

**COMMUNITY RISK
ASSESSMENT &
STANDARDS OF
COVER**

2014

Culver CITY

FIRE DEPARTMENT



**COMMISSION ON FIRE ACCREDITATION
INTERNATIONAL**

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STANDARDS OF COVER**

CULVER CITY FIRE DEPARTMENT

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2014



INTRODUCTION

The following report serves as the Culver City Fire Department's "Integrated Risk Management Plan: Standards of Cover" document. The CFAI defines the process, known as "deployment analysis," as a written procedure which determines the distribution and concentration of fixed and mobile resources of an organization. The purpose for completing such a document is to assist the agency in ensuring a safe and effective response force for fire suppression, emergency medical services, and specialty response situations. The Standards of Cover document serves as the following:

- Baseline tool for defining service level objectives
- Descriptive tool for validating fire station locations
- Management tool for determining apparatus type and staffing levels
- Predictive tool for helping to determine workload and ideal unit utilization
- Basis for continually measuring service level performance

Creating an Integrated Response Management Plan: Standards of Cover requires that a number of areas be researched, studied, and evaluated. The following report will begin with an overview of both the community and the Department. Following this overview, the agency will discuss areas such as community risk, critical task analysis, agency service level objectives, and distribution and concentration measures. The Department will provide documentation of reliability studies and historical performance through charts and graphs. The report will conclude with policy recommendations.





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EXECUTIVE SUMMARY

The Culver City Fire Department is a fully career fire department that serves the community of Culver City with various core emergency response services, such as fire suppression, emergency medical services (EMS), technical rescue and hazardous materials mitigation. In addition to these core services, the Department also provides several other community supportive functions, such as fire prevention and emergency preparedness services. Twenty-four hours a day, 365 days a year, 18 personnel are on duty serving out of three fire stations. These trained professional firefighters operate three engine companies staffed with three personnel each; one truck company staffed with four personnel; two paramedic rescues staffed with two firefighter/paramedics each; and one battalion chief command vehicle. In total, the Department employs 72 dedicated employees.

The Department has sought continual improvement and growth and thus has endeavored to participate, and has succeeded, in the Commission on Fire Accreditation International's (CFAI) accreditation process since 1998. The accreditation process challenges the Department to take an extensive look at current practices. Through a self-assessment manual, the development of a strategic plan, and the completion of this Community Risk Assessment and Standards of Cover document, the process drives the Department to assess internal strengths and weaknesses and observe external opportunities and threats. The Community Risk Assessment and Standards of Cover document plays an integral role in the process as it provides an assessment of risk as well as sets baseline and benchmark performance goals for the Department.

Community Risk Assessment involves the analysis of risk for fire and non-fire emergencies (i.e., emergency medical services, technical rescue and hazardous materials). The Department has divided the City into 15 metropolitan fire management zones and classified key risks within each zone. Impacts to life safety, assets and the environment are measured along with an incident's relative probability. In summary, low risk is defined as incidents having low probability and low consequences; moderate risk is comprised of incidents having high probability with low consequences; high risk is defined as incidents having high probability and high consequences; and special risk is a unique category accounting for risks that have low probability with extremely high consequences. Within the categories of fire suppression, emergency medical services, technical rescue and hazardous materials, the Department has established specific risk classifications and has conducted critical task analyses to determine appropriate response levels.

Critical tasking analysis determines how many personnel, and what apparatus/equipment, are necessary to mitigate a variety of emergency situations. For low risk fires, four personnel will respond; moderate risk structure fires will have a response level of 18 personnel. Five personnel will respond to all low and moderate risk EMS incidents. Low risk technical rescue and hazardous



materials (HazMat) incidents will receive four personnel; 13 personnel will respond to moderate risk technical rescue and HazMat incidents.

The Department has established both baseline and benchmark performance measures. Baseline measures reflect historical performance and benchmarks are Total Response Time (TRT) goals. TRT is measured in two ways: first-arriving unit and effective response force (ERF), i.e., total number of personnel necessary to address the emergency situation. TRT is comprised of call processing time, turnout time, and travel time. The Department observes the 90th percentile of performance as opposed to the 50th percentile (i.e., average) response time. In other words, the Department observes what it is doing the majority of the time as opposed to what it is doing half of the time. Fire suppression, technical rescue and HazMat benchmarks have been set at 6 minutes 20 seconds for the first-arriving unit and 10 minutes 20 seconds for the ERF. EMS benchmarks are 6 minutes for the first-arriving unit and 10 minutes for the ERF. Baseline performance measures for fire suppression are 8 minutes 38 seconds for the first-arriving unit and 12 minutes 20 seconds for the ERF. EMS baseline performance is 8 minutes 21 seconds for the first-arriving unit and 10 minutes 30 seconds for the ERF. Technical rescue baseline performance is 9 minutes 33 seconds for the first-arriving unit and 13 minutes 20 seconds for the ERF. HazMat baseline performance is 10 minutes 32 seconds for the first-arriving unit and 13 minutes 7 seconds for the ERF.

After scrutinizing the Department's baseline performance as compared to Department benchmarks, two significant areas were noted which the Department will focus upon in the near future—call processing time and turnout time. Previously, travel time was the sole parameter on which the Department measured its performance. The Department currently does exceedingly well when considering only travel time. Travel times conform to industry best practices of 5 minutes 12 seconds or less 90 percent of the time. As the CFAI requires that fire departments take a holistic approach to response time measures, the Department now measures call processing time, turnout time and travel time to obtain a total response time. The Department has satisfactory total response times, but when the measures of call processing and turnout are scrutinized on a granular level, Department Staff note there is room for improvement. The Department currently has plans in place, and a compliance methodology, to ensure continued improvement.



A. COMMUNITY SERVED

LEGAL BASIS

Culver City was founded in 1917 by Harry Culver. The City is governed by a five-member City Council and managed by a City Manager who is assisted by nine department heads. The City's first fire chief was appointed by resolution in 1919. Over the years, more than forty annexations increased the City's size from 1.2 square miles to over five square miles. In 1947, Culver City was transitioned from a general law city to a charter city. Currently, the City and the Culver City Fire Department are operating under the most recent charter, which was adopted in 2006.

MISSION

The mission of the Culver City Fire Department is to protect life, property and the environment by providing prompt and professional fire protection and life safety services.

CORE VALUES

- Professionalism - Through our attitude, actions, and appearance, we will demonstrate competence and strive for excellence.
- Compassion – We will provide comfort and care to those in distress.
- Respect – We will hold in high regard the diversity within our organization and the community we serve.
- Trust – We will keep our commitments, hold ourselves accountable, and act with integrity.
- Humility – We will carry out our duties as public servants while always maintaining a modest opinion of ourselves.



DEPARTMENT TIMELINE

Culver City records show the first mention of the Culver City Fire Department in 1919, when Manual Saenz was appointed fire chief for ten dollars per month. He was also responsible for storing the City's fire truck in his garage. Fires were fought by volunteer firefighters utilizing the 1917 Pope Hartfield Chemical Truck. The truck was later moved to Washington and Irving Place and the movement to form an organized fire department began.

A second piece of apparatus was purchased in 1920, a Ford Model T Fire Wagon. During this time, the Thomas H. Ince Studios' Fire Chief, L.B. Minnick, was acting Fire Chief for the City. Volunteer firefighters were recruited by Minnick on the way to fires.



The City purchased an American La France triple combination type “75” Truck in 1922, which was stored in Frank Wilcox’s garage. Thus, Wilcox became the caretaker and engineer of the truck. He was hired in October 1922 as the City’s first official Fire Chief. Twelve call men (volunteers) worked under him.



The fire apparatus was later moved to a garage on Van Buren Place. This garage then became the first fire station. At this time, the City ran a two platoon/shift system of volunteers with Assistant Fire Chief William Kuehn.

In 1927, the City passed a Special Bond Election to build a Civic Center, which would house both a fire and police station. The bond funds were also used to pay for thirteen on-duty firefighters. Around the same time, land was donated by the Washington Land and Water Company to build a second fire station on McConnell Boulevard.

During the early 1930s, staff increased from thirteen to nineteen, but salaries were decreased due to the depression. Assistant Fire Chief Kuehn was appointed Fire Chief in 1933.

During World War II, permanent and temporary firefighters were hired to fill gaps in manpower. John Atwell became the fire chief in 1942. During this time, Chief Atwell developed an equipment replacement program and initiated annual physical examinations.

Two Peter Pirsch pumping engines were purchased in 1945 and received in 1947. In 1949, the Department also took delivery of a new rescue squad, built to the City’s specifications and staffed with a crew of four personnel.

The Fire Prevention Bureau was formed in 1946. The City later adopted formal Fire Codes and one person on each shift was assigned to Fire Prevention. As fire inspectors they were required to serve one year terms. They worked in the bureau during the day and worked as dispatchers in the evening. Culver City was one of the first cities of its size to form a Fire Prevention Bureau and served as a training facility for other cities who assigned their captains to train in Culver City. Those captains later returned to their cities to form a Fire Prevention Bureau and establish policies, procedures, codes, and ordinances.



Culver City's third fire station opened in August 1956, at 11304 Segrell Way. It housed a pumper truck and two rotating five-person shifts. The Fire Department was now operating out of three stations with a staff of 46, which included a records clerk.

An ambulance service/rescue squad was proposed by the City in the 1960s. The rescue service was subsequently put into service and the Department then began operating a three-

platoon system. In 1966, a new Crown engine was placed in service at Station 3 and one of the original Pirsch engines was moved to reserve status.

A new training tower facility was dedicated in 1970, replacing the original training center from the fifties. The facility, which is still in use today, has a four-story tower, surfaced yard, drafting pit, hydrants, and roof props.

In 1971, a three-person arson bureau was formed. Inspectors, in addition to their Fire Prevention duties, were now completing investigations on arson-suspected fires, replacing the police officers who were initially used to conduct such investigations.

The Department became part of the Los Angeles County Paramedic pilot program due to the launching of the Wedworth-Townsend Paramedic Act of 1970. It authorized persons trained and certified as paramedics to conduct certain life-saving emergency medical services. A paramedic rescue, with two paramedics, was placed into service in June 1973. In 1979, the emergency medical technicians (EMT) program was incorporated being one of the first in-house programs in California.

The original Station 2, which was opened in October 1927, was replaced with the dedication of the new fire station in September 1981.

A second paramedic unit was placed into service in 1981 with the addition of six new firefighter positions and the transporting of patients in Department rescues beginning in 1982.

The 911 emergency dispatching sections of the Fire and Police Departments were merged into a combined communications center under the direction of the Police Chief streamlining dispatch calls.



A new Fire Station 1 was completed in 1993, replacing the original station built in 1928. The new station included the addition of an Emergency Operating Center (EOC) and a fire garage, which maintained all fire and police vehicles for the City. All communication installations and repairs for the entire City were conducted in the fire garage. Currently, the Department still oversees the City's communications system.



The City instituted a firefighter reserve program in June 1993. Each reserve was required to complete a fire academy and have Firefighter 1 certification. Reserves attended two weekend meetings a month and worked two 24-hour shifts per month. The program was later dissolved due to lack of funding.

In November 1994, the "So Others May Live" program started. Low-cost first aid and Cardio Pulmonary Resuscitation (CPR) training was given to the community and City employees.

In February 1995, the Department was awarded a "Class 1" rating by the Insurance Services Office (a non-profit organization for the insurance industry). 24,000 departments were rated nationwide, with only 18 having achieved a "Class 1" rating. Also in 1995, the Department received the "Life Safety Achievement Award" by Operation Life Safety (OLS) and the International Association of Fire Chiefs (IAFC). The award honored departments that had successfully responded to and extinguished fires without the loss of a single life in 1994. The Department was one of 34 fire departments nationwide to receive the award and one of two in California.



The Community Emergency Response Team (CERT) program was developed in 1997 to promote neighborhood self-reliance in the event of a large scale disaster.

In March 1998, the Department was the first agency in California to receive accreditation from the Commission of Fire Accreditation International (CFAI).

The Department became one of only eight departments in the nation, and the only department in California, to earn this distinction at the time. Accredited agencies are reviewed with scrutiny every five years—the Department successfully met accreditation standards and was re-accredited in 2003 and again in 2009.



FUNDING

The Department is funded by the City's general fund. The general fund includes: property taxes, sales taxes, business taxes, utility taxes, transient occupancy taxes, licenses and permits, and fines and forfeits. It finances most of the basic municipal functions including general administration, police, fire, community development, parks, recreation and community services. Below is a chart, which reflects the City's proposed 2013-14 annual budget revenue and financing sources.

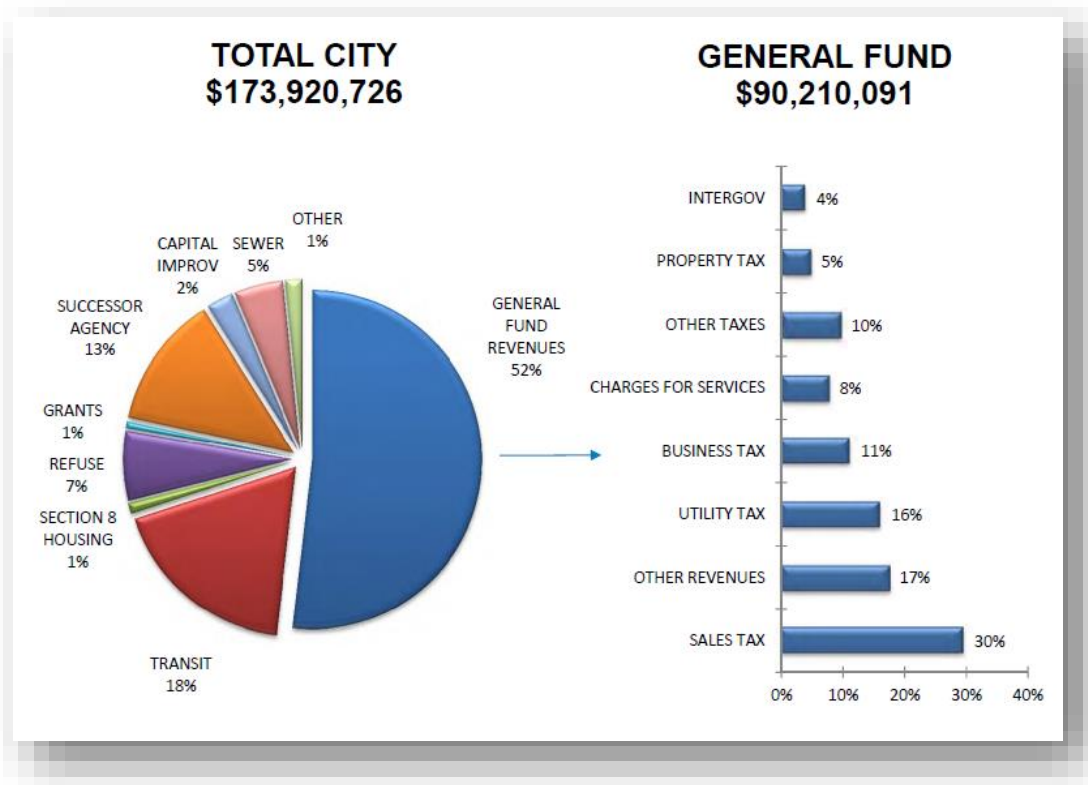


FIGURE 1: PROPOSED FY 2013-14 ANNUAL BUDGET REVENUE AND FINANCING SOURCES



AREA SERVED

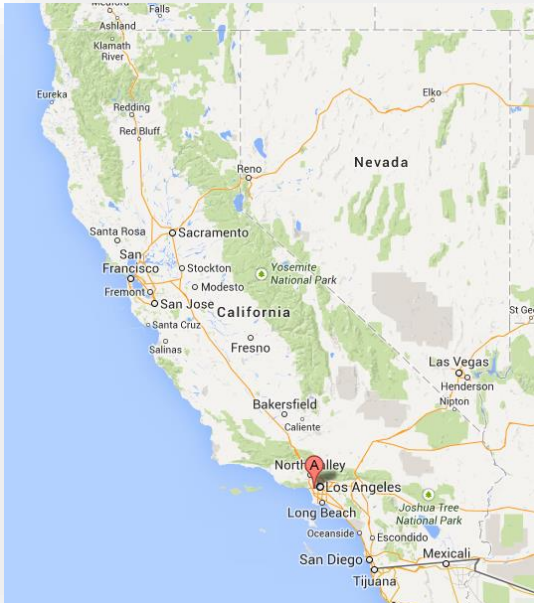


FIGURE 3: CULVER CITY WITHIN CALIFORNIA

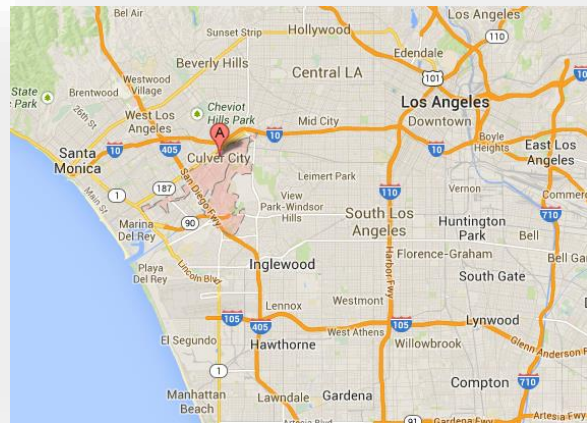


FIGURE 2: CULVER CITY WITHIN THE LOS ANGELES AREA

The City of Culver City is situated in western Los Angeles County, approximately five miles north of the Los Angeles International Airport and three miles east of the Pacific Ocean. Culver City is located within the heart of La Ballona Valley, which was originally settled in the eighteenth century by ranchers attracted by the temperate climate and the availability of fresh water in Ballona Creek. Over the past few decades, the City has undergone a period of transition from a suburban oriented community to a unique urban environment within the developing Westside hub of Los Angeles County.

TOPOGRAPHY

Culver City is on the western side of the Los Angeles Basin. Much of Culver City is in the former floodplain of Ballona Creek, which is now enclosed within a concrete control channel.

The terrain of Culver City is mostly level with slight rolling hills, which vary in elevation from 40 feet above sea level on the western edge of the

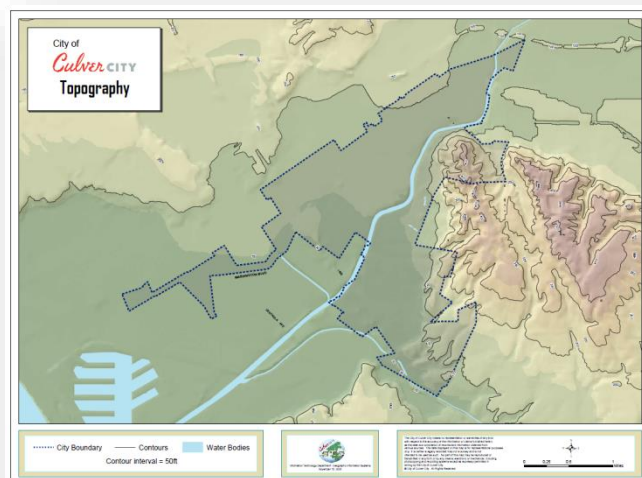


FIGURE 4: CULVER CITY TOPOGRAPHY MAP



City to 90 - 100 feet in the central area of the City. The exception is the Baldwin Hills area in the eastern area of the City, which rises up to 400 feet above sea level.

The Baldwin Hills extend from the Santa Monica Mountains southeastward to just north of Newport Beach. They are the result of geological deformation along the Newport-Inglewood zone, which is a geologic structural feature, composed of faults and folds and associated oil fields. Portions of Baldwin Hills are within the City boundaries. The most rugged and steep section includes a major part of the Inglewood Oil Field. This area has been highly modified over the years by construction of well and tank pads, access roads, treatment plants, and oil, water and waste sumps. The current active oil field is approximately 1,000 acres, 100 of which are located within Culver City's jurisdiction. Freeport-McMoRan Oil & Gas LLC, FCX, is the current operator.

The City of Culver City, like most of the Los Angeles Basin, lies over an area of multiple known earthquake faults. The three known faults are Newport-Inglewood, Charnock, and Overland. In addition to these faults, there are four other major faults that have the potential to affect the greater Los Angeles Basin and Culver City: San Andreas, Palos Verdes, Whittier, and Santa Monica.



CLIMATE

Culver City has a Mediterranean climate, with warm dry summers and mild winters. Winter average temperatures are approximately 56.5 degrees Fahrenheit and the summer average temperatures are roughly 71.7 degrees Fahrenheit.

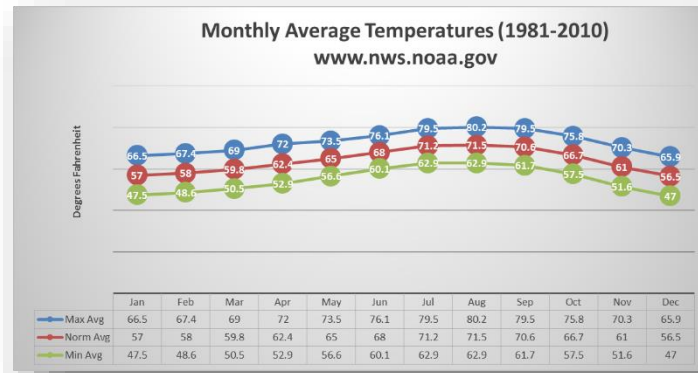


FIGURE 5: CULVER CITY MONTHLY AVERAGE TEMPERATURES

Precipitation averages in Culver City are around 13.32 inches per year. Figure 6 displays average monthly rainfall. Rainfall in Southern California tends to fall in large amounts during sporadic storms rather than consistently at somewhat regular intervals.

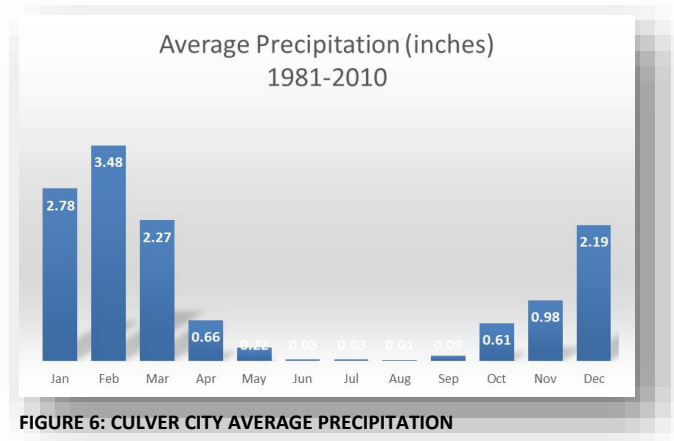


FIGURE 6: CULVER CITY AVERAGE PRECIPITATION

POPULATION

Culver City has a nighttime population of 39,313 and a daytime population estimated at over 200,000. The City's population density is approximately

7,608 residents per square mile. According to the CFAI's 8th edition of the *Fire & Emergency Service Self-Assessment Manual*, any service area with a population greater than 200,000 and/or a population density greater than 3,000 residents per square mile is metropolitan. By this standard, Culver City's population is quite dense, even in comparison to the rest of Los Angeles County, which averages 2,419 persons per square mile.

There are a higher percentage of persons over 65 than the rest of Los Angeles County, with Culver City having 14.90% of its residents over 65 years old. Culver City also has a greater median home value and higher retail sales per capita than the rest of Los Angeles County with \$607,300 and \$41,944 comparatively.

DEVELOPMENT

When Culver City was incorporated in 1917, it was composed of numerous low-rise commercial buildings and many small houses, but overall, the City was approximately 70 percent vacant land.



The Second World War dramatically changed the City. Military personnel and defense workers came to Southern California to fill the needs created by the war effort. The available housing was rapidly exhausted, and existing commercial centers proved inadequate for the influx of people. Immediately after the war, construction began on the freeway system, and the face of Southern California was forever changed. Home developments and shopping centers sprung up everywhere; and within a few decades, the central basin of Los Angeles County was covered with developments. This pushed new construction further and further away from the urban center. The transition from one municipality to another within Los Angeles County is mostly seamless. Over the past decade Culver City has seen an upsurge in development. Culver City is home to a hospital, several senior living facilities, nine schools, eleven parks, major shopping centers, theaters, movie studios, and hotels. Some of the City's largest employers are Sony Pictures Entertainment, Culver City Unified School District, Southern California Hospital at Culver City, and Target.



FIGURE 7: CULVER CITY DEVELOPMENT MAP

Several development areas are noted by the Community Development Department in the map above.



Development highlights are as follows:

DOWNTOWN - Downtown Culver City is an exciting pedestrian-friendly district encompassing an eclectic mix of restaurants, retail and entertainment venues, as well as major media powerhouses Sony Pictures Entertainment and The Culver Studios. The area is also home to City Hall, Southern California Hospital at Culver City, the historic Culver Hotel, movie theaters, and theatre companies.

FOX HILLS - With nearly 200 stores, Westfield Culver City Mall is a major shopping center neighbored by three major hotels.

HAYDEN TRACT - The Hayden Tract is an 86-acre district located south of National Boulevard, between Hayden Avenue and Eastham Drive. Once a manufacturing center, the buildings there have found new life for creative office space.

HELMS BAKERY DISTRICT – The Helms Bakery District is home to the Helms Bakery Building (1931) and now operates as the headquarters for contemporary furniture retailers.

MID-WASHINGTON – Mid-Washington is home to small community-serving businesses located between Sepulveda and Overland. Large shopping areas fall in this district.

JEFFERSON BOULEVARD CORRIDOR – Jefferson is home to several new media companies and other creative industries. Culver City Park is adjacent to Jefferson Boulevard as well.

OVERLAND – Major points in this area include Culver Center, the Veterans Memorial Complex, and the Culver City Senior Center. Also along this corridor is the West Los Angeles College campus, which overlooks Culver City on 70 acres of land.

SEPULVEDA – Sepulveda Boulevard is one of the City's busiest commercial boulevards and a major north-south route running parallel to the 405 freeway. It hosts an array of local neighborhood services as well as major chain stores.

WEST WASHINGTON – This regional east-west arterial street carries over 30,000 vehicle trips per day and is home to professional healthcare services, as well as one of the top grossing Costco stores in the nation.



LAYOUT

Culver City is situated in the western section of Los Angeles County and is traversed by the San Diego I-405 and Route 90 Freeways. It is also a quarter-mile south of the Santa Monica I-10 Freeway. These highways are major connectors for vehicles traveling throughout the region. Culver City also has heavily traveled transit routes. The City is served by a municipal bus agency, Culver CityBus, as well as the Los Angeles Metropolitan Transportation Authority and Santa Monica's Big Blue Bus. In 2012, a light rail station opened in Culver City. Currently, the line terminates in Culver City, but will eventually continue on to Santa Monica starting in 2016. Culver City is also a bike-friendly community with several bike lanes, bike paths and shared lanes/sharrows running throughout the City.

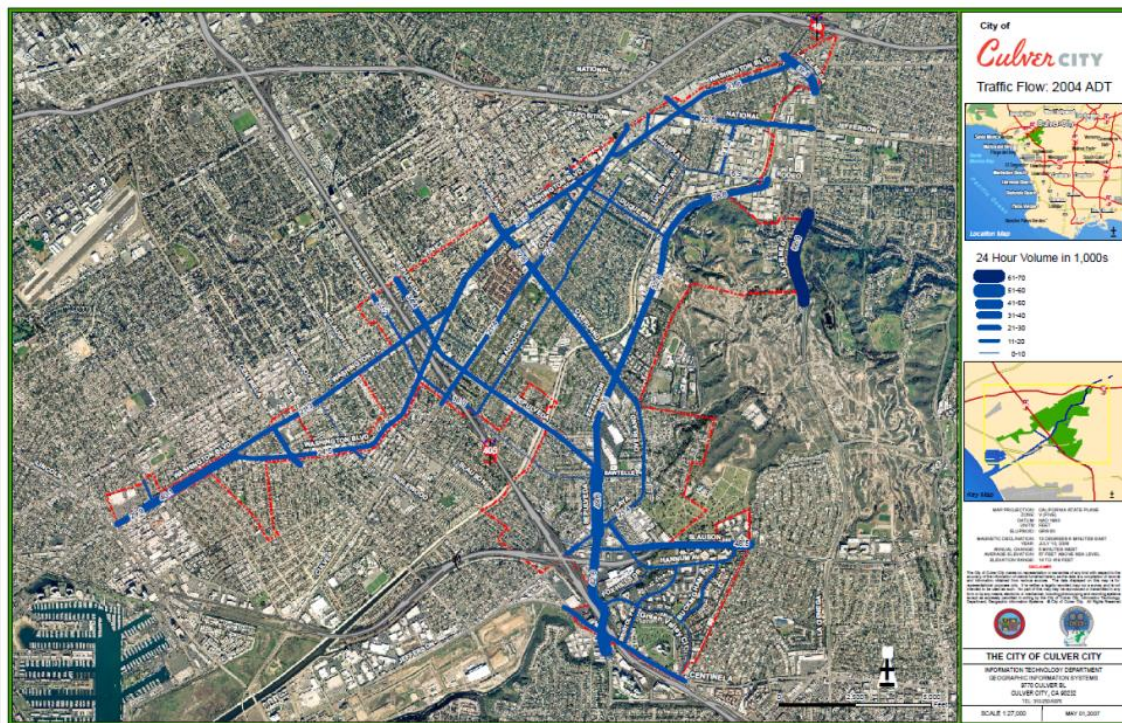


FIGURE 8: CULVER CITY TRAFFIC FLOW MAP



B. SERVICES PROVIDED

CURRENT SERVICES PROVIDED

The Culver City Fire Department responds to a broad range of emergency incidents as well as provides a number of specialized services—e.g., fire prevention, emergency preparedness—for the Culver City community. Services that the Fire Department provides to the Culver City community are outlined below.

FIRE SUPPRESSION RESPONSE

Fire suppression personnel provide emergency response to a range of fire suppression-related incidents involving structures, wildland areas, vehicles and dumpsters/trash. The Department staffs three engine companies, one ladder truck, two paramedic rescue units and a Battalion Chief Command vehicle to protect the City. A three-platoon/shift configuration with 18 personnel assigned to each shift is utilized in order to provide the community with around-the-clock service.

EMERGENCY MEDICAL SERVICES RESPONSE

The Department provides first responder medical care and transportation services at the basic life support (BLS) and advanced life support (ALS) service levels. All uniformed staff of the Department are certified emergency medical technicians (EMTs), and approximately 75 percent are certified Paramedics. Currently, the Department staffs two paramedic rescues with a total of four firefighter/paramedics.

TECHNICAL RESCUE RESPONSE

The Department provides vehicle accident response, natural disaster response, swift water rescue, confined space rescue, low and high angle rope rescue, and structural collapse rescue. All firefighters are trained in technical rescue response skills.

HAZARDOUS MATERIALS

The Department responds to a variety of hazardous materials issues. Some common issues are reports of hazardous materials dumping, carbon monoxide incidents and gas leaks.



SPECIALIZED SERVICES

- Fire Prevention Services
- Building Plan Check Services
 - Fire alarm plans
 - Fire sprinkler plans
 - Structural plans
 - Site plans
- Permits or approvals
 - Filming
 - Tents or air-supported structures
 - Special events
 - Pyrotechnics
 - Day care centers
- Inspections
 - Fire hydrants
 - Businesses
 - Existing buildings, new construction and renovations
 - Fire sprinkler systems
 - Hazardous materials storage
 - Fire alarm systems
- Fire Investigation Services
- Life Safety Inspections
- Emergency Preparedness
 - California Great Shake Out Drills
 - Community Emergency Response Team (CERT)
 - Culver City Amateur Radio Emergency Service (CCARES)
- Public Education Services
 - School tours
 - Fire safety education
 - Disaster preparedness
 - CPR training



CURRENT DELIVERY SYSTEM

The City is divided into three fire districts and two rescue/emergency medical services (EMS) districts. There are three fire stations, a training facility, a telecommunications facility (radio shop), and City Hall, which houses Fire Prevention and Fire Administration. The Department utilizes a three-shift schedule, staffing each shift for a 24-hour period, 7 days a week, and 365 days a year. A minimum on-duty staffing level of 18 personnel has been established for around-the-clock delivery of emergency services. During business hours, sworn administrative personnel are available to augment the on-duty shift, and personnel recall procedures are in place to facilitate additional staffing when needed. There are four primary response unit types that the Department employs during emergencies.

ENGINE COMPANIES

The primary emergency response unit for the Culver City Fire Department is the engine company. There is one engine company at each of the three stations. Engine companies are staffed with a minimum of three personnel: a supervising captain, an engineer, and a firefighter. All fire personnel are required to be certified at the emergency medical technician (EMT) basic level. However, 75 percent of all personnel maintain a paramedic ALS certification.

Each engine is a triple-combination pumper, equipped with a 1,500 gallon per minute (gpm) pump, with a 500 gallon water tank and a full complement of hose. Engines are also equipped with 50 gallons of Class A firefighting foam, pre-connected medium and large diameter hand lines, a deck gun, 600 feet of four-inch supply hose, and two sections of hard suction hose.

The primary purpose of a pumper is to provide personnel with equipment and water to sustain an initial attack on a structure, wildland or other fire, but each engine company is also equipped with a variety of emergency equipment such as: basic and advanced life support medical equipment, emergency scene lighting, basic tools for defensive hazardous materials mitigation, basic water rescue equipment and rehab supplies. Each engine company is also equipped with 50 feet of ground ladders, specialized wildland firefighting equipment, forcible entry tools, auto extrication equipment and a thermal imaging camera.

PARAMEDIC RESCUES

Two stations are equipped with paramedic rescues—Station 1 and 3. Each rescue is staffed with a minimum of two firefighter/paramedics, each having advanced life support (ALS) certification. The paramedic rescues carry both ALS and BLS equipment and provide a high level of emergency medical care. Some of the items carried on the paramedic ambulances are: advanced airway and ventilation equipment, vascular therapy supplies, and portable battery-operated monitor/defibrillators. Firefighter/paramedics are able to supply immediate life saving measures and transport patients to the appropriate facilities.



From routine medical problems to the most critically ill or injured patient, rescues fill a significant role in Culver City—especially considering the high frequency of EMS service demands in the area. Though their primary role is EMS, these units are staffed by firefighters equipped with structural firefighting protective equipment, extrication equipment, a thermal imaging camera and self-contained breathing apparatus (SCBA).

TRUCK COMPANY

The Culver City Fire Department has one truck company located at Station 2. The truck company is supervised by a captain and is staffed with an engineer and two firefighters. The truck is called an aerial ladder truck—also known as a hook-and-ladder or a tractor drawn aerial. Two operators are required for safe handling of this vehicle—an engineer driving the front and a tiller operator controlling the rear. As the rear wheels turn independent of the front wheels, the truck has increased maneuverability and can more easily navigate through smaller streets and make tight turns in areas such as the movie studio lots.



The truck has a 100-foot truck mounted extension ladder, which is able to reach the equivalent of up to eight stories high.

This allows firefighters to access or egress a building from a significant height and also to attack a fire from above. The aerial ladder is capable of allowing firefighters to direct an elevated master water stream of up to 600 gpm from the tip of the ladder. Because the truck does not have a pump or water tank, a pumper/engine must supply the water to fight the fire. In addition to the aerial ladder device the truck is also equipped with over 200 feet of ground ladders, heavy rescue and auto extrication equipment and many other types of rescue equipment to handle various calls for service throughout the City.



BATTALION CHIEF COMMAND VEHICLE

One Battalion Chief is responsible for overall field operations from a command vehicle. The command vehicle, located at Station 1, is equipped with advanced communication equipment, a mobile data computer, and a pull out command desk. From this command vehicle, a Battalion Chief is able to direct emergency scene operations and command all firefighting, lifesaving, and fire prevention operations. Some additional equipment carried in the command vehicle includes: SCBA and suppression equipment, command worksheets and reference materials.



RESERVE AND SPECIALTY APPARATUS

The Fire Department maintains a fleet of reserve apparatus. Reserve apparatus are utilized to accommodate periodic maintenance and repair of front-line apparatus, to staff additional units during large scale emergencies and to replace front-line units when they are called outside the City to assist other agencies.

Fire Department specialty apparatus are comprised of a gasoline-powered utility vehicle, CERT command and rehab vehicles, and a trailer-drawn diesel tender.

DAILY MINIMUM STAFFING LEVELS

Type	# of Apparatus	# of Staff per Apparatus	Total Staff
Engine Company	3	3	9
Truck Company	1	4	4
Rescue	2	2	4
Battalion Chief Command	1	1	1
			18

FIGURE 9: DAILY MINIMUM STAFFING LEVELS

Additional staffing for major emergencies or community disasters is available through the response of executive and staff officers. The Department also has the ability to request mutual aid or recall off-duty personnel.



POINTS OF SERVICE DELIVERY (STATIONS)



FIGURE 10: FIRE STATION LOCATIONS

**FIRE STATION 1**

Fire Station 1 is located at 9600 Culver Boulevard in the heart of Downtown Culver City. The current building was constructed in 1993, but Station 1 has been in the Downtown area since the Department's inception. Station 1 houses the City's Emergency Operations Center (EOC), i.e., central control facility responsible for coordinating disaster management activities. Also located at Station 1 is a fire garage and telecommunications shop, where radio maintenance and repairs are conducted for all of the City's radios.



Type	Year	Make	Staffing Level
Engine One	2006	Seagrave 1,500 gpm Pumper	3
Rescue One	2013	Dodge Lifeline Type I Ambulance	2
Battalion Chief Command Vehicle	2003	Ford Excursion XLT	1
Reserve Engine Four	1995	Seagrave 1,500 gpm Pumper	-
Reserve Engine Five	1999	Seagrave 1,500 gpm Pumper	-
Reserve Truck One	1990	Simon LTI Aerial Ladder Truck	-
Reserve Battalion Two	1999	Chevrolet	-

FIGURE 11: STATION 1 APPARATUS



FIRE STATION 2

Fire Station 2 is located at 11252 Washington Boulevard. The building was constructed in 1981.



Type	Year	Make	Staffing Level
Engine Two	2006	Seagrave 1,500 gpm Pumper	3
Truck Two	2003	ALF Tractor Trailer Aerial Ladder Truck	4

FIGURE 12: STATION 2 APPARATUS



FIRE STATION 3

Fire Station 3 was built in 2009 and is located at 6030 Bristol Parkway.



Type	Year	Make	Staffing Level
Engine Three	2006	Seagrave 1,500 gpm Pumper	3
Rescue Three	2013	Dodge Lifeline Type I Ambulance	2
Reserve Engine Six	1997	Seagrave 1,500 gpm Pumper	-
Reserve Rescue Two	2013	Dodge Lifeline Type I Ambulance	-

FIGURE 13: STATION 3 APPARATUS



C. COMMUNITY EXPECTATIONS & PERFORMANCE GOALS

In developing the Department's Strategic Plan, Department Staff members met with community stakeholders to gather feedback and input on service delivery standards. As a result of community stakeholder meetings, subsequent feedback analysis, historical performance reviews, recommendations from National Fire Protection Association (NFPA) 1710 and internal benchmarking, the following Community Priorities, Community Expectations and performance objectives were established.

COMMUNITY PRIORITIES

1. Emergency Medical Services
2. Fire Suppression
3. Rescue
4. Hazardous Materials
5. Fire Prevention
6. Domestic Preparedness Planning and Response
7. Public Fire/EMS Safety Education
8. Fire Investigation

COMMUNITY SERVICE EXPECTATIONS

1. Response time
2. Training
3. Interaction with community
4. Fire prevention
5. Professionalism, courtesy and great customer service
6. Fire education and community support
7. Equipment and apparatus
8. Staffing and budget
9. Disaster preparedness
10. Hospital partnerships

STRATEGIC INITIATIVES

1. Improve EMS delivery.
 - a. Develop and implement a plan to meet the demand of increased call volume.
 - b. Develop and implement a plan to decrease total call time.
 - c. Develop and implement a plan to improve communications with patients.
 - d. Develop and implement a plan to address medication shortages.



- e. Enhance EMS Scope of Practice.
 - f. Identify improved technologies for recording and tracking EMS records of data.
2. Ensure optimal staffing that will support core Fire Department programs.
 - a. Develop and implement a reserve firefighter program.
 - b. Analyze Fire Prevention's various duties and programs to identify staffing needs.
 - c. Analyze the EMS program to identify staffing needs.
 - d. Analyze the Fire Suppression program to identify staffing needs.
3. Develop, implement and maintain training that produces a knowledgeable, skilled and motivated workforce that meets the needs of our mission.
 - a. Analyze the current training program and determine areas of deficiency or improvements needed.
 - b. Establish minimum annual mandated training requirements.
 - c. Establish minimum training standards for each position.
 - d. Establish specialized operational training standards to maintain all personnel at operations level.
 - e. Develop a cadre of members that have advanced training in each specialized operation.
4. Improve community outreach.
 - a. Identify all current public education/outreach programs, conduct a needs analysis to determine effectiveness, and formulate a work plan to address deficiencies.
 - b. Identify all social media portals and conduct a needs analysis to determine effectiveness and implement needed improvements.
5. Identify and increase the Department's use of current and future technologies.
 - a. Identify and review strengths and weaknesses of current technologies.
 - b. Expand use of current technologies to design potential.
 - c. Identify additional and new technologies to meet the current and future needs.
 - d. Ensure all members are trained in all current and future technologies.
 - e. Establish continuous maintenance and evaluation of ongoing programs.
6. Improve fire dispatch operations, in coordination with the Culver City Police Department (CCPD).
 - a. Work with CCPD to ensure that dispatch is staffed with three (3) dispatchers.
 - b. Work with CCPD to implement a fire dispatch training program.
 - c. Work with CCPD to implement a fire dispatch quality improvement (QI) program.
 - d. Work with CCPD to implement an automated station/unit alerting system.
7. Develop programs that support the safety and well-being of our members and the public while identifying and mitigating potential risks.



- a. Develop and implement comprehensive programs that support health and wellness of all our members.
- b. Identify and implement a comprehensive plan to enhance Fire Department safety programs.
- c. Implement policies to reduce EMS risks.
- d. Develop and implement policies and procedures that identify and minimize potential legal risks.





D. RISK ASSESSMENT

A comprehensive risk assessment was conducted for both fire and non-fire emergencies. The factors used for risk assessment are both physical and theoretical. The two primary components of a risk assessment are an analysis of probability and consequences. Probability is the likelihood that a particular event will occur in a given time period. There are three areas of concern when evaluating consequences: 1) life safety (danger to occupants); 2) economic (loss of property, income, historic, or irreplaceable assets); and 3) environmental (irreparable or long term damage to the environment). Figure 14 below displays a matrix that is utilized to classify hazards based on the probability and consequences of risk.

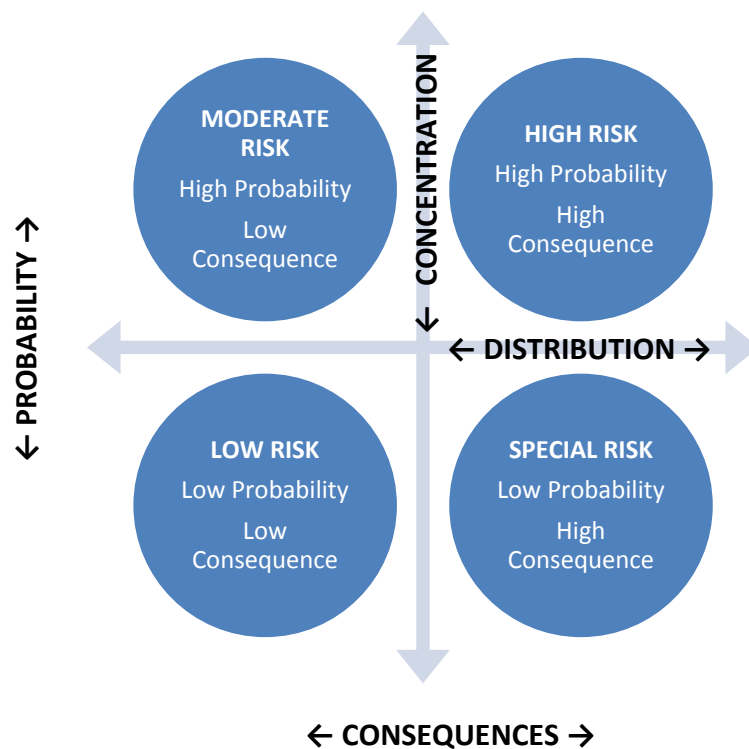


FIGURE 14: PROBABILITY - CONSEQUENCE RISK ASSESSMENT MATRIX



COMMUNITY RISK FACTORS

Community risk factors have an impact on both fire and non-fire related hazards. The evaluation of community risk include the assessment of community demographics and development, fire management planning zones, natural hazards, technological hazards, transportation networks, and security hazards.

COMMUNITY DEMOGRAPHICS AND DEVELOPMENT

City of Culver City	5.26 Square Miles
Permanent City Population	39,313
Weekday (daytime) Population	200,000
Population Density	7,608 per square mile
Building Density	2,037 per square mile
Road & Highways	125 linear miles
Total Assessed Valuation	\$8,060,798,194

FIRE MANAGEMENT ZONES

For the purposes of analysis and planning, the City of Culver City is divided into fifteen fire management zones. These zones are defined by occupancies within a given geographical area that share common risk. This approach creates zones of homogenous risk types. This method also facilitates more accurate risk evaluations for each geographical area. With the assistance of the City's Geographic Information Systems team, staff was able to map out the fifteen areas of interest. Within each zone, staff observed zone size, land use types, structures, economic factors, and relative population densities. Land use elements were gleaned from the City of Culver City's General Plan. Subsequent to the various analyses, staff then determined areas/structures within each zone that present particular hazards or high fire risk due to their size, location or occupancies. Figure 15 on the next page, displays the various land use types within each fire management zone.

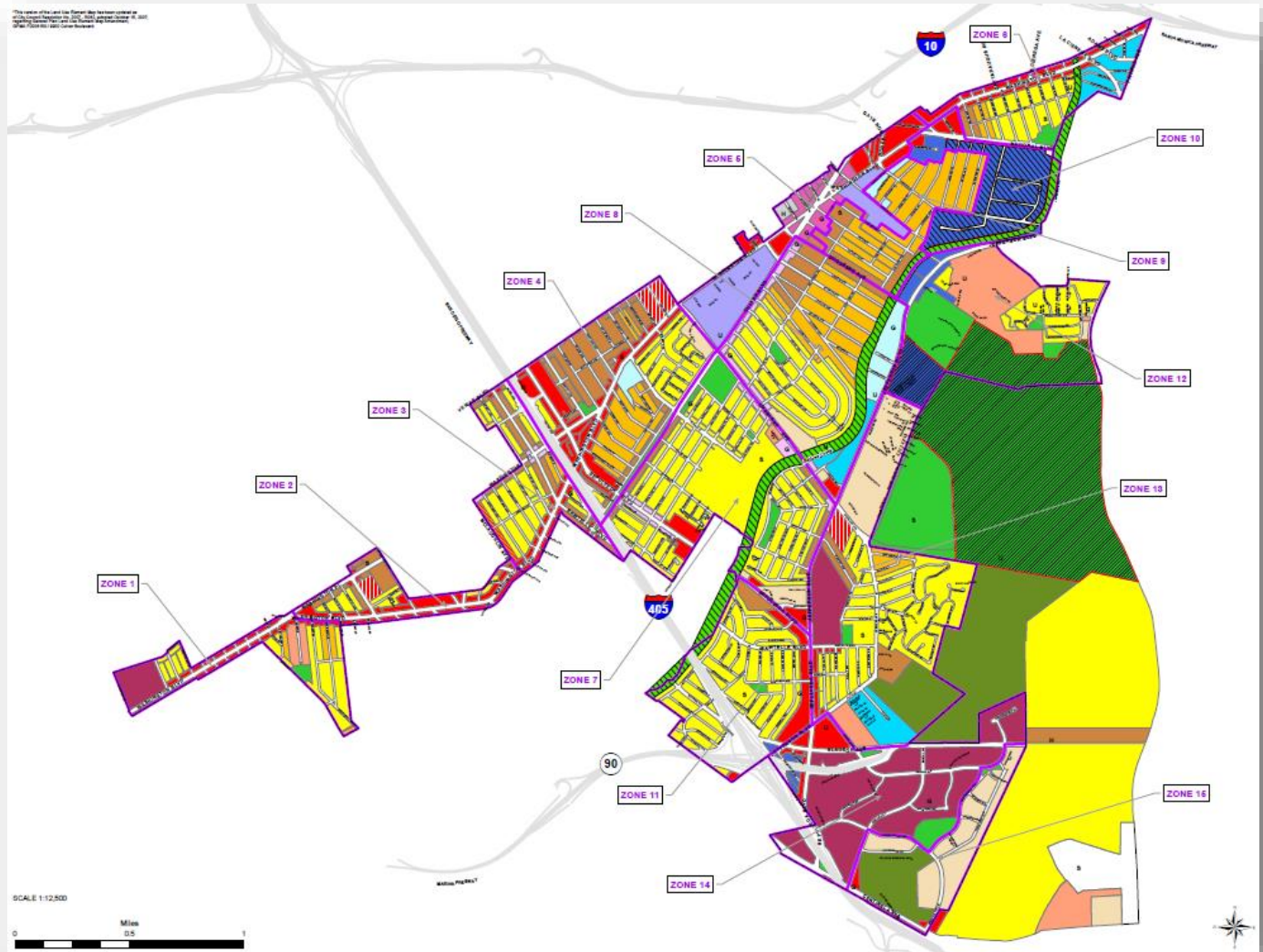


FIGURE 15: FIRE MANAGEMENT ZONE MAP

Land Use

Residential

- Low Density Single Family
- Low Density Two Family
- Low Density Three Family
- Low Density Multiple Family
- Medium Density Multiple Family
- Planned Residential Development

Commercial

- Neighborhood Serving Corridor
- General Corridor
- Downtown
- Community Serving Center
- Regional Center

Industrial

- Light Industrial
- Industrial Park
- Industrial
- Focused Special Studies Area**
 - Hayden Industrial Tract
 - Blair Hills / Baldwin Hills
 - Ballona Creek

Other

- Studio
- Cemetery
- Open Space
- Institutional
- School
- City Boundary
- Freeway



FIRE MANAGEMENT ZONE 1

Fire Management Zone 1 is a general corridor of 0.18 square miles located in the western part of the City. Within its boundaries are mostly single and multiple family residences along with smaller street-front businesses and commercial use structures. There are a total of nine commercial spaces larger than 10,000 square feet within the area, including an extremely busy regional center.

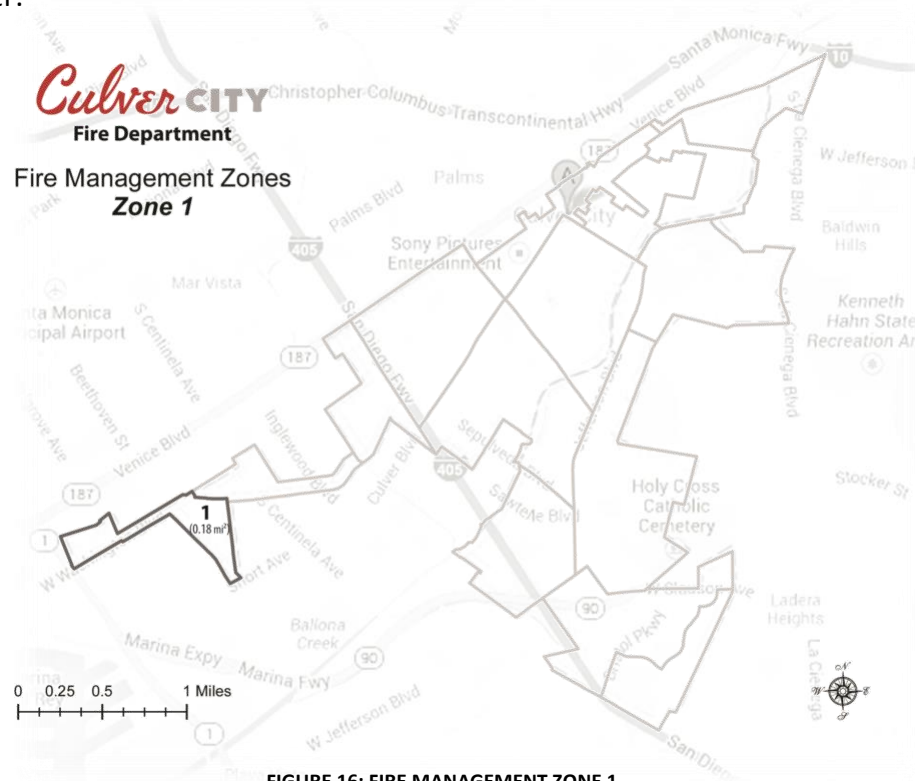
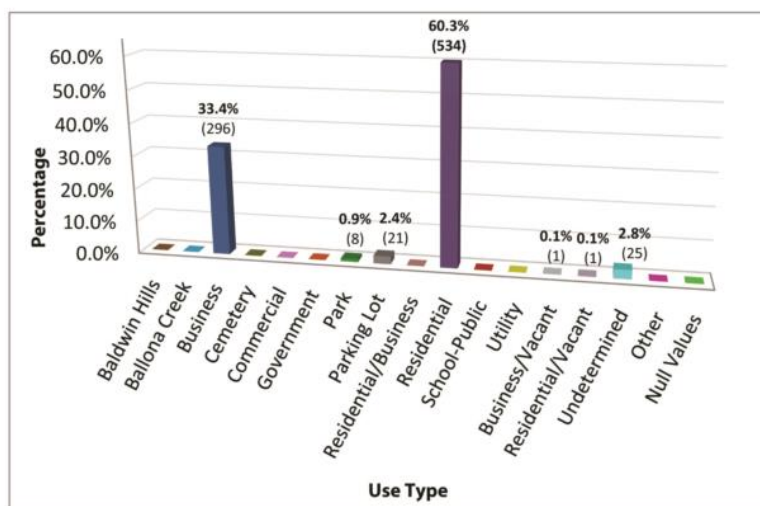
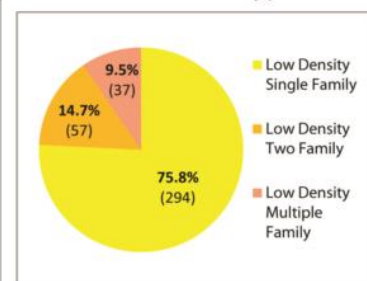


FIGURE 16: FIRE MANAGEMENT ZONE 1

Percentage Breakdown of Use Types



Percentage Breakdown of Residential Type



High Risk
(raw count)
Commercial Space > 10,000 ft² = **9**



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FIRE MANAGEMENT ZONE 2

Fire Management Zone 2 is a general corridor of 0.14 square miles located in the western part of the City. Approximately 70 percent of Zone 2 is comprised of mostly single and multiple family residences, with smaller street-front businesses representing about 23 percent of the land use. Located within the zone are two large convalescent homes: Culver West Convalescent Home and Grandview Palms. These two locations pose significant risk due to their population of non-ambulatory residents. Also located within Zone 2 are 17 large commercial spaces, which pose high risk.

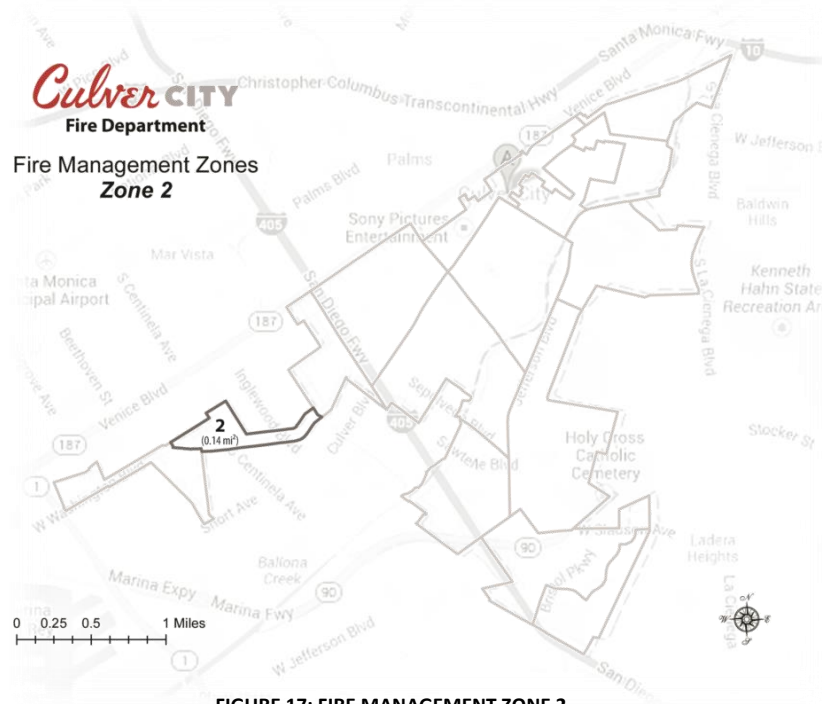
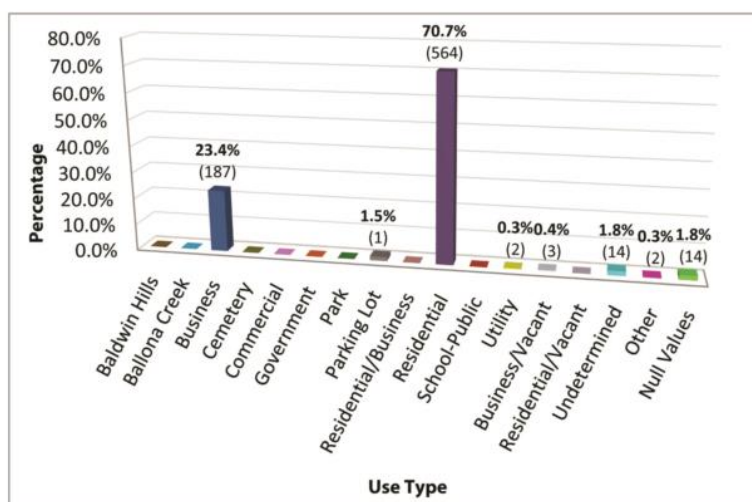
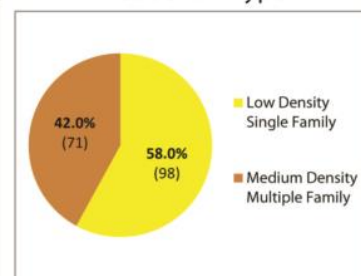


FIGURE 17: FIRE MANAGEMENT ZONE 2

Percentage Breakdown of Use Types



Percentage Breakdown of Residential Type



High Risk

(raw count)
Commercial Space > 10,000 ft² = **17**



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FIRE MANAGEMENT ZONE 3

Fire Management Zone 3 is a general and neighborhood-serving corridor consisting of 0.21 square miles. It is located in the western part of the City and abuts the southbound travel lanes of the 405 freeway. Within its boundaries are predominately single and multiple family residences along with smaller businesses. Seven large commercial buildings are located within Zone 3.

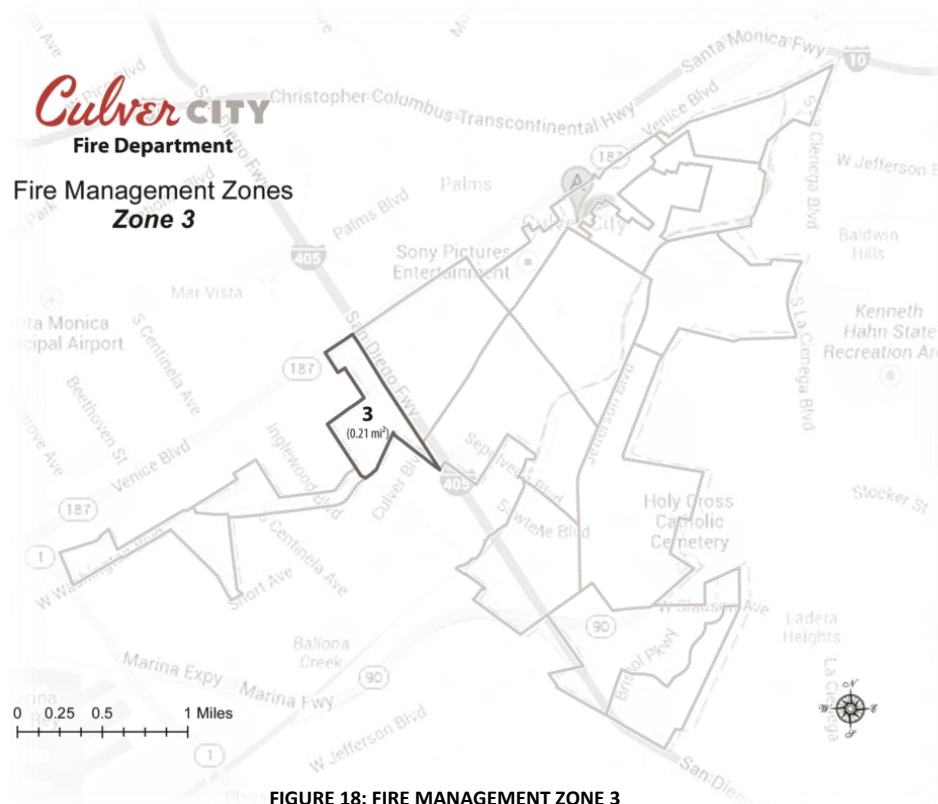
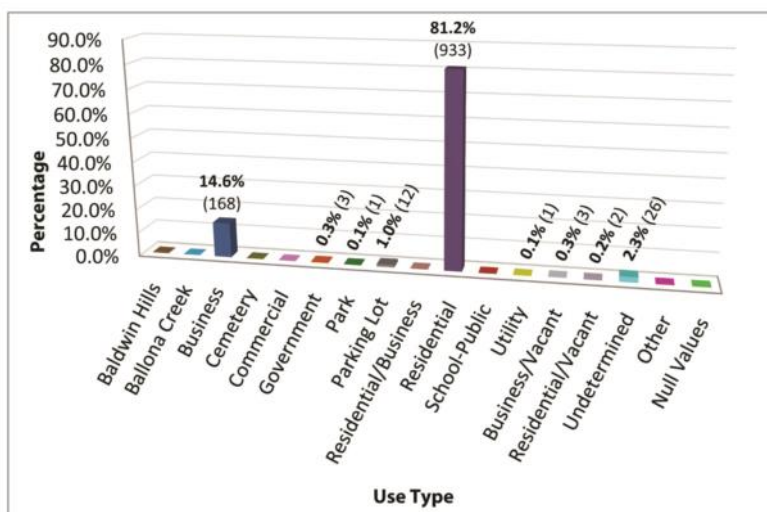
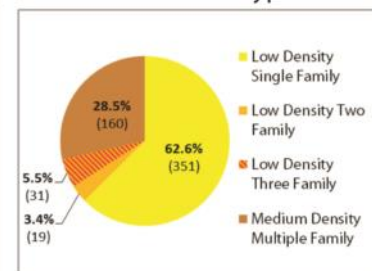


FIGURE 18: FIRE MANAGEMENT ZONE 3

Percentage Breakdown of Use Types



Percentage Breakdown of Residential Type



High Risk

(raw count)

Commercial Space > 10,000 ft² = 7



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FIRE MANAGEMENT ZONE 4

Fire Management Zone 4 is a general community-serving corridor, consisting of 0.48 square miles. It is located in the northwestern part of the City and borders the northbound travel lanes of the 405 freeway. It is comprised of mostly single and multiple family residences, along with some planned residential developments and light industry. The commercial buildings and medium density housing present increased risk in this zone. Located within Zone 4 are 40 large commercial spaces, three large residential complexes, the Culver City Senior Center, Culver Village Nursing Home, Palm Court and Studio Royal Nursing Homes. All of these locations pose increased risk due to their non-ambulatory populations.

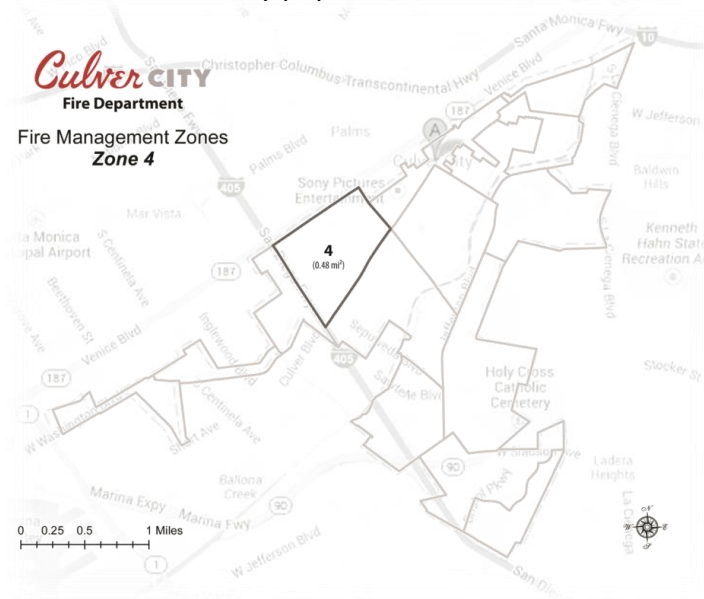
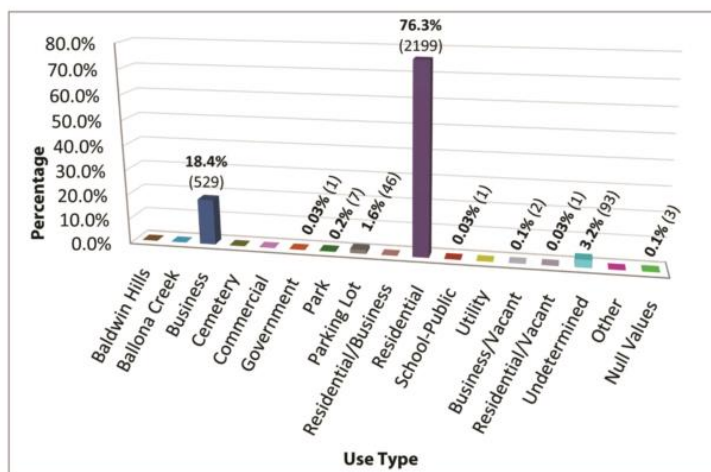
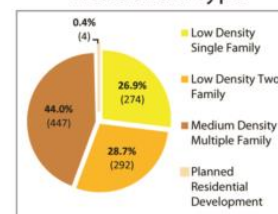


FIGURE 19: FIRE MANAGEMENT ZONE 4

Percentage Breakdown of Use Types



Percentage Breakdown of Residential Type



High Risk

(raw count)

Commercial Space > 10,000 ft² = **40**

Residential Complexes with 40+ units = **3**



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FIRE MANAGEMENT ZONE 5

Fire Management Zone 5 is a general corridor, consisting of 0.24 square miles, located in Downtown Culver City. It possesses 33 large businesses, along with some residential properties. It also holds special risks that includes two movie studios—with a total of 31 sounds stages—a hospital, and two high-rise buildings. Zone 5 has four buildings, which are determined to be potential hazards due to their age and quake-vulnerable-concrete construction. These building could pose significant technical rescue risk in the case of an earthquake, for example.

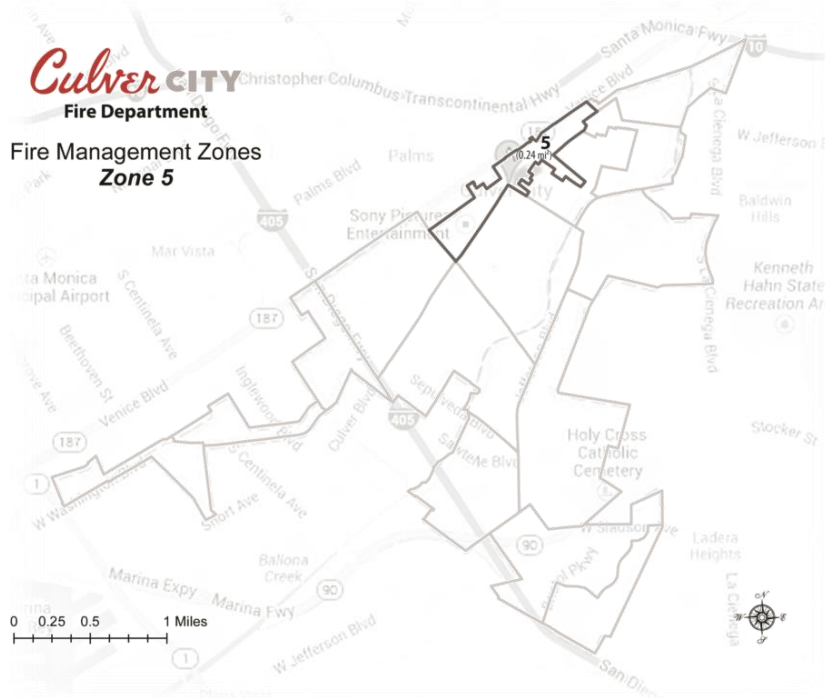
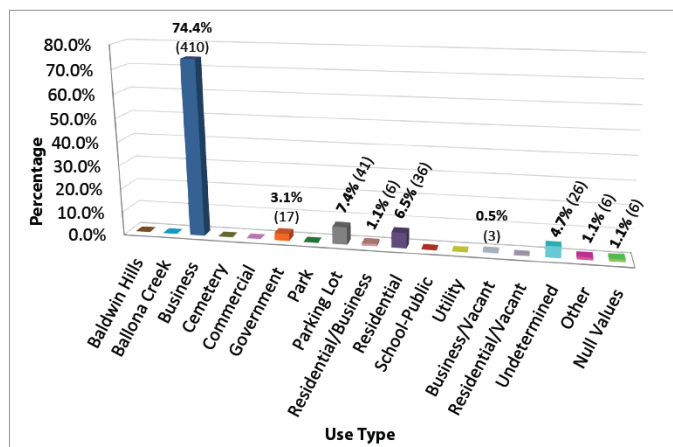
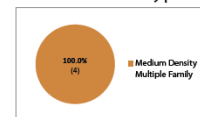


FIGURE 20: FIRE MANAGEMENT ZONE 5

Percentage Breakdown of Use Types



Percentage Breakdown of Residential Type



Special Risk

Southern California Hospital at Culver City
Sony Studios
Culver Studios
10000 Washington Blvd - 8 story high-rise
Culver Hotel - 6 story mid-rise

High Risk

Commercial Space > 10,000 ft² = 33



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FIRE MANAGEMENT ZONE 6

Fire Management Zone 6 is a general corridor, consisting of 0.22 square miles, located in the eastern part of the City. It has mostly single and multiple family residences, along with an industrial park. The Expo Light Rail Station also is within Zone 6.

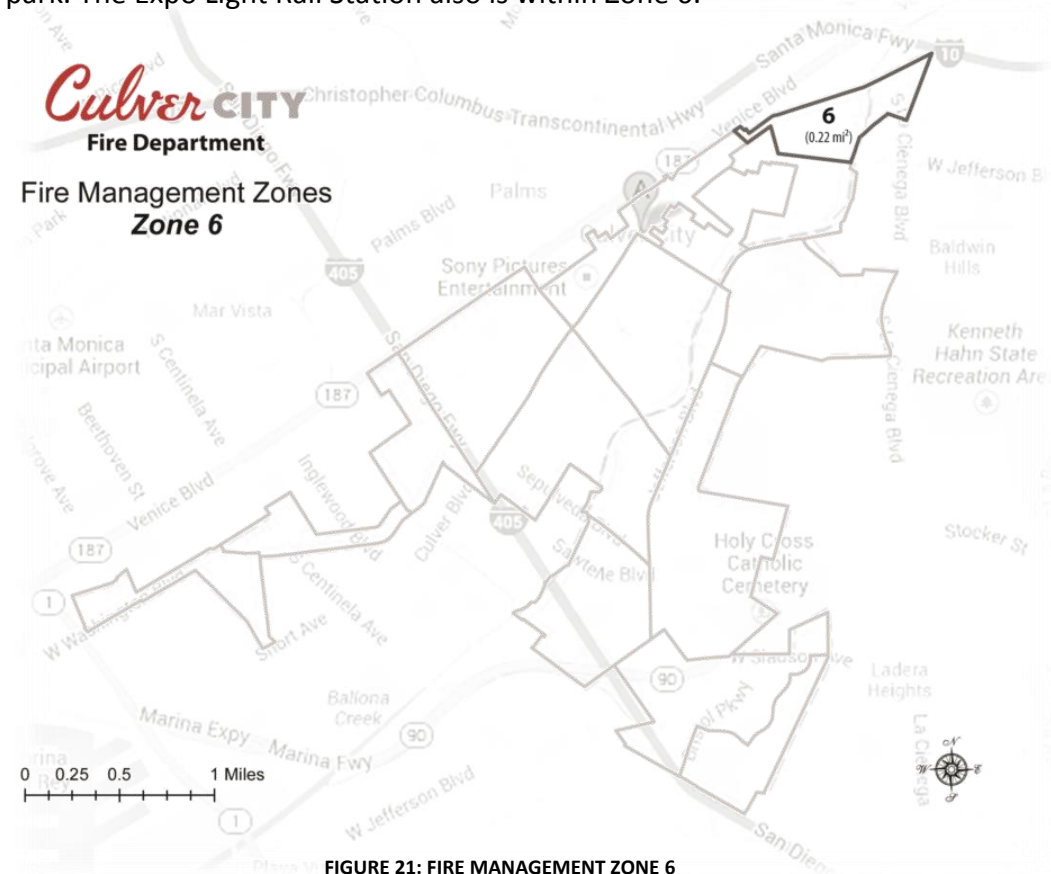
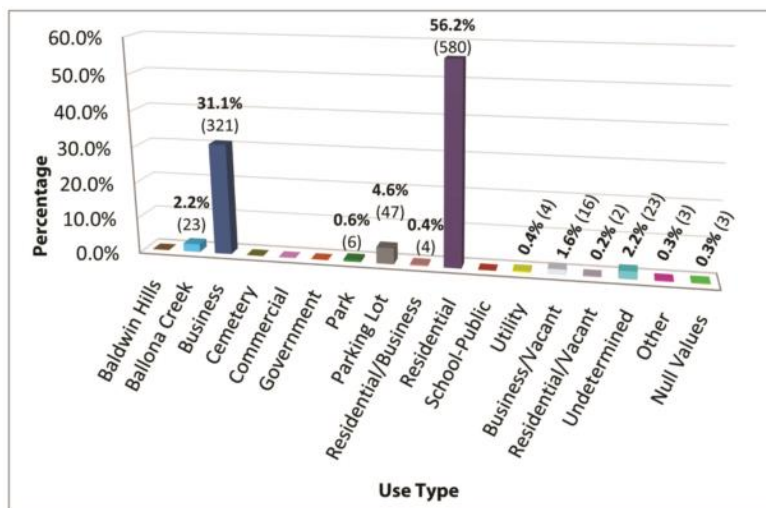
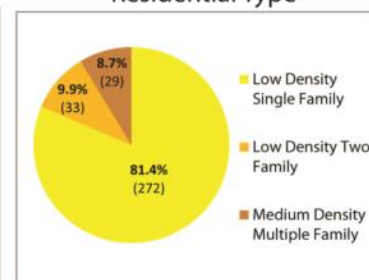


FIGURE 21: FIRE MANAGEMENT ZONE 6

Percentage Breakdown of Use Types



Percentage Breakdown of Residential Type



High Risk
(raw count)
Commercial Space > 10,000 ft² = **11**



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FIRE MANAGEMENT ZONE 7

Fire Management Zone 7 is a general and neighborhood corridor of 0.59 square miles centrally located in the City. It consists of predominately single and multiple family residences, along with some planned residential developments and street-front businesses. Zone 7 has a high school, middle school and elementary school within its limits and is also home to two nursing homes.

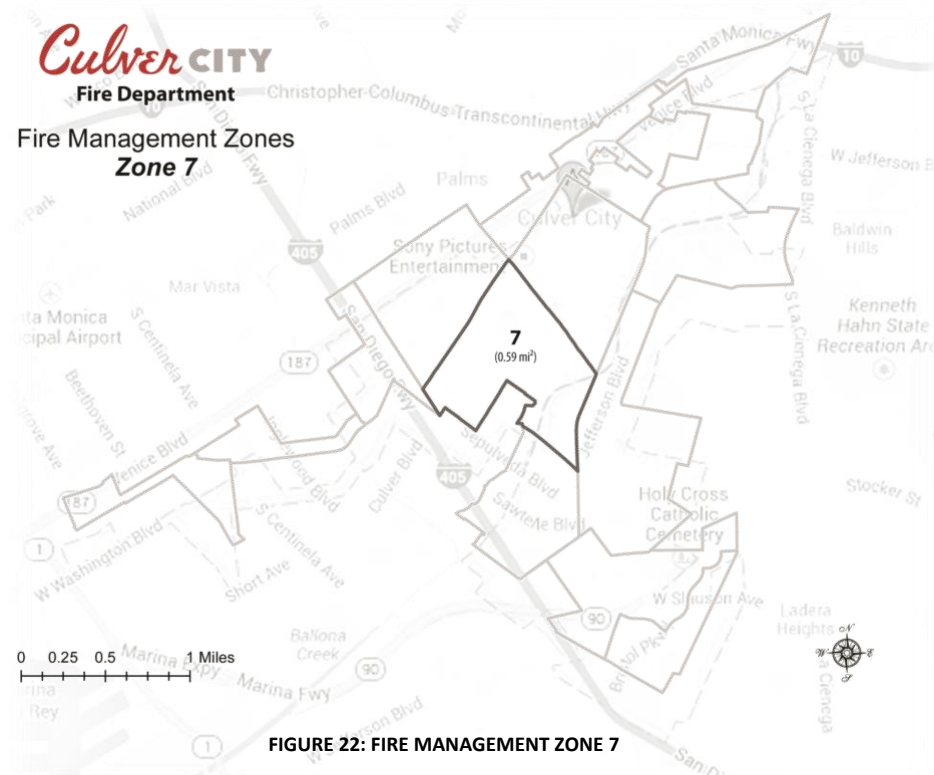
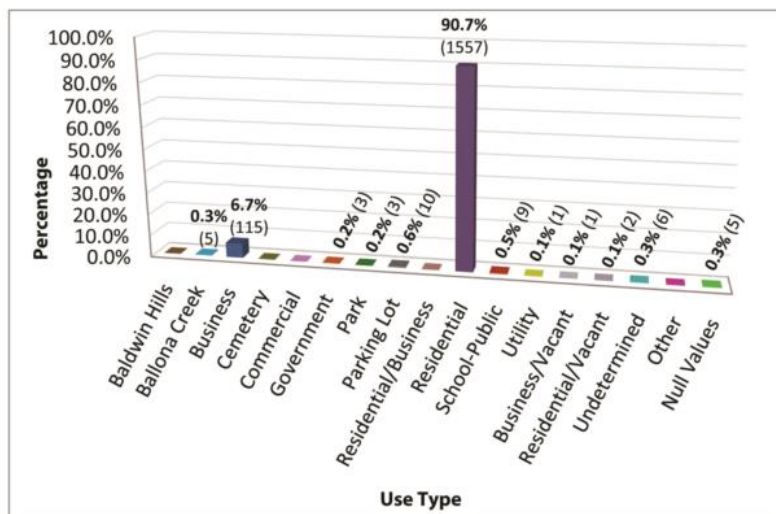
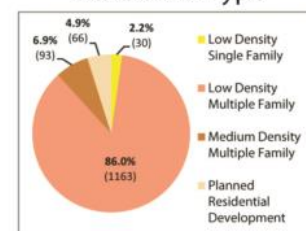


FIGURE 22: FIRE MANAGEMENT ZONE 7

Percentage Breakdown of Use Types



Percentage Breakdown of Residential Type



High Risk

(raw count)

Commercial Space > 10,000 ft² = **9**

Residential Complexes with 40+ units = **1**



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FIRE MANAGEMENT ZONE 8



Fire Management Zone 8 is a general and neighborhood corridor of 0.52 square miles centrally located in the City. It has single family, multiple families, and planned residential developments. There are also a small amount of street-front businesses. Zone 8 is also home to one nursing home three large residential complexes and five large commercial spaces.

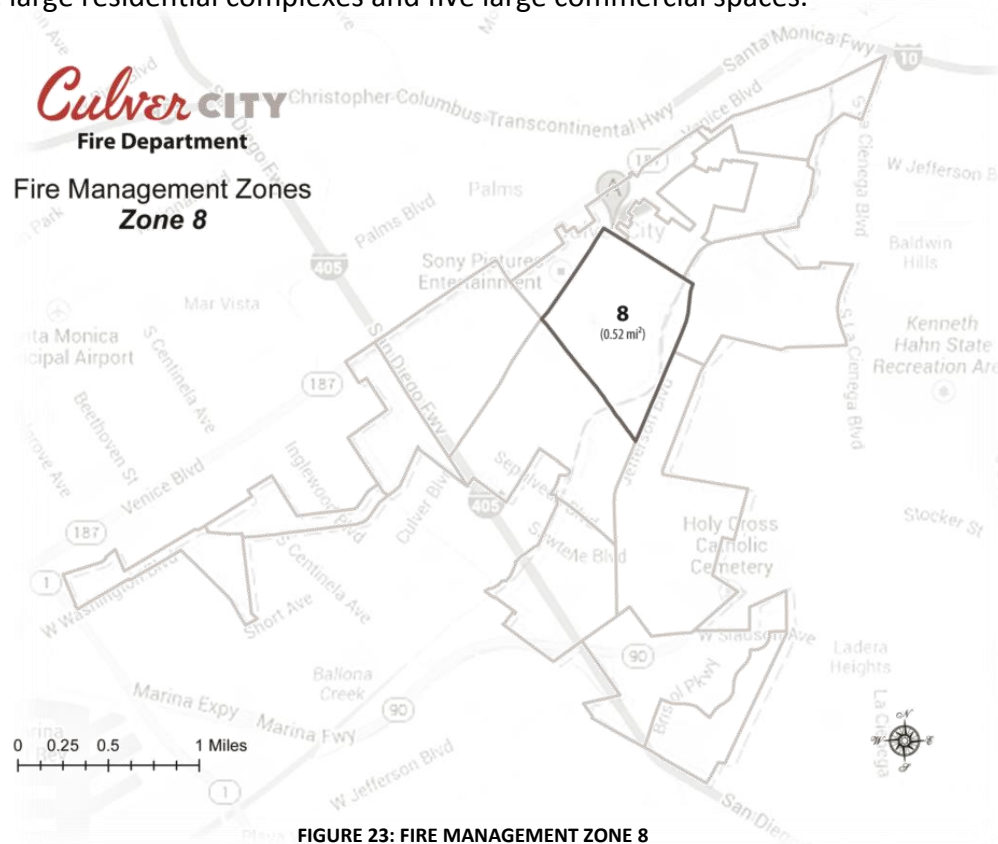
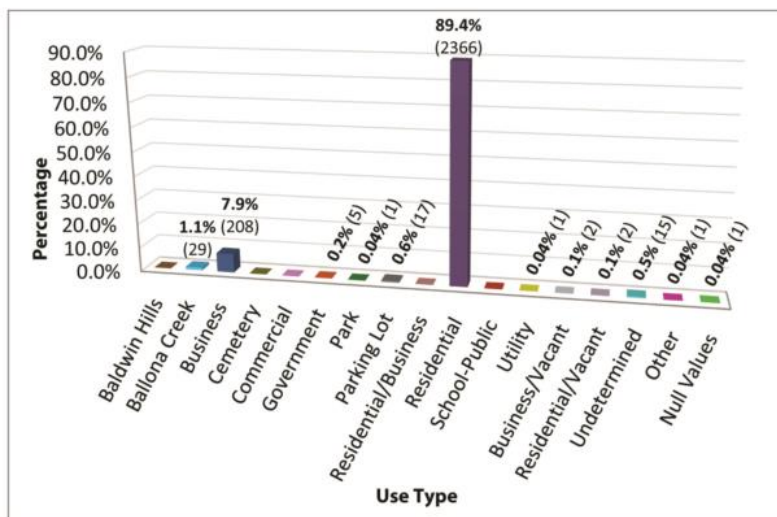
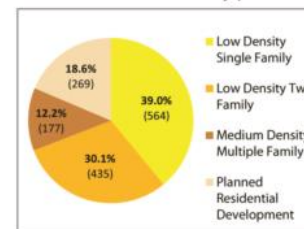


FIGURE 23: FIRE MANAGEMENT ZONE 8

Percentage Breakdown of Use Types



Percentage Breakdown of Residential Type



High Risk

(raw count)

Commercial Space > 10,000 ft² = **5**

Residential Complexes with 40+ units = **3**



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FIRE MANAGEMENT ZONE 9

Fire Management Zone 9 is a neighborhood corridor 0.22 square miles, which is located towards the east side of the City. It is made up of predominately single and multiple family residences with some street front businesses. It has eight large commercial spaces and two large residential complexes.

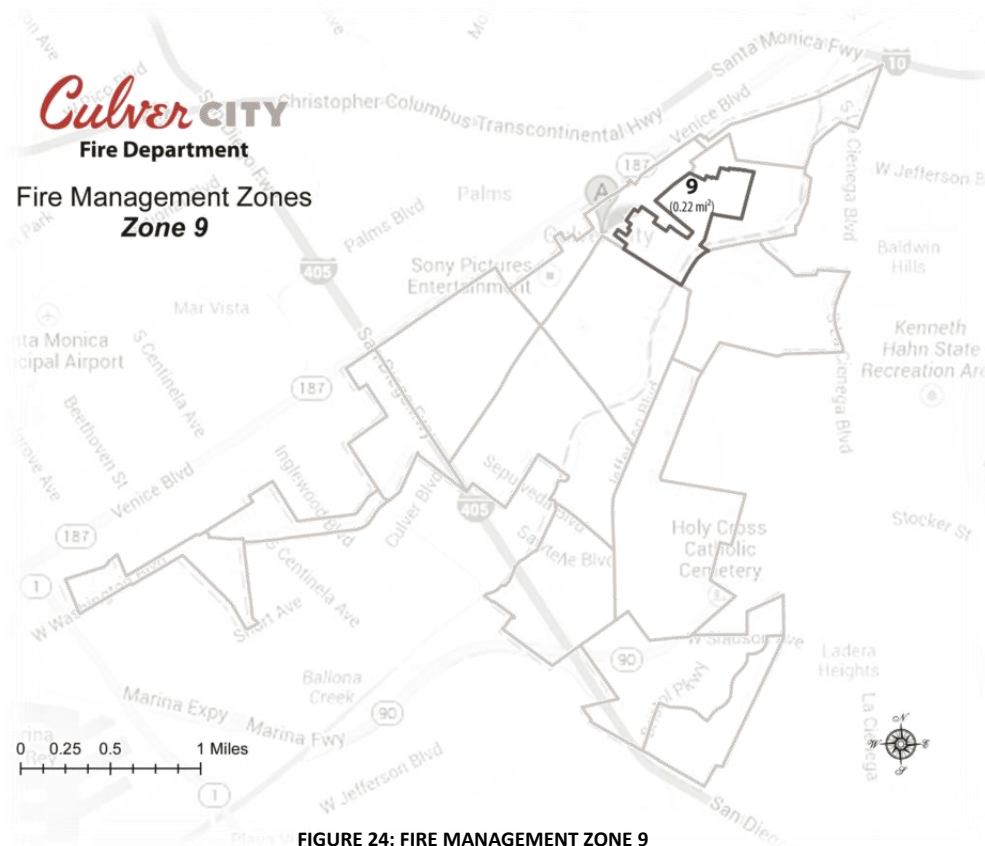
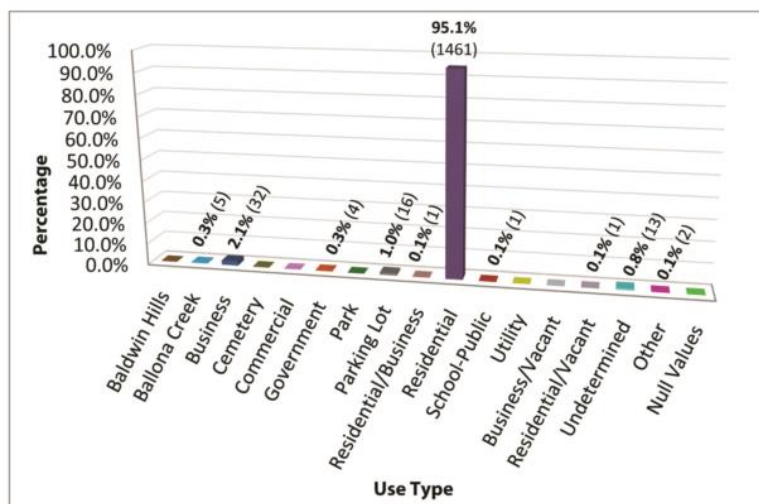
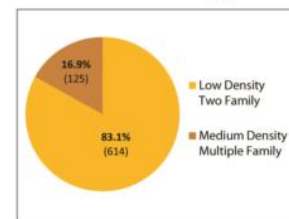


FIGURE 24: FIRE MANAGEMENT ZONE 9

Percentage Breakdown of Use Types



Percentage Breakdown of Residential Type



High Risk

(raw count)
Commercial Space > 10,000 ft² = **8**
Residential Complexes with 40+ units = **2**



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FIRE MANAGEMENT ZONE 10

Fire Management Zone 10 is general corridor, consisting of 0.21 square miles, which is located towards the east side of the City. It is grouped together by a large industrial/commercial park. It also borders the Expo Light Rail Line and has five large commercial spaces.

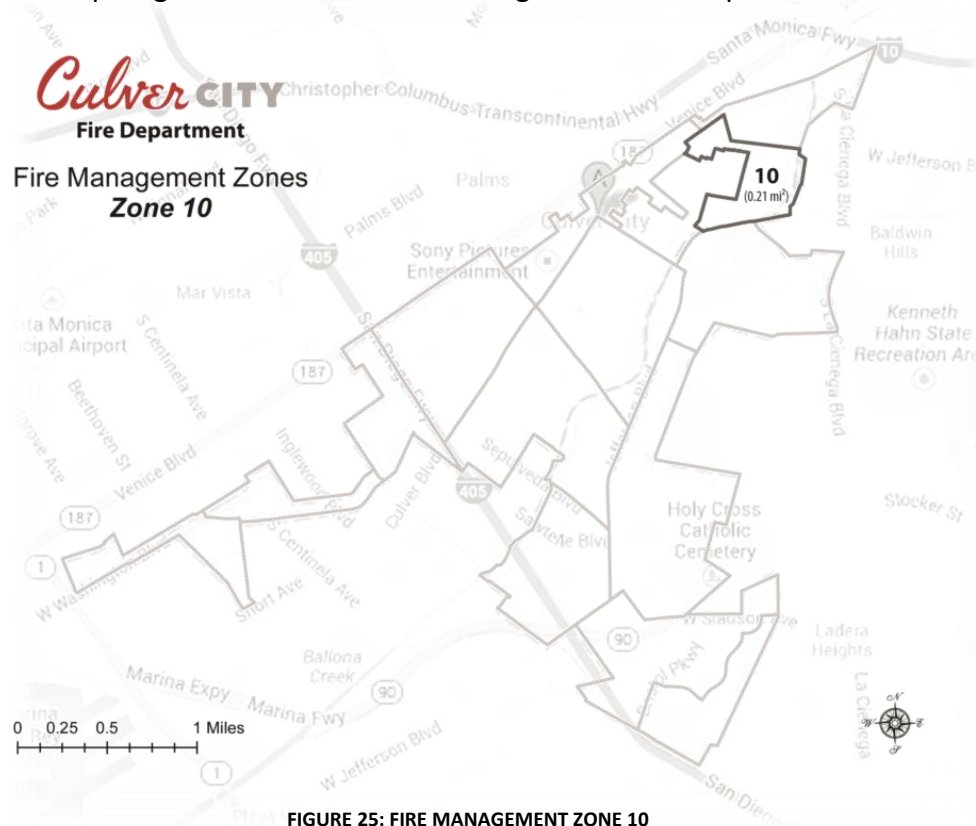
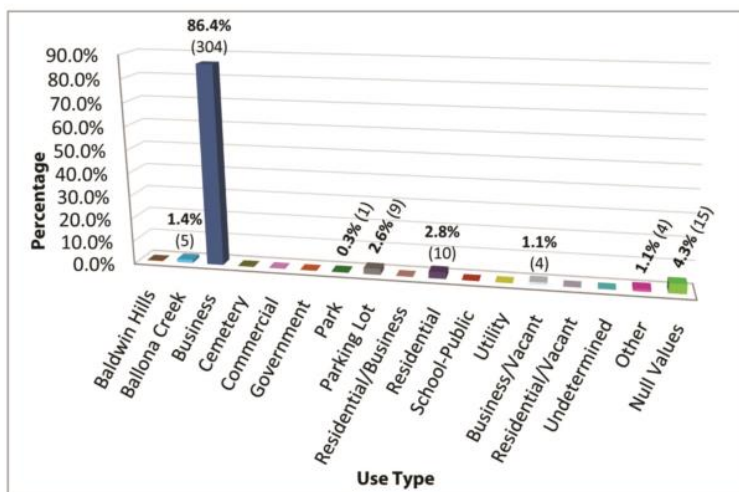
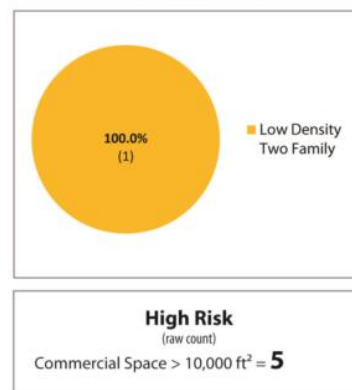


FIGURE 25: FIRE MANAGEMENT ZONE 10

Percentage Breakdown of Use Types



Percentage Breakdown of Residential Type



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FIRE MANAGEMENT ZONE 11

Fire Management Zone 11 is a general and neighborhood corridor consisting of 0.37 square miles, which is located centrally in the southern portion of the City. It has single and multiple family residences with some commercial and street-front businesses. It is also home to an elementary school, nine large commercial spaces and two large residential units.

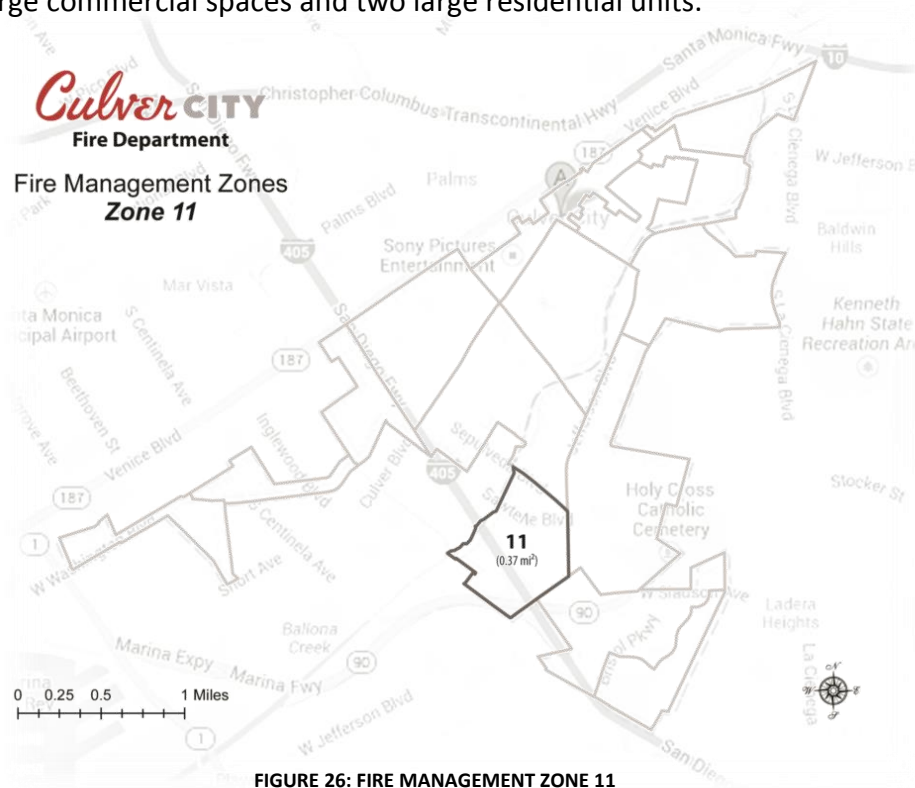
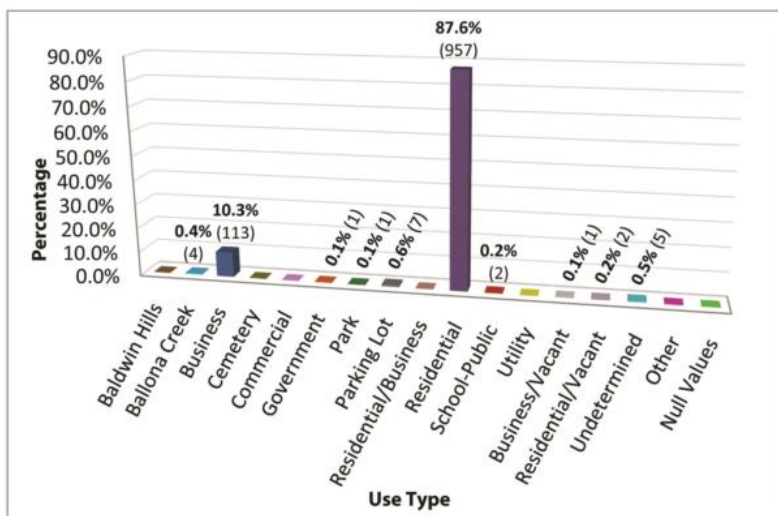
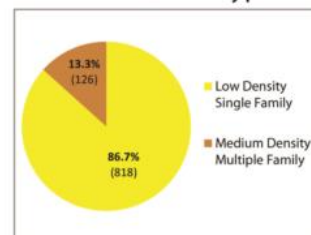


FIGURE 26: FIRE MANAGEMENT ZONE 11

Percentage Breakdown of Use Types



Percentage Breakdown of Residential Type



High Risk

(raw count)

Commercial Space > 10,000 ft² = **9**

Residential Complexes with 40+ units = **2**



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FIRE MANAGEMENT ZONE 12

Fire Management Zone 12 is general and neighborhood corridor of 0.46 square miles, which is centrally located in the eastern part of the City. It is comprised of single family, multiple family, and planned residential developments. There are also commercial and light industrial uses, and a large open natural land space, which borders a wildland-urban interface. Zone 12 borders the Inglewood Oil Field and has several oil wells within its limits.

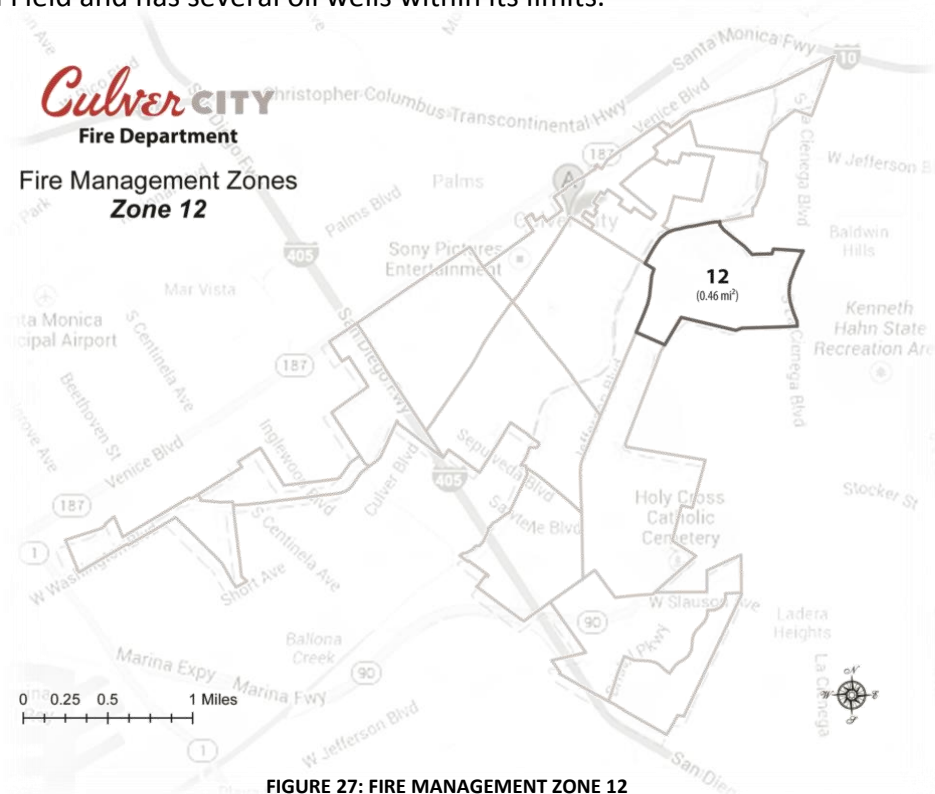
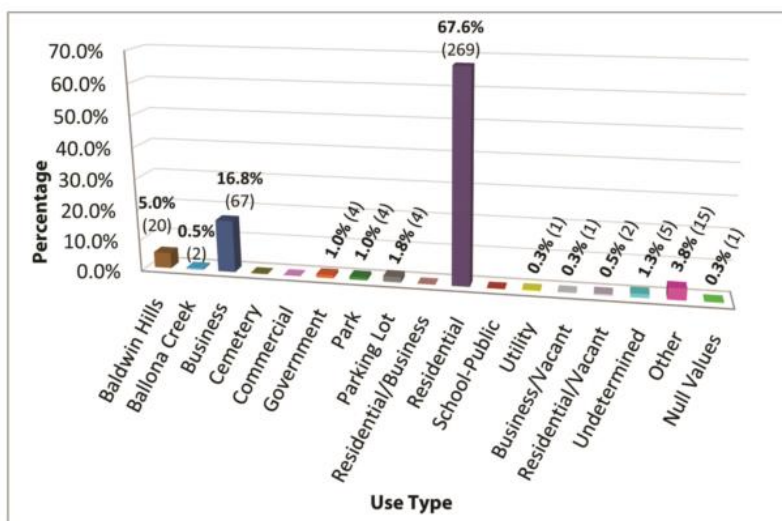
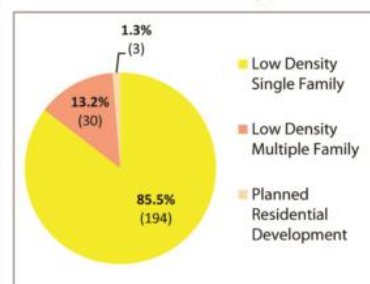


FIGURE 27: FIRE MANAGEMENT ZONE 12

Percentage Breakdown of Use Types



Percentage Breakdown of Residential Type



High Risk
(raw count)
Residential Complexes with 40+ units = **1**



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FIRE MANAGEMENT ZONE 13

Fire Management Zone 13 is a general corridor, 0.63 square miles, which centrally located in the southern part of the City. Planned residential developments, single and multiple family residences make up Zone 13. There is a small industrial park, a residential nursing home, elementary school, as well as a community college just beyond its limits in Los Angeles County. Zone 13 is considered part of the wildland-urban interface.

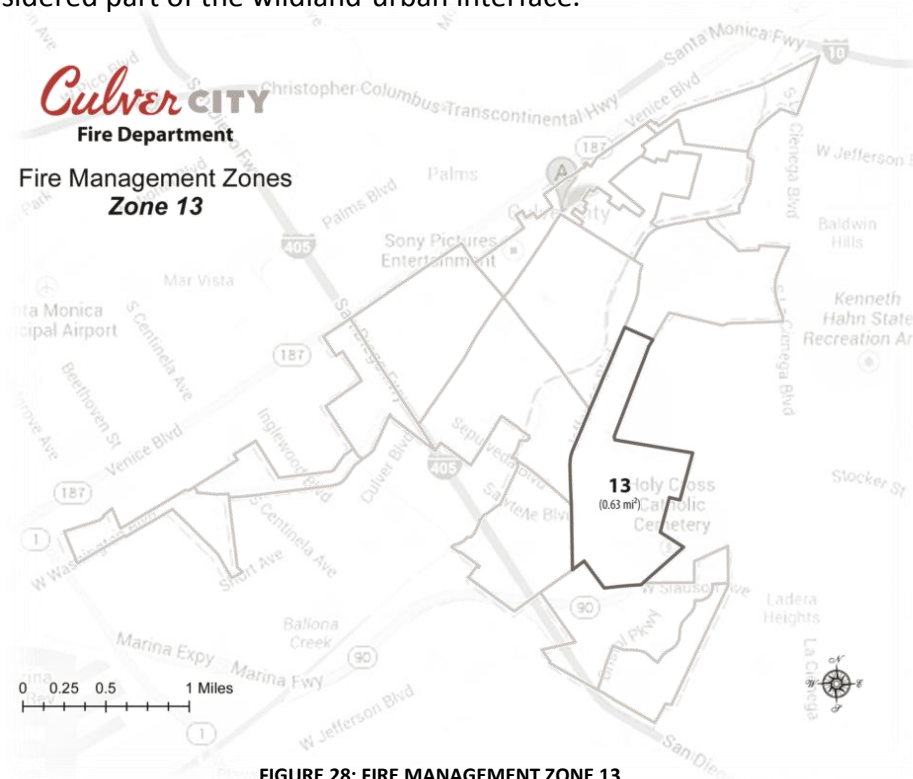
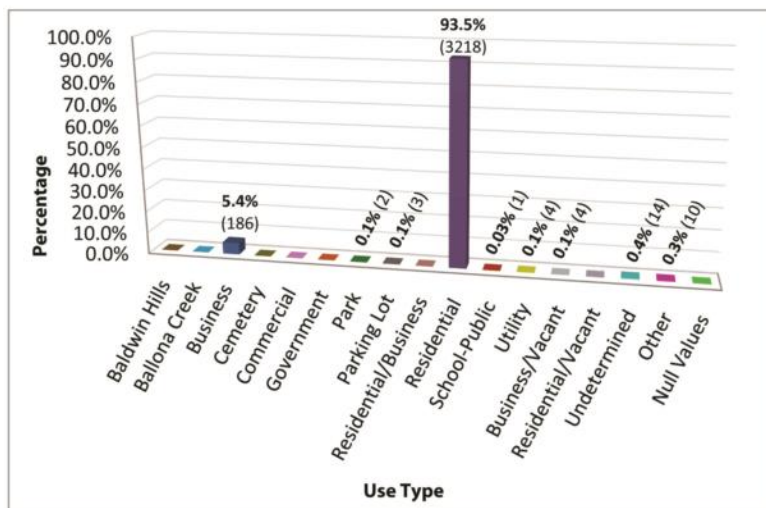
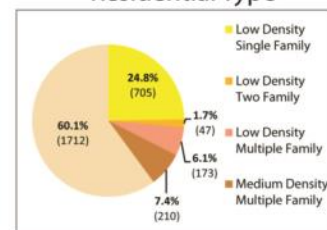


FIGURE 28: FIRE MANAGEMENT ZONE 13

Percentage Breakdown of Use Types



Percentage Breakdown of Residential Type



High Risk

(raw count)

Commercial Space > 10,000 ft² = **4**

Residential Complexes with 40+ units = **19**



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FIRE MANAGEMENT ZONE 14

Fire Management Zone 14 is a general corridor of 0.44 square miles located in the southern part of the City. It is comprised exclusively of commercial buildings and businesses. It holds special risks that include a large mall/retail complex and five high-rise buildings. It also borders the wildland-urban interface.

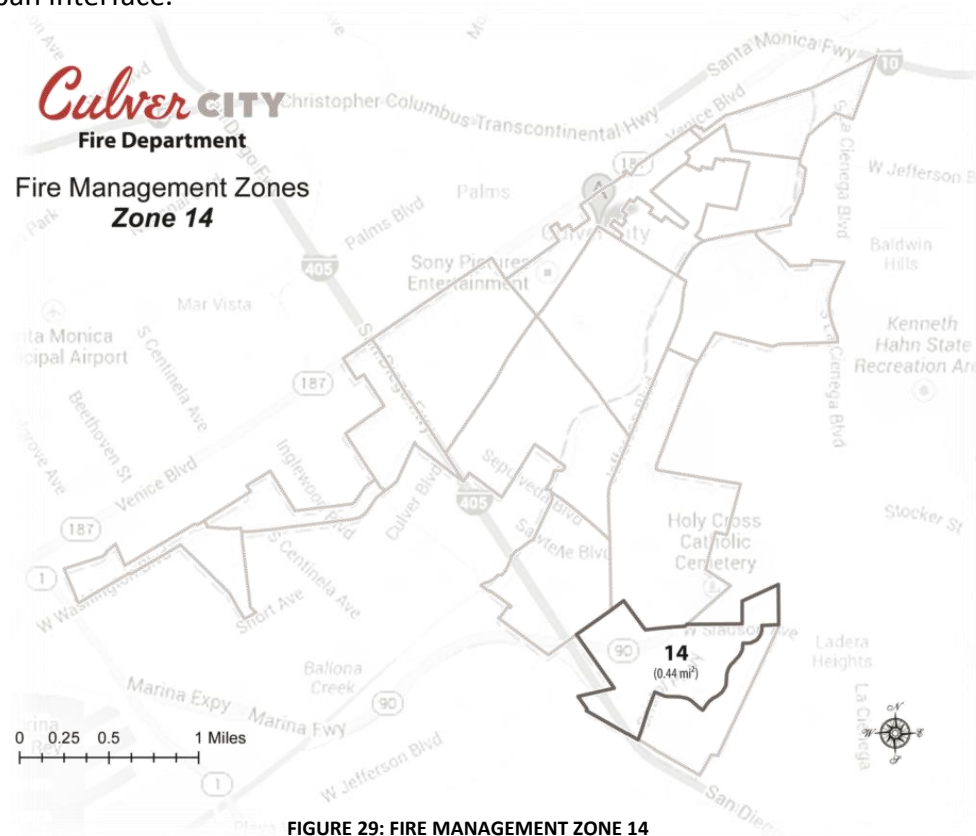
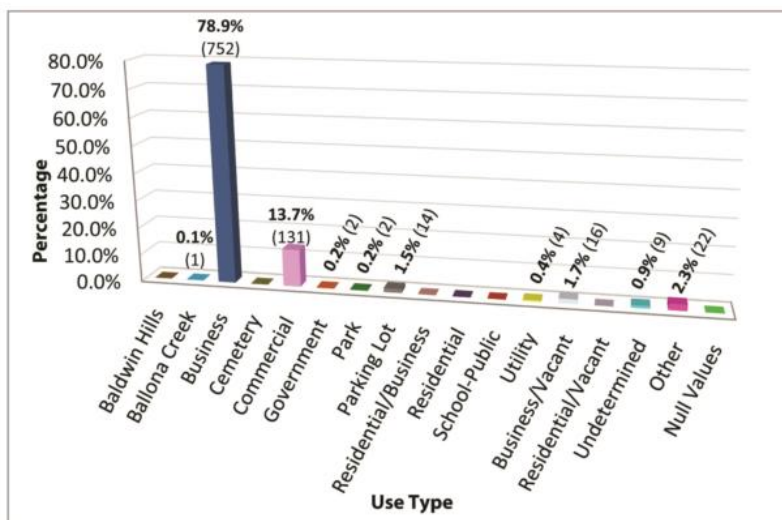


FIGURE 29: FIRE MANAGEMENT ZONE 14

Percentage Breakdown of Use Types



Special Risk

Westfield Mall
Punch Studios
GMT Studios
400 Corporate Pointe - 8 story high-rise
600 Corporate Pointe - 12 story high-rise
6333 Bristol Pkwy - 12 story high-rise
6161 Centinela Ave - 10 story high-rise
5990 Green Valley Circle - 8 story high-rise

High Risk

(raw count)
Commercial Space > 10,000 ft² = **77**



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FIRE MANAGEMENT ZONE 15

Fire Management Zone 15 is a general corridor consisting of 0.22 square miles, which is located in the southern part of the City. It is almost exclusively made up of a planned residential development. Zone 15 also borders the wildland-urban interface.

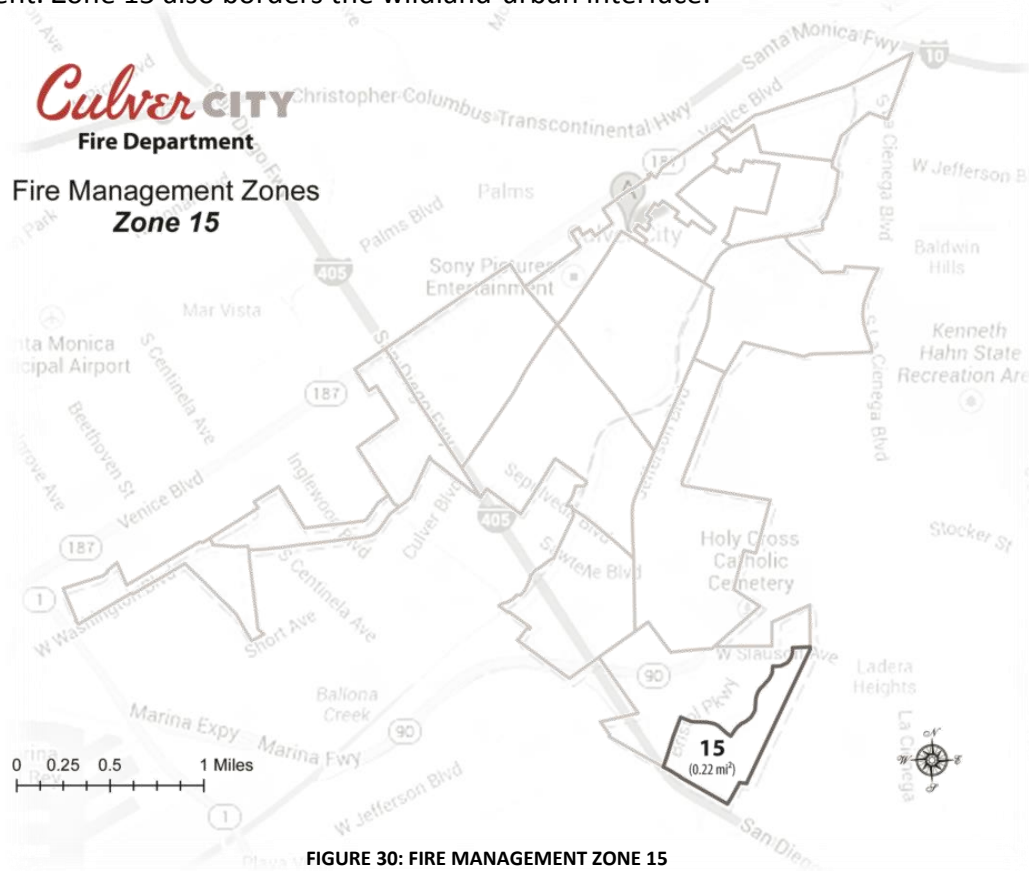
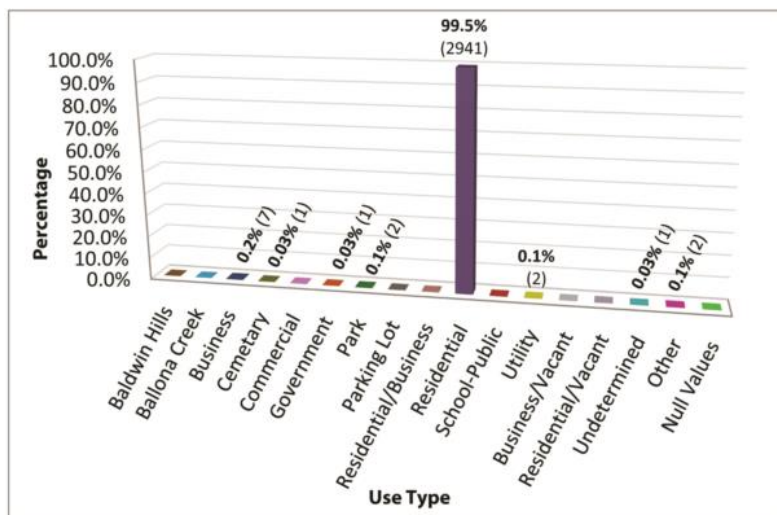
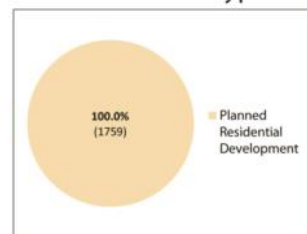


FIGURE 30: FIRE MANAGEMENT ZONE 15

Percentage Breakdown of Use Types



Percentage Breakdown of Residential Type



High Risk

(raw count)

Commercial Space > 10,000 ft² = **1**

Residential Complexes with 40+ units = **6**



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NATURAL HAZARDS

The City of Culver City is in a low risk area for natural disasters such as, floods, droughts, tornados, hurricanes, tsunamis, and severe winter storms. Risks for these types of hazards are considered to be low probability with high consequence. Natural hazards with slightly higher probabilities, resulting in slightly higher risk, are wildfires along the eastern portion of the City and earthquakes.

WILDFIRES

The eastern portion of Culver City is considered a wildland-urban interface. Wildland located within Los Angeles County are directly adjacent to the Culver City communities of Blair Hills and Culver Crest. A wildland-urban interface is defined as anywhere the growth and spread of a fire may begin in a brush or wildland region, and then quickly enter an urban environment. Mutual aid agreements are in place and front-line apparatus are equipped with wildland firefighting equipment to address wildland-urban interface fires in Culver City.

EARTHQUAKES

Located in Southern California, the Newport-Inglewood fault runs near the eastern portion of the City. The majority of the City is within a liquefaction zone extending from Marina Del Rey up through the eastern boundary of the City. Risk from earthquake is considered low probability with high consequence. Specific earthquake/disaster response policies have been developed and personnel have received training on earthquake related procedures and tasks. Mutual aid agreements are in place to ensure access to additional or specialized resources. The Fire Department oversees a Community Emergency Response Team (CERT) program, which could assist in disaster relief efforts. CERT members are educated to be self-sufficient for at least 72 hours. They receive training in first aid, in the use of fire extinguishers, and in conducting neighborhood safety surveys.

TECHNOLOGICAL/HUMAN HAZARDS

INGLEWOOD OIL FIELD

The Inglewood Oil Field is located within Culver City and the unincorporated area of Los Angeles County known as Baldwin Hills. The oil field is approximately 1,000 acres making it one of the largest contiguous urban oil fields in the United States. 10 percent of the oil field's acreage is in Culver City. Drilling began in the oil field in the 1920s and is currently managed by Freeport-McMoRan. Throughout its existence, the oil field has presented real and perceived dangers for the Department. The area is home to oil drilling and fracking, which has caused concern in the Culver City community. The area has experienced brush fires in the past, primarily as a result of



electrical transformer failures. As the Inglewood Oil Field and surrounding area are considered wildland-urban interface, the Department is aware of the risk to the City and is prepared with equipment necessary to address wildland-urban interface fires in this area.

HAZARDOUS MATERIAL INCIDENTS

Hazardous material incidents account for less than two percent of all calls to the Fire Department. A major hazardous materials release is in the low probability, high consequence category. There are different types of hazardous materials incident responses ranging from a single engine response (e.g., an abandoned container of motor oil), to a response requiring the Department's entire staff for a major release of hazardous materials. Additional resources are available if needed through the California Master Mutual Aid Plan.

UTILITY FAILURE

Risks from a prolonged utility failure are considered low probability with low consequence. Critical City infrastructure, such as City Hall, the Police Department, Public Works, the Transportation Facility, the Senior Center, and each fire station have emergency power capability with procedures in place to maintain essential emergency services.

TRANSPORTATION HAZARDS

AIR

The City of Culver City has no airport within its boundaries. It is located 6.1 miles away from Los Angeles International Airport (LAX) and not within any direct flight path. Risks from an air transportation emergency are considered to have low probability with high consequence. The Department is capable of handling small air transportation incidents through current policies and procedures. Additional specialized resources are available through the Master Mutual Aid Plan.

LIGHT RAIL

The City of Culver City currently has a light rail mass transit system that operates within its boundaries. The light rail system risk is in the low probability with high consequence category. The presence of the light rail system adds to the potential for mass casualty and/or rescue incidents. Policies, procedures, and mutual aid agreements are in place to handle this potential.

HIGHWAY

Culver City provides emergency services to portions of the 405 and 90 Freeways as they pass through the City. There are 120 linear miles of streets and five miles of highway in Culver City. Motor vehicle accident risks are in the high probability with low consequence category. All highway/street incidents do have the potential to be in the low probability with high



consequence category if the incident involves hazardous materials, multiple patients, or is a complex incident.

PIPELINES

There are underground pipelines carrying oil, gasoline and natural gas beneath Culver City. While there was a significant event involving these pipelines in 1976, the risk associated with pipelines is in the low probability with high consequence category. The Fire Department is capable of handling small pipeline incidents through current policies and procedures. Additional specialized resources are available through the California Master Mutual Aid Plan.

SECURITY HAZARDS

CIVIL DISORDER

Located within the Los Angeles Basin, Culver City is at risk of being affected by civil unrest that impacts Los Angeles. For example, historical events such as the Watts Riots and Rodney King Riots are Greater Los Angeles civil unrest events that have occurred in the past. As the probability of these events occurring is low, the associated risk falls into the low probability with high consequence category. While generally a police department issue, fire departments do attempt to extinguish fires and treat the injured, when safe, during these events. In the past, Culver City has teamed up with Los Angeles Fire Department and operated using the policies, tactics and procedures developed for riot situations (i.e., task force configurations with law enforcement escorts).

TERRORISM

Located within the Los Angeles basin, Culver City is at risk of being involved in a terrorist attack involving Los Angeles. Specific targets have been identified and pre-plans have been created for incidents involving potential targets. Copies of these pre-plans are carried in the Battalion Chief's command vehicle. All members are trained to the awareness level and many have had extensive additional training. Depending on the nature of the event—chemical, biological, radiological, nuclear, or explosive—the Department has acquired various detection capabilities. Acts of terrorism are in the low probability with high risk category.



FIRE RISK ASSESSMENT

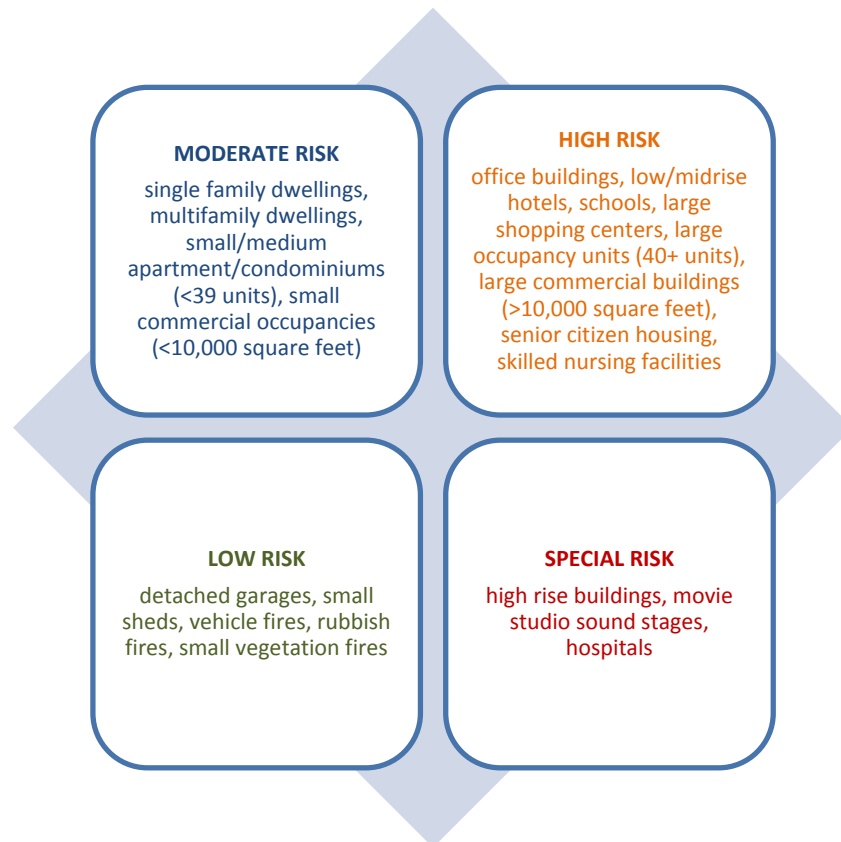
In general, fire hazards are related to the characteristic type and layout of a city's development. The majority of Culver City is devoted to residential or low-rise commercial development that is composed predominantly of wood-frame construction. Data indicates that of fires involving structures, over 80 percent occur in residential and small commercial buildings. There are 12 mid-rise (4 to 7 floors high) and 6 high-rise buildings (higher than 7 floors) in Culver City. There are over 70 high occupancy buildings and/or buildings housing immobile populations that require special logistical demands. A small area on the eastern portion of Culver City is considered a wildland-urban interface wherein wildfires could potentially impact a portion of the Culver City community.

The fire risk analysis takes into account fire potential (probability), life hazards and economic impact (consequences), occupancy use, construction features, fire protection systems, fire flow requirements, and community risk factors. Based upon this analysis of existing and potential community risk, in addition to the probability and consequences of these events, the following hazard levels have been established:

- **Low Risk:** Small structures that are remote from other buildings are considered low hazard occupancies. Examples include detached garages and sheds. Also included in this category are vehicle fires, rubbish fires, and small vegetation fires.
- **Moderate Risk:** Moderate hazard areas are also known as typical hazards. Most of Culver City falls into this category. Single family dwellings, multifamily dwellings, and small or medium apartments/condominiums (≤ 39 units) and small commercial occupancies ($\leq 10,000$ square feet) are example of moderate risk structures.
- **High Risk:** These properties are typically substantial structures that in an emergency may bear the risk of large loss of life, loss of economic values to the community, or large property loss. Low and midrise hotels, schools, large shopping centers, large apartment or condominium complexes (40+ units), large commercial buildings ($>10,000$ square feet), senior citizen housing, and skilled nursing facilities are examples of high risk occupancies.
- **Special Risk:** High rise buildings, movie studio sound stages, and the Southern California Hospital at Culver City (SCHCC) are classified as special risk. Special Risk is an exceptional



classification that addresses critical tasking for a unique incident type. These unique incident types, although low in probability, may threaten a significant number of lives, may result in excessive economic loss, and/or may cause severe long-term damage to the environment.



FIRE FLOW

The evaluation of water supply needed once a structure has become fully involved is known as fire flow. Fire flow is a vital component to the assessment of fire risk. The City of Culver City has established minimum fire flow requirements and total water supply needed for existing structures and other anticipated fire locations. There are five pressure zones within the Culver City system with hydraulic gradients ranging from 275 to 525 feet. The system is capable of supplying 22,500 gallons per minute (gpm). Peak demand is approximately 9,975 gpm, leaving 12,525 gpm available for fire flow demand. Fire flow requirements in Culver City vary from 2,000 gpm in low-density residential areas up to 12,000 gpm in commercial and industrial areas. Currently, the City has 1,029 fire hydrants within the Department's jurisdiction.



FIRE CRITICAL TASK ANALYSIS

A fire scene can be unpredictable. While it is possible to state what critical tasks must be accomplished in order to extinguish a fire, it is not always possible to predict exactly how many firefighters it will take to accomplish those tasks. Factors such as building construction and built-in fire protection features, number and condition of occupants, extent of fire upon arrival, firefighter or civilian injuries, and equipment failure all pose potential dangers and threats to firefighting success. The need for more personnel may arise on any fire scene at any time. The Department confidently relies on the experience and professional judgment of company and chief fire officers to request additional resources during the initial stages of an incident. In many instances, additional fire companies will be needed to supply added firefighting capability, provide relief crews, and address other needs such as crew rehabilitation and the provision of medical treatment to fire victims. Additional resources are obtained by utilizing mutual aid from neighboring jurisdictions.

Firefighting capability is determined by staffing levels, teamwork, and training. There are specific critical tasks necessary to control low and moderate risk fires in a safe, effective manner. An Effective Response Force (ERF) is the number of staff necessary to complete all of the identified tasks within a prescribed timeframe. The following tables display critical tasks necessary to complete relative to risks for low and moderate risk fires.

CRITICAL TASKS NECESSARY FOR **Low Risk** FIRE RESPONSE

Critical Task	Number of Staff
Command / Safety	1
Fire Attack	2
Pump Operations	1
Total ERF	4

FIGURE 31: LOW RISK FIRE CRITICAL TASKS

CRITICAL TASKS NECESSARY FOR **MODERATE RISK** FIRE RESPONSE

Critical Task	Number of Staff
Command / Safety	1
Fire Attack – 1 st hose line	2
Fire Attack – Back up hose line	2
Search & Rescue	2
Exposure Line	2
Rapid Intervention Crew	2
Water Supply	1
Pump / Aerial Operations	2
Ventilation	3
Utilities	1
Total ERF	18

FIGURE 32: MODERATE RISK FIRE CRITICAL TASKS

CRITICAL TASKS NECESSARY FOR **HIGH/SPECIAL RISK** FIRE RESPONSE

High and Special Fire Risk incidents in the Culver City area represent unique critical tasking situations where there is very little historical response information to base tasking upon. These types of incidents are addressed with the region's mutual aid agreements to help augment Culver City resources. For example, the minimum mutual aid request to meet the demands of a high/special risk fire is an "A Assignment," i.e., one truck company, three engine companies, two rescue ambulances, two battalion chiefs, and one EMS Supervisor, adding 26 personnel to assist with the incident.



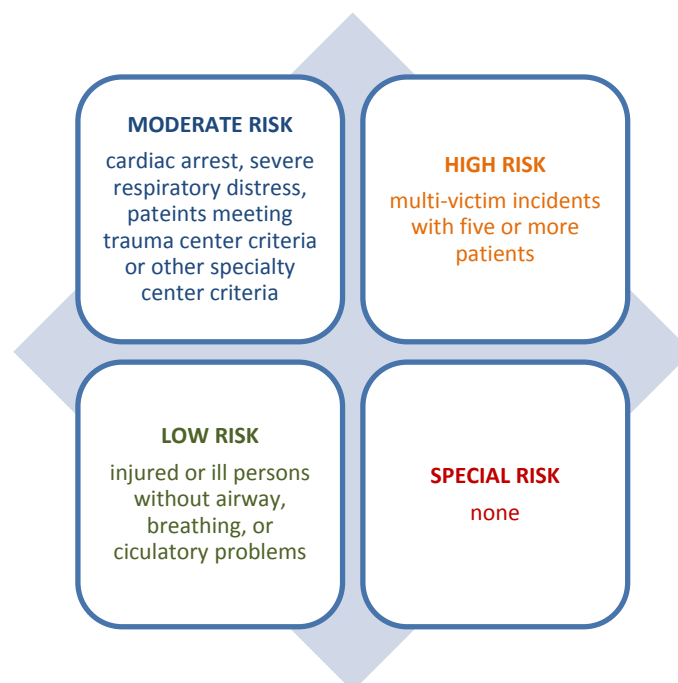
NON-FIRE RISK ASSESSMENT

The non-fire emergency services provided by the Culver City Fire Department include Emergency Medical Services (EMS), hazardous materials response (HazMat), and technical rescue response. Risk assessment for non-fire hazards incorporate many of the same factors evaluated during the fire risk assessment, such as historical demand for these types of services, community characteristics, and demographics.

EMERGENCY MEDICAL SERVICES RISK ASSESSMENT

Requests for Emergency Medical Services (EMS) are the most frequent type of service provided by the Culver City Fire Department. EMS incidents account for 78 percent of emergency activities and correspondingly have the greatest impact on Culver City Fire Department resources. The residential and daytime population is a significant factor in assessing the probability of EMS incidents. As the population of the Culver City increases and ages, the demand for EMS will increase proportionately. There is a range of EMS incident types. The following hazard levels have been established for EMS risk:

- Low Risk: Injured and ill persons, without airway, breathing, or circulatory problems.
- Moderate Risk: Cardiac arrest, severe respiratory distress, patients meeting trauma center criteria or other specialty center criteria.
- High Risk: Multi-victim incidents with five or more patients.





EMS CRITICAL TASK ANALYSIS

According to the Commission on Fire Accreditation International, to create standard levels of response in mitigation actions, an assessment must be conducted locally to determine the capabilities of the arriving companies and individual responders to achieve those critical tasks. When identifying critical tasks, responder safety must be a priority.

An effective response force (ERF) is the number of staff/tasks necessary to complete all of the identified tasks within a prescribed timeframe. The following tables show critical tasks and associated risk with the ERF for the incident.

CRITICAL TASKS NECESSARY FOR **Low Risk** EMS RESPONSE

Critical Task	Number of Staff
Command / Safety / Family Liaison	1
Patient Assessment / Patient Interview	1
Documentation / Medical Control	1
Patient Care / Handling / Equipment	2
Total ERF	5

FIGURE 33: LOW RISK EMS CRITICAL TASKS

CRITICAL TASKS NECESSARY FOR **Moderate Risk** EMS RESPONSE

Critical Task	Number of Staff
Command / Safety / Family Liaison	1
Patient Assessment / Patient Interview	1
Documentation / Medical Control	1
Patient Care / Handling / Equipment	2
Total ERF	5

FIGURE 34: MODERATE RISK EMS CRITICAL TASKS

CRITICAL TASKS NECESSARY FOR **High Risk** EMS RESPONSE

Critical Task	Number of Staff
Command	1
Scene Safety	3
Triage	2
Treatment	7
Transportation	2
Medical Communications (Med Com)	2
Ambulance Staging	1
Total ERF	18

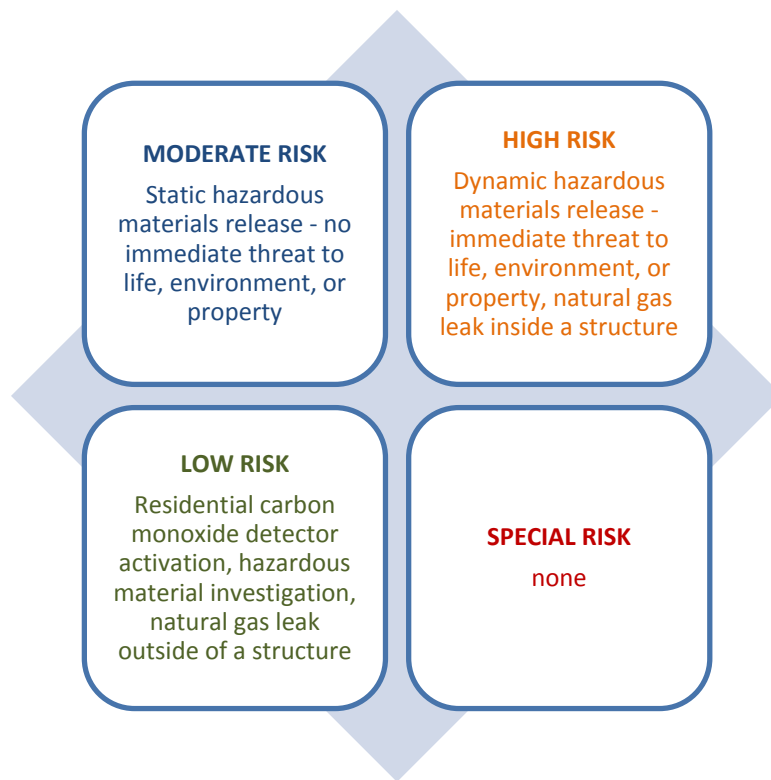
FIGURE 35: HIGH RISK EMS CRITICAL TASKS



HAZARDOUS MATERIALS RISK ASSESSMENT

Hazardous material incidents account for 1-2 percent of responses annually. Hazardous materials are routinely transported on the streets of Culver City and there are 222 businesses that use or store reportable quantities of hazardous materials. Illicit drug labs and illegal dumping are other sources of hazardous material incidents. The City also borders an oil field, which could potentially present HazMat related issues. The following hazard levels have been established for hazardous materials risk:

- **Low Risk:** Residential carbon monoxide detector activation, hazardous material investigation, natural gas leaks outside of a structure.
- **Moderate Risk:** Static hazardous materials release – no immediate threat to life, environment, or property.
- **High Risk:** Dynamic hazardous materials release – immediate threat to life, environment, or property, natural gas leak inside a structure.





HAZMAT CRITICAL TASK ANALYSIS

CRITICAL TASKS NECESSARY FOR **Low Risk** HAZMAT RESPONSE

Critical Task	Number of Staff
Command / Safety	1
Investigation	2
Total ERF	3

FIGURE 36: LOW RISK HAZMAT CRITICAL TASKS

CRITICAL TASKS NECESSARY FOR **MODERATE RISK** HAZMAT RESPONSE

Critical Task	Number of Staff
Command	1
Safety Officer	1
Perimeter Control	5
Evacuation	3
Containment	3
Total ERF	13

FIGURE 37: MODERATE RISK HAZMAT CRITICAL TASKS

CRITICAL TASKS NECESSARY FOR **HIGH/SPECIAL RISK** HAZMAT RESPONSE

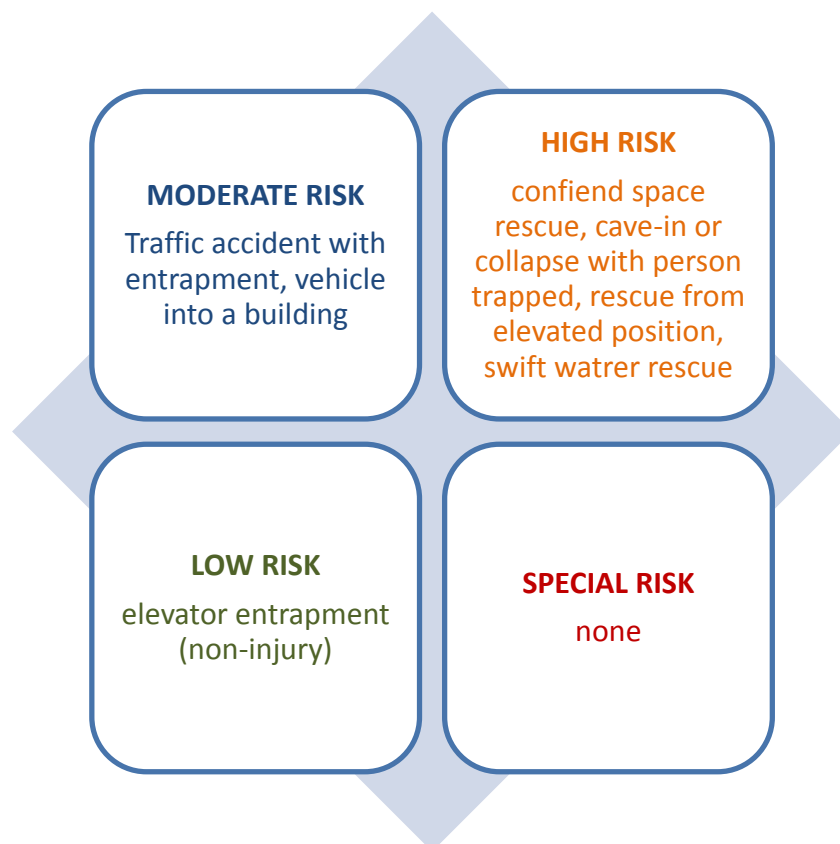
High and Special HazMat Risk incidents in the Culver City area represent unique critical tasking situations where there is very little historical response information to base tasking upon. These types of incidents are addressed with the region's mutual aid agreements to help augment Culver City resources.



TECHNICAL RESCUE RISK ASSESSMENT

Technical rescue covers a wide range of incidents, which include vehicle extrication, confined space rescue, trench collapse, low/high angle rescue, swift water rescue, and building collapse. The following hazard levels have been established for technical rescue risk:

- Low Risk: Elevator entrapment (non-injury).
- Moderate Risk: Traffic accident with entrapment, vehicle into a building.
- High Risk: Confined space rescue, cave in or collapse with person trapped, rescue from elevated position, swift water rescue.





TECHNICAL RESCUE CRITICAL TASK ANALYSIS

CRITICAL TASKS NECESSARY FOR **Low Risk** TECHNICAL RESCUE RESPONSE

Critical Task	Number of Staff
Command / Safety	1
Extrication	3
Total ERF	4

FIGURE 38: LOW RISK TECHNICAL RESCUE CRITICAL TASKS

CRITICAL TASKS NECESSARY FOR **MODERATE RISK** TECHNICAL RESCUE RESPONSE

Critical Task	Number of Staff
Command	1
Scene Safety	3
Vehicle / Building Stabilization	3
Extrication	4
Medical Care	2
Total ERF	13

FIGURE 39: MODERATE RISK TECHNICAL RESCUE CRITICAL TASKS

CRITICAL TASKS NECESSARY FOR **HIGH/SPECIAL RISK** TECHNICAL RESCUE RESPONSE

High and Special Technical Rescue Risk incidents in the Culver City area represent unique critical tasking situations where there is very little historical response information to base tasking upon. These types of incidents are addressed with the region's mutual aid agreements to help augment Culver City resources.



E. HISTORICAL PERSPECTIVE

A historical perspective—taking into account the Department’s current distribution, concentration, reliability, comparability and baseline performance—is important to consider in helping the Department assess its efficiency and effectiveness. In order to set proper time response measures, it is important to fully understand the critical factor of time when addressing fire and emergency medical incidents.

STAGES OF FIRE GROWTH – CRITICAL FACTOR OF TIME

Although fires vary in terms of the speed at which they grow, the host structure, the material burning, and the intensity level, all fires follow the same stages of growth. Industry-wide, the flashover point is the moment during fire growth that significantly compounds the danger of the fire.

SMOLDERING STAGE

All fires start with the smoldering stage. Anytime energy, i.e., heat, a spark, or a flame, is applied to a combustible material, the material’s surface oxidizes. The oxidation process is exothermic, meaning energy is released from the material. This oxidation process produces more energy in the form of combustible gases. After an exothermic reaction, more energy is ultimately released to the surroundings than was absorbed to initiate and maintain the reaction. The additional heat from the oxidation process raises the temperature of surrounding material, which increases the rate of oxidation and begins a chemical chain reaction of heat release and burning.

INCIPIENT/OPEN-BURNING STAGE

Once the temperature of the smoldering material reaches its relative ignition point, the material ignites into an open burning or incipient stage. Flames seen during the incipient stage are limited to the area of origin. The combustion process continues by releasing more heat, which hastens the temperature increase and accelerates the levels of combustible gases released from surrounding materials.

FLASHOVER

Combustible gases continue to release from surrounding materials. As they are a form of energy and heat, these gases rise and collect at the ceiling level. The gas layer, primarily carbon monoxide, can rapidly reach 1,500 degrees Fahrenheit at the top of a room and radiate heat down to objects at the floor level. With no oxygen at the ceiling level, the objects in the upper portions of the room are unable to burst into flames. The volume of the gas layer increases and begins to fill the room, banking down towards the floor and continuing to heat all combustible objects in the room regardless of their proximity to the burning material.



The flashover point occurs when oxygen is introduced. Oxygen is typically introduced in one of two ways. There is often enough oxygen at the floor level to trigger flashover. Or, the high levels of heat break open a window and introduce oxygen from the outside. Flashover represents the point at which everything in the room breaks into open flame all at once. This reaction creates enough energy, i.e., heat, smoke, and pressure, to break beyond the room of origin and through doors and windows.

Flashover is a critical turning point in a fire as it escalates the challenge presented to a fire department's resources. Post-flashover conditions present significantly increased combustion rates and limit the chance of saving lives. When a fire has reached flashover, more staffing is required to handle the larger hose streams needed to extinguish the fire. A post-flashover fire burns hotter and moves faster, compounding the search and rescue challenges in the remainder of the structure.

Without early arrival and suppression efforts, not only will the loss be potentially greater, but the apparatus, equipment, and number of personnel needed to handle the fire must also increase. The graphic below correlates the stage of the fire with resource and equipment needs.

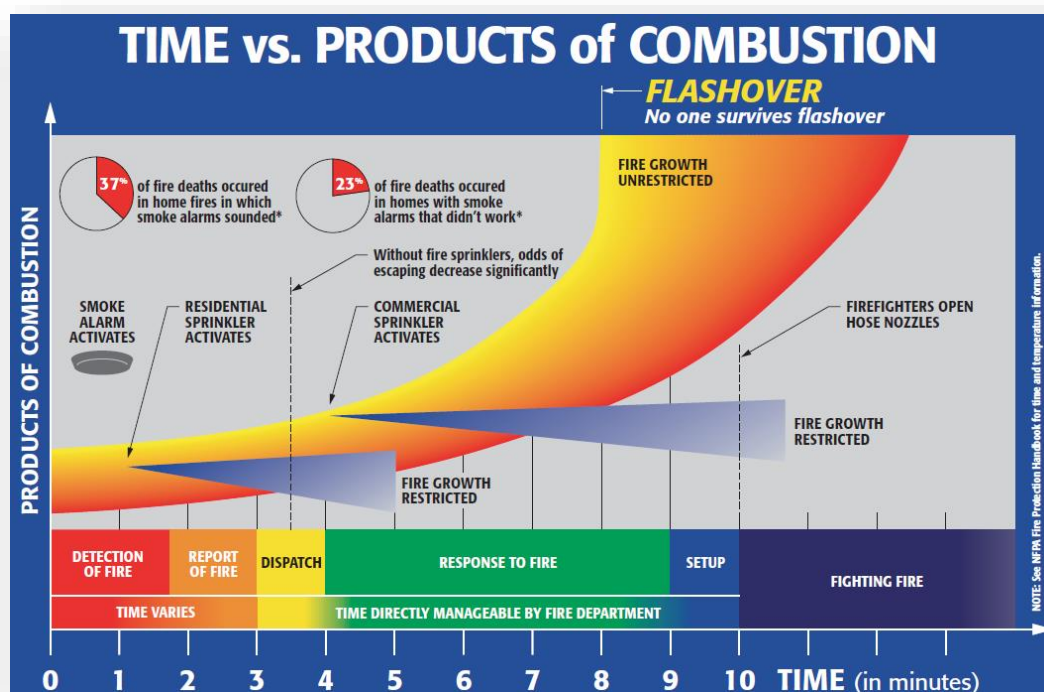


FIGURE 40: TIME VS. FLASHOVER



EMS RESPONSE – CRITICAL FACTOR OF TIME

There are a wide variety of medical emergencies to which Department personnel respond on a daily basis. EMS professionals are tasked with getting to the medical emergencies in a timely fashion, delivering necessary therapeutic measures, and transporting patients. In cases of cardiac arrest, stroke, trauma, and pediatric emergencies, EMS staff must get the patient to the appropriate hospital for treatment as well.

Most medical emergencies require multiple personnel to perform the various tasks associated with patient care. As there are two firefighter paramedics staffed on an ambulance, an engine or truck, staffed with three or four personnel respectively, must report to a medical emergency to provide assistance.

Most EMS guidelines are based upon studies showing the relationship between resuscitation efforts and the timeframes in which they are initiated. Similar to fire flashover, the Department uses a critical time component of four to six minutes before brain death occurs in a cardiac arrest patient. Brain damage is usually irreversible after ten minutes without oxygen. Early defibrillation is a vital form of intervention. When cardiac arrest occurs, the heart starts to beat chaotically (fibrillation) and does not circulate blood through the body. For every minute without defibrillation, the odds of survival drop seven to ten percent. A sudden cardiac arrest victim who is not defibrillated within ten minutes has virtually no chance of survival. The shortest possible response time creates the highest probability of resuscitation.

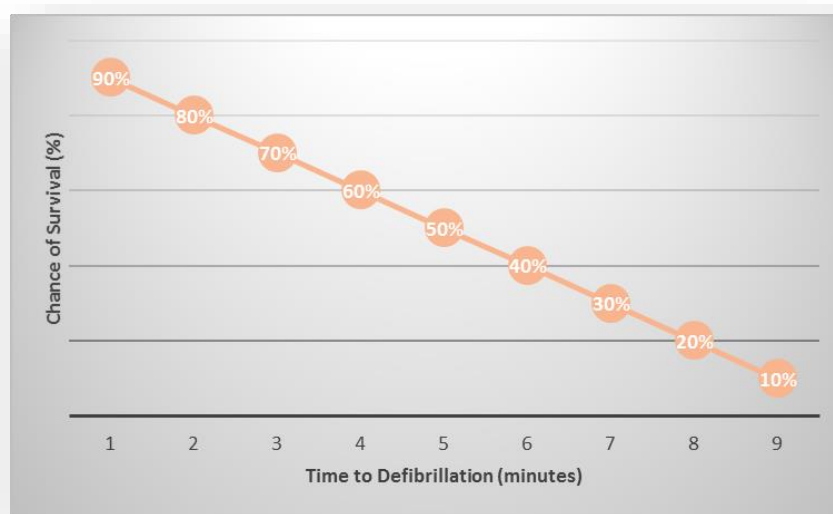


FIGURE 41: TIME TO DEFIBRILLATION



Rapid response times are not the only factor in providing rapid defibrillation. Sometimes there are delays in accessing a patient located in a high rise building, a condominium complex, shopping center, or other occupancy that has a significant walking distance to the patient's location. To address this limitation, the American Heart Association promotes citizen CPR and Public Access Defibrillation programs. The Culver City Fire Department provides Cardiopulmonary Resuscitation (CPR) training to the community and operates a Public Access Defibrillation program in several City buildings.

RESPONSE TIME

Response time has different meanings depending on the observer's perspective. Here are three key viewpoints to consider: fire department staff, the public, and the fire, or patient in an emergency medical situation. The total response time clock for fire department staff begins when a member of the public calls 911 dispatch to report the fire or emergency medical incident and ends when the first fire apparatus arrives at the scene. The public typically begins counting down the seconds from the moment a fire or emergency medical incident is observed until firefighters arrive. The fire's clock or a patient's clock begins ticking the moment a fire ignites or the medical emergency event occurs respectively. The National Fire Protection Association refers to these time points in a Cascade of Events chart.

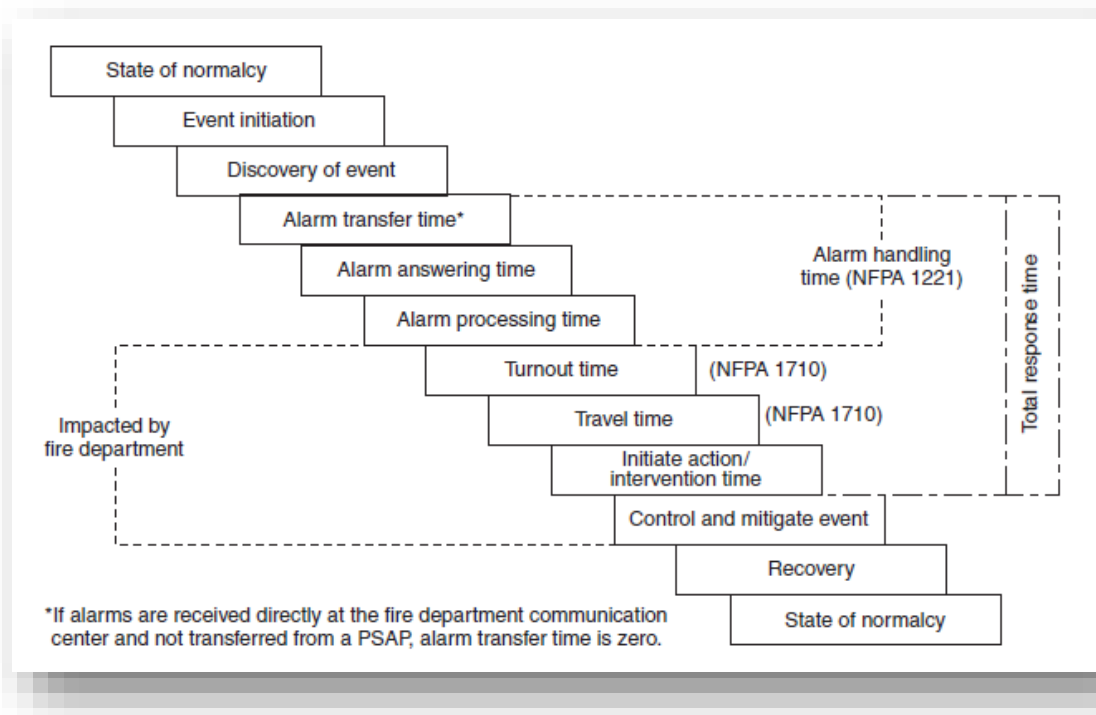


FIGURE 42: CASCADE OF EVENTS



Depending on perspective, there are several factors which could be considered as part of total response time for an emergency response. Some of which are as follows: ignition, combustion, fire detection, medical emergency event occurs, report to 911, call processing, dispatch, turnout time, travel time, setup time, the time fighting the fire, assessing patient(s) and lastly, fire extinguishment or transporting the patient. Of all of these total response time factors, fire department staff is primarily concerned with what is measurable. Those measurable time points are 911 activation, dispatch, en route time, and arrival time.

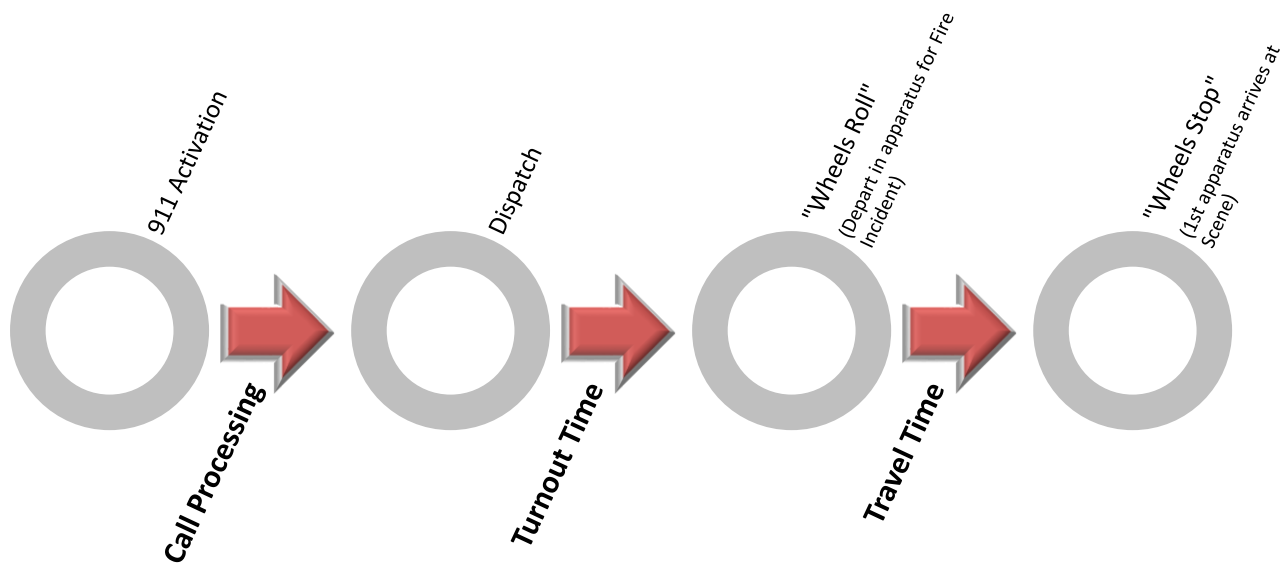


FIGURE 43: TOTAL RESPONSE TIME

CALL PROCESSING TIME

Call processing time is defined as the interval between answering the 911 call at the dispatch center and the time the dispatcher activates station and/or company alerting devices. Factors influencing call processing time include:

- Proliferation of cell phone use: Emergency calls received from normal telephone lines automatically populate the Computer Aided Dispatch (CAD) system with the incident location with no manual entry required. Emergencies reported via cell phone require that



incident information be collected and manually entered into the CAD system, therefore slowing call processing time.

- Calls transferred from other jurisdictions: Emergency calls frequently originate in one jurisdiction only to be transferred to the servicing agency. The Culver City dispatch center receives calls transferred from other agencies including California Highway Patrol, Los Angeles City Fire Department, and Los Angeles County Fire dispatch centers. Incident information has to be collected and manually entered into the CAD system, therefore slowing the call processing time.
- Language barriers: receiving a 911 call from a non-English speaking customer can require more time to collect incident information.
- Multiple callers for the same incident: dispatchers frequently receive multiple calls for the same incident compounding dispatcher workload, which can lengthen call processing time.
- Simultaneous incidents: The occurrence of simultaneous incidents impacts dispatcher workload and can result in longer call processing times.
- Dispatch staffing levels: Dispatcher staffing levels directly impact call processing time. Adequate staffing must exist to address both call taking and unit dispatching demands. The dispatch center attempts to maintain a staffing level of three dispatchers Monday through Saturday. At night and on Sundays, the dispatch center is staffed with two dispatchers. Other staffing challenges include adequate coverage when a dispatcher calls in sick and position vacancies.

The 911 dispatch center is managed by the Culver City Police Department. The Fire Department has established a call processing standard, which it has communicated to the dispatch staff. Although, dispatchers are not subject to Fire Department policies and standards, dispatchers are aware of the Fire Department's standards and the importance of a timely response by fire personnel. The Police and Fire Departments are currently working on measures to improve call processing times.



TURNOUT TIME

Turnout time is defined as the interval between the activation of station and/or company alerting devices, and the time when the responding crew is aboard the apparatus and responding to the incident location. Factors influencing turnout time include:

- Unit location at time of dispatch: Throughout the day, fire companies are out of the station attending to assigned activities. Personnel may be a short distance away from their apparatus when the dispatch is received. For example, personnel could be surveying a building for a Pre-Fire Plan, at the Culver City Transportation Facility for maintenance, or returning from another emergency incident. Situations such as these are necessary, but can increase turnout time while crews get to their vehicles and prepare for departure. Efforts are made to have other fire companies respond in place of affected crews to minimize this type of impact.
- Activities immediately preceding response activation: Much of a firefighter's day is dictated by local and national standards such as NFPA, OSHA, and the California Fire Code. As a result, companies are engaged in training exercises, public education, and inspections. Training scenarios typically employ full protective clothing, charged hose lines, and equipment. Fire inspections and hydrant maintenance are conducted by all units on a weekly basis. Crews, with their apparatus, attend several public events monthly at the community's request. All of these events require a certain amount of time to disengage before responding, but are a necessary part of organizational functions.
- Type of incident: Depending on the incident type, firefighters are required to wear different pieces of equipment. During a medical emergency, firefighters are required to wear latex gloves and protective eyewear. Structural turnouts and personal protective equipment are far more time consuming to put on.
- Station layout: Culver City's fire stations average approximately 10,000 square feet. This adds to a firefighter's travel time within the building to their apparatus during an emergency response.

Fire Department personnel understand the importance of response times and strive to minimize turnout time. Once notified of a call, firefighters move with haste to the apparatus and don the appropriate protective equipment quickly. Some impacts such as training and fire inspections cannot be avoided as these activities are mandatory. Improvements in the dispatching process and technologies are currently underway, which will improve turnout time.



TRAVEL TIME

Travel time is the time it takes to drive from the fire station (or location at which firefighters received the alarm) to the curbside of the address of the incident. Factors influencing travel time include:

- Traffic control devices: traffic calming features such as traffic circles, speed bumps, cul-de-sacs, curb extensions, and medians impact the time in which apparatus can reach a fire or medical emergency.
- Volume of Traffic: with an estimated day population of over 200,000 people, the Culver City streets are highly impacted with traffic. Although emergency apparatus responding with lights and sirens are able to go around most vehicles and through most intersections, apparatus drivers must take extreme caution due to the number of vehicles on the road and at times, must wait for traffic to clear before being able to proceed down a street.
- Knowledge and awareness of surrounding drivers: according to the California Department of Motor Vehicle Code 21806, drivers of every other vehicle are expected to yield the right-of-way and shall immediately drive to the right-hand edge or curb of the street. Oftentimes, due to traffic density or lack of driver knowledge, and driver distraction with radios or cell phones, this does not occur. Waiting for traffic to clear further slows the travel time to the scene of a fire or emergency medical situation.



DISTRIBUTION

Distribution describes the geographic placement of first-due resources throughout neighborhoods and/or areas within the community. The initial response areas in Culver City are known as fire and rescue districts. There are three fire districts and two rescue districts. Travel distances are measured according to surface routes. Station placement in Culver City covers 96.6 percent of prescribed travel distances as measured by station location to radial catchment areas.

The three fire stations are also equally distributed throughout Culver City when measuring travel time along City streets and roads. Images below, generated by the City's GIS Division, demonstrate four-minute travel times from each station. All travel distances eclipse fire district boundaries.



FIGURE 44: FOUR MINUTE TRAVEL DISTANCES



The Department's three fire stations are also evenly distributed by centerline miles and population served. Centerline miles represent the total length of all of the roads in Culver City, ignoring the size and number of lanes on each road. Below are pie charts showing the equal distribution of fire stations within the City based on centerline miles and population served as related to fire and EMS responses.

FIGURE 45: CENTERLINE MILES AND POPULATION SERVED PER FIRE DISTRICT

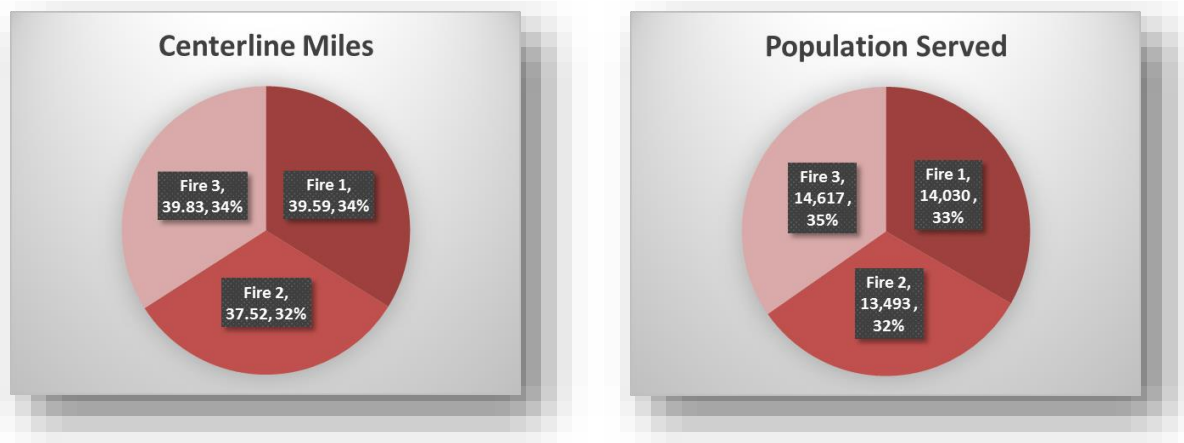
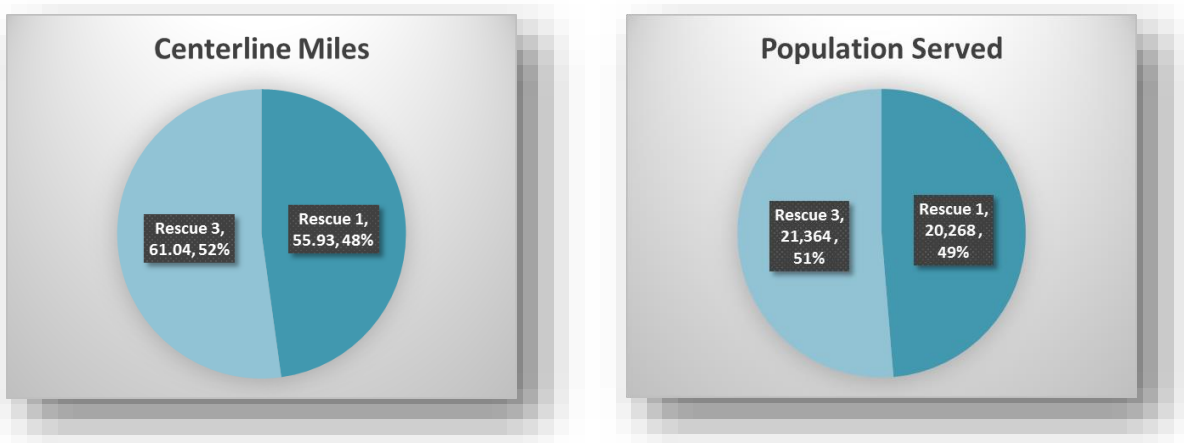


FIGURE 46: CENTERLINE MILES AND POPULATION SERVED PER RESCUE DISTRICT





The fire stations and apparatus are also evenly distributed into fire and rescue districts based on square miles.

FIGURE 47: FIRE DISTRICTS

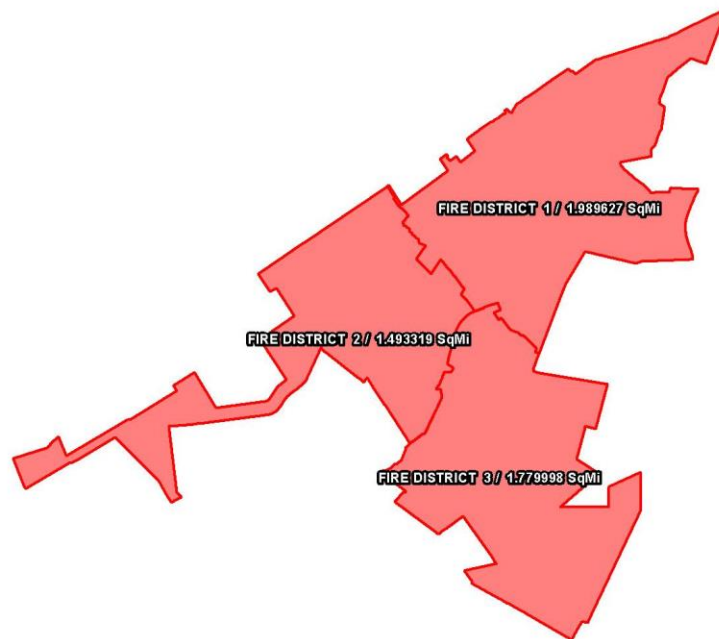
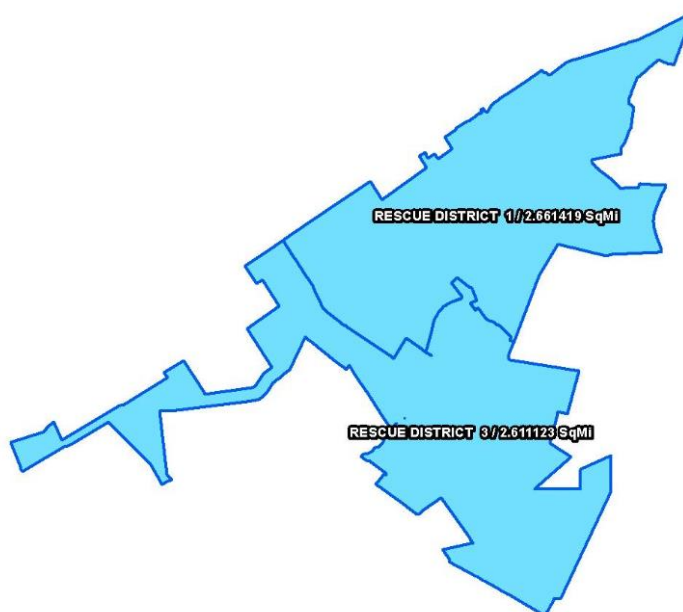


FIGURE 48: RESCUE DISTRICTS





CONCENTRATION

Concentration is defined as the spacing of multiple resources arranged so that an effective response force (ERF) can arrive on scene within a sufficient timeframe. It is about having enough of the right equipment and staff arriving in a timeframe that allows firefighters to be effective servicing the demand/situation. An ERF varies depending on the type and severity of incident.

Evaluating the concentration of resources can also be used to measure efficiency. In an ideal system, each resource would cover an equal share of the workload. While an exact leveling of workload is impossible, extreme variations in workload are not efficient.

The concentration goals of the Culver City Fire Department are to provide an effective response force that is able to execute critical tasks necessary to mitigate low, moderate, and high risk fire, EMS, HazMat and technical rescue incidents.

There are two measures of concentration: workload by station and effective response force. The chart below shows that the workload is evenly distributed between the three fire stations. This indicates the current concentration of resources is efficient.

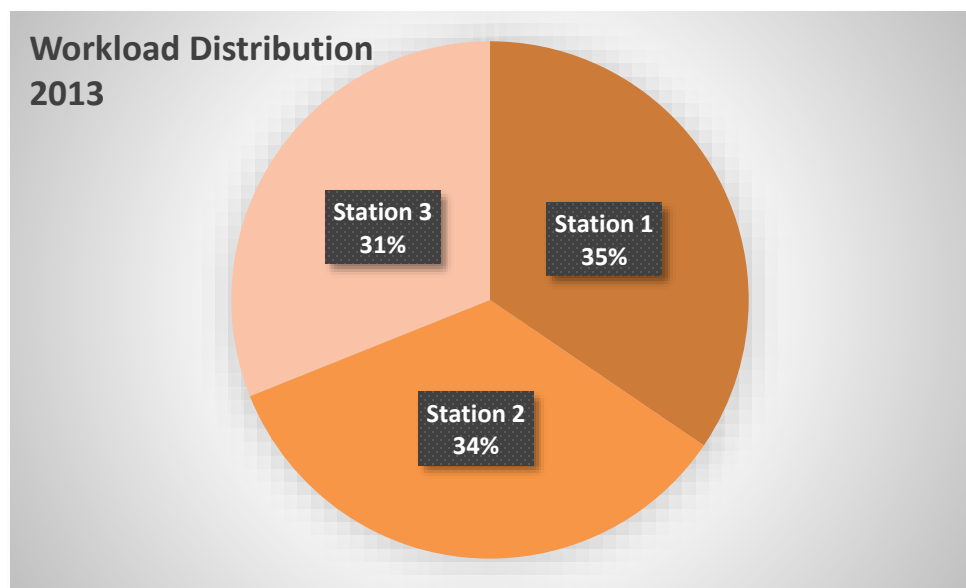


FIGURE 49: WORKLOAD BY FIRE STATION

The second concentration measurement monitors the response times for the complete effective response force, or all responding units.

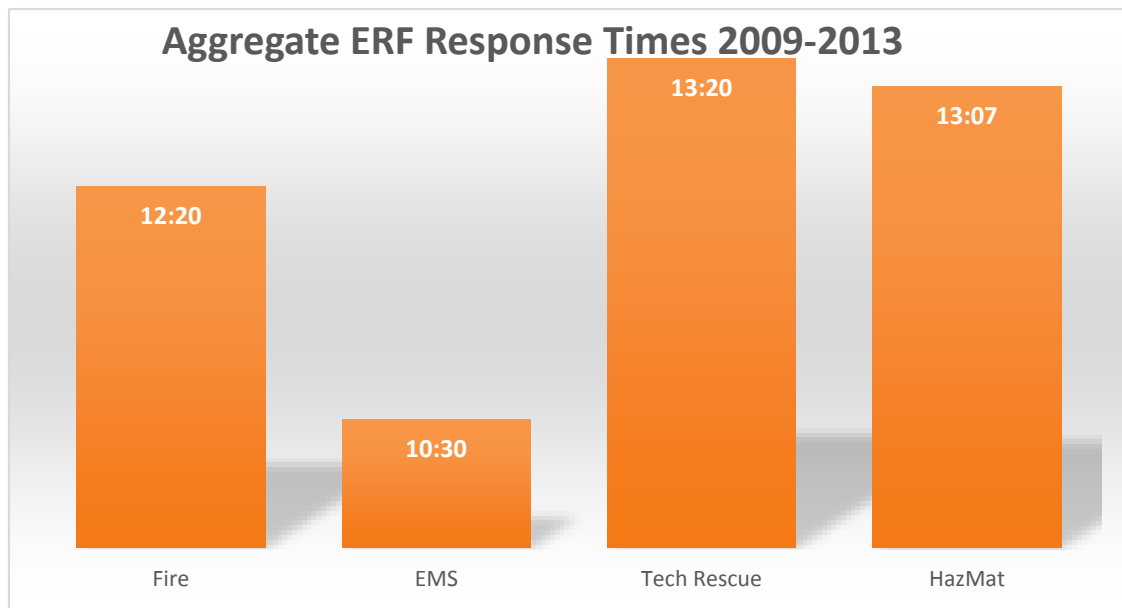


FIGURE 50: AGGREGATE ERF RESPONSE TIMES

Previously, the Department tracked only travel times for the effective response force. The revised timeframes for effective response force now incorporate call processing, turnout time, and travel time.

RELIABILITY

Response reliability is defined as the probability that the required amount of staffing and apparatus will be available when a call for service is received. If every apparatus were available every time, then the Department's response reliability would be 100 percent. The Department can provide an effective response force to a multitude of emergency incidents. Increased demands for service with limited or diminishing resources will eventually erode this ability. The ability to meet the demands for service can be critically curtailed during times of multiple requests for service, or queuing. As the number of emergency calls per day increases, or resources diminish, the probability that needed apparatus will be busy when requested increases. On these occasions, the Department's response reliability will decrease. In 2013, this situation occurred 26 percent of the time. In other words, out of 4,671 calls for service last year, the Department had two or more simultaneous calls 1,239 times. Instances of concurrent calls have been increasing considerably over the past five years.

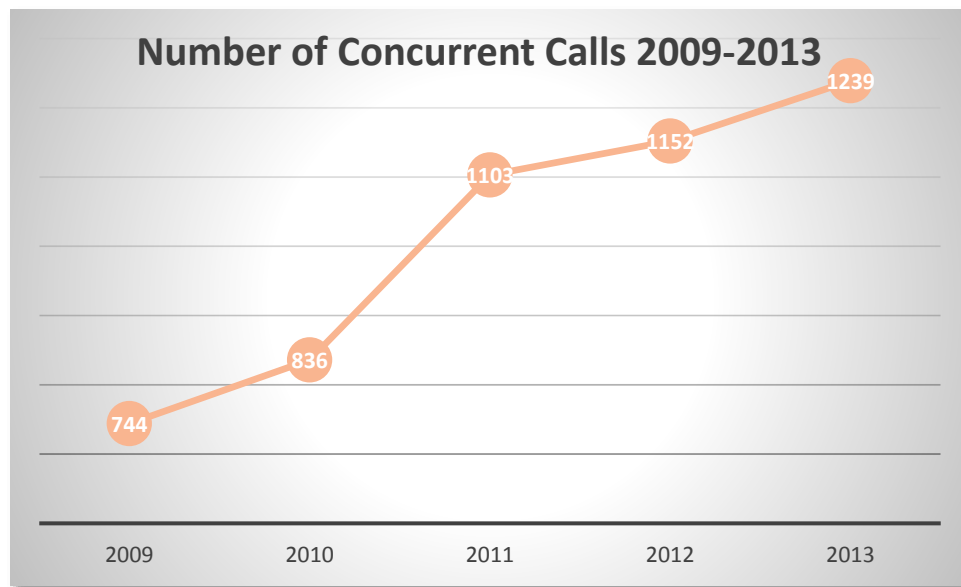


FIGURE 51: CONCURRENT CALLS

The Department is sensitive to its ability to maintain acceptable service levels and has developed a number of statistical observation points to monitor reliability performance. A few key indicators are total call volume, total fire calls, total EMS calls, total unit responses, travel times, patients transported, patients transported out of the City and concurrent calls. When the Department observes a total call volume increase, there is also an increase in out-of-service time, total unit responses, and concurrent calls. Increased call volume also translates to treating more patients, additional patient transports, and a greater number of transports out of the City.

COMPARABILITY

Comparability is the review of the organization in comparison to other like-sized agencies, other accredited fire agencies, or industry best practices. Outlined below are three relevant national standards: the American Heart Association guidelines, the Insurance Services Office standards, and the National Fire Protection Association standards.

AMERICAN HEART ASSOCIATION GUIDELINES

The American Heart Association (AHA) has established that the brain begins to die within four to six minutes without oxygen; brain damage is irreversible after ten minutes. Interventions include early cardiopulmonary resuscitation (CPR) and electrical defibrillation. The earlier CPR is initiated, the better the patient's chance of survival. The AHA states that patients receiving CPR within two minutes and defibrillation within four minutes have a thirty percent survival rate. For patients receiving no CPR and delayed defibrillation (after ten minutes), the survival rate drops below two percent.



INSURANCE SERVICES OFFICE (ISO)

The ISO evaluates municipal fire protection in communities throughout the United States. The evaluation of a jurisdiction's fire suppression capability includes an assessment of the dispatch center (weighted at ten percent), fire department staffing, apparatus and equipment (fifty percent weight), and the water supply system (weighted at 40 percent). After calculating the jurisdiction's strengths and weaknesses, the Department is given a rating on a scale of one to ten. A Class 1 rating is the best while a Class 10 rating represents that no fire protection services are available. The City of Culver City Fire Department has maintained a Class 1 ISO rating since 1995.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 1221 AND 1710

National Fire Protection Association 1221 and 1710 are nationally recognized voluntary standards. NFPA 1221 (2010) is the standard for the installation, maintenance, and use of emergency services communications systems and NFPA 1710 (2010) is the standard for the organization and deployment of fire suppression operations, emergency medical operations, and special operations to the public by career fire departments. These standards outline an organized approach to defining levels of service, deployment capabilities, and staffing. Specifically, NFPA 1710 provides standard definitions for fire apparatus, personnel assigned, procedural guidelines within which they operate, and staffing levels needed to accomplish specific tasks on arrival at an incident. NFPA 1710 states that fire departments shall establish a performance objective of not less than 90 percent for each of the following response time objectives:

- One minute (60 seconds) for alarm processing time.
- One minute and twenty seconds (80 seconds) for turnout time for fire and special operations response and one minute (60 seconds) turnout time for EMS response
- Four minutes (240 seconds) or less travel time for the arrival of the fire arriving engine company at a fire suppression incident and eight minutes (480 seconds) or less travel time for the deployment of an initial full alarm assignment at a fire suppression incident
- Four minutes (240 seconds) or less travel time for the arrival of a unit with first responder with automatic external defibrillator (AED) or higher level capability at an emergency medical incident
- Eight minutes (480 seconds) or less travel time for the arrival of an advanced life support (ALS) unit at an emergency medical incident, where this service is provided by the fire department provided a first responder with AED or basic life support (BLS) unit arrived in 240 seconds or less travel time.



BASELINE PERFORMANCE STATISTICS

Baseline performance constitutes the Department's current performance. Several factors should be considered when accounting for baseline response times. In 2010, the Department, in coordination with the Culver City Police Department, moved from the Lancet records management database to the New World records management database. New World is a system that maintains fire and police records with a three partition database: fire records, computer aided dispatched (CAD) records, and police records. Proprietary cubes and pivot tables are part of the system and Department Staff are also able to pull raw data from the system for analysis. Due to the system change, in order to reflect a full five years, staff utilized the dispatch center's CAD records. As the Police Department shifted to the system in mid-2009, a partial year of data was available to gather response time statistics.

The following data tables present the Department's 90th percentile baseline. Following NFPA 1710 standards and CFAI requirements, percentile metrics demonstrate a better representation of response times than averages. Instead of displaying what the Department does half of the time, the Department observes what it does the majority of the time. As Culver City is considered a purely metropolitan environment due to its high population concentration, all performance metrics are measured against CFAI's metropolitan population density range standard and represent all risk types.

FIRE SUPPRESSION – 90TH PERCENTILE BASELINE PERFORMANCE

		2009- 2013	2013	2012	2011	2010	2009
<i>Incident Count 1st Unit:</i>		260	54	48	60	72	26
<i>Incident Count ERF:</i>		67	12	14	16	17	8
Alarm Handling Time	<i>Pick-up to Dispatch</i>	3:26	3:03	3:24	3:10	3:51	3:35
Turnout Time	<i>Distribution - 1st unit</i>	2:30	2:46	2:19	2:29	2:42	2:17
Travel Time	<i>Distribution - 1st unit</i>	4:02	4:00	3:32	4:57	4:02	4:00
	<i>Concentration - ERF</i>	8:04	7:13	7:16	8:24	7:37	8:11
Total Response Time	<i>Distribution - 1st unit</i>	8:38	8:39	7:57	9:21	8:45	8:50
	<i>Concentration - ERF</i>	12:20	12:23	12:09	12:46	12:16	12:05

FIGURE 52: BASELINE PERFORMANCE - FIRE SUPPRESSION

EMS – 90TH PERCENTILE BASELINE PERFORMANCE

		2009-2013	2013	2012	2011	2010	2009
<i>Incident Count:</i>		12,338	2,854	2,740	2,792	2,691	1,261
Alarm Handling Time	<i>Pick-up to Dispatch</i>	2:50	2:28	2:32	2:45	3:10	3:12
Turnout Time	<i>Distribution - 1st unit</i>	2:20	2:21	2:22	2:15	2:21	2:23
Travel Time	<i>Distribution - 1st unit</i>	4:28	4:35	4:29	4:24	4:33	4:24
	<i>Concentration - ERF</i>	6:46	7:00	6:50	6:42	6:36	6:41
Total Response Time	<i>Distribution - 1st unit</i>	8:21	8:08	8:10	8:15	8:48	8:32
	<i>Concentration - ERF</i>	10:30	10:27	10:23	10:18	10:52	10:46

FIGURE 53: BASELINE PERFORMANCE - EMS

TECHNICAL RESCUE – 90TH PERCENTILE BASELINE PERFORMANCE

		2009-2013	2013	2012	2011	2010	2009
<i>Incident Count 1st Unit:</i>		236	66	51	45	50	24
<i>Incident Count ERF:</i>		17	4	3	2	7	1
Alarm Handling Time	<i>Pick-up to Dispatch</i>	3:32	2:58	3:05	3:12	4:03	3:59
Turnout Time	<i>Distribution - 1st unit</i>	2:30	2:20	2:42	2:20	2:45	2:10
Travel Time	<i>Distribution - 1st unit</i>	5:42	4:47	6:31	6:31	5:30	4:31
	<i>Concentration - ERF</i>	9:59	9:49	10:36	7:25	6:44	7:29
Total Response Time	<i>Distribution - 1st unit</i>	9:33	9:04	9:23	9:34	9:53	9:09
	<i>Concentration - ERF</i>	13:20	12:47	14:11	9:38	12:26	11:02

FIGURE 54: BASELINE PERFORMANCE - TECHNICAL RESCUE

HAZMAT – 90TH PERCENTILE BASELINE PERFORMANCE

		2009-2013	2013	2012	2011	2010	2009
<i>Incident Count 1st Unit:</i>		238	59	49	61	46	23
<i>Incident Count ERF:</i>		34	11	4	11	5	3
Alarm Handling Time	<i>Pick-up to Dispatch</i>	4:22	3:56	3:40	4:35	4:29	5:12
Turnout Time	<i>Distribution - 1st unit</i>	2:50	2:37	2:51	2:54	3:02	2:38
Travel Time	<i>Distribution - 1st unit</i>	5:12	5:46	5:18	4:56	5:13	3:55
	<i>Concentration - ERF</i>	7:45	7:34	7:37	7:37	7:33	6:31
Total Response Time	<i>Distribution - 1st unit</i>	10:32	9:21	10:32	10:46	10:43	9:39
	<i>Concentration - ERF</i>	13:07	12:10	11:04	12:48	12:18	18:03

FIGURE 55: BASELINE PERFORMANCE - HAZMAT

DATA COLLECTION METHODOLOGY

Staff queried the fire and computer aided dispatch (CAD) records management system to gather data necessary for statistical analysis.

Alarm handling time, turnout time, travel time and total response time were calculated incident by incident using the following calculations

- Alarm Handling Time = Dispatch Time – Alarm Time
- Turnout Time = En route Time – Dispatch Time
- Travel Time = On Scene – En route Time
- Total Response Time = Alarm Handling Time + Turnout Time + Travel Time

Upper and lower thresholds were established to exclude outliers. Outliers are generally instances of records with missing information or data entry errors. Times equal to, or less than zero were eliminated from the analysis. An upper threshold of three standard deviations from the mean was put in place for each time segment, allowing for the inclusion of approximately 99 percent the Department's data while eliminating outliers/bad data.



DATA ANALYSIS

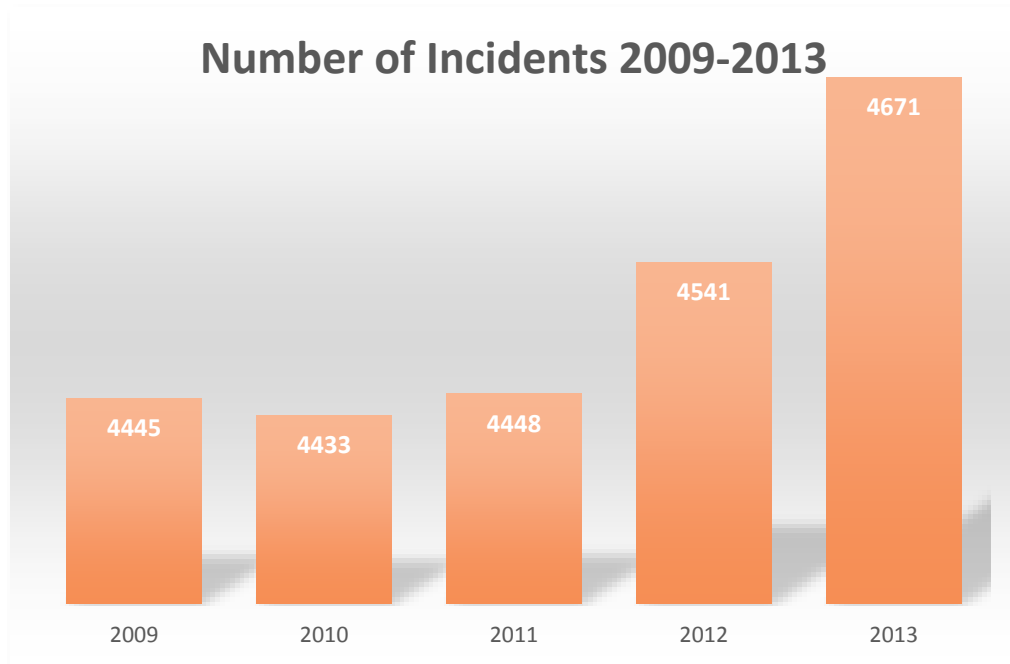


FIGURE 56: TOTAL NUMBER OF INCIDENTS PER YEAR

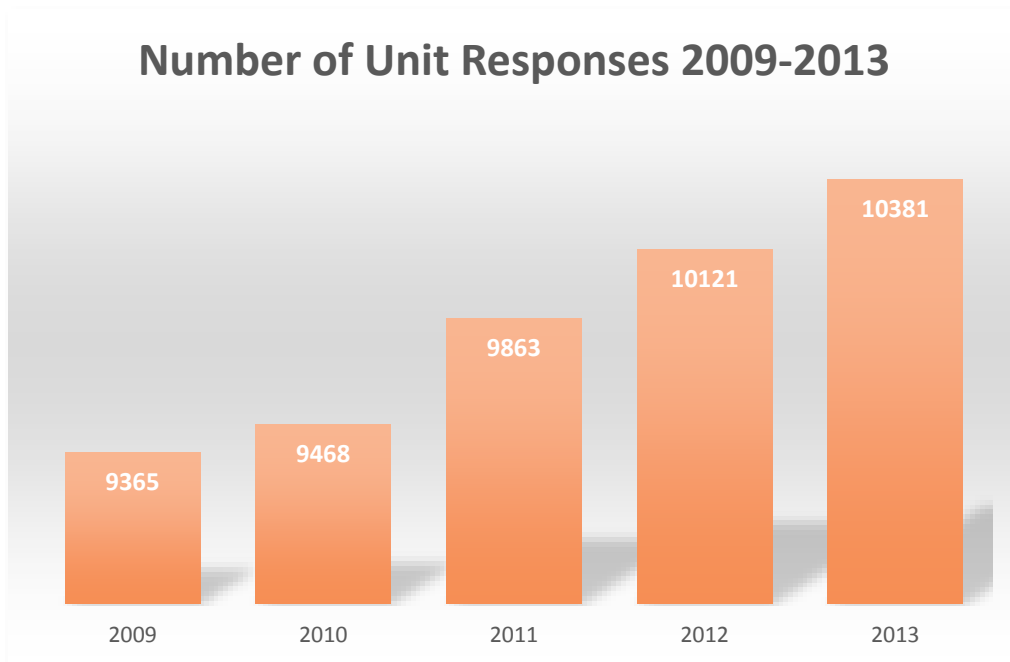


FIGURE 57: TOTAL NUMBER OF UNIT RESPONSES PER YEAR

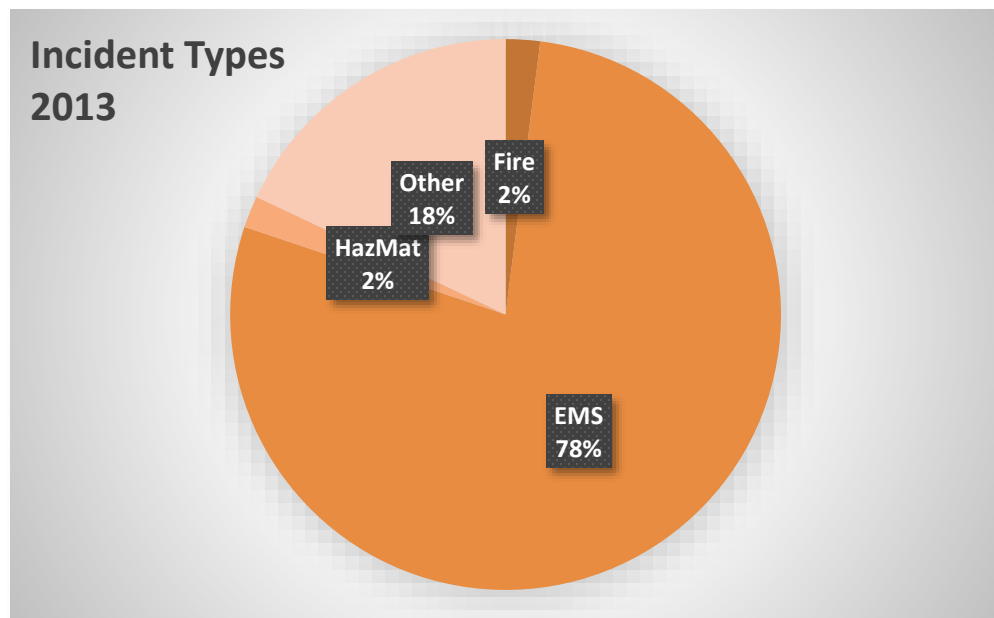


FIGURE 58: INCIDENT TYPES

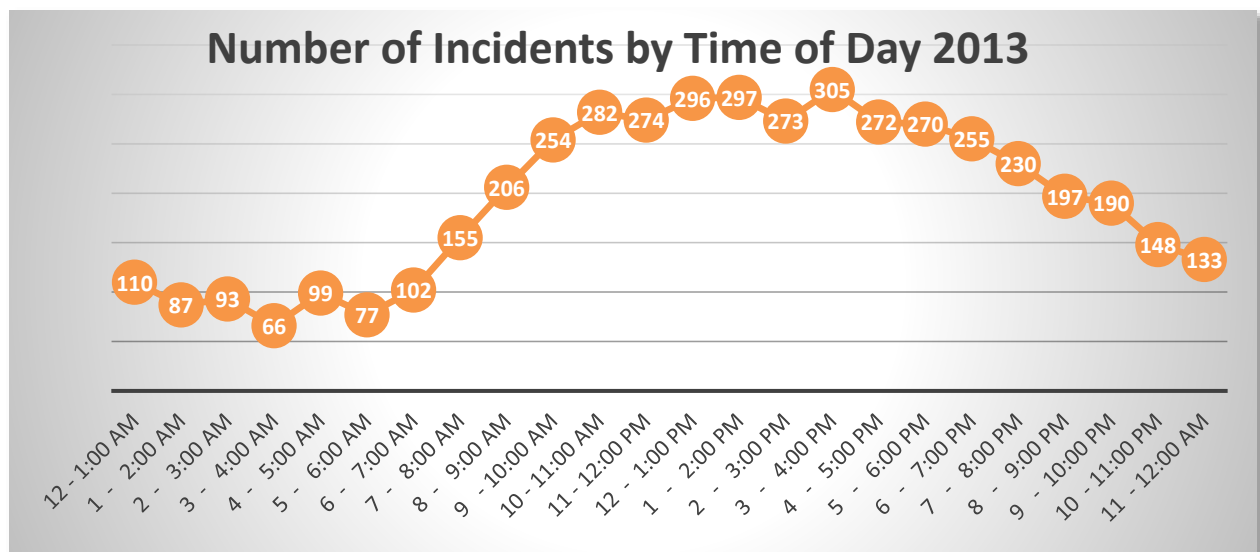


FIGURE 59: NUMBER OF INCIDENTS BY TIME OF DAY

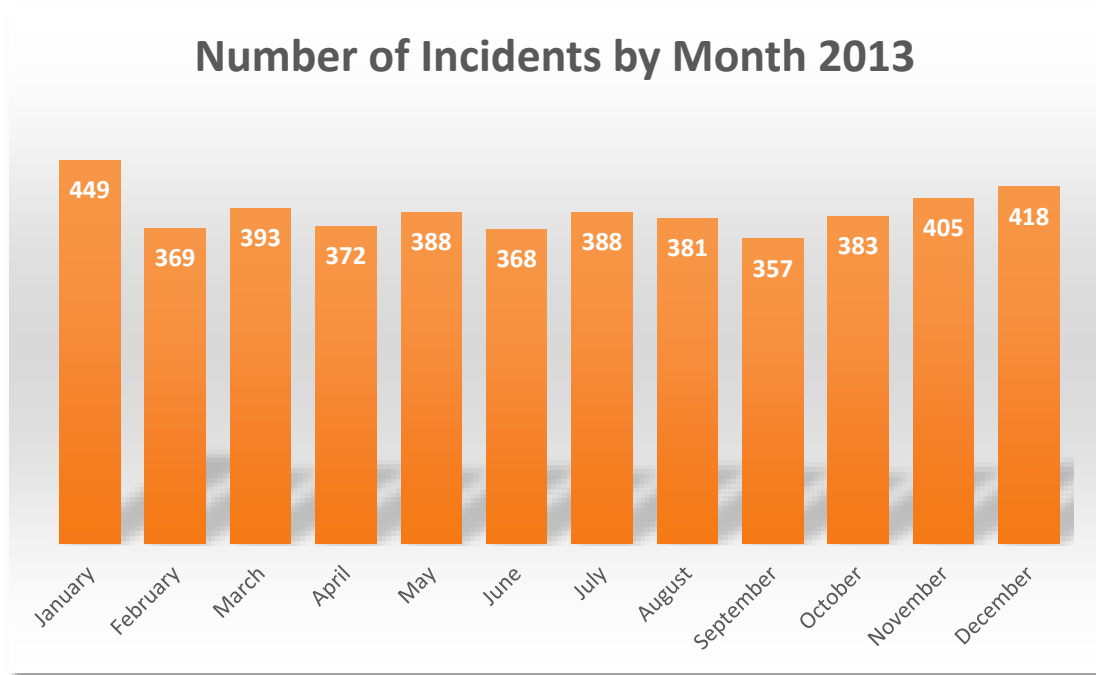


FIGURE 60: NUMBER OF INCIDENTS BY MONTH

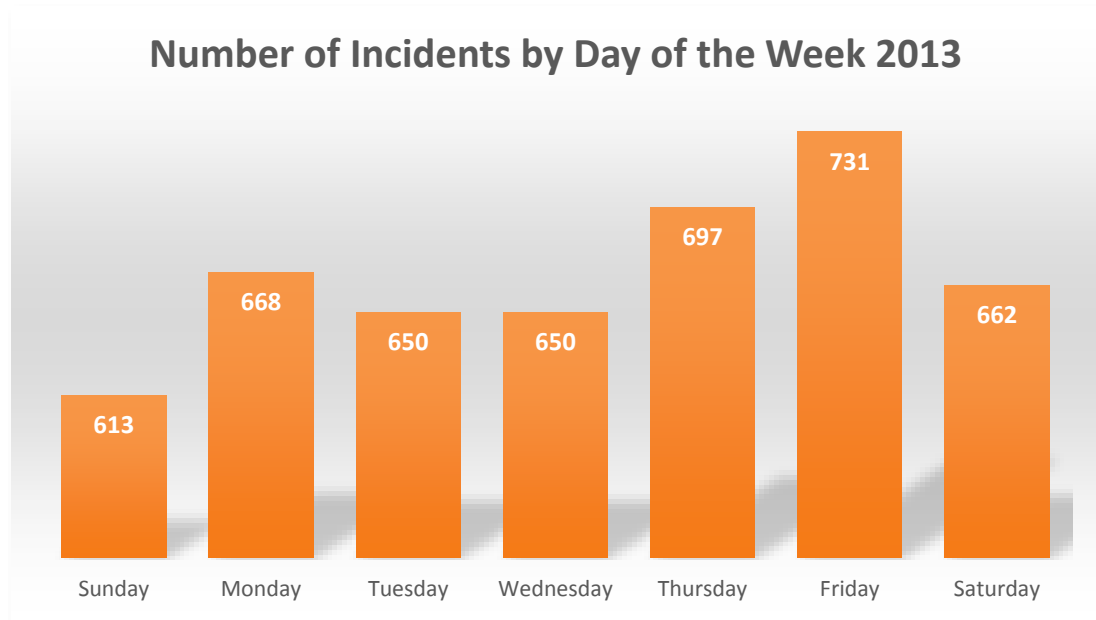


FIGURE 61: NUMBER OF INCIDENTS BY DAY OF WEEK



F. PERFORMANCE OBJECTIVES & PERFORMANCE MEASURES

Staff's review of historical performance, current capabilities, critical tasking, risk analysis, system demand, and community expectations have helped facilitate the establishment of performance measures and performance objective standards.

Department Staff have developed metrics that are specific, measurable, attainable, relevant, and timely. Taking into account and evaluating needs based on fire growth, flashover, EMS response needs, special service response needs, response times, on-scene operations, problem-solving critical tasks, Department Staff was also able to determine an effective response force benchmark for the community.

This section reflects baseline system performance as well as sets benchmark performance objectives. Baseline performance describe measures that the Department is currently meeting 90 percent of the time, while benchmark standards are goals or performance objectives that the Department aims to meet 90 percent of the time.

The following data tables are representative of the Department's baseline (actual) system performance for total response time and benchmark (goal) standards for alarm handling time, turnout time, travel time and total response time for all emergency incidents occurring within Culver City limits for each service type—Fire, EMS, Technical Rescue, and HazMat. All of the Fire Management Zones within Culver City meet the metropolitan population density standard set forth by the CFAI. The data was, and will continue to be, measured to the 90th percentile for each individual year.

FIRE SUPPRESSION BENCHMARK PERFORMANCE MEASURES

For 90 percent of all moderate risk structure fires, the total response time for the arrival of the first-arriving engine company shall be 6 minutes and 20 seconds. The first-due unit shall be staffed with a minimum of three firefighters, capable of establishing command, evaluating the need for additional resources, and advancing the first line for fire attack.

For 90 percent of all moderate risk structure fires, the total response time for the arrival of the effective response force (ERF), staffed with 18 firefighters and officers, shall be 10 minutes and 20 seconds. The effective response force shall be capable of providing 4,500 gallon per minute pumping capability and be able to accomplish the necessary tasks to contain a moderate risk fire.

FIRE SUPPRESSION BASELINE PERFORMANCE MEASURES

Over a period of five years, from 2009-2013, for 90 percent of all moderate risk structure fires, the total response time for the arrival of the first-due unit, staffed with three firefighters, is 8 minutes and 38 seconds. The first-due unit shall be staffed with a minimum of three firefighters,



capable of establishing command, evaluating the need for additional specialized resources, and advancing the first line for fire attack.

For 90 percent of all moderate risk structure fires, the total response time for the arrival of the ERF, staffed with 18 firefighters and officers is 12 minutes and 20 seconds. The effective response force shall be capable of providing 4,500 gallon per minute pumping capability and be able to accomplish the necessary tasks to contain a moderate risk fire.

EMS BENCHMARK PERFORMANCE MEASURES

For 90 percent of all moderate risk EMS incidents, the total response time for the arrival of the first-arriving unit shall be 6 minutes. The first-due unit shall be staffed with a minimum of 2 firefighters. The first-due unit shall be capable of establishing command, evaluating the need for additional resources, initiating basic life support, and early defibrillation.

For 90 percent of all moderate risk EMS incidents, the total response time for the arrival of the effective response force (ERF), staffed with five firefighters shall be 10 minutes. The effective response force shall be capable of completing patient assessment, delivering advanced life support, and transporting the patient to the appropriate receiving facility.

EMS BASELINE PERFORMANCE MEASURES

Over a period of five years, from 2009-2013, for 90 percent of all moderate risk EMS incidents, the total response time for the arrival of the first-arriving unit shall be 8 minutes and 21 seconds. The first-due unit shall be staffed with a minimum of 2 firefighters. The first-due unit shall be capable of establishing command, evaluating the need for additional resources, initiating basic life support, and early defibrillation.

For 90 percent of all moderate risk EMS incidents, the total response time for the arrival of the effective response force (ERF), staffed with five firefighters shall be 10 minutes and 30 seconds. The effective response force shall be capable of completing a patient assessment, delivering advanced life support, and transporting the patient to the appropriate receiving facility.

TECHNICAL RESCUE BENCHMARK PERFORMANCE MEASURES

For 90 percent of all moderate risk technical rescue incidents, the total response time for the arrival of the first-arriving company shall be 6 minutes and 20 seconds. The first-due unit shall be staffed with a minimum of three firefighters, capable of establishing command, evaluating the need for additional resources, and controlling immediate hazards.

For 90 percent of all moderate risk technical rescue incidents, the total response time for the arrival of the effective response force (ERF), staffed with 13 firefighters and officers, shall be 10



minutes and 20 seconds. The effective response force shall be capable of hazard control, patient stabilization, extrication, and transport.

TECHNICAL RESCUE BASELINE PERFORMANCE MEASURES

During a period of five years, from 2009-2013, for 90 percent of all moderate risk technical rescue incidents, the total response time for the arrival of the first-arriving company shall be 9 minutes and 33 seconds. The first-due unit shall be staffed with a minimum of three firefighters, capable of establishing command, evaluating the need for additional resources, and controlling immediate hazards.

For 90 percent of all moderate risk technical rescue incidents, the total response time for the arrival of the effective response force (ERF), staffed with 13 firefighters and officers, shall be 13 minutes and 20 seconds. The effective response force shall be capable of hazard control, patient stabilization, extrication, and transport.

Across a period of five years, from 2009-2013, there were less than or equal to 11 calls each year, rendering 90th percentile analysis less than ideal for this sample set.

HAZARDOUS MATERIALS BENCHMARK PERFORMANCE MEASURES

For 90 percent of all moderate risk hazardous material incidents, the total response time for the arrival of the first-arriving company shall be 6 minutes and 20 seconds. The first-due unit shall be staffed with a minimum of three firefighters, capable of establishing command, evaluate the need for additional resources, and establish the initial isolation distance.

For 90 percent of all moderate risk hazardous material incidents, the total response time for the arrival of the effective response force (ERF), staffed with 13 firefighters and officers, shall be 10 minutes and 20 seconds. The effective response force shall be capable of providing a dedicated Incident Safety Officer, emergency or mass decontamination, and defensive containment measures.

HAZARDOUS MATERIALS BASELINE PERFORMANCE MEASURES

During a period of five years, from 2009-2013, for 90 percent of all moderate risk hazardous material incidents, the total response time for the arrival of the first-arriving company shall be 10 minutes and 32 seconds. The first-due unit shall be staffed with a minimum of three firefighters, capable of establishing command, evaluate the need for additional resources, and establish the initial isolation distance.

For 90 percent of all moderate risk hazardous material incidents, the total response time for the arrival of the effective response force (ERF), staffed with 13 firefighters and officers, shall be 13 minutes and 7 seconds. The effective response force shall be capable of providing a dedicated



Incident Safety Officer, emergency or mass decontamination, and defensive containment measures.

Over a period of five years, from 2009-2013, there were less than or equal to 11 calls each year, rendering 90th percentile analysis less than ideal for this sample set. Additionally, many times the units responded non-emergently, further limiting the information available for analysis. As an example, the 90th percentile for the total response time for the effective response force in 2009 was 18 minutes and 3 seconds; however, the sample size was three records.



G. COMPLIANCE METHODOLOGY

ESTABLISH/REVIEW PERFORMANCE MEASURES

Department Staff will continue to review the Standards of Cover (SOC) on an annual basis and republish the SOC every five years. Performance measures will be evaluated regularly, with monthly reviews and bi-annual formal statistical reviews.

EVALUATE PERFORMANCE

Performance will be reviewed monthly and formally every six months. Comparisons between current, baseline and benchmark performance statistics will be evaluated and addressed when necessary.

DEVELOP COMPLIANCE STRATEGIES

Department Staff will focus on key areas where improvement may be needed. The Department's strengths and weaknesses and external opportunities and threats will be observed. Progress and improvements will be tracked on a monthly basis and formally on an annual basis.

COMMUNICATE EXPECTATIONS TO ORGANIZATION

Specific measures and expectations will be communicated to the members of the Department through the Standards of Cover as well as regular Department meetings to encourage participation and foster improvement.

VALIDATE COMPLIANCE

Areas needing improvement will be noted and addressed. Stated baseline and benchmark performance measures will be scrutinized.

MAKE ADJUSTMENTS & REPEAT PROCESS

Department Staff will make adjustments to benchmarks as necessary. The Department will remain sensitive to community and stakeholder needs and will closely follow progress on stated goals and objectives. Should the Department fall short, meet, or exceed stated goals, Department Staff will continue to take an open approach to the process and realize that there will always be room for improvement in all facets of the organization. All decisions will center on the guiding core purpose of the Department—its mission: The mission of the Culver City Fire Department is to protect life, property and the environment by providing prompt and professional fire protection and life safety services.



Staff will review, revise, and repeat all processes necessary to ensure compliance with the Department's mission.



FIGURE 62: COMPLIANCE METHODOLOGY CYCLE



H. CONCLUSIONS & RECOMMENDATIONS

The Community Risk Assessment and Standards of Cover process has allowed the Department to observe the Culver City community and the Department response times intensively. Through observations of, and interactions with, the community; listing of current services provided; learning community expectations; assessing key areas of risk; setting performance goals; viewing the Department from a historical perspective; and analyzing performance measures, the Department has developed a clear and comprehensive evaluation of its overall performance.

Staff observed several areas where the Department meets or exceeds expectations. There were also a few areas where Department Staff saw room for improvement. As with any critical review process, recommendations were developed in an effort to foster future growth and improvement.

Two key measures the Department will focus on are turnout time and call processing time. The Department has already established communication with the Police Department and developed specific critical tasks to assist in improving call processing time as part of the Strategic Planning process. Referenced as Goal 6 on page 38 of the Strategic Plan, the Department has stated four specific tasks: 1) work with CCPD to ensure that dispatch is staffed with three (3) dispatchers; 2) work with CCPD to implement a fire dispatch training program; 3) work with CCPD to implement a fire dispatch quality improvement (QI) program; and 4) work with CCPD to implement an automated station/unit alerting system.

To improve turnout times, Department Staff are working to install timers in all fire stations to help firefighters reference the time it takes to get in their gear and apparatus. Potential technological and communication issues will also be closely followed to improve turnout times.

Department Staff will follow closely the measures pertaining to these two specific areas in an effort to help the Department grow and succeed in its mission:

The mission of the Culver City Fire Department is to protect life, property, and the environment by providing prompt and professional fire protection and life safety services.

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