Los Angeles County, bordered by Orange and San Bernardino counties was established in 1850, and is one of the original 27 California counties. Today, with 4,084 square miles, it remains one of the nation's largest counties, reportedly larger than the combined area of Delaware and Rhode Island, with room to spare. It has 88 cities within its borders and an 81-mile Pacific Ocean coastline. Twenty-eight percent of all California residents live in Los Angeles County.

The geography includes flat land, mountains, hills, valleys, marshland, and islands (including San Clemente and Catalina Islands). The county's weather is generally hot and dry. Conditions are ripe for wildfires. These fires are recurring and expected. As the saying goes, “It’s not a matter of if, but when.”

Los Angeles County Fire Department's (LACoFD) Air Operations Section has been a member of Helicopter Association International (HAI) since 1972. The LACoFD has emerged as a fire service leader on local, regional, and national levels—growing to become the nation's second largest fire protection agency. An innovative leader, the LACoFD is credited with the creation of the nation's second Fire Fighter Paramedic Program, and the nation's first 911 Emergency Calling System.

The LACoFD trace their beginnings to the early 1900s, with the creation of two separate departments. The County Forester, which was charged with protecting forest-
lands and was responsible for planting and maintaining the landscape, and the County Fish and Game Warden, who was assigned the additional position of County Fire Warden. This arrangement lasted until 1919, when wildland fires burned and blackened over 135,000 acres of Los Angeles County, prompting the merging of the two departments and a greater emphasis on fire suppression. Between September 1923 and 1925, 31 separate fire districts were formed.

In 1969, the LACoFD was the first fire department to implement advanced life support in the State of California through the use of fire department paramedics. Since 1970, over 1,400 LACoFD fire fighters have graduated from the Emergency Medical Services Paramedic Training Institute. Currently, there are over 768 certified paramedics, 53 squads, four paramedic engines, nine assessment engines, three air squads, and two paramedic lifeguard boats (which provide paramedic services to all of Catalina Island).

Last year, LACoFD paramedics responded to over 124,000 emergency medical calls.

The LACoFD is divided into three Regional Emergency Operations Bureaus, consisting of more than 4,200 sworn and civilian personnel. The LACoFD operates nine divisions, 21 battalions, 164 fire stations and 11 fire suppression camps, and answers over 400,000 emergency calls annually, while servicing more than 3,864,305 residents. Today, 58 cities contract with the Los Angeles County Fire Department, which staffs a total of 162 engine companies, 29 truck companies, 61 paramedic squads, and three paramedic air squads; one additional fire ship is dedicated during the fire season.

The Air Operations section of the Department has served the residents of the County since 1957. The original mission focus was limited to aerial observation and firefighting. The purchase of larger aircraft has allowed EMS and fire suppression to be added to their service and mission capabilities. The fleet currently consists of a Bell 206B III Jet Ranger, two Bell 412s, two Bell 412-HPs, three Sikorsky S-70A Firehawks, and a Helispot support vehicle.

**FireFighting:**

Combustion is caused by the combination of heat and fuel, fed by oxygen. Fuel sources, such as timber, and brush and grasses, are in abundant supply in LA County. A rapid response to the initial outbreak is important to contain wildfires. A timely response is critical to saving lives, wildlife, natural resources, and to prevent the fire's spread and buildup from becoming a large, out-of-control conflagration, which also has economic repercussions for a state already strapped financially.

The Department's administration uses the helicopter as a versatile and effective tool for watershed firefighting. The firefighting mission is to provide a quick initial aerial attack on all reported wildland brush fires with the three closest helicopters dispatched on first alarms. This need is met with Bell Model 412s and/or Sikorsky S-70A Firehawks™, both equipped...
with fixed-tanks and class "A" foam concentrate. Another aspect of aerial firefighting is the delivery of at least two fly crews on all brush fires. Most of the daily deployment sites are co-located at camps, to facilitate rapid response times. The Sikorsky Firehawk is the firefighting version of the Sikorsky UH-60L Blackhawk helicopter used by the U.S. military since 1970. Equipped with a computer-controlled 1,000 gallon fixed water tank and a 1,000-gallon per minute snorkel filling system, it is capable of delivering large quantities of water or foam on a wildland fire.

The plan for combating brush fires is to have the three closest helicopters respond on the first alarm. The helicopters are on standby with fire suppression crews during the daylight hours of the brush season. After landing their crews at the fire, the helicopters rendezvous with an engine company, which has been assigned to the pre-selected helispot nearest the fire. Over 100 helispots have been selected to meet the operating requirements of the helicopters and for an unlimited water source, usually a hydrant. The assigned engine company makes the necessary hose connection and pumps the water to the helicopters.

Aver age fill time for the Bell 412's 360-gallon tank is about one minute, and average turn-around time on drops is about five minutes, including fill time. Thus, each of the Bell 412 helicopters can deliver over 4,000 gallons per hour, which in many cases exceeds the performance of larger, fixed-wing air tankers. This is also advantageous when retardant bases are located some distance from the fire. Helicopters provide direct attack support for ground units, while their fixed-wing cousins provide indirect, or parallel attack, by building retardant lines on the unmanned portions of the fire.

The Air Operations Section has three mobile fuel trucks and two fuel tanker trailers, in addition to underground fuel facilities, located at Barton Heliport, the Air Operation's home base, and six other locations.

Firefighting operations include dropping water and foam on the fire line, and transporting fire crews and equipment to and from the incidents. Other operations are aerial reconnaissance, infra-red scanning and mapping, and providing a command platform for the Helicopter coordinator (Helco). Special, state-of-the-art infrared scanning, and color video equipment is used to locate hot spots outside the fire line that are otherwise not visible to the naked eye. This proactive data collection can help to head off a developing fire before it can be fed by a rise in temperatures or by increasing winds.

Emergency Medical Services:

Today, there are three multimission aircraft, each staffed with a pilot and two firefighter paramedics. Due to the remoteness of some areas of LA County, the multimission air ambulances can often be the first Fire Department units on scene, initiating scene control along with patient assessment, treatment, and air transportation of critically injured patients. Two of these teams, referred to as "air squads" are staffed 24-hours-a-day, while the third is staffed during daylight hours only.

Each aircraft is equipped with a 30 million-candle power, high intensity light for night operations, rescue, and firefighting missions. Safety is always a priority, so if at any point during a mission, the pilot becomes concerned about the weather or another factor that raises a red flag, he may cancel the call. On these calls, ground paramedic squads have also been dispatched simultaneously and respond when weather conditions are marginal.

Early on the morning of December 8, 2004, a commuter van carrying 10 employees of the NASA Jet Propulsion Lab, on their way to work, crashed approximately 200 feet over the side of a mountain. Witnesses summoned help and Copter 16 was the first helicopter to arrive at the scene. Pilot Pat Stefanski was able to position the aircraft to allow Firefighter Paramedic Mike Dubron, Crew Chief during the incident, to lower Firefighter Paramedic Tony Vlach down to the accident site. Vlach immediately evacuated two ambulatory victims. Stefanski and Dubron, operating under the low ceiling due to fog, repositioned the aircraft and transferred the victims to ground units. Due to the wire environment and terrain, Copter 16 stayed on station and continued the extrication...
of three additional litter patients. Copter 16 was also able to lower the "Jaws of Life" to Vlach and other personnel on the ground to extricate the trapped victims. Five victims were hoisted out by Copter 16 (S-70 Firehawk), one was hoisted out by Copter 18 (Bell 412), and one self-extricated. The other three passengers were declared dead on arrival. Participants in the massive response included the Los Angeles County Sheriff’s Department, the Los Angeles County Sheriff’s Department, Angeles National Forest personnel, and the California Highway Patrol. The surviving victims were successfully extricated within 90 minutes.

Technical Rescue/Swiftwater:

In addition to firefighting and EMS missions, the helicopters also conduct technical rescue, and swiftwater team deployment to extract and treat victims via the rescue hoist, rappel, or short haul operations, as well as landing to utilize other onboard rescue tools and supplies. The Department has special swiftwater rescue teams located strategically throughout Los Angeles County. Specialized swiftwater teams work and respond together from helicopters and ground vehicles. The teams are staffed by specially trained and equipped firefighters and lifeguards, who help support the Department's daily Urban Search and Rescue missions during and following extreme rainfall events. The teams are equipped with dry suits, personal flotation devices, helmets, and specially designed water rescue devices to save victims trapped in County waterways.

During 2004-2005, Los Angeles County experienced heavy rains and snowfall, making it one of the wettest seasons on record. Responding units rescued more than 60 people in adverse conditions that included day and night hoist, short haul, and one skid or wheel rescue operations. Rescues included swiftwater and high altitude locations, using night vision goggles when needed to rescue skiers and snowboarders.

On Sunday January 9, 2005, Helicopter 16 was on duty with the crew of Pilot Marty Martin, Crew Chief Firefighter Paramedic Mike Dubron, Firefighter Paramedic Tim Ruddell, and Rescue Swimmers Brian McCormick and Brian Wells. The prevailing weather in Los Angeles on that day was heavy rainfall. Copter 16 responded to a call that ground personnel had rescued numerous victims trapped in flooding waters. They also had become trapped due to floodwaters washing out their roads of egress, and reported they were hiking to higher ground. While not in immediate danger, they were stranded. Copter 16 was able to fly to their location. Pilot Martin and crew had to exercise extreme caution while proceeding in a wire-rich environment.

While responding to the original call, Copter 16 was able to extract other victims trapped by flooding waters. At one point, the crew of Copter 16 had 18 victims onboard their Firehawk. After safely evacuating all victims during their assignment in the Santa Clarita Valley, Copter 16 returned to the Antelope Valley as night fell. During the night, the crew of the Firehawk responded to numerous calls of persons trapped (mostly in vehicles), some were found enroute to other calls without dispatch, including a mother and her children who were trapped on top of their vehicle. Three victims were rescued as they were being swept along in a current, estimated to be 30 mph. Pilot Martin was able to keep position over Rescue Swimmer McCormick, under the direction of Crew Chief Dubron, who operated the rescue hoist. Martin battled 25 mph winds gusting to 35 mph in the driving rain at night, keeping clear of the wire environment. Sadly, a two-year-old victim was found down river by ground units and was pronounced dead at a local hospital. In summary, the crew of Copter 16 was able to rescue 34 victims trapped due to the record-setting rainstorms—a 24-hour shift the crew will never forget.

Pilots are hired from the civilian helicopter industry and are carefully screened and selected. They undergo a thorough flight and background check, and an oral interview process to validate their qualifications, and ensure they are able to perform the demanding duties of the position. The stringent minimum requirements include experience in flying in mountainous terrain, previous firefighting, and substantial twin turbine experience. Currently, staffing includes 10 line and two senior pilots. They average 12,000 flight-hours of experience, and their average annual fleet hour total.

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from 1995-2004, is 3,000 hours. All aircraft maintenance staff must go through a screening process, and must be experienced FAA-licensed airframe and powerplant mechanics; they are also hired from the civilian helicopter industry.

Firefighter Paramedic personnel assignments are based on seniority. Once assigned, they are required to complete an extensive 64-hour crewmember course. This course includes flight operations, flight safety, specialized equipment such as hoist operations, flight physiology, and other subjects pertaining to the care and transport of the sick and injured in helicopters. All this is in addition to three, required, 16-hour medical courses.

Protecting life, the environment, and property is the mission of the LACoFD. The LACoFD Air Operations Section is part of the LACoFD’s community outreach efforts and programs are also notable. The Explorers Program provides young men and women the opportunity to attend a fire service academy, inspiring future generations to consider a career in firefighting. The Juvenile Firesetters Program teams firefighters with local law enforcement officers to educate the young about the seriousness of playing with fire. Each fire station serves as a site for the County-wide Safe House Program that provides shelter and protection for anyone facing a threatening situation. In August 2002, the Los Angeles County Board of Supervisors created the Safely Surrendered Baby Program and designates all LACoFD fire stations as Safe Surrender Sites for parents of unwanted newborns who wish to give their child up for adoption, with no questions asked.

The LACoFD Air Operations Section continues to set standards for serving the public during emergencies. Their EMS and rescue work is of the highest level. The Department routinely responds to calls concerning lost hikers, falls, snakebites, heart attacks, strokes, gunshot wounds, vehicle accidents, and hundreds of other medical rescues.

In its never-ending battle against wildland fires, LACoFD has organized a unique and complex response from the air to meet the challenge. The Department’s specialized Air Attack group, joined with other aircraft, effectively combats blazes and provides aerial support to firefighters on the ground.

HAI is proud of members like the LACoFD Air Operations Section. They have a full plate, and their work is demanding—but they are up to the task. 

Martin J. Pociask is director of communications for HAI.

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