCFD does not provide services within the area because it is under exclusive and partial federal jurisdiction; therefore, services within the area are provided by the federal government. If the federal government retrocedes the area, the creation of Service Zone 3 would allow the district to equitably allocate the cost of providing services to the property owners without increasing costs or decreasing levels of service in other areas of the district.

In 2024, SCCFD completed construction on and occupied a new administrative headquarters on Dell Avenue, in Campbell, CA.

Figure 18 provides an overview of the SCCFD service area and districts served.

Figure 18: Santa Clara County Fire and Districts Served



Overview of the SCCFD

Up until July 1, 2025, the SCCFD had 15 fire stations that serve a residential population of 225,380, covering approximately 132 square miles (267 square kilometers). The Department includes 340 budgeted positions, comprising both sworn and civilian personnel.

SCCFD is an all-risk fire department that provides fire suppression, including structural, non-structural, and wildland firefighting, technical rescue, emergency medical services (EMS), and hazardous materials (HazMat) mitigation, fire prevention, community emergency response, disaster preparedness, and service responses. The Department's deployment strategy is based on risk across the seven cities, towns, and unincorporated areas that SCCFD serves.

The minimum daily staffing for fire operations includes 66 safety-qualified personnel distributed among three battalions and 15 stations. Fire Administration, fire prevention, and support services staff are all located at the new headquarters in the City of Campbell.

As of July 1, 2025, SCCFD reorganized the fire district through the Local Agency Formation Commission (LAFCO) process, absorbing the service area, fire stations, and equipment of the recently dissolved South Santa Clara County Fire District. The department expanded to include an additional four fire stations, four additional fire companies, and added a safety officer, bringing the total normal daily staffing to 79 personnel.

Additionally, SCCFD provides leadership and staffing for the County Office of Emergency Management and 9-1-1 Communications.

SCCFD Mission, Vision, and Values

MISSION

The Santa Clara County Fire Department exists to protect lives, property, and the environment from fires, emergency incidents, and disasters through preparedness, prevention, education, and emergency response.

VISION

We, the members of the Santa Clara County Fire Department, envision an agency that continues to be widely known as an internationally accredited department that reflects best practices in the delivery of services to our community. Through the pursuit of our goals, we will demonstrate continuous improvement, guided by our values of trust, integrity, respect, and excellence.

Through our workforce development and training initiatives, we will invest in our greatest organizational assets, our members, ensuring they are appropriately staffed and professionally developed and trained. Our enhanced internal communications processes will strengthen our unit integrity.

Our focus on our communities through greater preparedness and education systems, supported by quality external communications systems, will further prove our support for those we serve. Through our improved fire-prevention program, our communities will thrive with a greater focus on safety.

We will foster continuous improvement through infrastructure solutions to further support our delivery to the community. This will be accomplished while focusing on sustainability and responsibility.

We will realize individual and department excellence as we hold one another accountable for fulfilling our mission, living our values, accomplishing our goals, and ensuring this vision becomes reality.

VALUES

TRUST

- Advocate collaborative relationships.
- Maintain community through reliable, professional behaviors and open communication.
- Foster effective teamwork environments.

INTEGRITY

- Maintain the highest level of ethical standards.
- Exhibit prudent use of public resources.

RESPECT

- Honor diversity in the workforce and the communities we serve.
- Appreciate individual and inherent differences.

EXCELLENCE

- Provide outstanding customer service.
- Execute timely service delivery.
- Promote professional standards.

Description of the Communities Served

SCCFD serves the following communities in Santa Clara County:

- City of Campbell
- City of Cupertino
- City of Monte Sereno
- City of Los Altos
- City of Saratoga and the Saratoga Fire Protection District
- The Lexington Basin and Summit Communities
- Town of Los Gatos
- Town of Los Altos Hills and the Los Altos Hills County Fire Protection District

It is important to recognize that each city and town served has its own unique history and needs. SCCFD strives to provide a consistently high level of service, while honoring the diversity inherent in serving multiple communities.

Governance & Lines of Authority

SCCFD is a "Special Fire Protection District" formed under California Health and Safety Code, Sections 13800–13806, which empowers SCCFD to provide fire protection, technical rescue, EMS, HazMat emergency response, and other services related to the protection of lives and property.

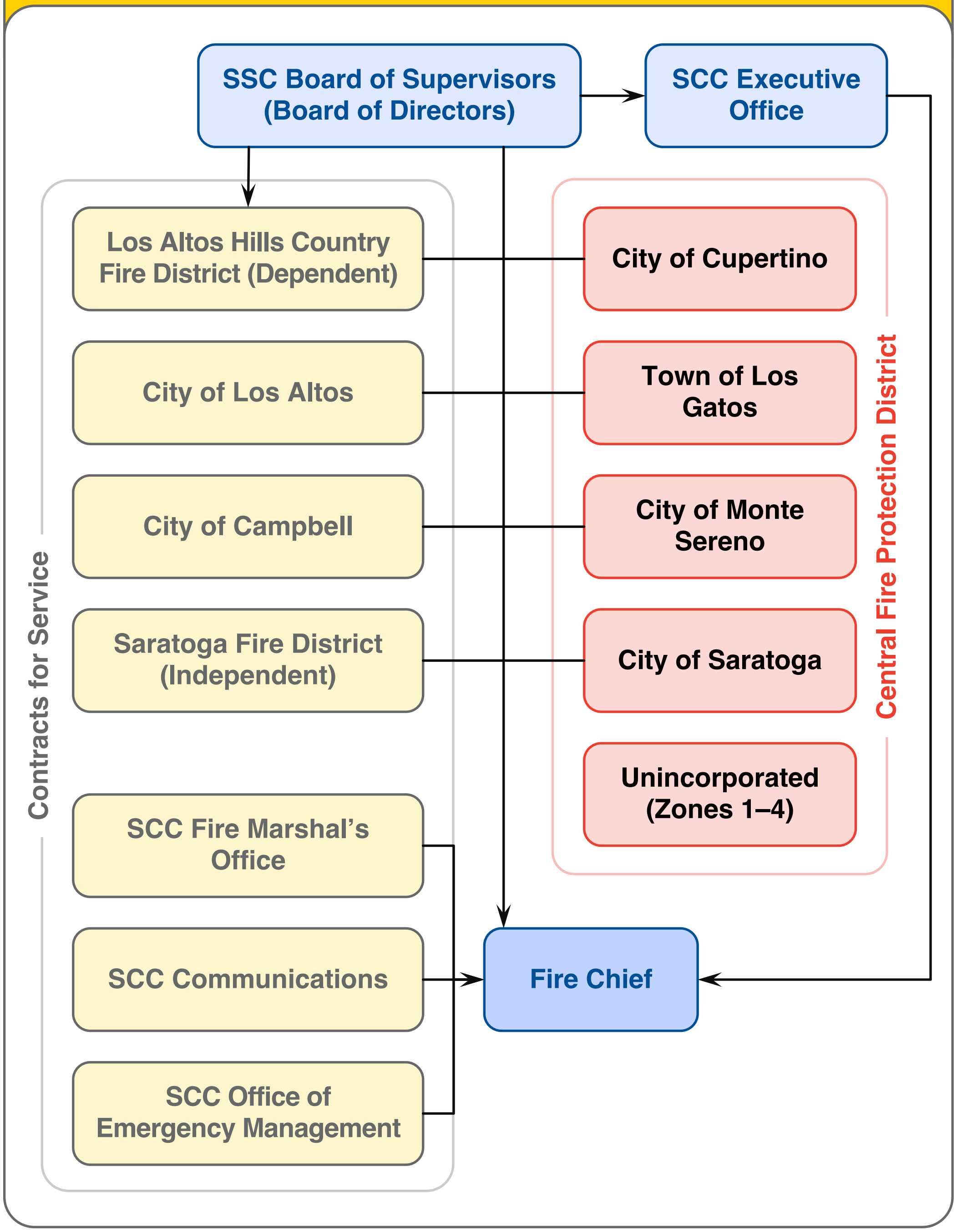
SCCFD's authority is granted by the California Health and Safety Code, Div. 12, Part 2.7, of the Fire Protection District Law of 1987, also known as the Bergeson Fire District Law. The Santa Clara County Board of Supervisors sits as the SCCFD Board of Directors and governs SCCFD. As such, SCCFD is classified as a dependent district.

Section 13950 of the same authority permits a district's board to establish service zones, enabling the district to offer varying services, levels of service, or revenue streams to best meet the needs of specific areas within the community. During the assessment period, the SCCFD service area was divided into three service zones. At the time of publication, the district had reorganized (July 1, 2025), and added a fourth service zone.

The Board of Supervisors appoints the fire chief and is responsible for properly administering all affairs of SCCFD. As the district's chief executive officer, the fire chief supervises, directs, and coordinates the various functions and divisions of the organization. The fire chief prepares the budget for the Board's consideration and makes reports and recommendations as needed.

Figure 19 illustrates the relationships among the Board of Directors, Santa Clara County Executive Office, the Central Fire Protection District, and other contracts for service.

Figure 19: Relationships Between Santa Clara County Agencies



Santa Clara County contracts with SCCFD to provide **(Figure 20)**:

- County fire marshal services, thereby designating the fire chief as the county's fire marshal
- Executive leadership inclusive of a director and deputy director at the OEM
- Executive leadership inclusive of a director and deputy director at County 9-1-1 Communications

SANTA CLARA BOARD OF SUPERVISORS

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Board Vice President
District 1

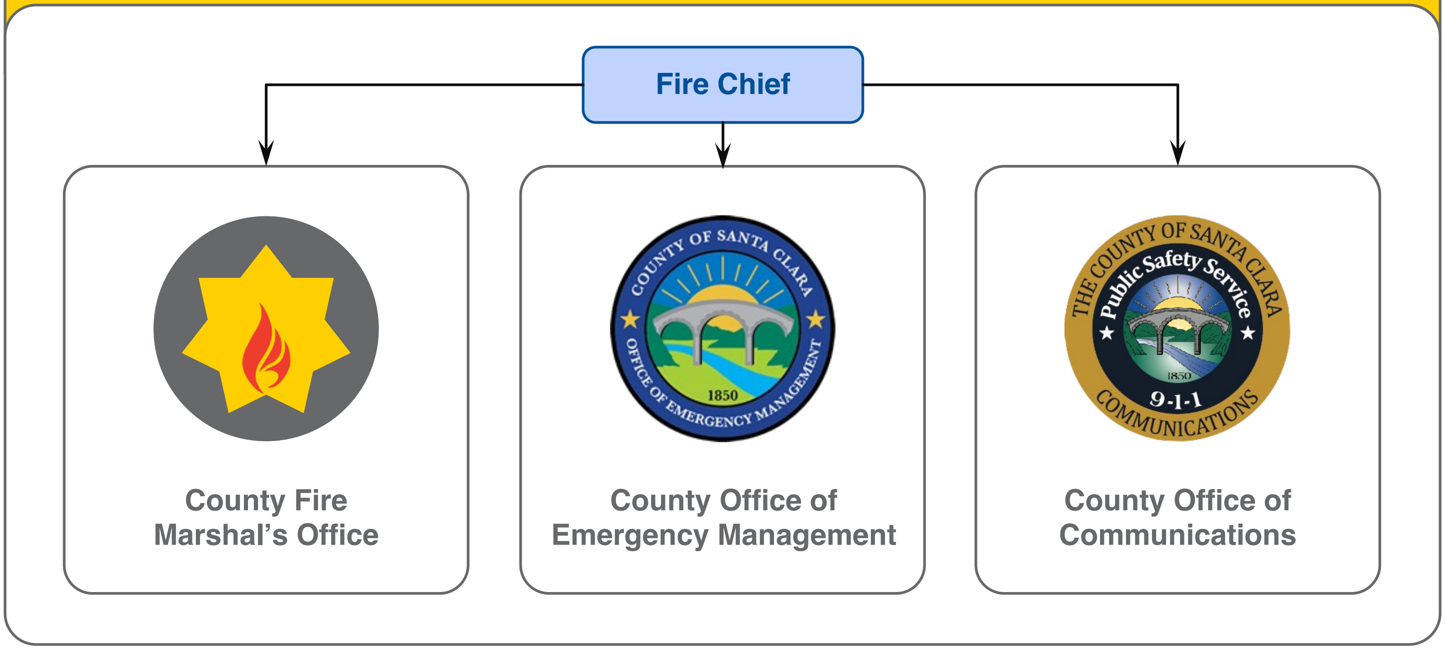
Betty Duong
District 2

Otto Lee
Board President
District 3

Susan Ellenberg
District 4

Margaret Abe-Koga
District 5

Figure 20: SCCFD Fire Chief Relationship with Other Country Departments



In addition, the fire chief reports to three elected bodies and one appointed commission through contracted services: Los Altos County Fire District, Saratoga Fire District, City of Campbell, and City of of Los Altos.

The Los Altos Hills County Fire District is overseen by an appointed, seven-member commission of citizens who represent the various areas of the district. At least two commission members must reside within the covered unincorporated county. The elected Santa Clara County Board of Supervisor from District 5 makes the appointments, which are approved by the full County Board of Supervisors. Commissioners serve four-year terms.

Saratoga Fire District is an independent district. Residents elect three at-large board members. Terms are four years, with no term limits; members can serve indefinitely.

The City of Campbell has a mayor, a vice mayor, and three council members, all of whom serve four-year terms with a limit of two consecutive terms. The City of Los Altos has a mayor, a vice mayor, and three council members. These officials serve four-year terms with a limit of two consecutive terms.

Organizational Staffing by Division

SCCFD is structured around eight distinct service divisions: fire prevention, administration and planning, operations, training, support services, business services, information technology, and personnel services. In addition, the department provides executive leadership for the Office of Emergency Management and the County Office of 9-1-1 Communications. **Figure 21** shows the Department's 2025 Organizational Chart.

Figure 21: SCCFD Organizational Chart, July, 2025

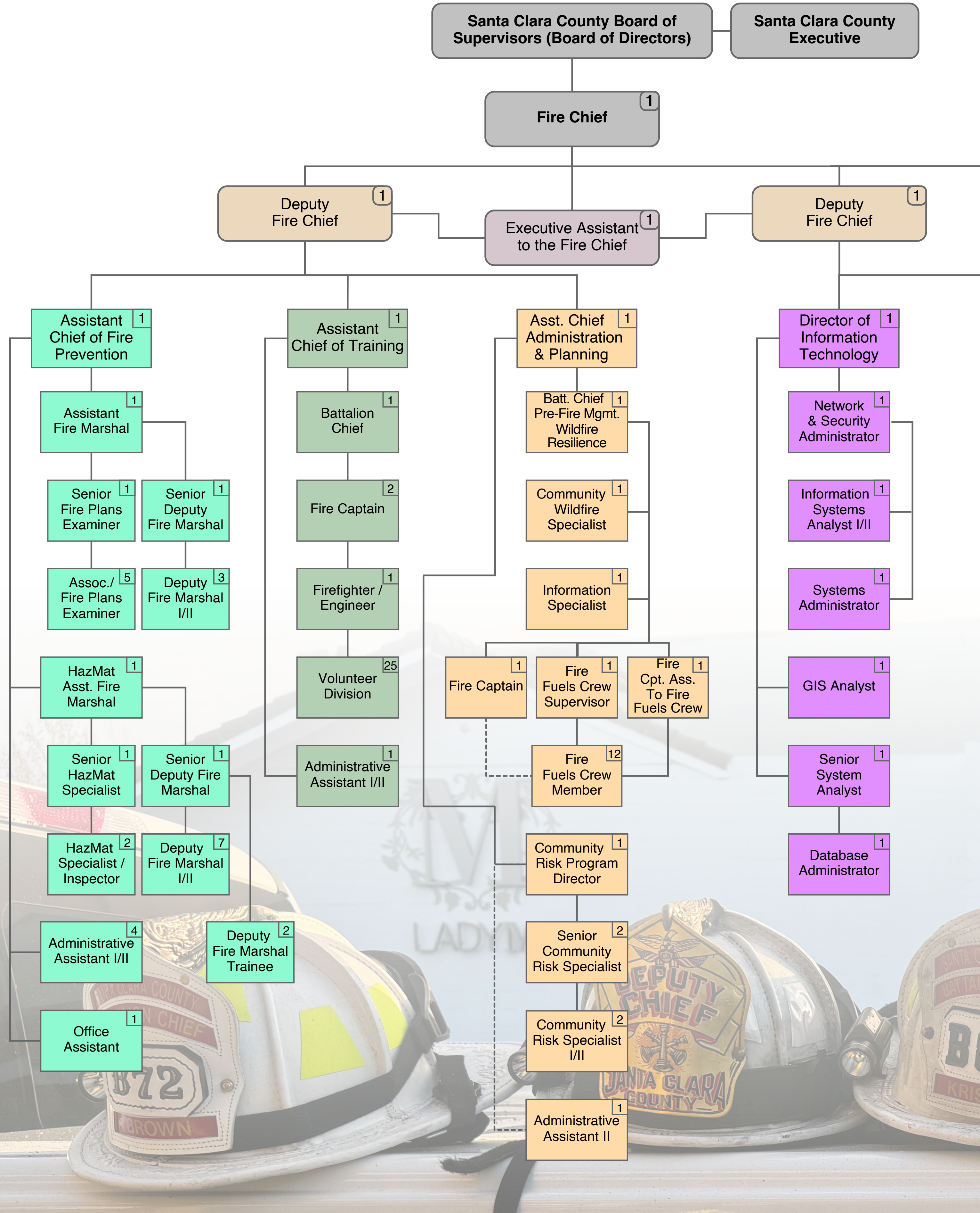
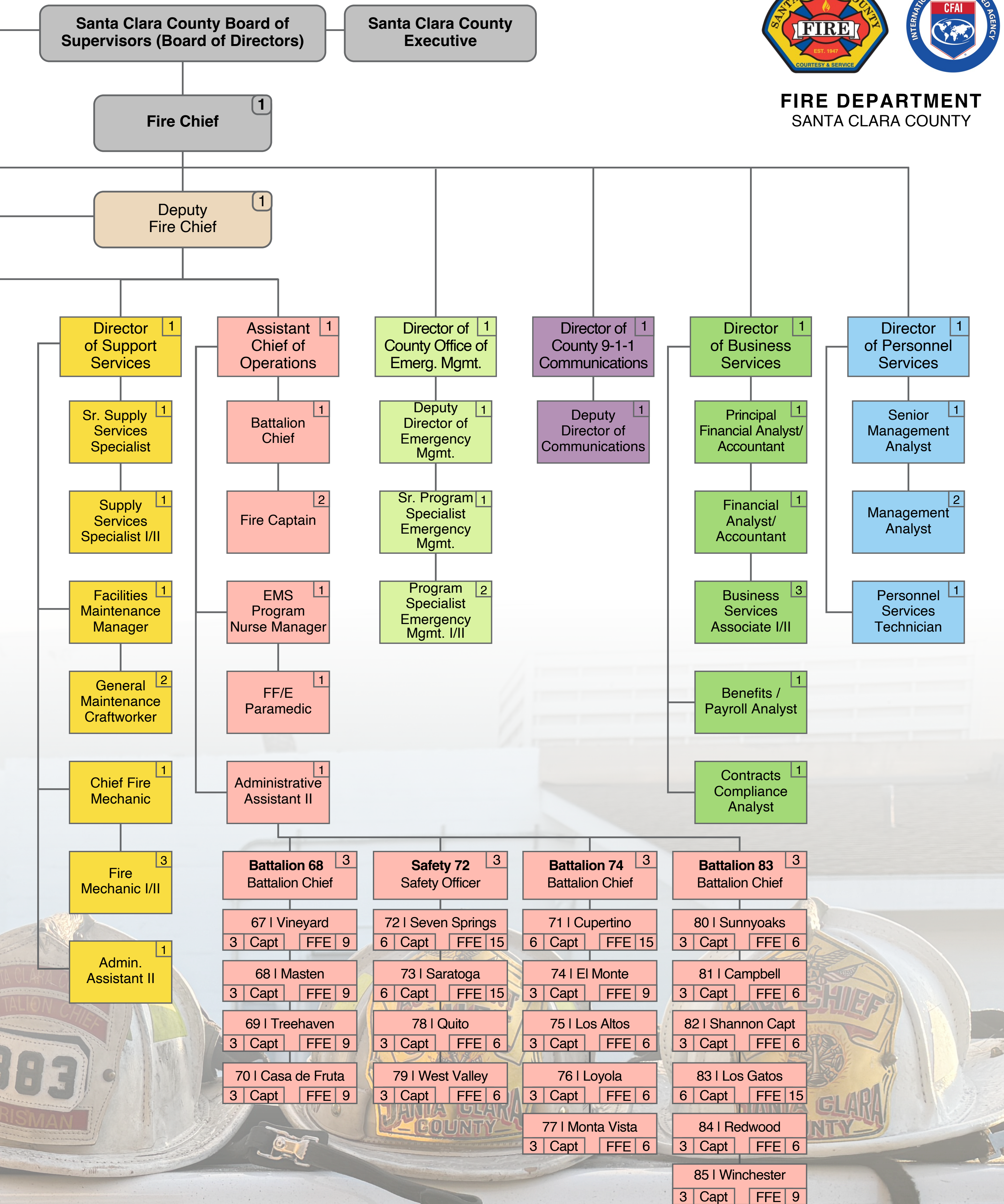


Figure 21: SCCFD Organizational Chart, July, 2025



The **Fire Prevention Division** provides inspection and code enforcement services to ensure compliance with applicable fire and life safety codes and HazMat regulations. The Fire Prevention Division provides contracted county fire marshal services, SCCFD operational area fire-inspection services, code enforcement, and fire investigation services.

The **Administration and Planning Division** oversees processes such as strategic planning, CFAI accreditation, providing public information and community education, risk-reduction services, and engaging in pre-fire management and community wildfire resilience. Community education programs provide the opportunity to educate adults and children about fire safety and injury prevention.

The **Operations Division** coordinates resources for EMS and fire suppression response, including personnel resources at the fire stations, special assignments, and the special operations task force.

The **Training Division** coordinates all department training, delivers training to safety-qualified career and volunteer personnel, manages the volunteer firefighter program, assists in recruitment and promotional testing processes, and oversees the Department's health and safety program.

The **Support Services Division** coordinates repairing and replacing facilities, apparatus, and communications; purchasing and delivering supplies; and supervising outside contractors.

The **Business Services Division** directs SCCFD's finance, procurement, accounting programs, employee benefits, and risk management.

The **Information Technology Division** strategically plans, implements, and maintains mission-critical technology infrastructure. This includes designing and maintaining core network architecture, virtualized server environments, and integrated cloud-based platforms. The division is responsible for ensuring that critical infrastructure, hardware, and software are operational, including during disaster situations.

The **Personnel Services Division** directs SCCFD's recruitment and selection program, oversees employee and labor relations, and provides representation in labor negotiations.

The **Office of Emergency Management** ensures the readiness of Santa Clara County's comprehensive emergency management program by developing, implementing, and maintaining critical information-sharing procedures, platforms, and equipment. The OEM maintains the county's local hazard mitigation and other plans. Under County Fire leadership, OEM also supports fire, law enforcement, and EMS during emergencies and disasters and facilitates training opportunities for public agency personnel who are responsible for assisting during real-time emergencies.

FINANCIAL OVERVIEW

This section of the report provides an overview of the financial aspects of the SCCFD, a component unit of the County of Santa Clara (County), California, and reviews the five-year period from fiscal years (FYs) ending June 30, 2020, to June 30, 2024. The SCCFD primarily utilizes the general fund for operating revenues and expenditures. The general fund was the only governmental fund until SCCFD added a capital projects fund starting in FY 2019–2020 to track major capital projects.

The major sources of revenue for SCCFD are property taxes and fire service agreements for the jurisdictions served (cities, towns, unincorporated county, and fire districts) of Campbell, Cupertino, Los Altos, Los Altos Hills, Los Gatos, Monte Sereno, and Saratoga for the fire protection, emergency services, and other services SCCFD provides to those communities.

A summary of governmental (general and capital projects funds) revenues during the five-year period is outlined in **Table 1**.

Table 1: SCCFD Revenue Sources (in Thousands), FYs 2020–2024

Revenue Sources	FY 2019–2020	FY 2020–2021	FY 2021–2022	FY 2022–2023	FY 2023–2024
Property taxes	$90,765	$95,366	$98,351	$108,531	$113,245
Licenses and permits	$617	$573	$544	$496	$559
Intergovernmental	$6,331	$8,166	$7,955	$1,945	$2,277
Use of money and property	$1,034	$635	$578	$1,885	$2,687
Charges for services	$33,890	$35,664	$37,169	$39,128	$40,816
Miscellaneous revenues	$1,487	$1,726	$1,426	$1,363	$1,401
TOTAL REVENUES	**$134,124**	**$142,130**	**$146,023**	**$153,348**	**$160,985**

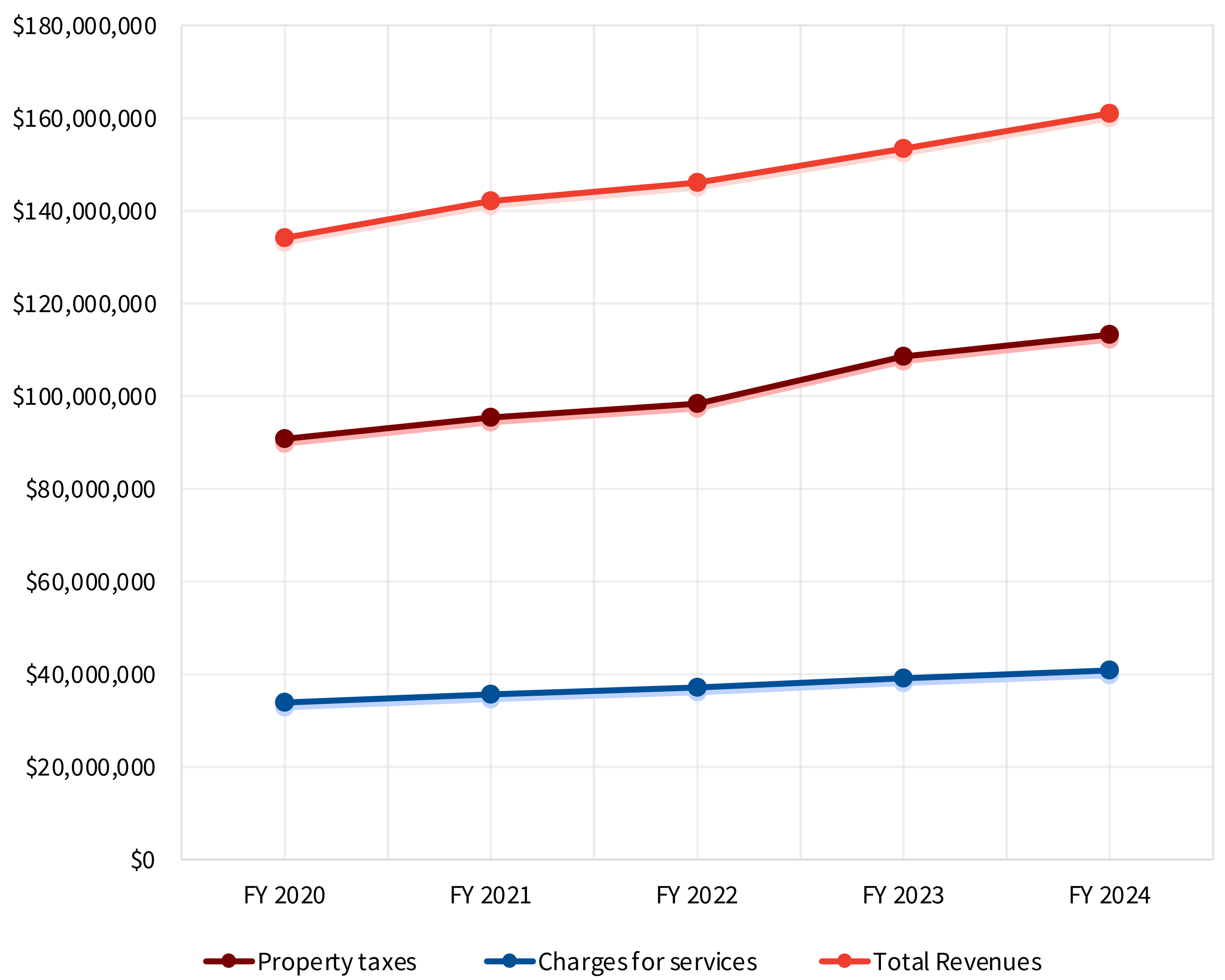
Property taxes were the primary source of revenue for the SCCFD and comprised approximately 70% of total revenues during the five-year period. The annual growth in property taxes ranged from 3.1% to 10.4%. The cumulative growth in property taxes was 23%, or an average of 6% annually.

The change in intergovernmental revenues in FY 2022–2023 from the prior year is related to federal and state funding received in FY 2021–2022, including American Rescue Plan Act funds, which were not received in FY 2022–2023.

Charges for services was the other major source of revenue, representing revenues from contracts with cities and towns to provide fire services. Revenues from charges for services comprised approximately 25% of total revenues; this category grew a cumulative total of 19%, or an average of 5% annually. The increase in charges for services was due to the annual cost-of-living increases in the fire and emergency services contracts, with increases ranging between 2% and 6.5%.

There was steady revenue growth in each fiscal year of the five-year period from FY 2019–2020 to FY 2023–2024. In total, revenues grew 19% over the five-year period, or an average of 5% annually, as shown in **Figure 22**.

Figure 22: SCCFD Revenue Growth, FYs 2020–2024



Expenditures

A summary of governmental (general and capital projects funds) expenditures is outlined in **Table 2**.

Table 2: SCCFD Expenditures (in Thousands), FYs 2020–2024

Expenditures	FY 2019–2020	FY 2020–2021	FY 2021–2022	FY 2022–2023	FY 2023–2024
Salaries and benefits	$101,279	$107,039	$113,515	$115,473	$119,908
Services and supplies	$9,724	$9,962	$10,780	$12,886	$13,109
City-provided services	$7,975	$8,162	$8,709	$9,368	$9,952
Other charges	$886	$917	$973	$1,018	$1,030
Capital outlay	$33,024	$5,916	$9,620	$15,366	$9,936
Debt service	-0-	$1,439	$1,436	$1,438	$1,438
TOTAL EXPENDITURES	**$152,888**	**$133,435**	**$145,033**	**$155,549**	**$155,373**

Salaries and benefits were the majority of expenditures, accounting for 77% of total expenditures during FY 2023–2024. The growth in expenditures, excluding capital outlay, over the five-year period was a cumulative 20%, or an average of 5%.

The current labor agreement with International Association of Fire Fighters (IAFF) Local 1165 covers the period of November 29, 2021, to November 9, 2025. During this period, the members received cost-of-living adjustments of 5%, 3%, 3%, and 2.5%. A new labor agreement will need to be negotiated beginning November 9, 2025; at this point, future increases in labor costs are not known.

Capital outlay varied from one FY to the next. The SCCFD had recognized expenditures of $73.9 million in capital outlay during the 5-year period. Major Capital projects and equipment purchases included:

- Completion of construction of the Redwood Fire Station rebuild
- Purchase, design and construction of the new headquarters location
- Initial expenses for design and replacement of the Quito Fire Station
- Replacement of kitchens and bathrooms at several fire stations

- Purchase of:
  - Information technology servers and hardware for the new headquarters site
  - Utility trucks
  - One replacement rescue vehicle
  - SCCFD's first Fire Fuels Crew Carrier to support the Pre-Management and Wildfire Resilience Program
  - Replacement of the self-contained breathing apparatus (SCBA) for all fire suppression employees
  - Three replacement engines
  - One water tender
  - Replacement of 34 cardiac monitors/defibrillators
  - Two Mobile Operations Satellite Emergency Systems (MOSES)
  - Replacement of Hazardous Materials Unit
  - SCCFD's first tractor-drawn aerial tiller truck

In 2020, lease revenue bonds were issued to provide funds to finance or refinance the acquisition of a building in Campbell, California, to be occupied by and used as SCCFD headquarters, to finance or refinance the costs of certain capital improvements, and for costs of issuance of the bonds. Under a sublease agreement, SCCFD is responsible for the annual debt service payments of $1.4 million on the bonds, which mature in 2050.

Fund Balances

A summary of governmental (general and capital projects fund) revenues over expenditures and changes in fund balance is outlined in **Table 3**.

On June 30, 2024, the governmental funds reported an ending fund balance of $94.8 million, an increase of $5.6 million. Of this fund balance, $39 million is committed for major facility replacement, repair, or maintenance; $12.5 million is committed for fire apparatus replacement; $1.5 million is assigned to the capital project fund; and $41.8 million is unassigned fund balance that is available to meet current and future needs.

The general fund is the chief operating fund of the SCCFD. The capital project fund accounts for the SCCFD's major capital projects. As a measure of the general fund's liquidity, it can be useful to compare both unassigned fund balance and total fund balance with total fund expenditures. The general fund's unassigned and total fund balance represent 29% and 64%, respectively, of the total general fund expenditures of $145.9 million.

Table 3: SCCFD Changes in Fund Balance (in Thousands), FYs 2020–2024					
Changes in Fund Balance	FY 2019–2020	FY 2020–2021	FY 2021–2022	F 2022–2023	FY 2023–2024
Total revenues	$134,124	$142,130	$146,023	$153,348	$160,985
Total expenditures	$152,888	$133,435	$145,033	$155,549	$155,373
Excess (deficiency) of revenues over expenditures	($18,764)	$8,695	$990	($2,201)	$5,612
Net other financing sources (uses)	$25,383	$1,269	$511	$4,782	-
Net change in fund balance	$6,619	$9,964	$1,501	$2,581	$5,612
Beginning fund balance	$68,544	$75,163	$85,127	$86,628	$89,209
ENDING FUND BALANCE	**$75,163**	**$85,127**	**$86,628**	**$89,209**	**$94,821**

Budget

A summary of the governmental (general and capital projects funds) expenditures for the FY 2023–2024 original adopted budget, FY 2023–2024 actuals, FY 2024–2025 original adopted budget, and the change from FY 2023–2024 to the FY 2024–2025 budget is shown in **Table 4**.

Table 4: Changes in Original Adopted Budget and Actuals (in Thousands), FY 2023–2024 to FY 2024–2025)					
Expenditures	FY 2023–2024 Original Adopted Budget	FY 2023–2024 Actuals	FY 2024–2025 Original Adopted Budget	Change in Original Adopted $	Change in Original Adopted %
Salaries and benefits	$124,118	$119,908	$129,149	$5,031	4.1%
Services and supplies*	$25,605	$24,091	$26,754	$1,149	4.5%
Capital outlay	$2,900	$9,936	$3,300	$400	13.8%
Debt service	$1,438	$1,438	$1,437	($1)	(0.1%)
TOTAL EXPENDITURES	**$154,061**	**$155,373**	**$160,640**	**$6,579**	**4.3%**

**Includes services and supplies and city-provided services*

Economic factors considered in developing the FY 2024–2025 budget include:

- The SCCFD is forecasting growth in property tax revenues of 1.8% for secured property taxes.
- Revenues from contract agencies are expected to grow by 2% to 4% in the coming year.
- The FY 2024–2025 adopted budget includes a 2.5% salary increase in accordance with the labor agreements with its represented bargaining units.
- Medical premium costs are projected to increase by at least 10% due to rising medical premium renewal rates and experience.
- Retirement costs for employees are projected to increase by at least 3% due to the negotiated salary increase from FY 2023–2024 to 2024–2025.

Additional items included in the FY 2024–2025 base budget include:

- An allocation of $2.3 million in one-time funding for the purchase of two fire engines ($1.9 million) and replacement of rescue tools, including radios, monitors, large tools, etc.
- Increase appropriations in services and supplies by $1 million to support planning phases of various capital projects:
  - Plan, program, and design costs for a complete rebuild of the Winchester Fire Station ($750,000)
  - Plan, program, and design costs for renovation of the Quito Fire Station ($200,000)
  - Plan, program, and design costs for the renovation of the Seven Springs Fire Station ($50,000)

SCCFD's annual original budget is modified by authorized appropriation adjustments during the year to meet operational needs. The recommended FY 2025–2026 budget includes the consolidation of the South Santa Clara County Fire District (SSCFD) into the SCCFD.

The SSCFD provides services to unincorporated areas of approximately 292 square miles, including the unincorporated areas of Gilroy, San Martin, and Morgan Hill. The Board of Directors has initiated annexation proceedings that will dissolve the SSCFD and annex it into the SCCFD. This action is intended to ensure financial stability and sustainable fire and EMS services to residents and visitors to the region. The annexation is expected to be finalized on or before July 1, 2025.

Observations

The SCCFD has a steady stream of revenue that are sufficient to cover its current operating expenditures. Significant investments in capital improvements and equipment have been made over the past five years and are planned for the future. There is an unassigned fund balance available for liquidity needs of 29% of general fund expenditures.

Unknown factors in future expenditures include:

- New labor agreement effective in FY 2025–2026
- Financial impacts of the dissolution of SSCFD and annexation into SCCFD

- Effects of potential federal tariffs on costs of acquiring future capital needs

In addition, pension costs and retirees' medical benefits are concerns for most agencies in California. SCCFD continues to make the required pension payments to California Public Employees' Retirement System (CalPERS) and is making its payments for retirees' health from operating funds, thereby increasing the funds in the plans available for future liabilities.

EMERGENCY OPERATIONS

Operational Staffing

Given their extensive engagement with the communities they serve, SCCFD's operational staff serves as the primary interface between the Department and the public. This group is deeply involved in nearly every aspect of the agency's functions. SCCFD's responsibilities encompass a broad spectrum, including fire suppression, emergency medical response, technical rescue, HazMat, fire prevention and community risk reduction, fire investigations, public education, and pre-incident planning.

Several national organizations advocate for standards in operational staffing, recognizing the critical importance of staffing. Key recommendations stem from governing bodies such as the Occupational Safety and Health Administration (OSHA) Standard CFR 1910.134, Section (g)(4) Respiratory Protection Standard; NFPA Standard 1710, which outlines standards for the organization and deployment of fire suppression operations, emergency medical operations, and special operations by career fire departments, and CPSE, which publishes benchmarks for the recommended number of personnel at emergency scenes across various risk levels.

SCCFD operational staffing and program descriptions are reflective of the 2020–2024 assessment period. The SCCFD employed a dedicated team of 240 full-time sworn personnel to serve the jurisdiction effectively. To ensure comprehensive emergency response coverage, career firefighters work in 24-hour shifts, providing a minimum of 66 personnel on duty at all times.

Fire Responses

Structure and Non-Structure Fire Responses

SCCFD operated with a total of 32 front-line apparatus. Of those, 22 are Type 1 engines; the remaining vehicles include trucks (quintuple combination pumpers, or quints), rescue units, a HazMat unit, and a breathing support unit. Minimum staffing includes 13 Type 1 engines, each staffed by three personnel. Rescue units, trucks (quints), and the HazMat and breathing support units are staffed with four personnel per unit. Of these, there are two dedicated trucks, one cross-staffed truck (El Monte Station 74), two dedicated rescue units, and one cross-staffed rescue unit.

Water Tender 78 is a select-call, cross-staffed unit with three personnel that can be utilized in water-limited areas. First-in units can establish incident command, deploy an initial attack line, and secure a continuous water supply. Because trucks and rescue units are staffed with four personnel, these crews can meet OSHA's "two-in/two-out requirement" when they are the first-in units on a fire.[7]

Wildland Fire Responses

Much of SCCFD's service area is rural and comprises wildland and wildland-urban interface (WUI) areas. Ten of the 32 front-line apparatus in SCCFD's fleet are wildland units. These units include six Type 3 engines, three Type 6 engines, and one water tender. All units are select-call during normal-mode staffing, but staffing can be expanded as conditions dictate. The Department staffs a seasonal Vasona Fire Fuels Crew, which includes two supervisors and 10 crew members.

Additionally, OES 5262 is a mobile command vehicle owned by the California Governor's Office of Emergency Services (Cal OES) and operated by SCCFD. Its primary function is to assist local government resources with assignments, tracking, and financial reimbursement at larger incidents.

The Department has consistently supported the State of California during wildfires by deploying its Type 1 engines, Type 3 strike teams, wildland task forces, and a variety of single resources, including overhead positions. The Department has sent mutual-aid resources to recent, particularly devastating fires, such as the Tubbs and Thomas fires in 2017 and the Camp fire in 2018. In addition to the obvious benefit of providing mutual aid to communities in need, participating as a statewide resource gives SCCFD personnel valuable experience and an expanded skill set that can be applied to protecting the communities that SCCFD serves.

Preparing for large wildfire incidents remains critical for SCCFD and the communities it serves. In August 2020, two major fires started on the same day: the SCU Lightning Complex fire (burned 396,624 acres, destroyed 225 structures,

and impacted five counties), and the CZU Lightning Complex fire (which burned 86,509 acres, destroyed 1490 structures, and impacted two counties). The SCCFD sent overhead and mutual-aid resources to both incidents, even when Department personnel were directly affected by the fires, with some losing their homes.

Most recently, in January of 2025, Santa Clara County Fire coordinated resources throughout the county and Cal OES Region II to provide strike team resources to Southern California for both the Palisades and Eaton Fires that devastated parts of Los Angeles and Los Angeles County.

In addition to providing emergency response services, the Department is deeply committed to and involved in expanding community preparedness and prevention in the wildland and WUI settings. SCCFD remains steadfast in reducing wildfire risk throughout the district while ensuring firefighters are trained and ready to respond to wildfires. During three National Weather Service Red Flag events in 2024, firefighters, including the Vasona Fire Fuels Crew, joined countywide task forces that received approval for prepositioning by Cal OES. Prepositioning is used to augment staffing with additional resources that are ready to respond to emergencies on high fire hazard days. The seasonally staffed Vasona Fire Fuels Crew completed several fuel-reduction projects with the assistance and support of the Santa Clara County Parks, Midpeninsula Regional Open Space District, Contra Costa County Fire Protection District, Alameda County Fire Department, CAL FIRE, and the Central Coast Prescribed Burn Association.

Emergency Medical Services

SCCFD provides advanced life support (ALS) with 19 full-time ALS apparatus, six ALS-equipped Type 3 engines, and three Type 6 engines with basic life support (BLS) capabilities. All safety-qualified personnel are certified emergency medical technicians (EMTs) or state-licensed paramedics accredited by the Santa Clara County Emergency Medical Services Agency (SCCEMSA) to provide prehospital EMS.

SCCEMSA oversees all emergency medical functions and provides the written policies and guidelines under which EMTs and paramedics practice throughout Santa Clara County. Each front-line company is staffed with at least one paramedic.

Within SCCFD's organizational structure, EMS falls under the Operations Division and reports to the assistant chief of operations. The EMS nurse manager is a registered nurse with expertise in emergency medicine and mobile intensive care nursing. A 40-hour firefighter/engineer paramedic collaborates with the EMS nurse manager to provide the most up-to-date, evidence-based emergency medical training to all safety-qualified paramedics and EMTs.

Additionally, SCCFD has contracted with the Standard Health Care Emergency Medicine Physician Group since 2018. This medical advisory group enables SCCFD to maintain an ALS program and provides education, training, and quality improvement review for EMS calls. The group also helps develop and deliver new protocols and skills training during annual EMS updates.

Although SCCFD does not provide transport services, the American Medical Response (AMR) West Ambulance Company, a private, for-profit corporation, holds the exclusive operating area contract with Santa Clara County to provide ALS services and 9-1-1 transport. Ambulance service, or ground emergency medical transport is provided through a contract between Santa Clara County and AMR). AMR utilizes ALS and BLS ambulances in daily operations, in addition to the use of quick response "squads" in Sunnyvale.

Technical Rescue Responses

Fully 65% of the area that SCCFD serves is rural. (For the purposes of emergency response, “urban” is considered an area with population over 1,000 people per square mile, and “rural” is an area with population less than 1,000 per square mile.) The roadway corridors in these areas are often narrow and winding, with limited clearance. Two main freeways, I-280 and State Route 85, as well as State Route 17, serve the communities that SCCFD protects. Fast-moving traffic on these roadways presents risks associated with vehicle collisions.

All of the Department’s Type I engines carry a complement of basic rescue tools. In addition, SCCFD has two dedicated trucks, one cross-staffed truck (El Monte Station 74), two dedicated rescue units, and one cross-staffed Urban Search and Rescue unit. SCCFD's USAR 85, and the members that operate it, are part of a Type 1 Urban Search and Rescue Company, certified through Cal OES. These units carry specialized equipment, such as extrication tools, that is designed to facilitate the physical rescue of people trapped in traffic collisions and industrial accidents.

Additionally, Engine 84 is equipped with eDRAULIC® vehicle extrication equipment (Hurst tools) to support its frequent response to vehicle collisions on State Route 17. All emergency response personnel are trained in basic rescue techniques, including low-angle rope rescue operations, vehicle extrication, and forcible entry.

For events that require a high level of rescue training, such as trench collapse, collapsed structure, confined space, and high-angle rescue, the Special Operations Task Force (SOTF) can respond in part or full, depending on staffing needs. The special operations program is described below.

The Department also assigns personnel to California Task Force 3, a Federal Emergency Management Agency (FEMA) Urban Search and Rescue Team based in Menlo Park, California. This team can be requested nationwide to assist with various types of natural and human-made disasters. It performs in a variety of roles, including, but not limited to, search and rescue, disaster assistance, and incident stabilization.

Hazardous Materials Responses

SCCFD has a robust Hazardous Materials (HazMat) response program. At minimum, every safety-qualified employee maintains a HazMat certification at the Hazardous Materials Operations level, as outlined in OSHA Standard 1910.120. Most HazMat incidents are handled by a single unit. Operations-level responders can assist in evacuating the public, establish hazard zones, and utilize defensive techniques, such as absorption, dams, dikes, and diversions.

Additionally, all engines, trucks, and rescue units are equipped with four-gas monitors, radiation dosimeters, and thermal imaging cameras.

Hazmat 72 may be requested when an incident requires capabilities beyond those of operations-level personnel. Engine 72 and Hazmat 72 operations personnel are trained to the Hazardous Materials Specialist level. These personnel, along with other SOTF members, who are trained at a minimum Technician level, can don specialized HazMat personal protective equipment (PPE), utilize specialized equipment to identify HazMat, take offensive actions toward mitigation efforts, and fill mandatory positions within the HazMat branch of the incident command system (ICS).

SCCFD's HazMat team is designated as a Type 1 resource by Cal OES and can be deployed as a mutual-aid resource. The team has responded to various HazMat incidents within SCCFD's service area and beyond its boundaries as a valuable mutual-aid resource to other agencies.

Special Operations Program

The Special Operations Program was created to enhance SCCFD's capabilities to respond to potential acts of terrorism. The scope of the program has evolved to the ability to respond to complex natural and human-made incidents. In addition to being trained to respond to chemical, biological, radiological, nuclear, and explosive incidents, personnel participating in the program are trained to respond to:

- Confined space incidents
- Structure collapses
- Trench rescues
- Technical rope rescues
- Mass transportation incidents
- Machinery rescues

USAR 85 and HazMat 72 are designated as Type 1 resources by Cal OES and may be deployed as mutual-aid resources. Employees assigned to SOTF are cross-trained in technical rescue and HazMat response. Engine 72 and Haz Mat 72 personnel are primarily assigned to HazMat responses, and Rescue 83 and USAR 85 personnel are mainly assigned to technical rescue responses. A "Type 1" resource represents the highest single-resource designation in the typing schema for Cal OES. Functionally, these two teams provide the staffing, personnel knowledge, and equipment to initiate action on the most complex of technical rescue or hazardous materials incidents that would occur within our service area.

The Special Operations Program researches, procures, issues, and maintains all HazMat and technical rescue equipment assigned to the Operations Division, with the exception of hydraulic rescue tools. Personnel assigned to the program participate in countywide HazMat and technical rescue working groups, the regional Urban Areas Security Initiative Preventive Radiological/Nuclear Detection program, and the California FIRESCOPE Operations Team. Additionally, personnel serve in various positions on California Task Force 3, a state and national FEMA Urban Search and Rescue Task Force.

TRAINING DIVISION

The training division is tasked with oversight of all training, health, and safety programs for the SCCFD. The Assistant Chief of Training serves as the department's Health and Safety Officer. The training division facilitates training for both new and incumbent personnel across all department divisions. Each division's staff have discipline-specific training that they participate in, as dictated by statute, consensus standard(s), the department, or by other authorities or bodies requiring the training or certification, delivered through in-person or virtual methods. The SCCFD highly values its members and has heavily invested in its continuing education program. The training division administers the department's continuing education program, where many pursue job-specific career growth opportunities, including undergraduate and graduate studies.

The operations division is comprised mostly of firefighting personnel, so they see most of the training efforts expended on them, as they maintain a variety of firefighting, emergency medical, technical rescue, hazardous materials, and other skills to meet NFPA and other firefighting standards. New recruits are trained in a fire academy setting, either through a countywide joint fire academy administered through a State Fire Marshal Accredited Regional Training Program (ARTP), or through the SCCFD's internal State Fire Marshal Accredited Local Academy (ALA). The State Fire Marshal defines an Accredited Local Academy (ALA) as "a single fire agency, which provides training for in-house personnel only, and which actively provides state, municipal, county, or fire district fire protection services." The SCCFD operates one of 2 ALA's in the south Bay Area, one of 29 throughout the state.

The SCCFD operates two training sites, the McCormack Training Center, which houses a four-story training tower and classroom, as well as a secondary training site at Winchester Headquarters, our former headquarters location. Each site has various props that provide realistic training and challenges to our personnel. For example, the department placed in service two 20' mobile Direct Recirculating Apparatus Firefighting Training Sustainability (DRAFTS) trailers that support training apparatus operators for real-life fire flow scenarios. This allows the apparatus operator to flow large volumes of water while drastically decreasing water use and runoff, as the discharged water is recirculated between the trailer and the apparatus. This provides for an environmentally sound method of training our personnel, all while supporting our strategic goal of modeling effective governance; two ways being by making environmentally sound decisions and modeling sustainable behaviors.

COMMUNICATIONS AND DISPATCH

Santa Clara County Communications (SCCC) provides 9-1-1 and dispatch services to SCCFD, the Santa Clara County Sheriff's Office, Santa Clara County Emergency Medical Services Agency, and Santa Clara County Parks.

County 9-1-1 Communications is recognized by the International Academies of Emergency Dispatch as an Accredited Center of Excellence (ACE), reflecting the quality of the dispatch center. ACE accreditation establishes quality standards for dispatching and helps standardize dispatcher training, as well as improve employee retention.

In 2024, County 9-1-1 Communications received 374,662 calls for service, and units were dispatched to 139,783 emergency incidents. Phase 2 of the newly implemented computer-aided dispatch (CAD) system was completed, allowing for the use of automatic vehicle location (AVL) dispatching. Dispatchers use AVL technology to track and assign the closest unit to respond to emergencies, speeding up dispatch time and the arrival of first responders to emergencies in the community.

Under certain conditions, SCCFD details a county fire officer to the center when "expanded dispatch" is necessary. Expanded dispatch may be utilized during complex events or incidents that require a significant amount of communications activity when dispatching staff at County 9-1-1 Communications needs to be augmented. In such situations, the dispatchers can benefit from the assistance of a knowledgeable county fire officer. Additionally, when the situation warrants, over-committed battalion chiefs can benefit from being relieved of specific tasks, such as coordinating move-ups and resource allocation.

Mutual and Automatic Aid

Three types of aid are utilized within SCCFD: automatic, mutual, and assistance-by-hire.

- **Automatic Aid**—In automatic aid, the closest resource is sent. Areas where this type of aid is used have been identified as potentially better served by a resource that does not necessarily exist within the jurisdiction. Automatic aid involves formal agreements that are considered mutually beneficial to both parties.
- **Mutual Aid**—Mutual aid is part of the Statewide Fire and Rescue Mutual Aid System, in which SCCFD participates. Local resources can be utilized for major events statewide; conversely, SCCFD can request assistance from the state pool.
- **Assistance-by-Hire (ABH)**—Assistance-by-hire aid is based on an agreement that, if requested, SCCFD personnel and equipment will staff a state station during periods of state drawdown. The ABH agreement specifies reimbursement procedures and, while personnel operate under that agreement, they are considered to be state resources.

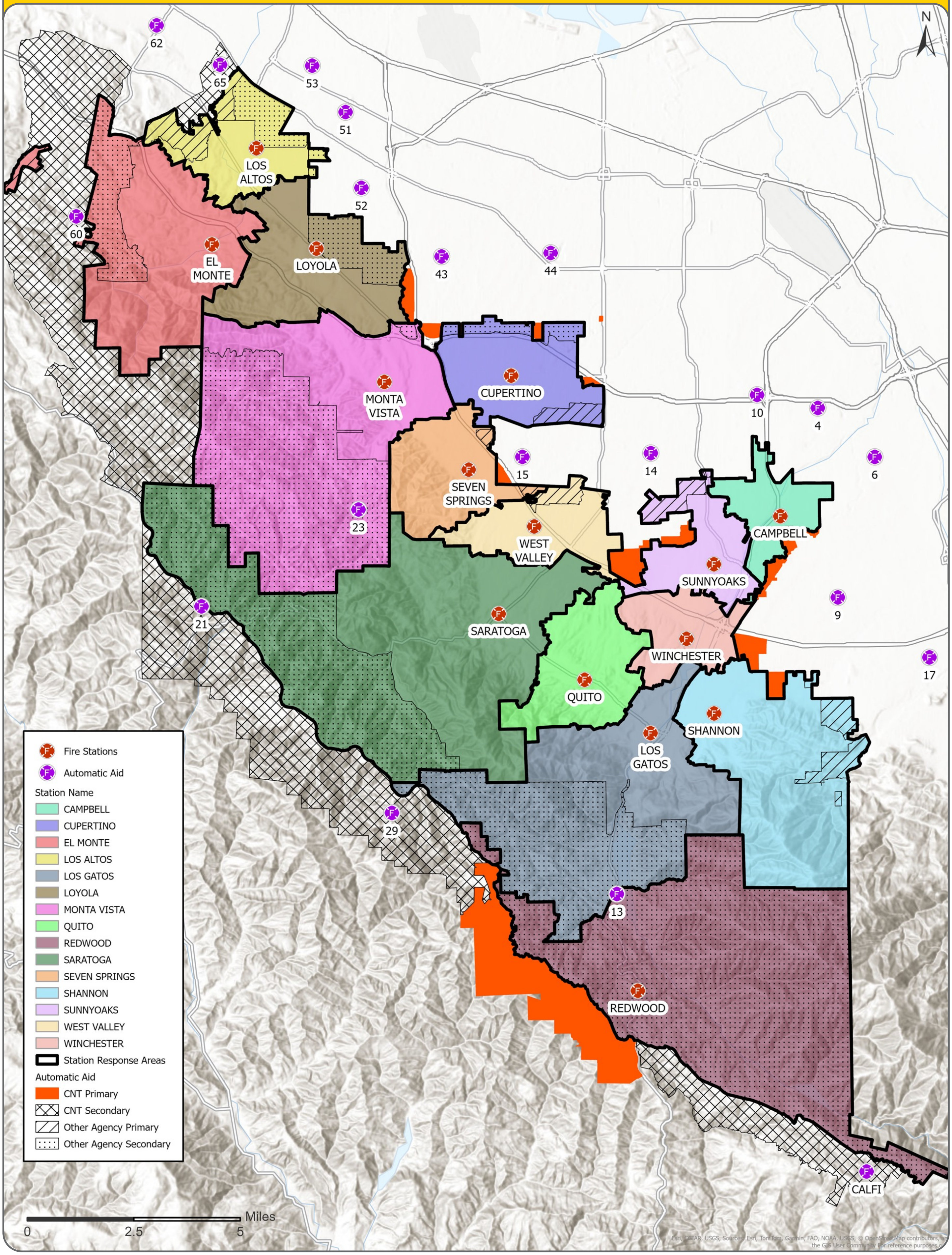
The Santa Clara County Mutual-Aid Plan ensures that common standard operating procedures and guidelines are defined for all Santa Clara County agencies that participate in mutual aid. Additionally, during the past five years, interoperable communication challenges have been addressed to improve multi-jurisdiction communications. **Table 5** outlines the mutual and automatic aid resources available to SCCFD, and **Figure 23** illustrates the mutual and automatic aid fire stations adjacent to SCCFD.

Table 5: Mutual and Automatic Aid Resources Available to SCCFD

Agency Name	Station No.	No. of Engines	No. of Aerials	Other Resources	No. of Staff
CAL FIRE[A]	8	9	0	BC, bulldozer, helicopter, crews	170
Gilroy FD	4[B]	4	1 (CS)	Division chief	44
Milpitas FD	4	4	1	BC, rescue ambulance	82
Mountain View FD	5	5	1	BC, rescue	87
Morgan Hill FD	2	2	1 (CS)	BC, squad	37
Palo Alto FD	7	4	1	BC, ambulances, squad[C]	109
San Jose FD	34	33	9	BCs, rescue medic	852
Santa Clara FD	9	8	2	BC, medic squad	168
Sunnyvale Public Safety Department	6	9	3	Heavy rescue, command	110

[A] State Mission Seasonal Staffing
[B] One not staffed 24/7
[C] Air unit
[D] CAL FIRE contract
CS=Cross-staffed
BC = Battalion chief

Figure 23: Automatic Aid Areas within SCCFD



SCCFD Designated Strike Team Units and Overhead

Wildfires are a constant risk in California. Within the state, fire departments realize the high likelihood of an event that will overwhelm the resources of a single jurisdiction. All SCCFD Type 3 and Type 4 engines and select Type 1 engines are available resources as part of the statewide mutual-aid plan. The identified equipment is available for request as a single resource, task force, or strike team within the operational area and adjacent operational regions.

When SCCFD's Type 3 engines are deployed as Santa Clara County Strike Team (CNT) 2310C, they typically respond as a team of five engines, with four personnel on each apparatus. This includes a SCCFD strike team leader and an assigned strike team trainee.

As stipulated in the Santa Clara County Mutual-Aid Plan, there are three Type 1 engines: Engine 77 (2301A), Engine 73 (2302A), and Engine 82 (2303A) that are predesignated to respond with other jurisdictions to complete a Type 1 strike team. Engine 80 is assigned as an alternate Type 1 engine if the others are unavailable. Stations are back-staffed upon deployment.

SCCFD personnel can become qualified in single-resource overhead positions through the California Incident Command Certification System. SCCFD sends personnel to overhead positions when requested and as staffing allows. Additionally, some members participate on federal, state, and local incident management teams. **Table 6** details the 2023 and 2024 deployments of the Santa Clara County Strike Team.

Table 6: SCCFD Strike Team Deployments (2023 and 2024)

Deployment Type	2023	2024
Overhead	11	31
Strike team	2	16
OES 5262	1	3

Cal OES and CAL FIRE Areas

California has six mutual-aid regions, each with a regional mutual-aid coordinator. SCCFD is in the southwest portion of Region II. Each county within the state is designated as a Cal OES operational area. The SCCFD fire chief serves as the operational area coordinator for Santa Clara County.

As of January 1, 2025, the SCCFD fire chief was appointed to also serve as the Cal OES Region II Mutual Aid Coordinator. The fire chief is now responsible for coordination and dispatch of regional mutual aid resources in Cal OES Region II, serving the California counties of Alameda, Contra Costa, Del Norte, Humbolt, Lake, Marin, Mendocino, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, and Sonoma.

Table 7 outlines the standard responses in designated zones from SCCFD and CAL FIRE. Note that CAL FIRE response levels may vary, depending on available resources from the State of California.

Table 7: Standard Responses (Number of Personnel) in Designated Zones by SCCFD and CAL FIRE

Resources	Low Risk	1st-Alarm Moderate Risk		2nd-Alarm High Risk		3rd-Alarm Maximum Risk	
	SCCFD	SCCFD	CAL FIRE	SCCFD	CAL FIRE	SCCFD	CAL FIRE
Battalion chief		1	1	2	1	3	2
Safety Officer				1	1	1	1
Type III engine		1	4	2	6	3	8
Type I engine	1	2		4		6	
Water Tender				1 (3 Pers.)		1 (3)	
Hand crews				1 (10–12)	2 (15–20)	1 (10–12)	2 (15–20)
Bull Dozers					2		2
Helicopter					1 (8)		1 (8)
Air Tankers					2		2
Air Tactical					1		1
TOTAL PERSONNEL	**3**	**10**	**14–18**	**34–36**	**51+**	**44–46**	**70+**

Responses with CAL FIRE

SCCFD has areas within the jurisdiction that fall into one of four categories; when a fire occurs in these areas, responsibility and command structure will differ based on the category. These categories are defined in the Santa Clara County Mutual-Aid Plan and by agreement and contracts between SCCFD and CAL FIRE. The following definitions explain the differences that occur when a fire occurs in specific areas:

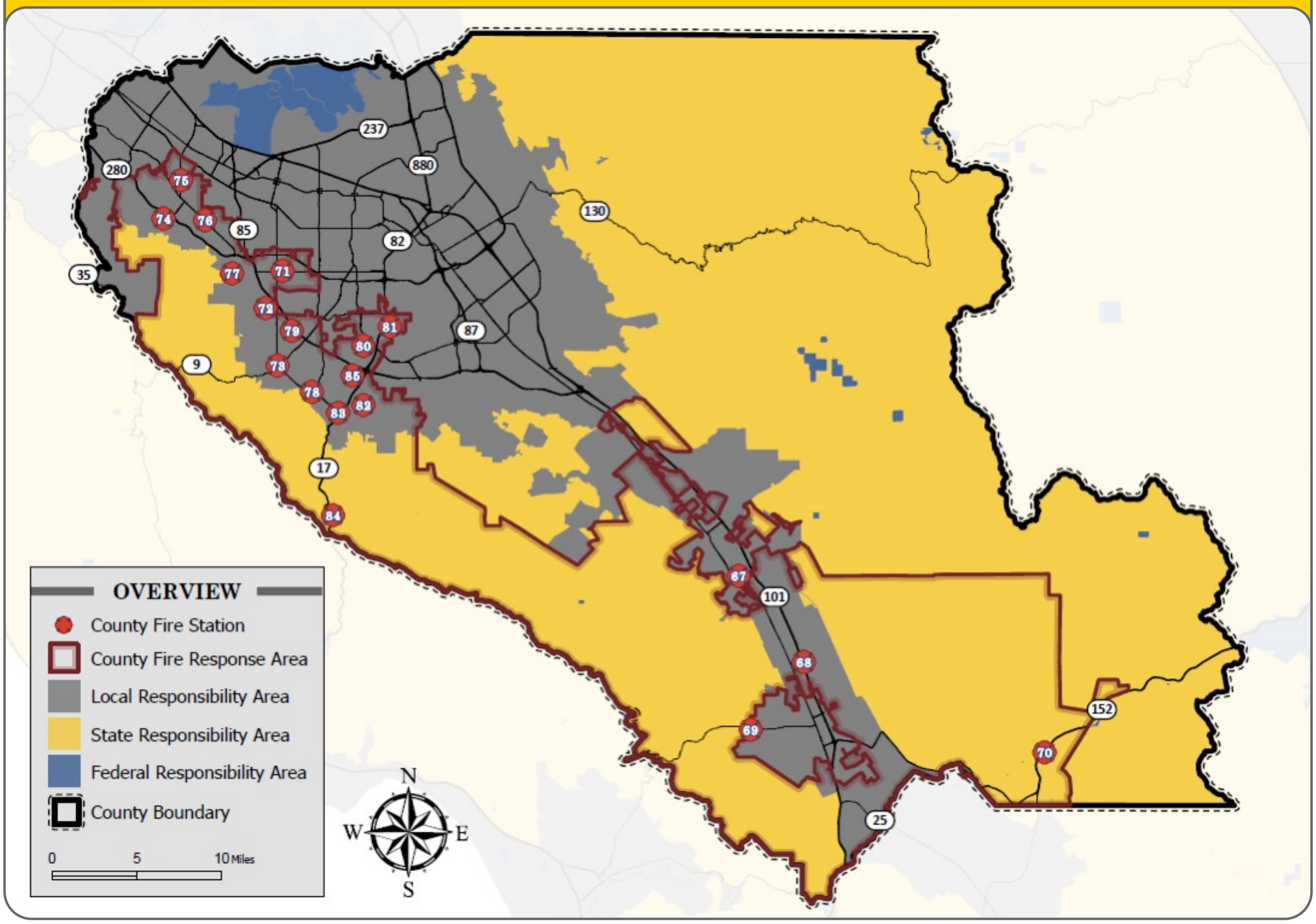
- **Local responsibility area (LRA)**—The agency that has jurisdiction over has full financial responsibility for prevention and suppression of vegetation fires in that area. Vegetation fires contained to the LRA are not considered a threat to SRA.
- **State responsibility area (SRA)**—CAL FIRE has primary financial responsibility to prevent and suppress vegetation fires for all the state's watershed areas, in accordance with California Public Resources Code 4125-4137.
- **Dual response zone (DRZ)**—These are areas where the state watershed and fire

district boundaries overlap. Homes and improvements to the land are part of SCCFD. In these areas, both agencies share responsibility and command and control in a unified command structure.

- **Mutual threat zone (MTZ)**—Mutual threat zones are geographically located within the city limits (LRA); however, uncontrolled fires in these areas have significant potential to impact the SRAs. In MTZs, CAL FIRE has a vested interest to prevent the fire from reaching the SRA. The state provides resources, if available, to the agency at no cost. Fires in these areas are still SCCFD's responsibility and command. However, as part of the mutual-aid agreement, SCCFD follows a communications protocol as in a dual-response area.

Figure 24 shows the Santa Clara County Wildland Fire Jurisdictional Responsibility Areas.

Figure 24: Santa Clara County Wildland Fire Jurisdictional Responsibility Areas (2025)



CAPITAL FACILITIES

SCCFD Fire Stations

Fire stations play an integral role in delivering emergency services for several reasons. To a large degree, a station's location will dictate response times to emergencies. A poorly located station can mean the difference between confining a fire to a single room and losing the structure. Station location can be a factor in whether an individual survives a sudden cardiac arrest.

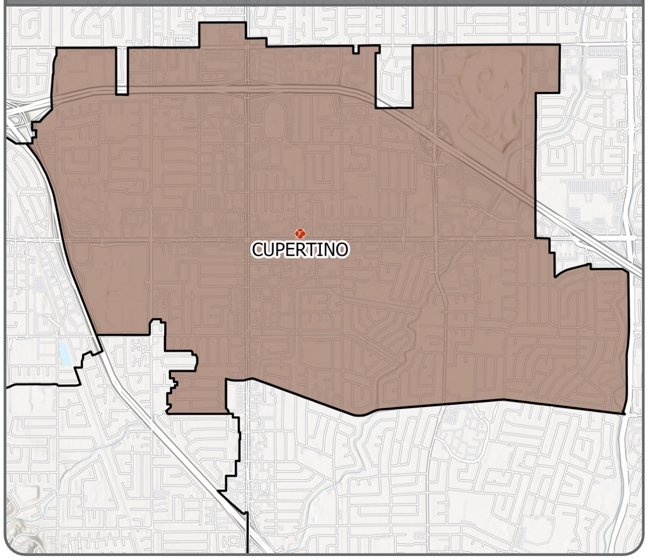
Fire stations also need to be designed to adequately house equipment and apparatus and meet the needs of the organization and its personnel. The structure of a fire station needs to be adequate in size and design to ensure it can support various functions, such as:

- Residential living space and sleeping quarters for on-duty personnel (all genders)
- Bathrooms and showers (all genders)
- Kitchen facilities, appliances, and storage
- The housing and cleaning of apparatus and equipment, including decontamination and disposal of biohazards
- System(s) for vehicle exhaust extraction
- Administrative and management offices, computer stations, and office facilities
- Firefighter fitness area
- Training, classroom, and library areas
- Public meeting space

SCCFD maintains 15 fire stations with a combined capacity of more than 39 apparatus and at least 66 operations personnel. The stations' average age is nearly 47 years; however, several of the stations have been renovated. In addition, the stations have a combined capacity of more than 110,000 square feet. **Figures 25–39** provide brief descriptions of each of the fire stations operated by SCCFD, including basic features and locations. The SCCFD will have added four more stations as of July 1, 2025, as part of the district reorganization including the former South Santa Clara County Fire District service area.

Figure 25: Cupertino Fire Station 71

Station 71 Response Area / Planning Zone



20215 Stevens Creek Blvd., Cupertino, CA 95014

Built in 2000 (originally 1948)

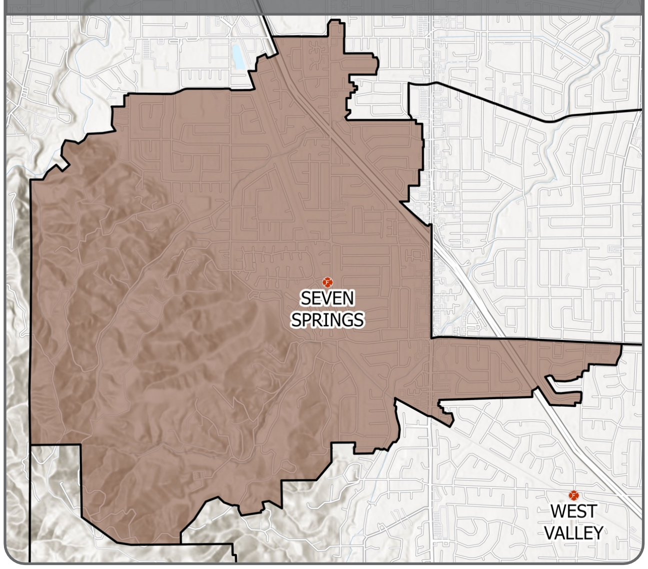
OWNERSHIP SCCFD

12,775 sq. ft.

APPARATUS	Engine 71	Truck 71	Engine 371	OES 5262	**TOTAL STAFF**
MINIMUM STAFFING	3	4	Select call	On request	**7**

Figure 26: Seven Springs Fire Station 72

Station 72 Response Area / Planning Zone



21000 Seven Springs Pkwy., Cupertino, CA 95014

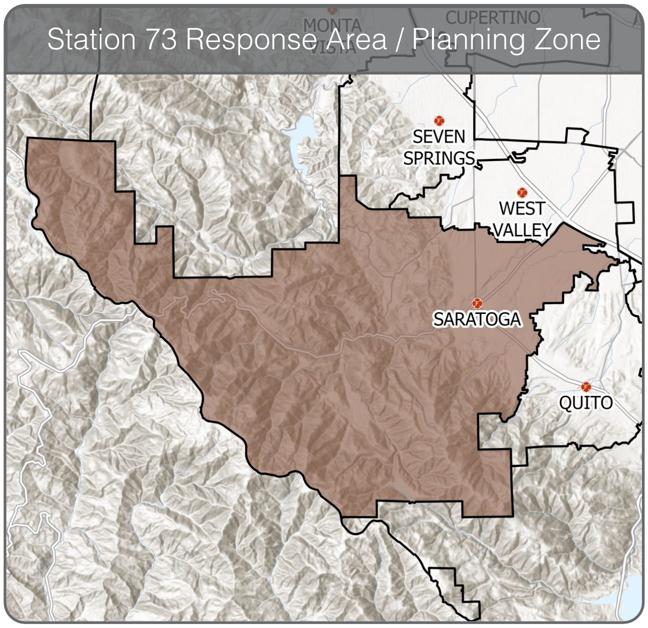
Built in 2000 (originally 1948)

OWNERSHIP SCCFD

9,120 sq. ft.

APPARATUS	Engine 72	Hazmat 72/BS 72 in tandem	Battalion 72	**TOTAL STAFF**
MINIMUM STAFFING	3	4	1	**8**

Figure 27: Saratoga Fire Station 73



14380 Saratoga Ave., Saratoga, 95070

APPARATUS	Engine 73	Rescue 73	Engine 373	Engine 173	Engine 178	Utility 73	**TOTAL STAFF**
MINIMUM STAFFING	3	4	Select call	Reserve	Reserve	Select Call	**7**

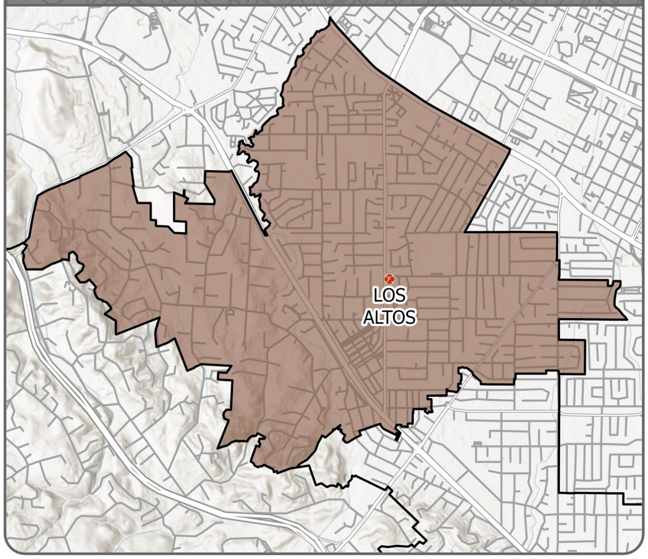
Figure 28: El Monte Fire Station 74

12355 El Monte Road, Los Altos Hills, CA 94022

APPARATUS	Rescue 74	Truck 74	Engine 374	Battalion 74	**TOTAL STAFF**
MINIMUM STAFFING	4	Select call	Select call	1	**5**

Figure 29: Los Altos Fire Station 75

Station 75 Response Area / Planning Zone



10 Almond Ave., Los Altos, CA 94022

Built in 1968

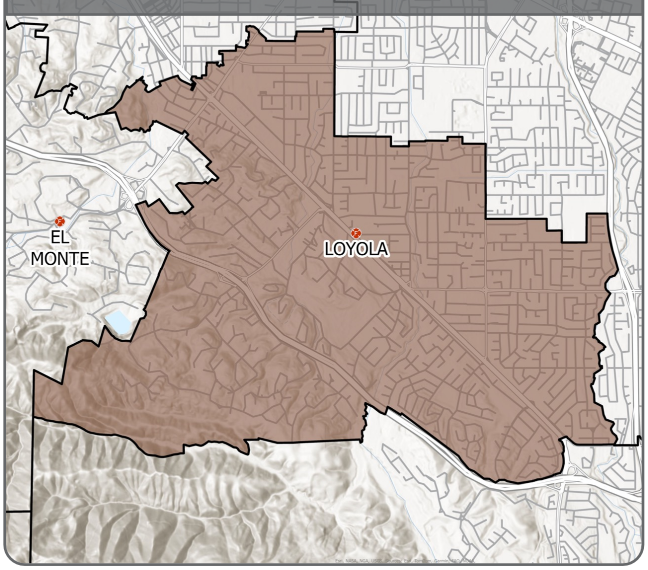
OWNERSHIP City of Los Altos

9,350 sq. ft.

APPARATUS	Engine 75	Engine 675	Engine 175	1929 Model A	**TOTAL STAFF**
MINIMUM STAFFING	3	Select call	Reserve	Antique	**3**

Figure 30: Loyola Fire Station 76

Station 76 Response Area / Planning Zone



765 Fremont Ave., Los Altos, CA 94024

Built in 1953

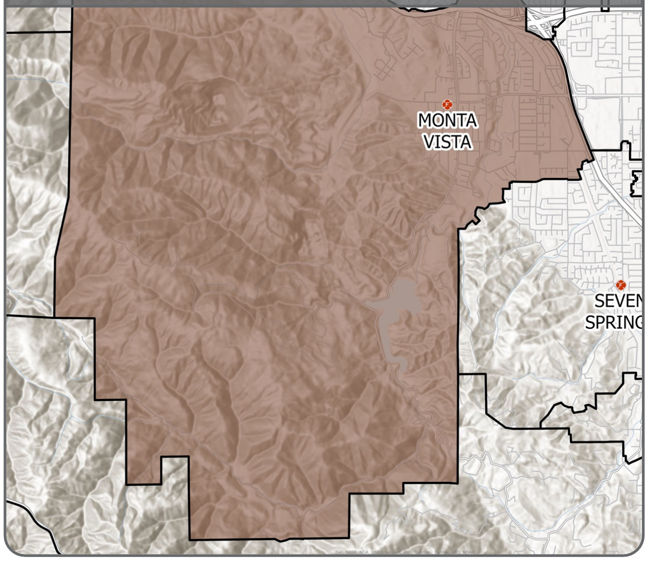
2,400 sq. ft.

OWNERSHIP City of Los Altos

APPARATUS	Engine 76	Engine 176	**TOTAL STAFF**
MINIMUM STAFFING	3	Reserve	**3**

Figure 31: Monta Vista Fire Station 77

Station 77 Response Area / Planning Zone



22620 Stevens Creek Blvd., Cupertino, CA 95014

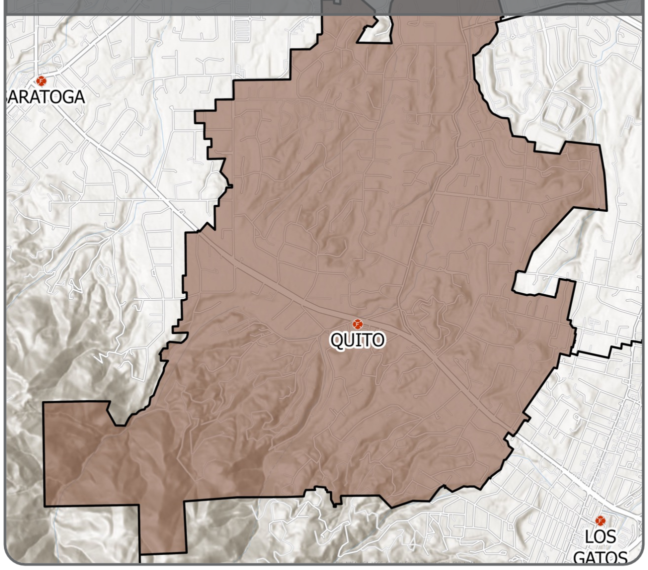
OWNERSHIP SCCFD

7,100 sq. ft.

APPARATUS	Engine 77	Engine 377	**TOTAL STAFF**
MINIMUM STAFFING	3	Select call	**3**

Figure 32: Quito Fire Station 78

Station 78 Response Area / Planning Zone



18870 Saratoga-Los Gatos, Los Gatos, CA 95030

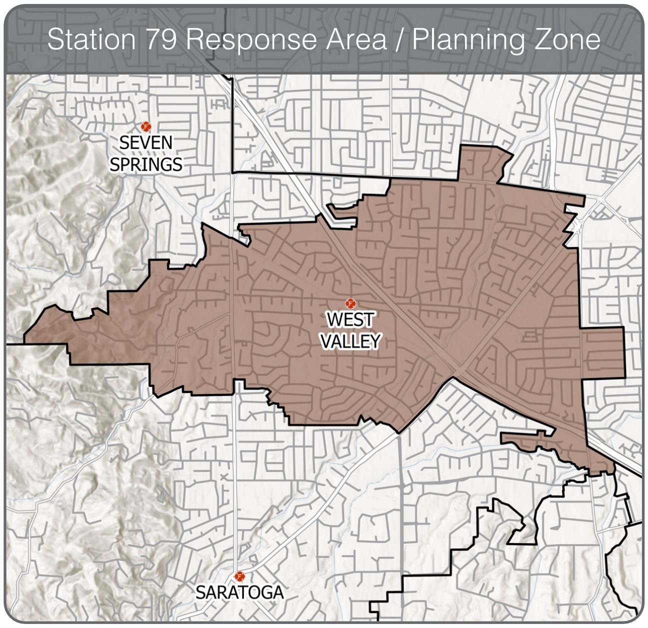
Built in 1948

OWNERSHIP SCCFD

5,400 sq. ft.

APPARATUS	Engine 78	Water Tender 78	Utility 78	**TOTAL STAFF**
MINIMUM STAFFING	3	Select call	Select call	**3**

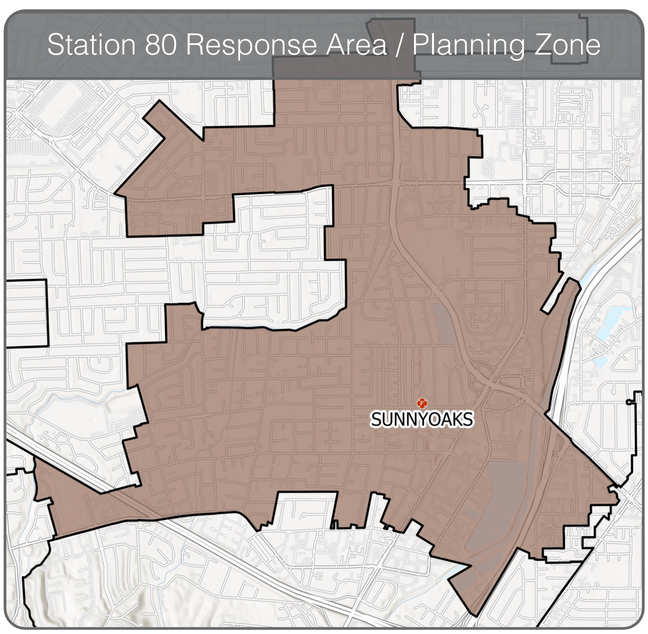
Figure 33: West Valley Fire Station 79



19800 Cox Ave., Saratoga, CA 95070

APPARATUS	Engine 79	Engine 369	Battalion 179	TOTAL STAFF
MINIMUM STAFFING	3	Select call	Reserve	3

Figure 34: Sunnyoaks Fire Station 80

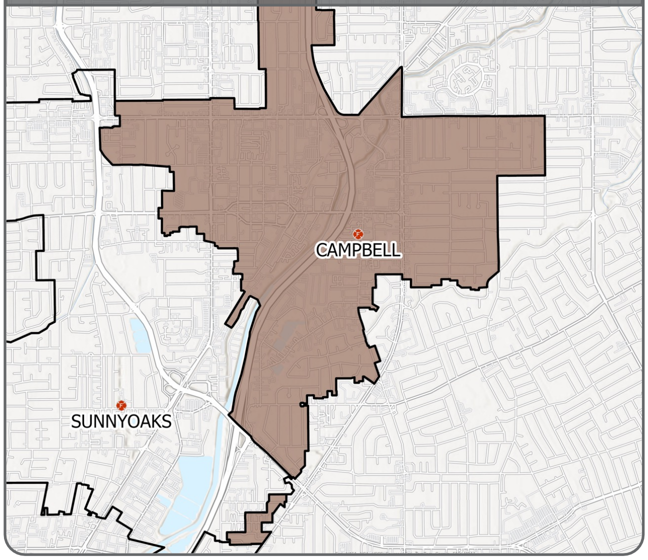


485 W. Sunnyoaks Ave., Campbell, CA 95008

APPARATUS	Engine 80	Engine 680	Engine 880	Engine 23	TOTAL STAFF
MINIMUM STAFFING	3	Select call	Reserve	Antique	3

Figure 35: Campbell Fire Station 81

Station 81 Response Area / Planning Zone

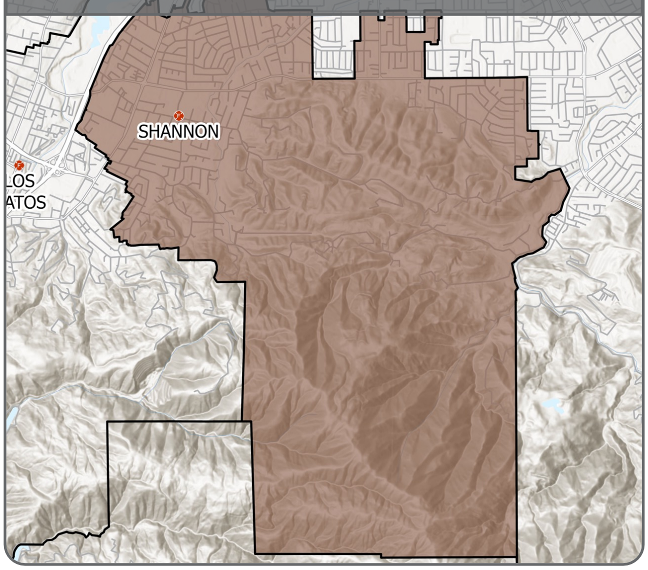


123 Union Ave., Campbell, CA 95008

APPARATUS	Engine 81	Truck 181	Squad 25	Engine 20	**TOTAL STAFF**
MINIMUM STAFFING	3	Reserve	Antique	Antique	**3**

Figure 36: Shannon Fire Station 82

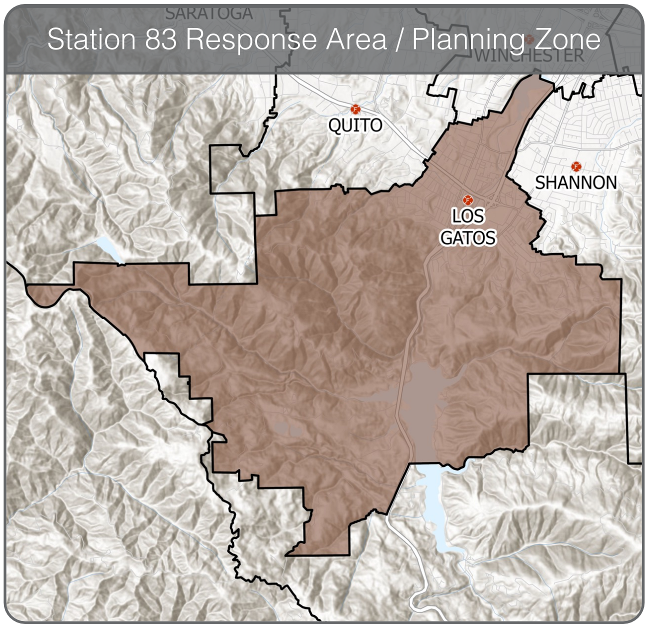
Station 82 Response Area / Planning Zone



16565 Shannon Road, Los Gatos, CA 95032

APPARATUS	Engine 82	Engine 382	Utility 82	Engine 101	Squad 1	Assorted Trailers	**TOTAL STAFF**
MINIMUM STAFFING	3	Select call	Select call	Antique	Antique	Select call	**3**

Figure 37: Los Gatos Fire Station 83



306 University Ave., Los Gatos, CA 95030

Built in 1963

6,812 sq. ft.

OWNERSHIP: SCCFD and Town of Los Gatos

APPARATUS	Engine 83	Rescue 83	Battalion 83	**TOTAL STAFF**
MINIMUM STAFFING	3	4	1	**8**

Figure 38: Redwood Fire Station 84

21452 Madrone Dr., Los Gatos, CA 95033

Built in 2023

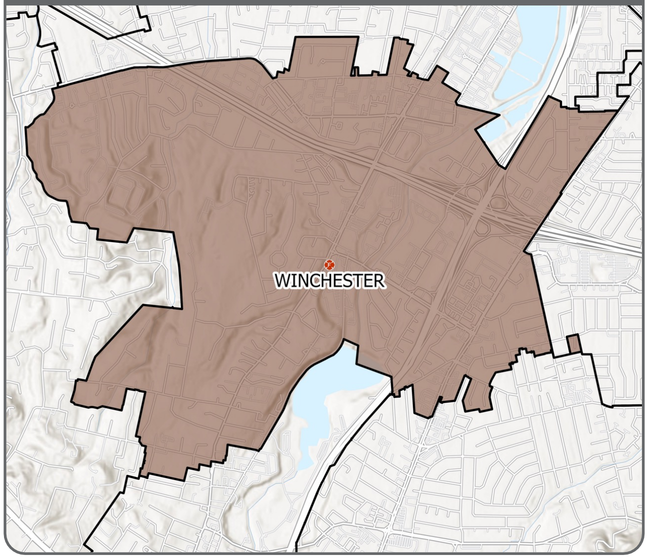
8,202 sq. ft.

OWNERSHIP: SCCFD and Redwood Estates Services Assoc.

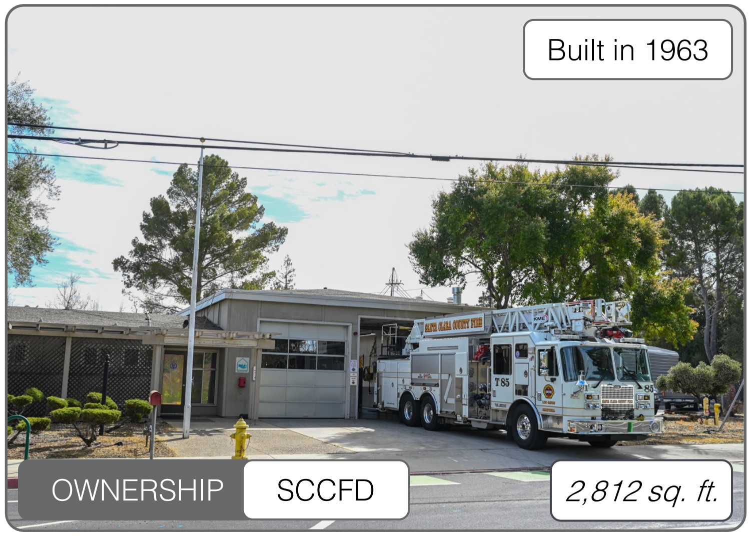
APPARATUS	Engine 84	Engine 684	Utility 84	**TOTAL STAFF**
MINIMUM STAFFING	3	Select call	Select call	**3**

Figure 39: Winchester Fire Station 85

Station 85 Response Area / Planning Zone



14850 S. Winchester Blvd., Los Gatos, CA 95032



Built in 1963

OWNERSHIP SCCFD

2,812 sq. ft.

APPARATUS	Truck 85	USAR 85	Utility 85	**TOTAL STAFF**
MINIMUM STAFFING	4	Select call	Select call	**4**

Summary of the SCCFD Fire Stations

Table 8 summarizes selected primary features of the SCCFD fire stations.

Table 8: Selected Features of SCCFD Fire Stations

Station	Square Footage	Apparatus Bays	Daily Staffing	Station Age[A]
Cupertino Station 71	12,775	3	7	25 years
Seven Springs Station 72	9,120	3	8	25 years
Saratoga Station 73	15,435	3	7	21 years
El Monte Station 74	9,292	4	5	43 years
Los Altos Station 75	9,350	3	3	57 years
Loyola Station 76	2,400	2	3	72 years
Monta Vista Station 77	7,100	2	3	27 years
Quito Station 78	5,400	3	3	77 years
West Valley Station 79	3,137	2	3	60 years
Sunnyoaks Station 80	6,042	2	3	56 years
Campbell Station 81	9,292	4	3	43 years
Shannon Station 82	3,152	2	3	66 years
Los Gatos Station 83	6,812	2	8	62 years
Redwood Station 84	8,202	2	3	2 years
Winchester Station 85	2,812	2	4	62 years
GRAND TOTALS	**110,321**	**39 bays**	**66 staff**	

[A] *Represents the age of those stations that were renovated, not the original date.*

Other SCCFD Facilities

The Department utilizes other facilities in addition to its 15 fire stations, including:

- **SCCFD Dell Headquarters**—Opened in 2024, headquarters is the location for a majority of the staffing for the Department's eight divisions.
- **SCCFD Winchester Headquarters**—Built in 1982, this facility is used for additional office space, storage, meeting, and serves as the department's secondary training center.
- **McCormack Training Center**—The center is a partnership facility between the City of Campbell and SCCFD. The four-story concrete training tower was constructed in 1982, and the classroom was built in 1996.
- **Shannon Maintenance Shop**—Built in 2009, this is a 3,675 square-foot facility.
- **Winchester Mechanic Shop**—Built in 1990, the shop comprises 7,532 square feet and employs four mechanics.
- **Vasona Work Center**—Built in 2002, the center is owned by Santa Clara County Parks. The 2,690 square-foot building is staffed with two fire crew captain/supervisors and a 10-member fire fuels crew.

SECTION II

SUPPORT PROGRAMS

ADMINISTRATION AND PLANNING

The Administration and Planning Division has a pivotal role in communicating timely information to our community, our stakeholders, and local partners. The division is comprised of the Information and Public Affairs Office, the Community Education and Risk-Reduction Services (CERRS) Unit, and the Pre-Fire Management & Wildfire Resilience Program. The division is tasked with the day-to-day administration of the CPSE Accreditation program, is the hub for all performance reporting and analysis, and is the department point-of-contact for larger reports and audits, such as the local hazard mitigation plan and its annexes, the continuity of operations plan (administered through County OEM), local general plan, safety element, and evacuation plan updates, the community wildfire preparedness plan, the local agency formation commission's fire service review, and various other large-scale audits and reports that are required of the department.

Pre-Fire Management and Wildfire Resilience

SCCFD prioritizes planning, education, prevention, and mitigation of wildland fire risk. Pre-Fire Management and Wildfire Resilience program staff were key stakeholders in the 2023 revision of the Santa Clara County Community Wildfire Protection Plan (CWPP). This countywide strategic plan identifies each jurisdiction and SCCFD's specific strategic goals to address challenges for at-risk communities in the WUI. The CWPP's key priorities include working collaboratively with local and state agencies, prioritizing fuel reduction in at-risk communities, and protecting infrastructure. The plan includes outreach and education for recommended action items that residents can take to protect themselves and their properties before and during wildfires.

Figure 40: Ready, Set, Go Program

The Pre-Fire Management and Wildfire Resilience program manages our fire fuels crew, the Vasona Crew. The crew is made up of 8-12 personnel, including supervision, who function as a wildland fire module when doing mitigation work, and a local government hand crew when responding to wildland fires within the operational area. Per the National Wildfire Coordinating Group (NWCG), "the primary mission of a WFM is to provide an innovative, safe, highly mobile, logistically independent, and versatile fire module with a commitment to achieving diverse fire and fuels management objectives."[1] Vasona Crew personnel regularly participate in hazardous fire fuels mitigation projects to meet these management objectives, such as by constructing fuel breaks.

[1] NWCG Standards for Wildland Fire Module Operations, February 2025 *(Page 1, Par. 1)*

The purpose of the fuel break is to significantly reduce the intensity of fires and dramatically slow their rate of spread, so that firefighters can safely and quickly control fires before they threaten homes and motorists. Past and current efforts have included addressing vulnerable communities adjacent to the highway, such as Redwood Estates and Chemeketa Park.

The shaded fuel break also protects critical infrastructure, such as power transmission and distribution lines, San Jose Water Company's water treatment plant at Lexington Reservoir, Chemeketa Park's water intake, SCCFD's Redwood Fire Station, and CAL FIRE's Alma Fire Station and Helitack Base.

Additionally, SCCFD has participated in the "Ready, Set, Go" program **(Figure 40)** since 2018, which aims to empower residents by providing information on how they can be prepared and protect themselves during wildland fires.

Community Education and Risk-Reduction Services Unit

SCCFD provides various community outreach and education services, including fire station tours, school fire and life-safety programs, adult and senior safety programs, CPR and automated external defibrillator (AED) training, and Safe Sitter babysitting training.

The county's Community Education and Risk-Reduction Services (CERRS) unit resides within the Department's Administration and Planning Division. CERRS aims to reach at least 20% of the population served each year with outreach and educational services. In 2024, CERRS conducted 590 programs and services, reaching 60,262 participants, or 26% of the population served.

Table 9 outlines the 2024 CERRS programs and number of participants.

Table 9: SCCFD CERRS Program Activities and Participants, 2024

Program	Number of Participants
Community Emergency Response Team (CERT)	764
Community events	26,791
CPR training	480
Fire and Life Safety training	5,076
Fire station tours	2,092
Home safety services (smoke and CO alarm installation)	22
Safety information and resident resource assistance	339
School fire drills	24,335
Wildfire/disaster preparedness	636
GRAND TOTALS	60,262

Fire Prevention

The Fire Prevention Division provides inspection and comprehensive plan review services to ensure that all applicable local, state, and federal laws, codes, ordinances, and regulations are enforced. Inspection services include:

- HazMat and environmental regulatory compliance inspections

- New building construction inspections for commercial and residential projects
- State-mandated and contract annual inspections
- Special event inspections
- Complaint investigations

Plan review services include a comprehensive fire and life-safety plan review for land development, new building construction, tenant improvements, fire suppression, and fire protection systems. Plan review services can include, but are not limited to:

- Emergency access and water supply
- Fire hydrant installation
- Fire-resistive construction
- Fire alarms
- Automatic fire sprinklers
- Smoke control systems
- Two-way communication and emergency responder radio coverage

SCCFD manages and implements a Wildfire Preparedness program within its jurisdictional boundaries. In February of each year, homeowners located in the WUI areas are alerted to the importance of creating a defensible space around their property; clearing all flammable vegetation from around their homes helps to slow or stop the spread of wildfire. One program component involves fire crews and deputy fire marshals inspecting homes for compliance.

For existing commercial buildings and fire hydrants, the Fire Prevention Division administers an annual inspection program delivered by fire prevention and fire station personnel. All SCCFD personnel are part of the fire prevention team.

Annual inspections ensure a reasonable degree of fire and life-safety compliance for each occupancy type, as specified in the adopted fire and building codes. Hydrants are inspected annually. **Table 10** details the fire prevention services provided by SCCFD in 2024, and **Table 11** outlines the number of state-mandated inspections performed by SCCFD during FYs 2020–2024.

Table 10: SCCFD Fire Prevention Services Provided, 2024

Program	Number of Inspections or Plan Reviews
Construction plan reviews	6,562
Construction field inspections	3,339
Annual fire inspections	3,285
Wildfire urban interface inspections	2,744
HazMat inspections	561
Fire station tours	2,092
Underground storage tanks	65
Urban runoff program inspections	359
GRAND TOTAL	**19,007**

Table 11: SCCFD State-Mandated Inspections, FYs 2020–2024

FY	Total State-Mandated Inspections	Total Inspections Completed	Percent Completed
2020	1,799	1,644	91.4%
2021	1,848	1,718	93.0%
2022	1,730	1,681	97.2%
2023	1,987	1,960	98.6%
2024	2,072	2,013	97.2%
GRAND TOTAL	**9,436**	**9,016**	**95.5%**

Fire Investigation Unit

All SCCFD company officers are trained to determine the cause and origin of fires. To fulfill this responsibility, the fire department supports the fire investigation program with trained on-call investigators from the Operations and Fire Prevention Divisions.

In addition, SCCFD contracts with the City of Campbell's Police Department to conduct fire-related criminal investigations and prosecute individuals as necessary. In 2024, of the 266 fires investigated, 13 suspects were arrested for arson.

OFFICE OF EMERGENCY MANAGEMENT

The Office of Emergency Management (OEM) engages the whole community in assessing needs and developing strategies to achieve preparedness, prevention, response, mitigation, recovery, and resilience capabilities within the Santa Clara County Operational Area. The Office of Emergency Management maintains AlertSCC, used for alerting and warning during crises, and participates in public preparedness outreach events.

OEM supports first responders, including fire, law enforcement, and emergency medical services, during emergencies and disasters. OEM coordinates resources from Local and State partners, community-based organizations, and faith-based organizations to provide community members with relief and supplies in an emergency or disaster and is the lead Operational Area agency responsible for ensuring the development, implementation, and maintenance of a comprehensive Emergency Operations Plan and associated annexes.

The Office of Emergency Management has established a comprehensive training and exercise program aimed at enhancing the County Operational Area's capabilities, along with producing after-action reports detailing strengths and areas for improvement after exercises and emergency operations center activations.

OEM ensures the readiness of Santa Clara County's Emergency Operations Center (EOC) for activation. When activated, personnel from various county departments and divisions serve in key EOC sections: management, operations, logistics, planning/intelligence, finance, and administration. A duty officer is available 24/7 through Santa Clara County 911 Communications. **Table 12** details the OEM positions and full-time equivalent count.

Table 12: Office of Emergency Management Positions and Full-Time Equivalent Count

Position	FTE
Director of Office of Emergency Management	1
Deputy Director Office of Emergency Management	1
Senior Program Specialist	1
Program II Specialist	2
TOTAL FTEs	5

SUPPORT SERVICES DIVISION

The Support Services Division manages 132,000 square feet of building space, which includes SCCFD's 15 fire stations, its headquarters, and the McCormack Training Center. The division maintains and repairs apparatus and equipment, administrative vehicles, and the antique apparatus housed in various fire stations. Support Services meets the direct needs of SCCFD's operations and fulfills logistics for daily operational supplies.

In recent years, the fire chief restructured the division within the organization and hired a civilian support services director with extensive experience and a proven track record of managing large facility and fleet projects. This approach has expedited procurement timelines and streamlined process requirements.

SCCFD has a full-service maintenance and repair shop that provides new vehicle upfit and testing and coordinates surplus vehicle disposition. This group of State Fire Marshal Certified Emergency Vehicle Technicians services and maintains all department vehicles. The crew achieves an average of 96% vehicle availability for service. The fleet shop contributes data on operating costs and reliability to determine new vehicle specifications. This group can be deployed as a mutual-aid resource.

The facilities group is responsible for daily onsite property management, inside and outside maintenance and repair, and coordination of custodial, grounds, and utility services. The group coordinates third-party repairs and equipment replacement, assists with capital improvement projects, and provides the basis for the annual deferred maintenance projects plan.

The warehouse group manages centralized receiving, storage, and shipping for much of SCCFD's supply needs. This includes monthly resources distributed to the stations, personal protective equipment, high-value computer peripherals and materials, and durable goods. The group delivers directly to recipients to allow station staff to focus on operations and training.

The Support Services Division utilizes a facility condition assessment to guide strategic decisions for capital improvement and maintenance projects. The division chairs the vehicle committees for new equipment purchases, which determine the specifications and manage the build process, including delivery. **Table 13** details the Support Services Division positions and full-time equivalent count.

Table 13: SCCFD Support Services Division Positions and Full-Time Equivalent Count

Position	FTE
Director of Support Services	1
Supply Services Specialist	1
Supply Services Specialist II	1
Facility Maintenance Manager	1
General Maintenance Worker	2
Senior Fire Mechanic	1
Fire Mechanic I/II	3
Administrative Assistant	1
TOTAL FTEs	**11**

BUSINESS SERVICES DIVISION

SCCFD's Business Services Division provides essential administrative, financial, and risk management oversight and support that enables the Department to operate efficiently and effectively. This division ensures that the necessary resources, systems, and processes are in place to support the delivery of high-quality emergency services and community risk-reduction programs.

Serving as the backbone of the Department's internal operations, the Business Services Division is responsible for multiple functions, including budget development and oversight, financial reporting, procurement, contract management, payroll and benefits administration, and risk management. The division also ensures compliance with county, state, and federal regulatory requirements, promoting transparency, accountability, and fiscal responsibility.

Core responsibilities of the division include:

- **Financial management:** Oversee preparing, monitoring, and reconciling the Department's annual operating and capital budgets. Provide regular financial reporting to ensure sound fiscal stewardship and informed decision-making.
- **Procurement and contracting:** Manage procurement processes in alignment with public agency regulations. This includes vendor selection, contract negotiation, and oversight of goods and services to ensure operational readiness and cost-effectiveness.
- **Payroll and benefits administration:** Coordinate employee benefits programs, including medical, dental, and retirement plans. Ensure accurate and timely payroll and employee benefits administered in coordination with Personnel Service and external partners.
- **Administrative support services:** Conduct financial and feasibly studies that inform strategic initiatives and long-range planning for the department, including a five-year fiscal plan, annexations, mergers and fire service contracts. Serve as the department's custodian of records.

By providing critical administrative and financial infrastructure, the Business Services Division enables the Department to focus on its core public safety mission. Through effective resource stewardship and process innovation, the division is foundational in supporting frontline operations and long-term organizational sustainability. **Table 14** details the Business Services Division positions and full-time equivalent count.

Table 14: SCCFD Business Services Division Positions and Full-Time Equivalent Count

Position	FTE
Director of Business Services	1
Principal Accountant/Financial Analyst	1
Financial Analyst	1
Business Services Associate	3
Benefits/Payroll Analyst	1
Contract Compliance Analysts	1
TOTAL FTEs	8

INFORMATION TECHNOLOGY DIVISION

SCCFD's Information Technology (IT) Division is vital in advancing its mission to protect life, property, and the environment through preparedness, prevention, education, and emergency response. As a high-performing and resilient unit, the IT Division ensures the security, reliability, and optimal performance of the technology systems that support emergency operations, daily functions, and administrative services.

The core responsibilities of the division include the strategic planning, implementation, and ongoing management of mission-critical technology infrastructure. This includes designing and maintaining core network architecture, virtualized server environments, and integrated cloud-based platforms. The IT Division empowers data-informed decision-making and operational agility across the organization through a collaborative and innovation-focused approach.

Key priorities, such as continuous improvement, redundancy planning, and cybersecurity preparedness, are embedded in all aspects of IT operations. These efforts ensure uninterrupted technical support for the Department's life-saving mission and reinforce organizational resilience in the face of evolving challenges. **Table 15** details the Information Technology Division positions and full-time equivalent count.

Table 15: SCCFD Information Technology Division Positions and Full-Time Equivalent Count

Position	FTE
Director of IT	1
Senior Network Security Engineer	1
Senior Systems Analyst	1
System Administrator	1
IT Application Analyst	1
GIS Analyst	1
Information Systems Analyst II	1
TOTAL FTEs	**7**

PERSONNEL SERVICES DIVISION

SCCFD's Personnel Services Division manages the Department's most vital asset, its workforce. This division plays a critical role in recruiting, developing, and retaining a highly skilled, diverse, and mission-driven team that is dedicated to protecting the lives, property, and environment of the communities served.

The Personnel Services Division fosters a safe, inclusive, and productive work environment through strategic human resources management and employee support services. The division ensures that personnel policies, practices, and programs align with organizational goals, labor agreements, and applicable laws and regulations.

Core Responsibilities of the Personnel Services Division include:

- **Recruitment and hiring:** Oversee fair, transparent, and competitive hiring processes for all positions within the Department. Coordinate testing, background investigations, and onboarding activities to ensure the timely placement of qualified personnel.
- **Employee relations and labor support:** Administer labor agreements in collaboration with unions and employee associations. Provide guidance on employee relations matters, disciplinary procedures, and conflict resolution to maintain a respectful and compliant workplace.
- **Classification and compensation:** Manage job classifications, salary structures, and compensation programs to ensure internal equity, market competitiveness, and alignment with county-wide standards.
- **Leave administration:** Coordinate and facilitate leaves in accordance with the Family and Medical Leave Act (FMLA), workers' compensation, and disability accommodations.
- **Training and development support:** Collaborate with the Training Division to support professional development, promotional processes, and succession planning to help build future leadership and maintain operational excellence.
- **Workforce planning and analytics:** Utilize data-driven approaches to analyze workforce trends, monitor staffing needs, and develop strategies to support long-term personnel sustainability and diversity goals.

The Personnel Services Division plays a pivotal role in supporting the readiness and resilience of SCCFD. By investing in its people and cultivating a supportive work environment, the division ensures that the Department remains staffed by competent professionals prepared to meet the community's evolving needs. **Table 16** details the Personnel Services Division positions and full-time equivalent count.

Table 16: SCCFD Personnel Services Division Positions and Full-Time Equivalent Count

Position	FTE
Director of Personnel Services	1
Senior Management Analyst	1
Management Analyst	2
Personnel Service Technician	1
TOTAL FTEs	5

SECTION III

COMMUNITY RISK ASSESSMENT

PART I

INTRODUCTION AND METHODOLOGY

For this report, the three-axis method was employed to assess risk within the Santa Clara County Fire Department (SCCFD, the Department). The Department, also known as the Santa Clara County Central Fire Protection District (CCFD), consists of **15 stations** with **36 frontline fire apparatus** and **3 command vehicles**. It covers an area of approximately **132 square miles**. The following seven risk categories were analyzed for the SCCFD:

1. **Fire suppression risk — structure fires**
2. **Fire suppression risk — non-structure fires**
3. **Emergency medical services (EMS)**
4. **Technical rescue**
5. **Hazardous materials (HazMat)**
6. **Wildland fires**
7. **Natural and human-made disasters**

THREE AXIS RISK CLASSIFICATION MODEL

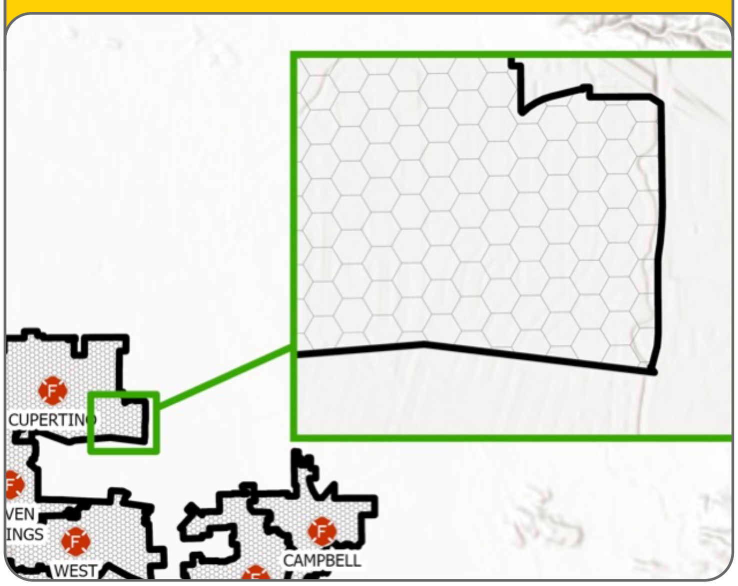
Establishing a risk score to quantify risks in a community is necessary to provide an organization with the information it needs to create response protocols and conduct future planning. This analysis uses the Three-Axis Heron model recommended by the Center for Public Safety Excellence (CPSE) to quantify risk. This model establishes a score by reviewing probability, consequence, and impact factors and assigning an overall score for each variable selected. To build the three-axis model, FireStats assigned various variables to a hexagonal grid cell, or hexbin, to geographically measure the variable's impact in each hexbin **(Figure 41)**.

For the SCCFD, each station's primary response area serves as the foundational planning zone. These zones are analyzed for risk assessment, deployment analysis, and performance measurement, allowing the department to evaluate risk factors, service demand, and resource allocation at a manageable scale.

At a more granular level, the SCCFD divides its jurisdiction into hexbins, which represent the smallest unit for risk analysis. Each group of hexbins are assigned to a corresponding planning zone and is evaluated using detailed data on population demographics, building type, land use patterns, natural hazard exposure, and historical performance. This layered approach from an individual hexbin to a planning zone provides both a precise and strategic perspective, ensuring resources are aligned with community needs and risks.

The Department's entire service area is described by 17,671 hexbins, each with a variable representing key data such as incidents, infrastructure, travel time by response vehicles, and other information that describes the area. Community characteristics, known as variables, were analyzed tabularly and geographically. Each variable was classified by its contribution to probability, consequence, and/or impact. These variables were then mapped across the jurisdiction and applied into hexagonal grid cells, or hexbins, which were developed to ensure a consistent method of evaluating the variables in relation to the service area's geography. Data were normalized, and variable scores were calculated for each hexagonal grid cell and then aggregated into planning zones (i.e., larger logical groupings of geography used for the accreditation process) to calculate the final results. This method of assigning variables to the hexbin builds a geographic model used to calculate the risk to the agency and advise the Department on how best to use its resources to mitigate the risk.

Figure 41: Hexbin Example



The analysis focused on seven key risks to the service area: fire suppression risk (structure fires and non-structure fires), emergency medical services (EMS), technical rescue, hazardous materials

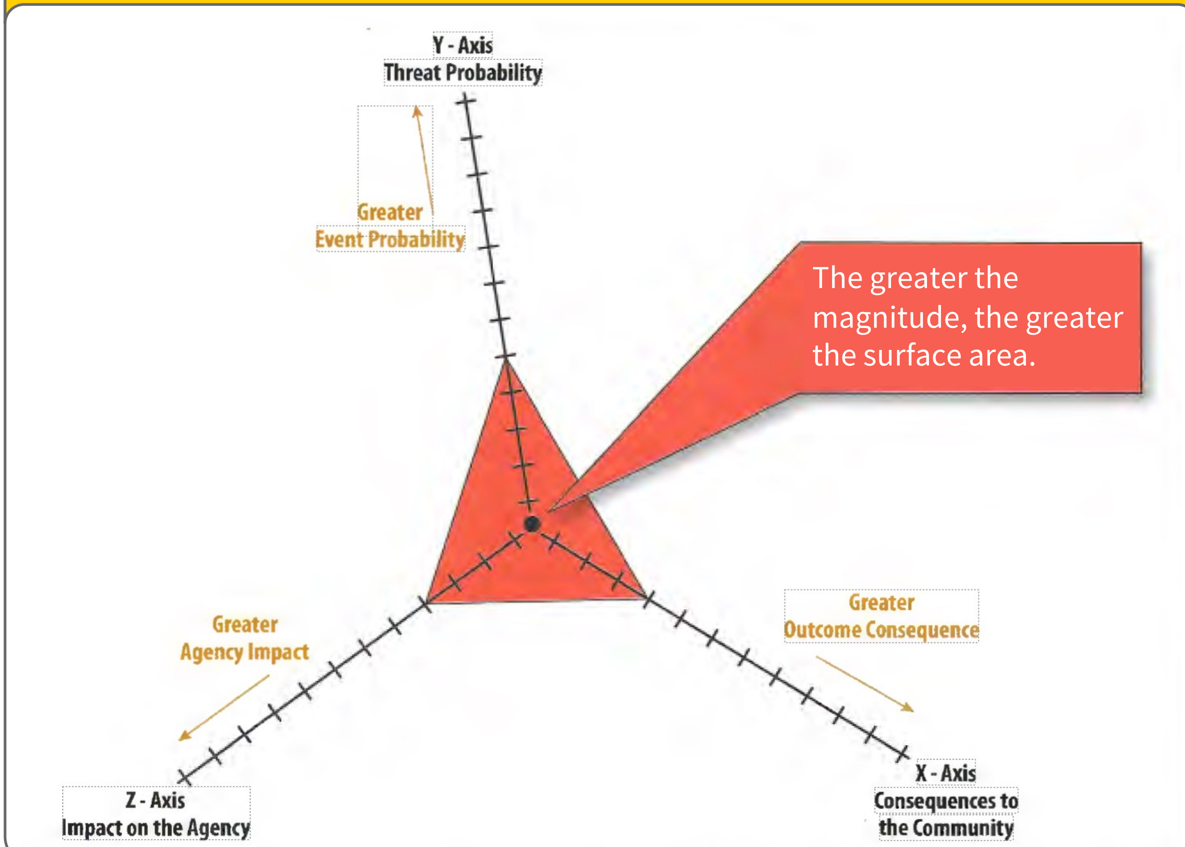
(HazMat), wildland fires, and natural and human-made disasters.

FireStats calculated an average risk for each hexbin based on the variable associated with the risk. The hexbin variables were categorized as either a probability (i.e., a value to predict if an incident will occur in the hexbin), a consequence (i.e., a value to predict the effect of the risk on the hexbin), or an impact (i.e., the effect on the service area associated with the risk). Each of these scores (probability, consequence, and impact) were then entered into the three-axis model, and the surface area of the triangle formed was calculated for the overall risk.

This approach utilizes the elements of event probability, consequence, and the impact on the agency relative to a risk classification. The total impact is determined by considering varying conditions and features within response area, the varying hazards unique to the risk, the essential factors created by a risk event, and the resources required to effectively mitigate the incident risk.

Figure 42 illustrates the three-axis risk-classification process and how a score is developed.

Figure 42: Three-Axis Risk-Classification Process



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$$Overall\ Risk: \sqrt{\frac{(Probability * Consequence)^2}{2} + \frac{(Consequence * Impact)^2}{2} + \frac{(Impact * Probability)^2}{2}}$$

METHODOLOGY

Using the three-axis method, the analysis looked at various geographic and fixed variables to build a risk score for each grid score for each risk. The paragraphs below explain the types of variables that go into each axis of the above diagram. The overall score is then compared against all the other hexbins in the service area to build a risk map for the county.

Types of Variables

This section explains the types of variables that go into each axis of the model used to build a risk map for the SCCFD.

Probability

Probability is the likelihood of an incident occurring in the community over time. This axis reflects the probability of a specific type of incident occurring, which contributes to the Department's risk level. The tables below include the details for each risk calculation, but they are typically based on historical incidents, geographic features, and demographic data. For example, for structure fires, the probability risk variables include historical incidents, the number of addresses (indicating structures), and land use scores.

Consequence

The consequences of an incident can vary from minor injuries or damage to a structure to severe impacts that could destroy historical or major community facilities and/or cause a significant loss of employment or life. In this analysis, the consequence variables demonstrate the level of risk associated with the incident in that hexbin. For example, in the wildfire risk assessment, the consequence variables relate to land value, population density, and the presence of critical infrastructure.

Impact

The CPSE provides guidance on a third risk axis, which enables measurement beyond probability and consequence with the introduction of impact. Impact relates to the impact a hazard or event can have on the responding jurisdiction, specifically, the effect on the community's standard of deployment and coverage capacity when an emergency event occurs. A community's threat of injury and loss increases as fire and emergency resources become depleted and are not available for emergency incident mitigation. To measure this threat and provide a quantitative score, impact was measured by evaluating the variables described in this section [deployment and effective response force, commitment times, and incident durations. The impact variable is primarily standard across the risk assessments, with deployment and commitment scores consistent throughout the analysis.

Overall Risk Calculation

Once the probability, consequence, and impact variables are calculated for each risk assessment, they are combined using Heron's formula, which calculates the area of a triangle in terms of the lengths of its sides, as shown below. Using this formula, a risk score is assigned to each hexbin. The overall score of each hexbin across SCCFD's service area is compared to determine the highest risk areas in the service area. This comparative analysis is then summarized by the station area.

$$Overall\ Risk: \sqrt{\frac{(Probability * Consequence)^2}{2} + \frac{(Consequence * Impact)^2}{2} + \frac{(Impact * Probability)^2}{2}}$$

Analytic Process

Each variable is further described within the risk assessments in the following sections. Risk scores are designed to provide information to determine the level of service required for the community: The higher the score, the greater the risk in the community. Each risk category should be considered relative, not as an absolute for the service area. For example, the actual value of the non-structure fires hexbin risk score is not helpful when compared with the overall score for wildland fires, because calculated variables change. The hexbin risk score is useful in a relative sense to the other hexbins in the risk category. For example, within the wildland fire risk assessment, the higher scores show greater risk. Part II provides a detailed description of how variables were assigned.

PART II
VARIABLE ANALYSIS

FireStats used a systematic approach to classify and categorize variables for inclusion in the quantitative risk assessments. Variables that affect risk, in probability, consequence, and/or impact, were identified and analyzed for their relationships to each risk element (i.e., probability, consequence, and/or impact). The variables were also analyzed in relation to their relationships to each risk type (i.e., fire suppression, EMS, technical rescue, HazMat, wildland fire, and natural and human-made disasters), as well as data quality. The quality and accuracy of the data provided (NFIRS, CAD, Inspection, and Other) is important to determining accurate risk. Based on the results of the analyses, data were either stratified across the geographic region, identified as dichotomous presence/absence factors, or applied uniformly to the whole service area. The following sections of this report describe the evaluation of the variables and summarize each in terms of how it was applied overall in the risk scoring. The details of each variable, score, and value in the specific risk calculation are provided in **Part III: Calculated Risk.**

PROBABILITY VARIABLES

Probability variables applied to the risk calculations include service demands; persistent years; historical incident type; event consequence and loss (dollar loss, fire confinement, wildland fire loss, and human casualties/losses); risk reduction (inspections, fire suppression systems, and public education and outreach); property values; building characteristics; land use; water supply (hydrants); critical infrastructure (transportation systems, major utilities, special locations and addresses, and trails and parks); HazMat; population characteristics (at-risk populations groups and social vulnerability index factors); topography, geography, climate and physiography; fire station proximity; and impact to organization (commitment times and deployment).

Service Demands

Incident data by calendar year was summarized in the hexagonal grid **(Figure 43)**, and a series of analyses was performed. Historical incident data was analyzed to determine the probability of specific risks.

FireStats recreated a grid area of 47,286 hexbins in 2020 to cover the entire SCCFD geographic area, and then the subset of hexbins covering the service area (17,617) was used in the analysis. This approach allowed for changing boundaries or service areas over time, while ensuring the variables could be consistently applied across the geography.

During the 5-year period of 2020 to 2024, approximately 41% of the service area had at least 1 incident, and the remaining 59% had no recorded incidents.

The hexbins were ranked by percentile, and the percentile ranking was used as a factor in the risk calculations. Each percentile rank was calculated and multiplied by 10 to give a score from 0 to 10 for normalization with the other variables analyzed.

In addition to the percentile rank, a normalized score was calculated, using the maximum number of incidents as the basis for normalization. Throughout the 5-year period, the lowest number of incidents per hexbin was 0, and the highest number of incidents was 535. One hexbin in the service area (Los Altos Sub-Acute and Rehabilitation Center, at 809 Fremont Avenue in Los Altos), had 535 incidents in 2022 and a total of 1,845 incidents throughout the 5-year period.

Persistent Years

Service demands were also used to determine persistent geographic areas where incidents could be expected **(Figure 44)**. Some areas experienced no incidents (5.9%), and 7.9% of the service area had unique encounters, occurring only once in the 5-year period. However, nearly 10.4% of the area had persistent events, meaning an incident occurred every year in that hexbin for 5 years or more. **Table 17** outlines the percentage of the service area in which persistent incidents occurred and the associated hexbin risk scores. This data was used to weight the hexbins based on the level of persistency.

Figure 43: Service Demands—Percentile Rank

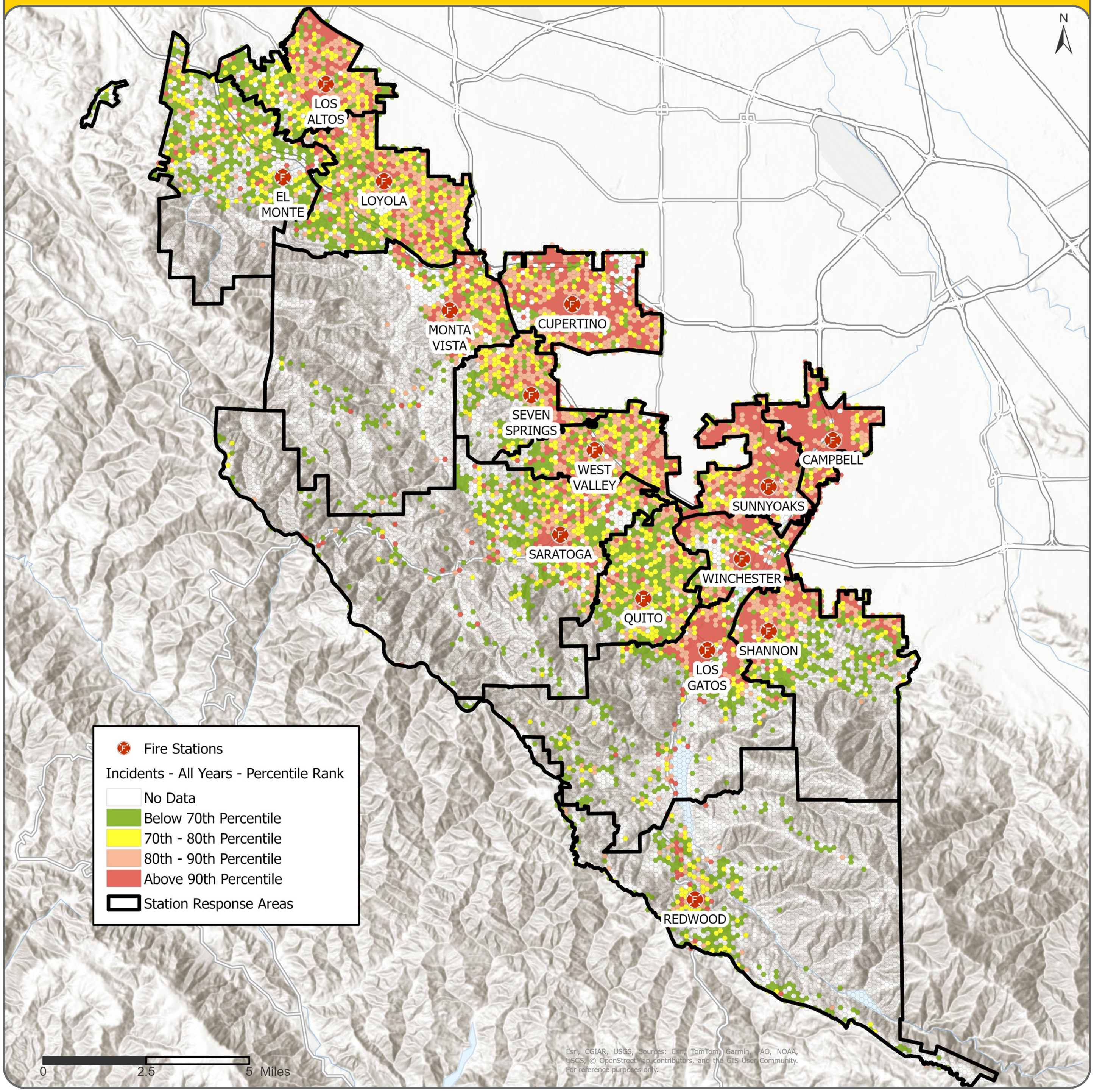
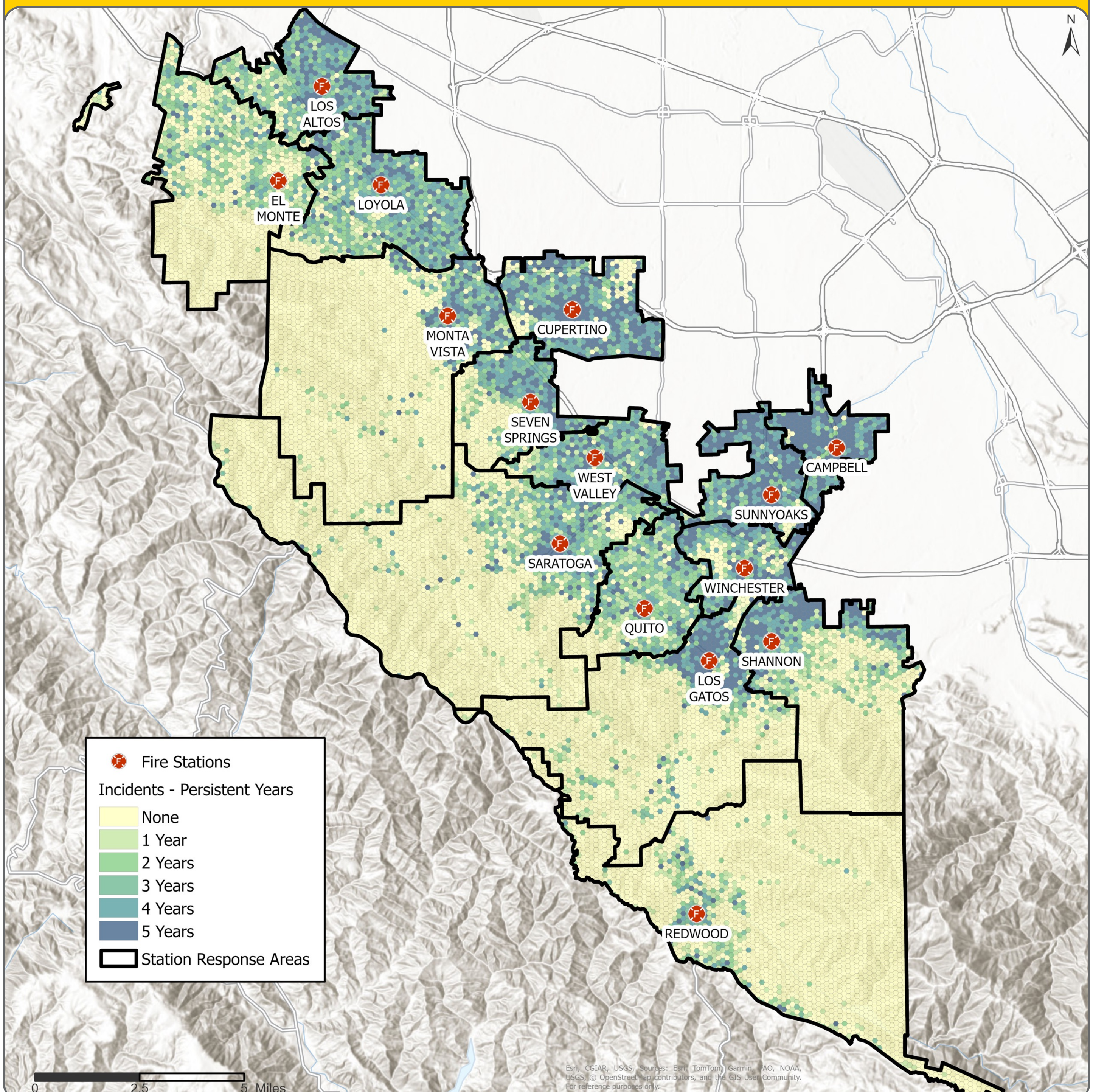


Table 17: Persistent Incident Years with Percentages and Scoring (2020–2024)

Persistent Years	Percentage of Service Area	Hexbin Risk Score
1 Year	7.9%	2
2 Years	7.1%	4
3 Years	7.4%	6
4 Years	8.3%	8
5 Years	10.4%	10

Figure 44: Persistent Years by Hexbin



Historical Incident Type

FireStats analyzed service demands to determine the probability of specific risks by historical encounters. National Fire Incident Reporting System (NFIRS) codes were used as a weighting factor in each grid cell **(Figure 45)**. The incident type by number reported was recorded, and a percent rank based total number was used to determine a risk weighting factor for the analysis to normalize the risk across different incident types **(Table 18)**. Additionally, a sub-incident score for non-structure fires, outside fires, and technical Rescue was determined to weight these specialty incidents **(Table 19)**.

Table 18: NFIRS Code Descriptions, Incident Counts, Percentage, and Risk Weighting Factors

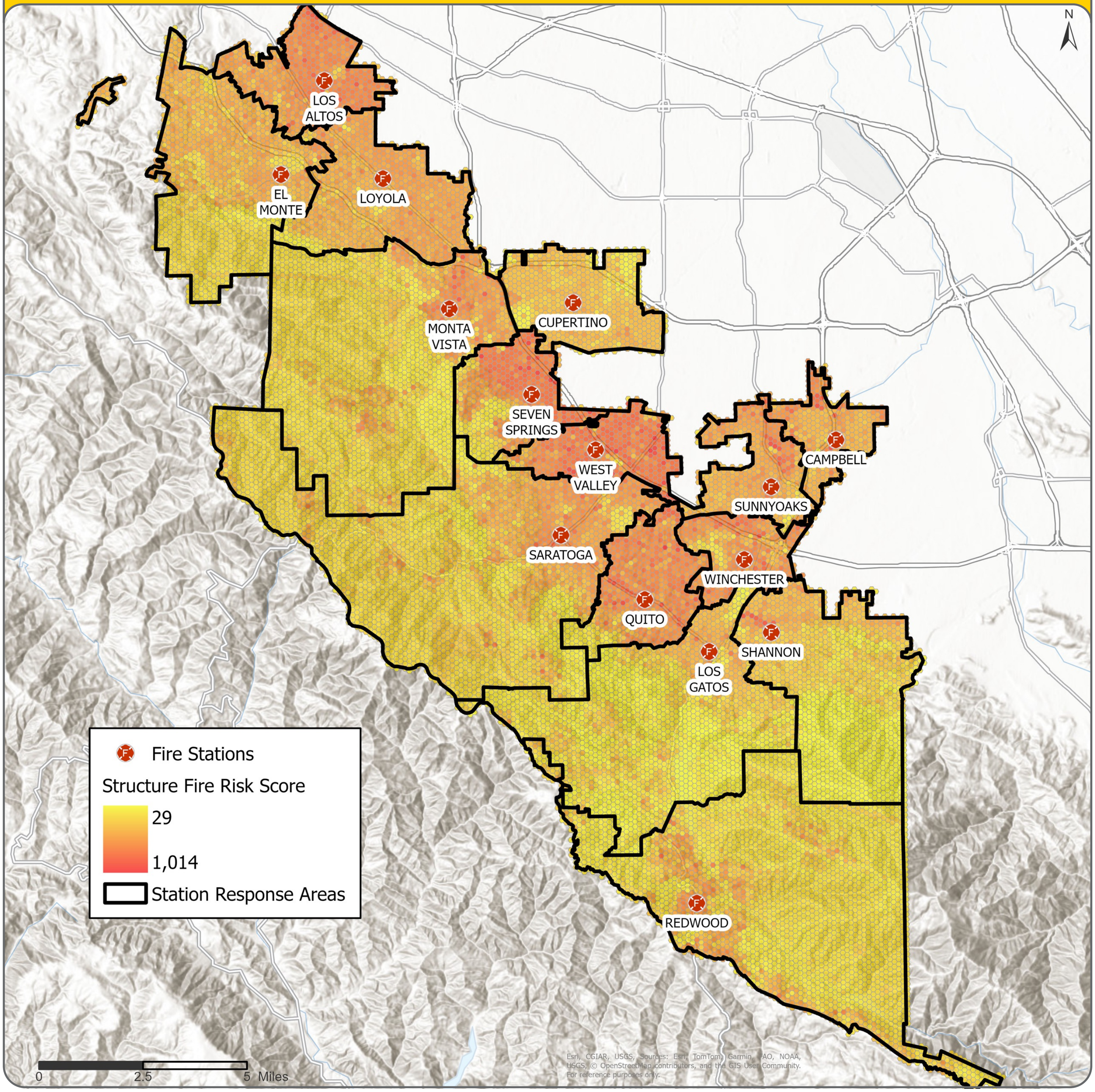
NFIRS Code	NFIRS Description	Incident Count*	Percentage	Risk Weighting Factor
100	Fire	1,457	1.4%	0.33
200	Rupture/explosion	157	0.2%	0.22
300	EMS/rescue	63,037	61.3%	1.00
400	Hazardous condition	2,560	2.5%	0.44
500	Service call	8,141	7.9%	0.67
600	Good intent	9,339	9.1%	0.78
700	False alarm	7,527	7.3%	0.56
800	Severe weather or natural disaster	26	0.0%	0.11
900	Special incident type	20	0.0%	0.00
n/a	No NFIRS Code	10,640	10.34%	0.89

**Based on available NFIRS incident data.*

Table 19: NFIRS Sub-Incident Code Descriptions, Incident Counts, and Sub-Scores

NFIRS Sub-Incident Type Codes	Description	Count	Sub-Score
100, 130, 140, 150, 160, 170 series	Non-structure fire	956	.66
140, 160, 170 series	Outside/vegetation fire	434	.30
330, 322, 340, 350, 360, 370 series	Technical rescue	263	0.004
310 & 320 series	EMS	62,690	1
110 & 120 series	Structure fire	501	.34

Figure 45: Example-Fire Risk Score



Event Consequence and Loss

Several loss variables were included in the variable analysis, and the loss variables associated with fires and EMS events collected as part of the NFIRS and EMS reports are described here. Other variables were included in the consequence scoring within each risk; however, this section only describes the losses and consequences that were tracked by SCCFD personnel, including dollar loss, fire containment, wildland fire loss, and human casualties and losses.

Dollar Loss

Fire loss data was exported from the NFIRS[1] reporting system. Fire loss was reported in the amount of $68,010,532 for structure fires and $3,613,266 for vehicle fires. (Note: An estimate of property and contents dollar loss is required for all fires for which the value is known and is optional for other incident types.) Because actual dollar loss data was not complete enough to be used. the analysis used the actual 2024 hexbin median property improvement value or median home value **(Table 20)** as risk factors.

Table 20: Median Property Value Scoring

Median Property Improvement Value (2024)	Number of Hexbins with Median Property Improvement Value Scores	Rank Score
< $ 791,089	16,217	1
$ 836,838	117	2
$ 922,288	180	3
$ 1,129,647	285	4
$ 1,232,220	86	5
$ 1,303,986	54	6
$ 1,502,616	107	7
$ 1,821,104	110	8
$ 2,000,001	53	9
> $ 2,000,001	408	10

[1] *Data provided by SCCFD exported from the NFIRS Reporting system, titled "Fire Dollar Loss by Year and NFIRS CRA-SOC 2020–2024.xlsx".*

The fire loss data from NFIRS is reported by NFIRS code in **Table 21**.

Table 21: Fire Loss by NFIRS Code

NFIRS Type	Total Loss
111	$ 65,906,443
112	$ 1,919,850
113	$ 125,559
114	$ 5,000
122	$ 200
131	$ 3,613,266
132	$ 116,800
142	$ 252,610
143	$ 44,150
TOTAL	$ 71,983,878

Fire Confinement

Fire confinement data was analyzed and used in conjunction with property values in consequence scoring. Fire confinement when confined to the building of origin or when fire extended beyond the building was used as a factor throughout the service area and was not stratified geographically **(Table 22)**. An average of 38% across the years was applied to the consequence scoring.

Table 22: Fire Confinement Yearly Percentages

Fire Confinement	2020	2021	2022	2023	2024	5-year Average
Beyond building of origin	7.1%	4.0%	6.3%	7.0%	11.9%	7.3%
Confined to building of origin	11.4%	28.0%	27.1%	14.0%	22.0%	20.5%
Confined to floor of origin	8.6%	12.0%	8.3%	3.5%	6.8%	7.8%
Confined to object of origin	24.3%	18.0%	14.6%	38.6%	30.5%	25.2%
Confined to room of origin	48.6%	38.0%	43.8%	36.8%	28.8%	39.2%

Wildland Fire Loss

Overall, there is significant impact and consequence associated with wildland fires. Fire loss is tracked in terms of acreage burned and dollar damage. Wildland fire loss was considered and evaluated for inclusion in the risk assessment; however, data was unavailable for the specific region. Therefore, California Department of Forestry and Fire Protection (CAL FIRE) data was used to summarize data throughout California **(Table 23)**. NFIRS data for acres burned were also assessed for inclusion in the risk calculations. However, the data was deemed insignificant to affect risk scoring, so it was not incorporated. The total land and property value was used in risk calculations.

Table 23: Summary of Wildland Fire Loss

California Wildfire Year	Dollar Damage
2023	$ 993,758
2022	$ 286,804
2021	$ 45,507
2020	$ 2,989,562
2019	$ 844,021
2018	$ 3,220,947

Human Casualties and Losses

Consequence was not only assessed from a monetary perspective; the number of civilian deaths and injuries, as well as firefighter injuries, was considered for inclusion in scoring. Within the 5-year risk analysis period, SCCFD documented no civilian or firefighter fatalities; however, there was one civilian injury and two fire service injuries.

For other risk types, losses were considered through other variables. However, for the EMS and rescue risk types, EMS patient care data was included in the analysis. Data was exported from FireHouse and the ImageTrend® Elite system to determine the most common EMS impressions and include performance factors related to CPR events. The return of spontaneous circulation (ROSC) percent was added into the risk scoring as a variable applied to the whole service region **(Table 24)**.

Table 24: Return of Spontaneous Circulation Yearly Percentages

ROSC	2020	2021	2022	2023	2024
Percentage	31.2%	32.0%	32.9%	32.1%	34.3%

The number of critical patients was also considered for EMS consequence. In absence of outcome data from transports to medical facilities or EMS billing data, the rate of patients encountered with a critical primary impression was included in consequence scoring **(Table 25)**. Additionally, the number of trauma patients by station area was included and stratified across the geography for rescue consequence **(Table 26)**.

Table 25: Top 20 Primary EMS Impressions with Percentage and Cumulative Percentages

Rank	Primary EMS Impression	Critical	Percentage	Cumulative Percentage
1	Traumatic injury	Yes	20.0%	20.0%
2	General weakness	No	8.5%	28.5%
3	No medical complaint / findings	No	7.8%	36.3%
4	Altered level of consciousness	Yes	6.2%	42.5%
5	Respiratory distress / other	Yes	5.0%	47.5%
6	Syncope / near syncope	Yes	4.7%	52.2%
7	Abdominal pain / problems	No	4.8%	57.0%
8	Pain/swelling — extremity, nontraumatic	No	3.4%	60.4%
9	Nontraumatic body pain	No	3.3%	63.7%
0	Behavioral/psychiatric crisis	No	3.4%	67.1%
11	Dizziness / vertigo	No	3.0%	70.1%
12	Chest pain — suspected cardiac	Yes	2.6%	72.7%
13	Nausea / vomiting	No	2.3%	75.0%
14	Alcohol intoxication	No	2.2%	77.2%
15	Stroke / cerebrovascular accident / transient ischemic attack	Yes	1.9%	79.2%
16	Seizure	No	2.0%	81.2%
17	Chest Pain — noncardiac	Yes	1.7%	82.9%
18	Cardiac arrest — nontraumatic	Yes	1.5%	84.3%
19	Fever	No	1.5%	85.8%
20	Cold/flu symptoms	No	1.2%	87.0%

Table 26: Percentage of All Trauma by City, CYs 2020–2024			
City	**Number of Runs**	**Total Percent Runs**	**Scoring**
Los Gatos	2,663	24%	10.0
Cupertino	2,428	22%	8.3
Campbell	2,121	19%	6.7
Los Altos	1,768	16%	5.0
Saratoga	1,656	15%	3.3
Los Altos Hills	443	4%	1.7
Monte Sereno	123	1%	0.0

Risk Reduction

Within a quantitative risk assessment, there are some variables that can be used as risk-reduction factors, or mitigation variables, in risk scoring. For the SCCFD, mitigation variables included inspections, fire suppression systems, and public education and outreach. The ability to quantify these activities into the risk scoring calculations can be difficult if reliable data are not available.

The following sections outline how the risk-reduction variables were quantified within this risk assessment.

Inspections

Inspection data was gathered and calculated into the hexagonal grid. SCCFD provided data for inspections performed by deputy fire marshals at the company level during the 5-year period.

Inspection data were reported by city, and scoring was used within each city boundary as a risk-reduction factor **(Table 27)**.

Table 27: Total, Occupancy Inspection Counts, and Risk-Reduction Scores, FYs 2020–2024			
City/Fire Protection District/County	**Total Inspections**	**Occupancy Inspections**	**Total**
Campbell	4,344	6,225	10,569
Cupertino	1,616	3,741	5,357
Los Altos	608	2,246	2,854
Monte Sereno	11	14	25
Saratoga	203	1,946	2,149
Los Altos Hills	12	195	207
Los Gatos	1,283	4,315	5,598
Santa Clara County	48	162	210
Saratoga Fire Protection District	40	0	40

Fire Suppression Systems

Fire suppression systems were also considered as part of the Department's risk assessment. Ideally, a comprehensive database of fire suppressions systems associated with buildings, addresses, and parcels is the most effective way to incorporate data quantitatively into a risk assessment. The presence of detectors and automatic extinguishment systems, such as sprinklers, are variables that can be added as risk-reduction factors within the risk calculations. In SCCFD, no comprehensive database was available; therefore, a historical analysis of data from the NFIRS system was performed to analyze the frequency with which SCCFD responded to an address with detectors and/or automatic extinguishment capabilities **(Table 28)**. Given the results of the analysis, a factor was applied to the jurisdiction overall.

Table 28: Presence of Fire Suppression Systems in SCCFD, FYs 2020–2024	
Detector Presence	**Percentage**
Detector Present	55%
None Present	29%
Undetermined	16%

Public Education and Outreach

The Santa Clara County Community Education and Risk Reduction Services Unit (CERRS) provides classes and events for the public, including CPR classes, safety booths at community events, school educational programs, and station visits. Between 2020 and 2024, SCCFD recorded 212,304 participants in CERRS programs **(Table 29)**. Additionally, SCCFD maintains a Community Emergency Response Team (CERT) program and conducts community meetings related to the wildfire problem. Using a general rate, these public education and community-outreach activities were factored into the risk assessment as reduction factors based on the total population. As shown in **Table 30**, the data was further analyzed by city and type to calculate risk-reduction scores for consequence variables by type (fire, medical, wildfire, and disaster). In future iterations of this analysis, the CERRS database should be mined to review the population served by community to allow for geographic stratification of public education and community outreach activities.

Table 29: Public Education and Community Outreach Risk-Reduction Scores by Variable Type

City	General Score	Fire Score	EMS Score	Wildfire Score	Disaster Score
Campbell	9.88	5.44	7.66	2.11	9.88
Cupertino	7.66	9.88	9.88	2.11	7.66
Los Altos	6.55	8.77	8.77	2.11	6.55
Los Altos Hills	4.33	4.33	3.22	6.55	4.33
Los Gatos	8.77	6.55	5.44	9.88	8.77
Monte Sereno	2.11	2.11	2.11	2.11	2.11
Saratoga	5.44	7.66	6.55	8.77	5.44
County not in a City Area	3.22	3.22	4.33	7.66	3.22

Table 30: Community Education and Risk-Reduction Scores

Area or City	2020 Number of Programs Conducted	2020 Total Participants	2021 Number of Programs Conducted	2021 Total Participants	2022 Number of Programs Conducted	2022 Total Participants	2023 Number of Programs Conducted	2023 Total Participants	2024 Number of Programs Conducted	2024 Total Participants	GRAND TOTAL Number of Programs Conducted	GRAND TOTAL Total Participants
Campbell	35	1,118	60	3,607	72	3,894	94	6,317	126	12,363	**387**	**27,299**
Cupertino	19	2,556	83	16,679	91	14,209	114	15,407	117	17,082	**424**	**65,933**
Los Altos	15	468	75	11,640	60	7,539	92	10,347	107	7,582	**349**	**37,576**
Los Altos Hills	7	332	19	882	26	1,783	30	2,443	25	2,596	**107**	**8,036**
Los Gatos	37	1,265	72	8,971	57	5,844	117	9,777	82	11,776	**365**	**37,633**
Monte Sereno			1	265	1	265	4	10	3	29	**9**	**569**
Saratoga	13	332	52	6,696	52	7,358	71	7,912	76	8,207	**264**	**30,505**
SC County					2	100	49	2,841	45	1,812	**96**	**4,753**
Virtual/ Online	41	727	83	3,133	76	1,384			9	183	**209**	**5,427**
GRAND TOTAL	**167**	**6,798**	**445**	**51,873**	**437**	**42,376**	**571**	**55,054**	**590**	**61,630**	**2,210**	**217,731**

Property Values

Parcel property values within the service boundary were provided by Santa Clara County, and median total parcel values and property improvement values were ranked by percentile and used within the consequence calculations. **Figure 46** shows the normalized scores for total property values, and **Figure 47** shows median property improvement values by parcel in the hexagonal grid, as used in risk calculations.

Figure 46: Total Property Values—Percentile Rank

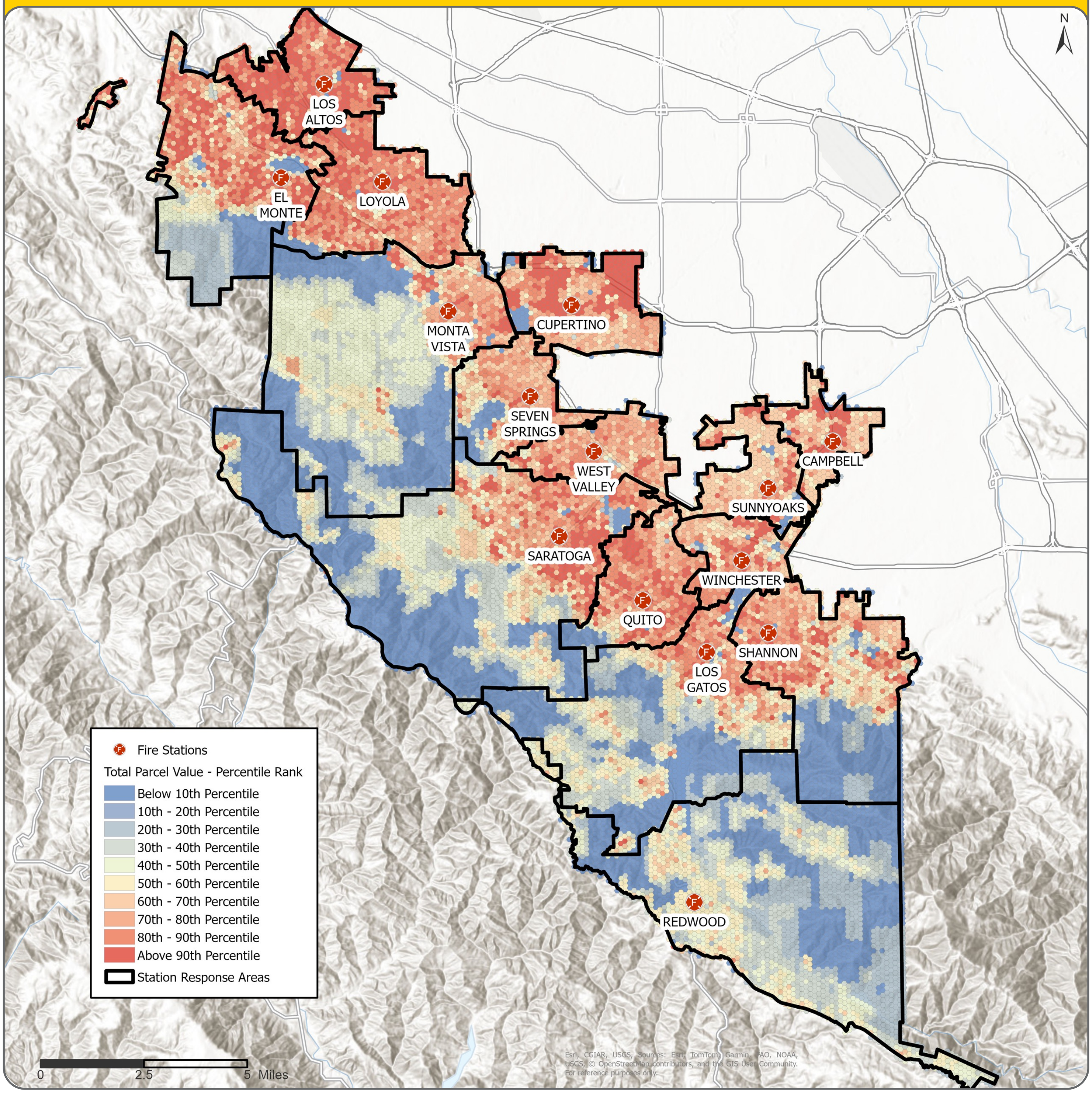
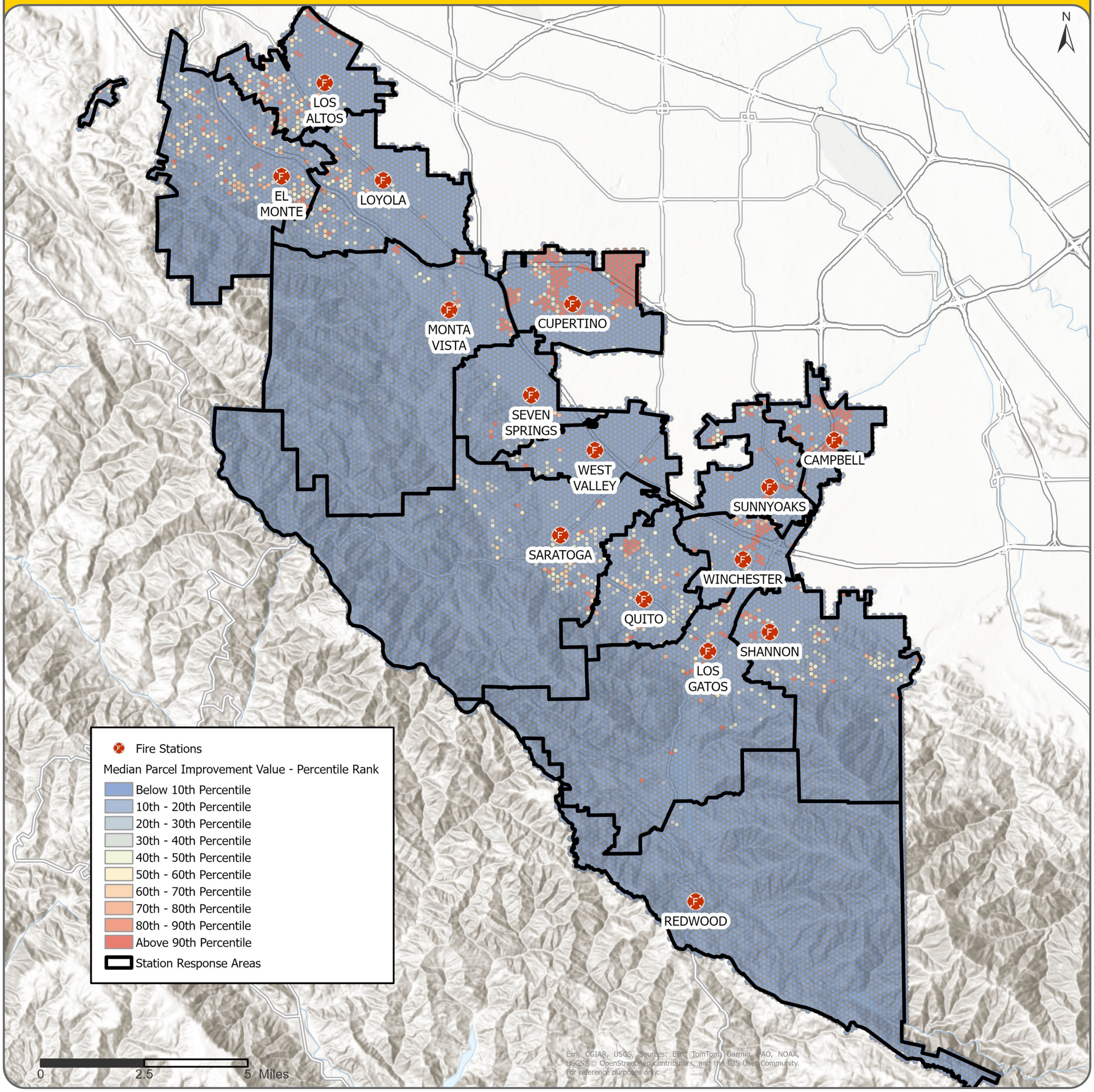


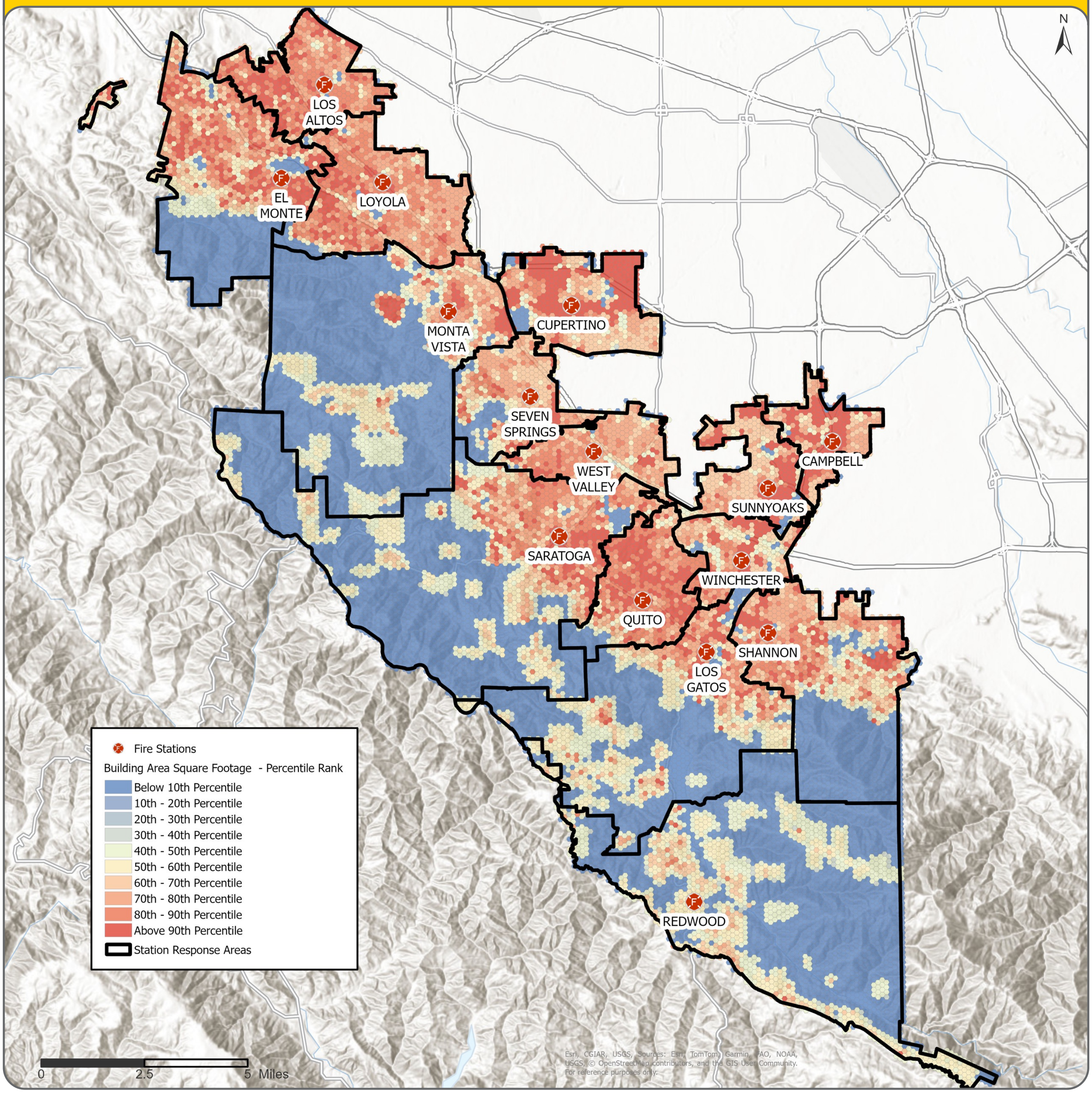
Figure 47: Median Property Values—Percentile Rank



Building Characteristics

Building characteristics, such as the number of floors, the square footage of the building, the presence of swimming pools, and the presence of fire suppression systems, are very important variables in a risk assessment and are included when available. For this analysis, commercial buildings over 50,000 square feet were categorized as risk. **Figure 48** illustrates the building square footage percentile rank within the SCCFD service area. (A map showing commercial buildings over 50,000 square feet is included below in the Critical Infrastructure section of the report.)

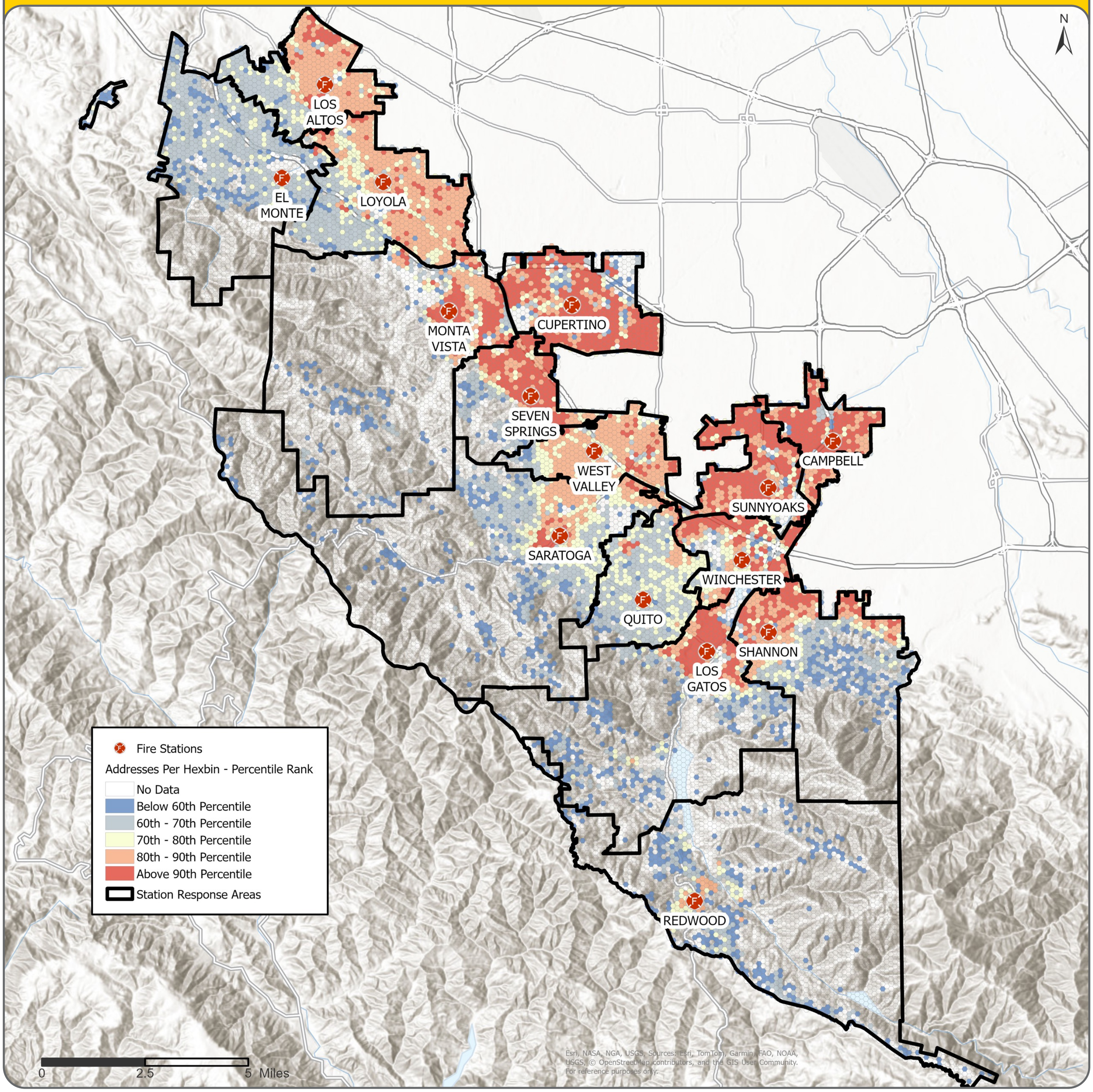
Figure 48: Building Square Footage—Percentile Rank



Addresses

The number of addresses per hexbin was summarized and used within the probability and consequence scoring **(Figure 49)**.

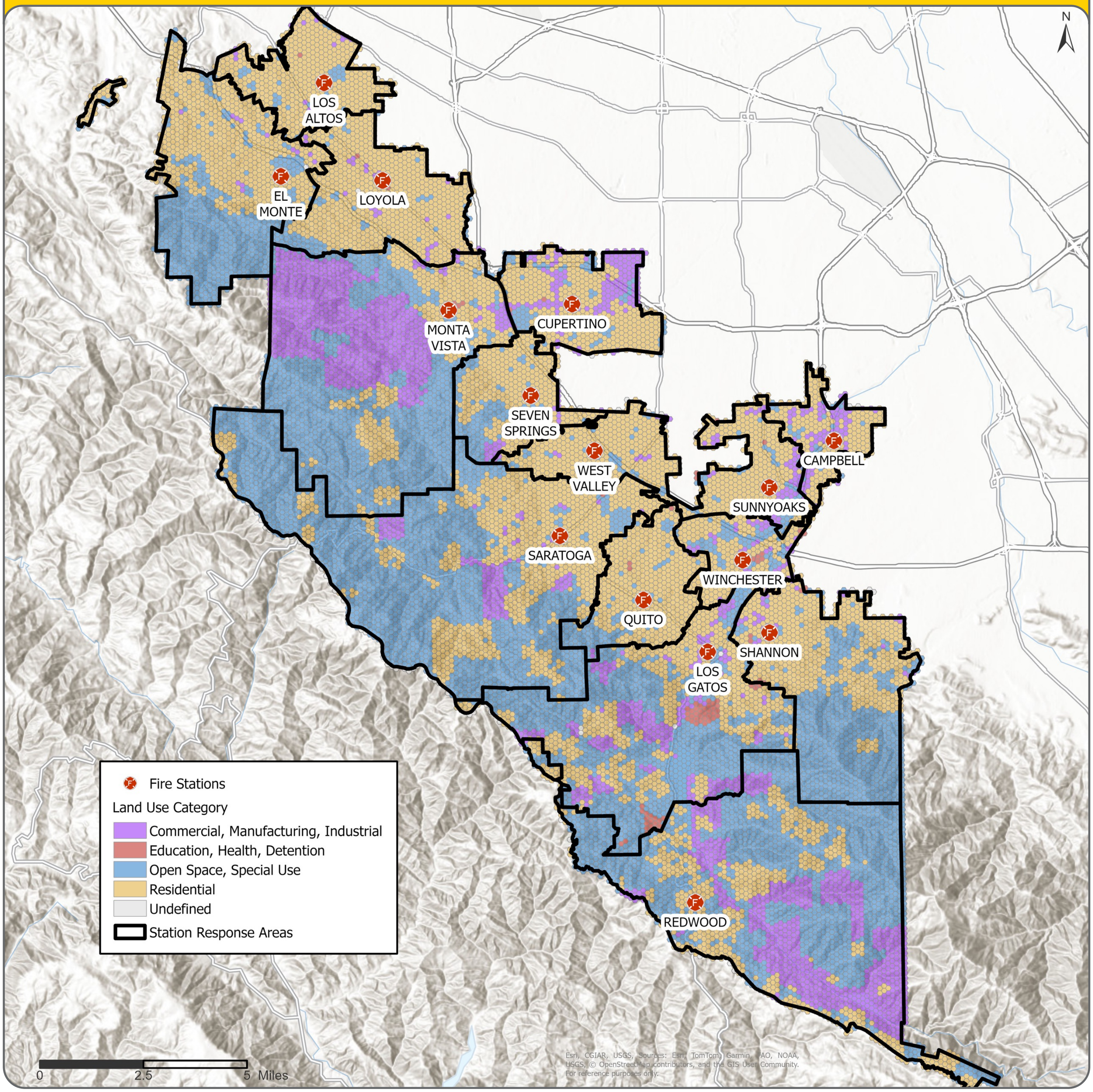
Figure 49: Addresses By Hexbin—Percentile Rank



Land Use

Comprehensive geographic information systems (GIS) land use data was available for Santa Clara County. FireStats examined the relationship between incidents and land use as a reliable indicator of the probability of certain risks.

Figure 50: Risk Scores by Land Use Category



Incident data was joined to the hexagonal grid, and the property use category that was most frequently recorded was attributed to each hexbin cell. Because incidents did not occur in every grid cell, in the locations where there was no documented property use type, the Santa Clara County land use data was used. The urban/rural GIS layer was used to reduce the number of cells with no land use. A land use risk score was calculated by category **(Figure 50)**. **Table 31** outlines the risk scores by incident variables.

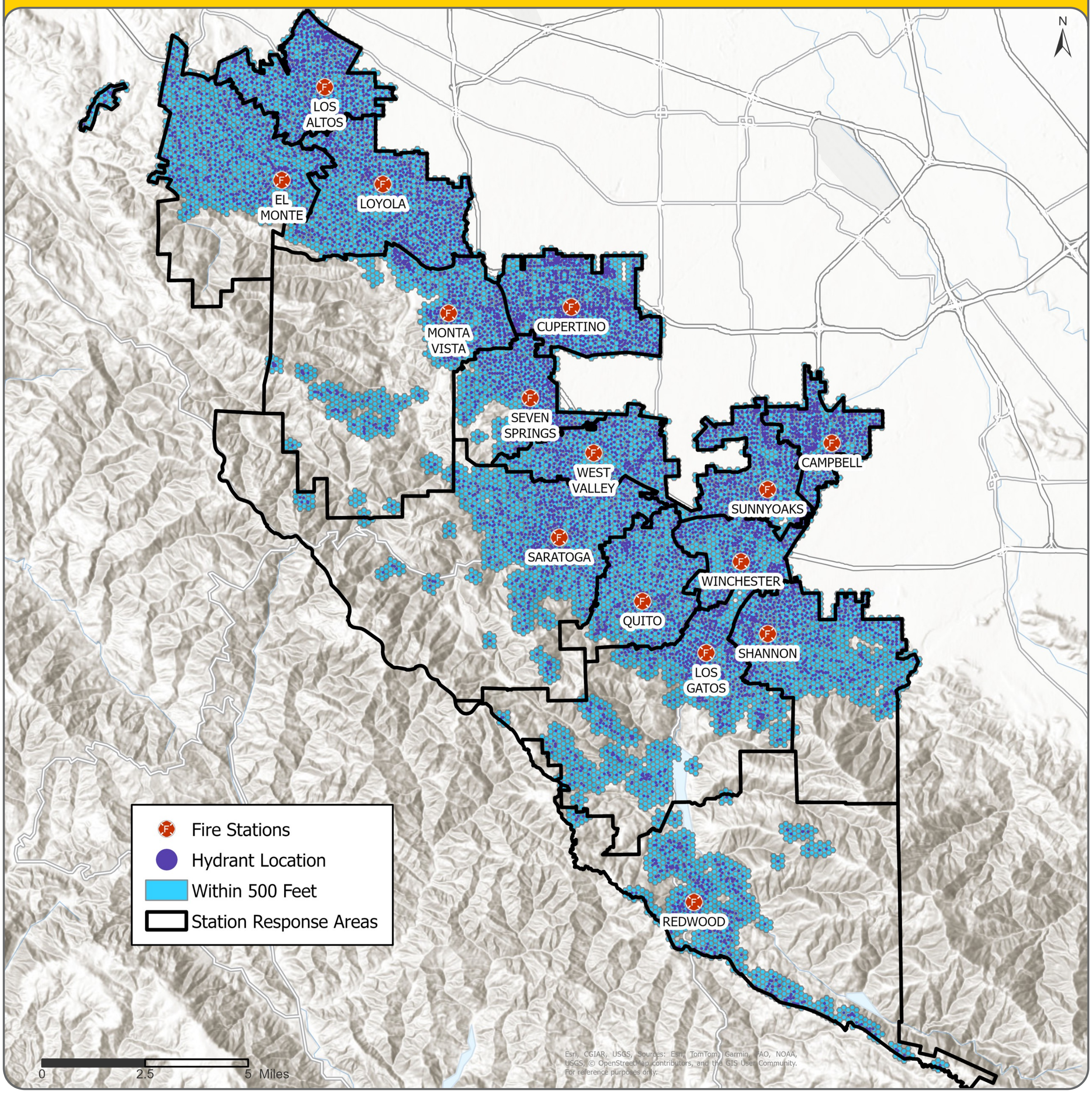
Table 31: Land Use Grouping Scores by Risk Category, CYs 2020–2024

Land Use Category	Structure Fire	Non-Structure Fire	EMS	Hazardous Condition
Commercial, industrial, mercantile, or business	4.120	5.016	2.715	1.722
Educational, healthcare, or Detention	0.299	0.254	3.737	0.172
Open space, special outside, hillside	2.276	3.492	0.965	0.847
Residential	10.000	10.000	10.000	10.000

Water Supply (Hydrants)

Approximately 58% of the SCCFD service area is covered by hydrants, and this coverage was used as a variable in the risk analysis. Considering the length of hose carried on a standard engine, FireStats created a buffer area around each hydrant of 250 and 500 feet. Areas outside a hydrant's 500-foot buffer zone were factored with a higher risk than areas within 500 or 250 feet of a hydrant. These variables were given a risk score of 0 within 250 feet, 5 within 500 feet but outside of 250 feet, and 10 outside of 500 feet **(Figure 51)**.

Figure 51: Hydrant Coverage



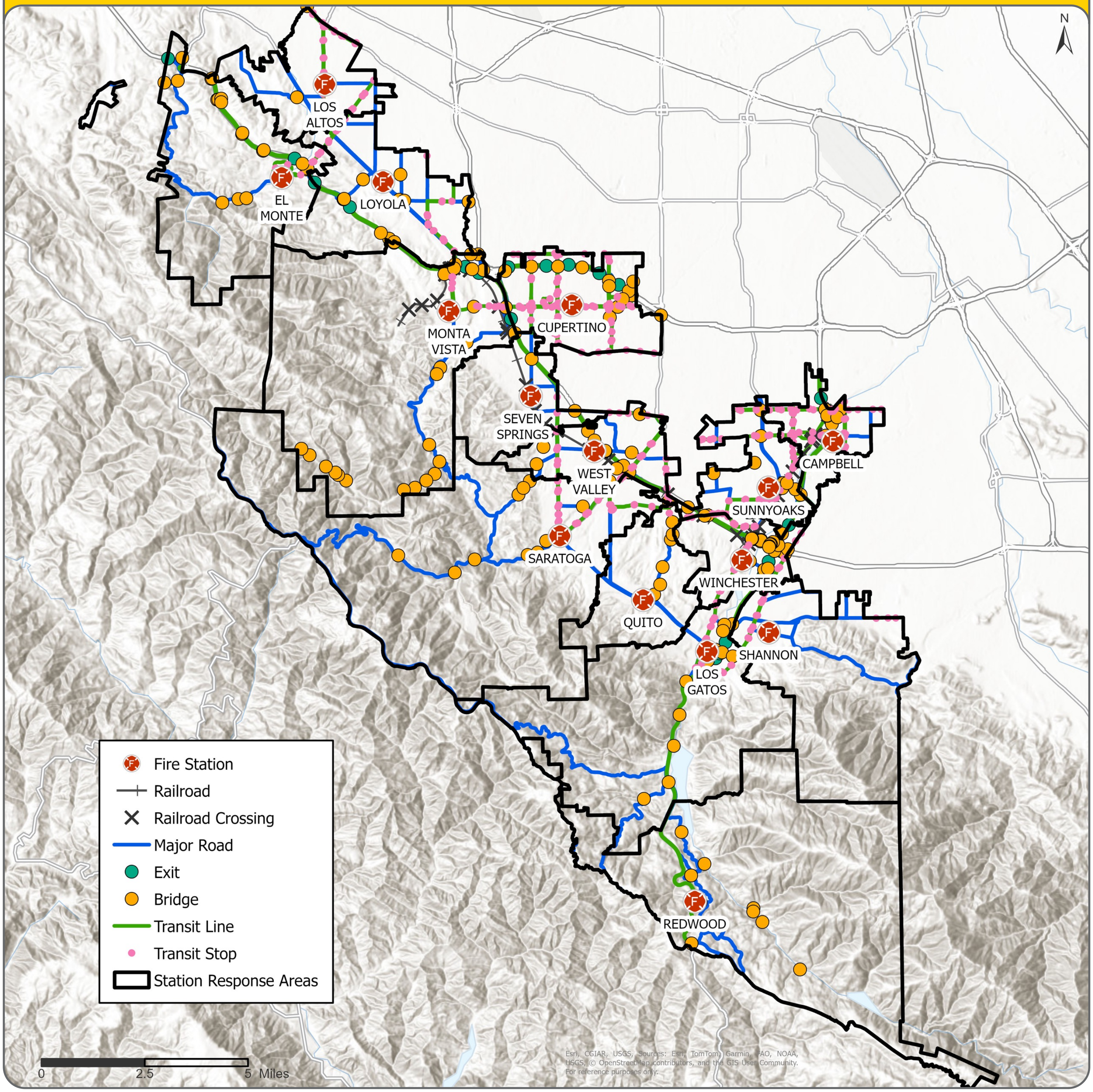
Critical Infrastructure

Data regarding critical infrastructure, including transportation systems and major utilities, was provided by SCCFD and analyzed for inclusion in the risk calculations. Additionally, variables related to target hazards and locations where consequence and impact could be affected (e.g., special locations and addresses and trails and parks) were analyzed. Most of these variables were scored as presence/absence factors (Boolean expression); they were sometimes used in the broad categories (e.g., transportation) and other times in a specific subset (e.g., PGE Pipeline) of the risk calculations.

Transportation Systems

Data concerning major roadways were evaluated in different portions of the risk assessment, including all freeways, highways, expressways, county routes, and major arterials. Railways and public transit routes were also included, using presence/absence factors to incorporate them into the probability and consequence of certain risks. **Figure 52** shows the transportation systems within the SCCFD service area.

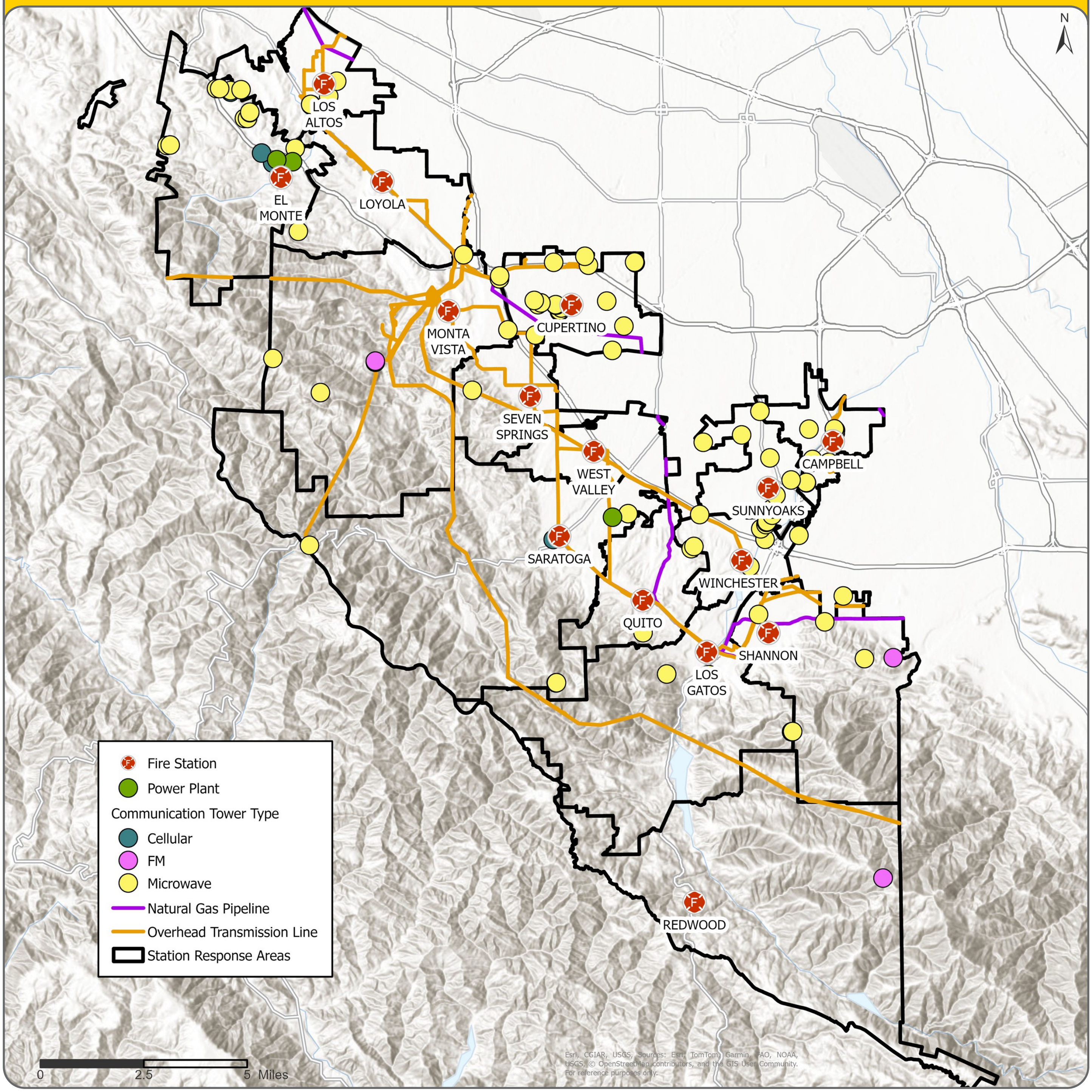
Figure 52: Critical Infrastructure—Transportation Systems



Major Utilities

Major utilities, such as gas and electric transmission lines, were added into the hexagonal grid as presence/absence factors **(Figure 53)**. Depending on the risk, the presence of these variables affected the probability and consequence calculations **(see Part III: Calculated Risk for methods)**.

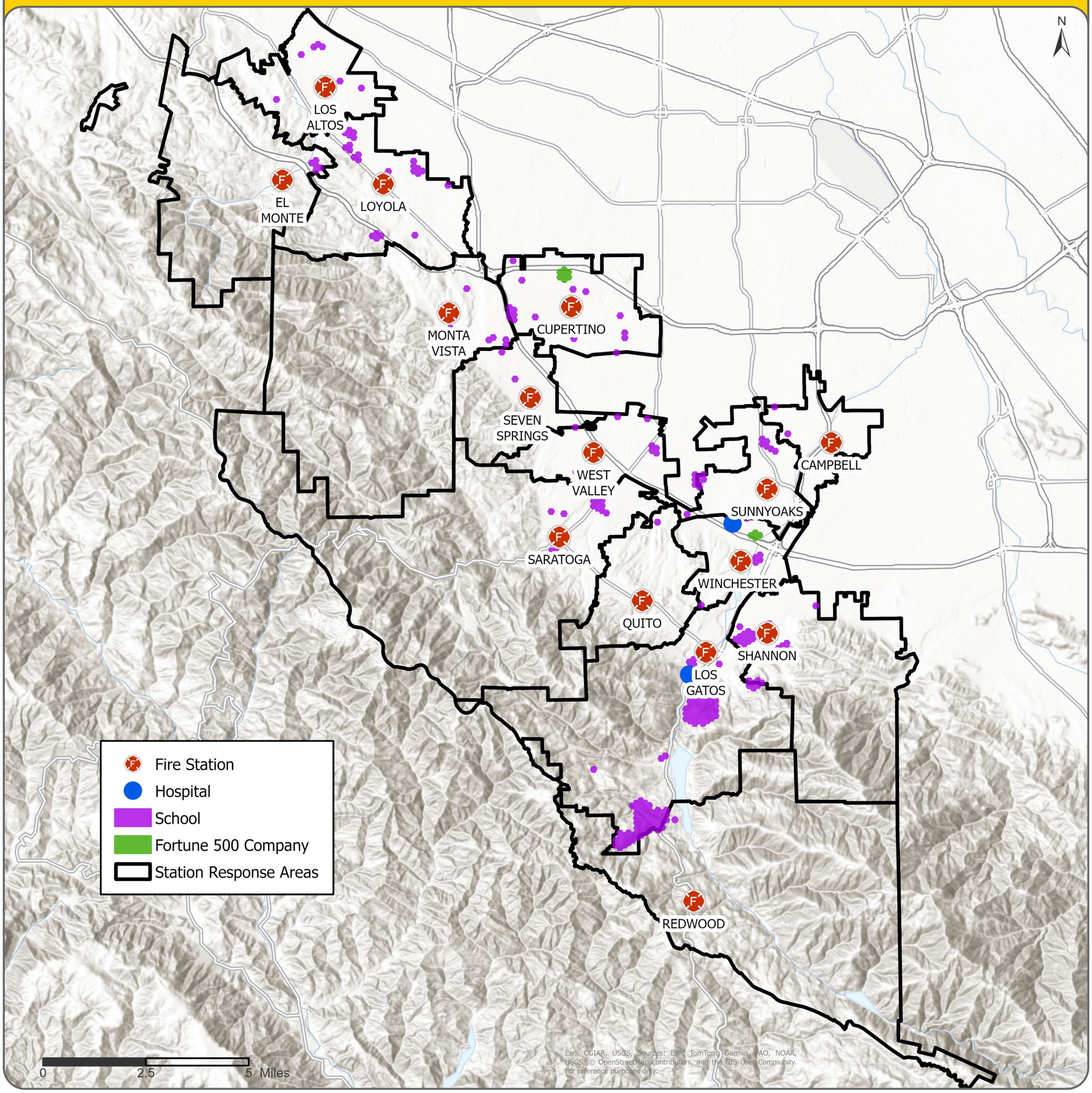
Figure 53: Critical Infrastructure—Major Utilities



Special Locations and Addresses

In addition to populations, FireStats added specific addresses and locations into the hexagonal grid for a complete understanding of consequence to the community. Santa Clara County is home to Fortune 500 corporate headquarters (e.g., Apple® and Netflix™), as well as schools, hospitals, and other unique locations that warrant special consideration in the risk assessment **(Figure 54)**.

Figure 54: Special Locations and Addresses



Trails and Parks

The area encompassing the Midpeninsula trails and county parks and trails covers approximately 65,000 acres from San Carlos to Los Gatos, right through SCCFD. These areas provide scenic beauty and trails for exercise; however, they pose a special risk related to impact and consequence, because response times to remote areas are longer, and incidents in these locations can require special rescue personnel. Trails were considered as a presence/absence factor in the risk calculations when they intersected with one of the hexbins **(Figure 56)**.

Figure 55: Hexbins with Trails as a Risk Factor

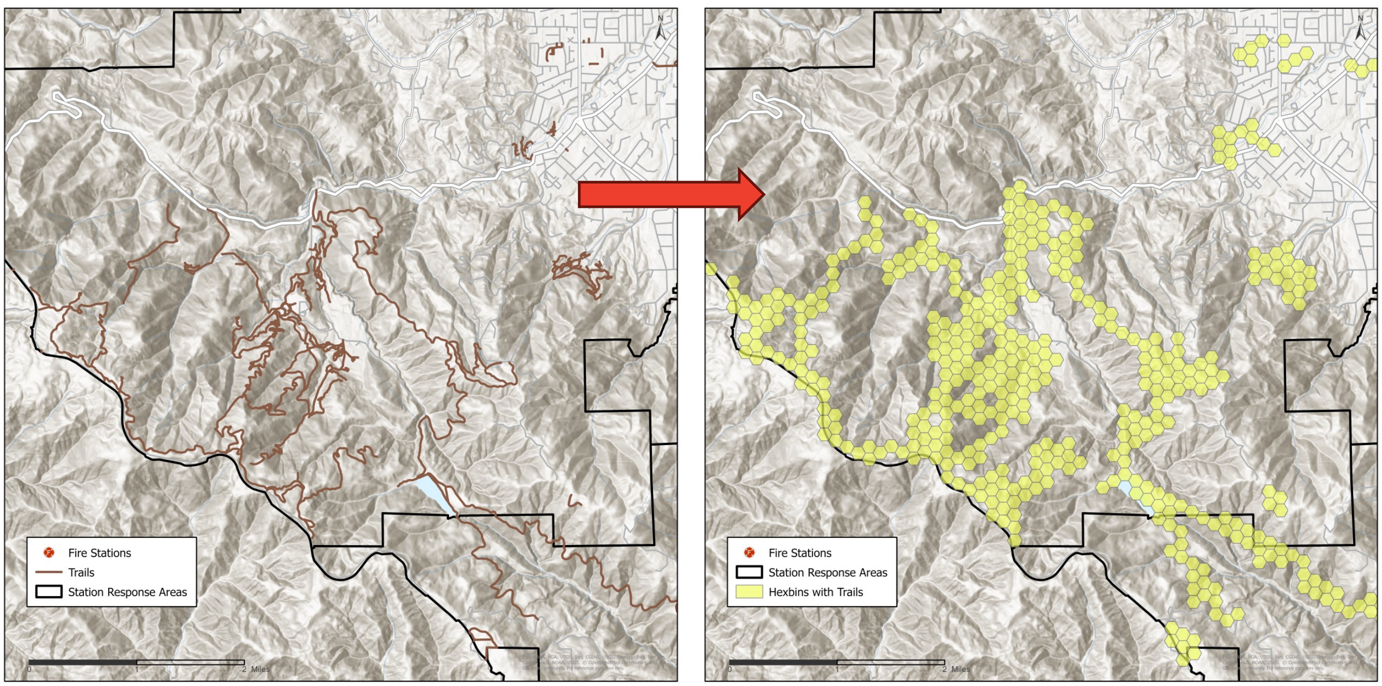
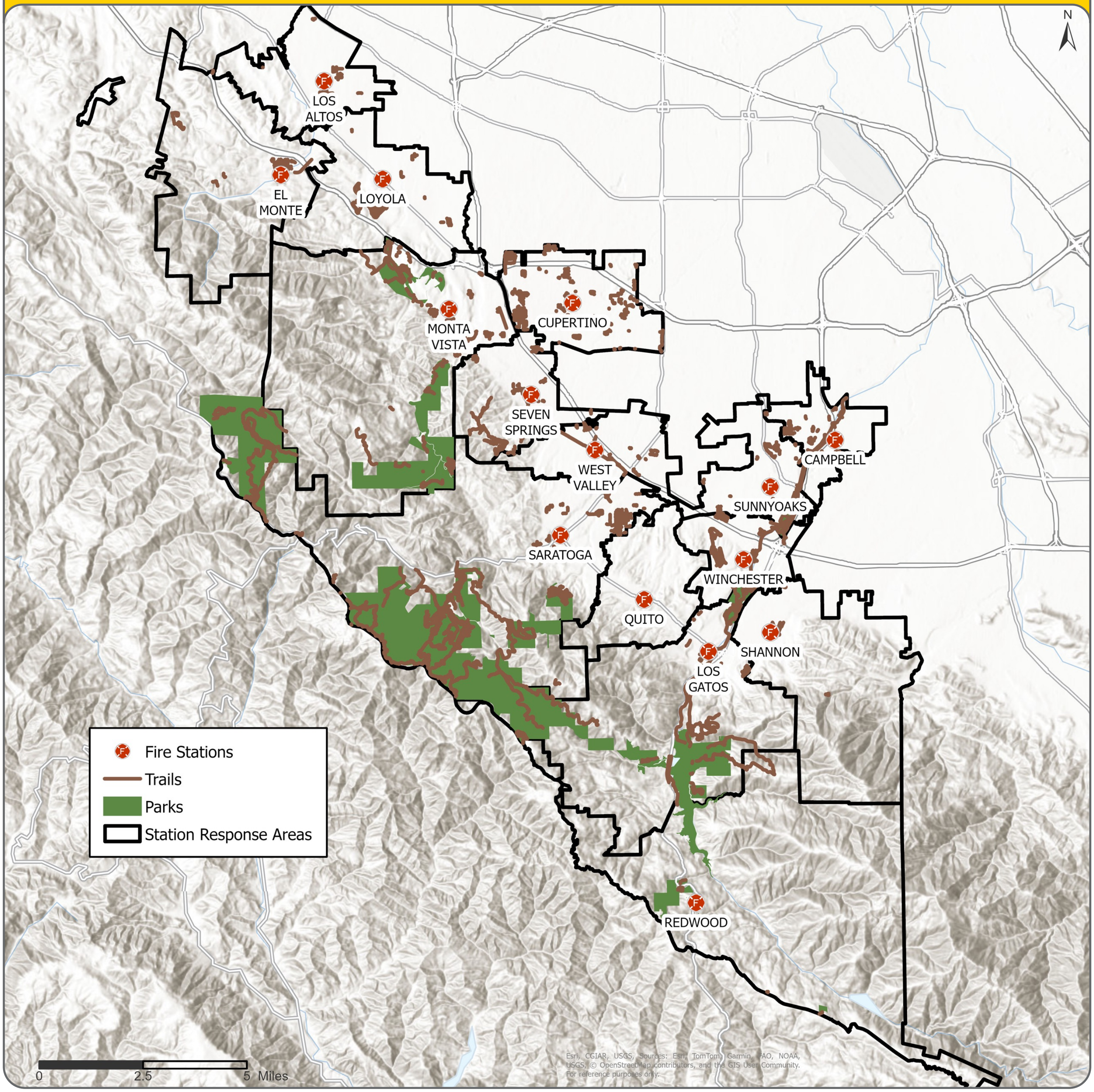


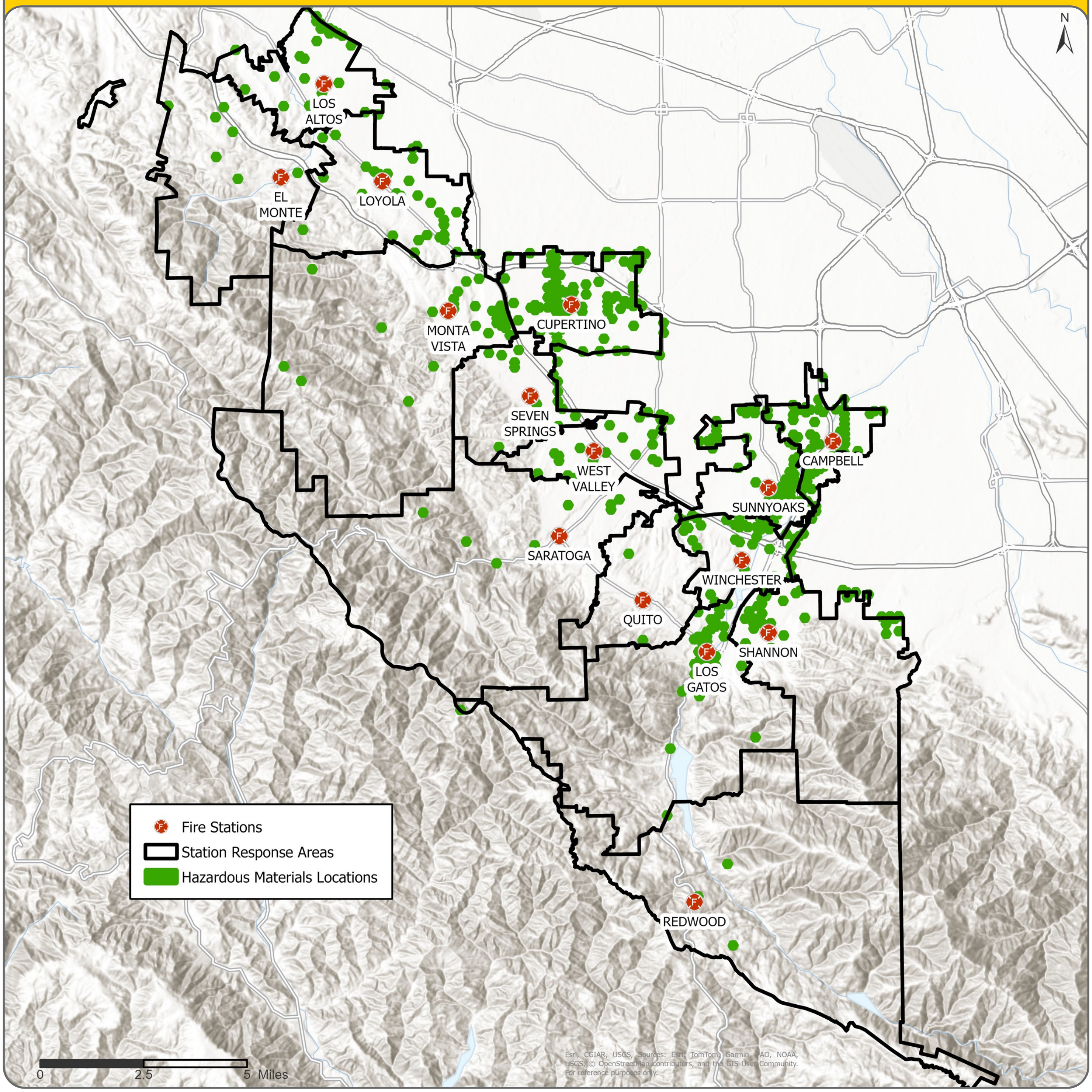
Figure 56: Critical Infrastructure—Trails and Parks



Hazardous Materials

Facilities containing HazMat were included as a variable within the risk assessment, using data from the SCCFD, Environmental Protection Agency (EPA), and California State Geoportal for facilities that store or use HazMat. The presence or absence of HazMat within the 5-acre hexagonal grid was used as a probability factor for HazMat risk and considered as an impact variable related to structure fire risk **(Figure 57)**.

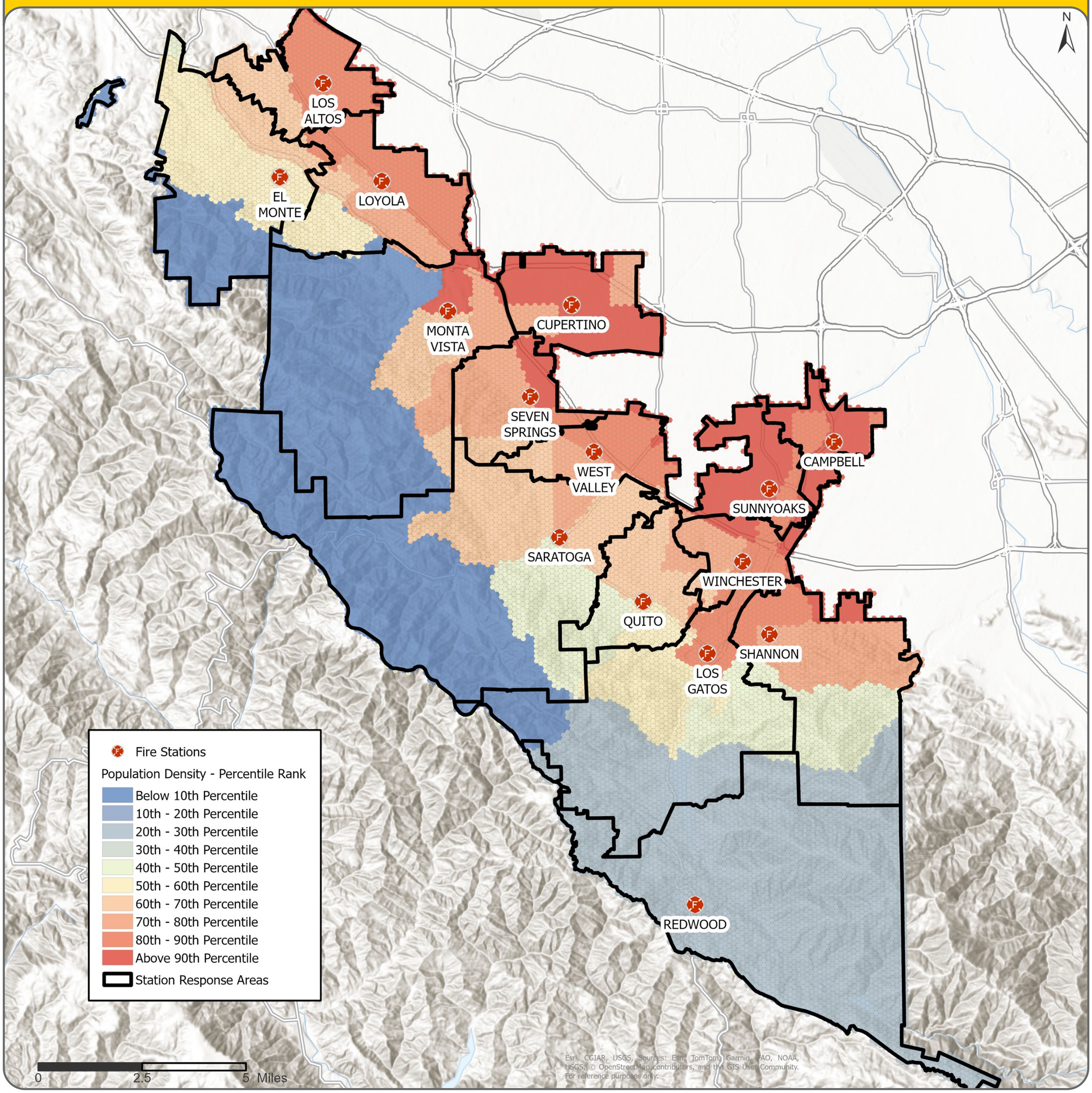
Figure 57: Hazards Materials Locations



Population Characteristics

Population characteristics were incorporated into the risk assessment in two ways: using publicly available indexes and American Community Survey data, depending on the risk type and scoring element. Population density, economic variables, and age demographics were ranked throughout the jurisdiction. Economic indicators were inversely ranked for probability and consequence. Additionally, the social vulnerability index (SVI), as calculated by the Centers for Disease Control and Prevention (CDC), was applied throughout the risk scoring. **Figure 58** shows population density throughout the SCCFD service area.

Figure 58: Population Density–Percentile Rank



At-Risk Population Groups

Populations over age 70 and under age 20 were considered at-risk groups in the risk score calculations. **Figures 59 and 60** show the normalized score maps for these two population categories, which were utilized in the risk calculations.

Figure 59: Population Over Age 70

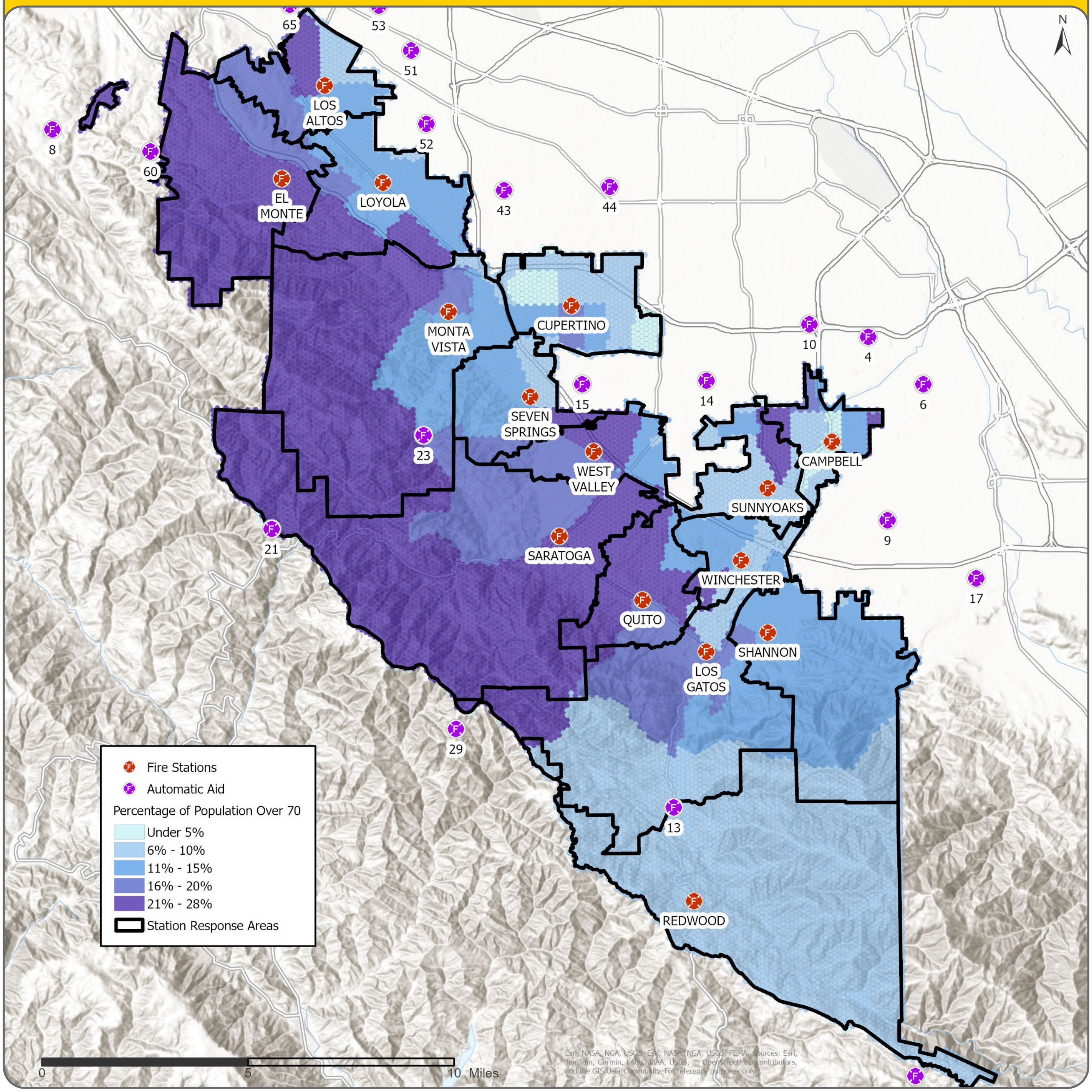
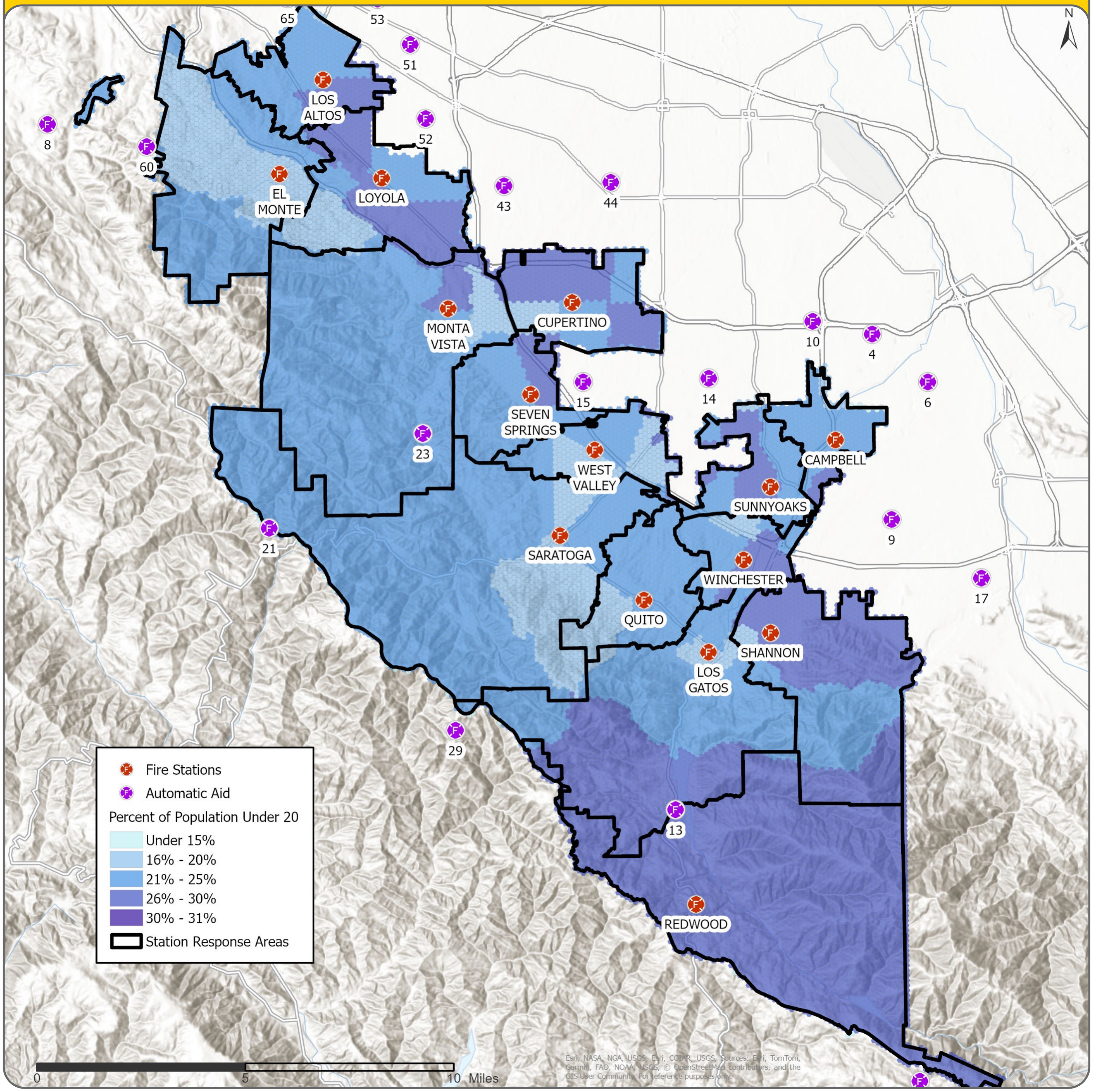


Figure 60: Population Under Age 20



Social Vulnerability Index

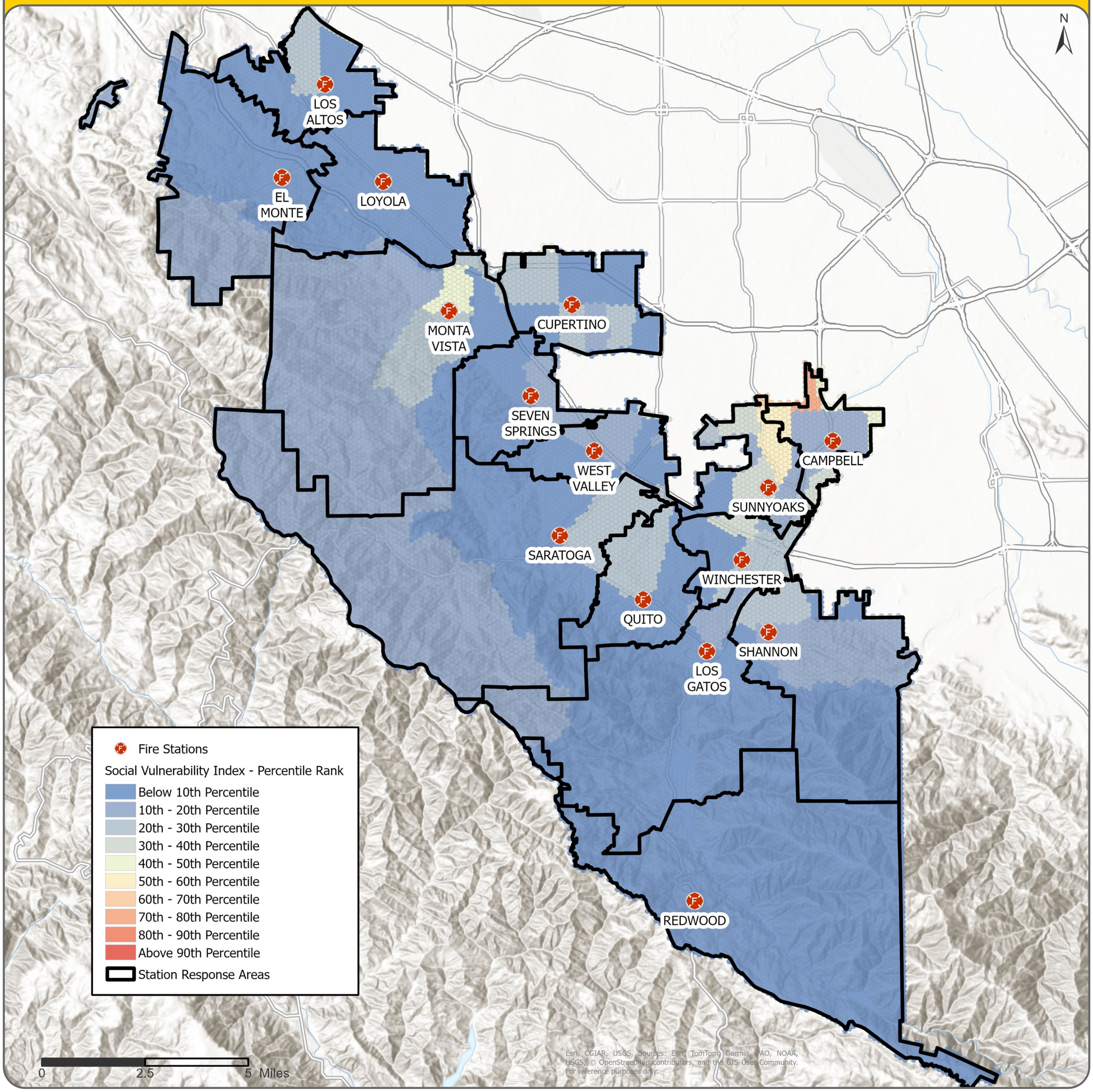
The SVI quantifies the resilience of communities using 15 social factors related to socioeconomic status, household characteristics, housing transportation status, and racial and ethnic status **(Table 32)**.[1] The structure fire, EMS, wildland fire, natural and human-made disaster risk calculations use a component of the overall SVI score as a probability or consequence factor. Additionally, specific data provided in the SVI dataset focused on key risks was used for calculating risk. **Figure 61** shows the SVI applied to the hexagonal grid.

Table 32: Factors in the CDC's Social Vulnerability Index by Category

Socioeconomic Status	Household Characteristics	Housing Type and Transportation Status
• Below 150% poverty	• Aged 65 and older	• Multi-unit structures
• Unemployed	• Aged 17 and younger	• Mobile homes
• Housing cost burden	• Civilian with a disability	• Crowding
• No high school diploma	• Single-parent households	• No vehicle
• No health insurance	• English language proficiency	• Group quarters

[1] *Social vulnerability index information available at CDC website https://svi.cdc.gov/factsheet.html; fields from SVI database.*

Figure 61: Social Vulnerability Index—Percentile Rank



Topography, Geography, Climate, and Physiography

Topography and Layout

Santa Clara County, California, contains both valley land and mountainous terrain. The county is situated between the Santa Cruz Mountain Range and the Diablo Mountain Range. To the north of Santa Clara County lie San Mateo and Alameda Counties, to the south is San Benito County. The elevation in Santa Clara County ranges from 157 feet in Los Altos to 1,800 feet at the summit of the Santa Cruz Mountain Range.

SCCFD's jurisdiction covers the western area of the valley floor. The areas of the valley floor that were historically dedicated to orchards have been heavily developed during the past decades. Most of the Department's developed jurisdiction is residential, with some areas of commercial and light industrial use. A significant amount of SCCFD's jurisdiction is mountainous terrain with heavy vegetation. Most of the mountainous areas have northern-facing exposure, which lends itself to the buildup of heavy brush and trees. Other areas have a south to southwest exposure and typically are covered with light, flashy fuels such as grass.

The topography of SCCFD's service area, 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, and a light south-southeasterly drainage flow often occurs during late evening and early morning.

The large San Andreas Fault runs though the Santa Cruz Mountains and is included in the Department's response area. This fault was responsible for the devastating San Francisco earthquake in 1906 and, more recently, the Loma Prieta earthquake in 1989.

Climate

Santa Clara County experiences a Mediterranean climate with primarily mild temperatures all year and overall low humidity during the warm months. The Santa Cruz Mountains typically have the highest precipitation totals (40–60 inches per year), compared with the relatively dry Santa Clara Valley, which averages approximately 12 inches of rain per year.

During the summer, the average temperature in the county is in the high 70s to low 80s, with days of 90+ degrees Fahrenheit on occasion. Spring and summer see the greatest wind speeds, with occasional strong afternoon and evening winds on summer days. Summer "Diablo Winds" can carry hot, dry air from the Central Valley over the Diablo Range to flow across the Santa Clara Valley and then upslope over the Santa Cruz Mountains in a northerly direction toward Monterey Bay. These winds drove both the 1985 Lexington Fire and the 2008 Summit Fire.

Occasional storms from the Pacific Northwest can bring heavy rains and high winds to the Valley, in which case the Department experiences increased calls for service due to storm-related incidents, such as vehicle accidents and downed power lines. In February 2024, Santa Clara County was significantly affected by a powerful series of winter storms. These storms brought heavy rainfall, strong winds, flooding, and landslides. Significant power outages disrupted the county, particularly impacting residents dependent on durable medical equipment (DME). These storms required a declaration of a State of Emergency for the county. Occasional days of extreme heat (i.e., over 100 degrees Fahrenheit) and low relative humidity can result in increased calls for service due to increased numbers of medical emergencies and wildland fires.

Like California as a whole, Santa Clara County can experience prolonged periods of drought. Drought conditions, in combination with days of extreme heat and during what is known as the “fire season,” can lead to increased numbers of wildland fires due to its effect on the fuel and the low humidity. Fire season is declared by the State of California based on multiple factors, including rainfall, fuel, and weather conditions, all of which create an increased danger of wildland fires. Fire season in Santa Clara County typically occurs between the months of May and October, with peak fire danger during the fall months. Although wildland fires have been a consistent danger in California, the recent “Quinby Fire” (August 2024), and “Cochrane Fire” (August 2023) were particularly devastating. Both of these Northern California fires serve as stark reminders of the changing climate and highlight the need for emergency preparedness—both for the Department and the communities served.

Key Hazards and Risks

California has naturally occurring characteristics that affect risk in terms of probability and consequence. Geographic features, drought, fault lines, and hillside/mountainous regions pose a unique risk to most of California. This risk analysis used the FEMA National Risk Index (NRI) to identify key hazards and risks across the county. The NRI identifies risks for 18 natural hazards at the county and census tract levels. The risks are then rated based on their percentiles across the nation. **Table 33** outlines the risk, percentile, and scoring for the risk assessment used in the risk calculation. Natural and Human-made Disasters risk calculation utilizes the NRI hazards risk ratings for Probabilistic Seismic Hazard Risk and Drought Area. The National Risk Index is updated frequently and this assessment used data up to the March 2023 release (version 1.19.0).

Table 33: Key Hazards—Risk Rating, Percentiles, and Scoring

Risk Rating	Percentile	Scoring
Very high	80th–100th	10
Relatively high	60th–80th	8
Relatively moderate	40th–60th	6
Relatively low	20th–40th	4
Very low	0th–20th	2

Additionally, for wildland fire risk, this analysis used CAL FIRE fire hazard severity zones. Fire hazard risk is determined by State Responsibility Areas (SRAs) based on fuel loading, slope, fire weather, and other relevant factors. CAL FIRE rates the risk in specific categories. **Table 34** shows the scoring factors used in this analysis. The risk analysis was based on the 2024 SRAs and the recently updated 2025 Local Responsibility Area (LRA) fire severity zones.

Table 34: Wildfire Risk Rating and Scoring

Risk Rating	Scoring
Very high	10
High	7.5
Moderate	5

As part of natural disaster scoring, the analysis uses the published U.S. Geological Survey data for Fault F-codes as of 2025. **Table 35** summarizes the code descriptions and scores.

Table 35: U.S. Geological Survey Fault Codes, Descriptions, and Scores

Fault Code	Description	Score
A	Geologic evidence demonstrates the existence of a Quaternary fault of tectonic origin, whether the fault is exposed for mapping or inferred from liquefaction or other deformational features.	10
B	Geologic evidence demonstrates the existence of a fault or suggests Quaternary deformation, but either (1) the fault might not extend deeply enough to be a potential source of significant earthquakes, or (2) the currently available geologic evidence is too strong to confidently assign the feature to Class C but not strong enough to assign it to Class A.	7.5
C	Geologic evidence is insufficient to demonstrate (1) the existence of tectonic fault, or (2) Quaternary slip or deformation associated with the feature.	5
D	Geologic evidence demonstrates that the feature is not a tectonic fault or feature; this category includes features such as demonstrated joints or joint zones, landslides, erosional or fluvial scarps, or landforms resembling fault scarps, but of demonstrable non-tectonic origin.	2.5

This risk assessment included the Federal Emergency Management Agency (FEMA) natural hazard risk variables from the NRI, which are part of the Santa Clara County Multi-Jurisdictional Hazard Mitigation Plan (MJHMP). The risk analysis also included NRI GIS layers for drought, earthquake, landslide, and wildfire, as well as local and state GIS data for landslide risk, liquefaction zones, probabilistic seismic hazards, flooding, and fire severity hazards. The remaining NRI layers were used to quantify the risk scores related to natural and human-made disasters. **Figure 62** shows example data for fire hazard severity zones and liquification zones, and **Figure 63** illustrates fire severity hazard zones.

Figure 62: Example of Fire Hazard Severity Zones and Liquefaction Zones

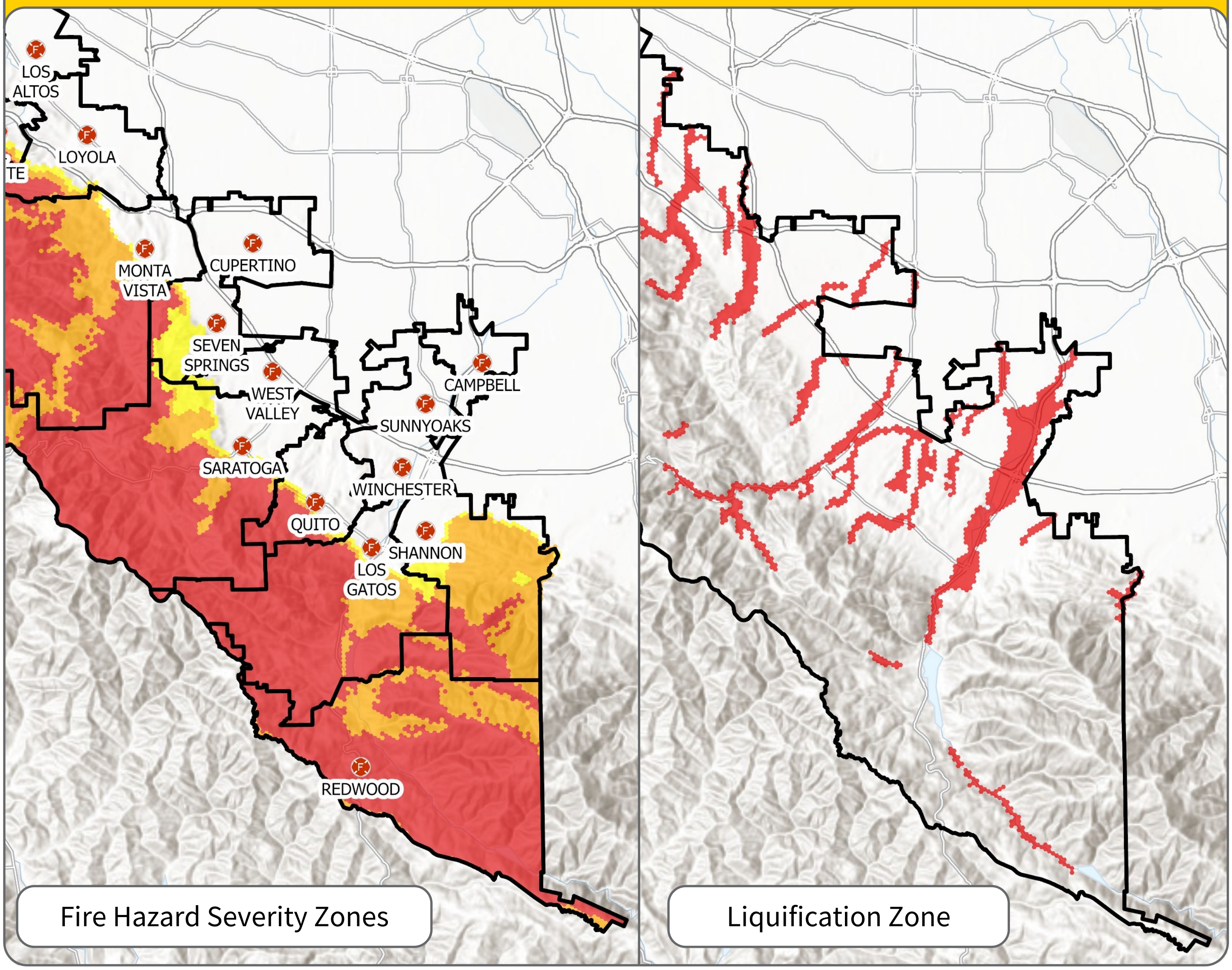
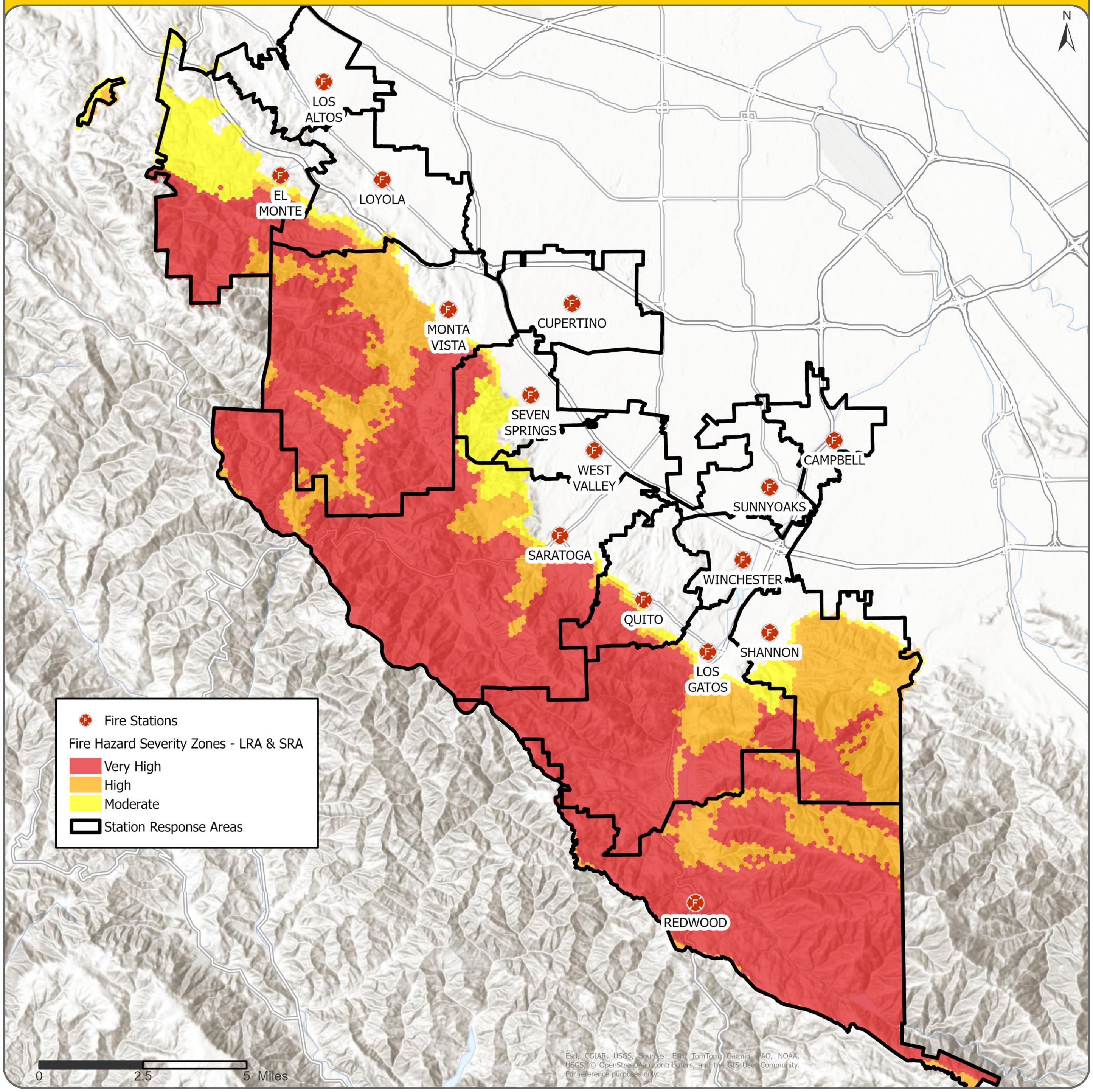


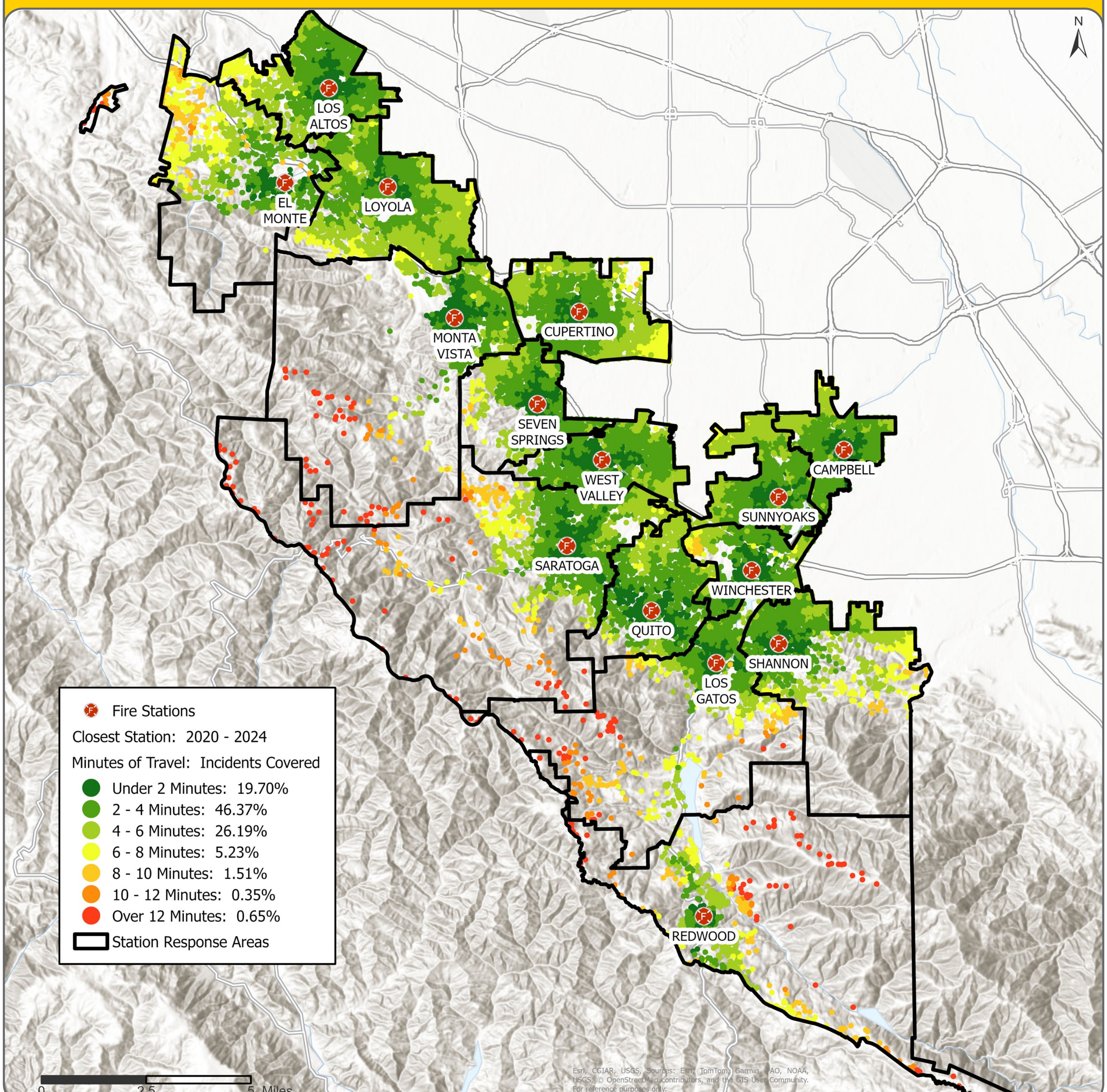
Figure 63: Fire Severity Hazard Zones



Fire Station Proximity

The proximity of fire stations and units available for response was considered as a variable in the risk assessment. GIS modeling was performed using ArcGIS Pro Network Analyst to obtain predicted travel times to areas . The travel time variables were used in two ways: overall for stations and specifically for specialty units for specific risk types. Weights were applied to the hexbins relative to the travel time from a fire station for consequence and/or impact calculations. **Figure 64** illustrates travel time for all stations within the hexagonal grid. Note: This is just an example; travel times for rescues, trucks and water supply units were each independently added into the variable analysis.

Figure 64: Example of Travel Time from Fire Stations



Impact to The Organization

The 10th edition of the CPSE's Fire and Emergency Services Self-Assessment Model (2020) adds a third dimension of analysis related to organizational impact. Organizational impact is characterized by the "potential impact drawn on the agency." Differing methodologies and theories exist for how to quantify organizational impact; some include factoring in the historical unit drawdown, meaning historical trends related to the number of apparatus still available for service. Other methodologies include factoring in the injury and death rates of fire service personnel as a variable related to organizational impact. For SCCFD, an analysis of available data was performed to determine which method for scoring should be performed.

Commitment Times

Within SCCFD, the most appropriate variables for organizational impact are commitment times stratified by incident type. To determine commitment time, the station's total call time was calculated by NFIRS code, and the station with the longest time committed to emergency incidents was identified as the highest risk. Commitment time over the 5-year period was calculated. Using these commitment times, all units for each station were ranked and scored on a scale from 0 to 10. The station with the highest commitment times scored a 10 because of the impact, and the one with the least amount of time was a 0.

Deployment

Deployment of units was also considered as an organizational impact variable. The SCCFD deployment models were reviewed as part of the Standard of Cover process, and rank scoring was used to incorporate the standards quantitatively, based on historical experience. To calculate deployment scores, FireStats used total incidents sorted by NFIRS code and units by station response. The station with the highest utilization was calculated and scored a 10. The deployment model was ranked such that a score of 10 indicated the highest impact in terms of units and staffing, and a score of 1 represented the lowest impact on the organization.

PART III

CALCULATED RISK

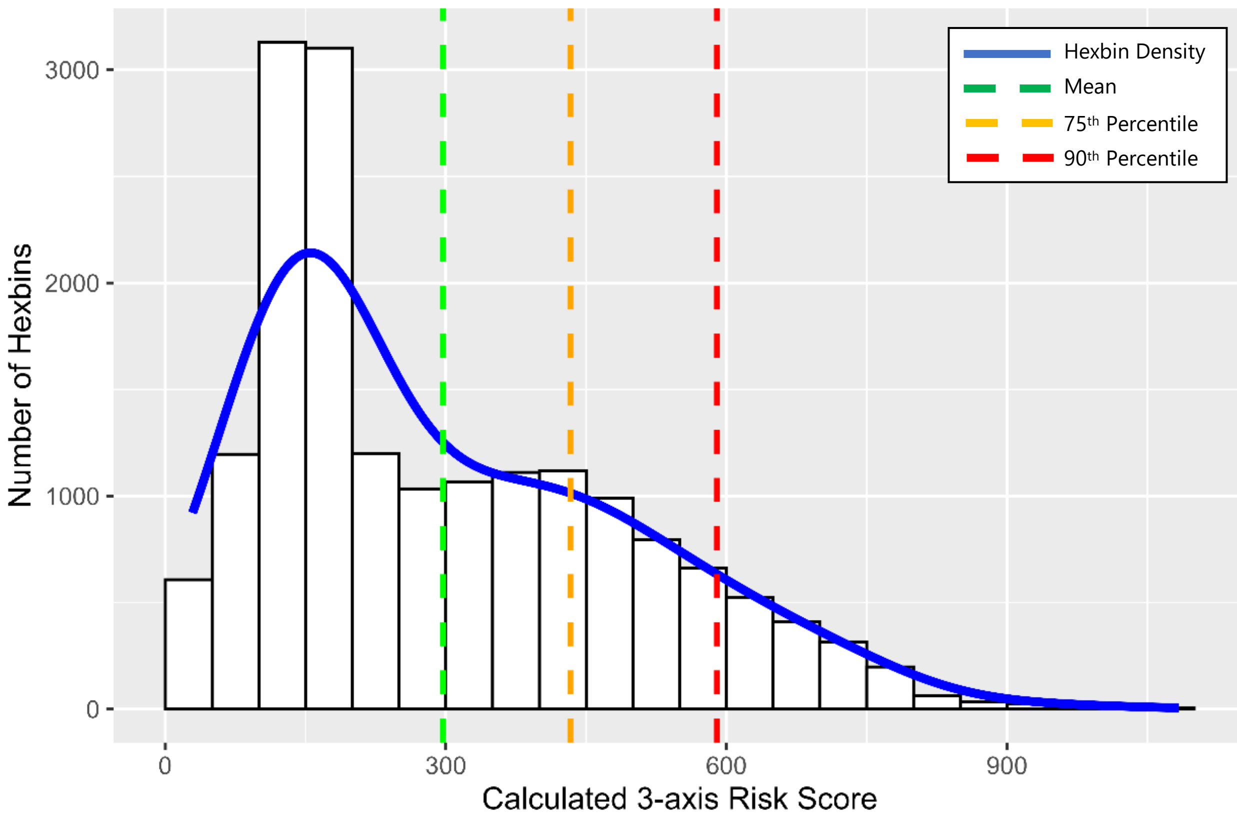
The following narratives and associated tables explain how each variable was calculated into the probability, consequence, and impact scores for each risk type. For each of the seven risk types, a brief description of the variables and the specific formulas used are provided.

Using the variables that were applied to the hexagonal grids, percentile rank tables were created that distribute the variables across the risk analysis area. Normalized variable scores based on maximum values were calculated as necessary, as not all variables were distributed normally. The percentile rank and normalized values were used for the overall calculation of probability, consequence, and impact scores. Once the individual scores were calculated, the CPSE three-axis methodology formula (shown below) was used to calculate a total risk score.

$$Overall\ Risk: \sqrt{\frac{(Probability * Consequence)^2}{2} + \frac{(Consequence * Impact)^2}{2} + \frac{(Impact * Probability)^2}{2}}$$

The formula measures the surface area of the triangle created by the variables. Each variable (probability, consequence, and impact) was measured relative to all hexbins in SCCFD's service area. The actual score is not as important as the relative scores. The graphs within the risk category sections list the type of data collected and utilized in the analysis.

Figure 65: Example Risk Category Histogram—Distribution of Structure Fire Risk Scores



The histogram in **Figure 65** show the relative count (y-axis) of hexbins in the risk score (x-axis), indicating the relative risk to SCCFD's service area. The height of the bar indicates the number of hexbins with similar risk. Additionally, four lines are plotted to help interpret the data:

1. The blue line shows the relative density of the hexbins, which indicates if the risk is concentrated or spread across the area. This information helps determine if specific focus is needed in certain areas or a more general risk reduction is required.
2. The three vertical lines show the mean value (green), 75% quantile (orange), and 90% quantile (red). This information is used later to summarize the station area risk.
3. The data was summarized by station area into four risk categories based on the calculated hexbin scores. The scores were aggregated and divided into four categories: low, medium, high, and maximum for each risk calculation. The following "Structure Fire Risk Score Category" tables illustrate the risk category aggregation. Not all risk categories will be present within the study area, by station area, due to the distribution of scores across the hexbins. The risk formulas in the sections below can be used to recreate the risk calculations.

CALCULATED RISK: STRUCTURE FIRES

The following formulas were used to calculate the structure fire risk score in each hexagonal grid. Summary statistics and analysis were performed throughout the grids prior to aggregation into the larger station response zones. The tables below outline how each variable from the hexbin grid was included in risk calculations. The weight or factor is the number that was multiplied by the variable as reported in the hexagonal grid. Where there is no factor and the term "Value" is used, a straight value was added from the data classified into the hexagonal grid.

The following formula was used to calculate the probability of structure fires **(Table 36)**:

Probability (Structure Fires) = (Historical Incidents * Fire Incident Weight) + Normalized Structure Fire Score + Normalized Number of Addresses per Grid or Hexbin + Normalized Persistent Year +Overall Social Vulnerability Index Score * 10 + (percent under 20 / 10) + (Percent over 70 / 10) + Land Use Score by Incident Type – Commercial Buildings Over 50,000 Square Feet

Table 36: Probability of Structure Fires—Variables, Weights/Factors, and Descriptions

Variable	Weight or Factor	Description
Normalized historical incidents	0.33	History as predictor of the future, weighted by historical structure fire encounters
Normalized structure fire score	Value	History of structure fire incidents, normalized based on the maximum number of fires in any one grid cell
Normalized addresses per grid cell	Value	Number of addresses per grid cell as predictor, normalized to maximum number of addresses per grid cell
Normalized persistent year	Rank score	Per rank table
Social vulnerability index	10	Overall resiliency, as quantified by 16 social factors identified by the CDC
Population: Percent under 20 years old	10	Demographic factors of special "at-risk populations"
Population: Percent over 70 years old	10	Demographic factors of special "at-risk populations"
Land Use	Rank score	Probability based on historical encounters of structure fires by land use type
Commercial buildings over 50,000 square Feet	Value	[0,5] Absence=0; Presence =5

The following formula was used to calculate the consequence of structure fires **(Table 37)**:

*Consequence (Structure Fires) = (Overall SVI *10) + (Housing SVI * 10) + (Property Value Rank Score * Fire Confinement Weight) + Σ (Presence of Critical Infrastructure * 10) + Travel Time Score – (CRR Reduction Factor from Inspections + Smoke Alarm/Detector Presence Factor) – Fire Preparedness Score*

Table 37: Consequence of Structure Fires—Variables, Weights/Factors, and Descriptions

Variable	Weight or Factor	Description
Social vulnerability index: Overall	Value	Overall resiliency as quantified by 16 social factors identified by the CDC
Social vulnerability index: Housing	Value	Overall housing resiliency as quantified by housing-related factors identified by the CDC
Property value rank * fire confinement	0.39	Property improvement value, variable score by expected confinement
Critical infrastructure presence	Value	Presence or absence of schools, buildings over 50,000 sq. ft., Fortune 500 companies, overhead AC transmission lines, gas pipelines, cellular towers, medical facilities, and radio towers
Travel time: Time from fire station, normalized score	Value	Normalized score with station furthest away having the highest score.
Risk reduction: Inspections percentage	Value	Reduction factors associated with risk-reduction activities
Risk reduction: Detector presence	0.55	Reduction factor associated with historical encounters of buildings with alarms
Preparedness score	Rank value	Calculated from community outreach activities

The following formula was used to calculate the impact of structure fires **(Table 38)**:

Impact (Structure Fires) = Outside Hydrant Buffer Zone + Fire Commitment Score + Deployment Factor for Structure Fires

Table 38: Impact of Structure Fires—Variables, Weights/Factors, and Descriptions

Variable	Weight or Factor	Description
Hydrant buffer: Outside zone	Rank score	Impact associated with non-hydranted water supply
Time on task: Fire commitment times per station area	Rank score	Impact associated with staff/personnel time spent on structure fires
Deployment: Normalized deployment, impact score	Rank score	Impact score associated with apparatus deployed to mitigate risk

Hexbin Distribution

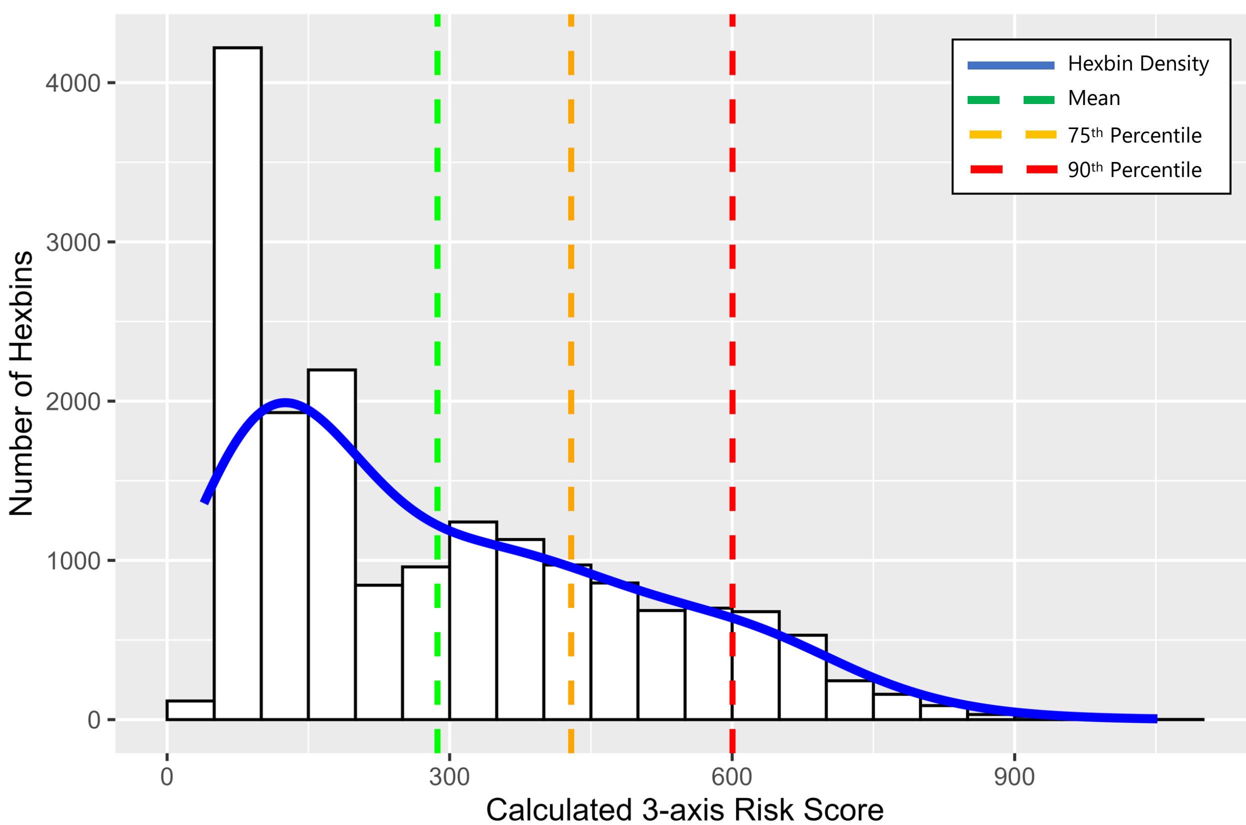
Table 39 and Figure 66 show the quantified risk score for structure fires throughout the SCCFD service area, considering structure fire risk scoring throughout the 17,617 hexagonal grid cells (versus by station area or city).

Table 39: Structure Fire Risk Score—Summary Statistics

Minimum	Maximum	Average	Standard Deviation	Interquartile Range*	Range
39.1	1051.6	287.1	202	324.9	1012.5

Interquartile range: 25th to 75th percentile

Figure 66: Distribution of Structure Fire Risk Scores Histogram



Station Response Zone Scores

Once each hexagonal grid was scored, the structure fire risk scores were aggregated at the station level to understand the risks by planning zone. Each grid cell in the planning zones contributed to the overall, minimum, maximum, and average scores, as outlined in **Table 40**. Note: It is important to consider the overall distribution of the scored hexbins from **Figure 66** when reviewing the tabular data.

Table 40: Structure Fire 3-Axis Risk Score by Station

Station Number	Station Name	Three-axis Score Min	Three-axis Score Max	Three-axis Score Average	Overall Score
71	Cupertino	59.2	1051.6	579.3	High
72	Seven Springs	72.8	913.0	445.2	High
73	Saratoga	57.9	1005.9	306.3	Moderate
74	El Monte	67.8	696.0	267.4	Low
75	Los Altos	71.9	620.3	316.9	Moderate
76	Loyola	72.7	849.1	482.3	High
77	Monta Vista	47.6	832.7	166.7	Low
78	Quito	39.1	676.1	299.2	Moderate
79	West Valley	107.0	851.4	545.4	High
80	Sunnyoaks	85.4	852.6	562.0	High
81	Campbell	86.1	940.2	582.3	High
82	Shannon	48.3	812.5	239.7	Low
83	Los Gatos	40.1	842.3	223.7	Low
84	Redwood	60.3	628.7	132.3	Low
85	Winchester	106.3	632.2	365.9	Moderate

Risk Categorization

Using the distribution of structure fire risk scores throughout the hexbins, the scores by station were categorized as low, moderate, high, or maximum risk, as described in **Table 41**. **Figure 67** presents the overall structure fire risk scores for SCCFD, and **Figure 68** shows the structure fire risk scores by category.

Table 41: Structure Fire Risk Score Categories

Risk Category	Description	Score Range
Low	Less than average	39.1 – 287.1
Moderate	Average to 75th percentile	287.1 – 429.1
High	75th to 90th percentile	429.1 – 600.5
Maximum	Over 90th percentile	600.5 – 1051.6

Figure 67: Structure Fire Risk Score

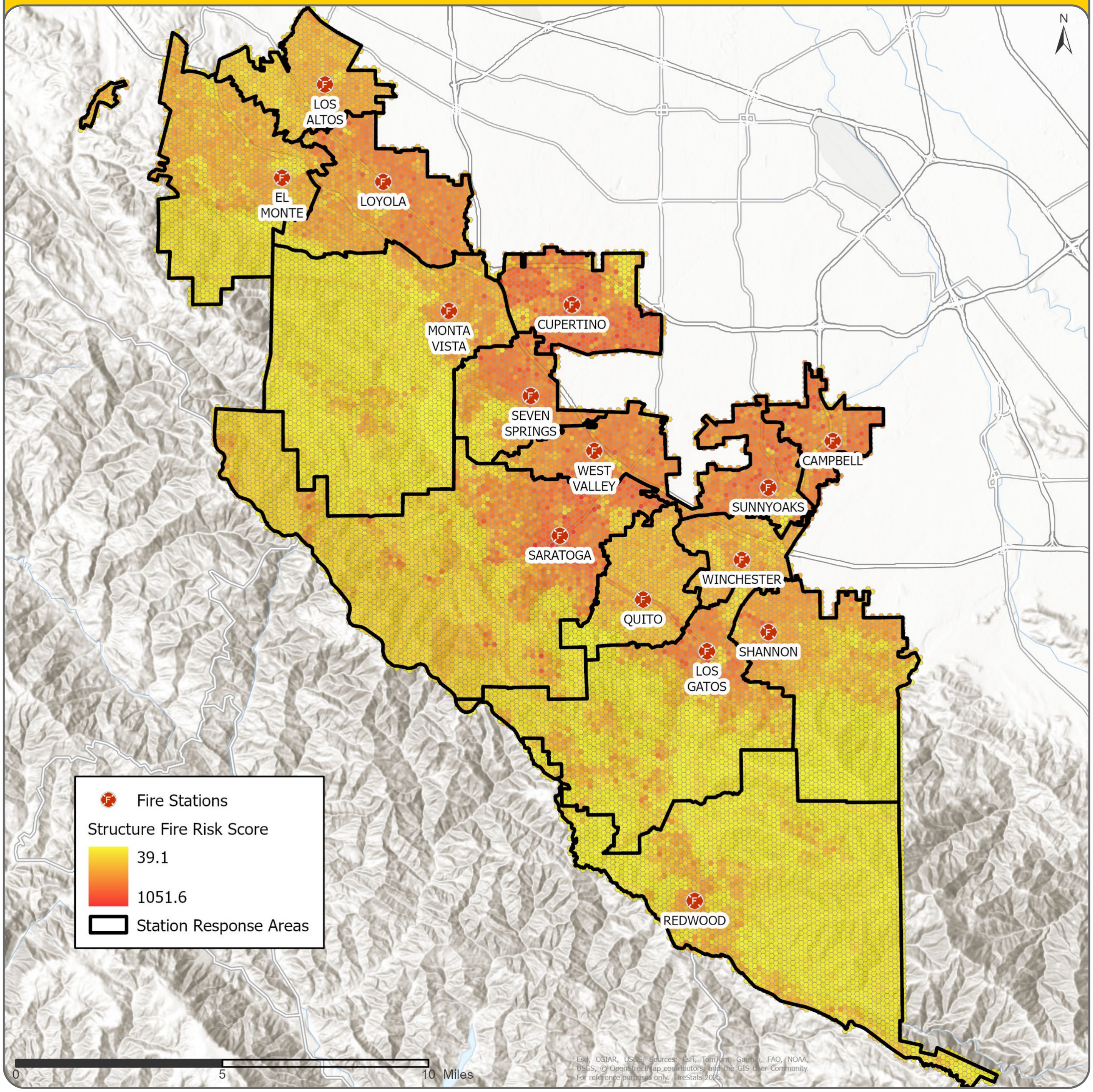
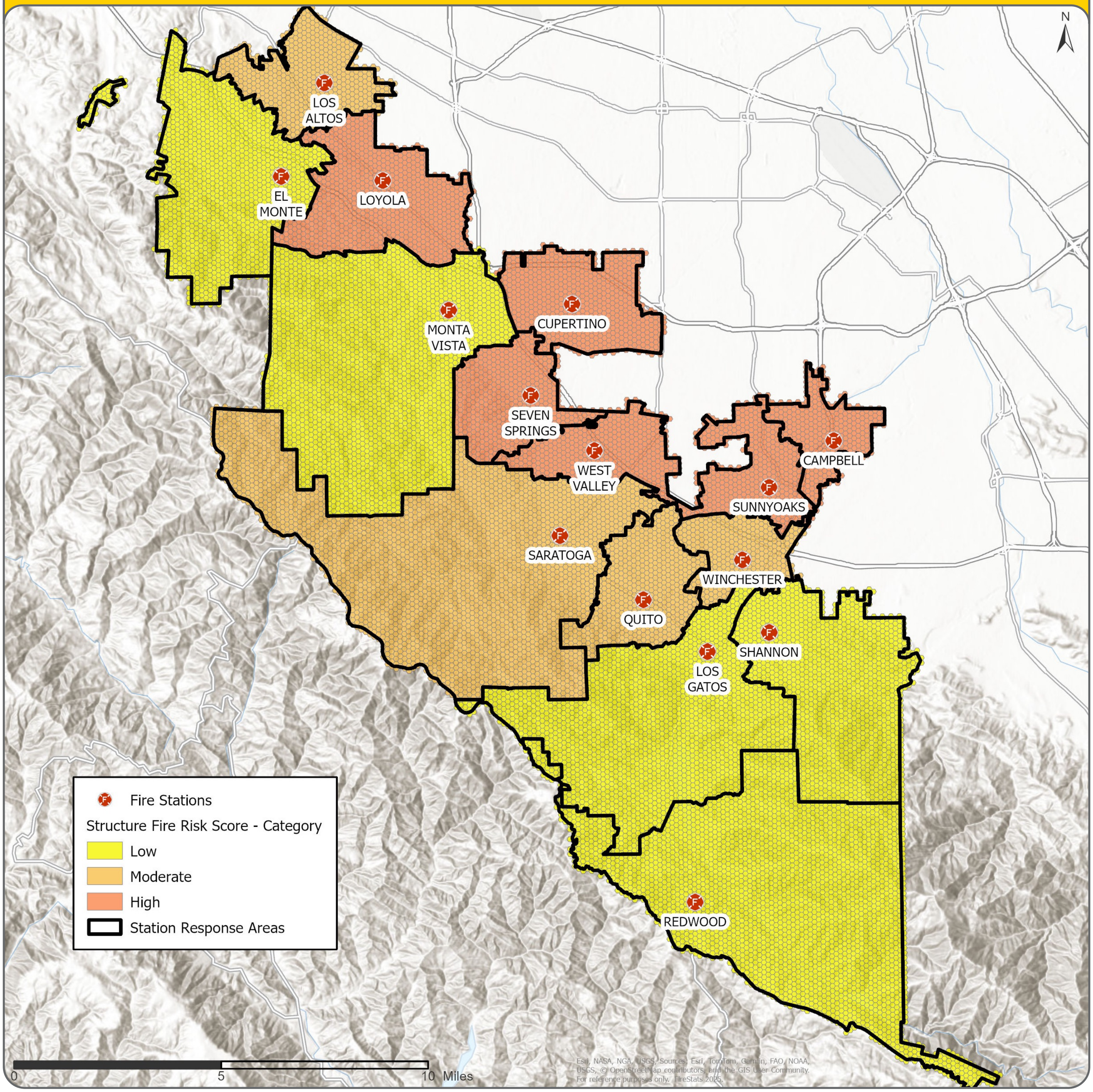


Figure 68: Structure Fire Risk Score by Category



CALCULATED RISK: NON-STRUCTURE FIRES

Non-structure fires include fires such as vehicle, garbage, and rubbish fires, which have a distinct and unique relationship each risk variable. This section explains how each variable was incorporated into the calculations for non-structure fire risk.

The following formula was used to calculate the probability of non-structure fires **(Table 42)**:

*Probability (Non-Structure Fires) = (Normalized Historical Incidents * Weight of Non-Structure Fire Weight) + History of Non-Structure Fires (Normalized) + Roadway Presence Score *10 + School Presence Score * 10 + Land Use Non-Structure Fire*

Table 42: Probability of Non-Structure Fires—Variables, Weights/Factors, and Descriptions

Variable	Weight or Factor	Description
Normalized historical incidents	0.679	History as predictor of the future, weighted by historical non-structure fires (including rubbish, garbage, and trash fires; excluding outside fires)
Normalized non-structure fire score	Value	History of non-structure fires as a predictor for future, normalized score
Roadway presence	10	A presence/absence factor to consider vehicle fires on roadways
School presence	10	A presence/absence factor to consider social variables related to juvenile fire setting and relationship to outside trash fires
Land use	Rank score	Probability based on historical encounters of non-structure fires by land use type

The following formula was used to calculate the consequence of non-structure fires **(Table 43)**:

Consequence (Non-Structure Fires) = Total Value of the Hexbin * Confinement Percentage + ∑ (Presence of Critical Infrastructure * 10) – (Population Density of Land Use that is Open) + Travel time – Fire Preparedness Score

Table 43: Consequence of Non-Structure Fires—Variables, Weights/Factors, and Descriptions

Variable	Weight or Factor	Description
Total value rank score	Value * 0.38	Total value of the hexbin (normalized) * confinement percentage
Critical infrastructure presence	10	Presence or absence of critical infrastructure, including medical facilities, transmission towers, gas pipeline, FM towers, and cellular towers
Population density for open space, outside, hillside land use	Value	Specific impact to populations based on historical data for non-structure fires
Travel time: Time from fire station, Normalized score	Value	Normalized score with station furthest away having the highest score
Fire preparedness score	Rank value	Calculated from community outreach activities

The following formula was used to calculate the impact of non-structure fires **(Table 44)**:

Impact (Non-Structure Fires) = Outside Hydrant Buffer Zone + Fire Commitment Score + Historical Deployment Factor for Fires

Table 44: Impact of Non-Structure Fires—Variables, Weights/Factors, and Descriptions

Variable	Weight or Factor	Description
Deployment: Non-structure fires	Rank score	Impact score associated with apparatus deployed to mitigate risk
Time on task: Non-structure fire commitment time	Rank score	Impact associated with staff/personnel time spent on non-structure fires
Hydrant buffer: Outside zone	Rank score	Impact on organization associated with non-hydranted water supply

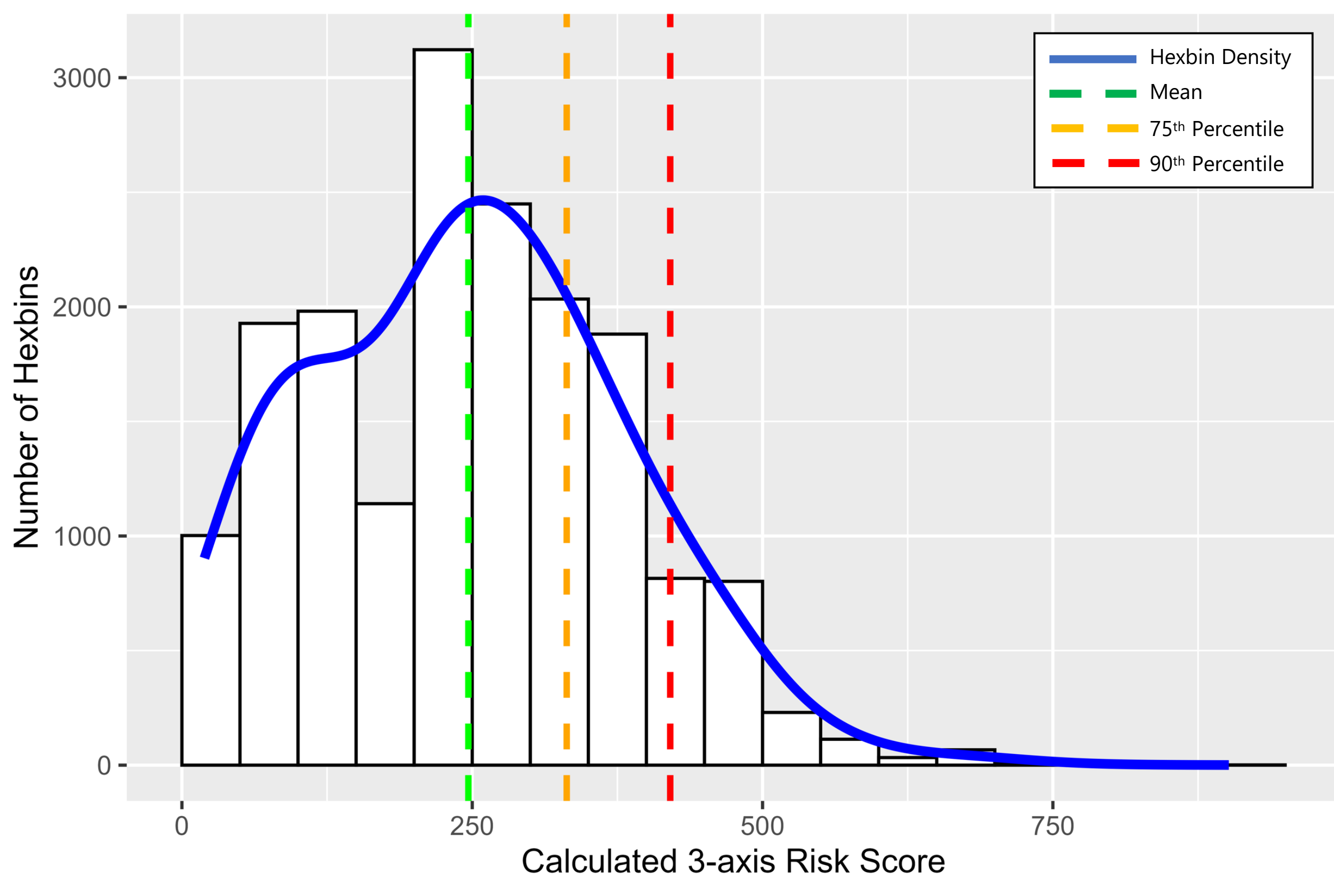
Hexbin Distribution

Table 45 and Figure 69 show the quantified risk score for non-structure fires throughout the SCCFD service area, considering non-structure fire risk scoring throughout the 17,617 hexagonal grid cells (versus by station area or city).

Table 45: Non-Structure Fire Risk Score—Summary Statistics

Minimum	Maximum	Average	Standard Deviation	Interquartile Range	Range
19.4	901.5	246.7	130.9	197.4	882.1

Figure 69: Distribution of Non-Structure Fire Risk Scores Histogram



Station Response Zone Scores

The non-structure fire risk scores were aggregated at the station level to understand the risks by planning zone. Each grid cell in the planning zones contributed to the overall, minimum, maximum, and average scores, as outlined in **Table 46**.

Table 46: Non-Structure Fire 3-Axis Risk Scores by Station

Station Number	Station Name	Three-axis Score Min	Three-axis Score Max	Three-axis Score Average	Overall Score
71	Cupertino	174.7	712.5	366.6	High
72	Seven Springs	38.0	526.4	316.1	Moderate
73	Saratoga	55.7	833.7	267.0	Moderate
74	El Monte	19.4	485.7	157.4	Low
75	Los Altos	128.6	399.2	260.5	Moderate
76	Loyola	32.8	589.9	299.2	Moderate
77	Monta Vista	27.6	496.3	136.1	Low
78	Quito	53.7	718.1	307.5	Moderate
79	West Valley	83.3	443.3	232.6	Low
80	Sunnyoaks	198.6	693.4	373.5	High
81	Campbell	323.1	752.5	490.5	Maximum
82	Shannon	53.0	644.5	214.4	Low
83	Los Gatos	65.6	753.1	278.4	Moderate
84	Redwood	77.7	901.5	228.1	Low
85	Winchester	137.7	487.8	258.2	Moderate

Risk Categorization

Using the distribution of non-structure fire risk scores throughout the hexbins, the scores by station were categorized as low, moderate, high, or maximum risk, as described in **Table 47**. **Figure 70** presents the overall non-structure fire risk scores for SCCFD, and **Figure 71** shows the non-structure fire risk scores by category.

Table 47: Non-Structure Fire Risk Score Categories

Risk Category	Description	Score Range
Low	Less than average	19.4 – 246.7
Moderate	Average to 75th percentile	246.7 – 331.3
High	75th to 90th percentile	331.3 – 420.5
Maximum	Over 90th percentile	420.5 – 901.5

Figure 70: Non-Structure Fire Risk Score

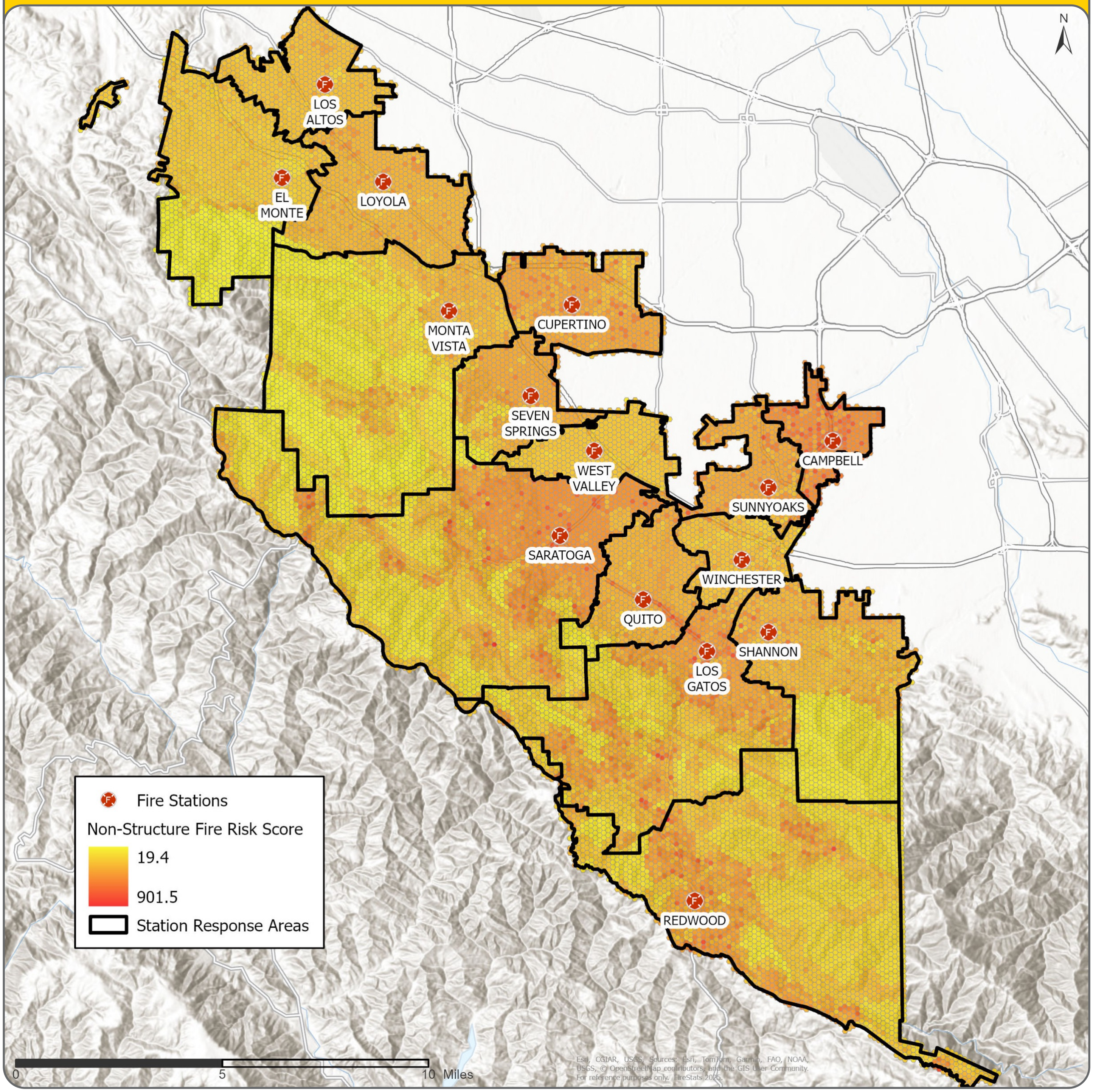
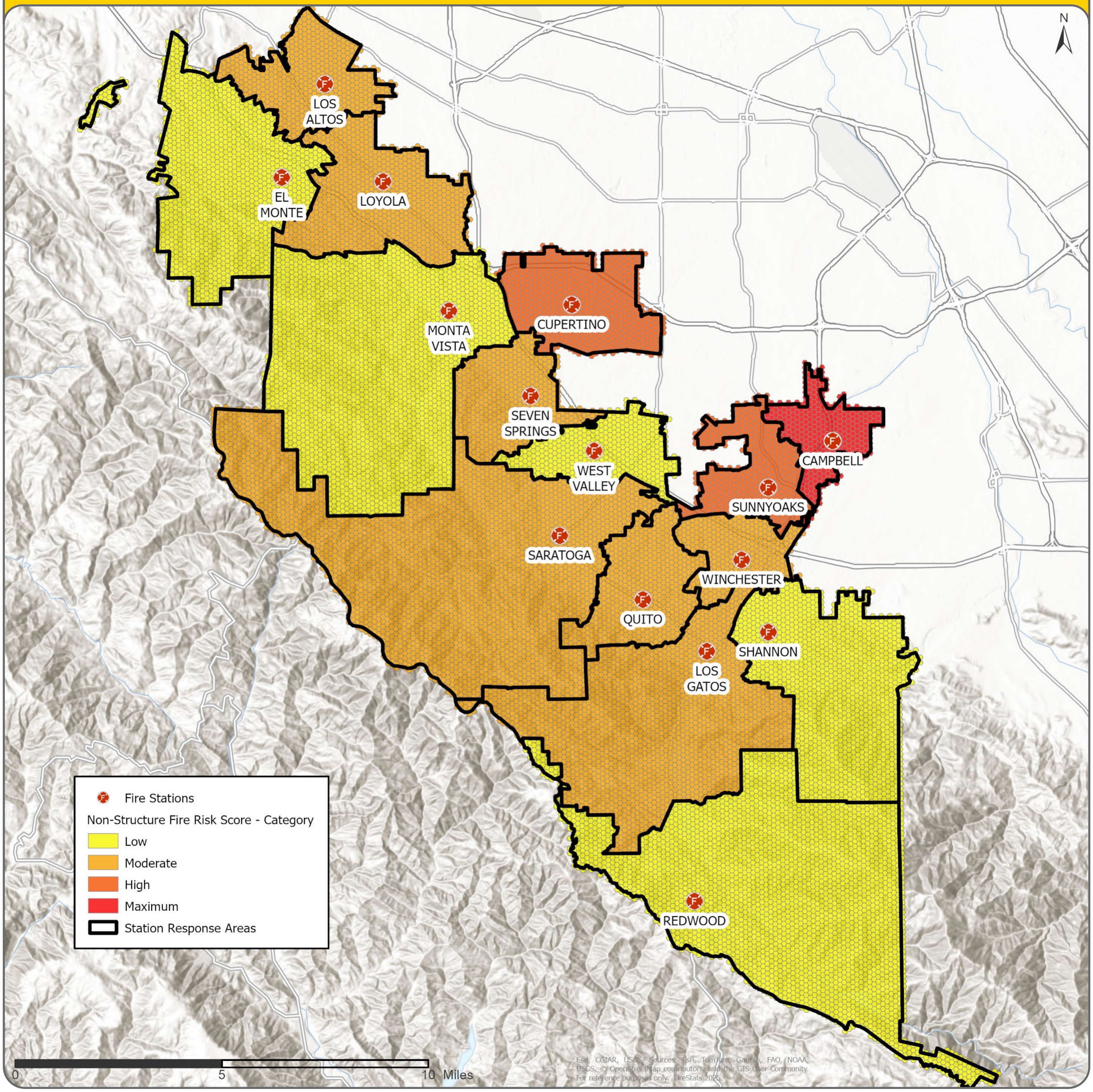


Figure 71: Non-Structure Fire Risk Score by Category



CALCULATED RISK: EMERGENCY MEDICAL SERVICES

Emergency medical service incidents include medical emergencies and motor vehicle accidents, and the spectrum of EMS events spans from critical, life-threatening events to low-acuity events. The risks represented in the calculations consider the full spectrum of EMS risk. This section explains how the variables were included in the EMS risk calculations.

The following formula was used to calculate the probability of EMS incidents **(Table 48)**:

Probability (EMS) = (Normalized Historical Incidents * EMS Weight) + Normalized Population Density Rank + Normalized Persistent Year + (Percent of Population over Age 70 *10) + Land Use for EMS Incidents + (Social Vulnerability Index for Households*10) + (Social Vulnerability Index for Housing and Transportation *10)

Table 48: Probability of EMS Incidents—Variables, Weights/Factors, and Descriptions

Variable	Weight or Factor	Description
Normalized historical incidents	10	Probability based on historical encounters
Normalized population density rank	Value	Probability based on relationship to population density factors
Normalized persistent year	Value	Probability based on repeat likelihood of incident or hotspot of incidents
Percent of population over age 70	10	Probability based on population demographic factors
Land use	Rank score	Probability based on historical encounters of EMS events based on specific land use
Social vulnerability index: Household	10	Household SVI as indicator for demographic factors associated with health disparities
Social vulnerability index: Housing and transportation	10	Housing and transportation SVI as indicator for demographic factors associated with health disparities

The following formula was used to calculate the consequence of EMS incidents **(Table 49)**:

*Consequence (EMS) = (Normalized Population Density * Percent ROSC) + (Normalized Population Age 85 or greater * Percent ROSC) + (Weight of Critical EMS Primary Impressions/All Primary Impressions of EMS – Medical Preparedness Score*

Table 49: Consequence of EMS Incidents—Variables, Weights/Factors, and Descriptions

Variable	Weight or Factor	Description
Population density rank * percent ROSC	0.3254	Consequence as factor of previous EMS outcomes
Population age 85 or greater * percent ROSC	0.3254	Consequence as a factor of demographic characteristics and historical EMS outcomes
Weight of EMS critical patients * normalized EMS incidents	0.501	Consequence as a factor of historical EMS encounters and patient criticality
Medical preparedness score	Rank value	Calculated from community outreach activities

The following formula was used to calculate the impact of EMS incidents **(Table 50)**:

Impact (EMS) = Normalized Travel Time from Fire Station + EMS Commitment Score + Historical Deployment Factor for EMS Incidents

Table 50: Impact of EMS Incidents—Variables, Weights/Factors, and Descriptions

Variable	Weight or Factor	Description
Normalized travel time score	Value	Impact associated with travel time from fire station
Time on task: EMS commitment times	Rank score	Impact associated with time spent on EMS incidents
Deployment: normalized deployment impact score	Rank score	Impact associated with apparatus deployed to mitigate EMS risk

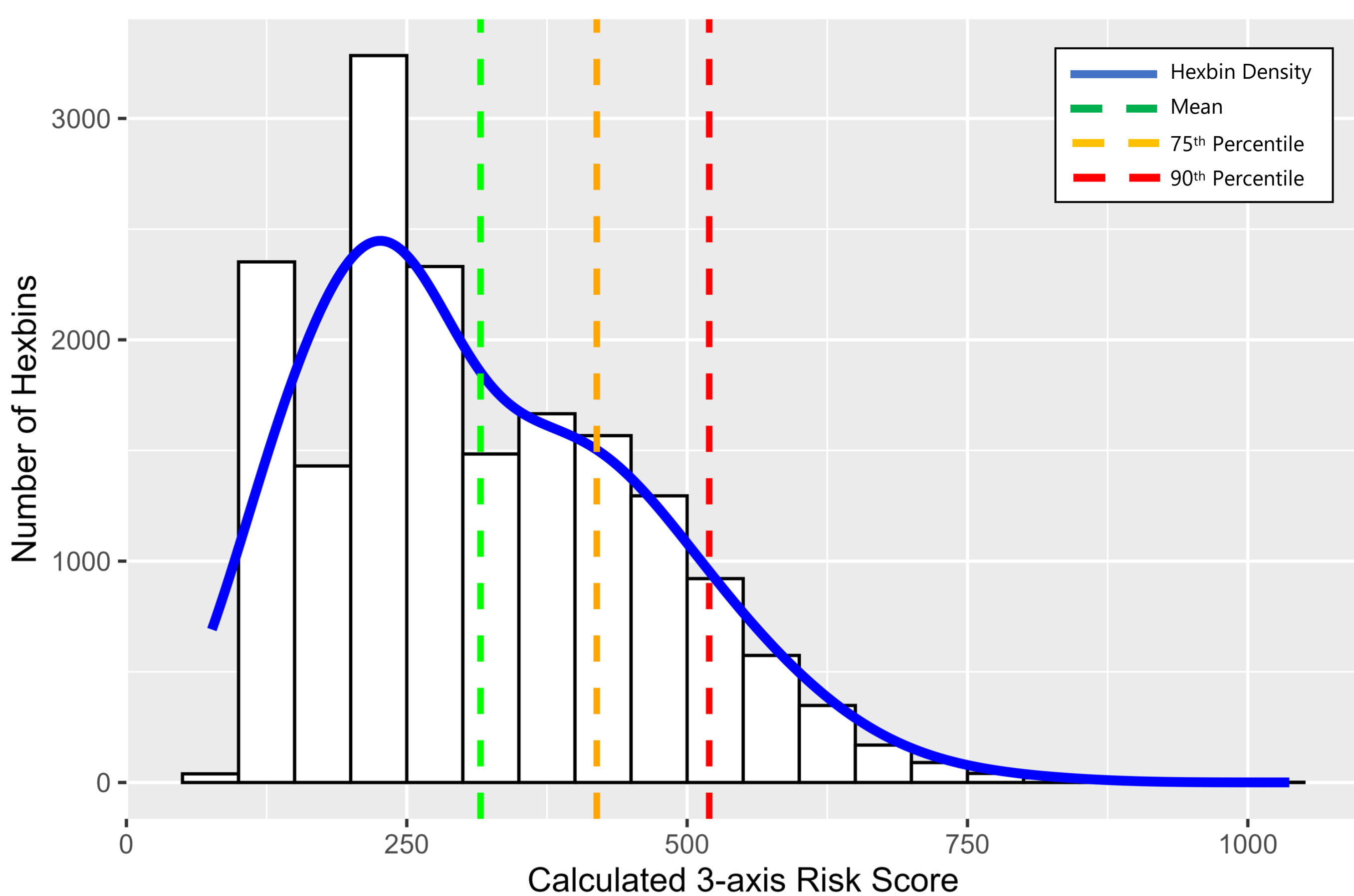
Hexbin Distribution

Table 51 and Figure 72 show the quantified risk score for EMS throughout the SCCFD service area, considering EMS risk scoring throughout the 17,671 hexagonal grid cells (versus station area or city).

Table 51: EMS Risk Score—Summary Statistics

Minimum	Maximum	Average	Standard Deviation	Interquartile Range	Range
76.3	1037.0	315.8	144.3	215.9	960.7

Figure 72: Distribution of EMS Risk Scores Histogram



Station Response Zone Scores

The EMS risk scores were aggregated at the station level to understand the risks by planning zone. Each grid cell in the planning zones contributed to the overall, minimum, maximum, and average scores, as outlined in **Table 52**.

Table 52: EMS –3-Axis Risk Scores by Station

Station Number	Station Name	Three-axis Score Min	Three-axis Score Max	Three-axis Score Average	Overall Score
71	Cupertino	205.4	752.5	492.8	High
72	Seven Springs	156.7	515.5	332.9	Moderate
73	Saratoga	151.7	1037.0	353.4	Moderate
74	El Monte	131.3	772.1	328.8	Moderate
75	Los Altos	116.4	664.8	368.8	Moderate
76	Loyola	140.8	729.4	386.8	Moderate
77	Monta Vista	157.0	744.7	281.3	Low
78	Quito	98.3	525.4	304.6	Low
79	West Valley	200.1	648.3	451.5	High
80	Sunnyoaks	154.9	728.3	401.1	Moderate
81	Campbell	240.2	871.6	532.1	Maximum
82	Shannon	104.2	776.2	312.8	Low
83	Los Gatos	109.5	763.5	294.5	Low
84	Redwood	76.3	588.8	177.2	Low
85	Winchester	83.4	608.4	283.3	Low

Risk Categorization

Using the distribution of EMS risk scores throughout the hexbins, the scores by station were categorized as low, moderate, high, or maximum risk, as described in **Table 53**. **Figure 73** presents the overall EMS risk scores for SCCFD, and **Figure 74** shows the EMS risk scores by category.

Table 53: EMS Risk Score Categories

Risk Category	Description	Score Range
Low	Less than average	76.3 – 315.8
Moderate	Average to 75th percentile	315.8 – 419.4
High	75th to 90th percentile	419.4 – 519.8
Maximum	Over 90th percentile	519.8 – 1037.0

Figure 73: EMS Risk Score

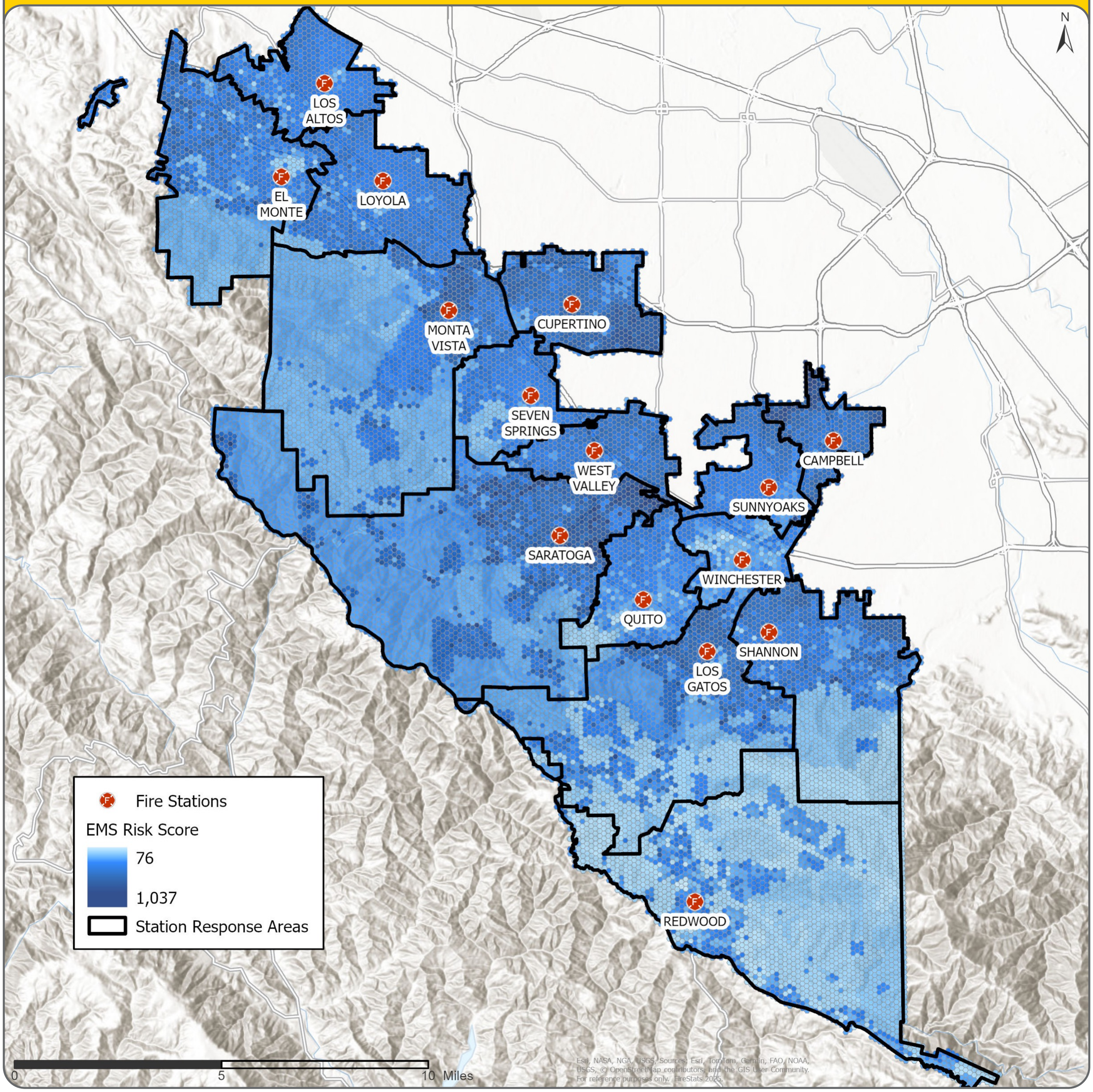
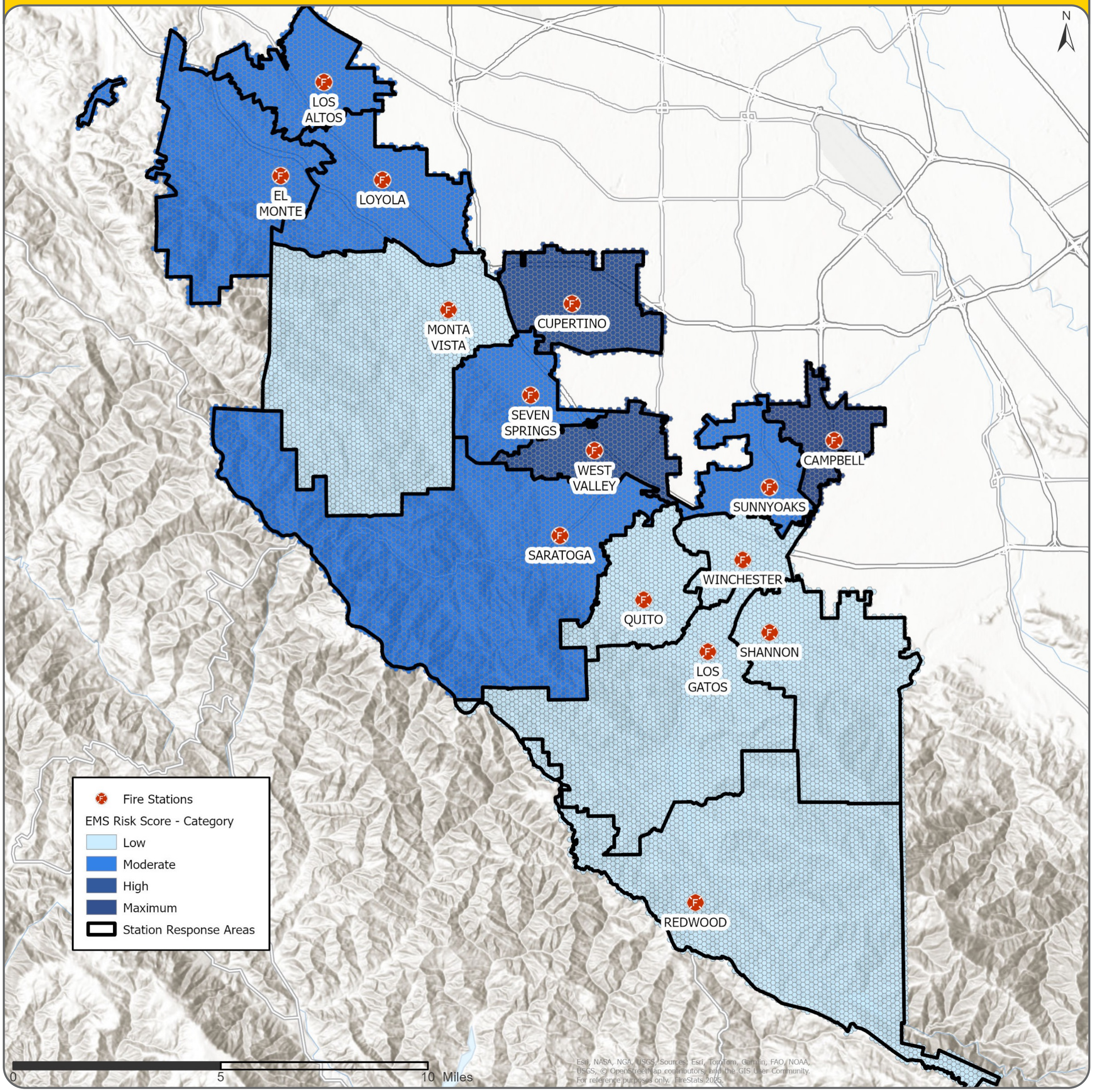


Figure 74: EMS Risk Score by Category



CALCULATED RISK: TECHNICAL RESCUE

Technical rescue incidents include motor vehicle accidents, entrapments, confined spaced, trench, water, and other rescues. The presence of certain geographical and human-made factors, such as hillsides, railroads, and highways, were incorporated into the probability of technical rescue risk, as well as the previous occurrences of rescue events. This section explains how the variables were included in the technical rescue risk calculations.

The following formula was used to calculate the probability of technical rescue incidents **(Table 54)**:

Probability (Rescue) = (Normalized EMS Incidents * Rescue Weight) + Presence of Trails + Flood Zone + Highway or Expressway Presence + Railroad or Tunnel Presence + Hillside/Landslide Risk

Table 54: Probability of Technical Rescue—Variables, Weights/Factors, and Descriptions

Variable	Weight or Factor	Description
Normalized EMS incidents	0.004	Probability based on historical EMS incidents, weighted by historical rescue incidents
Trail presence	10	Probability based on geographical factors that affect rescue risk
Flood zone	10	Probability based on geographical factors that affect rescue risk
Highway or expressway	10	Probability based on human-made factors that affect rescue risk
Railroad or tunnel presence	10	Probability based on geographical factors that affect rescue risk
Hillside/landslide zone	10	Probability based on geographical factors that affect rescue risk

The following formula was used to calculate the consequence of technical rescue **(Table 55)**:

Consequence (Rescue) = (Normalized Trauma by Area) + Weight of EMS Critical Patients/EMS Incidents

Table 55: Consequence of Technical Rescue—Variables, Weights/Factors, and Descriptions

Variable	Weight or Factor	Description
Normalized trauma by Area	Rank score	Consequence as a factor of previous trauma patient encounters
Weight of EMS critical patients/all patients	0.501	Consequence as a factor of historical EMS encounters and patient criticality
Medical preparedness score	Rank value	Calculated from community outreach activities

The following formula was used to calculate the impact of technical rescue **(Table 56)**:

Impact (Rescue) = Normalized Travel Time from Fire Station + EMS Commitment Score + Historical Deployment Factor for Technical Rescue Incidents

Table 56: Impact of Technical Rescue—Variables, Weights/Factors, and Descriptions

Variable	Weight or Factor	Description
Normalized travel time score	Value	Impact associated with travel time from fire station
Time on task: EMS commitment times	Rank score	Impact associated with time spent on Technical Incidents
Deployment: Normalized deployment impact score for rescue incidents	Rank score	Impact associated with apparatus deployed to mitigate rescue risk

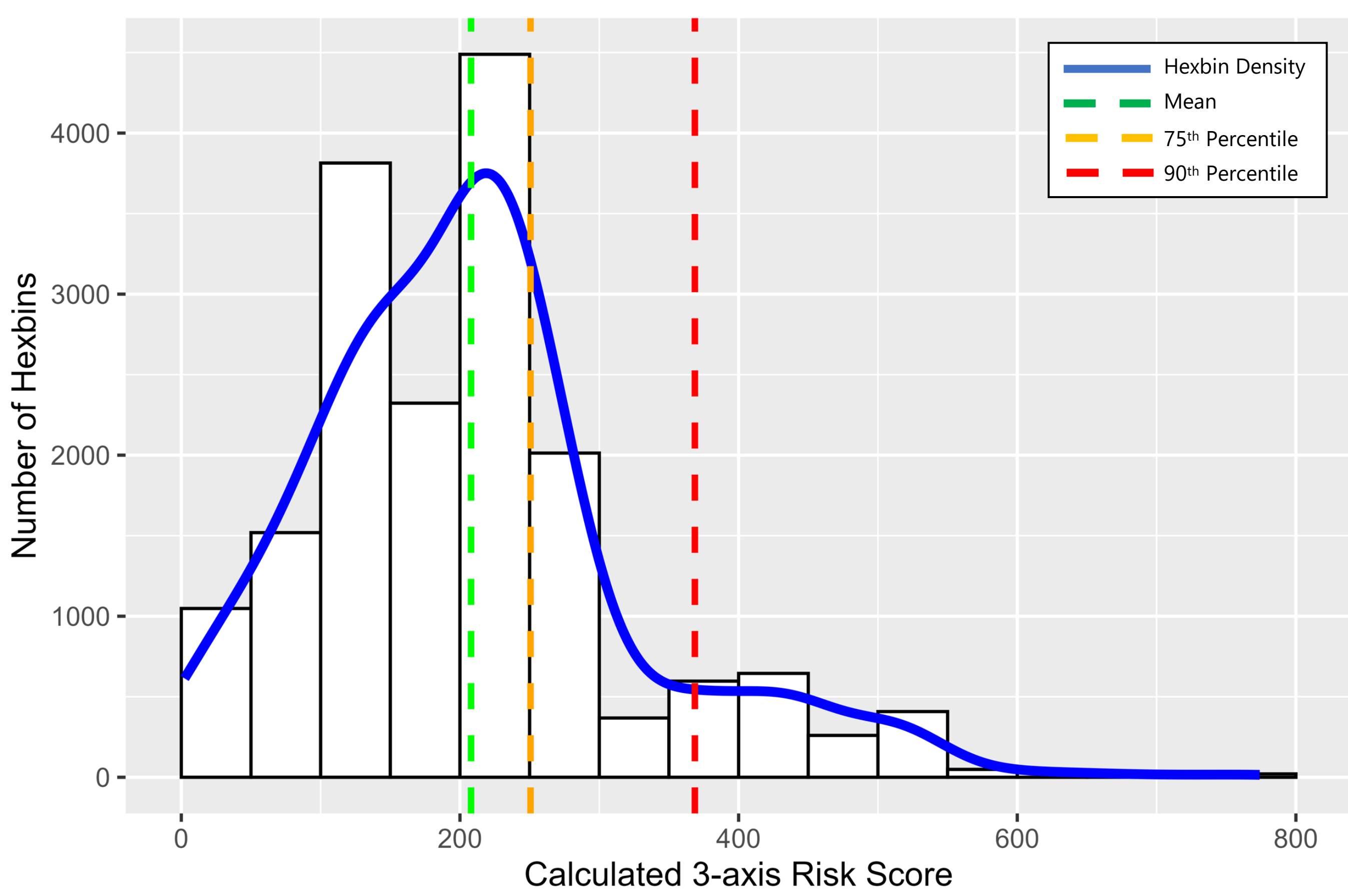
Hexbin Distribution

Table 57 and Figure 75 show the quantified risk score for technical rescue risk throughout the SCCFD service area, considering technical rescue risk scoring throughout the 17,671 hexagonal grid cells (versus by station area or city).

Table 57: Technical Rescue Risk Score—Summary Statistics

Minimum	Maximum	Average	Standard Deviation	Interquartile Range	Range
2.3	774.0	208.0	115.8	115.9	771.7

Figure 75: Distribution of Technical Rescue Risk Scores Histogram



Station Response Zone Scores

The technical rescue risk scores were aggregated at the station level to understand the risks by planning zone. Each grid cell in the planning zones contributed to the overall, minimum, maximum, and average scores, as outlined in **Table 58**.

Table 58: Technical Rescue 3-Axis Risk Scores by Station

Station Number	Station Name	Three-axis Score Min	Three-axis Score Max	Three-axis Score Average	Overall Score
71	Cupertino	12.1	444.5	136.1	Low
72	Seven Springs	17.8	682.4	269.7	High
73	Saratoga	50.4	774.0	323.6	High
74	El Monte	15.0	657.8	287.6	High
75	Los Altos	80.1	289.4	135.3	Low
76	Loyola	9.9	507.5	146.2	Low
77	Monta Vista	8.5	547.6	161.2	Low
78	Quito	14.9	380.6	170.6	Low
79	West Valley	9.6	171.1	60.6	Low
80	Sunnyoaks	2.3	378.2	84.7	Low
81	Campbell	4.3	600.1	118.5	Low
82	Shannon	7.2	294.7	86.8	Low
83	Los Gatos	74.7	686.1	260.7	High
84	Redwood	58.7	443.3	205.9	Low
85	Winchester	5.9	627.6	271.4	High

Risk Categorization

Using the distribution of risk scores throughout the hexbins, the scores by station were categorized as low, moderate, high, and maximum risk, as described in **Table 59**. **Figure 76** presents the overall technical rescue risk scores for SCCFD, and **Figure 77** shows the technical rescue risk scores by category.

Table 59: Technical Rescue Risk Score Categories

Risk Category	Description	Score Range
Low	Less than average	2.3 – 208.0
Moderate	Average to 75th percentile	208.0 – 250.6
High	75th to 90th percentile	250.6 – 368.6
Maximum	Over 90th percentile	368.6 – 774.0

Figure 76: Technical Rescue Risk Score

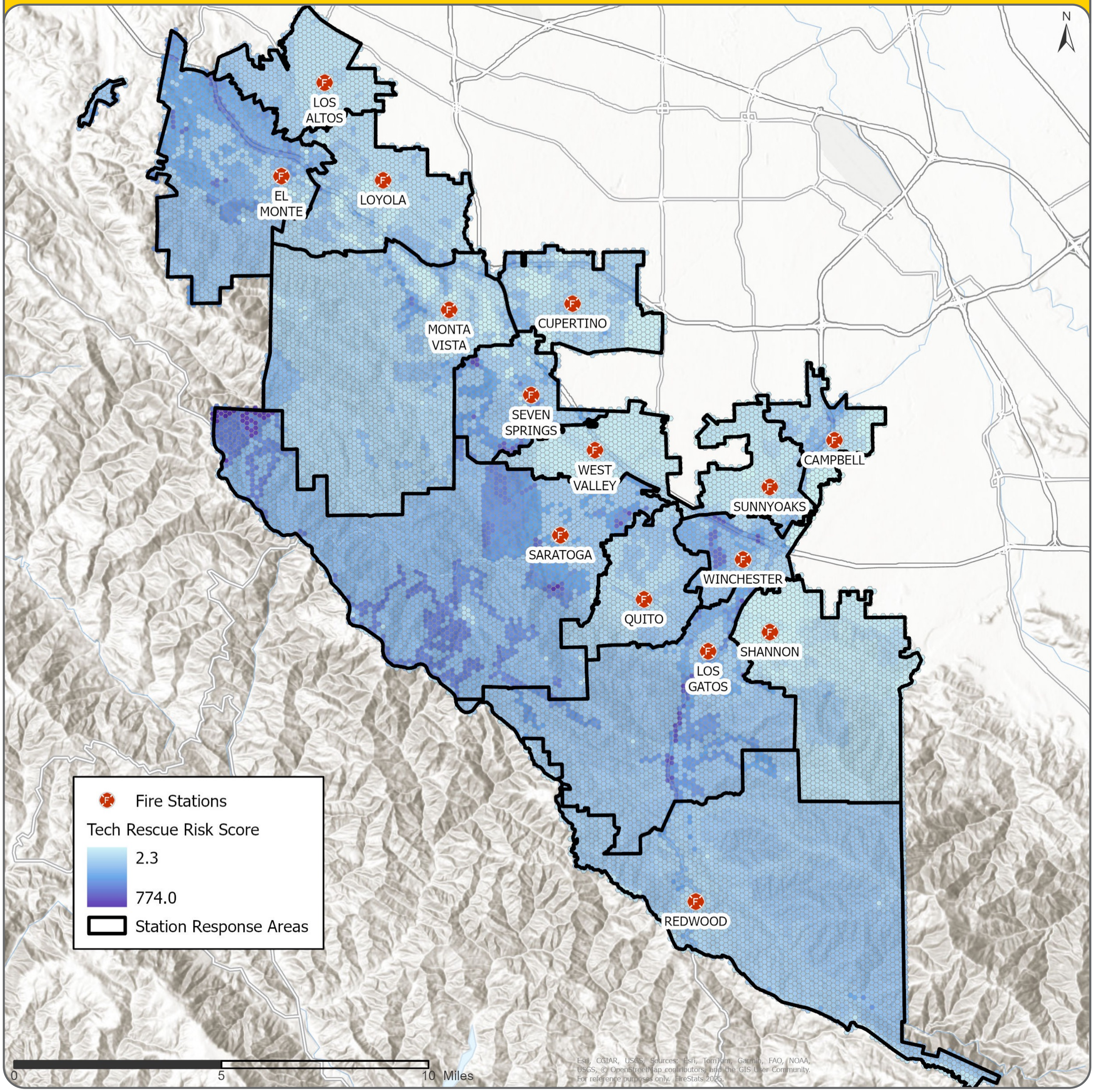
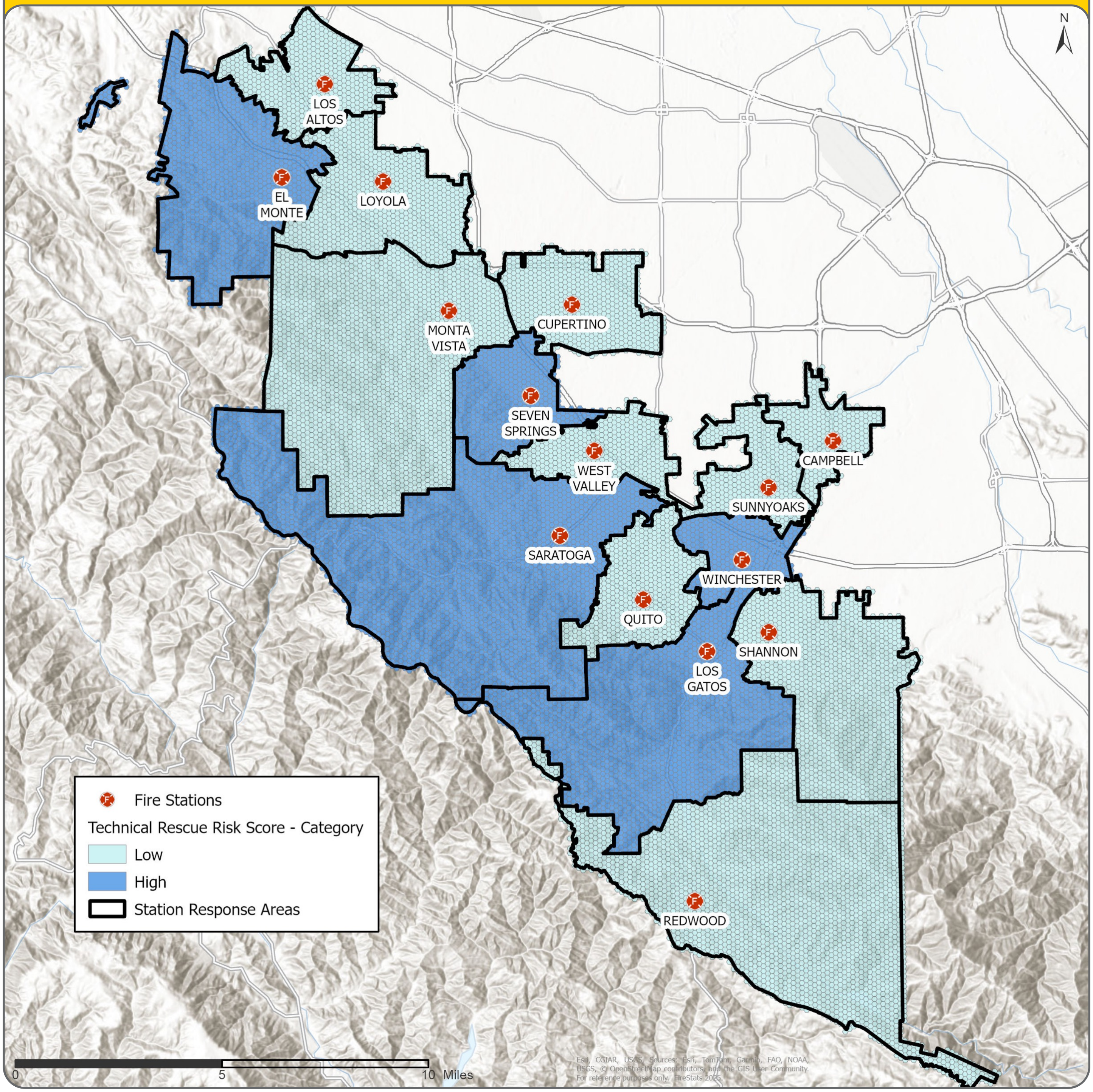


Figure 77: Technical Rescue Risk Score by Category



CALCULATED RISK: HAZARDOUS MATERIALS

The presence of HazMat in the community was a driving factor in determining HazMat risk. Haz Mat data from SCCFD, the EPA, and California State Geoportal were integral in determining HazMat risk; however, additional information concerning the chemical types and specific hazards stored in each facility in the service area would allow for a more accurate Haz Mat risk assessment.

The following formula was used to calculate the probability of HazMat incidents **(Table 60)**:

*Probability (HazMat) = (Historical Incidents * Hazard Weight) + Normalized HazMat Score + (Presence of PGE Pipeline * 10) + Land Use by Hazardous Materials Incident*

Table 60: Probability of HazMat Incidents—Variables, Weights/Factors, and Descriptions

Variable	Weight or Factor	Description
Normalized historical incidents	0.413	Probability based on relationship to historical HazMat incidents
Historical HazMat incidents	Value	Probability based on previous locations of Haz Mat incidents
Within PGE pipeline	10	Probability based on presence of California gas transmission pipelines
Normalized land use scores for HazMat incidents	Value	Probability based on relationship between land use and HazMat events

The following formula was used to calculate the consequence HazMat incidents **(Table 61)**:

*Consequence (HazMat) = Property Value Variable Score + (Presence of School * 10) + Population Density in HazMat Zone + Population Density in Commercial or Educational Land Use + Presence of Critical Infrastructure or Economic Centers (Medical Facilities and Fortune 500 Companies) – General Preparedness Score*

Table 61: Consequence of HazMat Incidents—Variables, Weights/Factors, and Descriptions

Variable	Weight or Factor	Description
Property value score	Value	Consequence as a factor of total property values and impact to property
Presence of school	10	Consequence as impacting educational institutions
Population density in HazMat location areas	Value	Potential consequence on population in proximity of risk
Population density in commercial or educational land use zone	Value	Potential consequence on population in proximity of risk
Presence of medical facility (hospitals)	10	Consequence to community if access to medical facilities is affected
Presence of Fortune 500 company	10	Consequence to community if economic centers are affected
General preparedness score	Rank value	Calculated from community outreach activities

The following formula was used to calculate the impact of HazMat incidents **(Table 62)**:

Impact (HazMat) = (Normalized Score of Travel Time of Specialty HazMat Response Unit + Normalized Travel Time from Fire Station + Historical Deployment Factor + Historical Commitment on HazMat Incidents) – Community Risk-Reduction Inspection Factor

Table 62: Impact of HazMat Incidents—Variables, Weights/Factors, and Descriptions

Variable	Weight or Factor	Description
Normalized travel time for specialty units	Value	Impact associated with travel time of HazMat specialty unit
Normalized travel time for response	Value	Impact associated with travel time from fire station
Time on task: HazMat commitment times	Rank value	Impact associated with time on HazMat incidents
Normalized deployment impact score	Rank value	Impact associated with apparatus deployed to mitigate risk
Risk-reduction factor: HazMat inspections	Rank value	Impact reduction factor based on the active inspection of HazMat materials and facilities

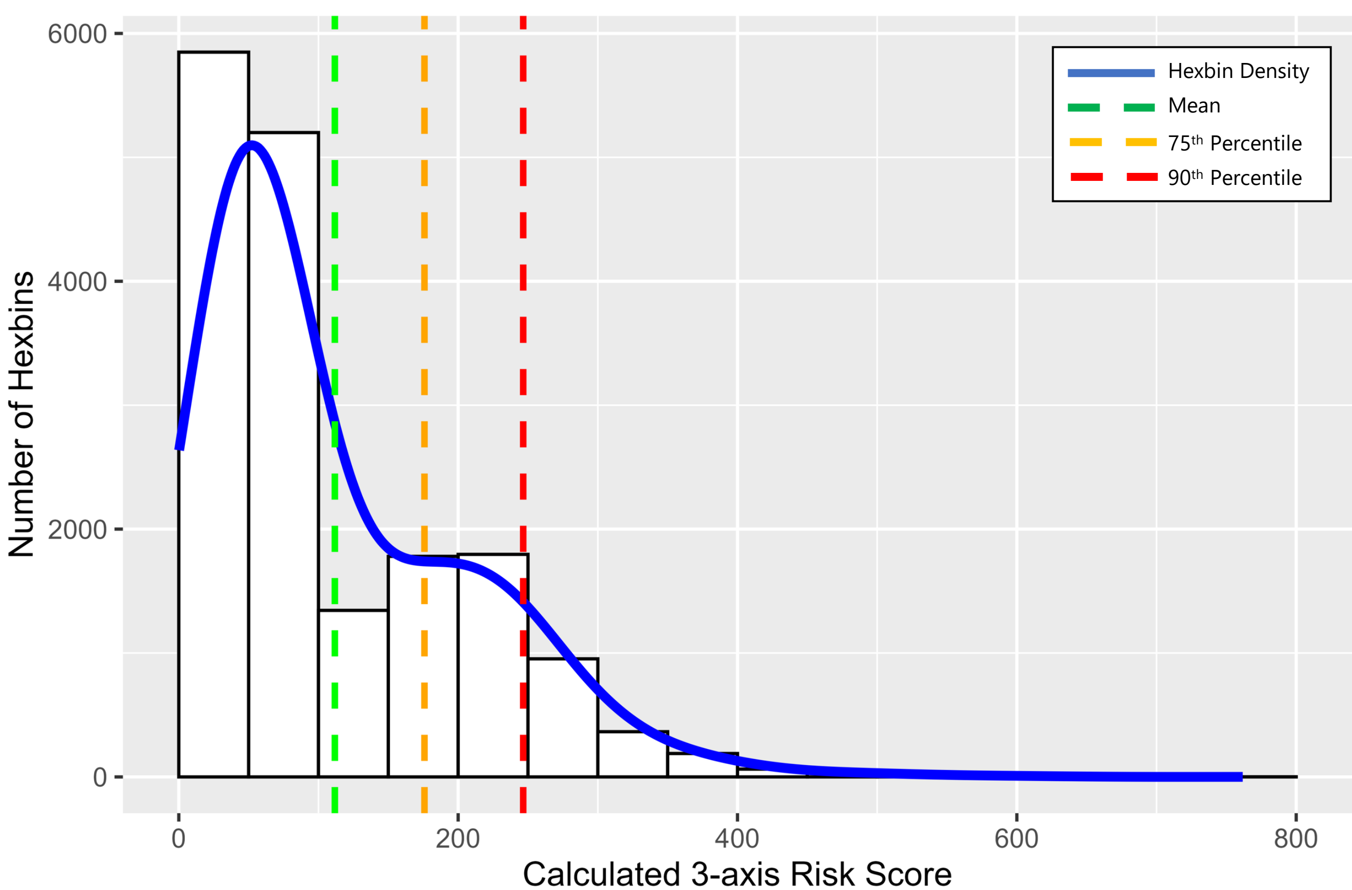
Hexbin Distribution

Table 63 and Figure 78 show the quantified risk score for HazMat incidents throughout the SCCFD service area, considering HazMat risk scoring throughout the 17,671 hexagonal grid cells (versus by station area or city).

Table 63: HazMat Risk Score—Summary Statistics

Minimum	Maximum	Average	Standard Deviation	Interquartile Range IQR	Range
0.2	761.7	111.7	92.7	136.1	761.5

Figure 78: Distribution of HazMat Risk Scores Histogram



Station Response Zone Scores

The HazMat risk scores were aggregated at the station level to understand the risks by planning zone. Each grid cell in the planning zones contributed to the overall, minimum, maximum, and average scores, as outlined in **Table 64**.

Table 64: HazMat –3-Axis Risk Scores

Station Number	Station Name	Three-axis Score Min	Three-axis Score Max	Three-axis Score Average	Overall Score
71	Cupertino	10.2	625.1	156.3	Moderate
72	Seven Springs	15.7	539.7	174.2	Moderate
73	Saratoga	13.4	616.1	131.3	Moderate
74	El Monte	11.1	533.6	141.1	Moderate
75	Los Altos	42.8	761.7	217.9	High
76	Loyola	14.0	569.8	191.2	High
77	Monta Vista	3.7	429.3	54.9	Low
78	Quito	3.1	263.6	68.5	Low
79	West Valley	1.0	483.5	35.4	Low
80	Sunnyoaks	0.2	378.4	49.2	Low
81	Campbell	1.9	393.5	63.6	Low
82	Shannon	2.1	446.5	76.7	Low
83	Los Gatos	11.7	658.9	145.0	Moderate
84	Redwood	10.6	508.4	95.1	Low
85	Winchester	1.5	344.1	55.3	Low

Risk Categorization

Using the distribution of risk scores throughout the hexbins, the scores by station were categorized as low, moderate, high, or maximum risk, as described in **Table 65**. **Figure 79** presents the overall HazMat risk scores for SCCFD, and **Figure 80** shows the HazMat risk scores by category.

Table 65: HazMat Risk Score Categories

Risk Category	Description	Score Range
Low	Less than average	0.2 – 111.7
Moderate	Average to 75th percentile	111.7 – 175.9
High	75th to 90th percentile	175.9 – 246.6
Maximum	Over 90th percentile	246.6 – 761.7

Figure 79: HazMat Risk Score

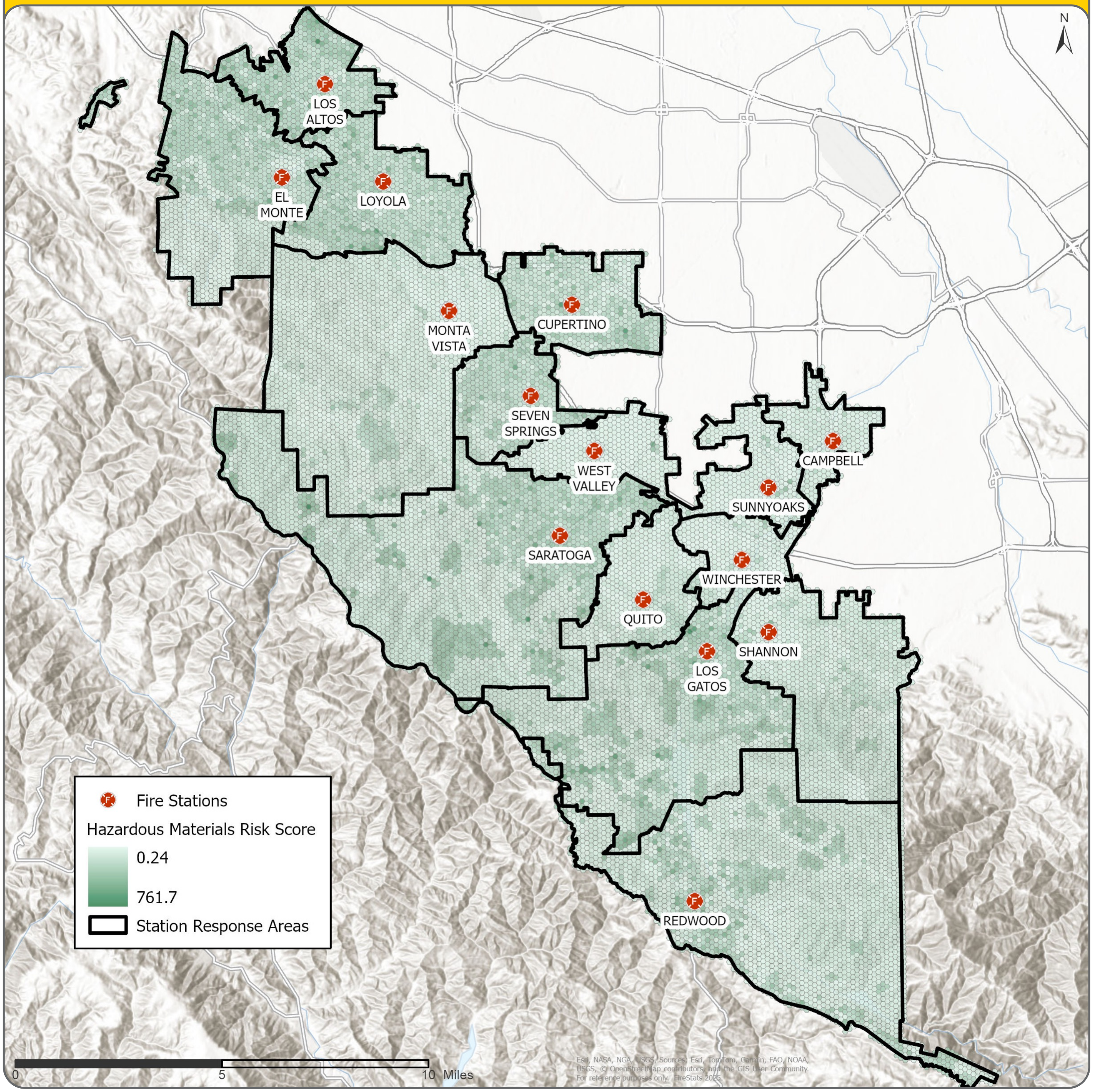
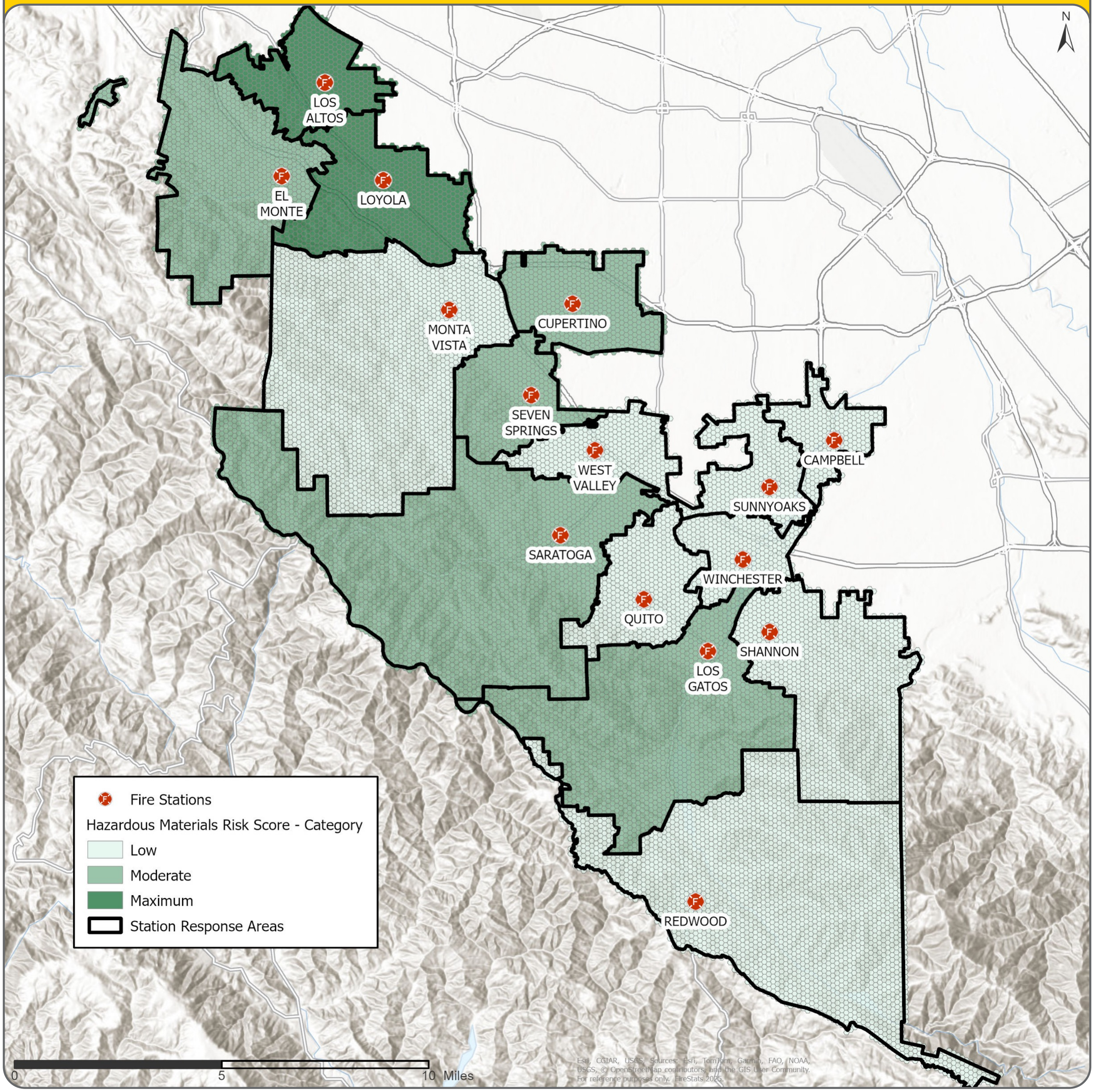


Figure 80: HazMat Risk Score by Category



CALCULATED RISK: WILDLAND FIRES

Due to the climate of California, regionally, the baseline risk for wildland fires is generally higher than in most of the continental United States. Regardless of the baseline, characteristics taken from the local hazard mitigation planning data were primarily used for risk determination in this analysis. This section explains how the variables were included in the wildland fire risk calculations.

The following formula was used to calculate the probability of wildland fires **(Table 66)**:

*Probability (Wildland Fires) = (Normalized Fire Severity) + Normalized Drought Area Score + (History of Outside Fires Normalized) + (Open Space Hillside Land Use Flag * 10) + Rural Designation * Weight Outside Vegetation Fires*

Table 66: Probability of Wildland Fires—Variables, Weights/Factors, and Descriptions

Variable	Weight or Factor	Description
Normalized fire threat severity	Value	Probability based on fire threat
Normalized drought area	Value	Probability based on identified drought area
History of outside fires, normalized	Value	Probability based on historical outside and wildland fires
Land use: Open space hillside	10	Probability based on land use
Rural designation * weight outside vegetation fires	0.30	Rural areas weighted by outside vegetation fires

The following formula was used to calculate the consequence of wildland fires **(Table 67)**:

Consequence (Wildland Fires) = Population Density in Fire Severity Zone + Critical Infrastructure + Property Value Rank in Fire Severity Zone+ Overall Social Vulnerability Index – Wildfire Preparedness Score

Table 67: Consequence of Wildland Fires—Variables, Weights/Factors, and Descriptions

Variable	Weight or Factor	Description
Normalized population Density in a fire severity Zone	Value	Consequence as factor of population density; special land use considerations and open space population density included
Critical infrastructure presence	10	Presence or absence of critical infrastructure, including medical facilities, transmission towers, gas pipelines, FM transmission towers, and cellular towers
Total land value rank in a fire severity zone	Value	Consequence as a factor of total land value
Population characteristics: Overall social vulnerability index	10	Overall resiliency, as quantified by 16 social factors identified by the CDC
Wildfire preparedness score	Rank value	Calculated from community outreach activities

The following formula was used to calculate the impact of wildland fires **(Table 68)**:

Impact (Wildland Fires) = Outside Hydrant Area + Fire Commitment Times + Normalized Travel Time Score of Water-Carrying Unit + Deployment Wildland/Outside Fires

Table 68: Impact of Wildland Fires—Variables, Weights/Factors, and Descriptions

Variable	Weight or Factor	Description
Hydrant area	Rank value	Impact as a factor of being outside of a hydrant area
Time on task: Fire commitment times	Rank value	Impact associated with time spent on fire incidents
Normalized travel time for water-carrying unit	Value	Impact associated with the Travel time of a fire apparatus with water supply
Normalized deployment impact score	Rank value	Impact associated with the apparatus deployed to mitigate risk

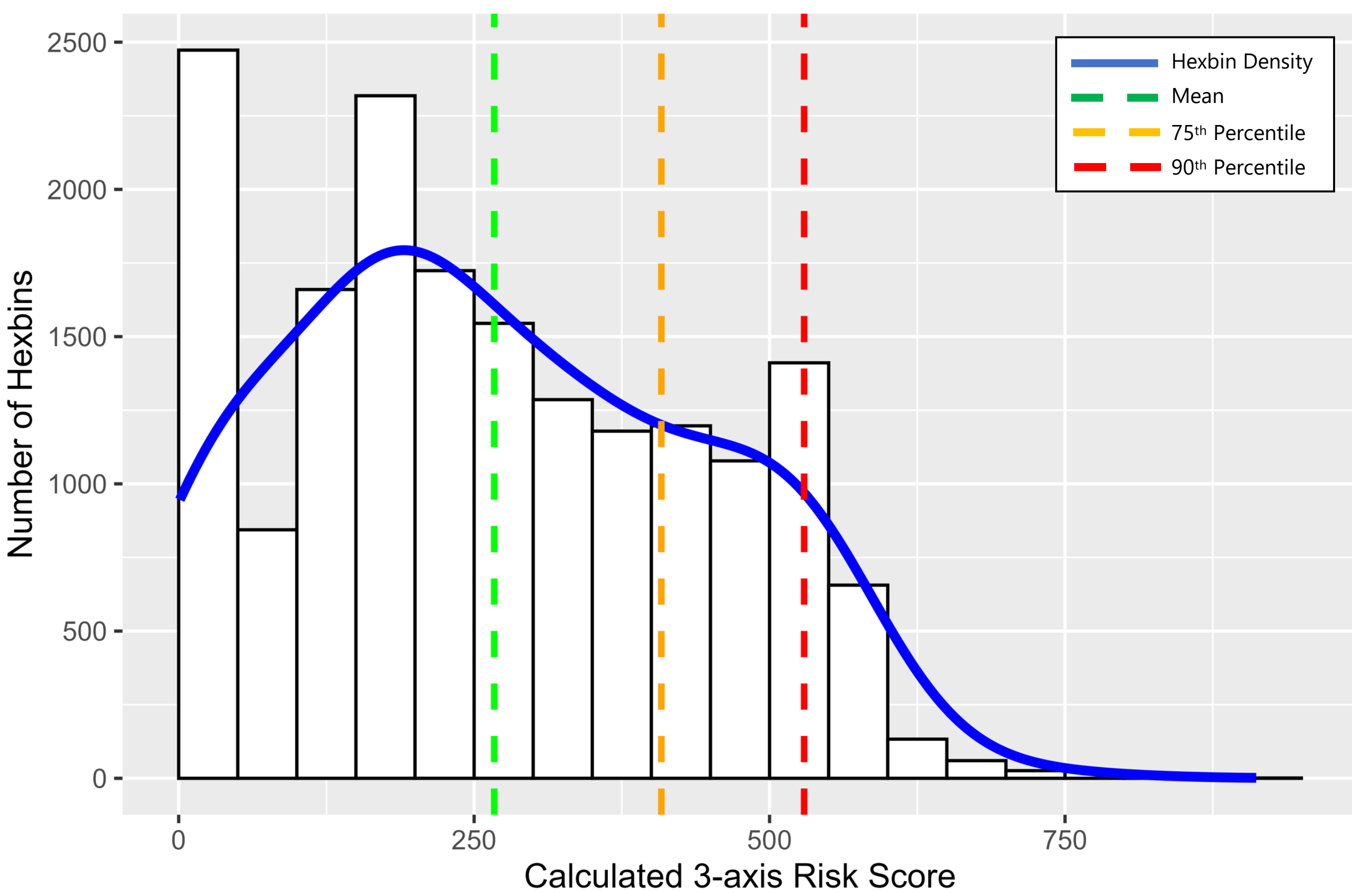
Hexbin Distribution

Table 69 and Figure 81 show the quantified risk score for wildland fires throughout the SCCFD service area, considering wildland fire risk scoring throughout the 17,671 hexagonal grid cells (versus by station area or city).

Table 69: Wildland Fires Risk Score—Summary Statistics

Minimum	Maximum	Average	Standard Deviation	Interquartile Range IQR	Range
1.0	911.8	267.1	172.3	273.9	910.8

Figure 81: Distribution of Wildland Fires Risk Scores Histogram



Station Response Zone Scores

The wildland fire risk scores were aggregated at the station level to understand the risks by planning zone. Each grid cell in the planning zones contributed to the overall, minimum, maximum, and average scores, as outlined in **Table 70**.

Table 70: Wildland Fires 3-Axis Risk Scores

Station Number	Station Name	Three-axis Score Min	Three-axis Score Max	Three-axis Score Average	Overall Score
71	Cupertino	3.2	573.8	76.7	Low
72	Seven Springs	13.6	780.7	191.3	Low
73	Saratoga	33.7	911.8	413.1	High
74	El Monte	25.5	602.4	237.4	Low
75	Los Altos	1.2	410.4	68.8	Low
76	Loyola	2.3	433.0	68.5	Low
77	Monta Vista	3.8	715.9	257.4	Low
78	Quito	10.9	621.1	204.0	Low
79	West Valley	27.3	389.9	130.1	Low
80	Sunnyoaks	2.4	399.0	67.3	Low
81	Campbell	1.4	361.4	51.2	Low
82	Shannon	4.3	605.3	289.1	Moderate
83	Los Gatos	8.0	774.0	339.2	Moderate
84	Redwood	115.7	744.8	365.5	Moderate
85	Winchester	1.0	278.2	78.4	Low

Risk Categorization

Using the distribution of risk scores throughout the hexbins, the scores by station were categorized as low, moderate, high, or maximum risk, as described in **Table 71**. **Figure 82** presents the overall wildland fire risk scores for SCCFD, and **Figure 83** shows the wildland fire risk scores by category.

Table 71: Wildland Fires Risk Score Categories

Risk Category	Description	Score Range
Low	Less than average	1.0 – 267.1
Moderate	Average to 75th percentile	267.1 – 408.4
High	75th to 90th percentile	408.4 – 529.3
Maximum	Over 90th percentile	529.3 – 911.8

Figure 82: Wildland Fires Risk Score

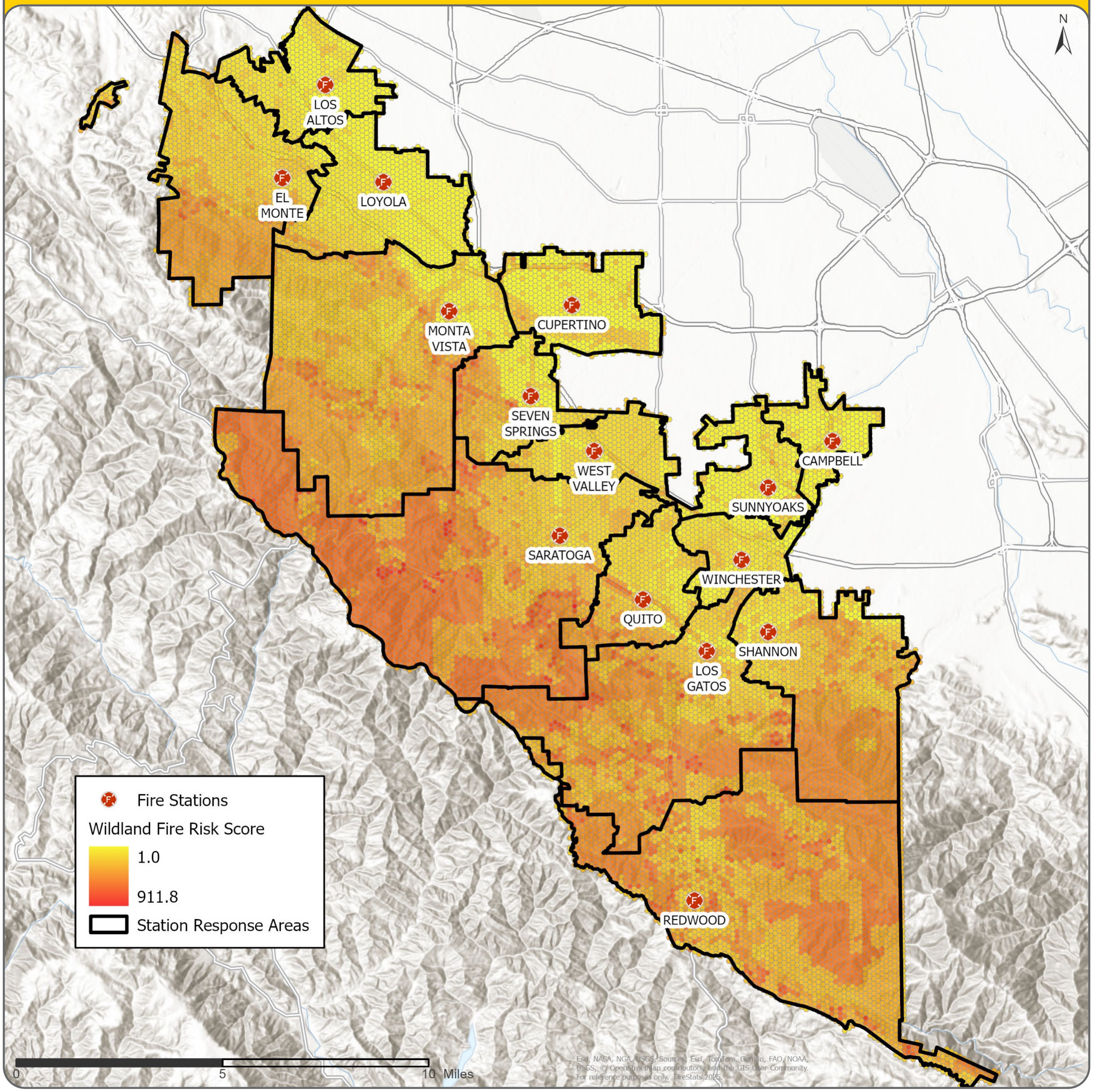
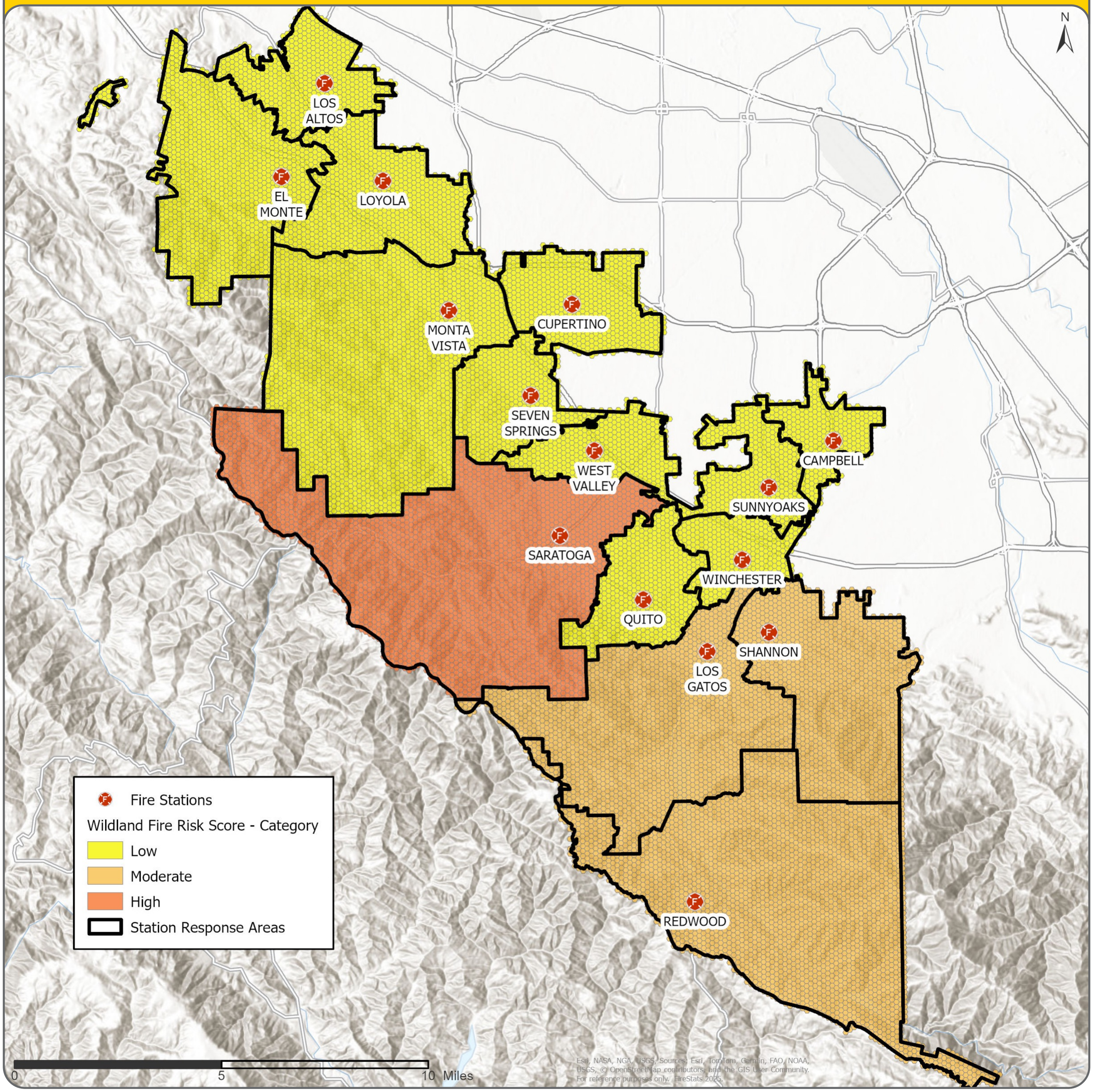


Figure 83: Wildland Fires Risk Score by Category



CALCULATED RISK: NATURAL AND HUMAN-MADE DISASTERS

Natural and human-made disasters include earthquakes, landslides, tsunamis, terrorism, and other disasters that have a low probability of occurrence, but potentially a high consequence and impact when they do occur. This section explains how each variable was incorporated into the calculations for natural and human-made disasters.

The following formula was used to calculate the probability of natural and human-made disasters **(Table 72)**:

Probability (Natural and Human-Made Disasters) = Fortune 500 Company Presence + FM Transmission Presence + Landslide Risk + Probabilistic Seismic Hazard Risk + Normalized Population Density Score + Fault Line Risk + Normalized Drought Area Score + Normalized Fire Threat Severity Score

Table 72: Probability of Natural and Human-made Disasters— Variables, Weights/Factors, and Descriptions

Variable	Weight or Factor	Description
Landslide risk	10	Probability due to geographical factors that affect natural disasters
Probabilistic seismic hazard score	Value	Probability due to geographical factors that affect natural disasters
Normalized population density score	10	Population factors that affect risk
Fault line stability	Value	Probability due to geographical factors that affect natural disasters
Normalized drought area	Value	Probability due to climate factors that affect risk
Normalized fire severity	Value	Probability due to climate and geographical land factors that affect risk
Fortune 500 company	10	Probability due to identified target hazards
FM transmission tower	10	Probability due to identified target hazards

The following formula was used to calculate the consequence of natural and human-made disasters **(Table 73)**:

Consequence (Natural and Human-Made Disasters) = Overall Social Vulnerability Index + Property Value Rank Score + Normalized Population Density – Disaster Preparedness Score

Table 73: Consequence of Natural and Human-made Disasters—Variables, Weights/Factors, and Descriptions

Variable	Weight or Factor	Description
Population characteristics: Social vulnerability index	10	Overall resiliency as quantified by 16 social factors identified by the CDC
Property value score	Value	Consequence as a factor on property value
Normalized population density	Value	Consequence as a factor of population density
Disaster preparedness score	Rank value	Calculated from community outreach activities

The following formula was used to calculate the impact of natural and human-made disasters **(Table 74)**:

Impact (Natural and Human-Made Disasters) = Normalized Deployment Score + Commitment Times + Gas Pipeline Presence + Overhead Transmission Presence + FM Transmission Presence

Table 74: Impact of Natural and Human-made Disasters—Variables, Weights/Factors, and Descriptions

Variable	Weight or Factor	Description
Normalized deployment score	6	Impact associated with apparatus deployed to mitigate risk
Time on task: Commitment times for weather or natural disaster events	4.46	Impact associated with staff/personnel time spent on weather and natural disaster events
Gas pipeline presence	10	Impact associated with critical utility infrastructure
Overhead transmission presence	10	Impact associated with critical utility infrastructure
FM transmission presence	10	Impact associated with critical utility infrastructure

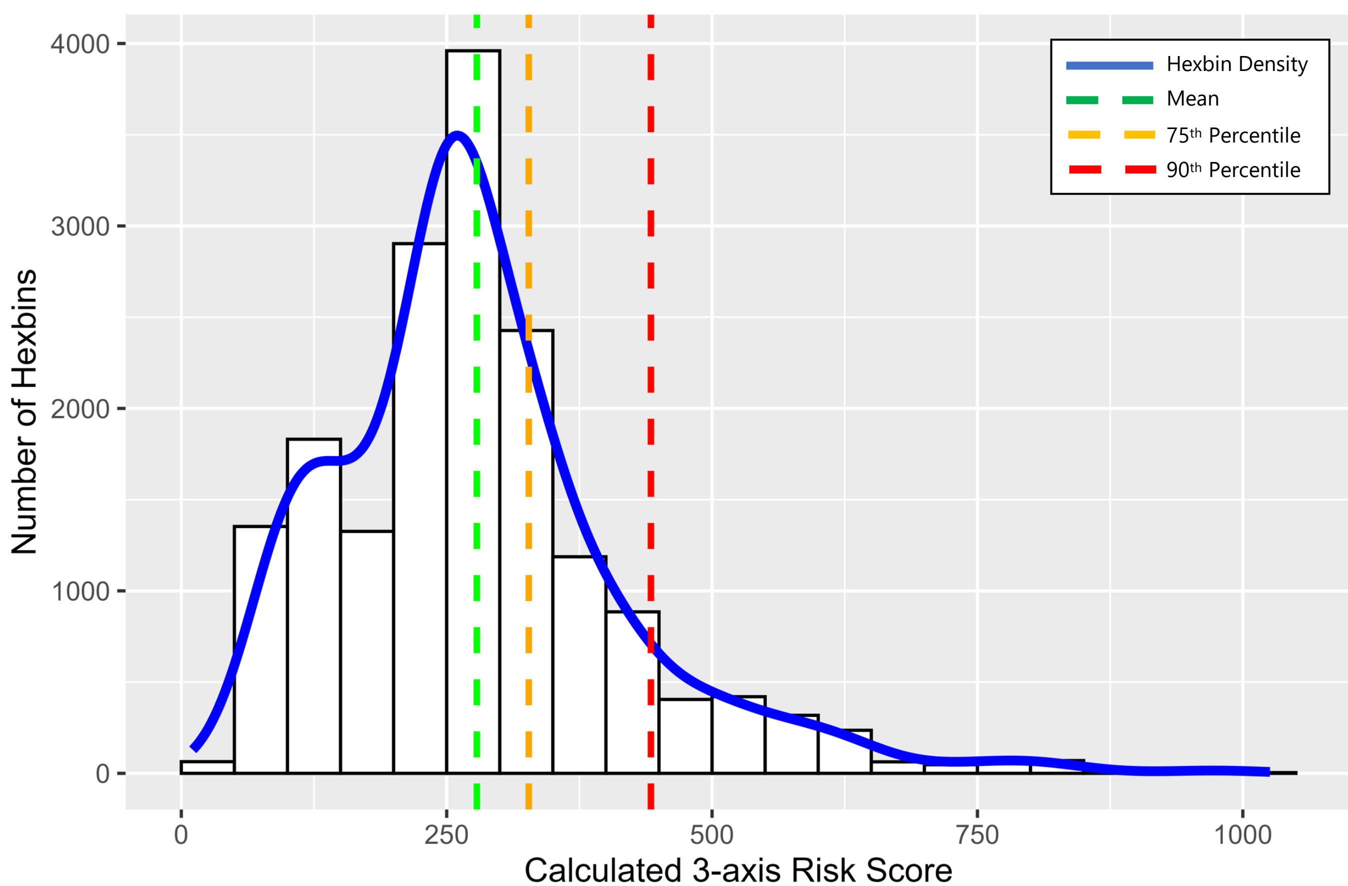
Hexbin Distribution

Table 75 and Figure 84 show the quantified risk score for natural and human-made disasters throughout the SCCFD service area, considering disaster risk scoring throughout the 17,671 hexagonal grid cells (versus by station area or city).

Table 75: Natural and Human-Made Disasters Risk Score—Summary Statistics

Minimum	Maximum	Average	Standard Deviation	Interquartile Range	Range
10.8	1025.5	278.4	135.9	132.2	1014.8

Figure 84: Distribution of Natural and Human-made Disaster Risk Scores Histogram



Station Response Zone Scores

The natural and human-made disaster risk scores were aggregated at the station level to understand the risks by planning zone. Each grid cell in the planning zones contributed to the overall, minimum, maximum, and average scores, as outlined in **Table 76**.

Table 76: Natural and Human-Made Disasters 3-Axis Risk Scores by Station

Station Number	Station Name	Three-axis Score Min	Three-axis Score Max	Three-axis Score Average	Overall Score
71	Cupertino	278.3	847.1	411.0	High
72	Seven Springs	10.8	568.3	158.1	Low
73	Saratoga	143.9	978.1	410.9	High
74	El Monte	41.4	422.6	191.2	Low
75	Los Altos	113.4	784.5	264.6	Low
76	Loyola	95.9	615.0	293.9	Moderate
77	Monta Vista	102.8	1025.5	307.3	Moderate
78	Quito	114.5	989.3	314.7	Moderate
79	West Valley	184.6	721.2	313.3	Moderate
80	Sunnyoaks	227.1	493.7	315.5	Moderate
81	Campbell	134.8	603.0	220.7	Low
82	Shannon	44.5	856.3	197.0	Low
83	Los Gatos	34.9	986.0	142.0	Low
84	Redwood	110.0	696.1	275.2	Low
85	Winchester	55.5	583.3	186.6	Low

Risk Categorization

Using the distribution of risk scores throughout the hexbins, the scores by station were categorized as low, moderate, high, or maximum risk, as described in **Table 77**. **Figure 85** presents the overall natural and human-made disaster risk scores for SCCFD, and **Figure 86** shows the disaster risk scores by category.

Table 78: Natural and Human-Made Disasters Risk Score Categories

Risk Category	Description	Score Range
Low	Less than average	10.8 – 278.4
Moderate	Average to 75th percentile	278.4 – 327.3
High	75th to 90th percentile	327.3 – 442.4
Maximum	Over 90th percentile	442.4 – 1025.5

Figure 85: Natural and Human-Made Disasters Risk Score

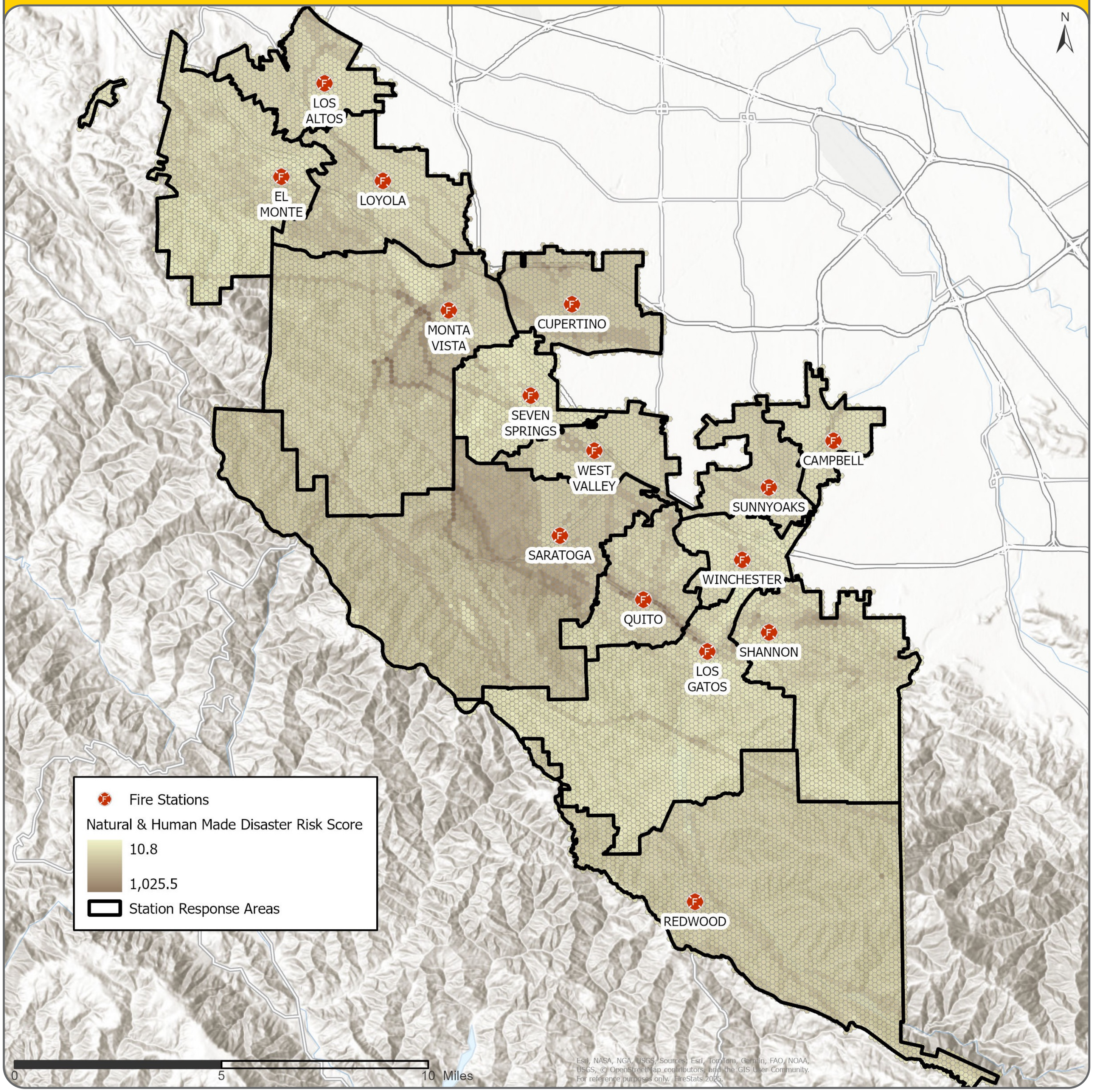
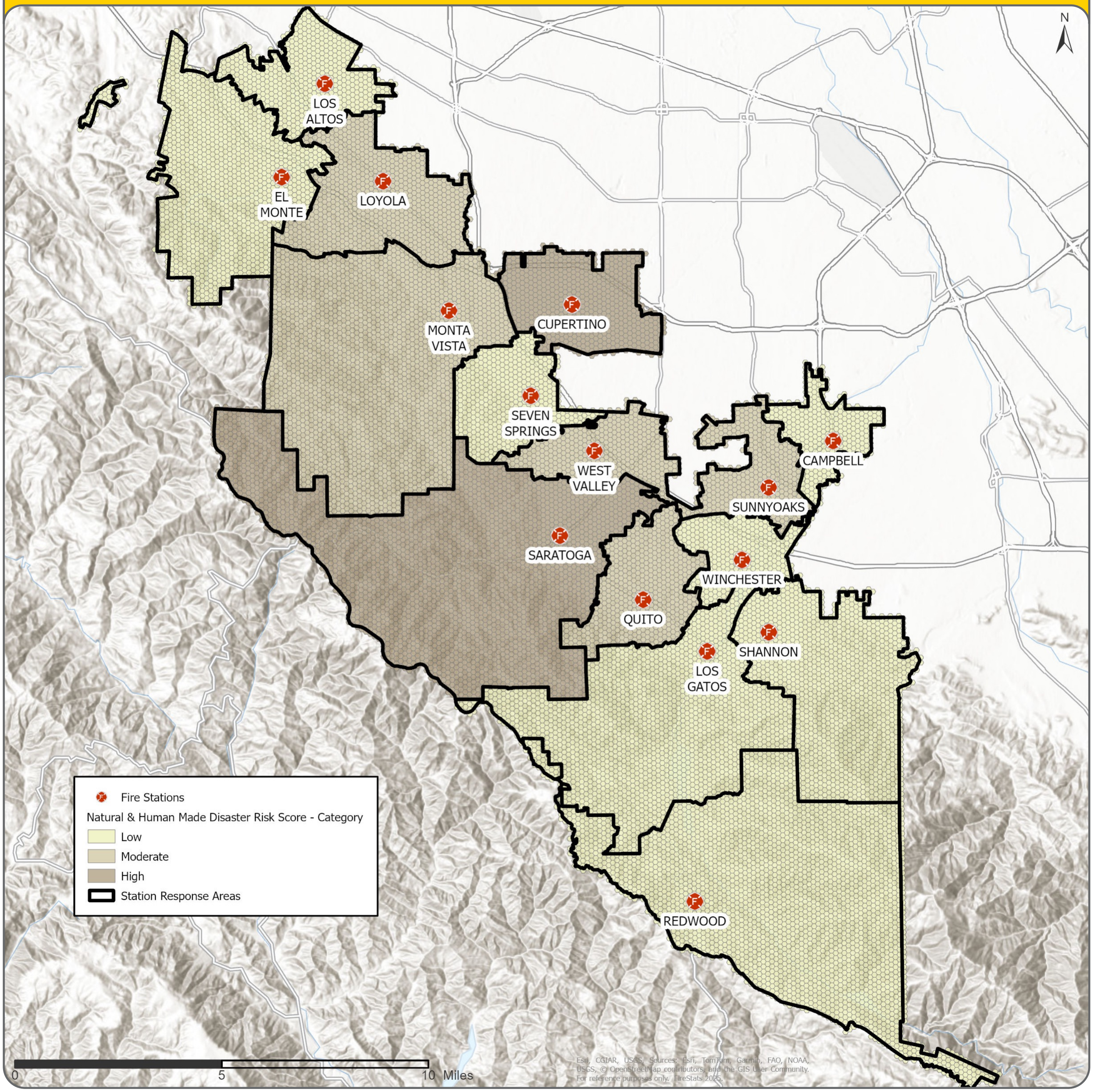


Figure 86: Natural and Human-made Disasters Risk Score by Category



CONCLUSIONS AND LIMITATIONS

The risk assessment process described in this report employed a quantitative methodology to estimate risk within the SCCFD service area. The analysis considered the relationships between historical incident data and specific variables, as well as the presence of certain unique variables to estimate probability, consequence, and/or impact. The probability of an event occurring can be viewed as the driving factor for overall risk; however, in this type of risk assessment, probability is only one element.

Additionally, this risk assessment relied on the quality of geospatial and non-geospatial data. Although certain datasets were desired and considered for inclusion in the quantitative scoring, however, they were not all available or reliable enough for inclusion in the calculations. It should be noted that future data availability could change the risk scoring results.

SECTION IV

STANDARDS OF COVER

OVERVIEW OF DEPLOYMENT MODEL

The minimum daily staffing for SCCFD's fire operations includes 66 suppression-qualified personnel within three battalions and 15 stations. The Department adjusts minimum staffing when conditions, such as changes in weather and occurrence of significant events, warrant increased staffing. This staffing model, termed "mode staffing," is elaborated upon in the following section.

SCCFD determines the level of a response based on risk, as initially determined by the Santa Clara County 9-1-1 Communications dispatch center. Call triage is completed using ProQA's Emergency Medical Dispatch or Emergency Fire Dispatch triage protocols, based on the type of the incident. All fires, non-fires, and emergency medical services incidents are triaged and dispatched based on these protocols. The initial call taker triages each call to determine the appropriate type of service needed. The level of response depends on predetermined alarm assignments that correspond to the low-, moderate-, high- and maximum-risk categories, as defined in this section. Additional resources may be requested based on amplifying information gathered en route or upon arrival.

Each apparatus is equipped to allow for all-risk capabilities. Engines, trucks, and rescue units have a water tank, pump, ladders, and a full attack-and-supply hose complement. Rescue units are equipped with 35-foot ground ladders. All engines, trucks, and rescue units can conduct rescues, secure and provide a water supply, and establish incident command; therefore, each resource is capable of first-in arrival activities. Rescue units and engines can be dispatched in lieu of trucks in the current no-truck zones. Additionally, Water Tender 78 is a valuable resource for water-limited areas.

Responding to emergency incidents, particularly fire suppression operations, necessitates having appropriate units and an adequate number of responders. This principle is not only a best practice but is also mandated by safety regulations from organizations such as OSHA in its Standard CFR 1910.120. For example, these regulations stipulate that personnel entering a building involved in a fire must operate in pairs.

Additionally, before entry is permitted, a minimum of two additional firefighters must be on-scene and assigned to conduct search and rescue if the initial crew becomes trapped; this is commonly referred to as the "two-in, two-out rule." This rule serves as a critical safety measure in fire suppression scenarios.

Points of Service Delivery and Resources by Battalion

Tables 78 through 80 outline the stations, apparatus, and staffing resources for the Battalions 72, 74, and 83.

Table 78: Battalion 72 — Stations, Apparatus, and Staffing

Station	Assigned Companies	Personnel Staffing
Seven Springs Station 72	Engine 72 Battalion 72 HazMat 72 Breathing Support 72	3 1 4 Hazmat 72 staff
Saratoga Station 73	Engine 73 Rescue 73 Engine 373	3 4 Select call
Quito Station 78	Engine 78 Water Tender 78	3 Select call
West Valley Station 79	Engine 79 Engine 379	3 Select call

Table 79: Battalion 74 — Stations, Apparatus, and Staffing

Station	Assigned Companies	Personnel Staffing
Cupertino Station 71	Engine 71 Truck 71 Engine 371 OES 5262	3 4 Select call Select call
El Monte Station 74	Rescue 74 Battalion 74 Truck 74 Engine 374	4 1 Select call Select call
Los Altos Station 75	Engine 75 Engine 675	3 Select call
Loyola Station 76	Engine 76	3
Monta Vista Station 77	Engine 77 Engine 377	3 Select Call

Table 80: Battalion 83 — Stations, Apparatus, and Staffing

Station	Assigned Companies	Personnel Staffing
Sunnyoaks Station 80	Engine 80 Engine 680	3 Select call
Campbell Station 81	Engine 81	3
Shannon Station 82	Engine 82 Engine 382	3 Select call
Los Gatos Station 83	Engine 83 Rescue 83 Battalion 83	3 4 1
Redwood Station 84	Engine 84 Engine 684	3 Select Call
Winchester Station 85	Truck 85 USAR 85	4 Select Call

Fire Suppression Units Dispatched and Alarms

Table 81 shows the dispatched number of units for fire suppression calls by type of alarm.

Table 81: Battalion 72 — Stations, Apparatus, and Staffing

Alarms	Units Dispatched
Vehicle or outside fire	• One engine
Level 1 structure response	• Two engines or rescue units • One truck • One battalion chief
Full first alarm	• Three engines • One truck (engine or rescue unit in "no-truck zone") • One rescue unit • HazMat 72/Breathing Support 72 • Two battalion chiefs • One incident support officer • Investigator and volunteers notified • Notify the duty chief
Second alarm	• Five engines • Two trucks (engine or rescue unit in "no-truck zone") • Two rescue units • HazMat 72/Breathing Support 72 • Three battalion chiefs • One incident support officer • Investigator and volunteers notified
Third alarm	• Eight engines • Three trucks • Two rescue units • HazMat 72/Breathing Support 72 • Four battalion chiefs • One incident support officer • Notify the duty investigator • Notify volunteers

Wildland/Vegetation Fires Deployment

Calls for wildland/vegetation fires are dispatched based on risk, according to the estimated size reported by the caller, and by parameters the SCCFD has set in ProQA's FPDS protocols. A small roadside spot or cultivated vegetation fire may receive a low-risk single engine dispatch. A fire greater than a 1/4 acre will receive a 1-alarm response due to medium risk. A fire reported as greater than an acre may receive a higher initial response based on ProQA protocols, chief officer discretion, and the reported incident location.

Table 82 lists the dispatched SCCFD and other agency resources necessary for a wildland/vegetation fire incidents.

Table 82: Dispatched Resources for Wildland/Vegetation Fires

Risk Level	Required Resources
Low	• 1 Type 1 engine
Moderate	• Two Type 1 engines • One Type 3 or 6 engine • One battalion chief
High	• Four Type 1 engines • Two Type 3 or 6 engines • One water tender • Vasona Fire Fuels Crew • One battalion chief
Maximum	• Six Type 1 engines • Three Type 3 or 6 engines • One water tender • Vasona Fire Fuels Crew • Two battalion chiefs • One safety officer

Staffing Modes

SCCFD staffing can be increased to respond to specific conditions, such as extreme weather events and natural or human-made disasters. Santa Clara County, along with many parts of California, often experiences drought conditions. When the consequences of drought conditions, such as dry and dead fuels, are combined with increased temperatures, decreased relative humidity, and forecasted high winds, the National Weather Service declares a Red Flag Warning notice that weather conditions in the following 24 hours could result in extreme fire behavior. Department policy provides direction on augmented staffing and resource needs in dynamic conditions, such as dangerous weather conditions and large-scale disasters.

EMS Deployment

The Department effectively delivers first responder medical care at both the BLS and ALS service levels. EMS calls remain the predominant emergency call type within SCCFD's service area. Each Department member holds a minimum EMT certification.

EMS services encompass a spectrum of activities, including first response, rescue, treatment, transportation, and reporting. The Department handles approximately 14,100 EMS calls annually. Responses address a wide range of medical emergencies, such as heart attacks and other cardiac problems, difficulty breathing and other respiratory issues, childbirths, strokes, and trauma.

All medical calls are triaged under emergency medical dispatch (EMD) protocols. Calls that are triaged as "Alpha" responses are dispatched Code 2. All other medical calls (Bravo — Echo) are dispatched Code 3. EMS calls on the freeway and mass-casualty incidents require additional resources because of the potential for a large number of patients and to provide safety blocking for the public safety personnel. AMR West Ambulance Company has the exclusive operating area contract with Santa Clara County to provide ALS services and 9-1-1 transport. **Table 83** outlines the required resources for EMS calls.

Table 83: Required Resources for EMS Calls by Risk Level

Call Types	Required Resources
Alpha EMS calls (non-urgent, Code 2)	• One ALS engine, truck, or rescue unit
Bravo – Echo EMS calls (urgent, Code 3)	• One ALS engine, truck, or rescue unit
EMS calls on the freeway	• Two units — engine, truck, or rescue unit
Mass-casualty incidents	• Three engines • One truck or rescue unit • One battalion chief

EMD plays a crucial role in patient pre-hospital care. the EMD process while receiving emergency calls, assessing the nature and severity, and dispatching the appropriate resources to the scene. Pre-arrival instructions are provided to the caller to begin treating the patient while emergency units are en route. The speed and accuracy of EMD can significantly impact the outcome of a medical emergency, making it a critical component of the EMS system. Medical Priority Dispatch System (MPDS) takes call assessment to the next level by thoroughly evaluating the caller's complaint and disposition. MPDS uses determinate codes, which are then classified as Alpha to Echo, with Alpha being the least serious and Echo being the most serios patient condition.

Hazardous Materials Incident Deployment

SCCFD faces significant HazMat risks from fixed facilities and transportation routes for material movement. The County of Santa Clara Department of Environmental Health, under the Hazardous Materials Compliance Division, administers the local Certified Unified Program Agency (CUPA). This agency conducts inspections of businesses and facilities that handle or store HazMat, generate and/or treat hazardous waste, own or operate underground storage tanks, store petroleum in above-ground tanks over state thresholds, and/or store federally regulated HazMat over state thresholds. These inspections ensure compliance with the California Health and Safety Code, California Code of Regulations, and the Code of Federal Regulations.

The CUPA program employs various strategies to achieve compliance, including education, community and industry outreach, inspections, and enforcement. SCCFD has assessed the concentration and density of its special operations risk throughout its jurisdiction, identifying areas of concern related to HazMat.

SCCFD dispatches the closest available engine, truck, or rescue company as a Code 2 to investigate all reported HazMat incidents. The HazMat team, HazMat 72, responds as needed. HazMat 72 is a Type 1 team that is part of a statewide resource plan. The unit has a minimum staffing level of seven HazMat specialists between the two companies assigned to Seven Springs Station.

HazMat 72 is one of the four units comprising the SOTF, including crews assigned to Engine 72, Rescue 83, and Truck 85 (USAR 85 is cross-staffed). Crew members obtain and maintain expanded certifications in HazMat and rescue operations. The SOTF requires a minimum of eight team members per shift assigned to the four apparatus.

The rationale behind the minimum staffing level is based on critical staffing requirements of specially trained personnel necessary to safely enter a HazMat or confined space rescue incident. The HazMat team is available both in and out of Department areas to assist other agencies and jurisdictions as a mutual-aid resource.

SCCFD utilizes a four-tiered system to respond to and mitigate HazMat incidents. All personnel are trained to the HazMat First Responder Operations level for HazMat and decontamination; as such, the Department's fire suppression force is the first line of response for low-risk events. Low-risk events receive a response for early size-up and hazard abatement within the responders' level of training and resources. Moderate-risk events that require additional resources for identification of the hazard, entry, decontamination, and medical monitoring typically require the assistance of outside agencies. However, for maximum-risk and large events that require considerable duration and relief, SCCFD participates and utilizes Department personnel and a mutual-aid/automatic-aid complement of HazMat resources, including personnel trained as specialists and technicians, to assemble the appropriate effective response force.

Table 84 outlines the required resources (SCCFD and other agency) necessary for a HazMat incident by call type.

Table 84: Dispatched Resources for HazMat Incidents by Call Type

Call Type	Required Resources
Outside gas investigation	• Closest water-carrying apparatus
Inside gas investigation	• Two engines • One truck or rescue unit • One battalion chief
Large-scale gas leak	• Three engines • One truck • One rescue unit • HazMat 72/Breathing Support Unit 72 • Two battalion chiefs
HazMat call requiring entry, sampling, identification, etc., requiring technicians and specialists	• SOTF response: • Hazmat 72 • Engine 72 • Truck and USAR 85 • Rescue 83 • One battalion chief

Rescue Incident Deployment

SCCFD responds to a wide variety of rescue calls, including elevator lock-ins, vehicle extrications, low-angle rope rescues, and technical rescues, such as collapsed structure, trench rescue, and high-angle rope rescues.

A confirmed trapped victim receives a "rescue response" that includes one engine, a truck or rescue unit, and a battalion chief. The response will include an additional unit if the incident occurs on a limited-access highway to provide protection to vulnerable emergency workers and the public around fast-moving vehicles. An additional rescue response may be requested as needed. The maximum response correlates to increased risk, such as technical rescues for which initial units request a SOTF response. **Table 85** details the required resources necessary for rescue incidents by call type.

Table 85: Dispatched Resources for Rescue Incidents

Call Type	Required Resources
Elevator lock-in or entrapment	• Closest ALS unit (Code 2 or Code 3 at company officer's discretion)
Entrapment in vehicle	• One engine • One truck or rescue unit • One battalion chief
Vehicle entrapment with safety support or needs additional personnel	• Two engines • One truck or rescue unit • One battalion chief
Technical rescue such as confined space, high-angle, or trench rescue	• SOTF Response: • Hazmat 72 • Engine 72 • Truck and USAR 85 • Rescue 83 • One battalion chief

INSURANCE SERVICES OFFICE

The Insurance Services Office, Inc. (ISO) is an independent organization that collects and analyzes data from fire departments in communities across the United States to determine fire insurance rates. It assigns a Public Protection Classification (PPC) rating that, according to its report, "is a proven and reliable predictor of future fire losses." Commercial property insurance rates are expected to be lower in areas with better (i.e., lower) ISO PPC Class ratings.

The ISO's Fire Suppression Rating Schedule (FSRS) evaluates four primary elements of a community's fire protection system: Emergency Communications (maximum 10 points), Fire Department (maximum 50 points), Water Supply (maximum 40 points), and Community Risk Reduction (maximum 5.5 points), for a maximum possible total of 105.5 points. ISO then assigns a grade on a scale of 1 to 10. Class 1 represents the highest degree of fire protection, and Class 10 designates a fire suppression program that does not meet ISO's minimum criteria.

In September 2021, the ISO assigned SCCFD a Class 2/2Y PPC rating. Only 18% of fire departments in California and 4% of departments nationwide achieve a Class 2 rating. **Figure 87** shows the distribution of 2020 ISO ratings among fire departments in California and the number of ratings for each classification, with Class 2 highlighted for SCCFD.

Figure 87: Comparison of National and California ISO Classifications, 2020

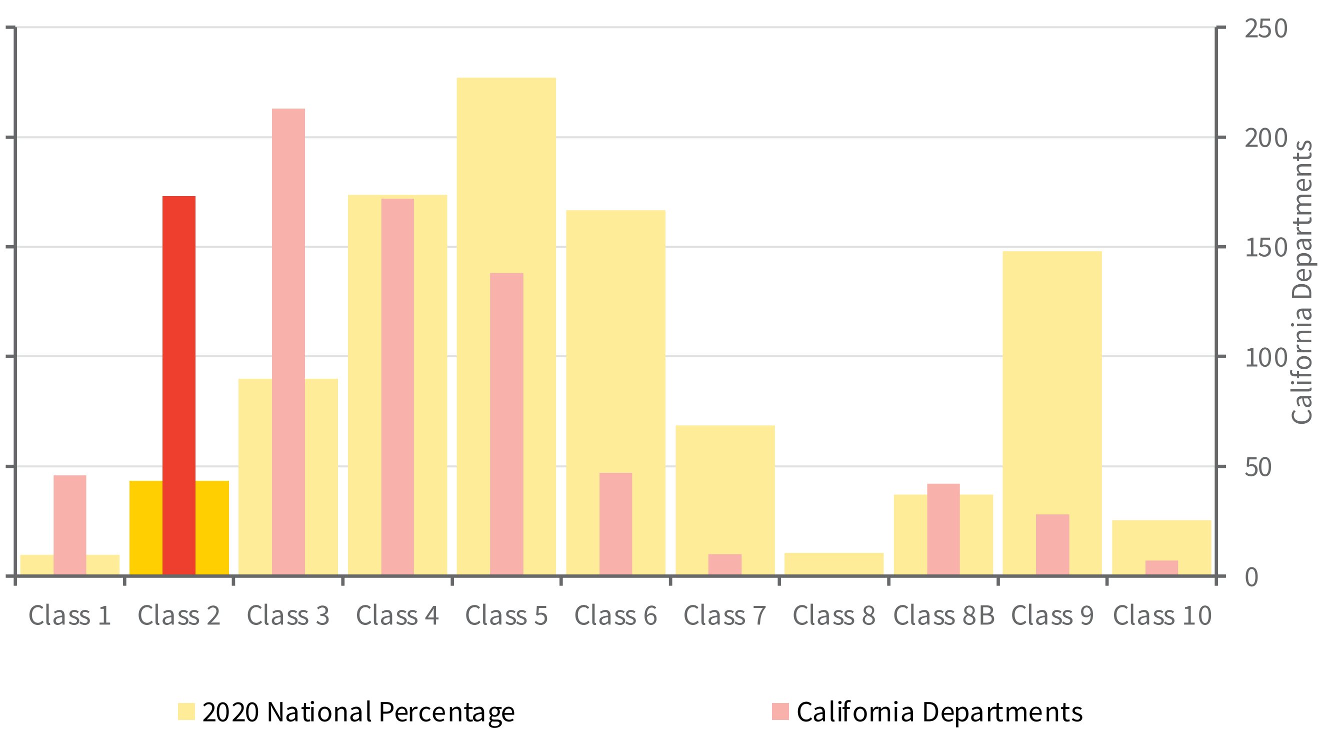


Figure 88: SCCFD ISO 1.5 Mile Fire Engine Travel from each Fire Station

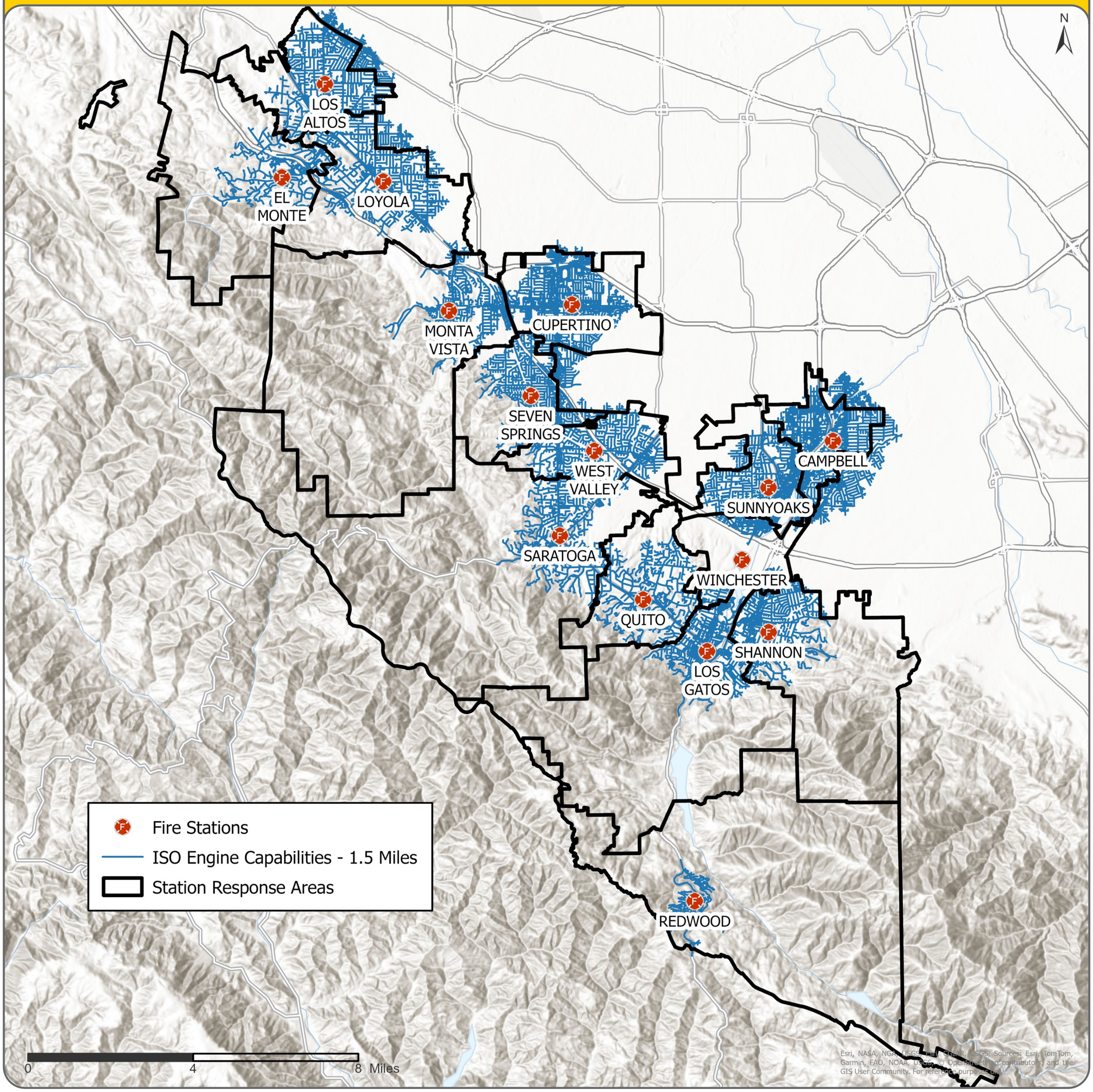
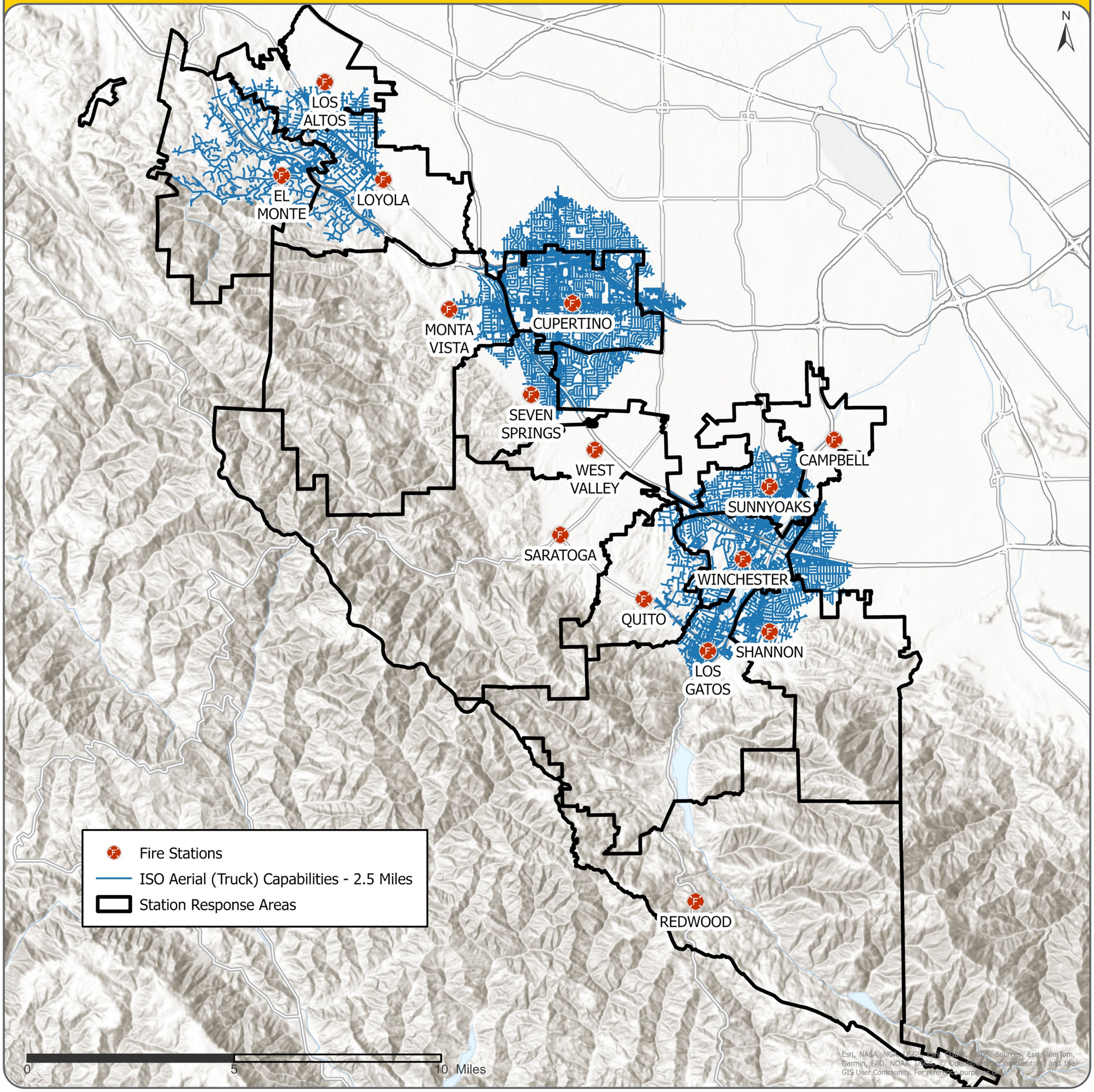


Figure 89: SCCFD ISO 2.5 Mile Ladder Truck Travel from each Fire Station



HISTORICAL SYSTEM PERFORMANCE

This section was developed to provide SCCFD with a general understanding of relevant response information, which will assist the Department in quantifying its performance and comparing it to the established baseline performance expectation. SCCFD, the Board of Directors, the contract cities, and political leaders can use this information to better understand how their decisions, policies, and external pressures affect overall performance.

Research Information

To assess the SCCFD's service delivery and performance, incident and unit response data for the period of January 1, 2020, through December 31, 2024, (the study period) were carefully analyzed. SCCFD supplied data from its records management system (RMS) and the dispatch center's CAD system.

The analysis included only priority incidents occurring within the SCCFD service area. Priority incidents involve emergencies to which the fire department initiated a "Code 3" (i.e., using warning lights and sirens) response. Non-emergency public assistance requests were excluded from the study.

Statistics Discussion

When evaluating something as complex as emergency incidence response, mathematical and technological methodologies must be judiciously applied. Historical instances of flawed evaluations have led to severe negative consequences in deployment and operational decisions. This analysis was designed to quantify and analyze available information as a starting point for the agency as it seeks to improve performance. However, it is essential for leaders to recognize the limitations of making decisions based solely on statistical studies and the importance of using sound judgment in conjunction with proven analytics.

Statistics Tools

Various statistical analytical tools were employed to analyze the data, including categorization, percentile, and regression analysis. These tools help create a picture of historical performance and offer inferences that can help leaders identify positive and negative performance trends.

In accordance with the Commission on Fire Accreditation International (CFAI) 10th Edition model, the department establishes both upper and lower thresholds for its key performance measures. These thresholds define the acceptable range of service delivery and provide a structured framework to ensure accountability, data integrity, and continuous improvement. For this analysis, FireStats applied threshold parameters to call processing, turnout, and travel times. Establishing lower thresholds is necessary to improve the accuracy of statistical reporting by excluding outlier incidents where it is unreasonable to conclude that the full activity of the task could have been completed within the recorded time. For example, call processing and turnout activities are not realistically achievable in under five seconds, and travel cannot be completed in less than ten seconds. Therefore, the department has adopted lower thresholds of five seconds for both call processing and turnout, and ten seconds for travel.

Similarly, upper thresholds are established to identify and exclude instances where recorded times do not reflect realistic operational activity. These situations may occur when call processing has already begun before the incident is officially logged, when multiple units are added to an incident after the initial dispatch, or when a unit remains in a responding status without ever arriving on scene. To account for these anomalies, the department has set upper thresholds at 300 seconds for call processing, 240 seconds for turnout, and 1,200 seconds for travel. By removing incidents that fall outside of these upper and lower thresholds, the department ensures that its data more accurately represents normal system performance. Importantly, the exclusion of these anomalies accounted for only 0.87 percent of all calls for service, demonstrating that the overwhelming majority of incidents are retained for evaluation and that the integrity of the dataset remains intact.

This threshold methodology ensures that performance analysis reflects true operational conditions, eliminates statistical distortion caused by data entry errors or atypical events, and provides leadership with a reliable basis for evaluating community risk and service delivery. By aligning these practices with CFAI standards, the department demonstrates its commitment to transparency, accuracy, and the continuous improvement of emergency response capabilities.

90th Percentile

The time performance measures for this report use the 90th percentile measure. Although a detailed discussion of the mathematics behind this measure is outside the scope of this report, it is helpful to understand why it is utilized.

The most common reason for using the 90th percentile measure is that the industry has adopted it. If a fire agency wants to judge its performance against standards or other agencies, it must use this method. For example, NFPA uses the 90th percentile measure in most of its standards. In addition, the CFAI requires reporting performance measures at the 90th percentile.

The statistical reason for using the measure is that it captures performance more thoroughly and identifies trends in performance more quickly. Like most emergency response agencies, the time performance data used in this study was skewed, making other statistical measures less sensitive and representative. **Figure 90** illustrates a general example of data skew.

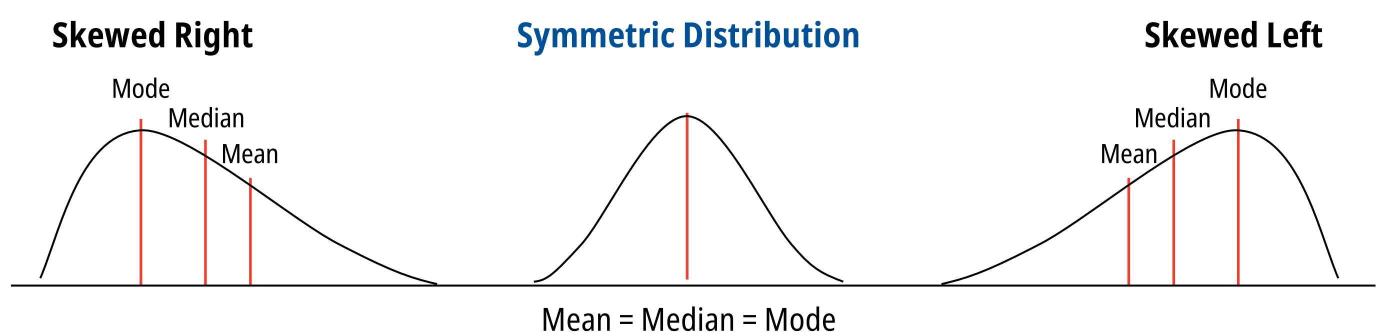
In a symmetric distribution, the mean (average), median (middle of the data), and mode (the most frequent) are all equal. When the distribution skews, these three measures shift. Using the average (mean) in a skewed-left distribution would underrepresent the bulk of the performance, whereas a skewed-right distribution would overrepresent it.

The Department reviewed aggregate performance data from all response areas served and compared performance in urban areas with that in rural areas. Data review included:

- **Unique incidents**
- **Unit commitments**
- **Call processing times**
- **Turnout times**
- **Travel times**
- **Response times** (dispatch to arrival time)
- **At-scene times**
- **Total response times** (inclusive of call processing through arrival time)
- **Committed times**

Station area, city/town jurisdiction served, time of day, day of week, month of year, and call type comparisons were evaluated. FireStats provided statistical analysis and review of all incident data.

Figure 90: Data Skew



Service Demand

The first dimension of the analysis is the overall system call load. Because this is a simple count of incidents by type and location, no data was excluded after engineering.

Volume Analysis

A simple volume analysis indicates how often the Department is called upon to respond to an incident. The first look was at the overall call counts grouped by primary categories in NFIRS. Establishing the incident jurisdiction required a match between the geocoded information and the provided geographic boundaries. A "unique incident" is defined by NFIRS as: *A unique number assigned to an incident so that no two incidents attended by a fire department within the same calendar year will have the same number.* The term unique incident is synonymous with SCCFD's use of the term "call." **Table 86** shows the response workload by general type for the five-year study period.

The total response workload for SCCFD increased each year with population growth (Table 87). In 2020, because of COVID-19, most emergency services systems nationwide experienced a reduction in demand. SCCFD experienced a decrease in 2020 and the a steady increase during each of the following years. Call service demand increased by 28.7% over the five years. EMS calls comprised the vast majority of the total volume, increasing by 40.8%.

Table 86: SCCFD Total Incidents by Year, 2020–2024

Year	Number of Incidents
2020	17,423
2021	18,798
2022	20,896
2023	21,741
2024	22,437

SCCFD classifies calls for service as urgent, non-urgent, and other. Urgent emergency calls require a "Code 3" lights and sirens immediate response from all responding resources. A non-urgent call warrants an immediate response, but without lights and sirens. A call in the other category represents responses that are considered non-emergent incidents. Examples include assisting individuals who have fallen (no medical emergency) and need assistance getting up, helping individuals who have been locked out of their residences, turning off leaking fire hydrants, and changing the battery in a resident's smoke detector.

Table 87 shows the number of incidents each year by response priority for the study period.

Table 88 outlines the total number of incidents recorded by SCCFD for the entire dataset and the percentage of categorized responses.

Table 87: SCCFD Total Incidents by Response Priority, 2020–2024

Response Priority	2020	2021	2022	2023	2024
Non-urgent	4,637	3,936	4,402	7,046	6,833
Other	132	51	54	1,021	1,296
Urgent	12,654	14,811	16,440	13,674	14,308
TOTALS	**17,423**	**18,798**	**20,896**	**21,741**	**22,437**

Table 88: SCCFD Total Incidents by NFIRS Code, 2020–2024

NFIRS Code	2020	2021	2022	2023	2024	% of Total
Fire (100)	329	279	272	282	283	1%
EMS (300)	10,082	11,103	12,852	13,589	14,197	63%
Good intent (600)	2,841	2,958	2,989	3,144	2,948	13%
Service call (500)	1,369	1,648	1,679	1,657	1,706	7%
Fire alarm (700)	1,373	1,320	1,432	1,649	1,651	7%
Hazardous condition (400)	402	499	398	708	528	2%
Overpressure rupture, explosion, overheat (no fire) (200)	28	31	47	28	24	0%
Severe weather and natural disaster (800)	0	6	0	17	4	0%
Special incident (900)	8	16	17	0	0	0%
Other	991	938	1,210	667	1,096	5%
TOTALS	**17,423**	**18,798**	**20,896**	**21,741**	**22,437**	

Table 89 displays the total incidents related to each city/town for the five years.

Table 89: SCCFD Total Incidents by City or Town, 2020–2024					
City or Town	**2020**	**2021**	**2022**	**2023**	**2024**
Campbell	3,510	3,896	4,152	4,276	4,485
Cupertino	3,220	3,581	3,962	4,060	4,411
Los Altos	2,181	2,365	2,736	2,738	2,675
Los Altos Hills	582	644	731	790	819
Los Gatos	2,877	2,941	3,565	3,933	3,969
Monte Sereno	224	240	257	291	254
Saratoga	2,355	2,444	2,628	2,654	2,742
Unincorporated areas	1,251	1,289	1,351	1,535	1,574
TOTALS*	**16,200**	**17,400**	**19,382**	**20,277**	**20,929**

**Incident totals do not include mutual or automatic aid to surrounding jurisdictions.*

Table 90 shows the total incidents for each station area during the five-year period.

Table 90: SCCFD Total Incidents by Station Area, 2020–2024

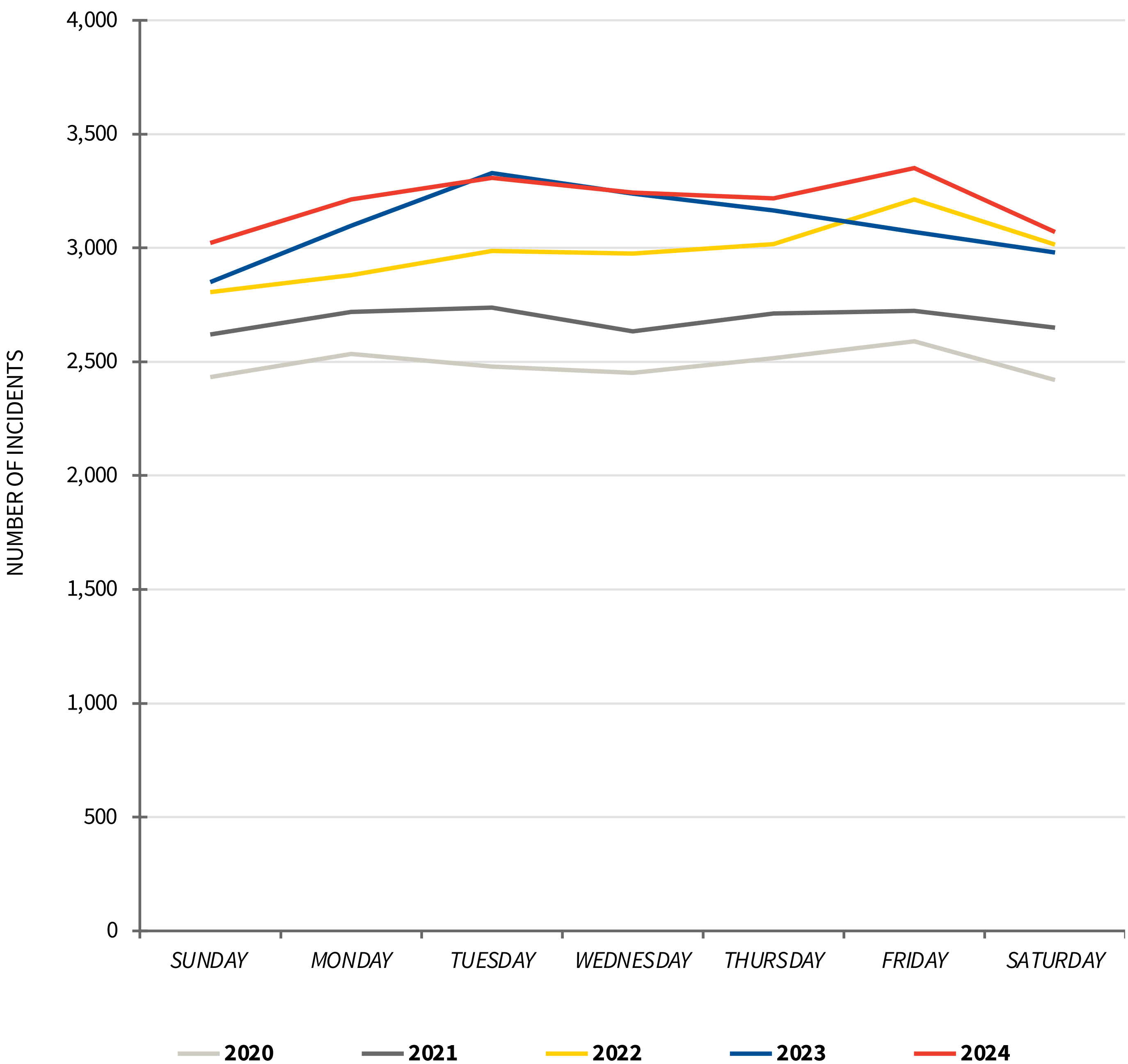
Station Area	2020	2021	2022	2023	2024
71 – Cupertino	1,873	2,124	2,221	2,269	2,435
72 – Seven Springs	475	505	543	546	611
73 – Saratoga	1,389	1,416	1,539	1,536	1,553
74 – El Monte	430	507	611	639	606
75 – Los Altos	1,277	1,357	1,535	1,589	1,633
76 – Loyola	1,200	1,267	1,494	1,473	1,439
77 – Monta Vista	1,082	1,182	1,391	1,505	1,638
78 – Quito	437	445	481	572	502
79 – West Valley	805	900	949	914	981
80 – Sunnyoaks	1,545	1,640	1,812	1,743	1,936
81 – Campbell	1,834	2,121	2,192	2,367	2,386
82 – Shannon	1,366	1,480	1,814	1,967	2,047
83 – Los Gatos	1,104	947	1,137	1,359	1,362
84 – Redwood	442	493	489	599	605
85 – Winchester	877	962	1,097	1,134	1,155
***Unknown**	1,287	1,452	1,591	1,529	1,548
TOTALS	**17,423**	**18,798**	**20,896**	**21,741**	**22,437**

**Unknown are calls outside the station jurisdiction or SCCFD primary response area.*

Temporal Analysis

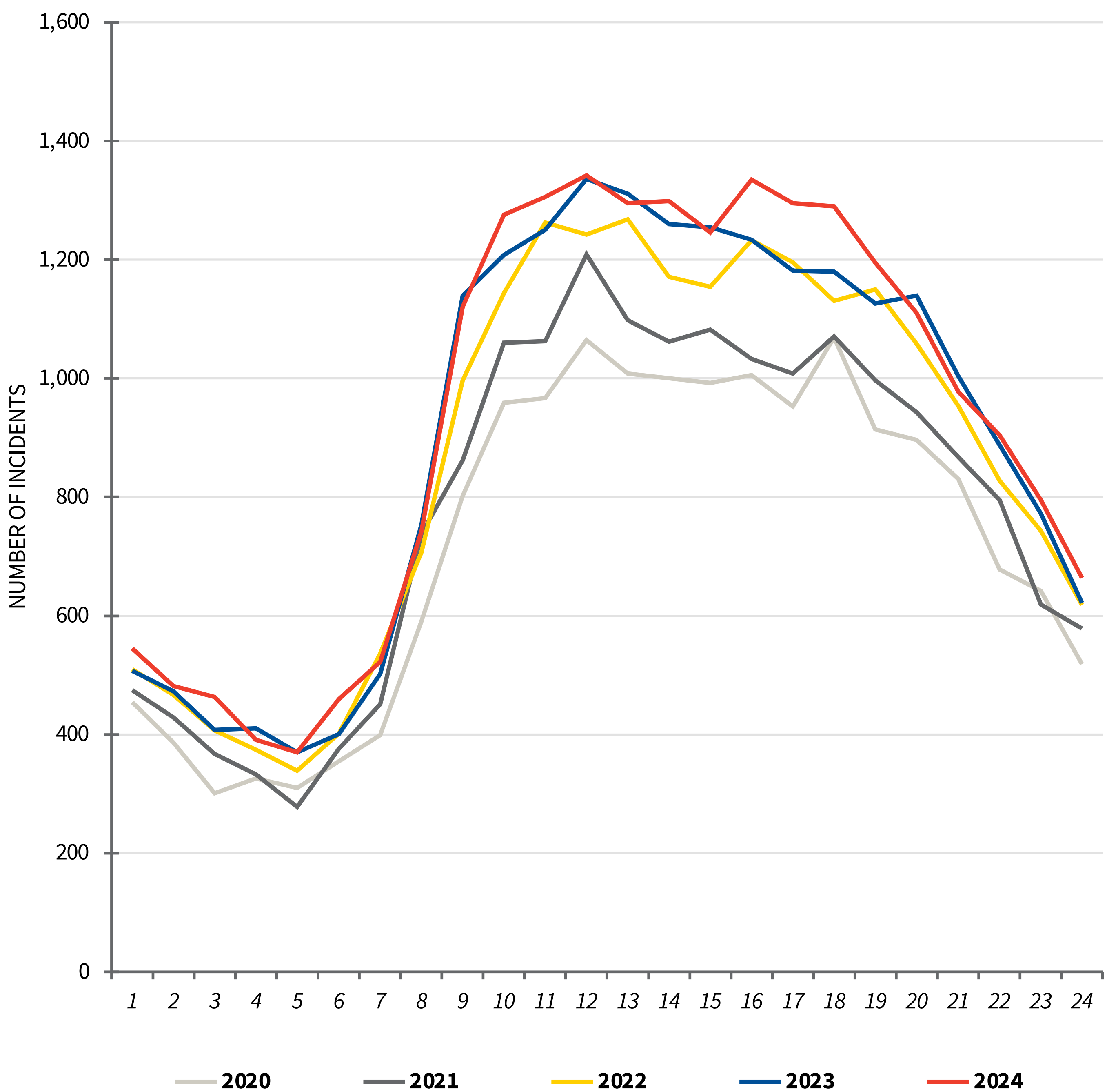
The study showed that the workload of SCCFD units tends to be consistent from week to week, as shown in **Figure 91**. For example, Thursday was the busiest day, with an average of 2,159 calls, and Monday was the slowest day, with an average of 1,853 responses. This is a 14% difference between the busiest and slowest days of the week.

Figure 91: SCCFD Total Incidents by Day of Week, 2020–2024



Data on response workload by the hour typically shows that fire department activity is higher during daytime hours, correlating with the time of day during which people are most active. This principle proved true for SCCFD during the analysis period **(Figure 92)**. The Department's activity began to increase at 7 a.m. and reached its first peak at 1 p.m. This level was generally maintained until it gradually decreased at 7 p.m., when it began to decline more rapidly.

Figure 92: SCCFD Total Incidents by Hour of Day, 2020–2024



Unit Workload Analysis

Fire departments balance unit workload to maintain readiness, resiliency, and service availability. Although it is common for some units to be busier than others, no crew should be overburdened to the point at which it negatively affects its effectiveness.

Unit Commitment

SCCFD deploys fire engines, ladder trucks, rescue units, and specialty units. Many emergency calls for service require the dispatch of more than one fire unit. The term "unit commitment" is defined as the number of individual response units dispatched to each unique incident.

Table 91 shows the number of responses by NFIRS code for each unit during the study period. Responses are different than incidents. Several incident types require the dispatching of more than a single unit. When multiple units are responding to a single emergency incident, it is defined as a unit commitment per response.

Table 91: SCCFD Total Unit Commitments by NFIRS Code, 2020–2024

NFIRS Code	2020	2021	2022	2023	2024	Year %
Fire (100)	1,907	1,333	1,342	1,293	1,324	5%
Overpressure rupture, explosion, overheat (no fire) (200)	115	100	156	71	75	0%
Rescue and EMS (300)	11,725	13,018	14,958	15,838	16,565	58%
Hazardous condition (no fire) (400)	859	1,021	936	1,127	827	3%
Service call (500)	1,651	1,920	1,975	1,937	2,088	7%
Good intent call (600)	4,038	4,209	4,216	4,229	4,278	15%
False alarm (700)	1,481	1,438	1,644	1,808	1,826	6%
Severe weather and natural disaster (800)	0	10	0	19	4	0%
Unknown (900)	1,302	1,127	1,444	909	1,683	6%
TOTAL	23,098	24,248	26,719	27,231	28,670	

Table 92 outlines the number of responses by station area for each unit for the five-year period, and **Table 93** shows the unit commitments by apparatus.

Table 92: SCCFD Total Unit Commitments by Station Area, 2020–2024

STATION AREA	2020	2021	2022	2023	2024
71 – Cupertino	2,313	2,616	2,716	2,823	3,090
72 – Seven Springs	578	661	685	633	761
73 – Saratoga	1,929	1,986	2,187	2,058	2,120
74 – El Monte	619	727	876	888	789
75 – Los Altos	1,561	1,640	1,905	1,800	1,841
76 – Loyola	1,436	1,514	1,746	1,663	1,678
77 – Monta Vista	1,292	1,394	1,680	1,778	1,837
78 – Quito	570	530	582	670	565
79 – West Valley	1,025	1,039	1,124	1,047	1,166
80 – Sunnyoaks	1,914	1,959	2,194	2,125	2,317
81 – Campbell	2,314	2,625	2,705	2,829	2,904
82 – Shannon	1,622	1,664	2,073	2,256	2,340
83 – Los Gatos	1,686	1,377	1,552	1,840	2,071
84 – Redwood	1,247	1,340	1,237	1,447	1,528
85 – Winchester	1,168	1,225	1,364	1,414	1,408
Unknown	1,824	1,951	2,093	1,960	2,255
TOTALS	**23,098**	**24,248**	**26,719**	**27,231**	**28,670**

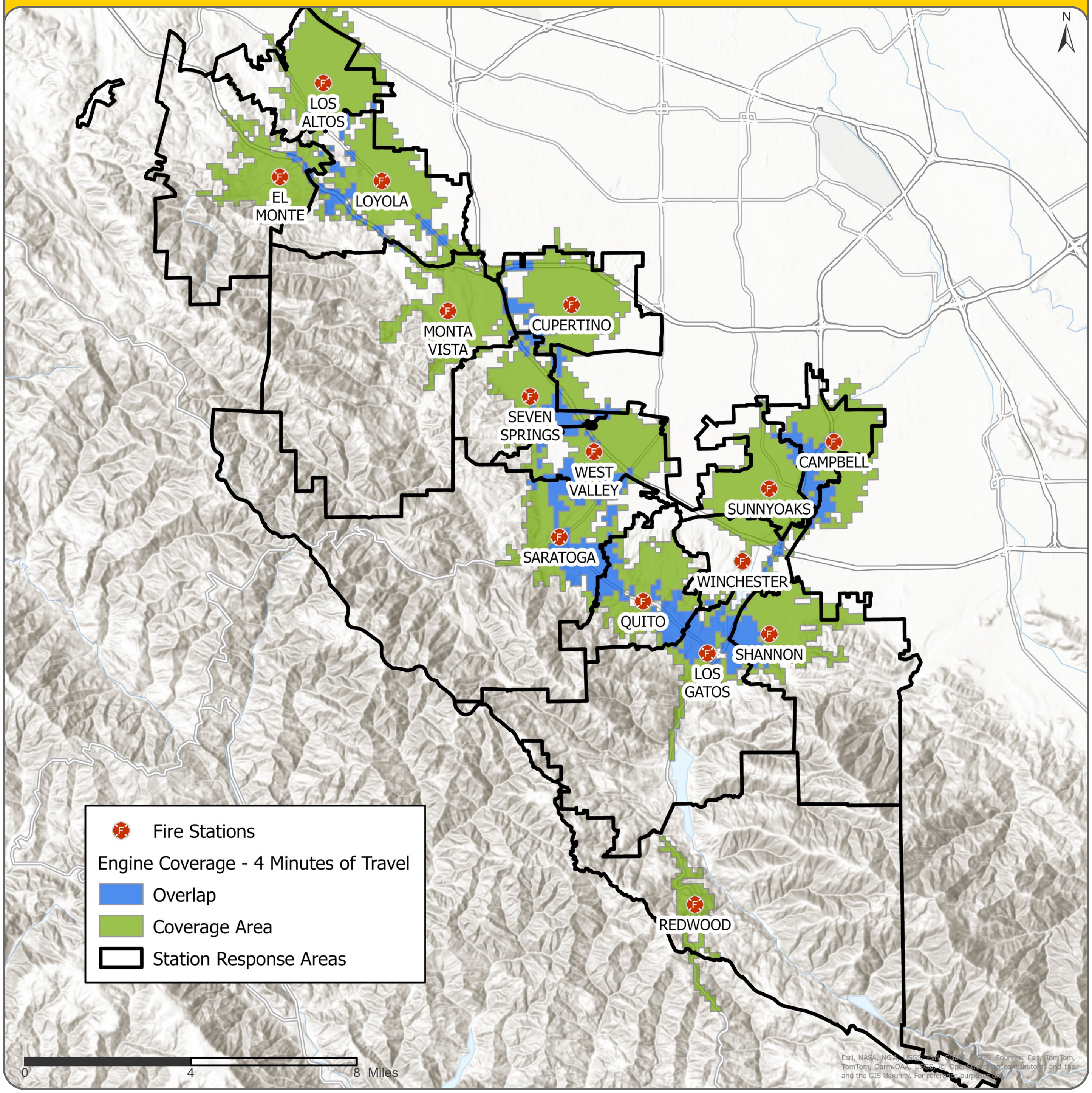
Table 93: SCCFD Total Unit Commitments by Apparatus, 2020–2024					
UNIT ID	**2020**	**2021**	**2022**	**2023**	**2024**
B72	335	373	335	286	263
B74	198	204	202	145	166
B83	387	410	471	427	400
E71	1,802	1,931	1,669	1,907	2,059
E72	726	755	645	759	848
E73	1,412	1,465	1,406	1,381	1,256
E75	1,327	1,504	1,297	1,550	1,536
E76	1,473	1,780	1,399	1,809	1,814
E77	1,216	1,389	1,147	1,532	1,638
E78	564	665	553	812	1,001
E79	864	894	789	919	934
E80	1,765	1,910	1,638	2,026	2,148
E81	2,517	2,642	2,192	2,688	2,458
E82	1,437	1,735	1,349	1,860	1,831
E83	1,292	1,539	1,402	1,698	1,750
E84	491	506	463	590	669
T71	626	720	494	785	812
T74	44	30	54	19	23
T85	1,549	1,677	1,420	1,798	1,968
R73	470	562	455	537	492
R74	634	768	528	767	671
R83	590	658	628	867	803
E371	12	11	10	15	11
E373	17	26	26	11	32
E374	18	18	19	5	147
E377	16	12	9	8	10
E379					18
E382	38	45	40	24	30
E384	81	93	49	90	
E675	17	7	17	26	27
E679	28	20	30	20	
E680	33	21	60	41	56
E684					5
WT78	25	13	39	14	17
BS72	10	6	13	5	2
H72	292	326	223	313	376
UR85		5	3	4	3

Distribution and Concentration Factors

FireStats conducted a comprehensive assessment to evaluate resource distribution within the SCCFD service area's 15 planning zones. This analysis involved a geospatial examination of drive times, integrating both the SCCFD's current performance metrics and nationally recommended best practices.

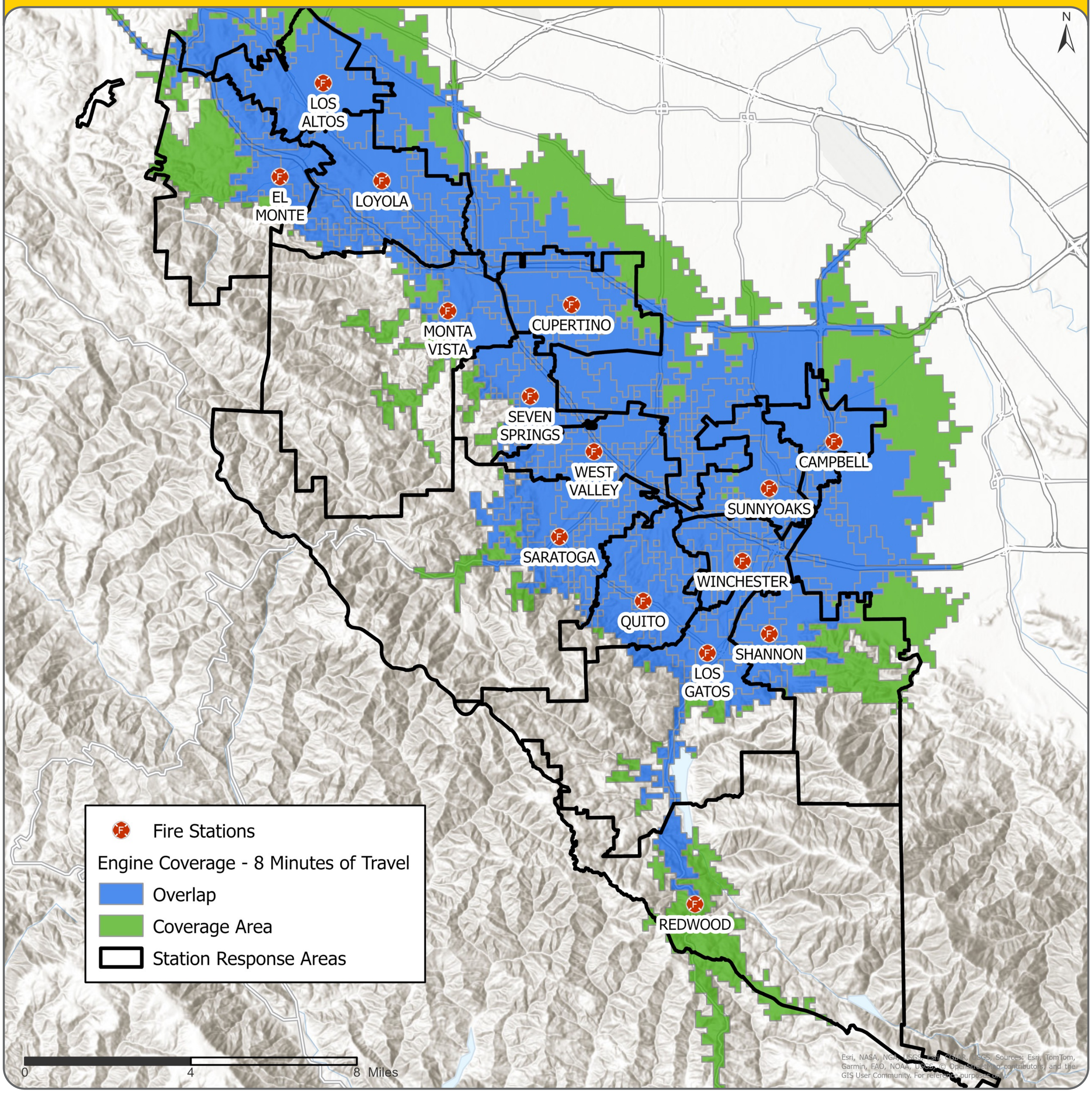
Drive times were calculated from each existing fire station, factoring in existing road miles and historical data indicating a 4-minute arrival time for the first unit, as shown in **Figure 93**.

Figure 93: Four-Minute Travel Time for Fire Engines from SCCFD Fire Stations



The results of this analysis indicate that the majority of the jurisdiction can be reached within an 8-minute time frame, particularly in areas with a higher concentration of risk **(Figure 94)**. Although the geographic analysis serves as a valuable surrogate measure, the intricacies of the roadway system and variations in time of day can present challenges to these estimations.

Figure 94: Distribution of SCCFD Resources by 8-Minute Travel Time



Reliability Factors

When evaluating emergency responses, it is important to measure how often the expected first-due resource arrives first. There are numerous reasons why this does not occur, but they all fall into the following categories:

- The unit is out of position (not closest by distance).
  - The unit could be in service on the north side of their response area or training when a call comes into the southern portion of its first response area. Another unit from the adjacent response area could be closer and therefore be dispatched, arriving on scene first or by themselves, depending on the incident. SCCFD dispatches fire units using a GPS system called Automatic Vehicle Location. This software determines the closest fire unit to the emergency incident location at the time of dispatch. SCCFD units are expected to remain in service as they travel from training, maintenance, and public relations events. These units often drive through other first response areas to get back to their stations and could be closer to an emergency incident.
- The unit is assigned to another incident.
- The unit is not in service.
  - A unit can experience a mechanical breakdown.
  - A unit could be understaffed while waiting for a crew member to return from a ride to the hospital.
  - The unit is impeded/diverted during a response.
  - The responding unit might be delayed by a train or other physical barrier.
  - The unit could be involved in a motor vehicle accident.

How reliably a station crew responds within its assigned area is critically important, not only to its ability to handle incidents, but also to its response time performance. Other stations must handle incidents outside their response zones when busier units are on assignment. This is especially true during fire events that require multiple units from several stations. Managing all of these factors requires planning and situational awareness.

Resource Reliability

This section analyzes SCCFD workload at the unit level rather than at the Department level, as previously described. Unit-level workload analysis provides further insights into the stress levels that firefighters and apparatus experience. For example, units are only effective if available within their station area; if they are already involved in an incident when another incident is reported, a unit must respond from a further distance, which increases response times. Unit-hour utilization (UHU) represents the percentage of time a unit is unavailable for a response because it is committed to another incident during a calendar year. This data is essential because, the higher the percentage, the more time the unit is unavailable to respond to another incident. Note that this analysis only measures incident responses; it does not include unmeasured activities in the dataset, such as training time and station duties. **Table 94** outlines the number of hours units were assigned to emergency calls during the study period.

Table 94: Unit Hour Utilization of SCCFD Fire Units, 2020–2024

Unit	Number of Calls	Sum of Time	Average Time	UHU
E71	2,061	805:33:09	0:25:32	9.2%
E72	850	366:24:19	0:30:27	4.2%
E73	1,258	593:59:33	0:31:03	6.8%
E75	1,564	611:13:42	0:26:18	7.0%
E76	1,817	716:41:34	0:25:33	8.2%
E77	1,649	747:25:13	0:28:31	8.5%
E78	1,020	469:59:59	0:29:17	5.4%
E79	936	443:19:10	0:30:07	5.0%
E80	2,149	740:36:43	0:23:17	8.4%
E81	2,458	877:23:36	0:23:27	10.0%
E82	1,861	827:10:42	0:27:59	9.4%
E83	1,751	670:28:21	0:25:05	7.6%
E84	673	309:52:33	0:31:34	3.5%
R73	523	248:32:23	0:33:22	2.8%
R74	841	592:17:58	0:48:53	6.7%
R83	803	274:15:19	0:22:16	3.1%
T71	823	296:48:53	0:23:50	3.4%
T85	1,968	621:20:22	0:22:16	7.1%
TOTALS	**25,005**	**10213:23:29**	**0:26:59**	

Concurrency

One way to examine resource workload is to examine the number of times multiple incidents occur within the same time frame (concurrent incidents). This is important because concurrent incidents can stretch available resources and delay responses to other emergencies, significantly affecting the jurisdiction's response times to emergencies. Incidents during the study period were reviewed to determine the frequency of concurrent incidents **(Table 95)**.

Table 95: Unit Drawdown, 2020–2024

Number of Incidents Occurring	2020	2021	2022	2023	2024
0	46.2%	43.1%	38.7%	35.1%	34.7%
1	30.3%	30.8%	31.0%	31.1%	30.2%
2	13.4%	14.9%	16.4%	18.2%	18.3%
3	5.4%	6.5%	7.8%	8.6%	9.3%
4	2.3%	2.5%	3.3%	3.9%	4.0%
5	1.2%	1.1%	1.4%	1.7%	1.8%
6	0.5%	0.5%	0.6%	0.7%	0.8%
7	0.3%	0.3%	0.3%	0.3%	0.4%
8	0.1%	0.1%	0.2%	0.2%	0.2%
9	0.1%	0.1%	0.2%	0.1%	0.1%
10	0.1%	0.1%	0.1%	0.1%	0.1%
11	0.0%	0.0%	0.0%	0.0%	0.0%
12	0.0%	0.0%	0.0%	0.0%	0.0%
13	0.0%	0.0%	0.0%	0.0%	0.0%
TOTALS	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Operational Performance Standards

To determine the SCCFD's current performance, dispatch data was evaluated in detail between January 1, 2020, and December 31, 2024.

Again, only priority incidents occurring within the SCCFD service area were included in the analysis—non-emergency requests were excluded. Performance was based on the type of incident. Three categories were used to report performance for total response time:

- Call processing
- Turnout
- Travel

The total incident response time continuum consists of several steps, beginning with initiation of the incident and concluding with its appropriate mitigation. The time required for each incident component varies, and SCCFD's policies and practices directly influence some of the steps. Each phase of the incident response sequence was evaluated to determine current performance. This approach allows an analysis of each phase to identify any opportunities for improvement.

SCCFD's response performance was compared with the national consensus standard for response performance, found in the National Fire Protection Association's (NFPA) Standard 1710: Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments, 2020 Edition. In addition, the dispatch center's performance was compared with standards from NFPA's Standard 1221: Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems.

Event Detection

Event detection is the time it takes for an individual to discover an emergency and begin activating the emergency response system. This process can involve, for example, placing a call on a cellular phone, driving to a location that has a fixed telephone, or hiking out of the wilderness to find someone with a radio to notify EMS. Event detection begins with the inception of the emergency and ends when the emergency is detected. This phase is mainly outside the fire department's control and not a part of the event sequence that is reliably measurable.

Notification

Notification is the time when the communications center receives the alarm. This process could include, for example, a citizen walking into a station, a phone call, or a radio report. Over the past decade, the SCCFD community has experienced decreased reporting time on most alarms, due to the proliferation of cellular phones. Previously, notification of an emergency could be delayed due to a lack of communication options.

Although cellular phones make reporting an emergency faster, the overall time for notification has not changed significantly, because dispatchers now must verify the caller's location. When the caller is unsure of their location, the communications center must then attempt to determine the location of the phone caller via GPS. This requires additional time to complete the call processing times.

Call Processing

Call processing is the time interval beginning when the first notification was received and ending with the completion of dispatching the recommended units. The CAD system utilizes software to recommend and assign the closest unit(s) to an emergency incident. Most emergency incidents are reported to the 9-1-1 center by telephone (landline or cellphone). Call takers must quickly elicit accurate information about the nature of the incident and location from the caller. Lay people who are well-trained in emergencies can reduce the time required for the call processing phase.

The dispatcher must identify the correct units based on incident type and location, dispatch them to the emergency, and continue to collect and communicate information about the emergency while the units respond. NFPA 1221 standards recommend that the call processing phase occur within 60 seconds 90% of the time.

Emergency Medical Dispatch (EMD) and Emergency Fire Dispatch (EFD) protocols help to target the correct, most effective response force and provide instructions for callers. Based on the nature of the call, EMD protocols contain a specific set of questions that dispatchers must ask the caller. However, this step can delay the first unit dispatched to the incident. Many accredited agencies have discovered that there are competing interests when evaluating the usefulness of EMD systems. Using EMD, the NFPA-recommended call processing time is 1 minute and 30 seconds. **Table 96** shows the call processing times for priority calls during the study period.

Table 96: SCCFD Call Processing Times for Priority Calls, 2020–2024

Year	Number of Incidents	Mean Call Processing Time – First Dispatch	90th Percentile Call Processing Times – First Dispatch
2020	12,654	0:00:52	0:01:37
2021	14,811	0:00:58	0:01:52
2022	16,440	0:01:06	0:02:02
2023	13,674	0:01:12	0:02:19
2024	14,308	0:01:22	0:02:29

Turnout

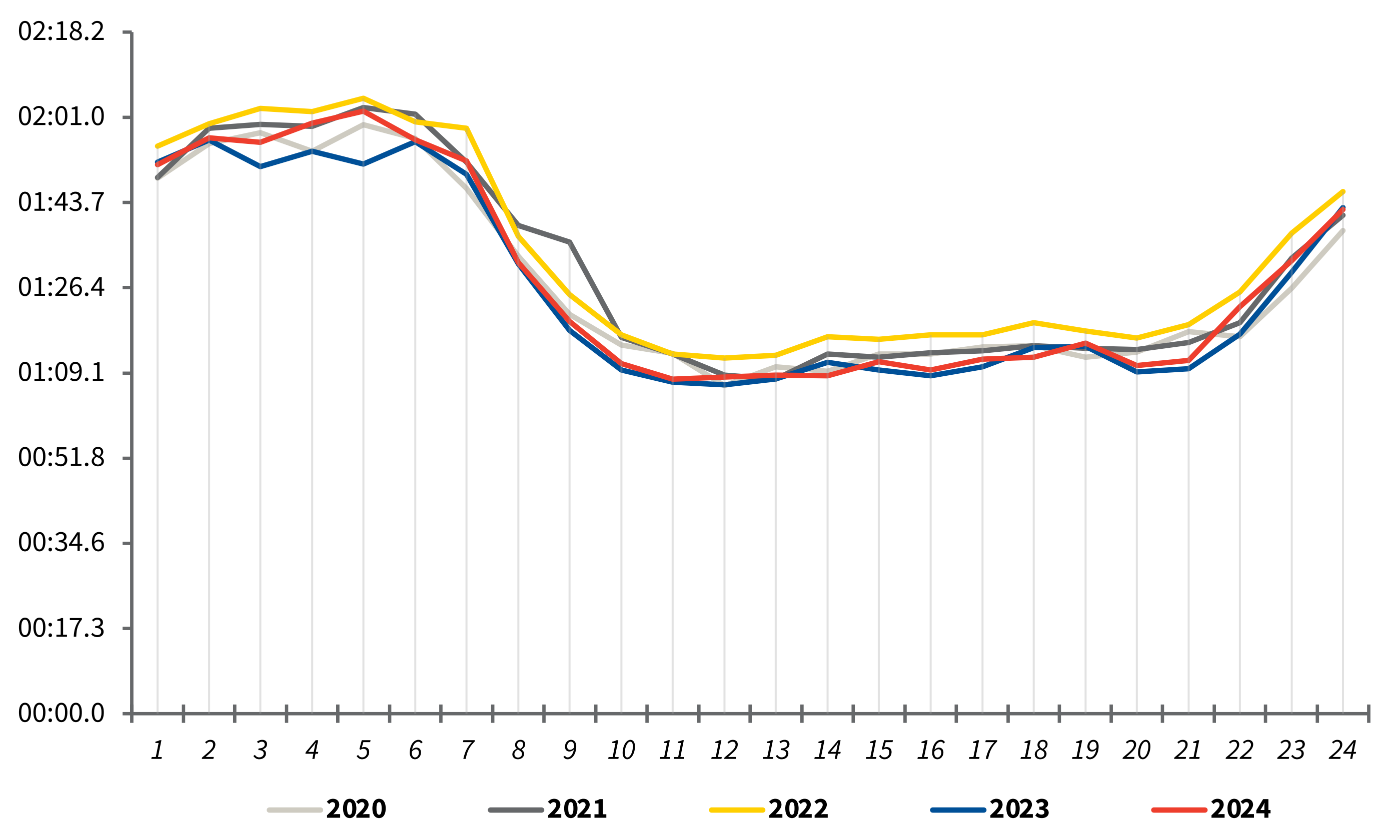
Turnout is the time interval from notification of a station or unit of the emergency to the assigned unit responding. SCCFD has the most control over this phase of the emergency response. Station facilities are equipped with radio tone-alert activation. Turnout time is measured from the time dispatch completes the alert to the vehicles clearing the stations and announcing “en route” on the radio or using mobile data computers. Personnel must have donned appropriate equipment, assembled on the response vehicle, and begun traveling to the incident. Proper training and fire station design can minimize the time required for the turnout phase.

NFPA 1221 and 1710 standards recommend that the turnout phase occur within 60 seconds 90% of the time. For priority emergency incidents, the SCCFD's benchmark goal for turnout time is 2 minutes 90% of the time. Data show that SCCFD's turnout times for all incident types exceeded Department benchmarks and NFPA standards, as shown in **Table 97**. **Figure 95** shows turnout time by hour of day for urgent priority calls.

Table 97: SCCFD Turnout Times, 2020–2024

Year	# Incidents	Mean — Turnout — First Dispatch	90th Pct — Turnout — First Dispatch
2020	12,580	0:01:20	0:01:58
2021	14,777	0:01:22	0:02:02
2022	16,410	0:01:25	0:02:05
2023	13,476	0:01:19	0:02:00
2024	14,146	0:01:21	0:02:01

Figure 95: SCCFD Turnout Times by Hour of Day, 2020–2024



Travel

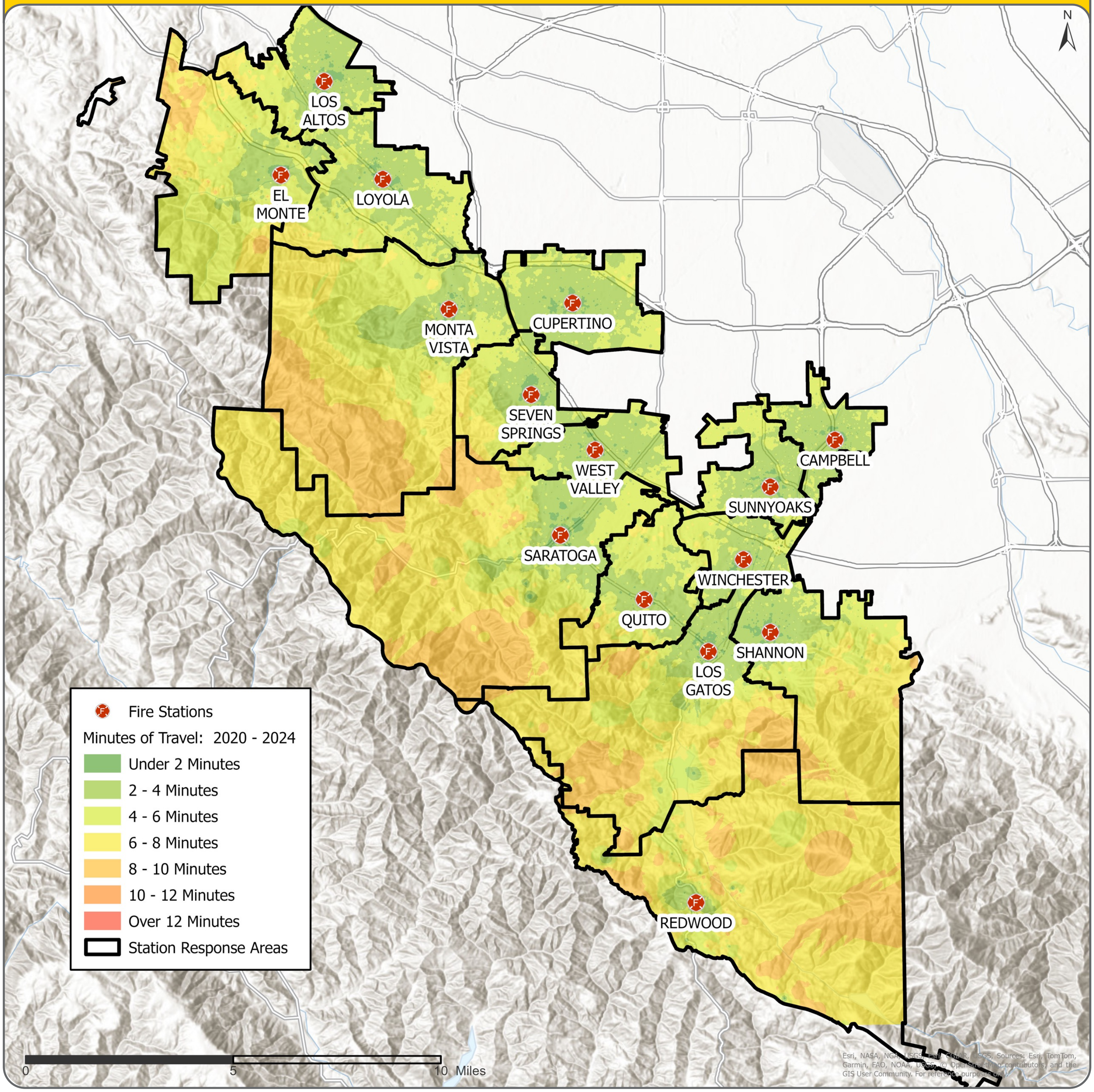
Travel time is the time interval from the assigned unit reporting it is “en route” to an emergency until that unit arrives at the emergency and reports that it is “on-scene.” This interval can be the longest of the response phases. The distance between a fire station and the location of an emergency has the most significant influence on response time. The quality and connectivity of streets, traffic, driver training, geography, and environmental conditions are also factors.

Traffic-calming measures and traffic control preemption devices can affect travel time and safety. Preemption is used to reduce the delay at traffic signal-controlled intersections. Traffic signal preemption systems vary in the cities within the service area. Traffic-calming devices, road design standards, and gated areas of the community can have the opposite effect and slow travel time to emergencies. **Table 98** details the travel times for the first engine, rescue unit, or truck during the five-year period, and **Figure 96** shows the first-in unit travel times within the service area for urgent priority calls.

Table 98: SCCFD Travel Times for First-In Engine, Rescue, or Truck, 2020–2024

YEAR	# Incidents	Mean — Travel — First Dispatch	90th Pct — Travel — First Unit
2020	12,157	0:03:37	0:05:46
2021	14,252	0:03:42	0:05:53
2022	15,892	0:03:44	0:05:57
2023	12,780	0:03:41	0:05:58
2024	13,139	0:03:45	0:06:04

Figure 96: First-In Unit Travel Times, 2020–2024



RESOURCES, CRITICAL TASKING, AND BENCHMARK GOALS

SCCFD's service area includes both urban and rural environments. Urban areas are characterized by a heightened concentration of risks regarding the number and distribution of emergency incidents. The rural areas have different risks, such as limited water supplies, dense vegetation, and winding, narrow roadways. As the actual or potential risks escalate, there is a corresponding demand for an increased presence of personnel and apparatus. Each incident type, coupled with its associated level of risk, requires the execution of specific critical tasks. In alignment with these requirements, dispatching the appropriate numbers and types of apparatus is imperative to effectively address the evolving challenges of different emergency scenarios.

Fire Suppression Capabilities

The Department provides various responses to structure fires, including single-family dwellings, multi-family dwellings, high-rise buildings, commercial buildings, and industrial occupancies. Additionally, it addresses high-hazard structures, such as institutional facilities, schools, nursing homes, assisted living facilities, and congregate housing. Other fire-related responses involve mobile property such as passenger vehicles, road freight, rail freight, recreational vehicles, dumpster and rubbish fires, and heavy equipment fires.

Firefighters encounter various conditions at each fire incident, ranging from early-stage outbreaks to situations in which the fire has engulfed the entire structure. This variability in conditions complicates efforts to compare the capabilities of different fire departments. A common reference point must be established to facilitate meaningful comparisons, ensuring that assessments are conducted under equitable conditions. For example, within the realm of fire suppression, service-level objectives are designed to prevent the occurrence of flashover, a critical point in a fire's growth that significantly heightens its threat to life and property.

The tasks involved in fire suppression at a typical scene can vary significantly. The primary imperative is for fire companies to arrive swiftly and simultaneously with adequate resources to save lives and limit property damage. The focus of developing a comprehensive Standards of Cover is to achieve this goal within a specific timeframe.

The Four Stages of a Fire

Understanding the progression of a fire is essential, as virtually all structure fires evolve through identifiable stages:

1. The incipient stage
This initial stage commences when heat, oxygen, and a fuel source combine, resulting in ignition. Recognizing and responding to a fire at this stage offers the best chance for suppression or escape.

2. The growth stage
During this stage, the structure's fire load and oxygen fuel the fire, and various factors influence its growth. The potential for a deadly flashover, which can trap or injure firefighters, is most significant in this stage.

3. The fully developed stage
The fire has reached its maximum intensity, with all combustible materials ignited. Given the extreme heat, this phase poses the greatest danger to individuals trapped within.

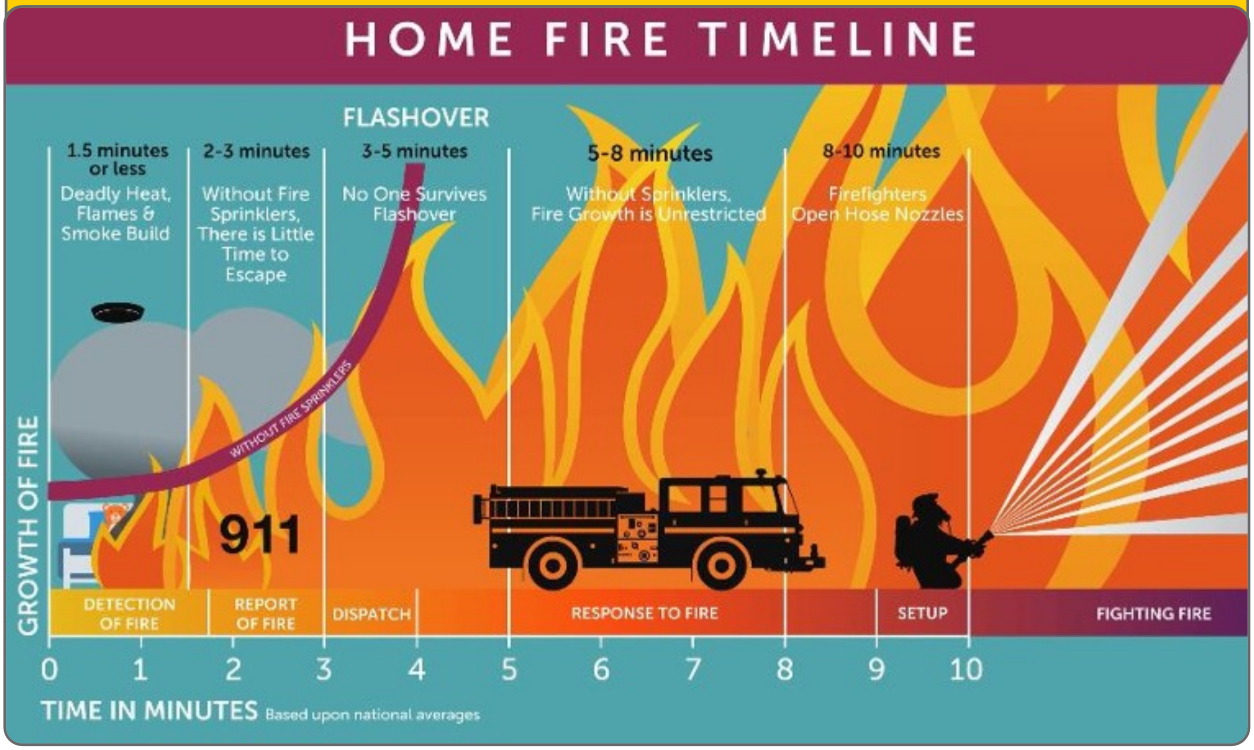
4. The decay stage
This final stage sees a decrease in oxygen or fuel, bringing the fire to an end. Although dangers persist, such as the risk of non-flaming combustibles causing new fires, the threat of a backdraft is also present when oxygen is reintroduced to a confined space.

The ability to control a fire before reaching flashover is influenced by the entire fire protection system, not solely by emergency response forces. Factors such as construction type, emergency access, built-in fire protection, public education, citizen extinguishment efforts, and the type of fuel involved play crucial roles. Firefighters provide essential services, from smoke removal to restoring built-in fire control systems, even when fires are not entirely extinguished. The overarching goal is to maintain all fire protection system components at a level that ensures adequate service, with periodic performance evaluations.

Flashover signifies a critical phase in fire growth, demanding a sudden increase in water volume to reduce burning material below its ignition temperature. When a fire reaches flashover, saving individuals in the room of origin becomes highly challenging. Dealing with post-flashover fires requires more firefighters and larger hose streams to combat the intensified heat and rapid spread. This situation exacerbates search-and-rescue challenges throughout the structure, necessitating a coordinated effort to manage fire combat operations effectively.

Figure 97 illustrates the timeline of a fire in a single-family residence.

Figure 97: Timeline of a Single-family Residential Fire



Impact of Residential Fire Sprinklers

In January 2010, California joined 46 other states in adopting a residential sprinkler requirement for all new homes; this action followed extensive scientific study and lobbying efforts by the National Fire Service and the building industry. SCCFD anticipates that the full impact of this requirement will unfold over several decades, necessitating reasonable assumptions in deployment analyses. However, misconceptions among the general public, media, elected officials, and others highlight the importance of the SCCFD providing continuous, accurate public information.

Unlike their commercial counterparts, residential fire sprinkler systems do not cover entire structures and notably exclude the attic space. Although these systems are designed to contain fires and allow occupants to exit safely, they do not fully extinguish the fire, necessitating a fire department response. Installing smoke alarms and a fire sprinkler system has been proven to reduce the risk of fire-related deaths by 82%, enhancing overall safety.

In addition to saving lives, sprinkler systems facilitate faster control and extinguishment by the fire department, reducing the time required for overhaul to confirm the fire is fully extinguished. However, it is important to note that these systems do not manage fires originating outside the home. Over time, sprinkler systems contribute to lowering property loss due to fire, positively affecting residential fire insurance premiums. Sprinkler systems certainly do not eliminate the need for fire stations, but they reduce the requirement for multiple units to respond from the same stations.

SCCFD's response and deployment standards are developed by analyzing risks and historical service demand in the service area, and by integrating industry best practices into the deployment models. This critical task analysis considers property and life risk, categorizing tasks into fire flow and life safety components.

Fire flow tasks involve getting water on the fire, contingent on building characteristics. In contrast, life safety tasks revolve around occupants' number and location, their status, and their ability to self-preserve. Successful emergency response hinges on coordinated teamwork, addressing tasks such as fire attack, search and rescue, ventilation, backup lines, pump operation, water supply, command, and safety, all within a goal of 10 minutes after the arrival of the first-due unit.

Critical Task Analysis, Baseline Performance, and Benchmark Goals

SCCFD's evaluation of historical data, existing time standards, and measured training exercises ensures its capability to accomplish critical tasks for various occupations. For all maximum-risk benchmark and baseline performance tables, the SCCFD did not experience ten or more incidents within the five-year evaluation period. Due to this limited call volume, the available data set is insufficient to provide statistically reliable performance measurements.

Effective Response Force Capabilities

The ability of an ERF to promptly assemble with the necessary personnel, apparatus, and equipment is critical for effectively managing a significant structural fire event. Therefore, assessing the capability to assemble an ERF is crucial. Although the distribution model in most fire departments generally performs satisfactorily, challenges in meeting the recommended assembly time frames are not uncommon.

Several factors influence the ability to assemble an ERF, including the number of fire stations, units, and personnel on each unit. These factors should be considered in the context of the community's specific risks and willingness to assume risk.

Fire Suppression

Examples of low-risk fire suppression incidents include passenger vehicle fires, dumpster fires, and other small fires with no threat to exposure. The effective response force (ERF) for low-risk incidents consists of a water-carrying apparatus capable of pumping water and a minimum of three personnel. The first-in unit must be capable of establishing command, completing an initial size-up, establishing a water supply, and initiating fire attack and/or rescue.

Table 99 defines the NFIRS codes for low-risk fire suppression, and **Table 100** displays the critical tasks for low-risk fire suppression incidents.

Table 99: Low-Risk Fire Suppression NFIRS Codes

NFIRS Incident Code(s)	Description	NFIRS Incident Type
113	Cooking fire, confined to container	Structure fire
118	Trash or rubbish fire, contained	Structure fire
130	Mobile property (vehicle) fire, other	Non-structure fire
131	Passenger vehicle fire	Non-structure fire
132	Road freight or transport vehicle fire	Non-structure fire
138	Off-road vehicle or heavy equipment fire	Non-structure fire
150	Outside rubbish fire, other	Non-structure fire
151	Outside rubbish, trash, or waste fire	Non-structure fire
154	Dumpster or other outside trash receptacle fire	Non-structure fire
155	Outside stationary compactor or compacted trash fire	Non-structure fire

Table 100: Low-Risk Fire Suppression Critical Tasks

Critical Tasks	Number of Fire Personnel	Company
Command, pump, and attack line	3 or 4	First engine, truck, or rescue unit
TOTAL	**3 or 4**	**1 Engine, truck, or rescue unit**

A common example of a moderate-risk fire suppression incident is a single-family residence with the fire confined to the object or room of origin. The ERF for moderate-risk incidents has three water-carrying apparatus capable of pumping water (engine, truck, or rescue unit), one chief officer, and a minimum of ten personnel. The ERF shall be capable of establishing command, providing a water supply, advancing an attack line and a backup line for fire control, complying with the two-in/two-out requirement, and conducting search and rescue for at-risk victims. **Table 101** defines the NFIRS codes for moderate-risk fire suppression, and **Table 102** displays the critical tasks for moderate-risk fire suppression incidents.

Table 101: Moderate-Risk Fire Suppression NFIRS Codes		
NFIRS Incident Code(s)	**Description**	**NFIRS Incident Type**
111	Building fire	Structure fire
112	Fires in structures other than in a building	Structure fire
114	Chimney or flue fire, confined to the chimney or flue	Structure fire
116	Fuel burner/boiler malfunction, fire confined	Structure fire
118	Trash or rubbish fire, contained	Structure fire
121	Fire in a mobile home used as a fixed residence	Non-structure fire
122	Fire in motor home, camper, or recreational vehicle	Non-structure fire
123	Fire in portable building, fixed location	Non-structure Fire
132	Road freight or transport vehicle fire	Non-structure fire
137	Camper or recreational vehicle (RV) fire	Non-structure fire
138	Off-road vehicle or heavy equipment fire	Non-structure fire
153	Construction or demolition landfill fire	Non-structure fire

Table 102: Moderate-Risk Fire Suppression Critical Tasks		
Critical Task	**Number of Fire Personnel**	**Company**
Attack line	2	First engine
Pump operator/water supply	1	First engine
Primary search and rescue	2	First truck or second engine
Two-out/backup attack line	2	Second engine
Forcible entry, utilities, ventilation	2	First truck
Command	1	First battalion chief
TOTAL	**10**	**2 Engines, 1 truck, 1 battalion chief**

A common example of a high-risk fire suppression incident is a single-family or multi-family residence with the fire beyond the room of origin. The ERF for high-risk incidents has four water-carrying apparatus capable of pumping water (engine, truck, or rescue unit), two chief officers, and a minimum of 14 personnel. The ERF must be capable of establishing command, ensuring safety, providing an uninterrupted water supply or rural water operation, advancing an attack line and a backup line for fire control, complying with the two-in/two-out requirement, achieving forcible entry, conducting search and rescue for at-risk victims, providing ventilation and exposure protection, controlling utilities, and performing salvage and overhaul. **Table 103** defines the NFIRS codes for high-risk fire suppression, and **Table 104** displays the critical tasks for high-risk fire suppression incidents.

Table 103: High-Risk Fire Suppression NFIRS Codes

NFIRS Incident Code(s)	Description	NFIRS Incident Type
111	Building fire	Structure fire
112	Fires in structures other than in a building	Structure fire
121	Fire in a mobile home used as a fixed residence	Non-structure fire
123	Fire in portable building, fixed location	Non-structure fire

Table 104: High-Risk Fire Suppression Critical Tasks

Critical Task	Number of Fire Personnel	Company
Attack lines (2)	4	First and second engines
Pump operator	1	First engine
Primary search and rescue	2	Rescue unit
Backup attack line	2	Third engine
Ventilation, forced entry, utilities	3	First truck
Safety	1	Second battalion chief
Command	1	First battalion chief
TOTAL	**14**	**2 Engines, 1 truck, 1 rescue unit, 2 battalion chiefs**

Typical maximum-risk fire suppression incidents are multi-family residences and commercial occupancies with the fire beyond the room of origin. The same NFIRS codes for high are used for maximum. The ERF for maximum-risk incidents has six apparatus capable of pumping water (engine, truck, or rescue unit), three chief officers, and a minimum of 21 personnel. The ERF must be capable of establishing command, ensuring safety, providing an uninterrupted water supply or rural water operation, advancing an attack line and a backup line for fire control, complying with the two-in/two-out requirement, establishing a rapid intervention team, achieving forcible entry, conducting search and rescue for at-risk victims, evacuating, providing ventilation and exposure protection, controlling utilities, and performing salvage and overhaul. **Table 105** displays the critical tasks for maximum-risk fire suppression incidents.

Table 105: Maximum-Risk Fire Suppression Critical Tasks

Critical Task	Number of Fire Personnel	Company
Attack lines (2)	4	First and second engines
Pump operator	2	First and second engines
Primary search and rescue	3	Rescue unit
Backup attack line	2	Third engine
Ventilation	3	First truck
Forced entry, utilities	4	Fourth engine or rescue unit
Division/group supervisor	1	Third battalion chief
Safety	1	Second battalion chief
Command	1	First battalion chief
TOTAL	**21**	**4 Engines, 1 truck, 1 rescue unit, 3 battalion chiefs**

Fire Suppression Benchmark Goals

For 90% of all fire suppression incidents, the total response time for the arrival of the first-due unit, staffed with a minimum of one officer, one engineer, and one firefighter, shall be within 7 minutes (7:00) in urban areas and 12 minutes (12:00) in rural response zones. The first-due arriving unit shall carry a minimum of 500 gallons of water and be capable of producing 1,500 gallons per minute of pumping capacity. The first-due unit shall establish command, declare scene priorities, perform lifesaving and property-saving interventions, and provide scene safety and accountability for SCCFD members and citizenry.

For 90% of **low-risk fires,** the benchmark goal is an ERF that arrives within 7 minutes (7:00) in urban areas and 10 minutes (10:00) in rural response zones. The minimum ERF is one apparatus capable of pumping and staffing of three personnel. The ERF staffing shall be capable of safely controlling the incident following the adopted SCCFD standard operating guidelines. ERF members shall be authorized to request additional resources to enhance safety and control escalating incidents.

Table 106 compares SCCFD's 90th percentile response times baseline performance for low-risk fire suppression calls from alarm through on-scene distribution with established benchmarks for January 2020 through December 2024.

Table 106: Five-Year Benchmark Versus Baseline Performance, 90th Percentile Response Times for Low-Risk Fire Suppression Incidents 2020–2024

			Benchmark (Target)	2020–2024	2024	2023	2022	2021	2020
Alarm Handling	Pick-up to Dispatch	Urban	**02:00**	**03:10**	03:22	03:08	02:58	03:05	02:44
		Rural	**02:00**	**03:04**	02:58	03:21	03:17	02:49	02:35
Turnout Time	Turnout Time 1st Unit	Urban	**02:00**	**02:04**	01:57	02:00	02:15	02:03	02:08
		Rural	**02:00**	**02:29**	02:13	02:25	02:44	02:39	02:10
Travel Time	Travel Time 1st Unit **Distribution**	Urban	**05:00**	**05:35**	05:57	05:59	05:49	05:18	04:54
		Rural	**08:00**	**10:01**	09:32	08:50	10:01	07:32	10:26
	Travel Time ERF **Concentration**	Urban	**05:00**	**05:40**	06:03	06:00	05:51	05:19	04:53
		Rural	**08:00**	**10:29**	09:32	10:23	10:58	07:32	10:26
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	**07:00**	**07:10**	07:25	07:00	07:34	06:47	06:44
		Rural	**12:00**	**12:25**	10:51	09:49	12:58	12:48	11:34
		Urban		**n=598**	n=124	n=123	n=109	n=114	n=128
		Rural		**n=98**	n=21	n=22	n=22	n=15	n=18
	Total Response Time ERF **Concentration**	Urban	**07:00**	**07:10**	07:36	07:00	07:38	06:47	06:43
		Rural	**12:00**	**12:25**	10:51	11:51	12:56	12:48	11:34
		Urban		**n=598**	n=125	n=122	n=107	n=115	n=130
		Rural		**n=98**	n=21	n=22	n=23	n=15	n=18

For 90% of **moderate-risk fires,** the benchmark goal is an ERF that arrives within 10 minutes and 30 seconds (10:30) in urban areas and 13 minutes and 30 seconds (13:30) in rural response zones. The minimum ERF is three apparatus capable of pumping, one chief officer, and staffing of ten personnel.

Most working structure fires are upgraded to high-risk based on the caller's information or the questions asked during the call processing.

Table 107 compares SCCFD's 90th percentile response times baseline performance for moderate-risk fire suppression calls from alarm through on-scene distribution with established benchmarks for January 2020 through December 2024.

Table 107: Five-Year Benchmark Versus Baseline Performance, 90th Percentile Response Times for Moderate-Risk Fire Suppression Incidents 2020–2024

			Benchmark (Target)	2020–2024	2024	2023	2022	2021	2020
Alarm Handling	Pick-up to Dispatch	Urban	**02:00**	**02:51**	03:07	02:55	03:50	02:18	02:04
		Rural	**02:00**	**03:11**	01:59	03:16	02:25		01:20
Turnout Time	Turnout Time 1st Unit	Urban	**02:00**	**02:24**	02:12	01:51	02:48	02:16	01:57
		Rural	**02:00**	**03:48**	00:18	03:01	03:54		02:18
Travel Time	Travel Time 1st Unit **Distribution**	Urban	**05:00**	**04:55**	04:42	03:48	05:07	05:14	04:45
		Rural	**08:00**	**08:52**	05:37	07:48	04:11		13:19
	Travel Time ERF **Concentration**	Urban	**09:30**	**09:55**	09:05	09:12	10:00	11:32	05:28
		Rural	**12:00**	**12:27**	07:38	15:42	09:38		10:13
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	**07:00**	**05:56**	05:03	04:48	07:11	05:52	05:43
		Rural	**10:00**	**10:13**	05:55	09:10	06:18		15:27
		Urban		**n=29**	n=3	n=6	n=5	n=6	n=9
		Rural		**n=10**	n=1	n=3	n=3		n=3
	Total Response Time ERF **Concentration**	Urban	**10:30**	**10:34**	09:47	10:05	11:40	12:42	06:51
		Rural	**13:30**	**13:49**	07:56	17:22	11:45		11:13
		Urban		**n=24**	n=3	n=5	n=4	n=6	n=6
		Rural		**n=8**	n=1	n=2	n=3		n=2

For 90% of **high-risk fires,** the benchmark goal is an ERF that arrives within 15 minutes (15:00) in urban areas and 16 minutes and 30 seconds (16:30) in rural response zones. The minimum ERF is four apparatus capable of pumping, two chief officers, and staffing of fourteen personnel.

Table 108 compares SCCFD's 90th percentile response times baseline performance for high-risk fire suppression calls from alarm through on-scene distribution with established benchmarks for January 2020 through December 2024.

Table 109: Five-Year Benchmark Versus Baseline Performance, 90th Percentile Response Times for High-Risk Fire Suppression Incidents 2020–2024

			Benchmark (Target)	2020–2024	2024	2023	2022	2021	2020
Alarm Handling	Pick-up to Dispatch	Urban	**02:00**	**02:39**	02:24	02:20	03:00	02:44	02:15
		Rural	**02:00**	**02:29**	-	02:05	02:42	02:05	01:32
Turnout Time	Turnout Time 1st Unit	Urban	**02:00**	**02:31**	01:56	02:01	02:50	02:14	02:20
		Rural	**02:00**	**02:37**	-	01:52	02:08	01:51	03:13
Travel Time	Travel Time 1st Unit **Distribution**	Urban	**05:00**	**06:02**	06:11	04:27	05:22	06:48	05:50
		Rural	**08:00**	**08:57**	-	04:47	12:38	07:30	06:15
	Travel Time ERF **Concentration**	Urban	**13:00**	**14:21**	15:53	12:57	12:22	14:42	12:17
		Rural	**13:00**	**13:21**	-	11:52	12:53	09:45	12:49
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	**07:00**	**07:10**	07:56	05:39	06:54	08:21	06:58
		Rural	**10:00**	**10:24**	-	05:53	13:57	08:58	07:38
		Urban		**n=96**	n=14	n=17	n=16	n=21	n=28
		Rural		**n=14**	-	n=2	n=5	n=2	n=5
	Total Response Time ERF **Concentration**	Urban	**15:00**	**15:25**	16:46	13:18	13:48	16:00	12:50
		Rural	**16:30**	**16:58**	-	12:58	22:47	11:18	14:05
		Urban		**n=68**	n=9	n=11	n=11	n=17	n=20
		Rural		**n=9**	-	n=2	n=3	n=1	n=3

For 90% of **maximum-risk fires,** the benchmark goal is an ERF that arrives within 16 minutes and 30 seconds (16:30) in urban areas and 18 minutes (18:00) in rural response zones. The minimum ERF is six apparatus capable of pumping, three chief officers, and staffing of twenty-one personnel.

Wildland Fire Suppression

The department developed risk-based response strings for wildland fire suppression. All wildland fire incidents are triaged and dispatched using ProQA's Emergency Fire Dispatch (EFD) protocols. Low-risk wildland fire suppression incidents typically receive a single-unit response. A report of smoke or flames typically receives a moderate-risk first-alarm dispatch. While the department has higher-level response strings, it may limit their use for the following reasons:

- Determining proper incident location, size, and complexity allows for proper initial resource deployment and management
  - Reduces over committing resources to low-complexity incidents and allows proper resource ordering and tracking by incident command.
  - Reduces over committing resources for incidents determined to be within both the fire district and state responsibility area with no threat to life or property values, and impacting only natural resource values (i.e., timber, watershed, and rangeland).

The department considers dual-response with CAL FIRE and automatic-aid from neighboring local fire agencies when quantifying ERF for wildland fire suppression.

Low-risk wildland fire incidents typically involve small grass fires or other small fires with no threat to exposures. The ERF for low-risk incidents consists of one apparatus capable of pumping water and staffing of three personnel. **Table 109** defines the NFIRS codes for all wildland fire suppression, and **Table 110** displays the critical tasks for low-risk wildland fire suppression incidents.

Table 109: Wildland Fire Risk NFIRS Codes

NFIRS Incident Code(s)	Description	NFIRS Incident Type
140	Natural vegetation fire, other	Vegetation fire
141	Forest, woods, or wildland fire	Vegetation fire
142	Brush or brush-and-grass mixture fire	Vegetation fire
143	Grass fire	Vegetation fire
170	Cultivated vegetation, crop fire, other	Vegetation fire
171	Cultivated grain or crop fire	Vegetation fire
172	Cultivated orchard or vineyard fire	Vegetation fire
173	Cultivated trees or nursery stock fire	Vegetation fire

Table 110: Low-Risk Wildland Fire Suppression Critical Tasks

Critical Task	Number of Fire Personnel	Company
Primarily hose lay	2	First engine
Command	1	First engine
TOTAL	**3**	**1 Engine and 1 battalion chief**

Moderate-risk wildland fire incidents are typically grass or vegetation fires with larger potential in a wildland area. The ERF for moderate-risk incidents has six water-carrying apparatus, two chief officers, and a minimum of 20 personnel. **Table 111** displays the critical tasks for moderate-risk wildland fire suppression incidents.

Table 111: Moderate-Risk Wildland Fire Suppression Critical Tasks

Critical Task	Number of Fire Personnel	Company
Water supply/line construction	3	First engine
Anchor/primary hose lay	3	Second engine
Secondary hose lay	3	Third engine
Command	1	First battalion chief
TOTAL	**10**	**3 Engines and 1 battalion chief**

High-risk wildland fire incidents typically involve multiple acres and threaten structures. The ERF for high-risk incidents has nine water-carrying apparatus, three chief officers, and a minimum of 30 personnel. **Table 112** displays the critical tasks for high-risk wildland fire suppression incidents.

Table 112: High-Risk Wildland Fire Suppression Critical Tasks

Critical Task	Number of Fire Personnel	Company
Pump operator/water supply	2	First engine
Division/group supervisor	1	First engine
Anchor/primary hose lay	3	Second engine
Secondary hose lay	3	Third engine
Additional water supply	3	Fourth engine
Structure defense	6	First and sixth engines
Safety	1	Second battalion chief
Command	1	First battalion chief
TOTAL	**20**	**6 Engines and 2 battalion chiefs**

Maximum-risk wildland fire incidents typically threaten structures and have a rapid rate of spread. The ERF for maximum-risk incidents has 12 apparatus capable of pumping water, four chief officers, and a minimum of 40 personnel. **Table 113** displays the critical tasks for maximum-risk wildland fire suppression incidents.

Table 113: Maximum-Risk Wildland Fire Suppression Critical Tasks

Critical Task	Number of Fire Personnel	Company
Pump operations/water supply	3	First engine
Anchor/primary hose lay	6	Second and third engines
Secondary hose lay	6	Fourth and fifth engines
Water supply	3	Sixth engine
Structure defense	9	Seventh, eighth, and ninth engines
Division/group supervisor	1	Third battalion chief
Safety	1	Second battalion chief
Command	1	First battalion chief
TOTAL	**30**	**9 Engines and 3 battalion chiefs**

Wildland Fire Suppression Benchmark Goals

For 90% of **low-risk wildland fires,** the benchmark goal is an ERF that arrives within 7 minutes (7:00) in urban areas and 10 minutes (10:00) in rural response zones. The minimum ERF is one apparatus capable of pumping and staffing of three personnel. **Table 114** compares SCCFD's 90th percentile response times baseline performance for low-risk wildland fire suppression calls from alarm through on-scene distribution with established benchmarks for January 2020 through December 2024.

Table 114: Five-Year Benchmark Versus Baseline Performance, 90th Percentile Response Times for Low-Risk Wildland Fire Suppression Incidents 2020–2024

			Benchmark (Target)	2020–2024	2024	2023	2022	2021	2020
Alarm Handling	Pick-up to Dispatch	Urban	**02:00**	**03:28**	03:57	03:32	03:05	03:43	02:59
		Rural	**02:00**	**02:58**	02:59	02:39	03:20	02:39	03:14
Turnout Time	Turnout Time 1st Unit	Urban	**02:00**	**02:11**	02:18	01:46	02:05	02:12	02:15
		Rural	**02:00**	**02:46**	02:44	01:51	01:47	02:43	02:55
Travel Time	Travel Time 1st Unit **Distribution**	Urban	**06:30**	**06:10**	05:36	05:46	05:45	06:58	06:17
		Rural	**08:00**	**11:09**	07:28	13:19	05:45	09:44	14:12
	Travel Time ERF **Concentration**	Urban	**06:30**	**06:17**	05:36	05:58	05:45	06:58	06:16
		Rural	**08:00**	**11:07**	07:59	13:19	05:45	09:41	14:12
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	**07:00**	**07:49**	07:11	07:14	07:27	08:08	08:00
		Rural	**12:00**	**12:09**	08:33	14:28	07:20	11:30	17:00
		Urban		**n=173**	n=39	n=33	n=34	n=30	n=37
		Rural		**n=25**	n=8	n=4	n=1	n=9	n=3
	Total Response Time ERF **Concentration**	Urban	**07:00**	**07:53**	07:11	07:26	07:27	08:08	07:59
		Rural	**12:00**	**12:08**	08:57	14:28	07:20	11:34	17:00
		Urban		**n=174**	n=39	n=33	n=34	n=30	n=38
		Rural		**n=27**	n=9	n=4	n=1	n=10	n=3

For 90% of **moderate-risk wildland fires**, the benchmark goal is an ERF that arrives within 13 minutes (13:00) in urban areas and 18 minutes and 30 seconds (18:30) in rural response zones. The minimum ERF is three apparatus capable of pumping, one chief officer, and staffing of ten personnel. **Table 115** compares SCCFD's 90th percentile response times baseline performance for moderate-risk wildland fire suppression calls from alarm through on-scene distribution with established benchmarks for January 2020 through December 2024.

Table 115: Five-Year Benchmark Versus Baseline Performance, 90th Percentile Response Times for Moderate-Risk Wildland Fire Suppression Incidents 2020–2024

			Benchmark (Target)	2020–2024	2024	2023	2022	2021	2020
Alarm Handling	Pick-up to Dispatch	Urban	**02:00**	**02:47**	02:17	03:30	02:30	02:59	02:28
		Rural	**02:00**	**03:13**	03:07	03:19	03:34	02:06	01:41
Turnout Time	Turnout Time 1st Unit	Urban	**02:00**	**02:22**	02:11	02:15	01:47	02:43	02:20
		Rural	**02:00**	**02:50**	02:07	02:17	03:05	02:54	02:33
Travel Time	Travel Time 1st Unit **Distribution**	Urban	**06:30**	**07:51**	07:50	07:46	03:43	06:53	05:43
		Rural	**08:00**	**09:09**	08:10	12:24	07:15	13:35	05:57
	Travel Time ERF **Concentration**	Urban	**12:00**	**12:07**		11:43	14:28	10:22	09:48
		Rural	**16:30**	**16:56**	16:34	16:04	14:45	09:08	17:37
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	**07:00**	**08:39**	09:17	09:17	04:43	07:44	06:09
		Rural	**14:30**	**14:55**	09:55	13:24	09:17	16:17	14:02
		Urban		**n=30**	n=5	n=6	n=2	n=8	n=9
		Rural		**n=21**	n=2	n=4	n=5	n=3	n=7
	Total Response Time ERF **Concentration**	Urban	**13:00**	**13:16**		13:12	15:48	10:49	10:55
		Rural	**18:30**	**18:22**	18:19	17:00	15:42	10:14	18:51
		Urban		**n=15**		n=3	n=1	n=4	n=7
		Rural		**n=18**	n=2	n=2	n=6	n=1	n=7

For 90% of **high-risk wildland fires,** the benchmark goal is an ERF that arrives within 17 minutes and 30 seconds (17:30) in urban areas and 19 minutes and 30 seconds (19:30) in rural response zones. The minimum ERF is six apparatus capable of pumping, two chief officers, and staffing of twenty personnel. **Table 116** compares SCCFD's 90th percentile response times baseline performance for high-risk wildland suppression calls from alarm through on-scene distribution with established benchmarks for January 2020 through December 2024.

Table 116: Five-Year Benchmark Versus Baseline Performance, 90th Percentile Response Times for High-Risk Wildland Fire Suppression Incidents 2020–2024

			Benchmark (Target)	2020–2024	2024	2023	2022	2021	2020
Alarm Handling	Pick-up to Dispatch	Urban	**02:00**	**02:43**	03:01	02:23	01:35		01:19
		Rural	**02:00**	**02:34**	02:32		02:45	02:24	02:21
Turnout Time	Turnout Time 1st Unit	Urban	**02:00**	**02:27**	01:51	02:26	02:23		02:19
		Rural	**02:00**	**02:43**	01:56		02:06	03:11	02:30
Travel Time	Travel Time 1st Unit **Distribution**	Urban	**06:30**	**05:29**	04:53	05:05	05:30		03:55
		Rural	**09:00**	**08:18**	06:33		06:19	:	10:45
	Travel Time ERF **Concentration**	Urban	**16:30**	**16:44**	:	16:44	16:39		:
		Rural	**18:30**	**18:51**	19:31		15:35	:	16:10
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	**07:00**	**06:27**	05:56	05:39	06:46		05:55
		Rural	**14:30**	**21:17**	16:26		07:36	22:15	13:04
		Urban		**n=7**	n=1	n=3	n=1		n=2
		Rural		**n=12**	n=5		n=2	n=1	n=4
	Total Response Time ERF **Concentration**	Urban	**17:30**	**17:53**	:	17:30	17:55		:
		Rural	**19:30**	**19:46**	20:28		16:58	:	16:56
		Urban		**n=2**		n=1	n=1		
		Rural		**n=3**	n=1		n=1		n=1

For 90% of **maximum-risk wildland fires,** the benchmark goal is an ERF that arrives within 19 minutes (19:00) in urban areas and 21 minutes and 30 seconds (21:30) in rural response zones. The minimum ERF is nine apparatus capable of pumping, three chief officers, and staffing of thirty personnel.

Emergency Medical Services

All medical calls are triaged under EMD protocols. Calls triaged as Alpha responses are considered to be low-risk. SCCFD units are dispatched Code 2 (non-urgent), along with an AMR ambulance responding Code 2.

Moderate-risk medical responses are EMS calls that EMD triages as Bravo to Echo. Examples of these calls include falls, traumatic injury, allergic reactions, respiratory distress, altered mental status, and chest pain. These emergency calls often require ALS services. Units respond Code 3 (urgent), and the ERF is one ALS apparatus and a minimum of three personnel. **Table 117** defines the NFIRS codes for EMS calls, and **Table 118** displays the critical tasks for moderate-risk EMS calls.

Table 117: EMS NFIRS Codes

NFIRS Incident Code(s)	Description	NFIRS Incident Type
311	Medical assist, assist EMS crew	EMS
320	EMS incident, other	EMS
321	EMS call, excluding vehicle accident with injury	EMS

Table 118: Moderate-Risk EMS Critical Tasks

Critical Task	Number of Fire Personnel	Company
Command	1	First engine
Patient assessment and treatment	2	First engine
TOTAL	**3**	**1 Engine, truck, or rescue unit**

Examples of high-risk medical responses include traumatic injury and a motor vehicle accident on a highway or freeway that requires additional units to safely block traffic. The ERF is two apparatus (engine, truck, or rescue unit), and a minimum of six personnel. **Table 119** displays the critical tasks for high-risk EMS calls.

Table 119: High-Risk EMS Critical Tasks

Critical Task	Number of Fire Personnel	Company
Command	1	First engine
Safety officer	1	Second engine
Patient assessment	2	First engine
Treatment	2	Second engine
TOTAL	**6**	**2 Engines, truck, or rescue unit**

Examples of maximum-risk medical responses include mass-casualty incidents (MCIs), vehicle hitting buildings with multiple patients, vehicle accidents requiring patient extraction or pin-ins, bus accidents, and trench rescues. The ERF is four apparatus (engine, truck, or rescue unit), one chief officer, and a minimum of 13 personnel. **Table 120** displays the critical tasks for maximum-risk EMS calls.

Table 120: Maximum-Risk EMS Critical Tasks

Critical Task	Number of Fire Personnel	Company
Command	1	First battalion chief
Safety officer	1	Second engine
Division/group supervisor	1	First engine
Patient assessment	2	First engine
Treatment	5	Second and third engines
Incident support	3	Fourth engine
TOTAL	**13**	**4 Engines, truck, or rescue unit and 1 battalion chief**

EMS Benchmark Goals

The SCCFD's EMS risks and critical tasks are based on urban and rural population density. The targeted service-level benchmark statements are based on industry standards, best practices, and historical response data.

For 90% of **low-risk EMS calls,** the minimum effective response force staffing shall be three personnel on a fire engine, truck, or rescue unit that is requested code 2 without lights and sirens. The first–due unit for all risk levels shall be capable of assessing scene safety, conducting an initial patient assessment, obtaining vitals and the patient's medical history, initiating mitigation efforts, and transporting the patient to the hospital. As low-risk EMS incidents receive a non-urgent response, the department did not document baseline performance compared to benchmark statements in this report.

For 90% of **moderate-risk EMS calls,** the minimum ERF staffing shall be three personnel who arrive within 6 minutes and 30 seconds (6:30) in urban areas and 9 minutes and 30 seconds (9:30) in rural response zones. The ERF shall be capable of establishing command, conducting initial patient assessment, obtaining vital signs and the patient's medical history, performing cardiopulmonary resuscitation (CPR), utilizing an EKG/defibrillator, administering medication, communicating with medical control, applying standing and physician orders, and packaging patients for transport. **Table 121** compares SCCFD's 90th percentile response times baseline performance for moderate-risk EMS calls from alarm through on-scene distribution with established benchmarks for January 2020 through December 2024.

Table 121: Five-Year Benchmark Versus Baseline Performance, 90th Percentile Response Times for Moderate-Risk EMS Incidents 2020–2024

			Benchmark (Target)	2020–2024	2024	2023	2022	2021	2020
Alarm Handling	Pick-up to Dispatch	Urban	**02:00**	**01:45**	02:08	02:04	01:40	01:21	01:13
		Rural	**02:00**	**02:01**	02:26	02:18	01:51	01:32	01:24
Turnout Time	Turnout Time 1st Unit	Urban	**02:00**	**01:56**	01:57	01:57	01:58	01:54	01:51
		Rural	**02:00**	**02:01**	02:04	02:00	02:01	01:59	01:58
Travel Time	Travel Time 1st Unit **Distribution**	Urban	**05:00**	**05:12**	05:16	05:11	05:16	05:14	05:05
		Rural	**08:00**	**08:16**	08:00	08:37	08:02	08:12	08:45
	Travel Time ERF **Concentration**	Urban	**05:00**	**05:12**	05:16	05:11	05:16	05:14	05:05
		Rural	**08:00**	**08:20**	08:02	08:44	08:05	08:18	08:52
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	**06:30**	**06:36**	06:39	06:33	06:44	06:36	06:25
		Rural	**09:30**	**09:50**	09:33	10:05	09:34	09:47	10:23
		Urban		**n=39,645**	n=7,698	n=7,650	n=9,186	n=8,129	n=6,982
		Rural		**n=4,737**	n=1,136	n=925	n=1,046	n=853	n=777
	Total Response Time ERF **Concentration**	Urban	**06:30**	**06:36**	06:39	06:33	06:44	06:36	06:25
		Rural	**09:30**	**09:53**	09:33	10:05	09:34	09:47	10:23
		Urban		**n=39,655**	n=7,698	n=7,650	n=9,186	n=8,129	n=6,982
		Rural		**n=4,749**	n=1,136	n=925	n=1,046	n=853	n=777

For 90% of **high-risk EMS calls,** the benchmark goal is an ERF that arrives within 10 minutes and 30 seconds (10:30) in urban areas and 14 minutes and 30 seconds (14:30) in rural response zones. The minimum ERF is two apparatus capable of pumping and staffing of six personnel. The ERF shall be capable of establishing command, conducting primary and secondary patient assessments, triaging patients, interpreting electrocardiograms, administering medication, communicating with medical control, applying standing and physician orders, and packaging patients for transport. **Table 122** compares SCCFD's 90th percentile response times baseline performance for high-risk EMS calls from alarm through on-scene distribution with established benchmarks for January 2020 through December 2024.

Table 122: Five-Year Benchmark Versus Baseline Performance, 90th Percentile Response Times for High-Risk EMS Incidents 2020–2024

			Benchmark (Target)	2020–2024	2024	2023	2022	2021	2020
Alarm Handling	Pick-up to Dispatch	Urban	**02:00**	**02:14**	02:17	02:49	02:14	01:44	01:41
		Rural	**02:00**	**02:51**	03:12	03:17	02:32	02:29	02:15
Turnout Time	Turnout Time 1st Unit	Urban	**02:00**	**01:59**	01:52	02:00	02:01	01:57	01:54
		Rural	**02:00**	**02:20**	02:25	02:13	02:16	02:23	02:19
Travel Time	Travel Time 1st Unit **Distribution**	Urban	**05:00**	**06:06**	06:17	06:39	06:04	06:30	05:10
		Rural	**08:00**	**12:35**	12:00	13:19	11:23	12:17	11:26
	Travel Time ERF **Concentration**	Urban	**09:00**	**09:20**	11:38	08:27	08:32	10:33	09:25
		Rural	**14:30**	**14:59**	14:40	15:56	14:54	14:13	14:58
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	**09:00**	**07:28**	07:33	07:40	07:43	07:41	06:28
		Rural	**14:30**	**14:30**	13:57	15:35	13:34	14:22	14:59
		Urban		**n=412**	n=105	n=102	n=76	n=64	n=65
		Rural		**n=333**	n=81	n=64	n=73	n=65	n=50
	Total Response Time ERF **Concentration**	Urban	**10:30**	**10:47**	12:16	09:52	10:54	12:11	10:24
		Rural	**16:30**	**17:02**	17:08	17:09	16:07	15:28	18:26
		Urban		**n=165**	n=37	n=49	n=30	n=24	n=25
		Rural		**n=179**	n=44	n=37	n=48	n=28	n=22

For 90% of **maximum-risk EMS calls,** the benchmark goal is an ERF that arrives within 12 minutes (12:00) in urban areas and 18 minutes (18:00) in rural response zones. The minimum ERF is four apparatus capable of pumping, one chief officer, and staffing of thirteen personnel. The ERF shall be capable of establishing command, communicating with family members and other witnesses, conducting primary and secondary patient assessments, triaging patients, performing electrocardiogram interpretation, administering medication, communicating with medical control, applying standing and physician orders, and packaging patients for transport.

Hazardous Materials Response

Examples of low-risk HazMat incidents include carbon monoxide detector alarms, automotive fluids released at traffic accidents, abandoned chemicals found with their original containers, and less than 1 gallon of spilled gas leaks outside. These incidents can typically be mitigated with a single water-carrying apparatus with a pump (engine, truck, or rescue unit) carrying personnel trained at the Hazmat First Responder Operations level. The ERF for low-risk HazMat incidents is an apparatus capable of pumping water and a minimum of three personnel. **Table 123** defines NFIRS codes for low-risk HazMat incidents, and **Table 124** displays the critical tasks for low-risk HazMat incident response.

Table 123: Low-Risk HazMat Response NFIRS Codes

NFIRS Incident Code(s)	Description	NFIRS Incident Type
410	Combustible/flammable gas/liquid condition, other	Hazardous materials
411	Gasoline or other flammable liquid spill	Hazardous materials
412	Gas leak (natural gas or liquefied petroleum gas [LPG])	Hazardous materials
413	Oil or other combustible liquid spill	Hazardous materials
420	Toxic condition, other	Hazardous materials
421	Chemical hazard (no spill or leak)	Hazardous materials
422	Chemical spill or leak	Hazardous materials
423	Refrigeration leak	Hazardous materials
424	Carbon monoxide incident	Hazardous materials
463	Vehicle accident, general cleanup	Hazardous materials

Table 124: Low-Risk HazMat Response Critical Tasks

Critical Task	Number of Fire Personnel	Company
Command	1	First engine, truck, or rescue unit
Isolate and identify	2	First engine, truck, or rescue unit
TOTAL	**3**	**1 Engine, truck, or rescue unit**

Typical moderate-risk HazMat incidents include gas leaks within a structure, larger fuel spills, and unknown conditions. The ERF has three apparatus capable of pumping water and a minimum of nine personnel. **Table 125** defines NFIRS codes for moderate-risk and high-risk HazMat incidents, and **Table 126** displays the critical tasks for moderate-risk HazMat incident response.

Table 125: Moderate-Risk and High-Risk HazMat Response NFIRS Codes

NFIRS Incident Code(s)	Description	NFIRS Incident Type
410	Combustible/flammable gas/liquid condition, other	Hazardous materials
411	Gasoline or other flammable liquid spill	Hazardous materials
412	Gas leak (natural gas or LPG)	Hazardous materials
413	Oil or other combustible liquid spill	Hazardous materials
420	Toxic condition, other	Hazardous materials
421	Chemical hazard (no spill or leak)	Hazardous materials
422	Chemical spill or leak	Hazardous materials
423	Refrigeration leak	Hazardous materials
451	Biological hazard, confirmed or suspected	Hazardous materials

Table 126: Moderate-Risk HazMat Response Critical Tasks

Critical Task	Number of Fire Personnel	Company
Command	1	First engine
Safety	1	Second engine
Isolate/deny entry	2	First engine
Assess and identify	2	Second engine
Contain and control	3	First truck
TOTAL	**9**	**3 Engines, truck, or rescue unit**

High-risk HazMat incidents typically involve unknown items that require testing, large leaks, or investigations. The ERF for high-risk HazMat incidents has four apparatus capable of pumping water, a HazMat unit, one chief officer, and a minimum of 16 personnel. **Table 127** displays the critical tasks for high-risk HazMat incident response.

Table 127: High-Risk HazMat Response Critical Tasks

Critical Task	Number of Fire Personnel	Company
Command	1	First battalion chief
Safety	1	Second engine
Identify/deny entry	3	First engine
Assess	2	Second engine
Containment and control	6	HazMat unit and third engine
Decontamination	3	Fourth engine
TOTAL	**16**	**4 Engines, 1 HazMat unit, and 1 battalion chief**

Maximum-risk HazMat incidents are typically releases of a significant quantity of known or unknown HazMat, incidents in which patient(s) require full body decontamination from exposure to HazMat, materials producing a vapor cloud or other airborne hazard, and damaged chemical pipelines. The ERF for maximum-risk HazMat responses has six apparatus capable of pumping water, a HazMat unit, two chief officers, and a minimum of 23 personnel. **Table 128** displays the critical tasks for maximum-risk HazMat incident response.

Table 128: Maximum-Risk HazMat Response Critical Tasks

Critical Task	Number of Fire Personnel	Company
Command	1	First battalion chief
Safety	1	Second battalion chief
Isolate/deny entry	5	First and second engines
Division group	1	Second engine
Identify/assess	3	Third engine
Containment and control	6	Fourth engine and HazMat unit
Decontamination	6	Fifth and sixth engines
TOTAL	**23**	**6 Engines, 1 HazMat unit, and 2 battalion chiefs**

HazMat Response Benchmark Goals

For 90% of **low-risk HazMat incidents,** the benchmark goal is an ERF that arrives within 7 minutes (7:00) in urban areas and 15 minutes (15:00) in rural response zones. The minimum ERF is one apparatus capable of pumping and staffing of three personnel. The first-due unit shall be capable of establishing command, performing an initial scene assessment, performing air quality analysis, assisting with evacuation, ventilating structures, and requesting additional resources. These operations should be done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public. **Table 129** compares SCCFD's 90th percentile response times baseline performance for low-risk HazMat responses from alarm through on-scene distribution with established benchmarks for January 2020 through December 2024.

Table 129: Five-Year Benchmark Versus Baseline Performance, 90th Percentile Response Times for Low-Risk HazMat Responses 2020–2024

			Benchmark (Target)	2020–2024	2024	2023	2022	2021	2020
Alarm Handling	Pick-up to Dispatch	Urban	**02:00**	**03:26**	03:46	03:41	03:07	03:20	02:38
		Rural	**02:00**	**03:45**	03:57	03:49	03:41	03:41	03:12
Turnout Time	Turnout Time 1st Unit	Urban	**02:00**	**02:02**	01:57	02:08	02:10	01:55	02:00
		Rural	**02:00**	**02:20**	02:08	02:24	02:24	02:29	02:09
Travel Time	Travel Time 1st Unit **Distribution**	Urban	**05:00**	**06:46**	07:12	07:01	06:24	06:29	06:35
		Rural	**10:00**	**12:40**	10:23	12:55	13:07	13:40	12:38
	Travel Time ERF **Concentration**	Urban	**05:00**	**06:48**	07:14	07:01	06:32	06:31	06:35
		Rural	**10:00**	**12:40**	10:21	12:55	13:07	13:27	13:05
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	**07:00**	**08:12**	08:53	08:28	08:05	07:47	07:54
		Rural	**15:00**	**15:00**	12:35	15:38	15:19	15:40	14:25
		Urban		**n=1571**	n=379	n=415	n=242	n=305	n=230
		Rural		**n=449**	n=78	n=147	n=66	n=97	n=61
	Total Response Time ERF **Concentration**	Urban	**07:00**	**08:12**	08:53	08:28	08:08	07:47	07:54
		Rural	**15:00**	**15:00**	12:32	15:38	15:19	15:40	14:30
		Urban		**n=1574**	n=379	n=416	n=243	n=306	n=230
		Rural		**n=451**	n=79	n=147	n=66	n=97	n=62

For 90% of **moderate-risk HazMat incidents,** the benchmark goal is an ERF that arrives within 10 minutes and 30 seconds (10:30) in urban areas and 15 minutes (15:00) in rural response zones. The minimum ERF is three apparatus capable of pumping, one chief officer, and staffing of ten personnel trained to the First Responder Operations level. The ERF for moderate-risk HazMat responses shall be capable of establishing command, performing an initial scene assessment, performing air quality analysis, assisting with evacuations, ventilating structures, performing gross decontamination, providing a hose line for protection, and providing ALS medical care. **Table 130** compares SCCFD's 90th percentile response times baseline performance for moderate-risk HazMat responses from alarm through on-scene distribution with established benchmarks for January 2020 through December 2024.

Table 130: Five-Year Benchmark Versus Baseline Performance, 90th Percentile Response Times for Moderate-Risk HazMat Responses 2020–2024

			Benchmark (Target)	2020–2024	2024	2023	2022	2021	2020
Alarm Handling	Pick-up to Dispatch	Urban	**02:00**	**02:58**	03:07	02:36	03:01	02:43	02:34
		Rural	**02:00**	**03:08**	02:55	02:43	03:06	03:41	03:03
Turnout Time	Turnout Time 1st Unit	Urban	**02:00**	**02:15**	02:16	02:06	02:25	02:14	02:08
		Rural	**02:00**	**02:05**	02:20	02:03	02:01	02:26	01:41
Travel Time	Travel Time 1st Unit **Distribution**	Urban	**05:00**	**05:26**	05:44	04:10	05:08	05:47	05:28
		Rural	**10:00**	**10:35**	08:26	09:10	07:42	10:26	10:42
	Travel Time ERF **Concentration**	Urban	**09:30**	**09:00**	08:00	08:00	14:03	09:13	08:31
		Rural	**14:00**	**14:29**	11:16	13:30	09:43	14:34	14:29
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	**07:00**	**06:50**	07:32	05:33	06:47	06:58	06:50
		Rural	**12:30**	**12:32**	10:45	10:49	09:10	13:10	11:16
		Urban		**n=119**	n=6	n=20	n=28	n=18	n=47
		Rural		**n=36**	n=2	n=6	n=7	n=8	n=13
	Total Response Time ERF **Concentration**	Urban	**10:30**	**11:00**	09:45	09:23	15:39	10:36	10:13
		Rural	**15:00**	**15:08**	12:47	14:56	11:21	16:15	15:04
		Urban		**n=85**	n=3	n=13	n=23	n=10	n=36
		Rural		**n=24**	n=1	n=4	n=6	n=5	n=8

For 90% of **high-risk HazMat incidents,** the benchmark goal is an ERF that arrives within 13 minutes and 30 seconds (13:30) in urban areas and 16 minutes (16:00) in rural response zones. The minimum ERF is four apparatus capable of pumping, one hazardous materials unit, one chief officer, and staffing of sixteen personnel, with some members trained to the technician or specialist level. The ERF for high-risk HazMat responses shall be capable of providing incident command, administering advanced life support, isolating the area, denying entry, and identifying the type and hazard of materials involved. **Table 131** compares SCCFD's 90th percentile response times baseline performance for high-risk HazMat responses from alarm through on-scene distribution with established benchmarks for January 2020 through December 2024.

Table 131: Five-Year Benchmark Versus Baseline Performance, 90th Percentile Response Times for High-Risk HazMat Responses 2020–2024

			Benchmark (Target)	2020–2024	2024	2023	2022	2021	2020
Alarm Handling	Pick-up to Dispatch	Urban	**02:00**	**02:51**	02:46	02:39	02:27	03:00	03:02
		Rural	**02:00**	**03:57**		04:15	02:46	01:54	
Turnout Time	Turnout Time 1st Unit	Urban	**02:00**	**02:20**	01:53	01:56	01:54	02:26	02:29
		Rural	**02:00**	**01:52**		01:50	01:53	01:40	
Travel Time	Travel Time 1st Unit **Distribution**	Urban	**05:00**	**05:55**	07:01	05:16	06:15	04:36	05:12
		Rural	**10:00**	**04:16**		02:45	02:51	04:37	
	Travel Time ERF **Concentration**	Urban	**12:30**	**12:54**	13:03	12:37	09:17	09:34	12:57
		Rural	**15:00**	**15:04**		15:19	:	12:51	
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	**07:00**	**06:52**	08:04	06:20	07:14	05:28	06:39
		Rural	**12:30**	**05:57**		03:36	04:36	06:17	
		Urban		**n=25**	n=5	n=4	n=6	n=7	n=3
		Rural		**n=3**		n=1	n=1	n=1	
	Total Response Time ERF **Concentration**	Urban	**13:30**	**13:37**	13:55	13:17	10:10	10:37	14:00
		Rural	**16:00**	**16:00**		16:10	:	14:31	
		Urban		**n=17**	n=2	n=1	n=5	n=5	n=4
		Rural		**n=2**		n=1		n=1	

For 90% of **maximum-risk HazMat incidents,** the benchmark goal is an ERF that arrives within 15 minutes (15:00) in urban areas and 18 minutes (18:00) in rural response zones. The minimum ERF is six apparatus capable of pumping, one hazardous materials unit, two chief officers, and staffing of twenty-three personnel. The ERF for maximum-risk HazMat responses shall be capable of establishing command, performing an initial scene assessment, establishing a hazard zone, establishing a hazmat group, performing research, performing air quality analysis, assisting with evacuations, ventilating structures, performing technical decontamination, and providing a hose line for fire protection.

Technical Rescue

Examples of low-risk technical rescue incidents include elevator lock-ins, motor vehicle accidents, and animal rescue. These incidents can typically be controlled with a single water-carrying apparatus with a pump (engine, truck, or rescue unit). The ERF is an apparatus capable of pumping water and a minimum of three personnel. **Table 132** defines NFIRS codes for low-risk technical rescue, and **Table 133** displays the critical tasks for low-risk technical rescue.

Table 132: Low-Risk Technical Rescue NFIRS Codes

NFIRS Incident Code(s)	Description	NFIRS Incident Type
322	Motor vehicle accident with injuries	Technical rescue
323	Motor vehicle/pedestrian accident	Technical rescue
324	Motor vehicle accident with no injuries	Technical rescue
331	Lock-in	Technical rescue
341	Search for person on land	Technical rescue
353	Removal of victim(s) from stalled elevator	Technical rescue
361	Swimming/recreational water areas rescue	Technical rescue
371	Electrocution or potential electrocution	Technical rescue
372	Trapped by power lines	Technical rescue
542	Animal rescue	Technical rescue

Table 133: Low-Risk Technical Rescue Critical Tasks

Critical Task	Number of Fire Personnel	Company
Command	1	First engine, truck, or rescue unit
Isolate and identify	2	First engine, truck, or rescue unit
TOTAL	**3**	**1 Engine, truck, or rescue unit**

Moderate-risk technical rescue incidents are often vehicle extrications, low-angle rescue, and water rescues. The ERF for moderate-risk technical rescue has one fire engine, truck, or rescue unit, and a minimum of six personnel. **Table 134** defines NFIRS codes for moderate-risk technical rescue, and **Table 135** displays the critical tasks for moderate-risk technical rescue.

Table 134: Moderate-Risk Technical Rescue NFIRS Codes

NFIRS Incident Code(s)	Description	NFIRS Incident Type
350	Extrication, rescue, other	Technical rescue
352	Extrication of victim(s) from vehicle	Technical rescue
353	Removal of victim(s) from stalled elevator	Technical rescue
357	Extrication of victim(s) from machinery	Technical rescue
361	Swimming/recreational water areas rescue	Technical rescue
371	Electrocution or potential electrocution	Technical rescue
372	Trapped by power lines	Technical rescue
542	Animal rescue	Technical rescue

Table 135: Moderate-Risk Technical Rescue Critical Tasks

Critical Task	Number of Fire Personnel	Company
Command	1	First engine
Fire or rescue operations	2	First engine
Rescue operations	3	First rescue unit
TOTAL	**6**	**1 Engine and 1 truck or rescue unit**

High-risk technical rescue incidents typically involve a vehicle striking a structure, vehicle extrication, confined spaces, and rescues below and above grade. The ERF for high-risk technical rescue has two fire engines, one truck or rescue unit, one chief officer, and a minimum of 10 personnel. **Table 136** defines NFIRS codes for high-risk technical rescue, and **Table 137** displays the critical tasks for high-risk technical rescue.

Table 136: High-Risk Technical Rescue NFIRS Codes

NFIRS Incident Code(s)	Description	NFIRS Incident Type
350	Extrication, rescue, other	Technical rescue
351	Extrication of victim(s) from building/structure	Technical rescue
352	Extrication of victim(s) from vehicle	Technical rescue
353	Removal of victim(s) from stalled elevator	Technical rescue
354	Trench/below-grade rescue	Technical rescue
355	Confined space rescue	Technical rescue
356	High-angle rescue	Technical rescue
357	Extrication of victim(s) from machinery	Technical rescue
363	Swift water rescue	Technical rescue
461	Building or structure weakened or collapsed	Technical rescue
542	Animal rescue	Technical rescue

Table 137: High-Risk Technical Rescue Critical Tasks

Critical Task	Personnel	Company
Command	1	1st Battalion Chief
Safety	1	1st Engine
Fire or Rescue Operations	2	1st Fire Engine
Patient Care	3	2nd Fire Engine
Rescue Operations	3	Rescue or Truck
TOTAL	**10**	**2 Engines, 1 Rescue or Truck, and 1 BC**

Maximum-risk technical rescue incidents typically involve swift water rescue, vehicle extrication, confined spaces, trench rescue, and rescues below and above grade. The ERF for maximum-risk technical rescue has four fire engines, two trucks of rescue units, two chief officers, and a minimum of 23 personnel. **Table 138** defines NFIRS codes for maximum-risk technical rescue, and **Table 139** displays the critical tasks for maximum-risk technical rescue.

Table 138: Maximum-Risk Technical Rescue NFIRS Codes

NFIRS Incident Code(s)	Description	NFIRS Incident Type
323	Extrication of victim(s) from building/structure	Technical rescue
324	Extrication of victim(s) from vehicle	Technical rescue
350	Extrication, rescue, other	Technical rescue
352	Extrication of victim(s) from vehicle	Technical rescue
354	Trench/below-grade rescue	Technical rescue
355	Confined space rescue	Technical rescue
356	High-angle rescue	Technical rescue
357	Extrication of victim(s) from machinery	Technical rescue
542	Animal rescue	Technical rescue

Table 139: Maximum-Risk Technical Rescue Critical Tasks

Critical Task	Number of Fire Personnel	Company
Command	1	First battalion chief
Safety	1	Second battalion chief
Rescue or fire operations	5	First and second engine
Division group	1	First engine
Patient assessment and treatment	6	Third and fourth engine
Rescue	6	Rescue and truck
TOTAL	**23**	**4 Engines, 2 trucks or rescue units, and 2 battalion chiefs**

Technical Rescue Benchmark Goals

For 90% of **low-risk technical rescue incidents,** the benchmark goal is an ERF that arrives within 7 minutes (7:00) in urban areas and 11 minutes and 30 seconds (11:30) in rural response zones. The minimum ERF is one apparatus capable of pumping and staffing of three personnel. The first-due unit shall be capable of establishing command, assessing scene safety, performing a scene assessment, requesting additional resources, performing basic extrication, and providing patient care. These operations should be carried out in accordance with departmental standard operating procedures, while ensuring the safety of responders and the general public. **Table 140** compares SCCFD's 90th percentile response times baseline performance for low-risk technical rescue from alarm through on-scene distribution with established benchmarks for January 2020 through December 2024.

Table 140: Five-Year Benchmark Versus Baseline Performance, 90th Percentile Response Times for Low-Risk Technical Rescue Incidents 2020–2024

			Benchmark (Target)	2020–2024	2024	2023	2022	2021	2020
Alarm Handling	Pick-up to Dispatch	Urban	**02:00**	**02:31**	02:42	02:47	02:37	02:14	01:48
		Rural	**02:00**	**02:49**	02:52	03:27	02:42	02:22	02:38
Turnout Time	Turnout Time 1st Unit	Urban	**02:00**	**02:00**	02:04	01:56	02:03	02:00	01:52
		Rural	**02:00**	**02:35**	02:29	02:33	02:50	02:32	02:24
Travel Time	Travel Time 1st Unit **Distribution**	Urban	**05:00**	**05:49**	06:15	05:58	05:37	05:30	05:19
		Rural	**10:00**	**09:55**	10:19	10:22	09:07	09:15	09:21
	Travel Time ERF **Concentration**	Urban	**05:00**	**05:52**	06:15	05:58	05:45	05:30	05:18
		Rural	**10:00**	**10:20**	10:18	10:22	11:00	09:18	09:58
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	**07:00**	**07:17**	07:46	07:18	07:16	06:58	06:48
		Rural	**11:30**	**11:35**	12:17	11:37	11:45	10:41	11:12
		Urban		**n=1,984**	n=507	n=449	n=366	n=366	n=296
		Rural		**n=797**	n=219	n=163	n=152	n=126	n=137
	Total Response Time ERF **Concentration**	Urban	**07:00**	**07:18**	07:47	07:18	07:18	07:01	06:45
		Rural	**11:30**	**11:57**	12:17	11:27	12:11	10:48	12:03
		Urban		**n=1,991**	n=507	n=450	n=368	n=368	n=298
		Rural		**n=805**	n=219	n=162	n=156	n=129	n=139

For 90% of **moderate-risk technical rescue incidents,** the benchmark goal is an ERF that arrives within 10 minutes and 30 seconds (10:30) in urban areas and 15 minutes and 30 seconds (15:30) in rural response zones. The minimum ERF is one apparatus capable of pumping, one rescue unit, and staffing of six personnel. The ERF for moderate-risk technical rescue shall be capable of establishing command, assessing scene safety, performing a scene assessment, requesting additional resources, mitigating hazards, performing mechanical extrication, and providing patient care. **Table 141** compares SCCFD's 90th percentile response times baseline performance for moderate-risk technical rescue from alarm through on-scene distribution with established benchmarks for January 2020 through December 2024.

Table 141: Five-Year Benchmark Versus Baseline Performance, 90th Percentile Response Times for Moderate-Risk Technical Rescue Incidents 2020–2024

			Benchmark (Target)	2020–2024	2024	2023	2022	2021	2020
Alarm Handling	Pick-up to Dispatch	Urban	**02:00**	**02:30**	02:27	02:52	02:20	02:27	01:50
		Rural	**02:00**	**02:53**	03:11	03:32	03:05	02:21	02:11
Turnout Time	Turnout Time 1st Unit	Urban	**02:00**	**02:04**	01:57	02:13	02:00	02:03	01:58
		Rural	**02:00**	**02:28**	02:27	02:35	02:20	02:37	02:23
Travel Time	Travel Time 1st Unit **Distribution**	Urban	**06:30**	**07:16**	08:01	06:54	07:36	06:29	06:47
		Rural	**10:00**	**10:12**	10:11	10:27	10:31	11:19	08:22
	Travel Time ERF **Concentration**	Urban	**09:30**	**09:44**	10:32	08:49	11:34	08:53	08:45
		Rural	**13:30**	**13:59**	14:23	13:55	13:02	13:39	13:04
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	**07:00**	**08:17**	09:09	08:09	09:05	07:42	08:01
		Rural	**11:30**	**11:54**	11:52	12:03	13:22	12:00	09:51
		Urban		**n=411**	n=86	n=107	n=75	n=82	n=61
		Rural		**n=309**	n=98	n=66	n=46	n=56	n=43
	Total Response Time ERF **Concentration**	Urban	**10:30**	**10:57**	11:02	10:41	13:17	09:33	10:01
		Rural	**15:30**	**15:44**	16:39	15:18	15:04	15:39	14:19
		Urban		**n=360**	n=78	n=93	n=67	n=68	n=54
		Rural		**n=286**	n=98	n=57	n=45	n=48	n=38

For 90% of **high-risk technical rescue incidents,** the benchmark goal is an ERF that arrives within 15 minutes (15:00) in urban areas and 19 minutes (19:00) in rural response zones. The minimum ERF is two apparatus capable of pumping, one rescue unit, one chief officer, and staffing of ten personnel. The ERF for high-risk technical rescue shall be capable of establishing command, assessing scene safety, performing a scene assessment, requesting additional resources, mitigating hazards, performing mechanical extrication, and providing patient care. **Table 142** compares SCCFD's 90th percentile response times baseline performance for high-risk technical rescue from alarm through on-scene distribution with established benchmarks for January 2020 through December 2024.

Table 142: Five-Year Benchmark Versus Baseline Performance, 90th Percentile Response Times for High-Risk Technical Rescue Incidents 2020–2024

			Benchmark (Target)	2020–2024	2024	2023	2022	2021	2020
Alarm Handling	Pick-up to Dispatch	Urban	**02:00**	**02:29**	03:27	02:06	02:20	02:54	01:35
		Rural	**02:00**	**02:50**	03:00	02:23	02:33	02:15	02:10
Turnout Time	Turnout Time 1st Unit	Urban	**02:00**	**02:12**	02:20	02:10	02:03	02:17	02:08
		Rural	**02:00**	**02:53**	02:25	03:08	03:03	02:55	02:33
Travel Time	Travel Time 1st Unit **Distribution**	Urban	**06:30**	**06:45**	11:28	06:26	06:25	06:13	06:16
		Rural	**10:00**	**10:50**	08:23	09:44	13:45	11:08	10:42
	Travel Time ERF **Concentration**	Urban	**09:30**	**13:54**	14:14	10:45	10:06	18:54	11:36
		Rural	**16:00**	**16:27**	16:39	16:26	16:43	14:38	16:16
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	**07:00**	**08:36**	12:48	08:10	08:25	07:26	07:36
		Rural	**11:30**	**12:35**	09:41	11:36	14:17	12:13	12:21
		Urban		**n=75**	n=14	n=13	n=20	n=14	n=14
		Rural		**n=117**	n=24	n=23	n=24	n=26	n=20
	Total Response Time ERF **Concentration**	Urban	**15:00**	**15:44**	15:24	11:32	11:28	20:18	12:47
		Rural	**19:00**	**19:18**	17:59	21:03	19:57	18:00	16:51
		Urban		**n=46**	n=8	n=7	n=11	n=8	n=12
		Rural		**n=82**	n=19	n=12	n=17	n=20	n=14

For 90% of **maximum-risk technical rescue incidents,** the benchmark goal is an ERF that arrives within 17 minutes (17:00) in urban areas and 20 minutes (20:00) in rural response zones. The minimum ERF is four apparatus capable of pumping, one rescue unit, one ladder truck, one Urban Search and Rescue apparatus, two chief officers, and staffing of twenty-three personnel. The ERF for maximum-risk technical rescues shall be capable of establishing command, assessing scene safety, performing a scene assessment, requesting additional resources, mitigating hazards, performing mechanical extrication, performing air-quality analysis, performing confined space rescue, performing trench rescue, performing structural collapse rescue, performing high-angle rescue, and providing patient care.

SECTION VI

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