SECTION I: UNIT OVERVIEW

UNIT DESCRIPTION

Los Angeles County, one of California's original 27 counties, was established on February 18, 1850. Originally the County occupied a comparatively small area along the coast between Santa Barbara and San Diego, but within a year its boundaries were enlarged from 4,340 square miles to 34,520 square miles, an area sprawling east to the Colorado River.

In 1853, a bill was introduced to divide the eastern portion of Los Angeles County and San Bernardino County was formed. During subsequent years, Los Angeles County slowly ebbed to its present size, the last major detachment occurring in 1889 with the creation of Orange County. Los Angeles County remains one of the nation's largest counties with 4,083 square miles, an area 500 square miles larger than the combined area of the states of Delaware and Rhode Island. Of the 4,083 square miles, 1,741 square miles are flat, 1,875 square miles are mountains, 246 square miles are comprised of hills, there are 131 square miles of island (Santa Catalina and San Clemente), 59 square miles of mountain valleys, and 28 square miles of marshland.

Los Angeles County includes the islands of San Clemente and Santa Catalina. It is bordered on the east by Orange and San Bernardino Counties, on the north by Kern County, on the west by Ventura County, and on the south by the Pacific Ocean. Its coastline is 81 miles long.

Los Angeles County has the largest population (9,818,605; 2010 Census) of any county in the nation, and is exceeded by only eight states. Approximately 25 percent of California's residents live in Los Angeles County.

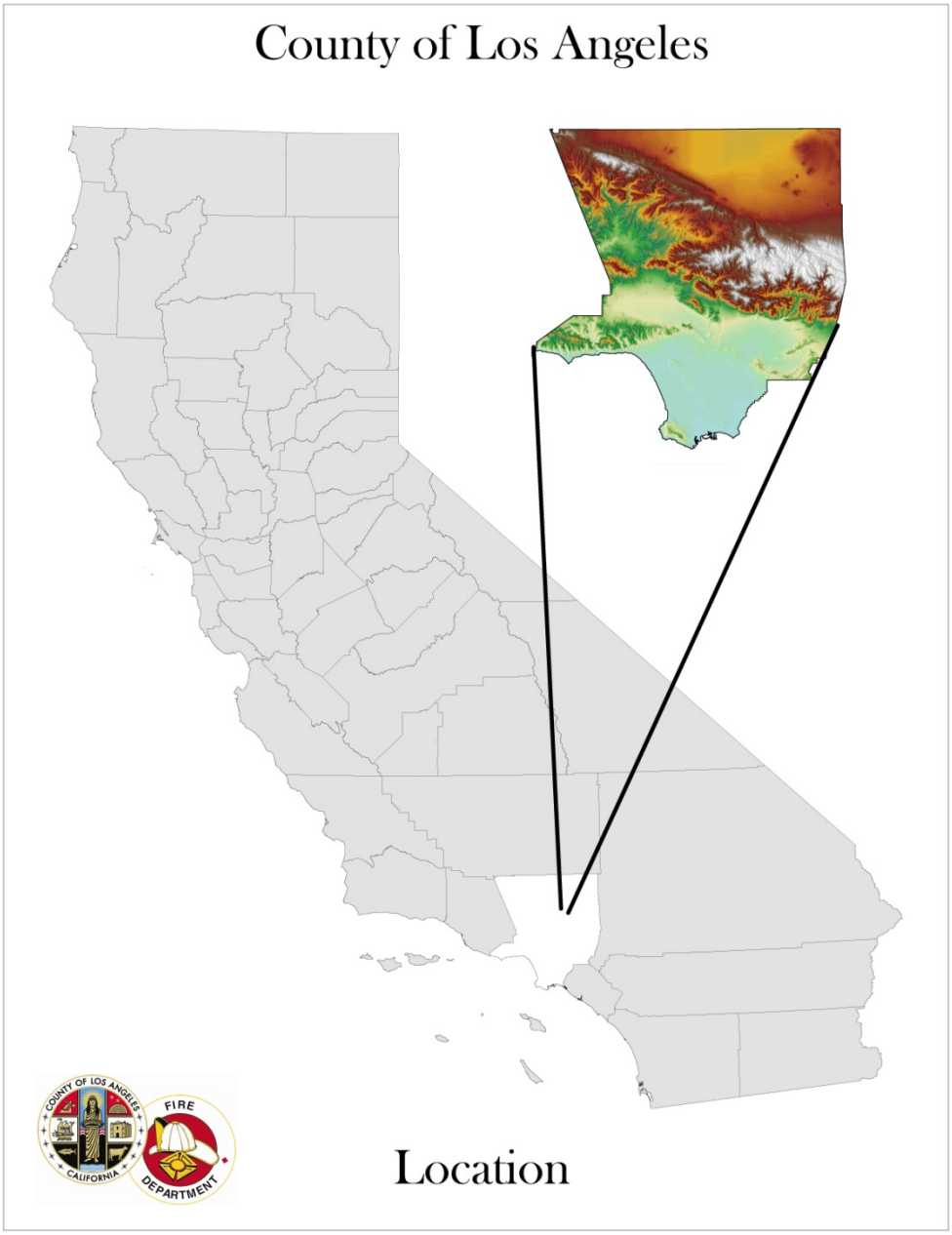
The Board of Supervisors, created by the state Legislature in 1852, is the governing body. Five supervisors are elected to four-year terms by voters within their respective districts. The Board has executive, legislative and quasi-judicial roles. It appoints all department heads other than the assessor, district attorney and sheriff, which are elective positions.

As a subdivision of the state, the County is charged with providing numerous services that affect the lives of all residents. Traditional mandatory services include fire protection, law enforcement, property assessment, tax collection, public health protection, public social services and relief to indigents. Among the specialized services are parks and recreation, lifeguard, flood control, water conservation, fire, forestry including brush clearance, fuel modification, vegetation management, environmental review, fire plan and many diversified cultural activities.

There are 88 cities within the County, each with its own city council. All of the cities, in varying degrees, contract with the County of Los Angeles to provide municipal services. Forty cities contract for nearly all of their municipal services. More than 65 percent of the County is unincorporated. For the one million people living in those areas, the Board of Supervisors is their "city council" and County departments provide the municipal services.

The 2011-2012 County adopted budget is approximately $23.303 billion. Twenty-six percent of the revenue comes from the state, 30% from the federal government, 15% from property taxes, and 29% from other sources. The largest percentage of the budget, 27%, goes to pay for social services, while 20% is spent on public protection and 25% on health services.

The County, with 101,296 budgeted employees, is the largest employer in the five-county region. Of these, 31,568 of the positions are in law and justice; 28,772 are in health services; and 21,405 are in social services. The spectrum of job listings, from clerk to truck driver, sanitarian to psychiatrist, scientist to scuba diver, and attorney to helicopter pilot, encompasses nearly every trade and profession and illustrates the complexity of County government.



The history of the County of Los Angeles Fire Department started in the late 1800s with the formation of two separate departments. The County Forester, in charge of protecting natural resources and responsible for planting and maintaining the landscape, and the County Fish and Game Warden, who was assigned the additional position of County Fire Warden. On May 8, 1911 the County Board of Supervisors created the County of Los Angeles Board of Forestry and later becoming the County of Los Angeles Forestry Department.

In 1919, over 135,000 acres of wildland fires blackened the County of Los Angeles prompting the merging of these two separate departments and resulting in a greater emphasis on fire suppression and creating the County Forester and Fire Warden. Between September 1923 and 1925, 31 separate fire districts were formed; the first two being in Signal Hill and Santa Monica Canyon.

In 1956, the late Fire Chief Emeritus Keith E. Klinger created the visionary Lakewood Plan, allowing incorporated cities within the County to contract with the Department for fire protection services. Today, 58 cities are served by the County of Los Angeles Fire Department which staffs a total of 163 engine companies, 31 truck companies, 79 paramedic units, and numerous other pieces of specialized apparatus.

The County of Los Angeles Fire Department is credited with the creation of the nation's second Firefighter Paramedic Program and the nation's first 911 Emergency Calling System. Throughout its history, the Department has emerged as a leader in the fire service on local, regional and national levels, growing to become the nation's second largest fire protection agency.

Operating 9 divisions, 22 battalions, 169 fire stations and 9 fire suppression camps, the County of Los Angeles Fire Department answers over 297,000 emergency calls annually averaging 815 calls a day. Additionally, the Department has Planning, Information Management, Fire Prevention, Air and Wildland, Lifeguard, Forestry and Health Hazardous Materials Divisions which provide valuable services to the more than 9 million people who reside in the 3.6 million housing units located throughout the Department's 3,248 square mile area.

MISSION STATEMENT

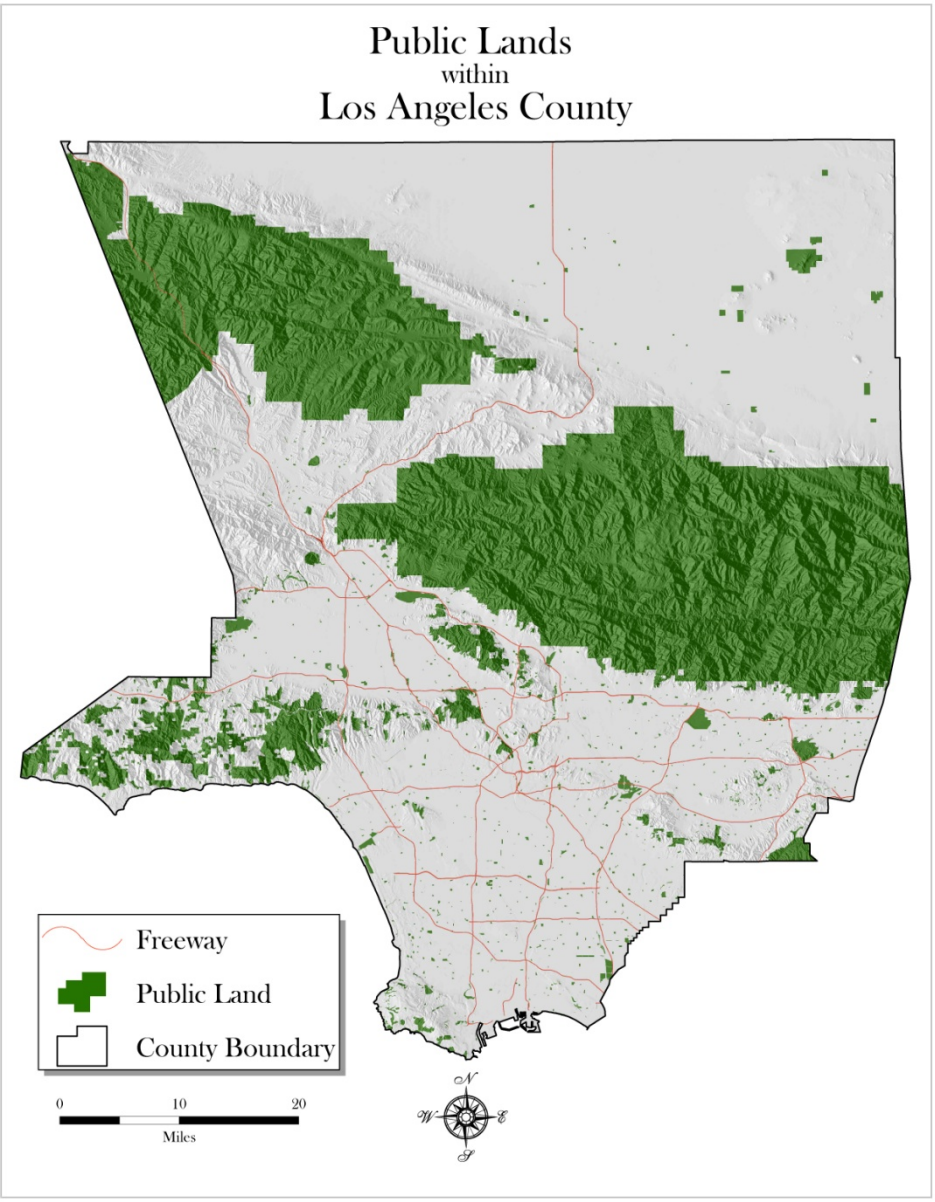
The mission of the Los Angeles County Fire Department is to protect lives, the environment, and property by providing prompt, skillful, and cost effective fire protection and life safety services.

CORE VALUES

Integrity – Teamwork – Caring – Courage – Commitment – Community

Fire Department VISION

The Los Angeles County Fire Dept. will be an exemplary organization acclaimed for our national reputation, our regional strength, and our hometown attentiveness as we provide fire protection and life safety services

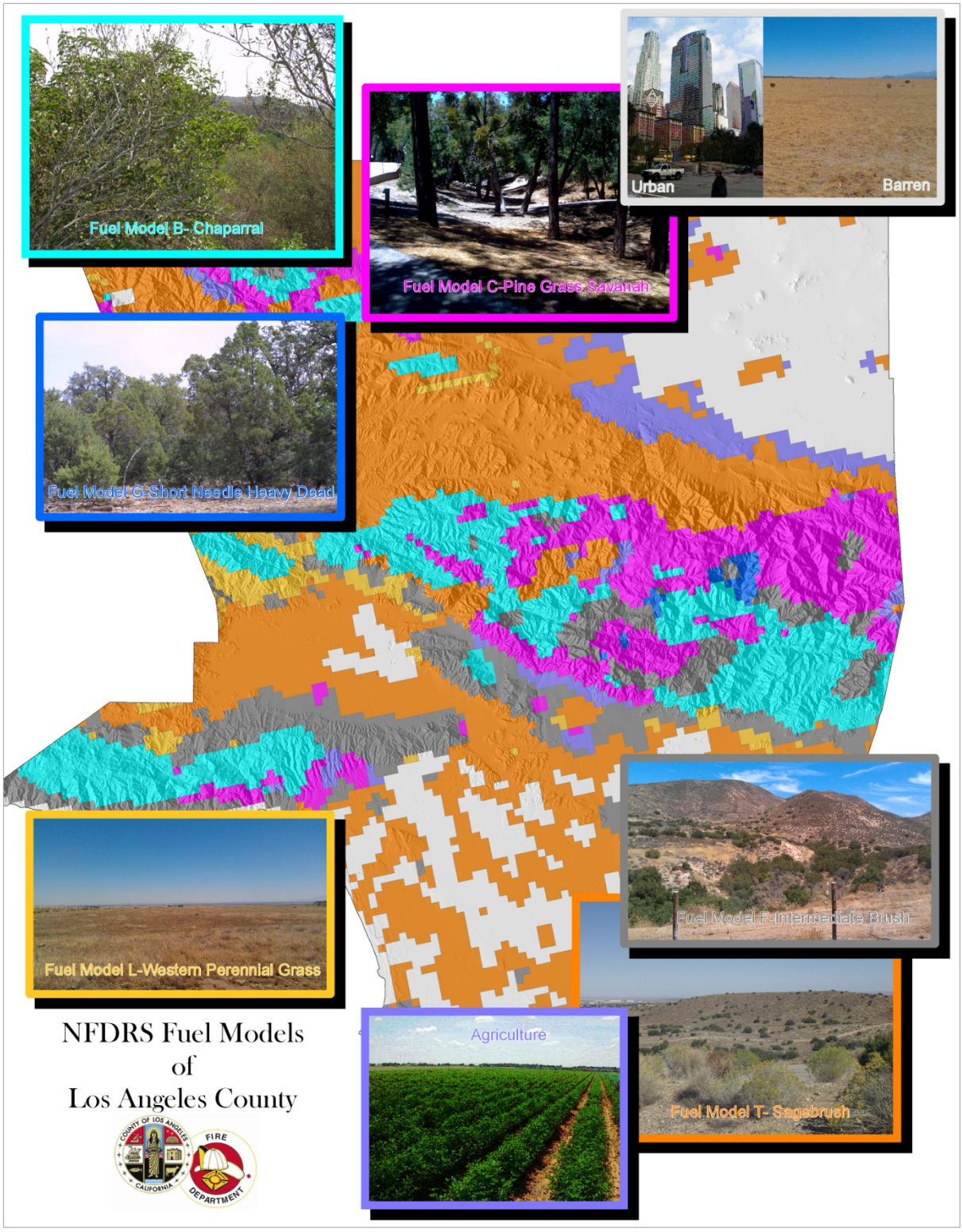


Vegetation of Los Angeles County

The vegetative ecosystem present on most of the watersheds in Los Angeles County is *chaparral.* The term applies to the shrubby vegetation seen on both coastal and inland hillsides. Chaparral can be separated into two types, soft chaparral (usually called coastal sage scrub and the taller hard chaparral. Chaparral is dominated by evergreen and drought deciduous shrubs 1 to 15 feet tall. Most of these plants are recognized by their tough, leathery leaves that reduce water loss in our dry climate. Many chaparral plant species contain volatile oils which produce a strong odor and increase their flammability. Common examples include various species of Ceanothus, Manzanita, Sage, Sumac, Toyon, and Chamise.

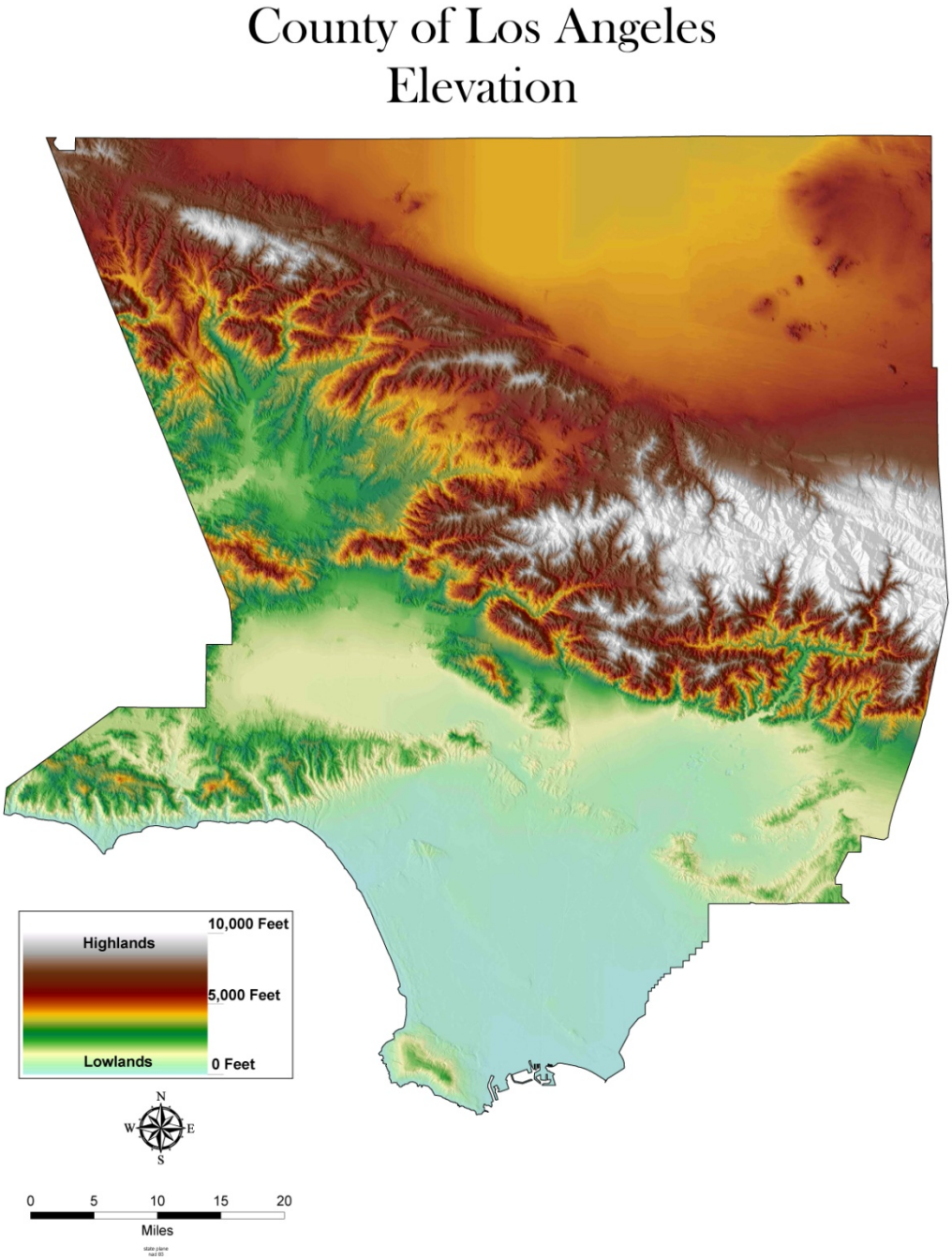
Chaparral ecosystems are very efficient at controlling erosion and protection watersheds. The deep root systems of these plants help stabilize slopes and allow them

to thrive in the dry Mediterranean climate of Southern California. Chaparral plant communities are fire adapted and can integrate fire as part of their life cycle.



Topography of Los Angeles County

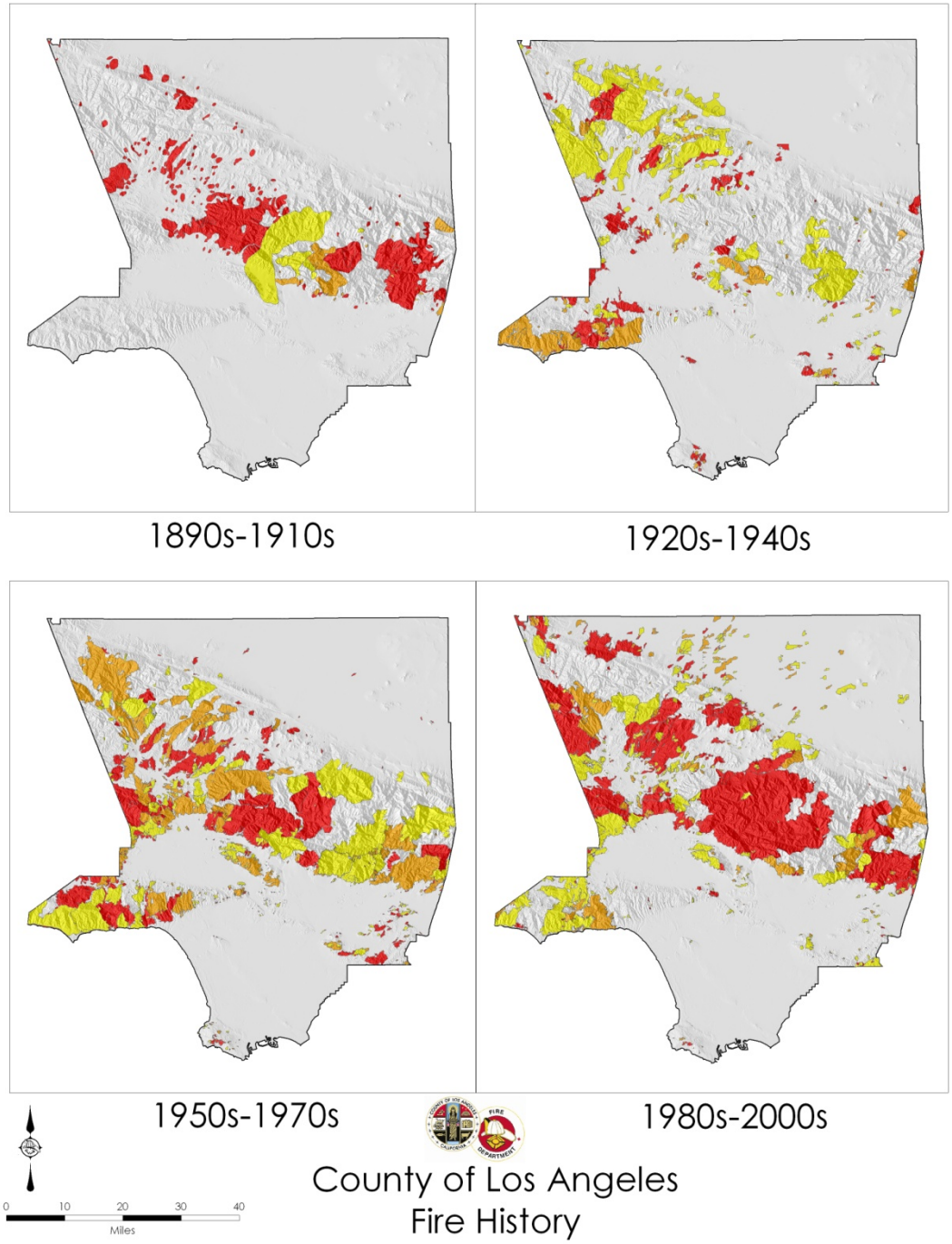
Los Angeles County encompasses a land area of 4,083 square miles. 47% of this area is mountainous, while the remainder consists of alluvial valleys, coastal plains, and high desert. The mountains ranges within the County run from east to west. The main canyon drainages flow north and south. This natural topography has created airflow patterns linking the desert area with the Pacific Ocean. During periods of high meteorological pressure zones over the deserts, hot, dry, northerly winds known as Santa Ana's follow these paths. The high frequency of fires in these areas has earned them the name fire corridors. Prominent fire corridors in Los Angeles County include Santa Monica Mountains, Santa Susana and San Gabriel Mountains.



Fire

Fire History of Los Angeles County

The County of Los Angeles and the State of California have experienced many large, damaging and costly wildfires. A recent historical look Los Angeles County demonstrates that threats to life, property and the environment are paramount; in a single wildfire incident in 2008, the "Sayre Fire" upwards of 500 structures was lost, while 2009 the “Station Fire” consumed more than 160,000 square acres. Considering that the County has experienced many catastrophic fires of this nature, it is evident that addressing the wildfire problem is a top priority of the County of Los Angeles Fire Department.



Weather of Los Angeles County

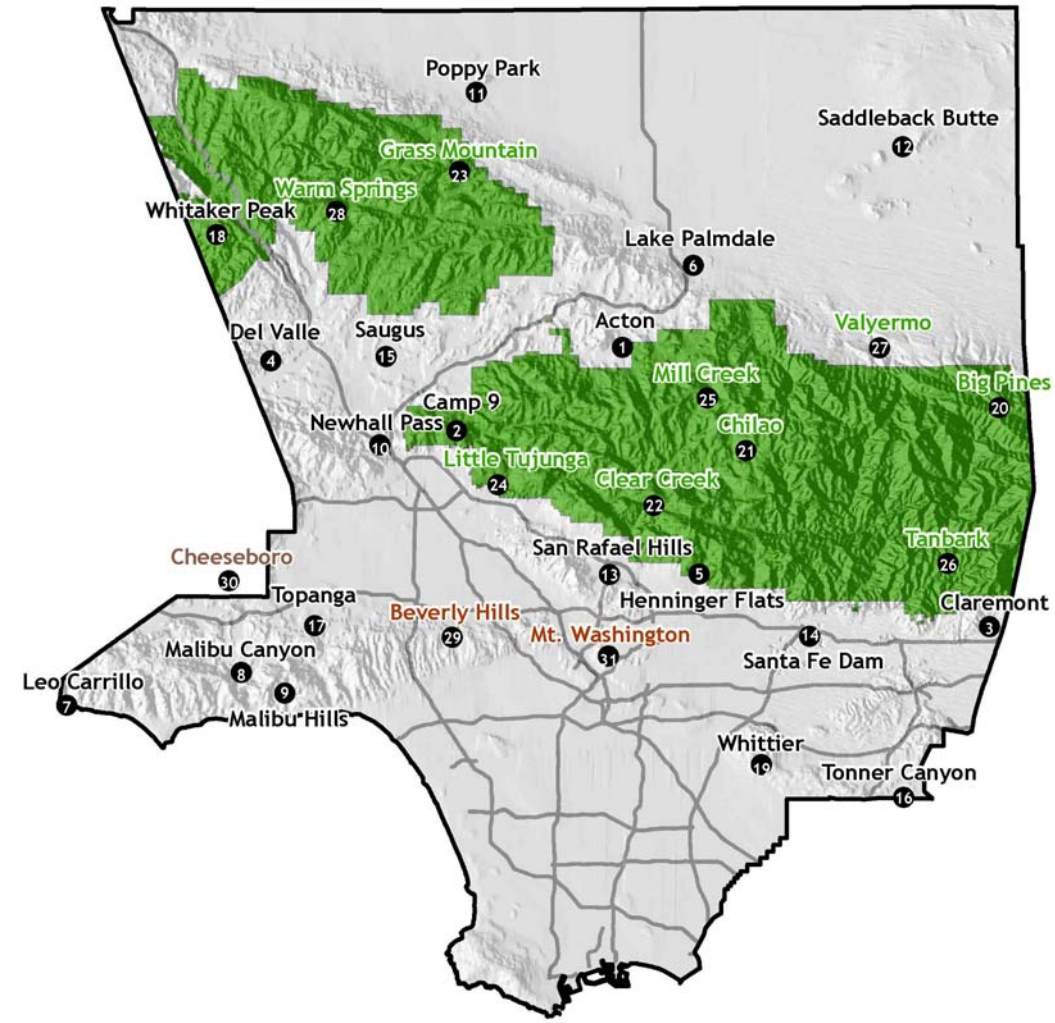
Weather is recognized as the most critical element in fire behavior. Loss of property, many injuries and fatalities are directly related to a weather factor. The County of Los Angeles Fire Department recognizes the importance of weather and climate, and the available technology allows the effective and accurate collection of weather information.

In the 1980's, CALFIRE implemented RAWS to improve and automate weather detection and reporting throughout the state. The County of Los Angeles invested in the Remote Automated Weather System RAWS technology starting in 1990. The data is displayed in tabular and graphic formats on various public websites. These sites also act as multi-agency RAWS data collection and distribution systems. RAWS data from CALFIRE, Bureau of Land Management, U.S. Forester Service, National Park Service and others are collected and shared by the interested participants.

The County of Los Angeles Fire Department RAWS systems are located at strategic sites throughout the county to detect general and local weather and climate conditions. The RAWS station is solar powered and automatically detects weather conditions such as Air Temperature, Relative Humidity, Wind Speed and Direction, Fuel Moisture and Temperature, Barometric Pressure and Precipitation. RAWS transmits the information via GOES satellite every hour. The host server receives, compiles, sorts and files the data for downloading into a local agency computer. The information can be displayed on maps, charts and graphs to show the weather picture throughout the state. Historical data can also be accessed to show weather patterns for specified areas and times.

http://fire.lacounty.gov/Forestry/PDF/internet_RAWSmap_061411.pdf

County of Los Angeles
National Fire Danger Rating System (NFDRS)
Remote Automated Weather Stations (RAWS)



RAWS Station

Freeway

Angeles National Forest

0 6 12 18 24

Miles

NAD 83

N W E S

County of Los Angeles
Fire Department
Forestry, Fire Plan Unit

	RAWS Name	Agency		RAWS Name	Agency
1	Acton	LAC	17	Topanga	LAC
2	Camp 9	LAC	18	Whitaker Peak	LAC
3	Claremont	LAC	19	Whittier Wilderness Preserve	LAC
4	Del Valle	LAC	20	Big Pines	ANF
5	Henninger Flats	LAC	21	Chilao	ANF
6	Lake Palmdale	LAC	22	Clear Creek	ANF
7	Leo Carrillo	LAC	23	Grass Mountain	ANF
8	Malibu Canyon	LAC	24	Little Tujunga	ANF
9	Malibu Hills	LAC	25	Mill Creek	ANF
10	Newhall Pass	LAC	26	Tanbark	ANF
11	Poppy Park	LAC	27	Valyermo	ANF
12	Saddleback Butte	LAC	28	Warm Springs	ANF
13	San Rafael Hills	LAC	29	Beverly Hills	BHL
14	Santa Fe Dam	LAC	30	Cheeseboro	NPS
15	Saugus	LAC	31	Mount Washington	LFD
16	Tonner Canyon	LAC			

The Wildfire Environment

A cursory understanding of the wildfire environment is helpful in understanding the fire problem in Los Angeles County and what projects and programs are most effective in preventing large loss incidents. The wildfire environment can be regarded as the conditions, influences, and modifying forces that control the fire behavior. Firefighters become skilled at recognizing the status of the three components that make up the wildfire environment. The nature and or condition of fuels, weather and topography dictate the likelihood of a fire starting, the direction and rate of spread a fire takes and the intensity at which a fire burns.

FUEL

Wildland fuel is the vegetation layer that covers the topography. Fuel provides the thermal energy source upon which fire behavior relies. Fuels are also found in the home ignition zone and the built structures.

WEATHER

Weather is the most variable component of the fire environment and can change rapidly in space and time. Weather represents such elements as temperature, wind, relative humidity, cloud cover, precipitation, and atmospheric stability.

TOPOGRAPHY

Topography includes such elements as slope, aspect, elevation and configuration or lay of the land. In relation to time, topography can be considered static, for the forces that change it generally work very slowly. In horizontal space, however, topography can change quickly, particularly in mountainous country.

HAZARDOUS FUELS

Los Angeles County has 4083 square miles, the bulk of which is covered with fire adapted vegetation, ornamental vegetation and millions of homes and structures.

Chaparral provides the most widespread wildland threat in Los Angeles County. It can be found on the slopes of the Santa Monica Mountains throughout the San Gabriel Mountains. This chaparral community is characterized by woody shrubs of chamise, ceanothus, and sugar bush, which dominate dry rocky slopes and provide erosion control and watershed protection. Numerous grasslands and fields are found throughout the County, especially in the Antelope Valley, and present the potential for fast moving wildland fires that can transition into heavier fuel and tree canopies.

The first step in the hazard assessment process is development of a land/ vegetation coverage map for the County from the most recent and detailed vegetation composition and structure information. Vegetation data from a variety of sources are patched together to provide a complete, albeit heterogeneous, surface fuel coverage map for the County. The various vegetation types (fuels) found in Los Angeles County, have specific characteristics that allow them to be categorized according to how they burn.

Translating the variety of vegetation data into stylized fuel characteristics models used to predict fire behavior develops the surface fuel map. This process, known as "cross walking", translates information on plant species, crown cover and tree size into 13 standard fuel models. The crosswalk process uses other factors, such as watershed

boundaries; slope, aspect and elevation, to further refine vegetation/fuel model relationships. The system used to categorize these fuels is documented in the National Wildfire Coordinating Group (NWCG) document NFES 1574 "Aids to Determining Fuel Models for Estimating Fire Behavior" by Hal E. Anderson. These fuel models are commonly referred to as the Fire Behavior Prediction System (FBPS) fuel models.

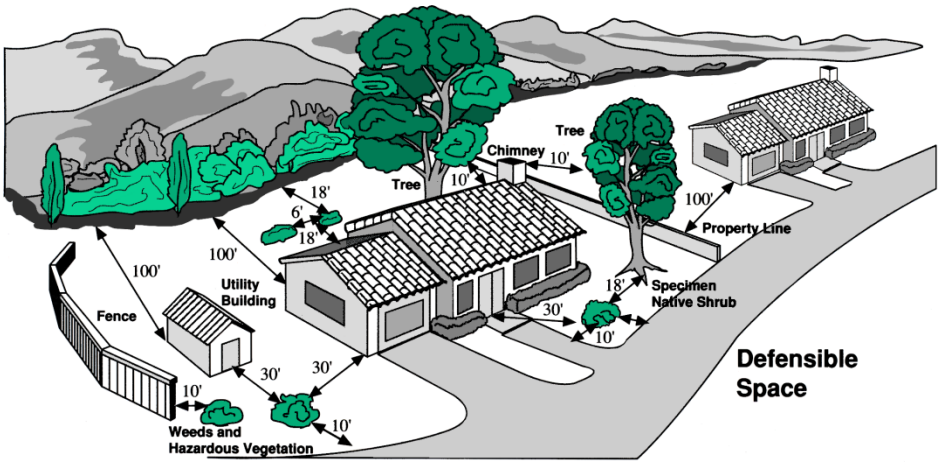
The second step of the hazard assessment process is development of a land/ structures coverage map for the County from the most recent and detailed development (improve properties) composition and structure specific information.

Before discussing what constitutes an initial attack success or failure, we must first concede that our fire prevention efforts have failed or a natural event has occurred. Once a fire starts, success is defined as the ability of the fire protection system to limit damage and costs within an acceptable level. Determining what an acceptable cost or damage amount is ultimately defining the desired protection by the stakeholders involved.

Assuming that the prescription based planning fire protection system is properly applied, an appropriate and timely response, with properly equipped and trained firefighters based on fire danger, the matrix can provide wildfire managers with a simple tool to determine where the suppression system would be expected to fail. For example: a medium size, high intensity wildfire might overwhelm a "high" level initial attack response, even if an equal level of protection were provided statewide. This might be the threshold where wildfire managers decide to focus intense pre-fire mitigation projects in order to bring initial attack efforts back into the successful range. On the other hand, a large fire of low intensity where initial attack fails may indicate an un-equal level of protection or some other weakness in the prescription based system.

The County of Los Angeles Fire Department takes a unified approach to pre-fire management practices.

1. Structural Ignitability Reduction by implementing safe building standards.
2. Fire Hazard Reduction in the Home Ignition Zone by annual inspection/fuel modification/fire safe council projects.
3. Integrated Vegetation Management by planning and implementing fire hazard reduction projects.



Daily Fire Danger Report

The Daily Fire Weather Forecast is a tool for firefighting personnel to use in determining staffing levels, response, and control of wildland fires. The forecast and staffing levels are provided daily and transmitted to all sites and units upon receipt by the Department's Command and Control Division as an administrative message on mobile data terminals (MDT) and by e-mail. The information below explains these daily messages:

The County of Los Angeles Fire Department produces a Daily Fire Weather Forecast by processing wildland fire weather data from manual and Remote Automated Weather Stations (RAWS) that it operates, or acquires data from other agencies located in Los Angeles County. These agencies include the City of Beverly Hills, National Park Service, and Angeles National Forest. RAWS observations and historical data can be accessed daily at http://fire.lacounty.gov/Forestry/FireWeatherDangerRawsMap.asp.

These observations are reported electronically to the Weather Information Management System (WIMS) in Boise, Idaho between 1300 and 1330 hours and are processed by the National Fire Danger Rating System (NFDRS). A few of the stations are seasonal and do not report during the off season. Department personnel from the Henninger Flats Forestry Unit query WIMS each afternoon at 1400 hours to adjust weather data and enter manual weather station data. http://fire.lacounty.gov/Forestry/FireWeatherDanger.asp

COUNTY OF LOS ANGELES FIRE DEPARTMENT

FIRE DANGER ANALYSIS

THRESHOLD=105-LA Basin
THRESHOLD=94-Malibu
THRESHOLD=140-Santa Clarita
THRESHOLD=222-High Country
THRESHOLD=116-Antelope Valley

DATE FORECASTED FOR: July 6, 2012

AREA (ZONE)	STATION NAME	NEARBY FS	STA. NO. MODEL	BURN. INDEX	TEMP. (F)	HUM. (%)	WIND (MPH)	FUEL STICK (%)
LA BASIN	SANTA FE DAM (RAWS)	44	045437B					
	HENNINGER FLATS	66	045439B	43	79	42	10	7
	SAN RAFAEL (RAWS)	19	045451B	41	86	36	8	7
	WHITTIER W.P.(RAWS)	28	045446B	31	82	49	8	9
	CLAREMONT (RAWS)	62	045443B	38	84	44	9	8
	TONNER CYN (RAWS)	119	045453B	33	80	48	9	9
AVERAGES				37	82	44	9	8
MALIBU	CHESEBORO (RAWS)	125	045313B	39	90	32	5	6
	MALIBU (RAWS)	70	045433B	31	76	53	6	9
	BEVERLY HILLS (RAWS)	7	045442B	44	87	36	10	7
	LEO CARRILLO (RAWS)	99	045447B	28	70	65	10	11
	MALIBU CYN (RAWS)	67	045452B	47	76	53	19	9
AVERAGES				38	80	48	10	8
SANTA CLARITA VALLEY	ACTON (RAWS)	80	045438F	123	93	13	10	4
	DEL VALLE (RAWS)	76	045445F	40	87	29	11	6
	SAUGUS (RAWS)	111	045412F	47	90	27	14	5
	NEWHALL PASS (RAWS)	124	045454F	40	90	29	11	6
AVERAGES				63	90	25	12	5
HIGH COUNTRY	CAMP #9 (RAWS)	123	045441B	89	82	32	16	6
	WHITAKER I-5 (RAWS)	149	045448B	168	81	25	10	5
AVERAGES				129	82	29	13	6
ANTELOPE VALLEY	POPPY PARK (RAWS)	112	045440T	97	93	9	14	2
	LK. PALMDALE (RAWS)	131	045450T	97	94	16	15	3
	SADDLEBACK (RAWS)	114	045444T	46	97	9	4	3
AVERAGES				80	95	11	11	3

	LA	MA	SC	HI	AV	TOTAL
ADJECTIVE RATING FOR TODAY:	L	L	M	M	H	MODERATE
NUMBER OF STATIONS REPORTING:	5	5	4	2	3	19
PERCENTAGE REPORTING:	83%	100%	100%	100%	100%	95%

FUEL MODELS: NFDRS = B - BRUSH, F - YOUNG OPEN MIXED CHAPARRAL, AND T - SAGEBRUSH-GRASS TYPES
RAWS: LAC - REMOTE AUTOMATED WEATHER STATION
RATING: L - LOW, M - MODERATE, H - HIGH, V - VERY HIGH, E - EXTREME

UNIT PREPAREDNESS AND FIREFIGHTING CAPABILITIES

The County of Los Angeles Fire Department currently has 169 fire stations (including FS55 and FS155 on Catalina Island), 220 fire engines (including 500 series), 13 ladder trucks, 26 quints, 94 paramedic squads, 35 patrols, 11 wildland fire suppression camps, 8 bulldozers, 7 helicopters, 3 USAR teams, 1 USAR Task Force, 97 Lifeguards vehicles and rescue boats, 23 Prevention Offices, 12 Forestry Units and numerous other response vehicles and facilities. The Department serves the unincorporated areas of the County as well as 58 incorporated cities.

The County of Los Angeles Fire Department has a contractual agreement with CAL FIRE to provide wildland fire protection on state responsibility areas (SRA). The Gray Book is an Exhibit of the “Contract County Agreement” which identifies resource allocations, which CAL FIRE considers necessary for the protection of SRA and provides funding accordingly. In the Los Angeles County the Gray Book provides for twenty three (23) stations and fire prevention staffing.

As mentioned in other areas of this document, "initial attack" is the focus of all wildfire suppression activities for the County of Los Angeles Fire Department. With so much emphasis placed on quickly extinguishing all wildfires, it might seem that all fire in the wildland is a bad thing. Quite to the contrary, fire is absolutely a necessary element in the County's ecosystem. Since too many assets are at risk to allow the natural occurrence of wildfire, integrated vegetation management including controlled burns are recommended to take the place of naturally occurring wildfire.

The human element is always the number one priority for all fire suppression efforts. Many rules and guidelines have been developed to stress firefighter and public safety during wildfires. These rules and guidelines can be helpful for the layperson to understand why firefighters may say or do certain things related to wildfire. Some of these rules and guidelines are: "The Ten Standard Firefighting Orders," "The Eighteen Watch out Situations," "Common Denominators of Fire Behavior on Tragedy and Near-miss Forest Fires," "LCES - Lookouts, Communications, Escape Routes, Safety Zones,” “Look Up, Look Down, Look Around." With all wildfires, certain strategic and tactical actions must take place. From the time of alarm to the abandonment or closure of a wildfire, one single unified entity must be in command of the incident. To accomplish this, all fire agencies in the County and in the State, for that matter, use the Incident Command System (ICS). Tactically all wildfires must be anchored, which means that a secure starting point is established from which all other strategic and tactical decision-making can build upon.

Once a wildfire grows beyond the initial attack stage where there are assets at risk, particularly in the wildland/urban interface/intermix, two additional dimensions are added to the already complex nature of wildland firefighting. In addition to anchoring and flanking the fire, to narrow the flame front, firefighting resources must also be committed to protecting assets out in front of the fire and resources must be left to protect assets from residual embers and fire after the fire passes through.

Cooperative Fire Services

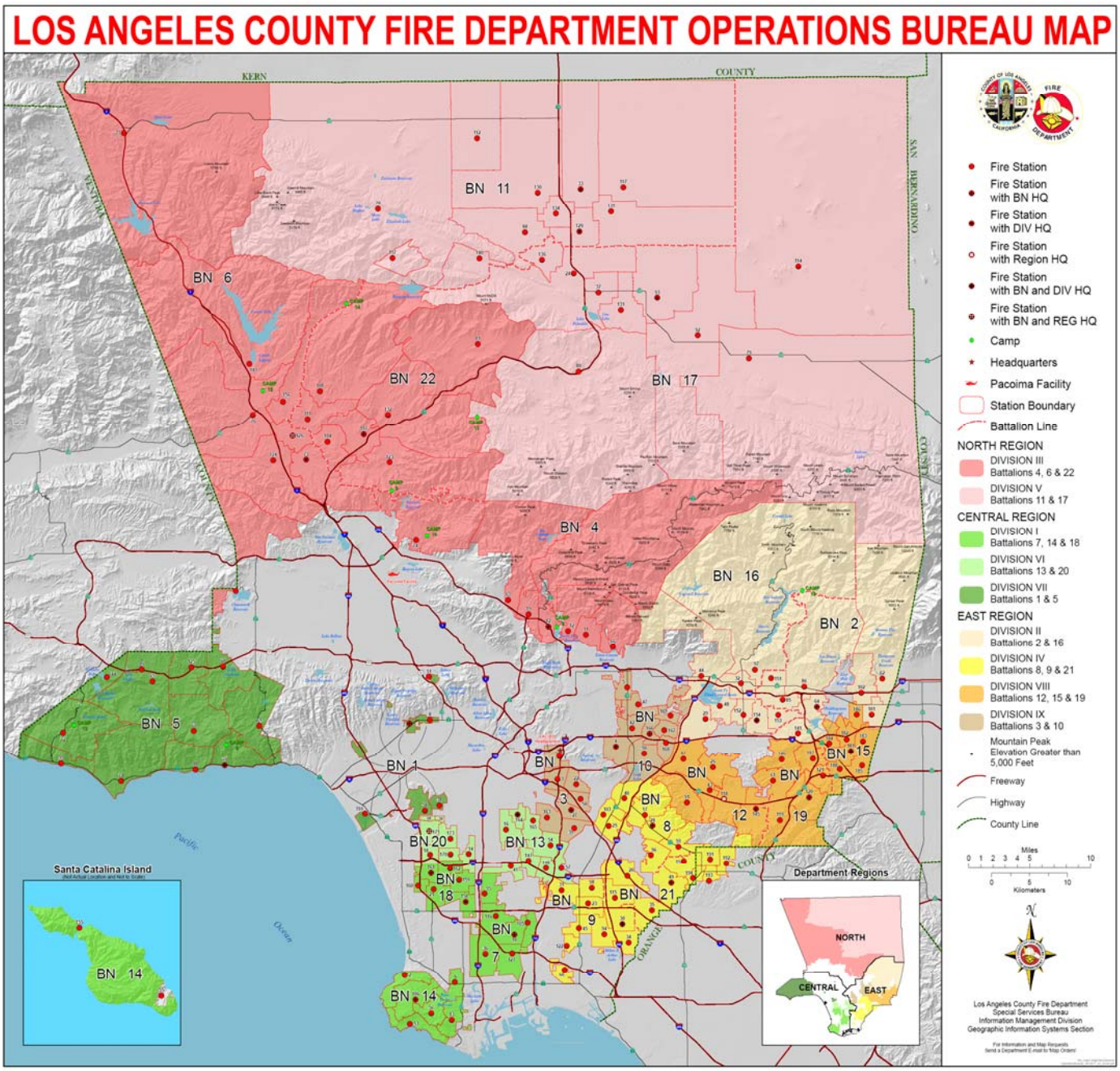
Mutual Aid

In emergency services, mutual aid is an agreement among emergency responders to lend assistance across jurisdictional boundaries. This may occur due to an emergency response that exceeds local resources, such as a disaster or a multiple-alarm fire. Mutual aid may be ad hoc, requested only when such an emergency occurs. It may also be a formal standing agreement for cooperative emergency management on a continuing basis, such as ensuring that resources are dispatched from the nearest fire station, regardless of which side of the jurisdictional boundary the incident is on. Agreements that send closest resources are regularly referred to as "automatic aid agreements". Current agreements are:

- Los Angeles County Operational Area Mutual Aid Plan
- California Fire Master Mutual Aid Agreement
- California Master Cooperative Wildland Fire Management (CFMA) and Stafford Act Response Agreement

Additional Fire Agencies in Los Angeles County:
USDA Forest Service, Angeles National Forest
USDOI National Park Service, Santa Monica Mountains Recreational Area

City of Alhambra	City of La Habra Heights	City of San Marino
City of Arcadia	City of La Verne	City of Santa Fe Spring
City of Avalon	City of Long Beach	City of Santa Monica
City of Beverly Hills	City of Los Angeles	City of Sierra Madre
City of Burbank	City of Manhattan Beach	City of South Pasadena
City of Compton	City of Monrovia	City of Torrance
City of Culver City	City of Montebello	City of Vernon
City of Downey	City of Monterey Park	City of West Covina
City of Glendale	City of Pasadena	
City of Hermosa Beach	City of Redondo Beach	
City of Sierra Madre	City of San Gabriel	



The County of Los Angeles Fire Department operational area is divided in three (3) Regions, Nine (9) Divisions, and Twenty two (22) Battalions.