Los Alamos Fire Department

COMMUNITY RISK ASSESSMENT - STANDARDS OF COVER

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2019 Community Risk Assessment-Standards of Cover Contributors

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Executive Summary

The purpose of the Community Risk Assessment Standards of Cover (CRA-SOC) is to define and measure the appropriate level of service based on a comprehensive study of the department's historical performance, deployment strategies, and the community risk factors to determine the capability of its response system.

This document outlines the risk capabilities of the Los Alamos Fire Department (LAFD) and conforms to the Community Risk Assessment: Standard of Cover manual, 6th Edition.

Through a Cooperative Agreement (CA) with the Department of Energy (DOE)/National Nuclear Security Administration (NNSA), the LAFD protects the Los Alamos National Laboratory (LANL). This document must measure not only the service needs and delivery to the community, but to a high-hazard nuclear grade government facility, which due to the nature of its mission is highly protected and secured with fixed protection and a substantial armed guard force.

With 5 fire stations, 139 uniformed personnel, and 11 civilian staff, the LAFD is staffed and configured to dispatch and respond units in greater value than most communities of its size. The approximate 2500 per year call volume allows the department the latitude to dispatch additional resources and adjust the number of resources needed based on en-route information or upon arrival.

As the mission and environment of the Laboratory and the Fire Service Baseline Needs Assessment dictate, the replacement of two federally owned fire stations and increased staffing levels and equipment has begun and should be completed within the next 4-5 years. The county does not anticipate any significant growth requiring the addition or relocation of existing county-owned fire stations.

This CRA-SOC describes the fire service area, risks that must be protected within the community and LANL, services provided, department capabilities and performance objectives and measures. The department assesses risk based upon the probability of an incident occurring (potential frequency), consequence (potential financial, emotional, historical damage to the community) and impacts to the department (resources committed). Risk management is the analysis of the chance an event will occur and the resulting damage as a result of the event. The community risk assessment identifies both fire and non-fire risks in each planning zone and response district and places the risk in a risk category.

This document provides the department with an assessment of quantitative and qualitative data establishing a baseline of service delivery performance. An enormous amount of research and analysis has gone into the development of this document. Numerous successes, milestones, and areas of strength are identified, which verify and validate the quality services provided by the Los Alamos Fire Department. As expected, areas for improvement were identified as well. These findings have led to further research and analysis, evaluation and investigation with short- and long-range solutions in the development stages.

The information, conclusions, and recommendations in this document are used to fulfill the continuous improvement promise to the members of the department and those we serve in our pursuit of excellence.

The Los Alamos Fire Department is honored to be entrusted with the safety and welfare of our community. We are dedicated and proud to provide exceptional services for the preservation of life, the environment, and property. We walk with P.R.I.D.E. (Professionalism, Readiness, Integrity, Dedication, Excellence).

COMMUNITY RISK ASSESSMENT - STANDARDS OF COVER

A. Description of Community Served

Introduction

The purpose of this document is to serve as an overall blueprint for the Los Alamos County Fire Department's (LAFD or department) mandate to protect lives, the environment, and the property of the public it serves. The LAFD mission statement is an integral part of that blueprint in that it provides a succinct explanation as to the department's purpose.

The strategies employed to achieve LAFD's mission are defined throughout this and other supportive documents. LAFD's Standards of Cover was developed with life safety as the overall objective while keeping the following risk management statement at the forefront of the department's ambition.

"We will risk a lot to save savable lives. We will risk a little to save savable property. We will risk nothing to save that which has already been lost."

Due to the nature of the department, a unique challenge is presented to service providers in as much as the department is in a cooperative agreement with the Department of Energy (DOE)/National Nuclear Security Administration (NNSA) to provide fire protection service to the Los Alamos National Laboratory (LANL). Los Alamos County (LAC or county) will use guidance from National Fire Protection Association (NFPA) documents in developing LAFD's overall policies and practices. Certain issues involving national security arise when discussing DOE facilities; therefore, discussion may be limited as appropriate.

When developing a "Community Risk Assessment-Standards of Cover" document for the LAFD, wildland-urban interface response was considered. During wildland fire season, typically from April to September, the entire community is designated as highly threatened regardless of neighborhood demographics. With thousands of acres of wildland encroaching on several neighborhoods within Los Alamos, a special mitigation project has been implemented and is ongoing to reduce the hazard to the community.

The remainder of this document is intended to provide a snapshot of the department's level of service objectives to the county and should be regarded as a "working document" subject to the dynamic nature of the fire service as technologies and practices change to accommodate the wants and needs of the customers served. Certain assumptions must therefore be made including the assumption that response travel times to critical LANL facilities begin when an apparatus leaves a fire station or when it is announced that a particular unit is "en route" and ends when an apparatus has arrived at a staging area or security barrier from which access to the facility may be delayed while appropriate security and/or safety protocols are followed.

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This document will include a critical analysis of historical data, existing and proposed deployment strategies, distribution and concentration of resources based on time parameters, identification of community risks and expectations, and collection of data on reliability of response.

The overall assessment evaluates the department's ability to provide adequate resources to respond to an "all-risk" environment including fire and non-fire incidents such as emergency medical, hazardous material, technical rescue, and disasters both natural and manmade.

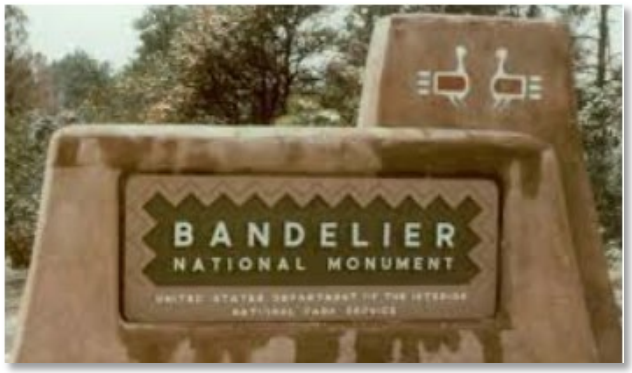
The methodology used was a systems approach to deployment rather than the one-size-fits-all prescriptive formula. An evaluation was conducted to match local needs or threats and expectations with expected outcomes. The data contained in this Standards of Cover document should provide the leaders of Los Alamos with the information necessary to understand and make decisions upon an effective delivery system for an "all-risk" environment.

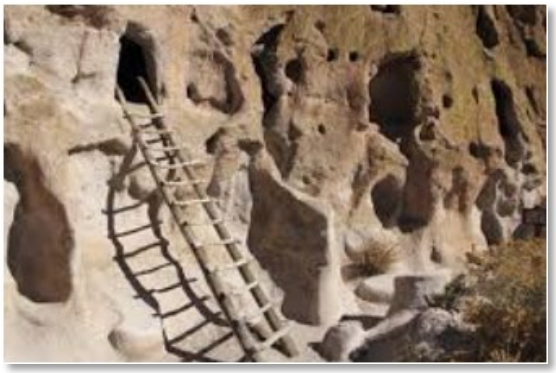
Los Alamos, "The Cottonwoods"

LAC is located on the Pajarito Plateau in the mountains of Northern New Mexico. Perched atop steep-walled mesas at the foot of the Jemez Mountains, Los Alamos offers some of the most awe-inspiring vistas anywhere. Located on the Jemez Mountain Trail National Scenic Byway, Los Alamos is at the heart of New Mexico recreation, with added cultural and historical significance. It is approximately 90 miles north of Albuquerque, 35 miles from Santa Fe, and 55 miles from Taos.

Roughly 1.4 million years ago, a volcanic explosion created the Valle Grande, one of the world's largest calderas (collapsed volcanic peaks), and the area's dramatic cliffs and canyons.

Anasazi Indians who farmed the fertile valleys of this area from 1100 to 1500 AD carved their dwellings out of these volcanic cliffs and etched symbols into the canyon walls. Ruins of their villages, trails worn deep into the volcanic tuff, petroglyphs, and shards of pottery are all that is left of the civilization from which modern Pueblo Indians are descended. Legendary cities of gold and rumors of fabulous riches brought Spanish Conquistadors to northern New Mexico.





In 1917, one of the most successful ranches, the Alamos Ranch, was purchased by Ashley Pond, a Detroit entrepreneur and former "Rough Rider." Pond converted the working ranch to the Los Alamos Ranch School where "privileged eastern boys might become robust, learned men." The natural depression that occasionally filled with water on the property came to be known as Ashley Pond. Twenty-six years later, the remote location and existing infrastructure of buildings and roads around the school would make it the ideal choice when the United States Government needed a secure location to base Project Y of the top-secret Manhattan Project.

COMMUNITY RISK ASSESSMENT - STANDARDS OF COVER

The community of Los Alamos was founded in absolute secrecy in 1943 as a center for defense research for the Manhattan Project, known only to the country's highest-ranking government, military, and scientific personnel. Both civilians and military personnel lived under the rigid control of the military, sequestered behind high fences and guarded gates. All residents were required to show badges both entering and leaving the site, and visitors were only permitted with special advance arrangements. Public disclosure of the town's existence in 1945 made national headlines.

The county officially came into existence on June 10, 1949, and it took a state constitutional amendment passed in 1965 to give the county its charter government of an incorporated county.

Most of the hundreds of temporary war-time buildings of the Manhattan Project era are gone now but remaining in the historic heart of Los Alamos are former ranch school buildings that also served the Manhattan Project. Fuller Lodge, designed by famed architect John Gaw Meem, is a massive vertical-log structure built in 1928 to serve as the Ranch School dining hall. After World War II, wings were added when it was converted to a hotel.

Adjacent to the lodge, in the former ranch school guest house, is the award-winning Los Alamos Historical Museum, interpreting the social history of the plateau. An easy historic walking tour provides a journey through time—from the Stone Age to the Atomic Age.

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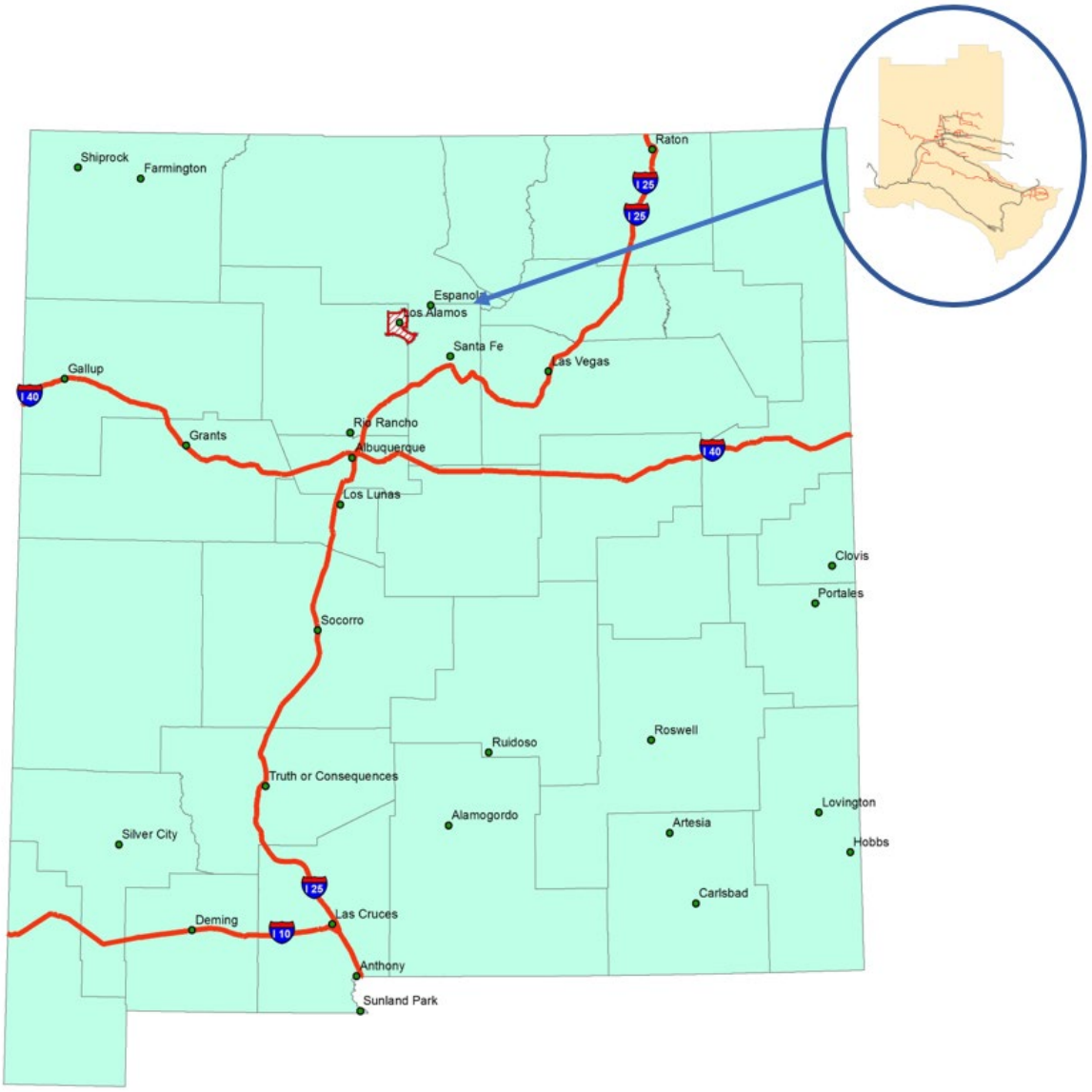
World War II ended in 1945, due in part to the work done here at Los Alamos, New Mexico. In 1947, the Atomic Energy Commission (AEC) assumed ownership and began building a modern town to support the Los Alamos Scientific Laboratory. In 1957, the security gates came down and the property was sold to private individuals. Since then, the town has continued to grow.

The LANL was created in 1942 by the U.S. Army Manhattan Engineer District with the initial mission to develop the world's first nuclear fission weapon. The relative isolation of Pajarito Plateau was considered ideal for this mission when the site was selected. At the end of WWII, the AEC received control of LANL from the Army and renewed the contract with the University of California (UC) to maintain US pre-eminence in the field of atomic energy. LAC was created in 1949 and chartered in 1968 in response to the Atomic Energy Communities Act of 1954 that required the privatization of the community facilities surrounding national research laboratories.

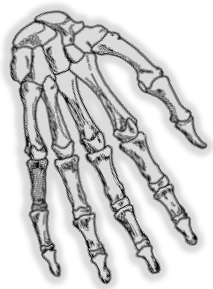
LANL is located in LAC. The approximately 40-square mile laboratory site is situated on the Pajarito Plateau, which consists of a series of finger-like mesas (ridges) separated by deep east to west oriented canyons cut by intermittent streams. Most laboratory and community developments are confined to mesa tops. The surrounding land is largely undeveloped and large tracts of land north, west, and south of LANL are administered by the LAC, Santa Fe National Forest, and Bandelier National Monument. The San Ildefonso Indian Pueblo borders LANL to the east.

See appendices for photos of occupancy types and locations (Appendix C), recreation areas (Appendix D), trails, parks, highways, roadways, access (Appendix E), landmarks (Appendix G), and new development (Appendix H) in Los Alamos County.

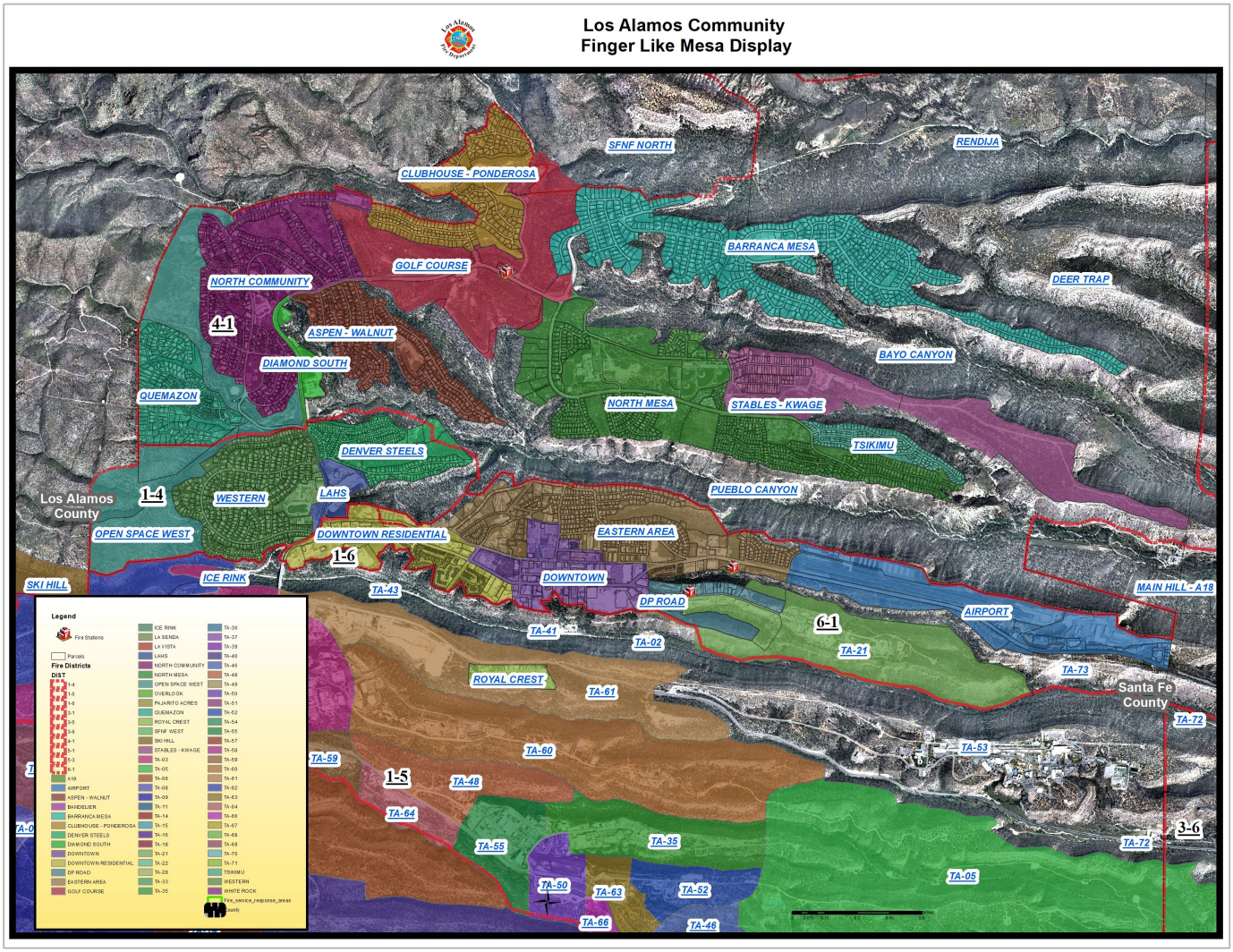
Map 1: Los Alamos County in Relation to State Of New Mexico



The images illustrate the "finger-like mesa" layout of LAC. This layout presents a unique response challenge as the end of these fingers or mesas can be reached only on 'one way in, one way out' roads. Responders must go back on the same roads to get to a main road or artery to access another part of the county or LANL property.



Map 2: Finger-Like Mesa Display with Planning Zones



Community Legal Basis

In 1949, the County of Los Alamos was formed from parts of three other existing counties (Santa Fe, Sandoval, and Rio Arriba) as a separate political subdivision by the New Mexico legislature (State statute, NMSA 1978, Section 4-15-1). It was incorporated on December 10, 1968 when county voters adopted the charter. As an incorporated county, and pursuant to NM Constitution, the incorporated county of Los Alamos is a home-rule jurisdiction and can enact ordinances as either a municipal or county form of government.

As an incorporated home-rule jurisdiction, the county has adopted a charter and related ordinances that authorize the county council and county manager to create departments to carry out the business of the county. One of these is the county's fire department.

The State Statutes in 14-15-1 and -2 set out the boundaries and county seat of the county. The charter discusses the proper legal name which provides in Section 101, the following:

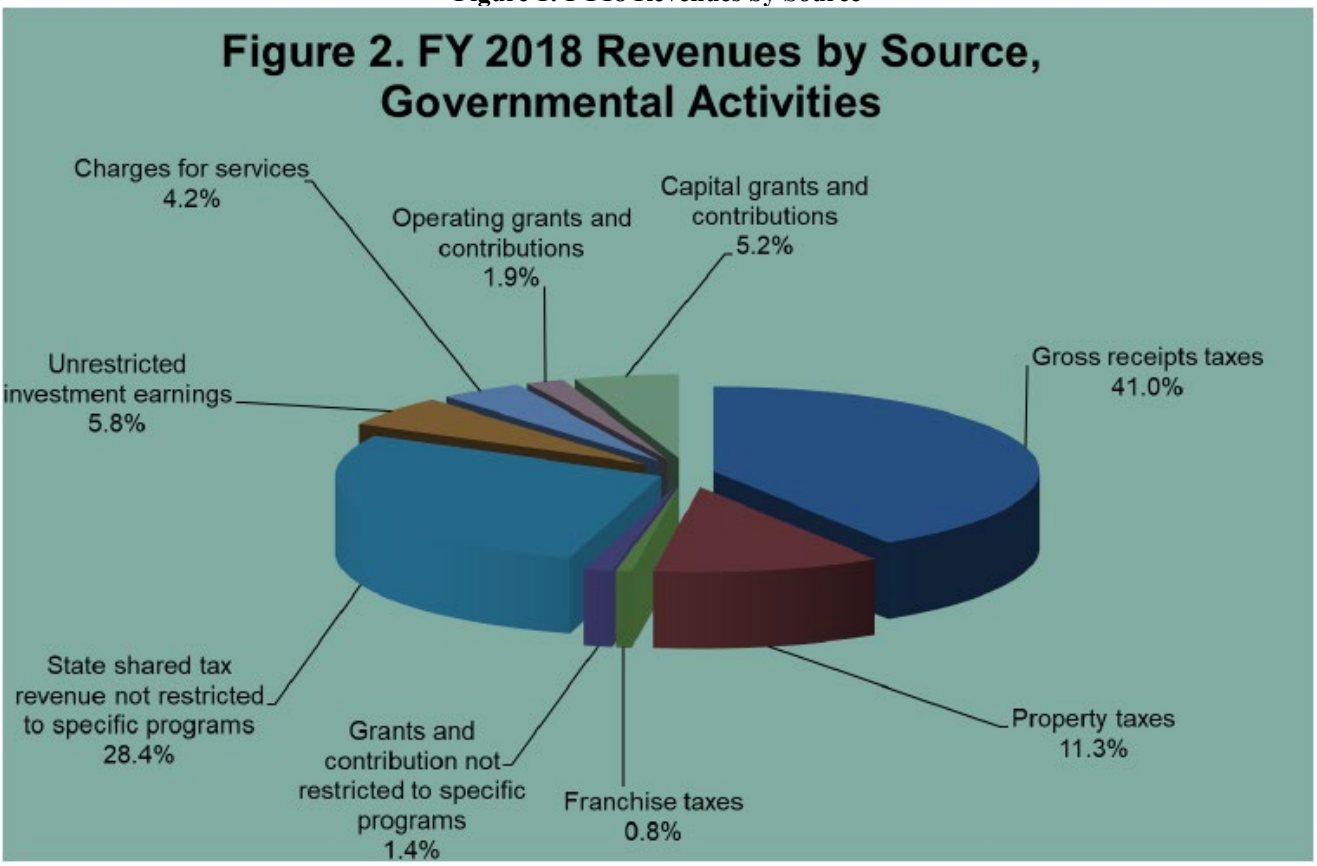
> *The county operates under a council-manager form of government. The county council consists of seven members who are elected at large by qualified county voters. Under the charter, the county council appoints a county manager, the chief executive officer of the county, who is responsible for all county affairs placed in his or her charge by New Mexico State statutes, the county charter, county ordinances, or the county council.*

Community Financial Basis

According to Forbes, LAC is the sixth richest in the United States. The smallest county in New Mexico is also the wealthiest, with a median income of $107,000. The cost of an average home is $535,000. The LANL is a major factor, as it is the largest employer in the county with nearly 11,000 employees.

The incorporated county of Los Alamos revenue sources include gross receipts taxes, property taxes, grants and contributions, investment earnings, and charges for services.

Figure 1: FY18 Revenues by Source



Department History and Financial Basis

LAC encompasses 109.5 square miles and houses approximately 18,238 residents and is supplemented by over 10,000 daily commuters. The LAFD was originally organized under the Manhattan Project in April of 1943. At that time, it consisted of seven civilian firefighters and 25 volunteer firefighters. In September 1943, the firefighter functions were taken over by the military. The fire department was operated under the US AEC and the DOE, who employed federal government employees for this service until 1988. At that time, the DOE awarded a contract to the county to hire personnel and provide fire and EMS service for LANL and the community.

The contractual relationship between the DOE and county continued through November 30, 1997, with two consecutive contracts. On December 1, 1997, DOE transitioned the contract to the UC and on June 1, 2006, the contract was transitioned again to Los Alamos National Security, LLC (LANS). On November 1, 2018, Triad National Security took the helm at LANL under a new management and operating contract with the US Department of Energy's National Nuclear Security Administration (NNSA).

The LAFD reports to DOE/NNSA and Los Alamos County; however, the LAFD is chartered by the LAC so the county manager is the Authority Having Jurisdiction (AHJ) over the department. The NNSA site manager is AHJ for the overall operations of the DOE/LANL property.

The LAFD is currently the third-largest career fire department in the State of New Mexico with an Insurance Services Office (ISO) rating of 2. The department provides fire, rescue, emergency medical, public education, and life safety services to the citizens and visitors of LAC and LANL.

LAFD currently operates with 150 budgeted positions consisting of 140 uniformed and 10 civilian positions. LAFD has five operational fire stations, one training station, and an administration office.

The department was legally established in 1985 through the LAC Code of Ordinances pursuant to Part 2 - Administration, Article IV- Departments, Division 7, Sections 2-361 and 2-362. In 2002, the county rewrote the county code. During this rewrite and reclassification, the legal establishment of all county departments, including the LAFD, was achieved through the adoption of Resolution Number 08-05 by the LAC Council.

In October 2013, the county entered into an unprecedented ten-year cost-sharing cooperative agreement (CA) with the DOE/NNSA. As stated in the statement of objectives, "the general objective of this CA is to provide financial support for staff, response vehicles, specialized tours and training, and the use of fire station facilities to the incorporated County of Los Alamos to allow the county to provide an enhanced level of fire department

services, including advanced nuclear facility capable, industrial fire suppression, advanced emergency medical, rescue, hazardous material response, and other services ("fire department services") through its municipal fire department."

As the owner of LANL, the federal government through its agency, the NNSA has a substantial interest to ensure the protection of the public, the environment, and property in LAC which includes LANL and surrounding geographical areas by the provision of the fire department services enhanced by the CA. The laboratory's research and other activities affect national security interests and include the potential for hazardous or radiological releases. Therefore, a close collaboration must occur between NNSA and the county to ensure an appropriately enhanced level of fire department services.

Because of these interests, NNSA will be substantially involved with LAC in its provision of the fire department services at LANL enhanced by the CA. NNSA will collaborate in the management of the fire department services outlined in the Statement of Substantial Government Involvement. This collaboration by NNSA is not meant to supplant or control the day to day management of the county's fire department or other offices of the county but rather to augment the systems, programs, training, and capability of the department. It is recognized that both NNSA and the county will benefit from this collaborative effort by enhancing the safety of the firefighters, the public, Triad National Security, LLC, and federal government employees, as well as members of the communities surrounding Los Alamos, the protection of the environment and property.

The DOE/NNSA provides for the vast majority of funding of personnel and vehicles for the LAFD, responses, training, and stationing of firefighters for LANL's needs and shall be foremost in the management and direction of the responders by LAC. The CA captures that the response of the LAFD for fire and/or hazardous material and medical emergencies to the LANL facilities is paramount for the safety of both the Los Alamos community and workers at the laboratory.

On October 1, 2008, the county, the DOE, and NNSA entered into a five-year CA for the funding and operation of LAFD. CA #DE-FC52-08NA28090 became effective on October 1, 2008 and established an estimated project cost through September 30, 2013 and the cost-sharing arrangement. In October 2013, the hard work of the LAFD resulted in the signing of an unprecedented 10-year CA.

October 2018, LAC began year six of the ten-year cost-sharing CA between LAC and the DOE/NNSA for funding and operation of the LAFD. The principal purpose of the CA is to assist LAC in providing fire protection services to all residential, commercial, and government entities located within its boundaries. Because of the size and nature of LANL, significant burdens relating to fire protection have been cast on LAC. The LANL campus is interspersed throughout LAC; therefore, this places the surrounding community at a much greater risk of a radiological or hazardous material disaster in the event of a wildfire in the community or at LANL. To adequately protect against these unique risks, LAFD is required to employ highly trained personnel and equipment in greater numbers than would normally be required for a standard county fire

department, thereby drastically increasing the financial burden on LAC. Without DOE/NNSA's financial assistance, LAC would not have comparable resources available to protect itself, LANL, or its citizens, most of whom work at LANL.

Sharing the costs and resources of fire protection services within LAC, including LANL will result in reasonable overall costs for performance. Citizens and visitors to LAC will benefit from a heightened level of fire protection services their tax base could not support. Likewise, the State of New Mexico and nearby communities and counties receive a level of fire department assistance that would not be otherwise available in the rural and small-town areas of northern New Mexico. Additionally, any wildland fires that might occur on National Forest, National Park, and Pueblo lands within or adjacent to LAC will be responded to and suppressed quicker following discovery because of the increased capabilities of the LAFD.

The LAC is required to apply for continuation funding on an annual basis prior to the new federal fiscal year (beginning October 1). Continuation funding is contingent on 1) availability of funds appropriated by Congress for the purpose of this program; 2) the availability of future year budget authority; 3) substantial progress towards meeting the objectives of the approved application; 4) submittal of required reports; and 5) compliance with the terms and conditions of the award.

The department budget is developed in correlation with the 10-year CA with DOE/NNSA. This agreement started on October 1, 2013 and expires on September 30, 2023. The CA budgets are calculated in line with the federal fiscal year (October-September). The LAC budget is determined by applying a .25 multiplier to the current Federal fiscal year budget and a .75 multiplier to the proceeding federal fiscal year budget. (See FY 18 calculation below)

Table 1: FY18 Budget Calculation

25% of Year 5 (Total Cost Base $24,784,205.74)	6,196,051.18
75% of Year 6 (Total Cost Base $25,284,646.14)	18,963,484.60
FY 2019 LAC FIRE Budget	**25,159,535.78**

The cost-share between DOE/NNSA and LAC starts in year one at an 80% DOE/NNSA cost and 20% LAC cost. Over the course of the ten years, the cost ultimately ends at DOE/NNSA with a 74% cost and LAC with a 26% cost.

Prior to the start of year six of this agreement, a budget reopener was planned for the CA. LAC submitted a revision to the budget amounts for years 6-10, this submission and meetings ultimately ended in an overall increase to budget by $1,910,927. This includes a five-year line-item budget, the same method that was used to calculate the first five years of the CA. The following tables illustrate the CA and LAC budgets from the start of the agreement through the completion of the agreement (please note these are in federal fiscal years).

Table 2: Effective Cost Share Calculations Years 1-5

TABLE 2 Effective Cost Share Calculations	Year 1	Year 2	Year 3	Year 4	Year 5	Years 1-5
Total Shared Costs	$ 19,871,199	$ 20,935,371	$ 21,439,210	$ 22,117,675	$ 22,644,030	$ 107,007,485
Other Direct Costs	$ 1,977,191	$ 2,016,735	$ 2,057,070	$ 2,098,211	$ 2,140,175	$ 10,289,382
Total Cost Base	$ 21,848,390	$ 22,952,106	$ 23,496,280	$ 24,215,886	$ 24,784,205	$ 117,296,867
Government Share %	80%	80%	79%	78%	77%	
Recipient Share %	20%	20%	21%	22%	23%	
Government Share $	$ 17,478,712	$ 18,361,685	$ 18,562,061	$ 18,888,391	$ 19,083,838	$ 92,374,687
Recipient Share $	$ 4,369,678	$ 4,590,421	$ 4,934,219	$ 5,327,495	$ 5,700,367	$ 24,922,180

Table 3: Effective Cost Share Calculations Years 6-10

TABLE 4 Effective Cost Share Calculations	Year 6	Year 7	Year 8	Year 9	Year 10	Years 6-10	Years 1-10
Total Shared Costs	$ 23,360,077	$ 24,262,250	$ 25,022,280	$ 25,812,166	$ 26,620,758	$ 125,077,531	$ 232,085,016
Other Direct Costs	$ 1,924,569	$ 2,871,144	$ 2,918,845	$ 2,067,702	$ 2,117,740	$ 11,900,000	$ 22,189,382
Total Cost Base	$ 25,284,646	$ 27,133,394	$ 27,941,125	$ 27,879,868	$ 28,738,498	$ 136,977,531	$ 254,274,398
Government Share %	76%	75%	74%	74%	74%		
Recipient Share %	24%	25%	26%	26%	26%		
Government Share $	$ 19,216,331	$ 20,350,045	$ 20,676,433	$ 20,631,102	$ 21,266,489	$ 102,140,400	$ 194,515,087
Recipient Share $	$ 6,068,315	$ 6,783,348	$ 7,264,693	$ 7,248,766	$ 7,472,010	$ 34,837,131	$ 59,759,311

Total shared costs are calculated as salaries plus benefits with a 24.3% fixed rate applied for indirect costs, such as building, insurance, dispatch, and other overhead costs. All materials and services are part of the county's share of the CA. The county share receives a credit for any program revenue, specifically EMS ambulance revenue that is collected. This lessens the share that LAC is responsible for.

On February 28, 2019, the Governor of New Mexico signed Senate Bill 11 (SB 11). This new law "establishes that 501(c)(3) nonprofits operating national laboratories are not exempt from paying gross receipts taxes, ensuring adjacent New Mexico communities will be able to depend on a steady stream of important revenue." Prior to the passing of this law, the LAC would have been subjected to a reduction in revenue of gross receipts taxes by approximately $25 million annually. The NM Representative sponsoring SB 11 stated that "this legislation will ensure that everyone pays their fair share and preserves a secure revenue stream from local governments to provide essential services and programs for New Mexicans."

The amounts that LAFD spends on materials and services are also set through the CA budgets. The line in the tables marked "Other Direct Costs" reflect those amounts. These are paid for directly by LAC, NNSA's share only consists of salary, benefits, and indirect overheads. The materials portion of the budget is calculated in the same way as the total budget (see following table).

Table 4: Direct Costs

25% of Year 5 Direct Costs ($2,140,175)	$535,043.75
75% of Year 6 Direct Costs ($1,924,569)	$1,443,426.92
FY 2019 LAC Fire Direct Costs	**$1,978,470.67**

Table 5: CA Expenditures Federal FY 2019

Expenditure Type	Amount
Services	$ 456,021.94
Materials and Supplies	$ 1,468,547.29
Benefits	$ 6,036,209.77
Labor	$ 12,761,068.99
Indirect Costs	$ 4,562,798.14
Total	**$25,284,646.13**

Figure 2: LAFD Funding Sources for FY 2019

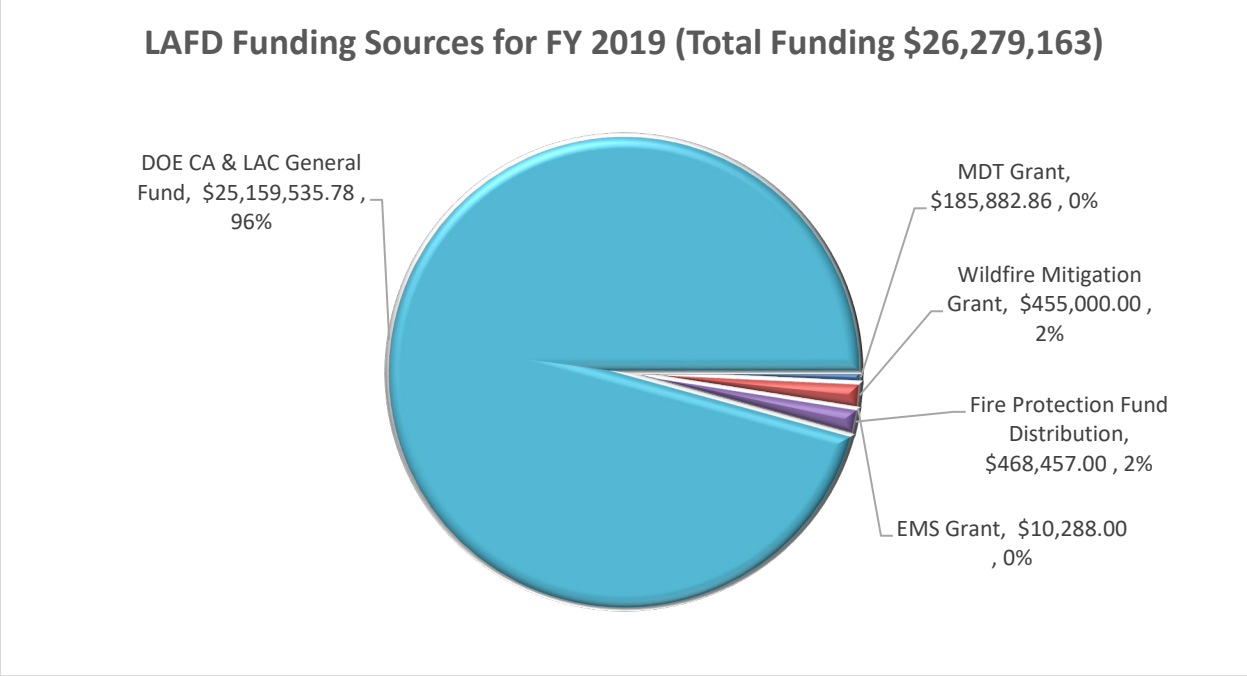


Table 6: LAFD Funding Sources for FY 2019

Funding Source	Amount
MDT Grant	$ 185,882.86
Wildfire Mitigation Grant	$ 455,000.00
EMS Grant	$ 10,288.00
Fire Protection Fund Distribution*	$ 468,457.00
DOE CA & LAC General Fund	$ 25,159,535.78
TOTAL	**$ 26,279,163.64**

**Estimated*

In addition to the CA, LAFD applies for the Fire Protection Fund Distribution and Fire Protection Grant through the State Fire Marshal annually, FEMA AFG grants, EMS Fund Act Grant through the NM Department of Health and grants through the Department of Homeland Security Emergency Management. Through the various grant funding, the department has purchased the entire fleet of mobile data terminals, fire supplies and equipment ranging from hose, radios, training, brush trucks, upgrades to the HVAC systems at Stations 3 and 4, paramedic tuition and other needed EMS items, such as AEDs and cardiac monitors and in 2017 a three-year wildfire mitigation and education project.

Table 7: Grant Awards

Sum of Amount Awarded	Column Labe						
Row Labels	2014	2015	2016	2017	2018	2019	Grand Total
2016-19 Hazardous Materials Emergency Preparedness (HMEP) Grant			11,910.00				11,910.00
2017 Hazardous Materials Public Sector Training and Planning Grants				22,500.00			22,500.00
Assistance to Firefighters Grant - FEMA			280,953.00	185,833.00	206,896.00		673,682.00
EMS Fund Act	12,086.00	12,153.00	10,449.00	10,939.00	10,069.00	11,200.00	66,896.00
NM Fire Protection Fund Distribution	429,905.00	437,424.00	437,290.00	447,383.00	468,457.00		2,220,459.00
NM Fire Protection Grant	100,000.00	96,000.00	100,000.00	100,000.00			396,000.00
Wildfire Mitigation & Education Project Phase I			39,131.25				39,131.25
Wildfire Mitigation & Education Project Phase II			302,118.75				302,118.75
2016 State Homeland Security Grant (SHSGP) Program				210,325.00			210,325.00
Grand Total	**541,991.00**	**545,577.00**	**1,181,852.00**	**976,980.00**	**685,422.00**	**11,200.00**	**3,943,022.00**

Community Boundaries

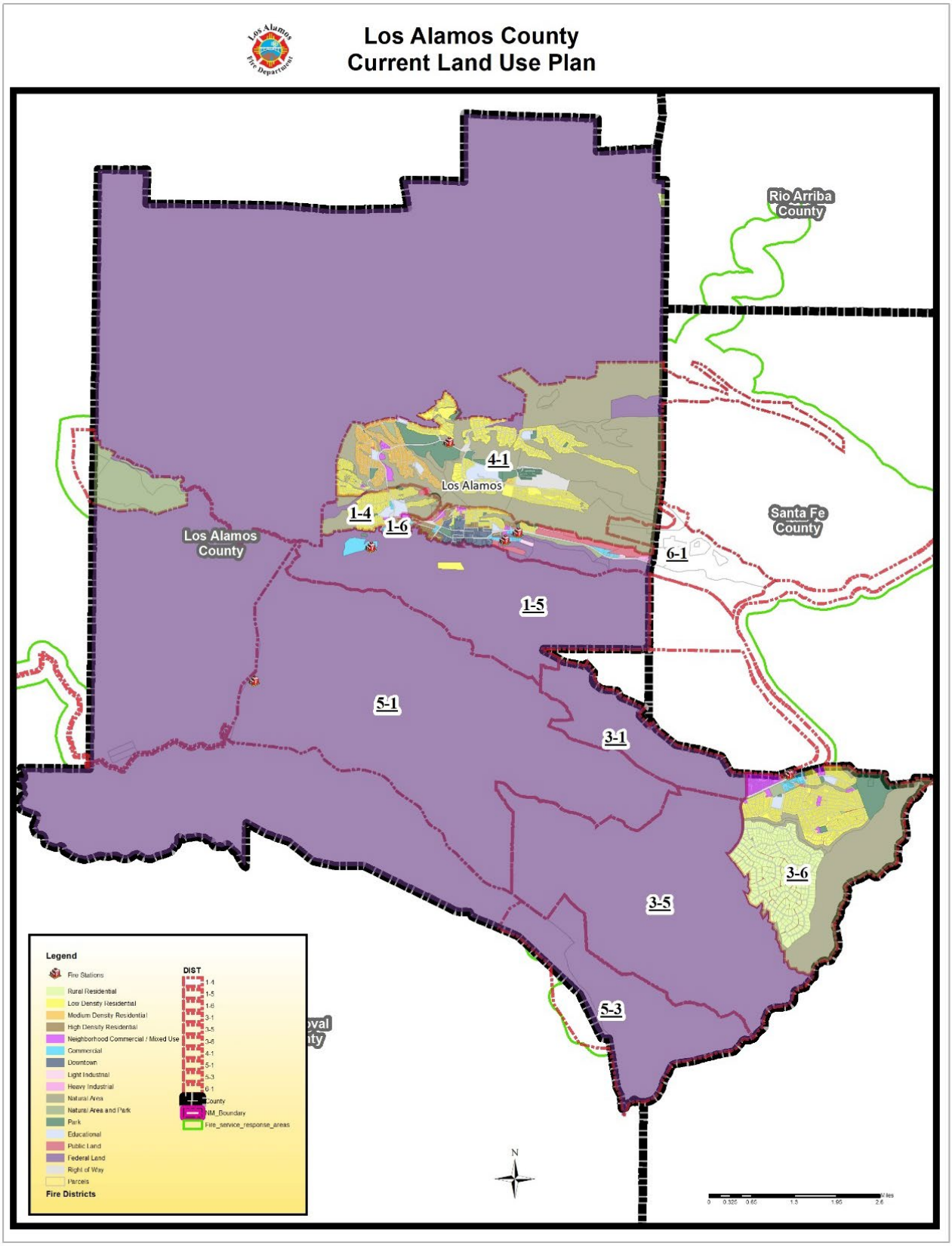
Los Alamos is a county created by New Mexico Statute in 1943. The county is primarily comprised of two communities and the LANL. The communities of Los Alamos and White Rock are the main areas of the privately-owned property. The legal description of LAC is:

"That the county of Los Alamos is hereby created out of those portions of Sandoval and Santa Fe counties lying and situate within the following boundaries, to wit:

beginning at NE corner of the SE 1/4 of section 13, township 20 north, range 6 east of the New Mexico principal meridian, which point is on the county line between Sandoval county and Santa Fe county, state of New Mexico; thence in a westerly direction along the northern boundary of the S 1/2 of said section 13 to the northwest corner of the SW 1/4 of said section 13; thence in a northerly direction along the eastern boundary of section 14 to the northeast corner thereof; thence in a westerly direction along the northern boundaries of sections 14 and 15 to the northeast corner of section 16; thence in a southerly direction along the eastern boundary of said section 16 to the southeast corner thereof; thence in a westerly direction along the southern boundary of said section 16 to the southwest corner thereof; thence in a southerly direction along the eastern boundary line of section 20 to the NE corner of the SE 1/4 of said section 20; thence in a westerly direction along the north boundary of the S 1/2 of said section 20 to the northwest corner of the SW 1/4 of said section 20; thence in a westerly direction along the north boundary of the S 1/2 of section 19 to the northwest corner of the SW 1/4 of said section 19, all in township 20 north, range 6 east; thence in a westerly direction along the north boundary of the S 1/2 of section 24, to the northwest corner of the SW 1/4 of said section; thence in a westerly direction along the north boundary of the S

1/2 of section 23 to the northwest corner of the SW 1/4 of said section 23; thence in a northerly direction along the eastern boundary of section 22 to the northeast corner thereof; thence in a westerly direction along the northern boundary of said section 22 to a point on the eastern boundary of the Baca location numbered 1, which point is the southwest corner of the Santa Clara Indian reservation; all in township 20 north, range 5 east; thence in a southerly direction along the eastern boundary of the Baca location numbered 1, a distance of approximately 9.1 miles, to the southeast corner of the Baca location numbered 1; thence in a westerly direction approximately 1.3 miles along the southern boundary of the Baca location numbered 1, to the intersection of said boundary with the initial station of the Sawyer Mesa special survey, a survey of a portion of unsubdivided township 18 north, range 5 east, which point is the northwest corner of the Sawyer Mesa tract; thence in a southeasterly direction, along the southwest boundary of the Sawyer Mesa tract, a distance of 5.34 miles, to the intersection of the south boundary of the Sawyer Mesa tract with the west boundary of the Bandelier national monument, which point is the southeast corner of the Sawyer Mesa tract; thence in a general northerly direction approximately 0.8 miles along this boundary to the south boundary of the Ramon Vigil grant, which point is the northwest corner of the Bandelier national monument; thence in a general southeasterly direction for approximately 8.0 miles, along the boundary between the Ramon Vigil grant and the Bandelier national monument, to the intersection of said south boundary of the Ramon Vigil grant with the south end of the east boundary of said grant, which point is the southeast corner of the Ramon Vigil grant and is on the west bank of the Rio Grande river; thence in a general northeasterly direction approximately 7.8 miles along the east boundary of the Ramon Vigil grant, which boundary is parallel to the west bank of the Rio Grande river, to the southeast corner of the tract within the Ramon Vigil grant identified as Tract A in the general land office survey for group no. 406, dated August 15, 1938, and titled plat Ramon Vigil grant, New Mexico, said tract commonly being known as "Sacred Area" or "Indian Sacred Grounds"; thence in a general northwesterly direction approximately 7.7 miles along the southern boundary of said Tract A, to a point on the northern boundary of the Ramon Vigil grant, which point is at the northwest corner of the so-called "Sacred Area"; thence in an easterly direction approximately 1.9 miles along the northern boundary of the Ramon Vigil grant to a point on the Sandoval and Santa Fe county line, which point is the southeast corner of fractional section 25, township 19 north, range 6 east, and the southwest corner of a detached portion of the Bandelier national monument; thence northerly along the east side of said township to the northeast corner of section 1 of said township; thence northerly along the east side of township 20 north, range 6 east to the northeast corner of the SE 1/4 of section 13 of said township, the point of beginning."

Map 3: Los Alamos County Current Land Use



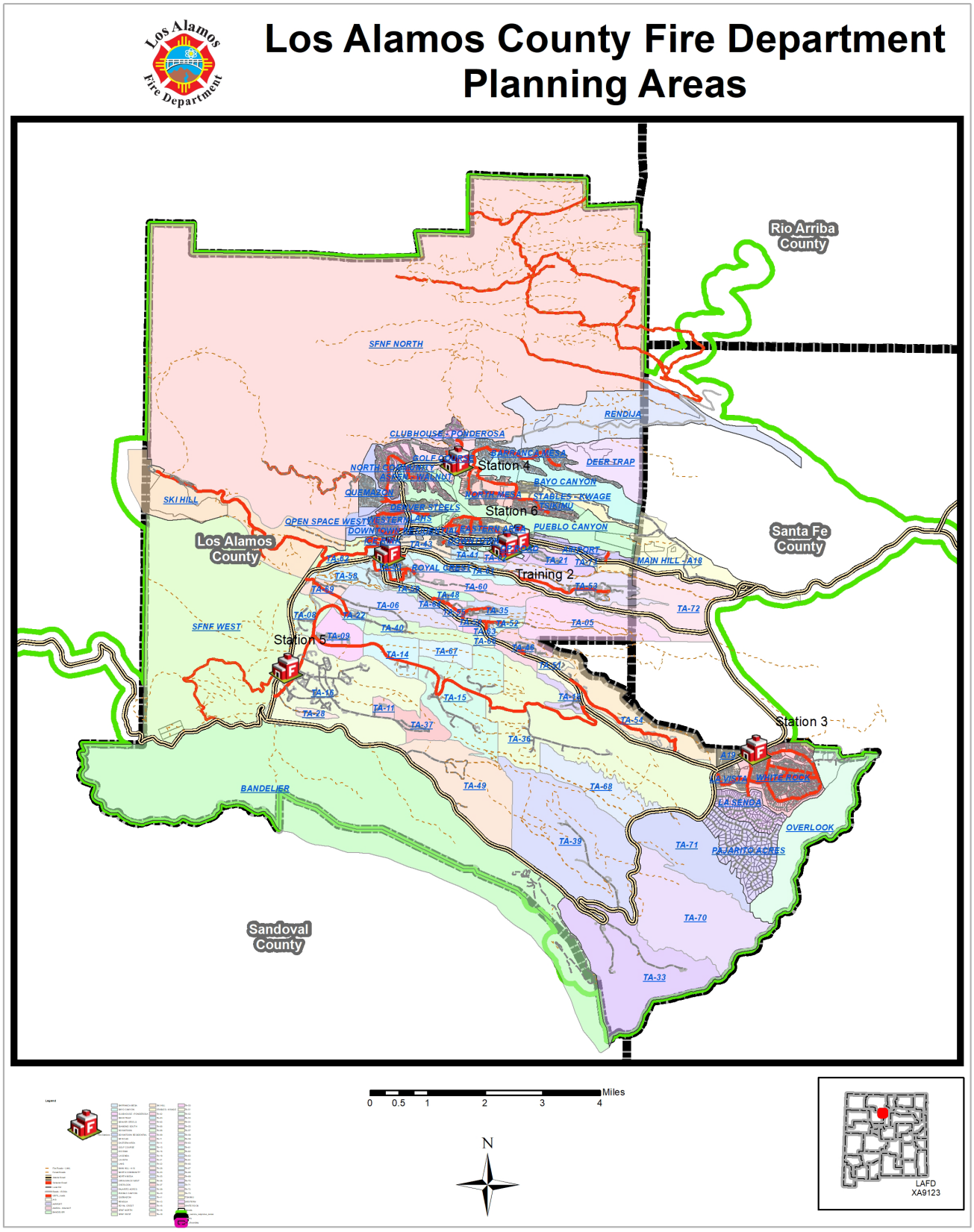
Community Planning Areas

The county's 109.5 square miles consists almost entirely of land, with no significant bodies of water. The vast majority of land, 94 square miles, or nearly 86%, is federally owned. The two population centers, Los Alamos Townsite and White Rock, are each census-designated places, or CDPs, which means that the Census Bureau assembles data for each place separately, in addition to data for the county as a whole.

Los Alamos has developed primarily along the flat mesa tops at an elevation of 7,300 feet. White Rock is located at the base of the mesa at approximately 6,400 feet. It has the same geographic foundation created by the flow from the two Valles Caldera eruptions and sits at the top of White Rock Canyon, carved trough basalt and tuff by the Rio Grande.

See Appendix B for Planning Zones and Area Characteristics tables.

Map 4: LAFD Planning Areas



Community Transportation Systems

LAC is located on the eastern side of the Jemez Mountains, somewhat isolated, with access only from NM 4 from the south, NM 502 from the east and an airport. NM 4 connects Los Alamos with US 550 at San Ysidro and provides access to the Jemez Springs/Jemez Pueblo area as well as the Valles Caldera National Preserve. NM 4 also connects White Rock and Bandelier National Monument with the Los Alamos Townsite. NM 502 connects Los Alamos with US 84/285 at Pojoaque. US 84/285 is a major artery that connects a number of scattered independent communities and native Pueblos lands between Espanola and Santa Fe. NM 502 carries the majority of the traffic, consisting principally of approximately 10,000 commutes daily. This artery adds access to Taos and points in southern Colorado, as well as the central urban areas of New Mexico via I-25. See Appendix E for more details on highways, roadways, and access.

Transit Service - Public transportation has been provided in LAC by various organizations since 1980. Transit services first operated under the name Los Alamos Transit Operations, a small private corporation with only two buses running once per day between White Rock and LANL. Los Alamos Transit Operations dissolved in 1982.

Over the next 25 years, transit service was provided by Los Alamos Bus System, Inc. (LA Bus), a small non-profit organization. LA Bus operated a fleet of 15 buses and primarily served LANL, with very little community-wide service. Depending on the source, it is estimated that LA Bus carried anywhere from 30,000 to 70,000 passengers a year.

On March 28, 2007, at the request of the community and LA Bus, an agreement was reached for LAC to assume all public transportation operations. Atomic City Transit was born, and service commenced on October 1, 2007.

Today, Atomic City Transit operates four distinct modes of service, namely, 1) fixed-route transit service in Los Alamos and White Rock; 2) evening demand response (Dial-a-Ride) service for the general public; 3) ADA complementary paratransit (ACT Assist) service with an origin and destination anywhere within LAC; and 4) shuttle service between White Rock Visitor Center and Bandelier National Monument during the peak visitor season.

Atomic City Transit also provides special event services, including shuttle service for the county's annual Fourth of July fireworks show, and safe-ride-home service on select holidays. When Atomic City Transit began operating in 2007, it was estimated that annual ridership would reach 100,000 one-way passenger trips. However, ridership far exceeded all expectations, with a total of 254,502 passenger trips during the first year. In 2012-2015, an average of over 545,000 annual passenger trips have been provided, with a peak of 562,226 trips in 2012.

Currently, seven different routes provide bus service to nearly all the community. Atomic City Transit also provides ADA complementary paratransit services for those individuals who are certified as ADA paratransit eligible. The State of New Mexico Department of Transportation (NMDOT) operates a regional public transportation system called the NMDOT Park and Ride. It provides both morning and evening service from Los Alamos Townsite to Espanola, Pojoaque, and Santa Fe with connections for continuing service to Las Vegas, Bernalillo, Albuquerque, and regional communities located east of the Albuquerque metro area. This service also connects with the New Mexico Rail Runner train and with local transit service in Santa Fe. The North Central Rural Transit District operates a mid-day bus serving both Espanola and Pojoaque.

Bicycle Routes - The design of the LAC road network was primarily for vehicular traffic, although it has some accommodations for bicyclists and pedestrians. Los Alamos Townsite has three dedicated bicycle lanes. One is located on Canyon Road, which becomes Central Avenue between Diamond and Oppenheimer Drive. The second is located along a short segment of San Ildefonso Drive, from North Mesa Road to Sioux Street. A third bicycle lane is on Diamond Drive between the Los Alamos Medical Center and San Ildefonso Road. Although bicycle lanes painted along Central Avenue mark a bicycle right of way, no dedicated bicycle lanes are currently located along either Trinity Drive or Central Avenue.

In White Rock, dedicated bicycle lanes are located on both sides of NM4, between Rover Boulevard and Pajarito Road/Grand Canyon Drive. A multi-use trail extends on the south side of NM 4 from Grand Canyon Drive to Monte Rey Drive South.

Source: Los Alamos County Comprehensive Plan 2016.

Air Transportation – LAC airport (airport code LAM) is located north of NM 502 on the eastern edge of Los Alamos Townsite. The airport has one 6,000-foot long x 120-foot long runway which runs in an east/west direction and has the standard aviation markings. Built in 1947 by the AEC as part of the Los Alamos Scientific Laboratory, but the federal government transferred the facility to county ownership in 2008. It is classified as a low-air-traffic facility.

Small private aircraft use the airport, and it has had intermittent commercial commuter service to Albuquerque, including Boutique Air flights in 2015.

The elevation of the airport is approximately 7,171 feet above sea level, with a total property boundary of 89 acres. The airport averages approximately 12,000 inbound and outbound flights annually, or approximately 33 a day. There are 56 aircraft based at LAM (54 single-engine general aviation airplanes, 1 multi-engine airplane, and 1 ultralight). The summer months also see periodic housing of one to four jet propulsion helicopters for wildland firefighting. LAM also sees approximately 50 military flights annually due to the proximity to Kirtland Air Force Base. Unscheduled twin jet engine traffic is not uncommon at LAM, however, statistic data is not

available to determine the average frequency at this time. These flights are usually in the form of fixed-wing charters for LANL visitors, emergency medical aircraft, or government officials on business.

Other risks at the airport would be characterized based on the building and hangar functions. First, the hangars themselves are mostly made of light metal construction which will have little resilience to fire exposure. This will make interior fire attack difficult. There are no internal fire protection systems in any hangar. The terminal is a standard industrial-type facility with a flat built-up roof. There is no internal fire protection within the facility. The building houses a communications center (tower) for communication with local air/ground traffic which has a high electrical hazard. In any hangar, one could expect to encounter exotic metals, carbon composites, Class B fuels including all different aviation type fuels (i.e. Jet A/B, Solid/gel rocket fuel, av-gas, etc.). Several of the aircraft on the property are equipped with Ballistic Recovery Systems which could also have one of several different ballistic parachute assemblies. These are often operated with a jet propellant or gun powder charge. There are several hangars leased/operated by amateur airplane builders and aircraft mechanics. These hangars will have similar hazards as the aforementioned hangars, in addition to the high probability of having paints, solvents, and potentially exposed toxic fluids. All these areas will likely have machinery, hydraulics, and pneumatic tools, all of which increase the potential hazard during an incident.

Any incident at the airport is also subject to potential biological exposures due to the probability of high impact incidents. This would most likely be in the form of bodily fluids from victims.

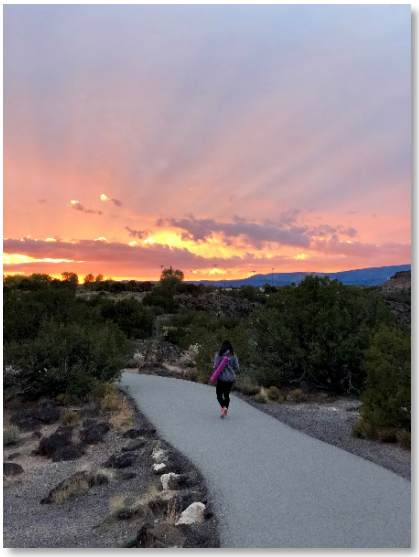
The 24-hour fuel center is located outside on the northwest corner of the airport property and has all the same hazards typically present at a traditional gas station.

The airport operates with an unstaffed control tower. This means that all traffic (air and ground) within the airfield is to be communicated via the airport radio network at specific markers and geographic locations. If there is miscommunication or a lack of communication there is a higher probability of having an incident/accident on the property or in the air.

The airport is situated on the end of a mesa. Any incident on the property, or within the immediate surroundings, is subject to high angle rescue type scenarios, wildland fires, or difficult terrain with limited driving access. There are also several buildings situated immediately east of the airport boundary which could pose additional risks including chemical and biological (via the NM Consortium), high population density (Holiday Inn and their hosted concerts/meetings), high fuel loading (Los Alamos County Annex, Fuel Center, and Fleet Shop), and exotic fuel loading (via several machine shops, veterinary clinic, etc.). Immediately to the

west of the airport is a neighborhood with approximately 75 single-family dwellings situated in an area of roughly 21 acres.

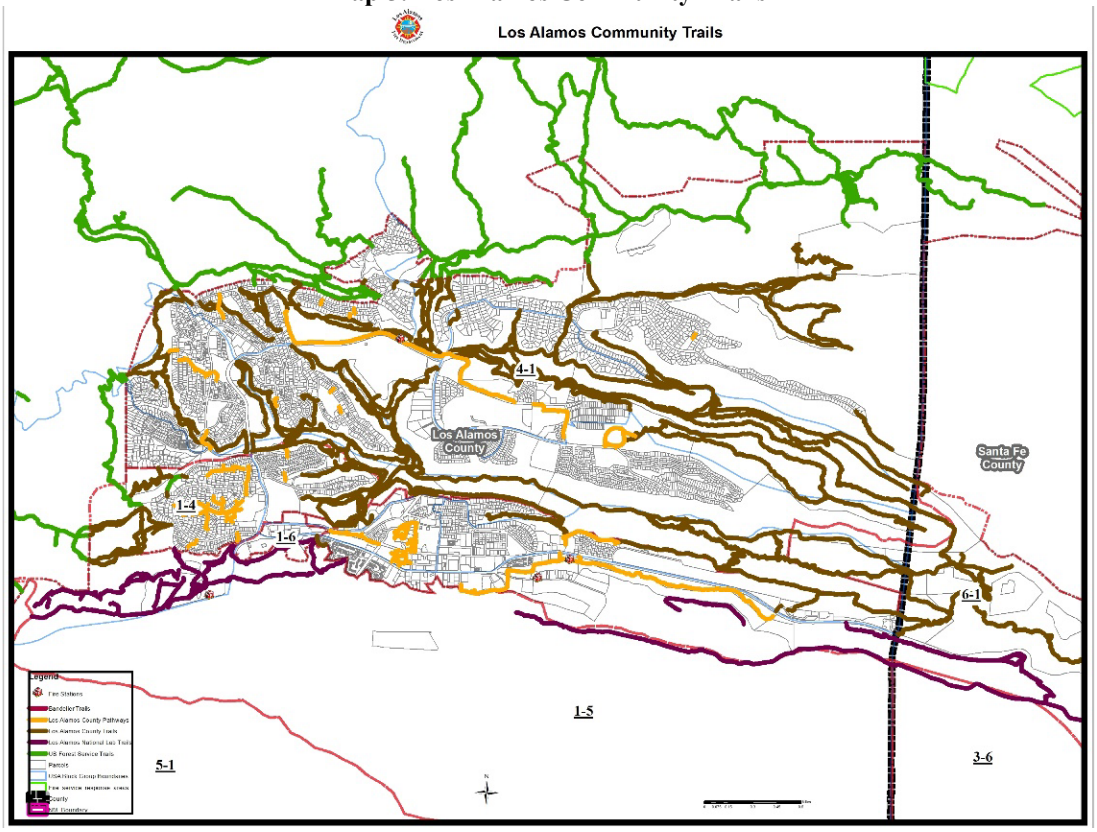
As with any airport, there are certain hazards that are present just due to the aircraft themselves. These include extreme noise, high heat and high velocity debris (jet wash/prop wash), fast-moving/spinning parts (propellers, jet fans, engine components, etc.), and varying levels of traffic (both passenger cars and aircraft).



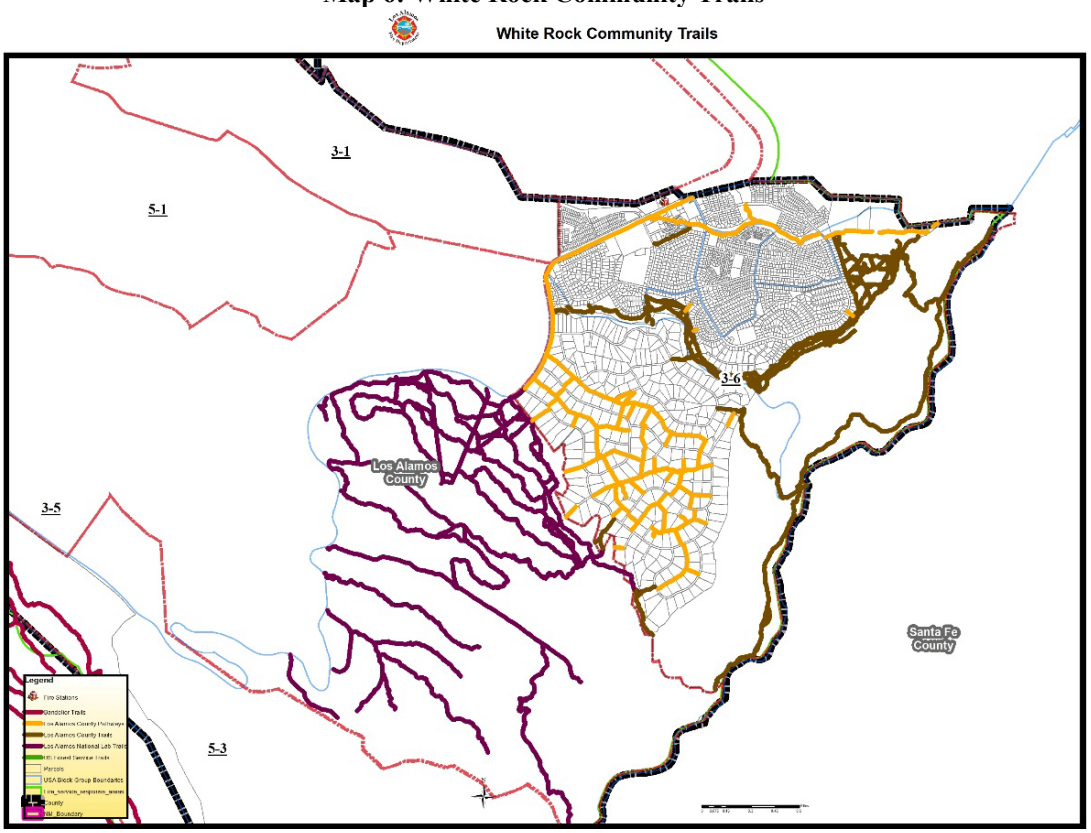
Trails - Design of the older neighborhoods of Los Alamos Townsite and White Rock facilitates pedestrian access. Interior systems of walkways and shortcuts, located away from roads, connect various activity areas within each neighborhood. Several traffic calming measures have been constructed in the Townsite.

A 60-mile network of trails links the foothills, canyons, and mesas around LAC. The county trail network links with over 100 miles of federal trails in the surrounding Santa Fe National Forest and the adjacent Valles Caldera National Preserve and is used by bicyclists, runners, and pedestrians to access parts of the community and the surrounding mountain and canyon areas as well as for personal enjoyment and exercise. Hikers, runners, horseback riders, mountain bikers, and other trail users delight in the variety of trails from which to choose. The trails offer a quick escape from the hectic pace in the town, a route to commute to work, an easy stroll or a physical challenge, and a chance to observe wildlife or to soak in impressive views.

Map 5: Los Alamos Community Trails



Map 6: White Rock Community Trails



Community Critical Infrastructure (e.g. water supply distribution, storm drainage, etc.)

Water Supply

LAC owns and operates the water production facilities and distribution system through the Los Alamos County Department of Public Utilities (LACDPU). LACDPU provides water service to the residents and businesses of Los Alamos, White Rock, and to Bandelier National Monument. Water is delivered in bulk to LANL under a service agreement with DOE, which operates its own distribution system.

Water production and supply capabilities in the county are robust. Nevertheless, aging pipelines and other water infrastructure components need replacement. Capital improvement planning with associated funding calculations is ongoing.

Water is the most valuable resource. This is especially true when bearing in mind firefighting applications. When it comes down to it, water is the fire department's ammunition. Despite all the equipment, training, and efficiency of the firefighting personnel, an adequate water supply for firefighting plays the most important role in the department's ability to protect life and property from fire.

Alternative water supply resources include large-diameter hose lays, long hose lays with a reduction in diameter of hose, hauled water using tenders, tender shuttle relays, hauled water using mini-tender, tender shuttle to mini-tender, tender shuttle relays to mini-tender shuttle relays, hauled water using water-buffalos, 10,000 gallon storage tanks at LANL TA36, and water backpacks. Alternative water resources that can be ordered include helicopter buckets and aerial air tankers. Several of these resources mentioned have been used over the years for firefighting in LAC.

Overall, the water system serving Los Alamos, White Rock, and LANL is a high-quality system. It was a well-designed water main distribution system. The current procedure for enforcing water flow requirements for new structures has worked well. The procedure gave developers prior notification and assisted in developing plans to address flow requirements before issuance of permits.

Water maps are available to the LAFD and provide adequate information accessible to department personnel. Maps are carried on command vehicles that respond to all alarms.

The LAFD jurisdictional area is 109.5 square miles. The department protects 54.89 square miles as a first due response area. 2.5% of LAC has an urban cluster population density; 47.9% is rural; and 49.6% wilderness. Wilderness is defined as a coverage area that has no population and is federally owned land. Example of the

two primary landowners is US Forest Service and Bandelier National Monument. This area is managed as a dual response area with interagency partners. The primary hazard in the wilderness area is wildfire. The response area of 54.89 square miles has hydrant coverage of 28.13 square miles or 51.3%. The hydrant coverage was calculated as a total aggregate area of 1000 feet coverage from each hydrant, this is illustrated in Map 7.

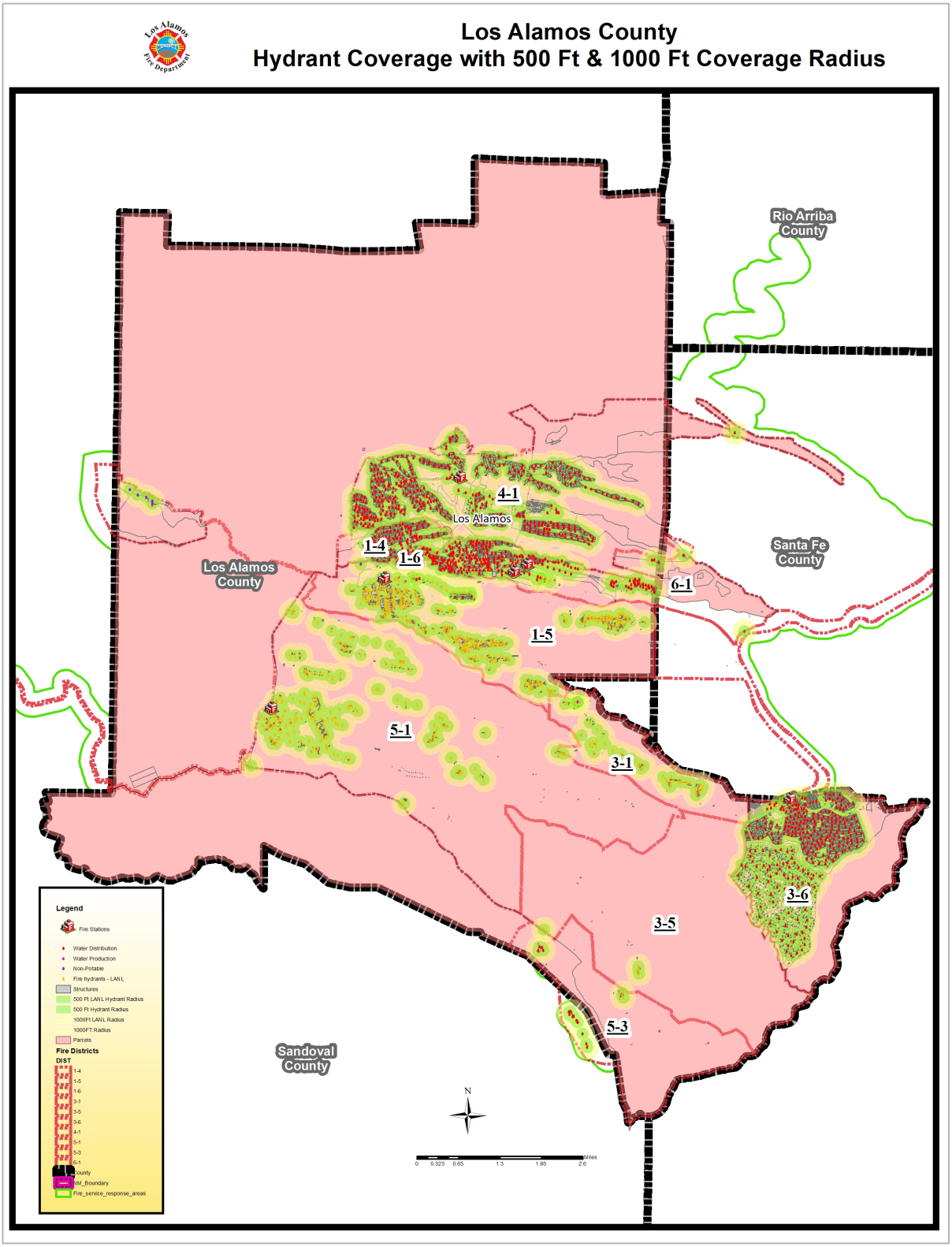
Table 8: Water Supply by Response District and Population Density

Station	Station 1			Station 1 Total	Station 3			Station 3 Total	Station 4	Station 4 Total	Station 5		Station 5 Total	Station 6	Station 6 Total	Los Alamos Fire Department Total Response
District	1-4	1-5	1-6		3-1	3-5	3-6		4-1		5-1	5-3		6-1		
District Coverage Area within the Jurisdictional Area	0.85	6.56	0.09	7.50	2.32	9.53	5.39	17.25	8.65	8.65	15.71	3.80	19.51	1.98	1.98	54.89
District Coverage Area that is Automatic Aid	0.00	0.00	0.00	0.00	0.01	0.00	2.42	2.42	0.69	0.69	0.82	0.47	1.29	1.40	1.40	5.80
Total Square Miles of District Coverage	0.85	6.56	0.09	7.50	2.33	9.53	7.81	19.67	9.34	9.34	16.53	4.27	20.8	3.38	3.38	60.69
Total District Miles in Jurisdictional Area by	9.58	35.83	1.59	47.00	9.34	7.96	36.21	53.50	52.47	52.47	51.59	8.40	59.98	20.71	20.71	233.658
Total District Miles of	0.00	0.00	0.00	0.00	0.00	0.00	11.06	11.06	3.76	3.76	14.05	1.60	15.65	4.89	4.89	35.351
Total Number of Linear Road Miles by District	9.58	35.83	1.59	47.00	9.34	7.96	47.26	64.55	56.24	56.24	65.63	10.00	75.63	25.59	25.59	269.009
Population Density																
Urban Cluster	0	0.56	0.09	0.65	0	0	0	0	1.32	1.32	0	0	0	0.73	0.73	2.7
Rural	0.85	6	0	6.85	2.33	9.53	5.39	17.25	7.32	7.32	15.71	3.8	19.51	1.26	1.26	52.19
Wilderness**																54.12

**Wilderness is a coverage area that has no population and is federally owned land. Example of the two primary landowners is US Forest Service and Bandelier National Monument. This area is managed as a dual response area with our interagency partners. Primary Hazard is Wildfire.

Water Supply																
Hydrants	93	331	23	447	46	4	304	354	390	390	191	17	208	262	262	1661
Percent of Total Hydrants	5.60%	19.93%	1.38%	26.91%	2.77%	0.24%	18.30%	21.31%	23.48%	23.48%	11.50%	1.02%	12.52%	15.77%	15.77%	

Map 7: LAC Hydrant Coverage



This map shows LAC hydrants with a 500-foot radius (light green) and 1,000-foot radius (yellow) added to each hydrant. Each LAFD engine carries 1000 feet of large diameter hose as standard equipment.

The current water supply system maintains sufficient volume and pressure for control and extinguishment of all fires within the department's response areas. The water supply system receives water from deep wells located in LAC. These wells produce all the water used for municipal and industrial purposes in the county and LANL. The distribution system is in compliance with LAC Utilities Design Standards, and 2003 NFPA 1. NFPA Appendix H and Appendix I are used for defining the number and placement of hydrants at new construction sites.

Water flows through transmission lines (14" to 16") to water storage tanks and then to distribution lines through commercial and residential areas (8" to 12" mains). All hydrants are color-coded per Los Alamos County Municipal Code (LACMC) designating minimum gallons per minute available.

The LAC and LANL Utilities departments maintain the systems in their respective areas as outlined in NFPA 25 Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems. All hydrants are tested by LAFD annually as outlined in the LAC/NNSA/DOE CA and NFPA 25. Deficiency reports are then submitted to LAC and LANL respectively for repairs.

In addition to fixed water supply, LAFD has the capability to supply and/or supplement water to areas where there are no hydrants or when additional water is needed to augment existing hydrants. This is done through the use of tenders and/or mini-tenders assigned to each station. In addition, Station 6 has a CFR apparatus that while normally used for aircraft fires, can be used as a portable water supply resource. These apparatus are cross staffed with an adequate number of trained personnel assigned to each station. Finally, LANL has two "water buffalos" with 5,000 gallons of water that can provide an additional resource for portable water supply. These water buffalos can be used to pre-treat areas being threatened by a wildland fire or they can be used to fill drop tanks. In addition, the department acquired the necessary adapters to directly fill LAFD apparatus from the water buffalos.

In the Fire Chief's Directive (FCD) 400.11, the department provides procedures for addressing alternate water supplies for areas without fixed supply, insufficient water flow, or disruption of a public water system and provides personnel with methods to follow under these conditions.

The agencies responsible for maintaining the water system both for the community and the LANL will continue to maintain and upgrade these systems as future demands dictate.

Table 9: Response Area Characteristics by Response District

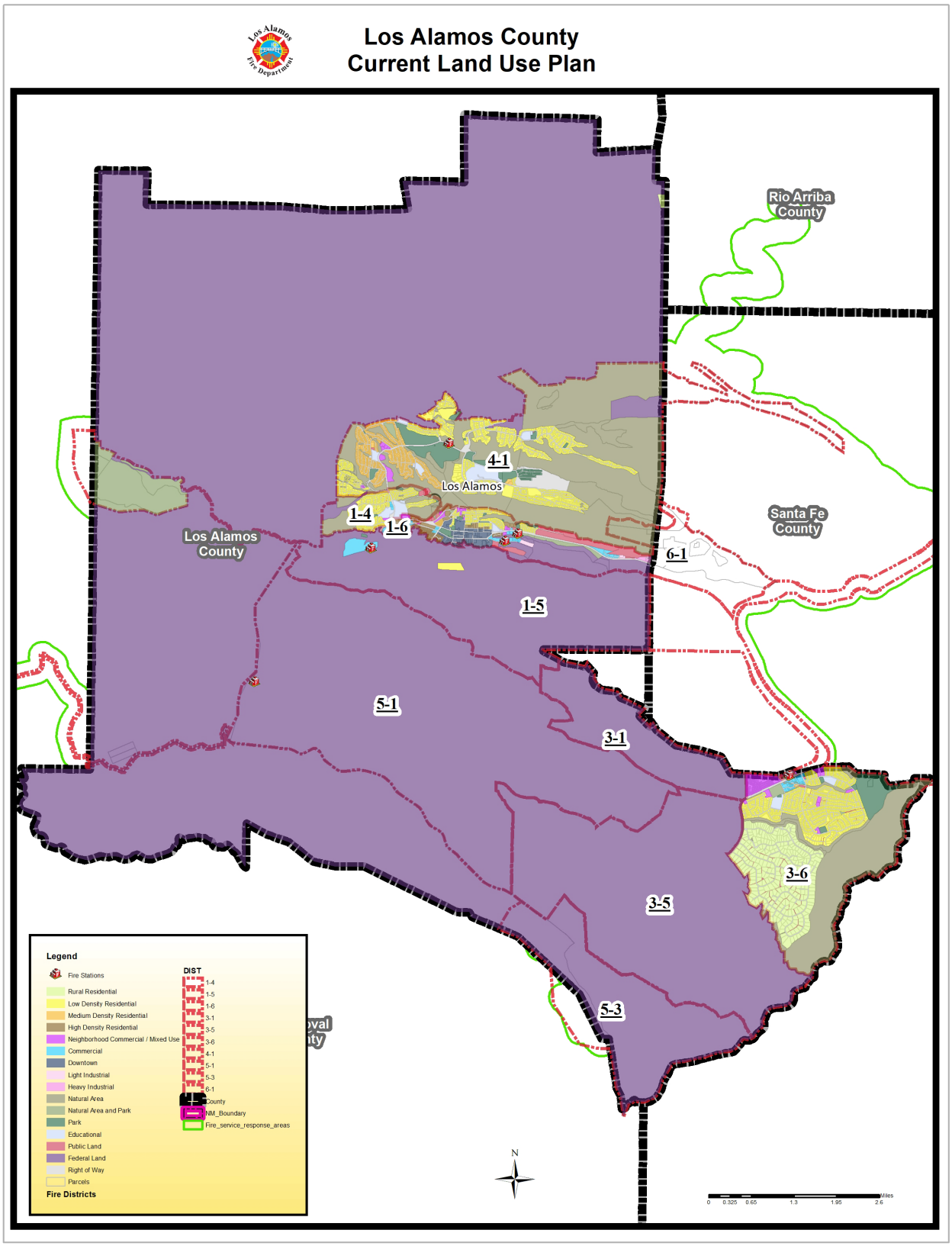
Station	Station 1			Station 1 Total	Station 3			Station 3 Total	Station 4	Station 4 Total	Station 5		Station 5 Total	Station 6	Station 6 Total	Los Alamos Fire Department Total Response
District	1-4	1-5	1-6		3-1	3-5	3-6		4-1		5-1	5-3		6-1		
District Coverage Area within the Jurisdictional Area	0.85	6.56	0.09	7.50	2.32	9.53	5.39	17.25	8.65	8.65	15.71	3.80	19.51	1.98	1.98	54.89
District Coverage Area that is Automatic Aid	0.00	0.00	0.00	0.00	0.01	0.00	2.42	2.42	0.69	0.69	0.82	0.47	1.29	1.40	1.40	5.80
Total Square Miles of District Coverage	0.85	6.56	0.09	7.50	2.33	9.53	7.81	19.67	9.34	9.34	16.53	4.27	20.8	3.38	3.38	60.69
Total District Miles in Jurisdictional Area by District	9.58	35.83	1.59	47.00	9.34	7.96	36.21	53.50	52.47	52.47	51.59	8.40	59.98	20.71	20.71	233.658
Total District Miles of Automatic Aid Provided	0.00	0.00	0.00	0.00	0.00	0.00	11.06	11.06	3.76	3.76	14.05	1.60	15.65	4.89	4.89	35.351
Total Number of Linear Road Miles by District	9.58	35.83	1.59	47.00	9.34	7.96	47.26	64.55	56.24	56.24	65.63	10.00	75.63	25.59	25.59	269.009
Population Density																
Urban Cluster	0	0.56	0.09	0.65	0	0	0	0	1.32	1.32	0	0	0	0.73	0.73	2.7
Rural	0.85	6	0	6.85	2.33	9.53	5.39	17.25	7.32	7.32	15.71	3.8	19.51	1.26	1.26	52.19
Wilderness**																54.12

**Wilderness is a coverage area that has no population and is federally owned land. Example of the two primary landowners is US Forest Service and Bandelier National Monument. This area is managed as a dual response area with our interagency partners. Primary Hazard is Wildfire.

Occupancy Type																
COUNTY	3	1	0	4	0	0	10	10	18	18	0	0	0	30	30	62
FEDERAL	1	733	5	739	116	27	0	143	11	11	261	37	298	28	28	1219
COMMERCIAL	4	0	5	9	0	0	45	45	1	1	1	0	1	2	2	58
CONDO	8	0	0	8	0	0	9	9	312	312	0	0	0	425	425	754
DUPLEX	17	0	0	17	0	0	0	0	94	94	0	0	0	0	0	111
CHURCH	1	0	2	3	0	0	11	11	8	8	0	0	0	8	8	30
SINGLE FAMILY	588	0	9	597	0	0	2192	2192	2062	2062	0	0	0	377	377	5228
TOWNHOUSE	176	0	0	176	0	0	134	134	472	472	0	0	0	105	105	887
SCHOOL	3	0	0	3	0	0	2	2	7	7	0	0	0	3	3	15
MOBILE PARK	0	1	0	1	0	0	0	0	1	1	0	0	0	0	0	2
APARTMENT	0	0	8	8	0	0	1	1	4	4	0	0	0	18	18	31
BED & BRFST	0	0	0	0	0	0	3	3	3	3	0	0	0	0	0	6
VACANT RESIDENTIAL	0	0	0	0	0	0	1	1	8	8	0	0	0	0	0	9
STABLES	0	0	0	0	0	0	0	0	99	99	0	0	0	0	0	99
LAND - RESIDENTIAL MOBILE HOME	0	0	0	0	0	0	0	0	25	25	0	0	0	0	0	25
OPEN AREA	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	4
MULTI-PLEX	0	0	0	0	0	0	0	0	16	16	0	0	0	0	0	16
Water Supply																
Hydrants	93	331	23	447	46	4	304	354	390	390	191	17	208	262	262	1661
Percent of Total Hydrants	5.60%	19.93%	1.38%	26.91%	2.77%	0.24%	18.30%	21.31%	23.48%	23.48%	11.50%	1.02%	12.52%	15.77%	15.77%	
Ownership																
Private	X	X	X		X				X					X		
DOE	X	X	X		X	X			X					X		
Los Alamos County	X	X	X		X	X	X		X		X	X		X		
US Forest Svc.									X					X		
Federal/Tribal					X				X		X	X				
Santa Fe County												X				
Sandoval Co.					X											

Community Land Use and Zoning

Map 8: LAC Current Land Use



Community Topography

Los Alamos is located at 7,355 feet above sea level at the base of the Pajarito Mountains. It is located in the North-Central part of New Mexico on the eastern slope of the Pajarito Plateau with 13 steeply sloped canyons. Flat table topped hills (mesas) with steep-sloped canyons in between characterize the topography.

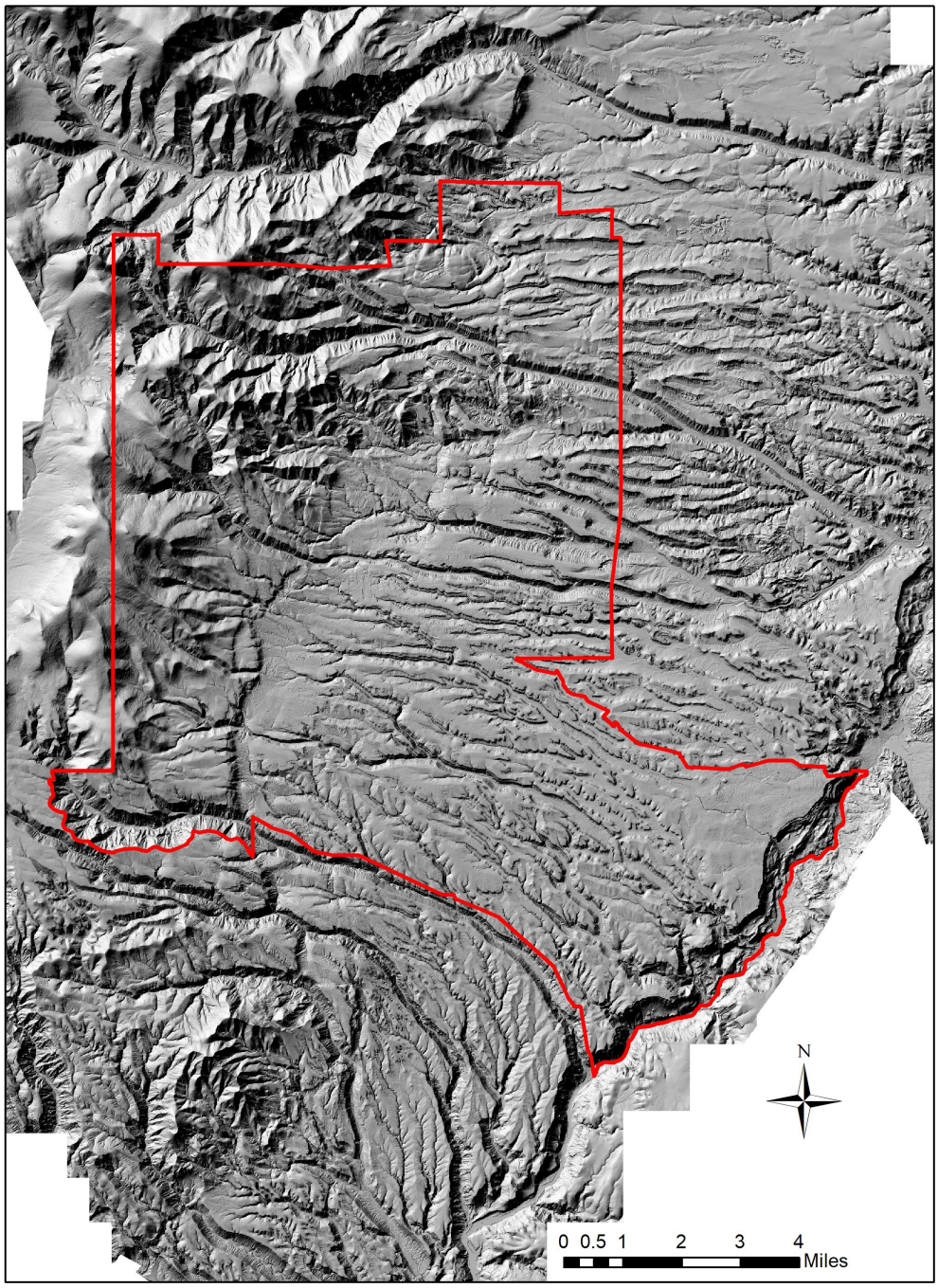
The topography of the county dictates that population centers are spread out and accordingly, times to reach these population centers require careful placement of emergency facilities. The unique layout of the finger-like mesa tops presents a unique response challenge as the end of these fingers or mesas can be reached only on 'one way in, one way out' roads. In other words, responders must go back on the same roads to get to a main road or artery to access another part of the county or LANL property.

The department covers 109.5 square miles of county and LANL property. The actual response area is larger, as LAFD responds out of the county east and west to the Rio Grande River.

LANL is divided into technical areas that are used for building sites, experimental areas, and waste management locations. LANL is divided into 49, active and separate, technical area sites with location and spacing that reflects the site's historical development patterns, regional topography, and functional relationships. There are approximately 925 permanent structures, 362 temporary structures (trailers, transportable units), and 873 other structures and facilities. However, these use only account for a small part of the total land area. Development is limited by steep slopes and by the need for security and safety buffers because of the type of work performed. There are approximately 100 miles of paved roads and an estimated 168 miles of unpaved roads. At the end of FY 2009, LANL had approximately 9.5 million gross square feet of space, including leased facilities with several other large facilities currently under construction.

Map 9: LAC Topography with Hillshade at Four Foot Level

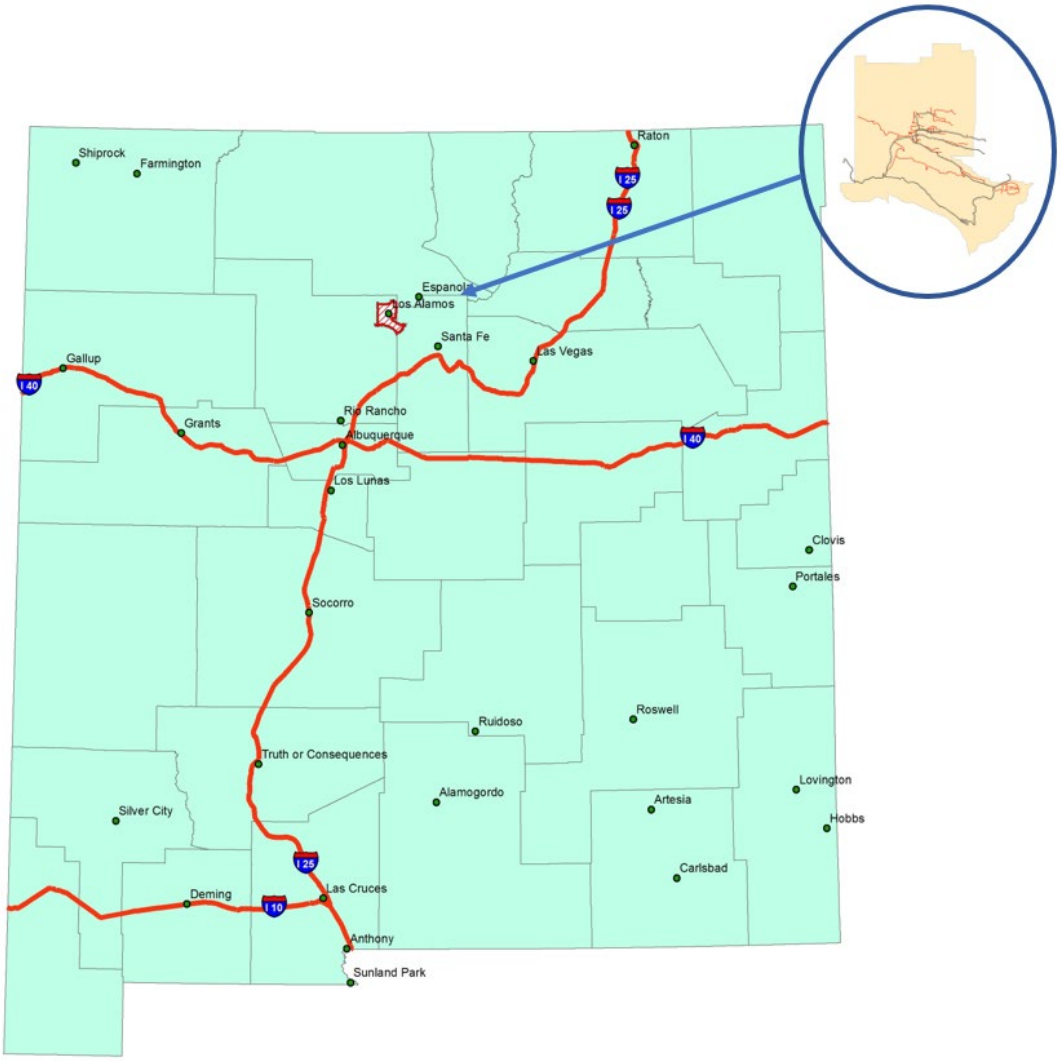
Los Alamos County Topography - Hillshade - 4ft Resolution



Community Geography

Los Alamos is an area northwest of Santa Fe located on a plateau mesa that is bordered by the Rio Grande in the low areas and the Valles Caldera National Preserve in the upper elevations.

Map 10: Location of Los Alamos County on State of New Mexico map



Community Geology

LAC is located on the Pajarito Plateau to the west of the Rio Grande Valley, and east of the Valles Caldera. The Valles Caldera is an inactive volcanic caldera in the Jemez Mountains which erupted twice, approximately 1.61 million years ago and 1.2 million years ago. The mesas of the Pajarito Plateau were formed from the volcanic eruptions leaving layers of Bandelier tuff. Multiple eruptions formed beds of pumice, welded tuff, and reworked volcanic rocks forming sedimentary formations such as Puye Conglomerate and Santa Fe Group (Chaquehui Formation, Chamita Formation, and Tesuque Formation).

These latter formations formed the aquifers that are approximately 800 to 1600 feet deep and vital for water supply to both Los Alamos and White Rock.

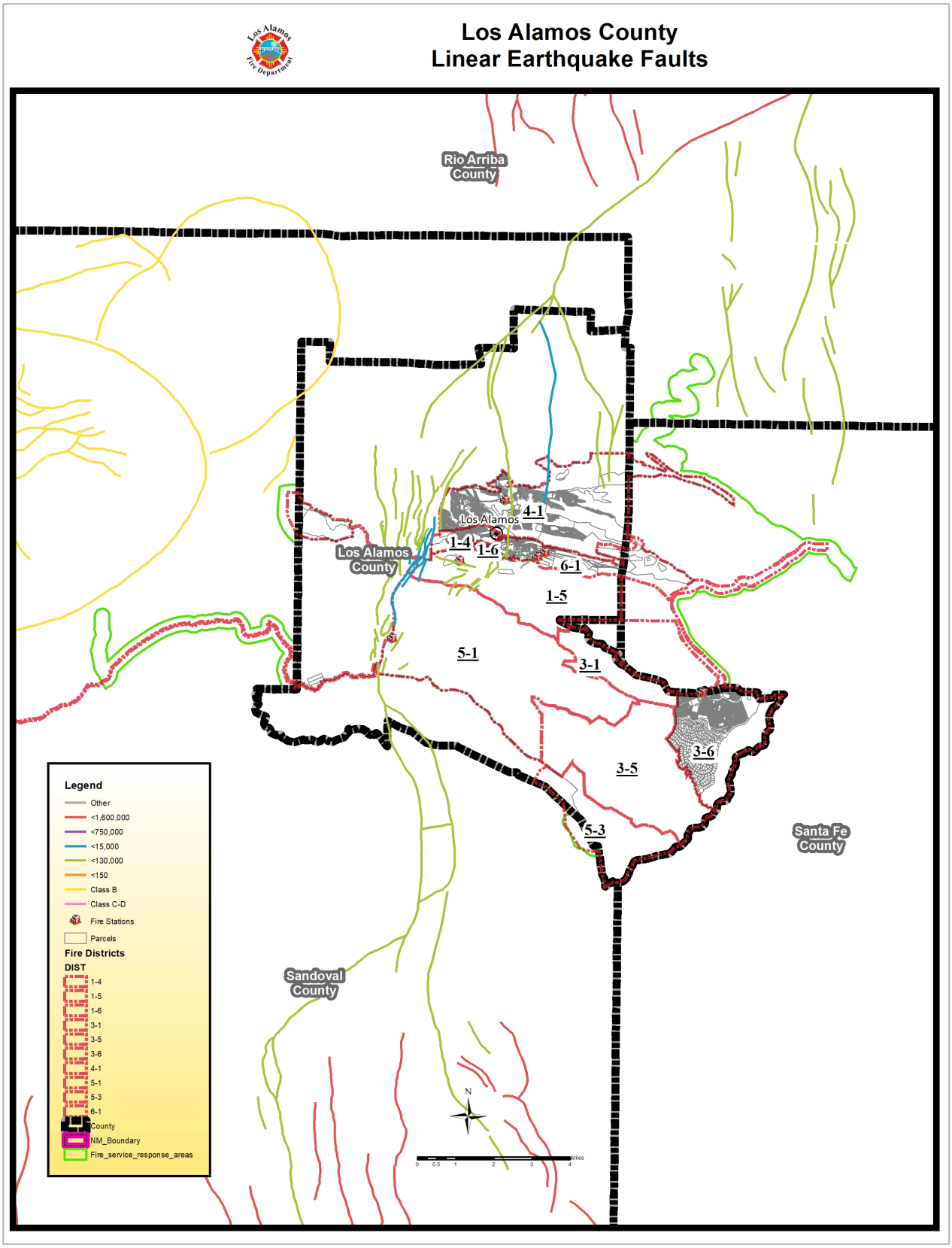
Community Physiography

LAC is located approximately 35 miles northwest of Santa Fe. The elevation is approximately 7,355 feet and the total land area is 109.5 square miles. The Los Alamos Townsite and White Rock are located on flat mesa tops separated by steep canyons. This location was chosen for its relative inaccessibility to help protect the secret activities of the Manhattan Project.

The town of Los Alamos was built on four mesas – Barranca Mesa, North Mesa, Los Alamos Mesa and South Mesa – along with the connecting communities at the base of the mountain. LANL occupies half of South Mesa, Two Mile Mesa, Frijoles Mesa, Mesita de Buey, and several nearby areas in the region (in the valleys and at the base of the mountain). White Rock lies at the top of White Rock Canyon.

The flora in and around LAC includes many different types of vegetation. Tree types in the area include white fir, mountain spruce, colorado blue spruce, pinyon pine, limber pine, ponderosa pine, southwestern white pine, douglas fir, juniper, elderberry, aspen, cottonwood, and russian olive. Brush and flowers include sagebrush, gambel oak, dogwood, mountain mahogany, common chokecherry, and wildflowers. Both Los Alamos and White Rock are home to a multitude of different wildlife; black bears, elk, deer, coyotes, mountain lions, bobcats, skunks, squirrels, chipmunks and gray foxes. “Over 200 species of birds have been reported in the Pajarito Ornithological Survey conducted by LANL. Among these are broad-tailed hummingbirds, hairy woodpeckers, zone-tailed hawks, common ravens, western bluebirds and great horned owls.” (James R. Travis, October 1992)

Map 11: LAC Linear Earthquake Faults



Community Climate

Los Alamos has a temperate mountain climate with four distinct seasons. Spring tends to be windy and dry. Summer begins with warm, often dry, conditions in June, followed by a two-month rainy season. In the autumn there is a return to drier, cooler, and calmer weather. In the winter, mild altitude storms drop far enough south to keep the ground covered with snow for about two months. In July, the warmest month of the year, the temperature ranges from an average daily high of 81°F to an average daily low of 55°F. The extreme daily high temperature in the record is 95°F. In January, the coldest month, the temperature ranges from an average daily high of 40°F to a low of 17°F. The extreme daily low temperature in the record is -18°F.

The large daily range in temperature results from the site's relatively dry, clear atmosphere, which allows strong solar heating during the daytime and rapid radiative cooling at night. Although relative humidity can vary considerably over 24 hours, monthly average values vary little during the year. Relative humidity ranges from a low of 39% in June to a high of 56% in December, averaging 51% over the entire year. Absolute humidity, a better indicator of atmospheric moisture content, ranges from a low of 2.4 g of water/m^3 of air in January to a high of 8.7 g/m^3 in July and August, when moist, subtropical air invades the region during the rainy season.

Fog in Los Alamos is very rare, occurring less than five times a year on average. The average annual precipitation (rainfall plus the water-equivalent of frozen precipitation) is 47.6 cm (18.7 in.). However, the annual total fluctuates considerably from year to year; the standard deviation of these fluctuations is 12.2 cm (4.8 in.). The lowest recorded annual precipitation is 17.3 cm (6.8 in.) and the highest is 77.1 cm (30.3 in.). The maximum precipitation recorded for a 24-hour period is 8.8 cm (3.5 in.). The maximum 15-minute precipitation in the record is 2.3 cm (0.9 in.).

Los Alamos receives substantial snowfalls beginning in early November and lasting until mid-March. The largest reported snowfall occurred in 1987 when 57 inches of snow was reported over a 48-hour period. Most LAFD vehicles are equipped to handle the snow as the engines and medic units, smaller staff vehicles, and mini tenders are equipped with all-wheel drive. One of the response areas in the winter is the Pajarito Ski Area. LAC and LANL are equipped with some of the best snow removal equipment in New Mexico which allows the units to be able to respond during the winter months in a timely manner. LAC gets approximately 18 inches of rain per year and the average snowfall in LAC is 55 inches. The number of days with any measurable precipitation is 89 days. On average, there are 278 sunny days per year. The July high is around 81 degrees F and the January low is 19 degrees F.

Table 10: Climate Stats Comparison

Climate	Los Alamos, NM	United States
Rainfall (in.)	18.1	36.5
Snowfall (in.)	54.5	25
Precipitation Days	89	100
Sunny Days	278	205
Avg. July High	81	86.5
Avg. Jan. Low	18.6	20.5
Comfort Index (higher=better)	76	44
UV Index	6.3	4.3
Elevation ft.	7,483	1,443

Source: www.bestplaces.net

In an average year, Los Alamos experiences 61 thunderstorm days a year - about twice the national average. Lightning is very frequent in Los Alamos. These summer lightning strikes are known to start occasional wildland and snag fires, especially in the dry, windy spring months. These small fires are usually extinguished by LAFD wildland response personnel in the jurisdiction along with assistance from the Santa Fe National Forest Service and National Park Service resources. Only in the southeastern part of the country is this frequency of lightning strikes exceeded.

Winds are generally light, having an annual average of 2.5 m/s (5.5 mi/h). However, the period from mid-March to early June is apt to be windy. During this windy period, sustained wind speeds exceeding 4 m/s (8.8 mi/h) occur 20% of the time during the daytime, and the daily maximum wind gust exceeds 14 m/s (31 mi/h) about 20% of the time. The highest wind gust on record is 34.4 m/s (77 mi/h). High winds are associated with frontal passages, thunderstorms, and mid-latitude storm systems. No tornadoes are known to have touched ground in the Los Alamos area; however, funnel clouds have been observed in Los Alamos and Santa Fe Counties. Flooding in LAC is very infrequent; however, due to the burn scars from the Cerro Grande Fire in 2000 and Las Conchas Fire in 2011, the canyons do experience high amounts of runoff from the watersheds off Pajarito Mountain. These canyons will flood during the monsoon season and after winter runoff.

Community Population/Population Densities

The population of Los Alamos is approximately 18,738 people. There are two communities in the county: the townsite of Los Alamos has about 10,500 residents and another 6,500 residents live in the community of White Rock, a few miles southeast of Los Alamos. About 190,000 people live within a forty-mile radius of Los Alamos. LANL is the largest employer in the county. Approximately 7,000 people commute to work at the laboratory - traveling to Los Alamos from Northern New Mexico, Santa Fe, and the Albuquerque metro area, and nearly doubling the Los Alamos population during a standard workweek.

The people of Los Alamos have among the highest levels of educational attainment of any community anywhere, with many residents holding a masters' degree or Ph.D. The public school district typically ranks as one of the top school districts in the state and in the nation. The University of New Mexico has a branch in Los Alamos, and the community has a large home-schooled population.

- ✓ According to the US Census, the population in LAC has remained rather constant over the last 40 years.
- ✓ The average annual population change between 1980 and 1990 was 0.29%, 1990-2000 was 0.13%, 2000-2010 was 0.13%. and between 2010 and 2013 was -0.8% and 2017 was +0.3%.
- ✓ Population in 1980-17,599; 1990-18,115; 2000-18,344; 2008-18,150; 2010-17,950; 2013-17,798; and the population estimates for 2017–18,738.
- ✓ There are segments of the population that have special needs for housing. According to the Census Bureau, 4.9% of the population is below the federal poverty level, up from 2000.

Community Demographic Features

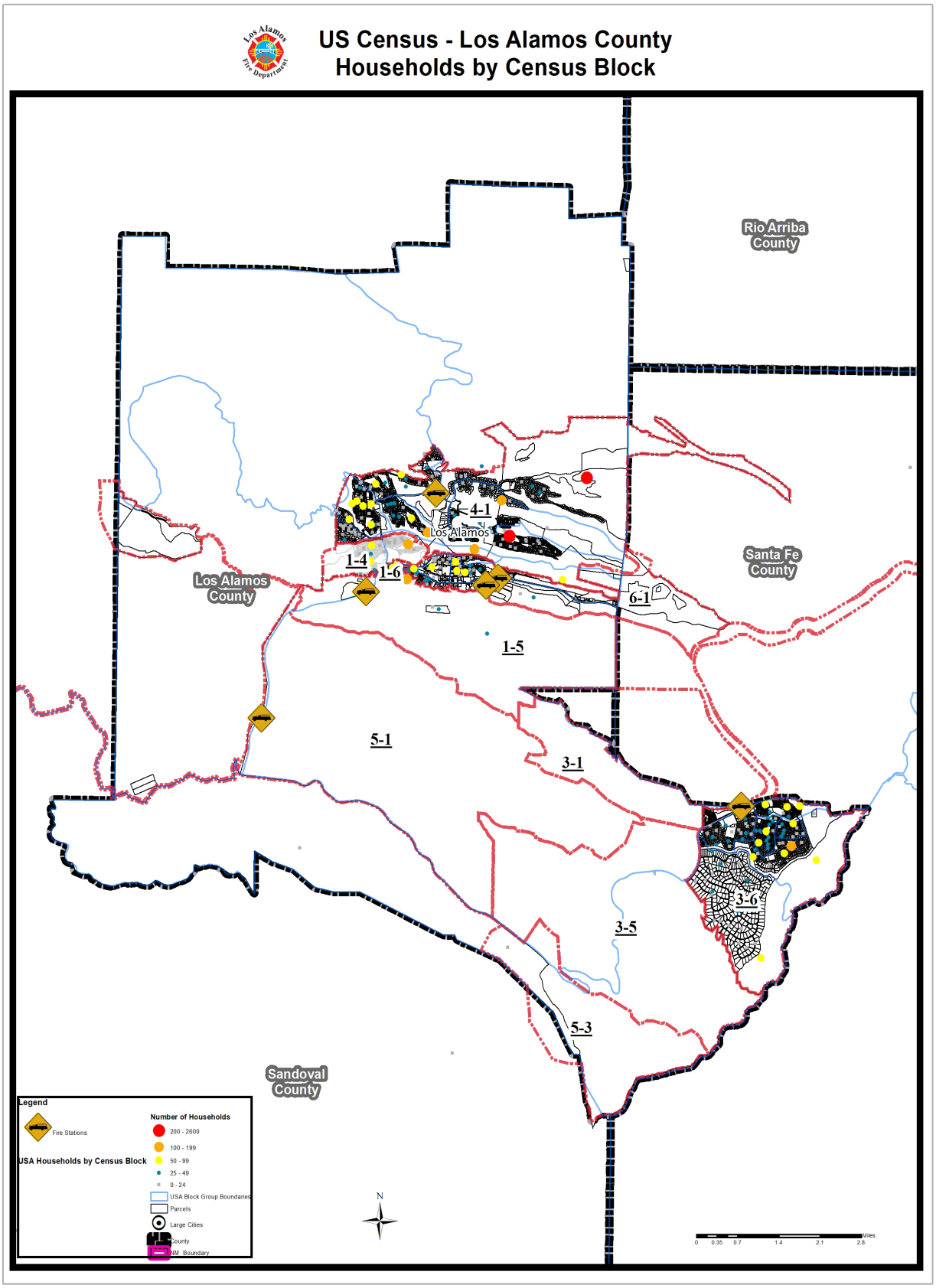
Table 11: LAC Quick Facts (US Census)

Population in 2017	18,738
Population in 2014	17,798
Population in 2010	17,950
Population in 2000	18,344
Population in 1990	18,115
Population in 1980	17,599
Persons under 5 years, percent, 2017	5.5%
Persons under 18 years, percent, 2017	22.7%
Persons 65 years and over, 2017	17.4%
Living in the same house one year ago	89.0%
Female persons	49.3%
White alone, percent, 2017	88.3
Hispanic or Latino, percent, 2017	17.8
Black or African American	1.2%
Asian	6.4
Language other than English spoken in the home	15.7%
High school graduate or higher	98.0%
Bachelor's degree or higher	65.5%
Veterans	1366
Mean travel time to work (minutes)	15.7
Per capita money income past 12 mo.	$52,125
Median household income 2013-2017	$110,190
Persons below the poverty level	3.7%

The population of LAC grew very quickly during and after World War II, increasing from less than 200 residents in 1940 to over 13,000 in 1960. However, by 1980 the county's population stabilized at around 18,000 people, and the population has remained close to that figure for almost 40 years. Population growth patterns in the county present a number of concerns, among the most important being the overall aging of the workforce and the lack of a corresponding increase in the working-age population.

Of major concern in Los Alamos is the relatively low number of young working adults aged 20-29 who make up just 7.4% of the county population versus 14% nationwide, and the relatively large population of mature working-age people aged 45-65 which made up 37.9% of the county population versus 26.5% nationwide (Source: US Census). The percentage of county residents who are greater than 65 years of age grew from 1.1% in 1960 to 15% in 2010 and 17.4% in 2017. The 2017 population of LAC was estimated at 18,738 people with a median age of 44.8 years old compared with a US median age of 36.8 years old, a difference of more than 8 years.

Map 12: LAC Households by Census Block



Description of Fire and Emergency Services Provided

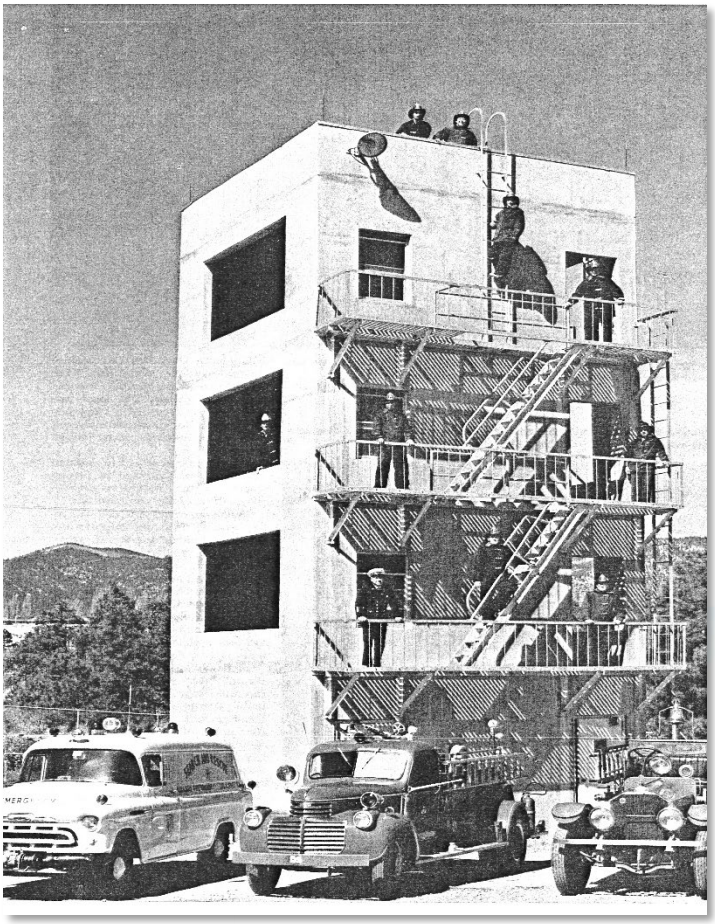
The incorporated county of Los Alamos (county) is a public body and political subdivision of the State of New Mexico. Such designation is provided by State Statute (NMSA 1978). As an incorporated county, Los Alamos County is a home-rule jurisdiction and can enact ordinances as a either a municipal or county form of government. The county has all public health, safety, and welfare powers and authority as granted to other municipal bodies per NMSA 1978.

As an incorporated home-rule jurisdiction, the county has adopted a charter and related ordinances. As provided in the county's charter, the county council and county manager are authorized to create departments to carry out the business of the county. The power of the county to conduct firefighting activities is found in NMSA 1978, Section 3-18-11 which provides from the municipal powers, which although a county form of government, the constitution provisions state as a home rule jurisdiction, the department is also a municipal form as well.

The State Statutes in 14-15-1 and -2 set out the boundaries and county seat of the county. The charter discusses the proper legal name which provides in Section 101, the following:

> **100. - Name and Boundaries. The political subdivision presently existing and known as the County of Los Alamos shall exist and continue as a corporate and political entity by the name, the Incorporated County of Los Alamos, and shall have perpetual succession. Its boundaries shall be as they exist on the effective date of this Charter. The boundaries shall continue to be the same unless changed in the manner authorized by law.**

LAFD then adopted by ordinance, in Chapter 22 in MuniCode – actually per Section 1-1 (a), the "Code" is properly titled the "Los Alamos County Code of Ordinances" - ordinances for the firefighting.



Then & Now

B. History of the Agency

Fire Chief

Los Alamos Fire Department

2011
Troy L. Hughes

2009
Doug Tucker

1992
Douglas R. MacDonald

1989
Don Visconti

1981
James E. Trehern

1975
J. Ray Roybal

1972
Wilbur L. Johnston

Photo not available

1971
Harold Denne

1966
Lowell Denny

1948
Aubon C. Abbott

1947
Harold F. Moore

1943
Edwin Brooks

Major Historical Milestones of the Department

LAFD – The Early Years

The 40s

1943 - LAFD was organized under the Manhattan Project. Edwin Brooks named fire chief.

- The Manhattan Project received two Class 500 – Pumper fire trucks. The department consisted of seven civilian firefighters and 25 volunteers.
- September 1943 – Firefighter functions were taken over by the military. Fire department operated under the US Atomic Energy Commission and the Department of Energy.

1947 – The fire department was transferred from the Army to the Zia Company. Harold F. Moore named fire chief.

1948 – Zia Company turned the fire department over to the Atomic Energy Commission.

The 50s

1954 – Water Canyon Fire – First fire in Los Alamos to require evacuations. Burned 6,000 acres.

1958 – Fire department headquarters moved to Fire Station 3 at TA-03.

The 60s

1966 – Lowell Denny named as fire chief.

1966 – White Rock fire station goes from four-man crew to five-man crew.

The 70s

1970, October – Fire Chief Lowell Denny resigned.

1971, April –Harold Denne named fire chief. Los Alamos announced the first forest firefighting crew in Los Alamos for the state. The crew consisted of a crew boss, two squad leaders, three sawyers, three swampers, six ground pounders, and one safety officer.

1972, November –Wilbur L. Johnston became fire chief

1975, June –J. Ray Roybal became fire chief.

1975 – Acquisition of a $117,000 for a "Snorkel" truck capable of elevating a platform up to 75' to respond out of Fire Station 1 on specific assignments.

1977 – Agreement between ERDA's Los Alamos Area Office, Los Alamos Fire Department Local 20118 signed.

1977, June – La Mesa Fire burned 15,444 acres. Contained in one week with 1,370 personnel. One firefighter, Juan J. Aldaz, lost his life. A memorial currently sits at the site at the entrance to Bandelier.

The 80s

1981 – James Trehern named fire chief.

1988 – September 1988 DOE awarded contract to LAC to hire personnel and provide fire and EMS service for LANL and the community.

1988 - US Atomic Energy Commission and the DOE transferred LAFD to LAC to provide fire and emergency services. Don Visconti hired as fire chief and retired in late 1991.

The 90s

1990 - Construction of Fire Station 6 at 457 East Road.

1992 - Douglas R. MacDonald hired as fire chief (retired in 2009).

1996 - Dome Fire burned 16,516 acres. Approximately 900 firefighters called to assist.

1997

- Began providing Advanced Life Support medical services.
- LAFD became a beta site for the Commission on Fire Accreditation International's self-assessment process and was among the first fire departments in the world to receive accredited status.
- DOE transitioned contract to oversee Los Alamos National Laboratory operations to University of California (UC)

1998 - Oso Complex fire. 5185 acres burned. Cause determined to be arson.

The 21st Century

2000

- December– LAFD adopted IFSAC accrediting body for firefighter certification.
- May – Cerro Grande Fire burned 45,000 acres of property and 400 homes in over 200 structures. Over $1B in estimated losses.

2002-2003

- The entire fleet upgraded following Cerro Grande Fire.
- LAFD achieves accredited status from the Commission on Fire Accreditation International for the second time.

2006

- DOE transitioned oversight of the Los Alamos National Laboratory from UC to Los Alamos National Security, LLC (LANS).

2007

- Shift schedule changed from 24/48 to 48/96.
- LAFD attempted re-accreditation and received a deferral.

2008

- The county and the DOE/NNSA entered into a five-year Cooperative Agreement (CA) for the funding and operation of LAFD.
- Per the CA, minimum staffing requirements were identified to maintain seven firefighters at Fire Station 1 as a major nuclear facility reserve force. Departmental minimum staffing requirements were increased to 30.

2009

- Deputy Fire Chief Doug Tucker promoted to fire chief (retired in 2011).
- Per the CA the minimum staffing requirements increased to 37 with a minimum of five firefighters at Fire Station 5.
- Knox boxes placed in ambulances to secure controlled narcotics.

2010

- 1,900 square foot, two-story residential/industrial training simulator "Practical Learning Center" (burn building) constructed adjacent and attached to the four-story training tower.
- LAFD achieved accredited status from the Commission on Fire Accreditation International for the third time.
- Zoll Auto-pulse added to ambulances giving the ability to safely administer CPR during transports.

2011

- Per CA, the staffing requirements would be five firefighters at Station 1 (including one paramedic).
- Moved to electronic patient care reporting (ePCR).
- NNSA and LANL conducted a station relocation study for the replacement of Stations 1 and 5. The projects were placed on hold due to funding.
- Expansion of the Emergency Preparedness of Hazardous Assemblies (EPHA) briefing LANL to enhance safety and response to LANL areas.
- The largest fire at the time in NM history, the Las Conchas Fire began on June 26, 2011, burned 156,293 acres, and forced a mandatory evacuation of the community. The fire was contained on August 3, 2011.
- Troy L. Hughes hired as fire chief.

2012

- LAFD began Red Card testing.
- Developed a program to offer a Pre-Recruit Academy orientation
- ISO Fire Protection Classification inspection conducted. The department retained an ISO 2 classification.
- Implemented LAFD capital asset and property accountability system called BACON (Being Accountable and Compliant of Operational Needs).
- LAFD celebrated the first twelve graduates of the UNM-LA Fire Science program through an articulation agreement with LAFD where college credit was awarded for fire department delivered classes.
- Modification 11 to the CA to expand and clarify LAFD services. This modification expanded hazmat services, included response time deliverables, and extended the Safeguard and Security requirements.
- Organizational restructuring of the department to establish stronger divisional teams and allow for more efficiency in both administrative and operational areas. Elimination of two assistant chief positions, and the addition of an additional deputy chief position. Administrative battalion chiefs became division chiefs and the Administrative Services division was dissolved.
- Upgraded fleet of SCBA cylinders from 30 minutes to 45 minutes.

2013

- The Military Veteran's GI Bill Program began accepting courses taught in the LAFD Recruit Academy to apply as college credit for the GI benefit.
- Received the Albuquerque Journal's Top Workplaces designation voted on by employees for Creating a Winning Culture – Attracting New Hires and Doing Good for Others.
- Began Blue Card training and application system for scene management at Type IV and V emergencies.
- Contracted with a third-party ambulance billing contractor.
- An articulation agreement entered with Northern New Mexico College for a Wildland Firefighting Associates degree program.

- Six LAFD graduates from the UNM-LA Fire Science degree program.
- LAFD signed an unprecedented 10-year Cooperative Agreement.
- Implementation of STEMI bypass protocol for EMS.
- Fire Administration offices relocated to 999 Central Avenue.

2014

- Ability to transmit 12 lead EKGs to St. Vincent PCI center.
- Acquisition of drug dispensing machine, UCAPIT, at Fire Administration to reduce wasted and increase accountability.
- Changed from CSTI hazmat curriculum to IFSAC hazmat curriculum to align with State of New Mexico adoption.
- Restructured administration - created Wildland Division. Reclassified deputy chief/operations position to division chief wildland.
- ePCR platform changed from Zoll to ESO Solutions.
- Took possession of new HazMat: FEMA Type I Hazardous Materials Team

2015

- Ability to transmit 12 lead EKGs to LAMC.
- DEA approved stocking of narcotics in the medication dispenser.
- Los Alamos County signed MOU with Bandelier National Monument for firefighter assistance.
- Received new HazMat 1 and Truck 3.
- Began conversion of the radio system to P25 compliant radios.
- Received documentation from DOE allowing the use of portable devices (i.e., iPad, etc.) on laboratory grounds.
- FEMA awarded LAFD with a $280,000 grant to purchase a Type IV Wildland engine.
- New Mexico Fire Protection Grant Council awarded LAFD with $100,000 to purchase a Type V Wildland engine
- Worked with EMS Bureau and Classic Air to achieve approval for Classic Air to have a base and fly in and out of the county.
- EMS division launched the EMS Patient Satisfaction Survey Program.
- Received unanimous approval from CFAI for fourth accredited agency status.
- In collaboration with the United States Forestry Service, LAFD performed the first unprecedented prescribed burn in Los Alamos County.
- Completed P25 radion system conversion.
- Transitioned to an electronic education system, Target Solutions, for assignment of online training and digital record of all certifications, licenses, and training records.

2016

- LAC Council approved the CBA ratified by the Union for period February 4, 2016 through June 30, 2020.
- LAC Council adopted the NFPA 1 – Uniform Fire Code and 101 – Life Safety Code 2015 Editions together as the LAC Fire Code.
- Unit ID for Engine 3 (E-One 75' Quint) was changed to TRK 30: Engine 30 (E-One Class A Pumper) was changed to Engine 3. With the acquisition of TRK 3, LAFD determined that a Class Pumper was best suited to respond as the primary engine out of Station 3 due to its smaller size and larger water tank capacity.

- Purchased four satellite phones for enhanced communication abilities.
- Signed an MOU with Classic Air Medical for the purpose of deciphering flight worthiness of medical patients with radiological contamination exposure.
- Reorganization of administrative staff and promotion of senior management analyst to oversee administrative services. administrative services team assignments to match CFAI categories (ex. physical resources, training/EMS, community outreach, human relations, and staffing).
- EMS division changed the method of acquisition of medical supplies by purchasing directly from the vendor rather than going through the warehouse. This initiative is intended to reduce product loss due to expiration, faster delivery, improved supply training, reduces costs, and expands product control.
- Implementation of the newly created and CBA approved shift training team.
- All LAFD staff vehicles and Station 2 equipped with AEDs.
- LAC Dispatch has successfully transitioned to Infor/Enroute as the new Computer Aided Dispatch system.
- Two wildland trucks, a Type IV and Type V, purchased with grant funds, were received and accepted by wildland division chief.

2017

- Emergency Fire Dispatch (EFD) protocol implemented.
- The first two personnel received their Red Card Credentials for Wildland Firefighting.
- Deployed first team to assist with a controlled burn in Cuba Ranger District.
- Agreement signed between LAC and SWCA Environmental Consultants for an Environmental Assessment of 114 acres of land within Los Alamos County. This is Phase I of the Los Alamos County Wildfire Mitigation & Education Project grant awarded from New Mexico Department of Homeland Security and Emergency Management.
- Wildland division chief and representatives of the Wildland Fire Division met with representatives of the New Mexico Correction Industries and the Los Alamos County stable member regarding an evacuation plan in the event the stables would be evacuated in an emergency. This plan will be included as an appendix to the Community Wildfire Protection Plan (CWPP).
- Brush 4 was deployed on its first assignment from NM State Forestry to fight the Deep Creek and Pine Tree fires in Colorado.
- Wildland Division deployed three personnel with the department's Type 5 brush engine to the Pardo staffing area in Chino, California.
- CPAW Grant of Focused Assistance awarded.
- Held first ever New Mexico Resuscitation Academy.

2018

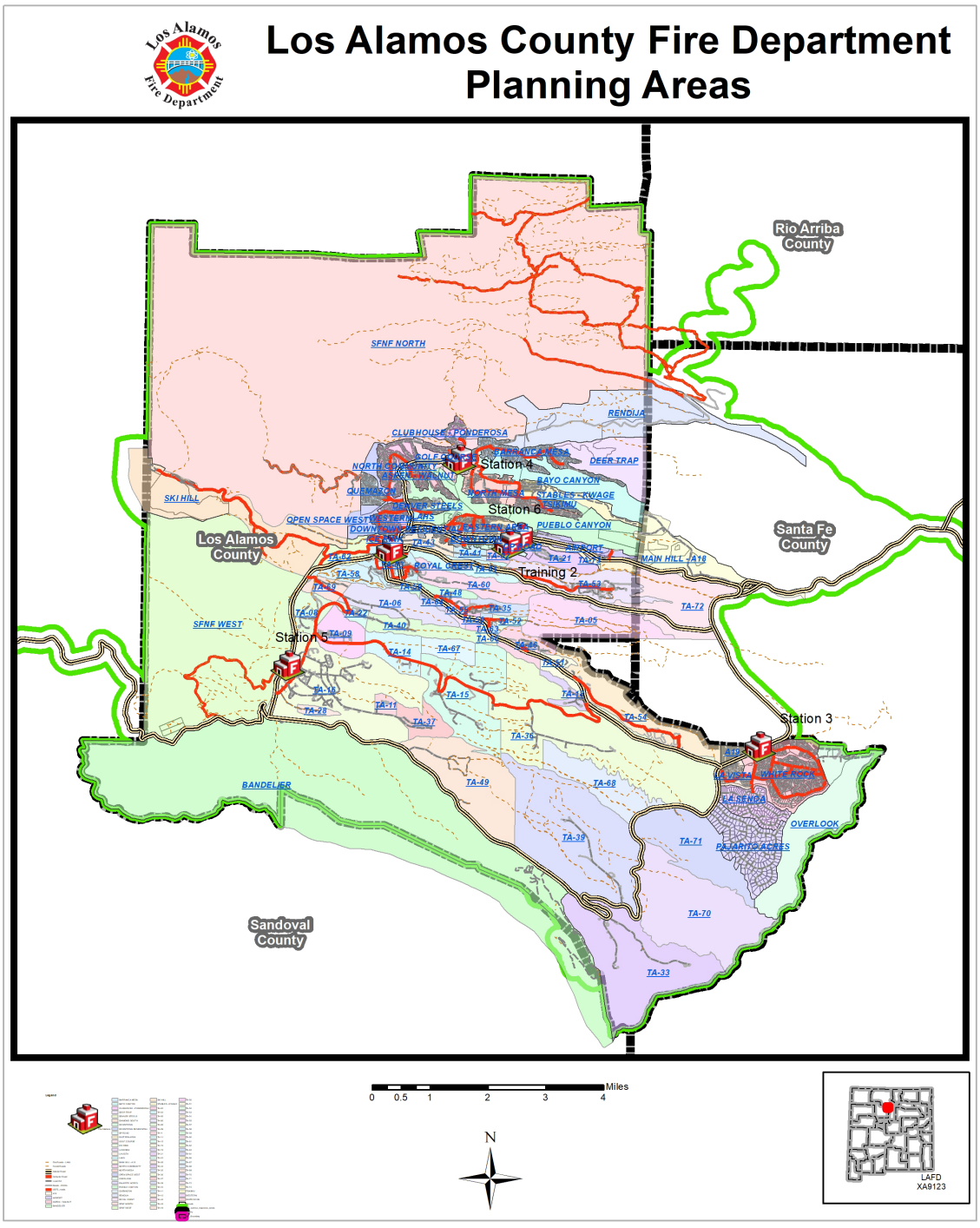
- Public Regulation Commission (PRC) conducted an inspection of the EMS Division. A score of 100% was accomplished for the fourth straight year.
- Fourth deployment of the Wildland Team; four personnel deployed as part of a task force to assist with fire suppression for the Stateline Fire.
- First recipient department in New Mexico to apply for Phase II Hazard Mitigation grant funds through the Department of Homeland Security and Emergency Management.
- Contract with medical supplier for medication and equipment.

2019

- Wildland Division received confirmation from DHSEM that the LAFD Wildfire Education Project was approved for Phase II. LAFD was the first agency in New Mexico to receive Phase II funds for this hazard mitigation grant.
- Received six brush engine wildland fire apparatus to replace mini tenders in accordance with the vehicle replacement plan.
- Recruit Academy 28 started on July 22nd with 15 recruits.
- MOU with Albuquerque Fire and Rescue for joint fire investigations.

Current Legal Boundary of Service Area

Map 13: LAFD Planning Areas



New Mexico Statutes Chapter 4, Counties §4-15-1. Los Alamos County; boundaries:

That the county of Los Alamos is hereby created out of those portions of Sandoval and Santa Fe counties lying and situate within the following boundaries, to wit:

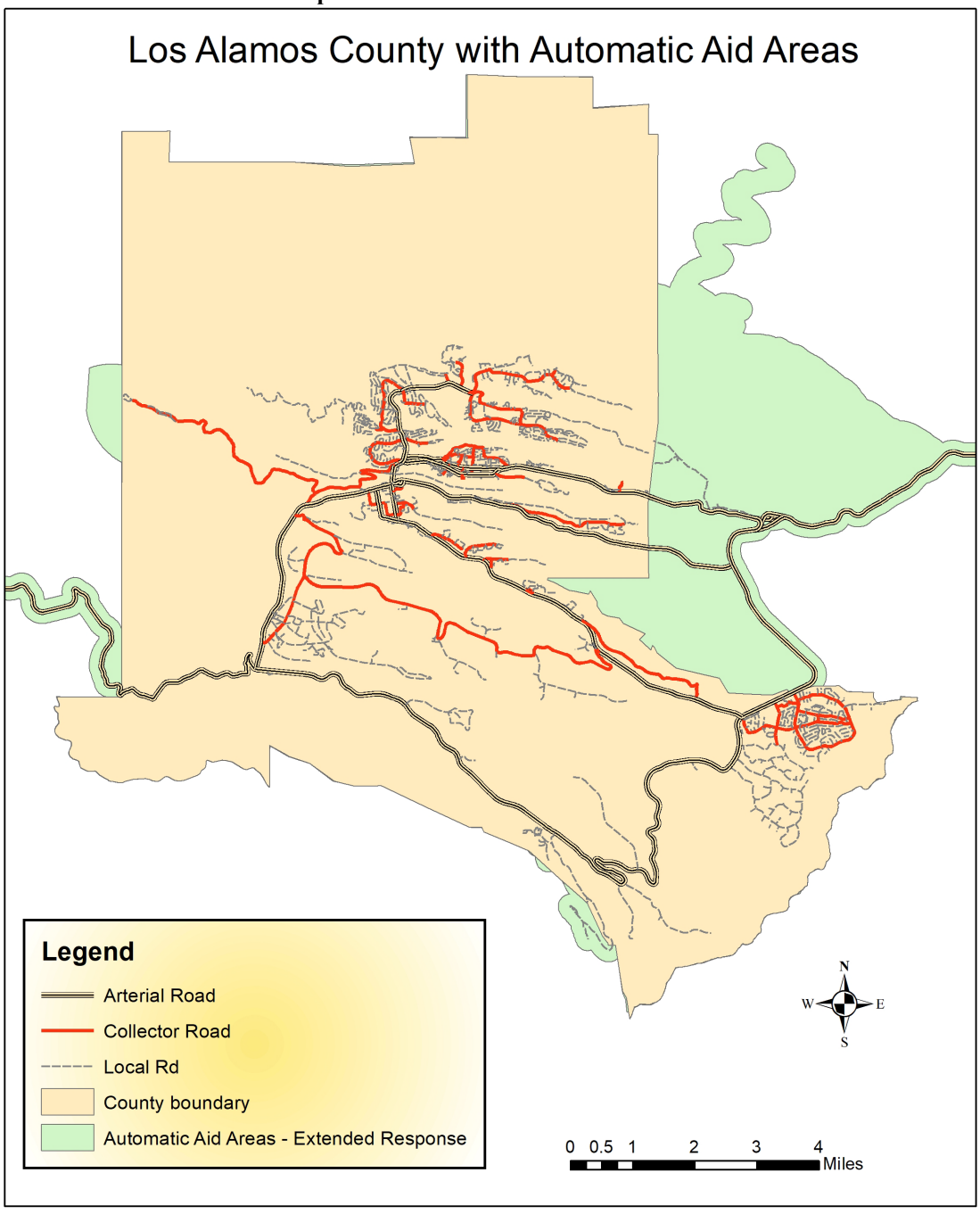
beginning at NE corner of the SE 1/4 of section 13, township 20 north, range 6 east of the New Mexico principal meridian, which point is on the county line between Sandoval county and Santa Fe county, state of New Mexico;

thence in a westerly direction along the northern boundary of the S 1/2 of said section 13 to the northwest corner of the SW 1/4 of said section 13; thence in a northerly direction along the eastern boundary of section 14 to the northeast corner thereof; thence in a westerly direction along the northern boundaries of sections 14 and 15 to the northeast corner of section 16; thence in a southerly direction along the eastern boundary of said section 16 to the southeast corner thereof; thence in a westerly direction along the southern boundary of said section 16 to the southwest corner thereof; thence in a southerly direction along the eastern boundary line of section 20 to the NE corner of the SE 1/4 of said section 20; thence in a westerly direction along the north boundary of the S 1/2 of said section 20 to the northwest corner of the SW 1/4 of said section 20; thence in a westerly direction along the north boundary of the S 1/2 of section 19 to the northwest corner of the SW 1/4 of said section 19, all in township 20 north, range 6 east; thence in a westerly direction along the north boundary of the S 1/2 of section 24, to the northwest corner of the SW 1/4 of said section; thence in a westerly direction along the north boundary of the S 1/2 of section 23 to the northwest corner of the SW 1/4 of said section 23; thence in a northerly direction along the eastern boundary of section 22 to the northeast corner thereof; thence in a westerly direction along the northern boundary of said section 22 to a point on the eastern boundary of the Baca location numbered 1, which point is the southwest corner of the Santa Clara Indian reservation; all in township 20 north, range 5 east; thence in a southerly direction along the eastern boundary of the Baca location numbered 1, a distance of approximately 9.1 miles, to the southeast corner of the Baca location numbered 1; thence in a westerly direction approximately 1.3 miles along the southern boundary of the Baca location numbered 1, to the intersection of said boundary with the initial station of the Sawyer Mesa special survey, a survey of a portion of un-subdivided township 18 north, range 5 east, which point is the northwest corner of the Sawyer Mesa tract; thence in a southeasterly direction, along the southwest boundary of the Sawyer Mesa tract, a distance of 5.34 miles, to the intersection of the south boundary of the Sawyer Mesa tract with the west boundary of the Bandelier national monument, which point is the southeast corner of the Sawyer Mesa tract; thence in a general northerly direction approximately 0.8 miles along this boundary to the south boundary of the Ramon Vigil grant, which point is the northwest corner of the Bandelier national monument; thence in a general southeasterly direction for approximately 8.0 miles, along the boundary between the Ramon Vigil grant and the Bandelier national monument, to the intersection of said south boundary of the Ramon Vigil grant with the south end of the east boundary of said grant, which point is the southeast corner of the Ramon Vigil grant and is on the west bank of the Rio Grande river; thence in a general northeasterly direction approximately 7.8 miles along the east boundary of the Ramon Vigil grant, which boundary is parallel to the west bank of the Rio Grande river, to the southeast corner of the tract within the Ramon Vigil grant identified as Tract A in the general land office survey for group no. 406, dated August 15, 1938, and titled plat Ramon Vigil grant, New Mexico, said tract commonly being known as “Sacred Area” or “Indian Sacred Grounds”; thence in a general northwesterly direction approximately 7.7 miles along the southern boundary of said Tract A, to a point on the northern boundary of the Ramon Vigil grant, which point is at the northwest corner of the so-called “Sacred Area”; thence in an easterly direction approximately 1.9 miles along the northern boundary of the Ramon Vigil grant to a point on the Sandoval and Santa Fe county line, which point is the southeast corner of fractional section 25, township 19 north, range 6 east, and the southwest corner of a detached portion of the Bandelier national monument; thence northerly along the east side of said township to the northeast corner of section 1 of said township; thence northerly along the east side of township 20 north, range 6 east to the northeast corner of the SE 1/4 of section 13 of said township, the point of beginning.

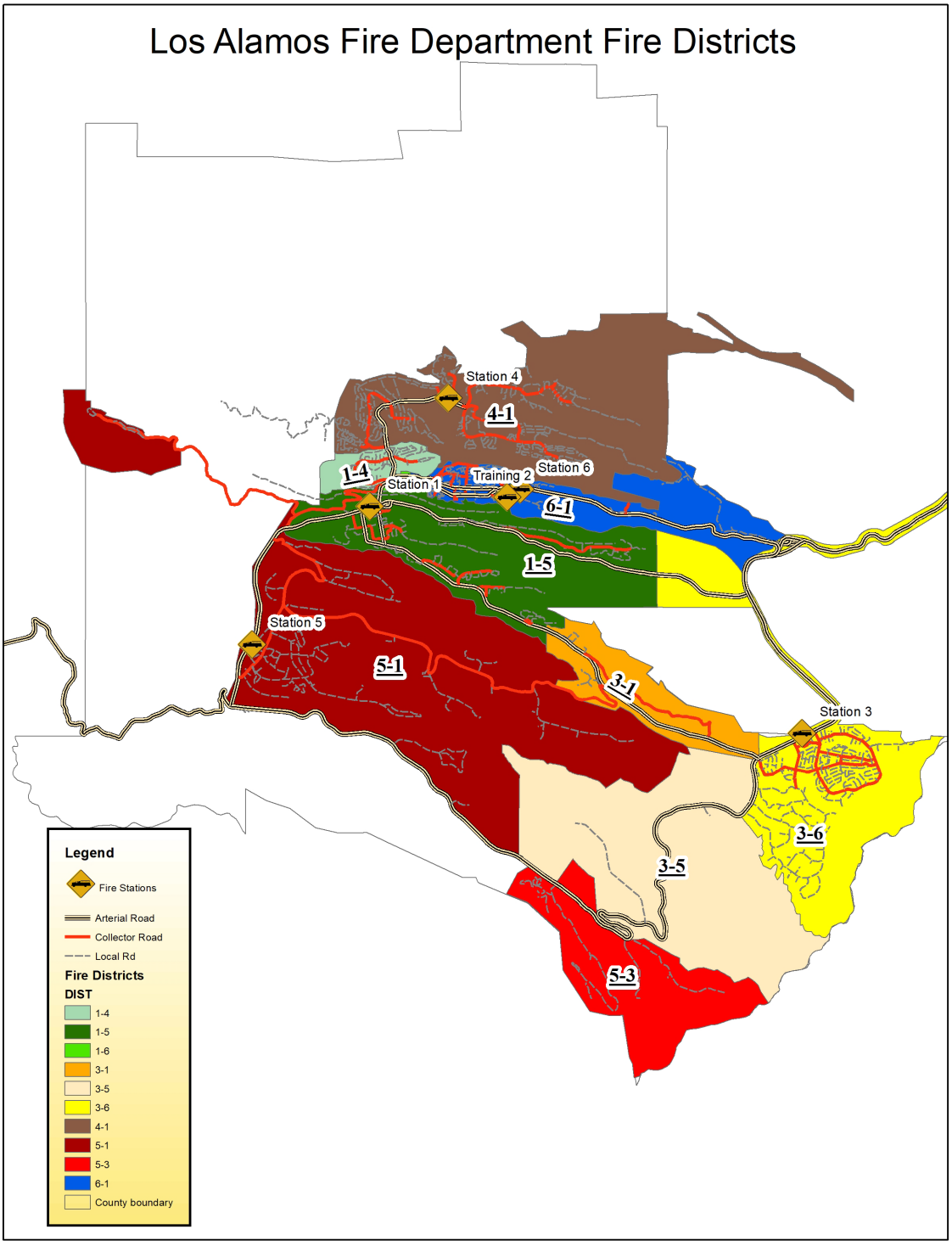
Additional Service Area Covered by Automatic Aid

Under the Intrastate Mutual Aid System (IMAS), the department responds to areas outside of the county's service area boundaries, as illustrated in the following map:

Map 14: LAC with Automatic Aid Areas



Map 15: LAFD Fire Response Districts



Current Organization, Divisions, Programs and Services

The fire chief, in accordance with the authority vested in him by state and local laws and regulations and by Cooperative Agreement with the DOE/NNSA, sets forth the organizational structure and functional supervisory duties of staff personnel for the efficient operation of the fire department.

The fire department is structured at an Administrative Office with associated functions and eight major divisions.

1. Operations
2. Training
3. EMS
4. Fire Marshal's Office
5. Administration
6. Safety
7. LANL Training
8. Wildland

Operations

The Operations Division's mission is to provide the citizens and visitors of LAC, the DOE/NNSA, and the Los Alamos National Laboratory (LANL) with emergency and fire protection services to preserve life, the environment, and property. The Operations Division provides and maintains, through a force of trained and qualified personnel, a state of readiness to cope with real and potential emergency incidents affecting life, environment, and property.

The Operations Division is comprised of three shifts, each under the leadership and direction of a duty battalion chief (BC 1) who reports directly to the deputy fire chief who is an integral part of the Command Team and reports directly to the fire chief.

The LAFD responds from five fire stations, each managed by a company officer (CO), to provide fire protection services to the LAC and the LANL.

The Fire Chief's Directives Division 400 series provides direction to personnel on the use of emergency operations, equipment, and tactical operations and Category 5 of the Fire & Emergency Service Self-Assessment Manual identify core competencies and key performance indicators for the Operations Division.

Training

The Training Division coordinates all federal, state and locally mandated training and certification for LAFD personnel and other associated agency personnel. The Training Division also provides oversight and management for the development, delivery, evaluation, and improvement of all education, certification, and

career development programs for uniformed personnel in the department beginning with the recruitment testing and selection process and the Recruit Academy.

The Training Division is under the management and direction of a division chief who is a member of the department Command Team and reports directly to the deputy fire chief.

The Fire Chief's Directives Division 700 series provides direction to personnel on the use of training facilities, equipment, and tactical operations and Category 8 of the Fire & Emergency Service Self-Assessment Manual identifies core competencies and key performance indicators for the Training Division.

Emergency Medical Services (EMS)

The EMS Division provides for the delivery of emergency medical services to patients, the citizens and visitors of Los Alamos County, the DOE, and the LANL. This includes quality assurance, daily medical readiness and response, training/certifications, maintenance of current medical licenses, maintenance and disposition of all medical supplies, and inclusion of all new medical skills, as needed.

The EMS Division in cooperation with various partners also oversees the bicycle team, paramedic program and community outreach programs such as Project Heart Start, fall prevention home assessments, etc.

The EMS Division is under the management and direction of a division chief who is a member of the department Command Team and reports directly to the deputy fire chief.

The Fire Chief's Directives Division 500 series provides direction on emergency medical protocols and procedures related to emergency medical services Criterion 5G of the Fire & Emergency Service Self-Assessment Manual identifies key performance indicators for the EMS Division.

Fire Marshal's Office

Fire Marshal's Office provides programmatic oversight for the fire investigations, life safety code inspections, and pre-construction plans review.

The Fire Marshal's Office is under the management and direction of the fire chief. Additional fire and life safety programs are supported, implemented and maintained by the Fire Prevention and Fire Investigation Teams, which are comprised of Administrative and shift personnel.

The Fire Chief's Directives Division 300 series provides direction on fire and life safety procedures and Criterion 5B Fire Prevention/Life Safety Program and 5D Fire Investigation Program of the Fire & Emergency Service Self-Assessment Manual identify core competencies and key performance indicators for the FLSM Division.

Administration

The LAFD Administration consists of the fire chief, a deputy fire chief, six division chiefs (wildland, fire marshal, safety, EMS, training, LANL training), a safeguards and security manager, and a senior management analyst with oversight of Administrative Services.

The administrative services are provided for all department members by civilian staff which includes: a senior management analyst, two management analysts, a technology specialist and four senior office specialists (SOS).

The Administrative Services Team (AST) is comprised of the SOSs, technology specialist, and management analysts.

Administrative services include timekeeping, payroll, travel, customer service, EMS billing, budget development and management, project coordination and management, human resources, accounts payable, procurement and contracts, receiving, records management, property management and administrative support for each division.

The Fire Chief's Directives Division 100 and 200 series provide direction on administrative services procedures and Criterion 9C Administrative Support Services and Office Systems of the Fire & Emergency Service Self-Assessment Manual identify key performance indicators for the Administrative Services Team.

Safety

The mission of the LAFD Safety Division is to develop and provide programs that meet or exceed the National Fire Protection Association (NFPA) Standard 1500. The goals and objectives of these programs are for the prevention and elimination of accidents, occupational injuries, illnesses, and fatalities.

Programs under the Safety Division include the Occupational Health and Safety program, Peer Support Team, Wellness Fitness program, Alternative Work Assignment program, Respiratory Protection program; and the Public Education Program.

The division chief/safety officer reports directly to the deputy fire chief and manages the Safety Division. The Safety Division is responsible for oversight (in coordination with the county safety program) to the Physical Fitness and Safety committees to identify safety programs, deficiencies, and establish safety policies. It is the department's goal to instill in all personnel that safety is everyone's responsibility and that the department intends to develop a scope of safety that will be incorporated into the community through schools, businesses, and families.

The Fire Chief's Directives Division 800 series provide direction on health and safety procedures and Criterion 6F Safety Equipment, 7F Occupational Health and Safety and Risk Management, and 7G Wellness/Fitness Programs of the Fire & Emergency Service Self -Assessment Manual identify key performance indicators for the Administrative Services Team.

LANL Training

The LANL training division chief reports directly to the deputy fire chief and manages the LANL Training Division which is responsible for oversight for coordination of exercises, drills and other site-specific training at the Los Alamos National Laboratory (LANL). In addition, the Division provides programmatic oversight for the National Fire Incident Reporting System (NFIRS), hydrant flow testing, pre-incident planning, and Insurance Services Office (ISO) audits, and department-wide emergency communications systems.

The Fire Chief's Directives Division 700 and 900 series provide direction on LANL Training and department-wide communication procedures. Category 9 Essential Resources of the Fire & Emergency Service Self-Assessment Manual identify key performance indicators for water supply and communications.

Wildland Firefighting Services Division

The wildland division chief reports directly to the fire chief and provides program oversight for coordination of fuel mitigation, defensible space, and wildland deployment.

The Fire Chief's Directive Division 400 Article 25 Wildland Fire provides direction on wildland-urban interface and the community wildfire protection plan. Criterion 5K Wildland Firefighting of the Fire & Emergency Service Self-Assessment Manual identify core competencies and key performance indicators for wildland firefighting.

The organizational structure and lines of authority are set forth in the organizational chart by Division. These Divisions operate with skilled and dedicated staff who are highly motivated, innovative, and strive to implement state of the art technology.

See Appendix J for program and fleet photos.

C. Current Descriptions of Levels of Service with Delivery Programs

The LAFD is an Insurance Services Office (ISO) Class 2 Fire Department and currently operates a response fleet consisting of 13 structural suppression vehicles, 11 wildland/urban interface suppression vehicles, 3 rescue vehicles, 6 ambulances, 1 crash/fire/rescue vehicle and 1 mobile operation center vehicle to protect LANL and the community of Los Alamos.

Authorized shift staffing is currently 130 combat fire personnel trained to within the NFPA standards for fire suppression, wildland firefighting, urban interface firefighting, technical rescue and hazardous materials/Weapons of Mass Destruction (WMD) and radiological emergency response.

The combat fire personnel respond out of five active fire stations strategically placed throughout the county with one additional station used primarily for training with a training tower, confined space simulator and various training props. Construction will soon begin on a state-of-the-art fire training simulation facility and a new ventilation prop.

Since the county is geographically separated from other fire departments, the nearest being Santa Fe City which may be able to respond with an engine company with a response time of one hour or greater, the LAFD must provide for an aggressive fire attack using on-duty resources with limited call back capabilities. LAFD meets the deployment objectives for fire suppression emergency incidents by responding in accordance with procedures outlined in Los Alamos Fire Chief Directive (FCD) Division 900, Article 3, Response and Alarm Assignments. The basic dispatching philosophy is to send “too many” units rather than “too few”, balanced with the safety of the public and personnel. The battalion chief or any responding officer will determine dispatching beyond a first alarm response. The FCD allows the department to respond the appropriate amount of apparatus, equipment, and personnel to each type of fire incident.

LAFD adopted the National Interagency Incident Command Management System (NIMS) in 1992 and in 2013, integrated the Blue Card Incident Command System into its operations. The Blue Card Command System is outlined in FCD 400 Article 15. Included in the Blue Card Incident Command FCD are procedures such as size-up, assumption of Command, accountability, assignment of resources, strategy, staging, rehab, airway management, and Mayday procedures. The Blue Card System aligns nicely with NIMS and is used on all LAFD’s responses.

All operational personnel have received training in the Blue Card Command System. All chiefs, captains, and driver engineers are certified as Blue Card Commanders. All firefighters receive the communications module.

Five of the department's members are trained to the instructor level. The instructors work with the Training Division to ensure that continuing education hours and simulation labs are completed so that members stay current with training and Blue Card recertification requirements. The Blue Card System has standardized the way LAFD responds. No matter who the initial commander is that arrives on the scene, consistent communication and approach to scene management can be expected.

This incident command system is designed to expand from a simple incident command system to a more comprehensive command system. LAFD also utilizes LAFD Tactical Worksheets on complex incidents.

Fire Suppression

The department currently operates a response fleet consisting of 12 structural suppression vehicles, 13 wildland/urban interface suppression vehicles, 2 rescue vehicles, 6 ambulances, 1 crash/fire/rescue vehicle, 1 mobile operations center vehicle, 1 hazmat truck, 6 utility trucks, and 3 all-terrain vehicles to protect the Los Alamos National Laboratory (LANL) and the community of Los Alamos.

The total authorized workforce consists of 139 uniform staff and 11 civilian support staff. Minimum operational staffing is currently 37 combat fire personnel trained to meet/exceed the NFPA standards for fire suppression, wildland firefighting, wildland-urban interface firefighting.

The Cooperative Agreement also calls out committed force requirements by stating that the county will notify the LANL Emergency Operations Center (EOC) when less than 21 on-duty firefighters are available to immediately respond to LANL. Upon notification of dropping below the 21-firefighter threshold, LANL will begin compensatory measures to curtail operations and reduce risk across the laboratory.

Combat fire personnel and the response fleet respond from five active fire stations strategically placed throughout the county. One additional station provides facilities for classroom and practical training. The

facility has a practical learning center with a training tower, new fire training simulation and ventilation structure, confined space simulator and various training props utilized for practical training evolutions.

To conduct a safe and effective response to mitigate a wide range of incidents, LAFD utilizes the incident command system Blue Card and NIMS in everyday emergency operations. To meet this requirement, the LAFD provides training to all its members through FEMA ICS courses and the current "Blue Card Hazard Zone Training." To meet the health and safety of personnel, LAFD ensures that a strong, direct, and visible Command will be established from the onset of any incident while maintaining the flexibility within the ICS structure to address the immediate and potential needs of an incident.

For structural suppression, the LAFD's capabilities consist of front-line pumpers with Class A foam. The department also has tender vehicles and reserve apparatus. Reserve apparatus carry 900 gallons of water and front-line units carry between 600 to 1,000 gallons of water depending on the apparatus. Front line and reserve units carry between 20-50 gallons of Class A foam, again depending on the apparatus. Older reserve units carry up to 50 gallons of Class B foam. Tenders carry 2200 gallons of water and 150 gallons of foam. The pumps are rated at 1250 gpm on tenders and reserve apparatus, and front-line engines are rated at 1500 gpm. Truck 1 and 3 carry 300 gallons of water and 25 gallons of Class A foam. The pump is rated at 1500 gpm.

Trucks 1 and 3 have a 105' ladder. Reserve trucks 10 and 30 have a 75' aerial ladder. Tenders and reserves are all pump and roll capable. All front-line apparatus carry ISO and NFPA required structural firefighting equipment.

Technical Rescue

LAFD is well equipped to provide emergency rescue services and specialized equipment to incidents requiring technical rescue capability. LAFD currently has a Technical Rescue Team that consists of 48 personnel with 16 assigned to each shift. In addition to standardized departmental training, they receive an additional 80 hours of training in such disciplines as High Angle Rescue, Confined Space, Trench Rescue, Extrication, Elevator emergencies, and Structural Collapse.

The team has also sent members out of county to receive specialized training in each of these areas. These members have brought back a great deal of evolving information that has made the team better and more effective. The FEMA-based training enables members to obtain certifications that qualify them as rescue technicians recognized by national standards.

The department currently has a heavy rescue unit, a light rescue unit, and a technical rescue trailer that carries additional technical rescue equipment and materials. The team also has three utility terrain vehicles (UTVs) readily available to respond at all times.

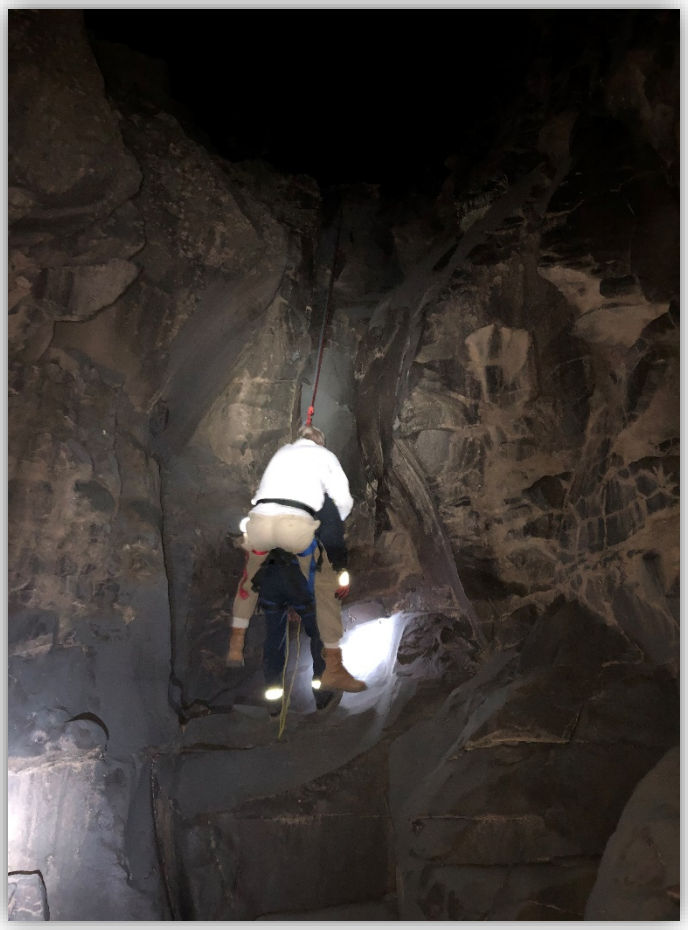
Due to the uniqueness of the surrounding terrain, LAFD responds to several high and low angle rescues each year to aid injured hikers, climbers and sometimes even body recovery. LAFD also has the ability to provide numerous confined space stand by teams for personnel making confined space entries at LANL.

LAFD has supplies and materials available to begin initial shoring, breaking and breaching, establishing incident command, and rescue operations at either a structural collapse or trench rescue. In the event of a large incident such as a natural disaster or earthquake, LAFD is prepared to begin initial rescue efforts. LAFD has the ability to deploy its technical rescue trailer in these instances, and a cache of shoring equipment and materials is available. LAFD has more than adequate equipment to respond to extrication rescues including vehicle, industrial, or heavy equipment.

The department has purchased a dynamometer device that is designed to measure force and assist in safe weight distribution determination in rope systems. The Arizona Vortex system, a device to create artificial high points to assist in safely transitioning cliff edges, has been part of LAFD's equipment cache since 2003 and has been used numerous times on high angle rescues and in training. A number of CMC Rescue multipurpose

devices (MPD), a progress capturing pulley system, and a lowering device have also been added to the rescue equipment cache. These devices simplify and increase safety when building ropes systems.

LAFD has also invested in a Paratech shoring package that has multiple rescue capabilities such as building; T-shores, double T-shores, raker shores, vehicle stabilization, trench shores, and many other applications.



Emergency Medical Services

Emergency Medical Service (EMS) Response EMS providers in Los Alamos County use a "tiered EMS response" that is internationally known for its proficiency and success rates. 911 calls are answered at the call center where trained dispatchers using focused questions employ a criteria-based system to determine both the nature of the call and the appropriate level of care that is needed. Life-threatening emergencies such as cardiac events and trauma with shock are given the highest response with a dual paramedic response (engine, medic, and rescue). Lesser calls (e.g. falls less than 10 feet, broken bones without shock, anxiety, etc.) are handled by the closest crew only (engine, medic).

The emergency medical services that the department provides include advanced and basic life support. The standard EMS response for a single patient requires one engine company and one advanced life support (ALS) ambulance and is identified as a low hazard. All members of LAFD are certified emergency medical technicians (EMT's) with nearly two-thirds being ALS certified (EMT-Intermediate or Paramedic). In the event of a multi-casualty incident (MCI), additional apparatus will be requested as required for a moderate to high hazard. Advanced life support and transportation to the appropriate treatment facility is provided by the department.

LAFD uses a tiered-response plan to meet several performance goals, the first one being that the high-level ALS responders will primarily handle calls where their advanced skills are most needed, and less-urgent-but-more-frequent calls are handled by BLS responders. Secondly, lower acuity calls will derive a reduced response rate (normal traffic) lowing the possibility of firefighter involved motor vehicle collisions. Each of the department's five stations respond to each medical emergency with at least a single paramedic - additional ALS personnel are added dependent upon the nature and severity of the event.

Hazardous Materials

The LAFD Hazardous Materials Team (HMT) has unique response capabilities that go beyond that of a standard hazardous materials team. The HMT will respond to all hazardous materials incidents to stabilize the scene, conduct rescue, perform air monitoring, conduct radiological surveys, identify and sample unknown chemicals to mitigate any emergencies. The department has an understanding with NNSA for cooperation during emergencies, which allows the incident commander (IC) to request assistance from the Los Alamos National

Laboratory (LANL) Hazmat Team and combine capabilities and personnel with the LAFD HMT. During regular working hours, the LANL Hazmat team can respond if requested in less than one hour. After regular working hours, on weekends, and on holidays, the LANL Hazmat team has the capability to be on scene within two hours. The LAFD HMT also provides mutual aid assistance to smaller fire departments throughout northern New Mexico.

The LAFD HMT currently consists of 49 members trained to the Technician level; one of these members is a certified Radiation Control Technician (RCT).

As a Federal Emergency Management Agency (FEMA) Type 1 Hazardous Materials Response Team, the HMT has specialized chemical and radiological monitoring and detection equipment. The HMT has one response/command vehicle and two response trailers for flammable liquid spills and decontamination. Newly added to the HMT capability is the Inficon gas chromatograph/mass spectrometer GC/MS, capable of measuring volatile organic chemicals (VOCs) and semi-volatile organic chemicals (SVOCs) to the parts per billion (ppb) level. The HMT also has specialized fuel transfer equipment, specialized self-contained breathing apparatus (SCBA) and advanced communication equipment.

The HMT also supports LAFD with technical reference, specialized equipment, and personnel support at LANL exercises involving both radiological and/or chemical components. HMT members will provide support and expertise to ensure the IC makes sound technical decisions. The HMT will also provide air monitoring support during overhaul operations at structure fires.

Initially, members of the team are provided 120 hours of training to the IFSAC Technician level. Members are then required to maintain their technician certification with an additional 24 hours of HMT training per year as mandated by OSHA standards and NFPA. Members of the HMT are required to attend in-house quarterly training and other specialty training. This training covers emerging threats in both the hazardous materials and weapons of mass destruction (WMD) realm.

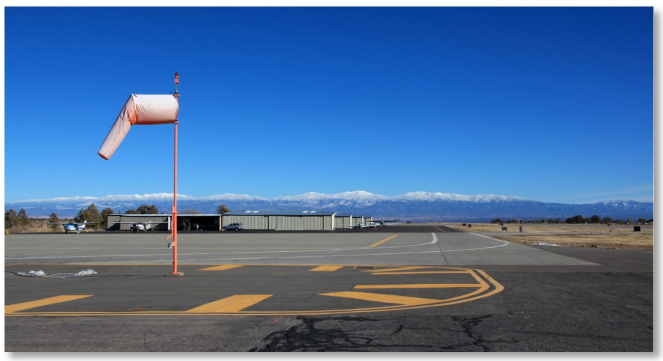
The LAFD HMT participates in the yearly LANL Hazmat Challenge. This physically demanding, week-long training event is attended by teams from around the country. The challenge is designed to train Technicians on practical hazardous materials scenarios in a team environment while their performance is being evaluated. To further augment training, members of the HMT are sent to the International Association of Fire Chief's (IAFC) Hazardous Materials Team Conference, the National Fire Academy (NFA) and other numerous FEMA sponsored training opportunities across the country.

The HMT also conducts the department-wide annual six-hour awareness and operations refresher for all LAFD personnel to keep all in compliance with the OSHA training requirements. The HMT is currently conducting joint training with the LANL Hazardous Devices Team on the application of blast mitigating foam to reduce the damage and contamination from Improvised Explosive Devices (IEDs) and Radiological Dispersal Devices (RDDs). In addition, HMT also partnered with LANL and the 64th WMD Civil Support team through the New Mexico National Guard to participate in practical evolutions and skills evaluations.

Aviation Rescue and Firefighting Services

The Los Alamos Fire Department (LAFD) currently responds to a small non-indexed municipal airport located within LAFD's response jurisdiction. The airport is owned by the County of Los Alamos. The airport services small privately-owned aircraft, as well as regular flights from Classic Air Medical, who will also soon be based at the Los Alamos Airport full time. Currently, the Los Alamos Airport does not offer commercial flights, however, there is sporadic charter jet traffic, as well as occasional US Military traffic. The airport has one 6000 ft. lighted runway. There are 24 hours refueling (AV-GAS) capabilities as well as after-hour flight planning facilities. The airport is home to 57 small single-engine aircraft. There are also light aircraft mechanics and experimental aircraft builders who operate at the airport. There is a current average of 20 takeoffs and landings occur during each 24-hour period.

The airport lies within the response boundaries of LAFD. While no equipment or personnel are located at the airport, Station 6 is located within 1/2 mile of the airport and would be the first station to respond units to the airport in the event of an aviation emergency. LAFD is called upon for aircraft standbys as needed as well. These are often done for major events, high profile aircraft, or any other event deemed worthy by the Airport management.



Wildland Fire Services

Sitting on the eastern flank of the Jemez Mountains, LAC has one of the largest wildland-urban interfaces in New Mexico. The townsite is located on the boundary of the Pajarito Plateau and the foothills of the Sierra de los Valles, which is the easternmost extension of the Jemez Mountain range. Neighborhoods are built on finger mesas that are separated by deep canyons carved into soft volcanic rock. This disjointed, linear arrangement of housing creates an unusually high proportion of homes located at the border or within the forest or woodland areas.

Historically, large wildfires in northern New Mexico occur in mid-to-late spring and are driven by prevailing spring winds out of the southwest. The most recent examples are the Cerro Grande Fire and Las Concha's Fire which were wind-driven fires that moved steadily to the northeast, and at times creating their own winds, which makes it extremely difficult to contain. The wind factor is complicated by the concentration of dense forest areas to the south and west of Los Alamos. As a result, fires originating in the forests southwest of the townsite and White Rock have the potential to be readily driven into the community.

Although Los Alamos and White Rock are laced with an extensive road and trail network, many locations within the county are inaccessible by vehicle or difficult to reach on foot. Due to steep terrain with limited escape routes, the suppression of a wildfire ignition in many canyon areas can place firefighters at great risk.

The LAFD is tasked with performing fire prevention and to control activities to protect life and property from wildfire. The Department's goal is to minimize wildfire losses through the establishment of effective policies, planning, fire prevention, personnel, infrastructure, training, communications, operational systems, safety, and coordination. A fundamental concept of fire risk is associated with living in a wildland/interface community. The LAFD attempts to reduce the risk within the District by taking measures to prevent the outbreak of fires, limit the extent and severity of those fires that do start, provide for the removal or rescue of endangered persons, control and extinguish fires that occur within the County, as well as, to perform other emergency response operations and delivery of emergency medical services.

All combat firefighters are cross-trained for wildland firefighting. After the Cerro Grande Fire, the entire LAFD firefighting fleet was replaced with urban-interface capable apparatus. All firefighting units have compressed

air foam (CAF's). Some engines, all tenders, and mini-tenders are AWD, have pump and roll capabilities with front turrets operated from within the cabs. The units carry a complement of wildland hand tools for indirect attack.

Under the New Mexico Wildland Fire Management Joint Powers Master Agreement, and through the Interagency Wildland Management Team and the Santa Fe Zone (New Mexico Communications Hub for Wildland Firefighting), the LAFD works with other fire agencies to provide initial attack and structural protection on the contiguous area surrounding Los Alamos County. LAFD FCD Division 900, Article 6, establishes the communication plan for working with outside agencies all within NIMS.

Communications

The emergency communications system consists of a Consolidated Dispatch Center (CDC) which is located at 2500 Trinity Drive, Suite D in Los Alamos. The CDC is responsible for taking all emergency calls for the police and fire departments. All emergency information is routed through the CDC where licensed and trained emergency dispatchers then distribute the information to shift personnel through the LAFD radio system. Upgrades to Public Address systems have been made to all Los Alamos fire stations. This is a 16-channel digital EDACS 410 MHz mid-range radio system maintained by Los Alamos National Laboratory (LANL) radio shop personnel. This radio system was upgraded in 2016 to meet P-25 requirements. Once the emergency information is announced to the LAFD, incident communications mirror the Incident Command System (ICS).

Equipment assigned to all first-in units includes mobiles, portables, and base station radios on the LANL digital radio system with a 16-channel talk group, along with cellular telephones that are assigned to all staff officers. In 2018, Mobile Data Terminals (MDTs) were purchased to give LAFD personnel a device that integrates CAD information as well as a windows-based platform to enhance daily duties such as but not limited to hydrant testing, annual service testing, vehicle checklists, and building pre-plans.

Call back for firefighters is achieved by utilizing the LANL emergency call back system that will initiate a telephone call-back when activated by authorized personnel. The LANL call back system has a current personal cell phone number for most firefighters. Firefighters who cannot provide a personal cell phone number are issued government pagers and the pager number is also maintained in the LANL call back system.

The Incident Commander (IC) or Support Officer (SO) at the scene normally handles incident communications. Large scale or multiple incident scenarios are handled by the Tactical Operations Center (TOC), which is activated and operated according to current procedures.

Incidents that involve other agencies require the use of programmable portable radios which are currently set up to communicate with the United States Forest Service (USFS) and mutual aid fire and ambulance services.

Additional communication systems include networked computers at all facilities along with normal business telephone and facsimile capabilities. While overall communications are adequate, LAFD has identified some key areas needing improvement which have been noted throughout this document. A few of the critical areas include radio coverage gaps, an inadequate backup dispatch center, and alarm processing times. Future improvements also will include "heart-saver" alert tones, new station alerting systems for new fire stations, and radio infrastructure improvements at existing fire stations.

Community Risk Reduction

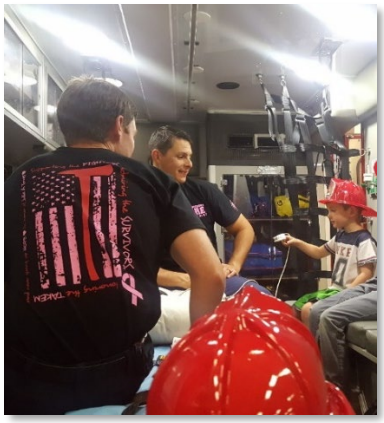
Public Education

The Public Education/Community Outreach Program is designed to enhance community awareness and provide fire and EMS educational opportunities to the members of Los Alamos and neighboring communities. The department works with local businesses to offer necessary programs such as fire extinguisher training. Annually, the Public Education Team participates in the Los Alamos National Laboratory (LANL) Safety-Days event and distributes prevention materials to participants.

The department participates in community events such as health fairs, the fire service safety-day event at the New Mexico State Fair, Firefighter Day at the New Mexico State Legislature, the LA Chamber of Commerce Safety event, and the County's Fourth of July celebration to promote seasonal prevention programs. Following the Cerro Grande Fire and Las Concha's Fires, a major campaign was launched to educate the citizens of the community regarding the need for creating defensible space. The newly created Wildland Urban Interface Division is focusing on fuel mitigation and educating the public about strategies for creating a Firewise community. The department's EMS Coordinator has also facilitated some large participation events/exercises, such as Every 15 Minutes and the Heart Start Program. In addition, the department has firefighter certified in the installation and inspection of car seats.

The Public Education program utilizes a fire safety trailer, jumbo firefighter, and Sparky mascot to assist in community outreach events, as well and maintains a cache of age-specific materials, (i.e., crayons and coloring books for younger participants; wrist bands and school supply

pouches for pre-teens and teenagers; and brochures, fridge magnets and other materials for adult groups) to assist in the delivery of public education messages.



See Appendix F for more "Stepping into the Community."

Fire Investigation

The LAFD Fire Investigation Program is designed to produce a systematic process by which effective fire investigation of origin and cause can be accomplished. The department enlists certified in-house fire investigator's responsible for origin and cause determination on structural, vehicle, and wildland fires which utilizes procedures in place to achieve successful results.

A core group consisting of at least two-three firefighters per shift and the Fire Marshal's Office staff of the fire marshal, and the senior fire & life safety coordinator with oversight make up this highly specialized team. All fires are investigated by the core group to identify the origin and cause of fires, explosions, and other hazardous emergencies. In addition, the LAFD and LAPD have initiated a process to work together in all fire investigations that are undetermined or intentional in nature to ensure appropriate measures are taken to secure evidence; chain of custody issues are addressed, and the fire scene is adequately documented. All fire investigators are members of and have received advanced investigation training through the International Association of Arson Investigators (New Mexico Chapter) and/or the NM State Fire Academy and have met the NFPA 1033 Professional Qualifications for Fire Investigator. Additionally, personnel have received training from the National Fire Academy, as well as specialized training in photography, youth fire setting, and evidence collection. To continually improve, aside from finding unique opportunities to maintain skills, LAFD fire investigators will deploy soon to other local and state fire scenes to assist with active investigations.

Fire investigations involve cooperation with other agencies such as LAPD, New Mexico State Police, New Mexico Police Crime Laboratory, State Fire Marshal's Office, and the Bureau of Alcohol, Tobacco, and Firearms to ensure effectiveness in LAFD's Fire Investigation Program. All fires that are undetermined as to origin, intentional, large dollar loss, explosions, or fires resulting in death are investigated thoroughly and promptly by the coordinating agencies.

Fire & Life Safety – Pre-Incident Plans and Code Enforcement Inspections

The department's Fire & Life Safety Management Division is responsible for administering an adequate, effective, and efficient program directed toward fire prevention, life safety, hazard risk reduction, the detection, reporting, and control of fires and other emergencies, the provision of occupant safety and adequate egress for exiting.

The Pre-Incident Plans program is designed to increase emergency response capabilities and performance and enhance firefighter safety when responding to pre-determined LANL and LAC facilities. The LAFD provides for the effective use of department resources to conduct PIP visits, obtain and maintain accurate information, organize PIP information in a format that is ready and easy to use during an emergency response, and address training needs based on PIP information and user feedback.

For code enforcement inspections, plans review and construction inspections, the State of New Mexico Public Regulation Commission (NMPRC) adopts a statewide fire prevention code with a provision that local communities can adopt more stringent codes. Currently NMPRC has adopted the 2003 International Fire Code with a list of amendments in the New Mexico Administrative Code (NMAC) 10.25.5 and Los Alamos has adopted the 2015 National Fire Protection Association (NFPA) 1: Fire Code including Annex H and I and 2015 NFPA 101: Life Safety Code through Los Alamos County Municipal Code (LACMC) 22-31.

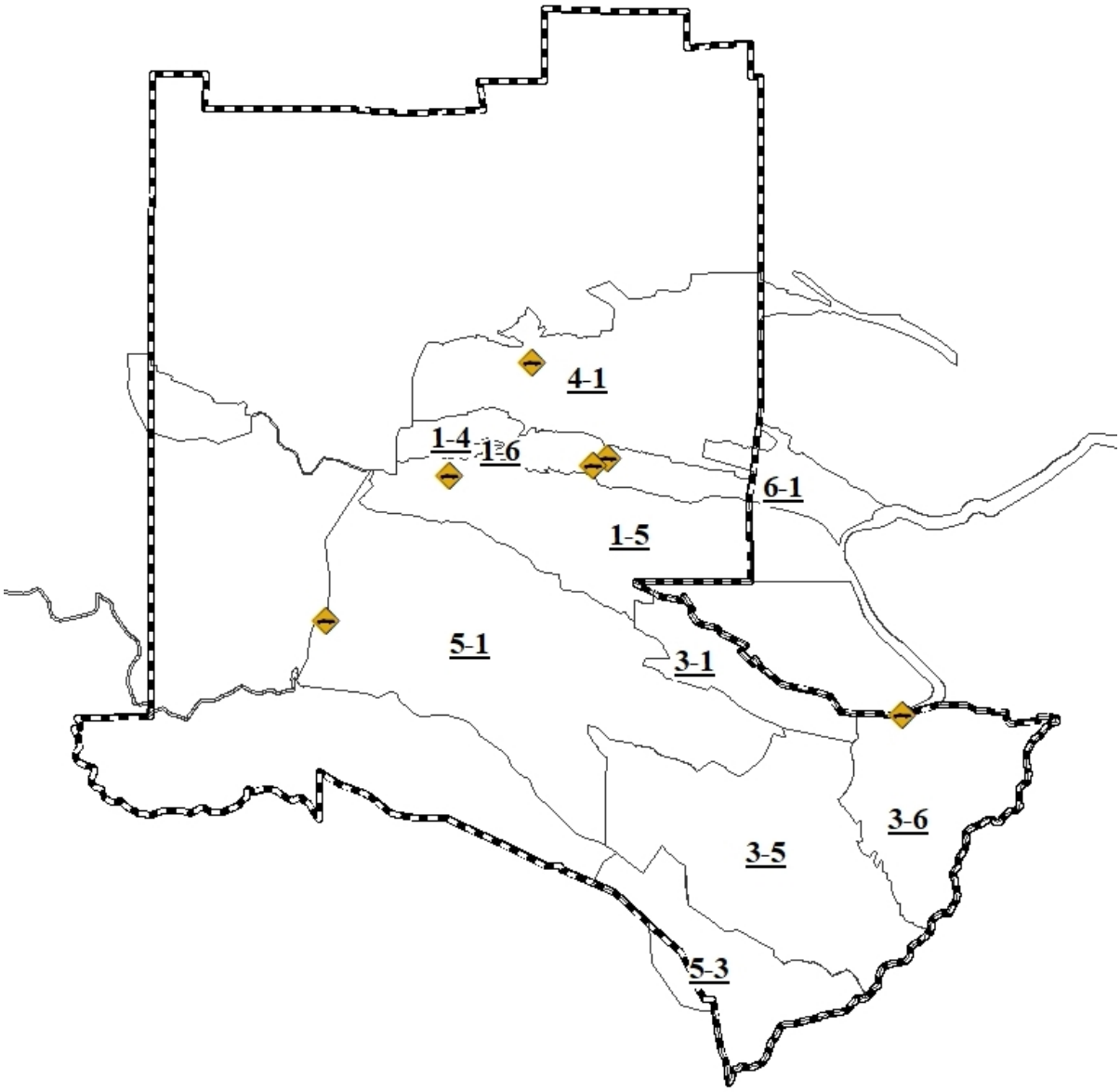
The department is monitoring the State Fire Marshal's Office adoption of more current editions or revisions of codes as they occur. The fire marshal will engage in conversations for future legislative action to adopt the 2015 IFC with reference guidance from NFPA for a new and current set of codes as they apply to LAC. The future adoption of the IFC (2015 edition) will be congruent with NM State Fire Marshal's Office if adopted, which by state law, is a compatible code with the New Mexico Construction Industries Division, (currently the 2015 Building Code). This action will assist community developers, businesses and fire inspectors with LAC providing a cross-walk code platform to work from.

D. Current Deployment and Coverage Areas

There are five active fire stations within LAC, and an Administrative headquarters located in a separate facility. An additional fire station (Station 2) is used for training, including training offices and housing of training apparatus and equipment. The fire stations include locations in the Town of Los Alamos, White Rock, and on the LANL site. These stations are situated to protect both federal and private lands totaling approximately 109.5 square miles. Most of the stations were constructed in the 1950s-1960s with Station 6 completed in 1991 and Station 3 in 2008.

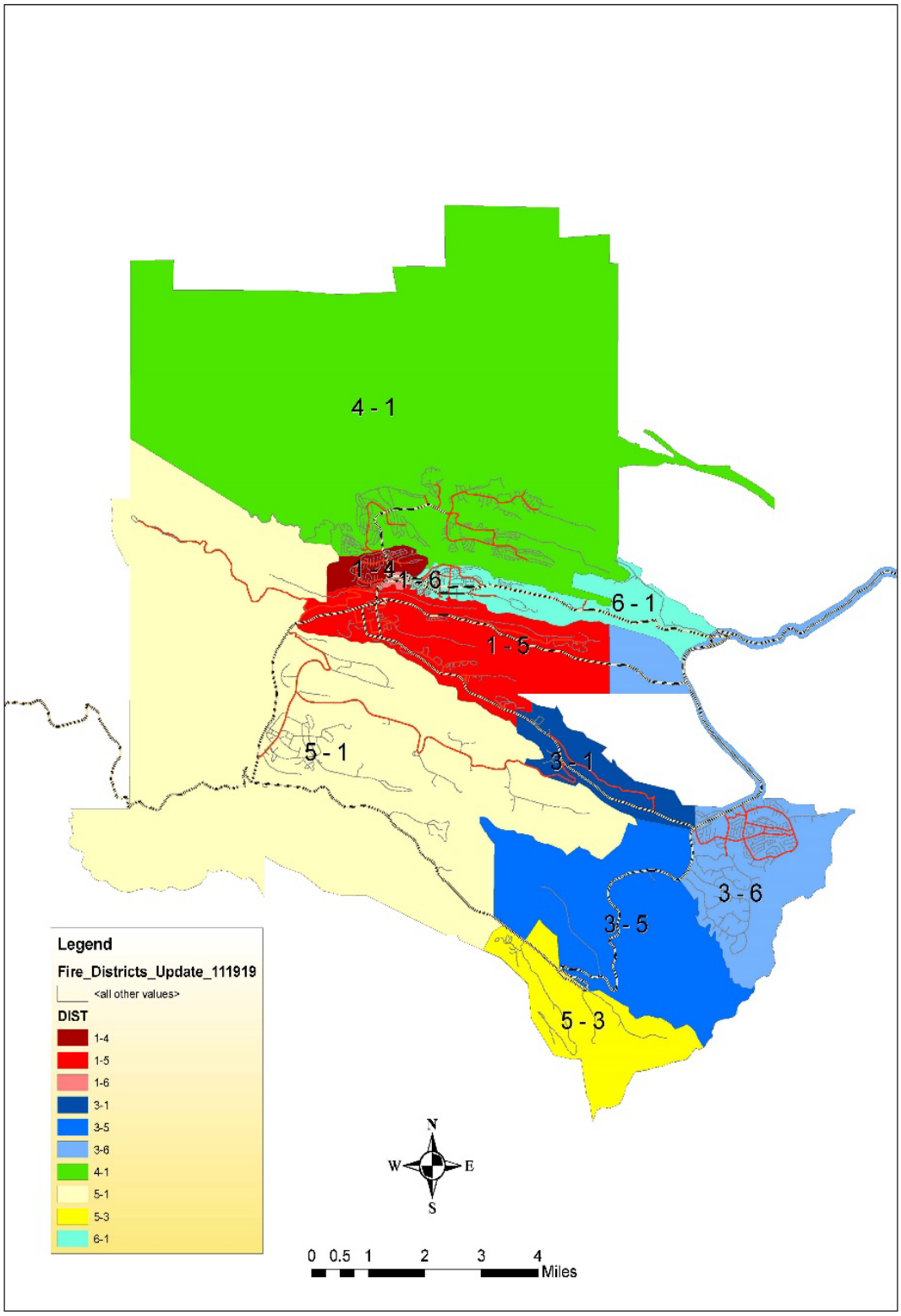
Preliminary discussions are currently being held regarding the replacement of Stations 1 and 5.

Map 16: Fire Station Locations



Points of Service Delivery

Map 17: LAFD Enhanced Fire Response Areas



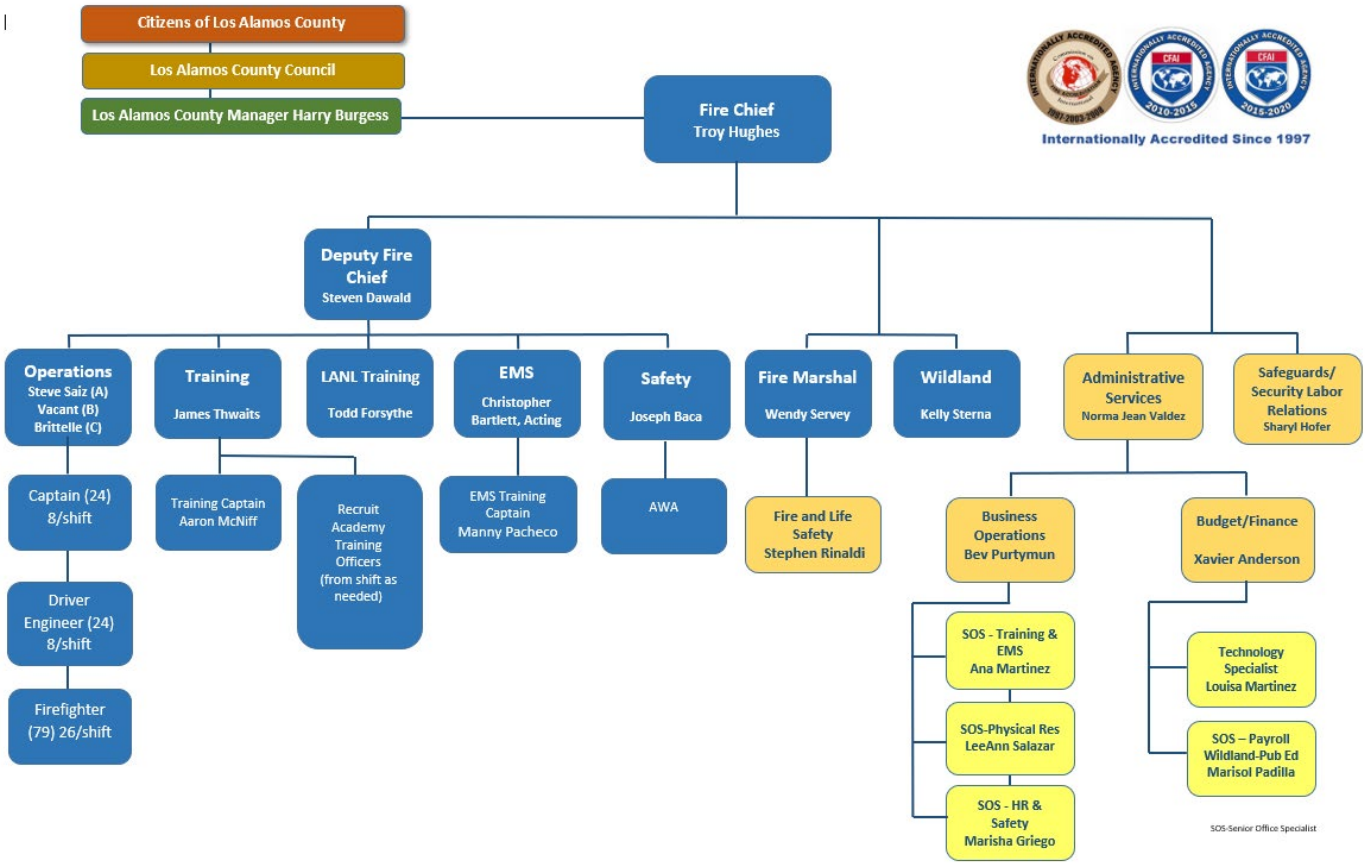
COMMUNITY RISK ASSESSMENT - STANDARDS OF COVER

There are five active fire stations within LAC, and an Administrative headquarters located in a separate facility. An additional fire station (Station 2) is used for training, including training offices and housing of training apparatus and equipment. The fire stations include locations in the Town of Los Alamos, White Rock, and on the LANL site. These stations are situated to protect both federal and private lands totaling approximately 109.5 square miles. Most of the stations were constructed in the 1950s-1960s with Station 6 completed in 1991 and Station 3 in 2008.

The 2018 Los Alamos National Laboratory's Baseline Needs Assessment (BNA) determined that Stations 1 and 5 must be replaced. LAFD and LANL are currently working on identifying building locations and station design. With the addition of these two new stations, the BNA also recommended the hiring of additional staff based on the NFPA High Rise Standard and associated hazards across LANL.

Resources

Figure 3: Organizational Structure



Minimum Deployment Resources

Table 12: Front Line Apparatus

ID NUMBER	DESCRIPTION	YEAR	Capability	Min Staff	Station
Battalion 1	Chevy Suburban	2013	Front Line	2	1
Engine 1	Pierce Arrow	2016	Front Line	3	1
Medic 1	4500 Dodge	2019	Front Line	2	1
Rescue 1	Dodge 550	2016	Front Line	2	1
Truck 1	105' Smeal	2014	Front Line	3	1
Medic 3	4500 Dodge	2019	Front Line	2	3
Medic 30	4500AMB	2012	Front Line	2	3
Engine 3	Alexis Pumper	2018	Front Line	3	3
TRK 3	105' Smeal	2015	Front Line	3	3
Engine 4	Pierce Velocity	2017	Front Line	3	4
Medic 4	4500 Dodge	2019	Front Line	2	4
Medic 5	4500 Dodge	2019	Front Line	2	5
Engine 5	Alexis Pumper	2018	Front Line	3	5
Medic 6	Dodge 4500 HD	2018	Front Line	2	6
Engine 6	Pierce Velocity	2016	Front Line	3	6

Table 13: Reserve Units

ID NUMBER	DESCRIPTION	YEAR	Capability	Min Staff	Station
Battalion 10	2500 Chevy Suburban	2013	Reserve	2	1
Engine 20	E-One Class A Pumper	2003	Reserve	3	2
TRK 10	E-One 75' Aerial	1997	Reserve	3	3
TRK 30	E-One 75' Aerial	2002	Reserve	3	3
Engine 30	E-One 75’ Aerial	2003	Reserve	3	3
Engine 40	E-One Class A Pumper	2003	Reserve	3	4

Table 14: Cross-Staffed Apparatus

ID NUMBER	DESCRIPTION	YEAR	CAPABILITY	MIN STAFF	STATION
Brush Engine 7	Ford Type V Skeeter	2016	Cross Staffed	3	1
Heavy Rescue	Emergency One	2016	Cross Staffed	2	1
Brush Engine 1	Ford 550 Type 5 Wildland Engine	2019	Cross Staffed	2	1
Tender-1	E-One CAF	2002	Cross Staffed	2	1
Tender-2	E-One CAF	2003	Cross Staffed	2	2
Polaris 3197	Polaris Ranger ATV (6x6) 800	2013	Cross Staffed	1	2
Hazmat 1	E-One Rescue Cyclone	2014	Cross Staffed	2	3
Brush Engine 3	Ford 550 Type 5 Wildland Engine	2019	Cross Staffed	2	3
Tender 3	E-One CAF	2002	Cross Staffed	2	3
Mobile Command	E-One MCU	2004	Cross Staffed	1	3
Polaris	Polaris Ranger ATV (Red)	2010	Cross Staffed	1	3
Brush Engine 8	Internat'l Type IV Wildland	2016	Cross Staffed	3	4
Brush Engine 4	Ford 550 Type 5 Wildland Engine	2019	Cross Staffed	2	4
Tender 4	E-One CAF	2002	Cross Staffed	2	4
Polaris 3198	Polaris Ranger ATV (4x4) 800	2013	Cross Staffed	1	4
Brush Engine 5	Ford 550 Type 5 Wildland Engine	2019	Cross Staffed	2	5
Tender 5	E-One CAF	2002	Cross Staffed	2	5
Polaris	Polaris Ranger ATV	2012	Cross Staffed	1	5
CFR-6	E-One CFR	2003	Cross Staffed	1	6
Brush Engine 6	Ford 550 Type 5 Wildland Engine	2019	Cross Staffed	2	6
Tender-6	E-One CAF	2003	Cross Staffed	2	6

Note: Cross Staffed vehicles are staffed at the shift battalion chief or station captain's discretion. Staffing of reserve trucks is based on the nature of the call and the capabilities of the responders. For example, if Hazmat 1 is needed in District 4 and there are three HM Techs on Truck 3 and only one on Engine 3, the Truck 3 crew would likely cross-staff Hazmat 1.

Table 15: Support Units

ID NUMBER	DESCRIPTION	YEAR	CAPABILITY	MIN STAFF	STATION
Admin 1	Chevy Equinox	2013	Support	1	Fire Admin
Chief 1 (Fire Chief)	Ford Expedition	2016	Support	1	Fire Admin
Chief 2 (Deputy Chief)	Dodge RAM Power wagon	2016	Support	1	Fire Admin
Chief 3 (Wildland DCh)	Dodge RAM Power wagon	2016	Support	1	Fire Admin
Chief 4 (FSLM DCh)	Chevy Tahoe (Unit #1185)	2013	Support	1	Fire Admin
Chief 5 (Safety DCh)	2500 Dodge	2013	Support	1	Fire Admin
Chief 6 (EMS DCh)	Chevy Suburban	2019	Support	1	Fire Admin
Chief 7 (Training DCh)	Dodge RAM Power wagon	2016	Support	1	Fire Admin
Chief 8 (LANL DCh)	Dodge RAM Power wagon	2016	Support	1	Fire Admin
EMS 1 (Trng Coord)	GMC Terrain	2013	Support	1	Fire Admin
Prevention 1 FLSM	Dodge Ram 2500	2018	Support	1	Fire Admin
UT1	2500 Dodge	2013	Support	1	1
Training 1	2500 Dodge	2013	Support	1	2
Training 2	Chevy Passenger Van	2016	Support	1	2
UT3	2500 Dodge	2013	Support	1	3
UT4	2500 Dodge	2013	Support	1	4
Prevention Truck	Chevy CK3	2016	Support	1	4
UT5	2500 Dodge	2013	Support	1	5
UT6	2500 Dodge	2013	Support	1	6
UT7	2500 Dodge	2018	Support	1	Fire Admin

Fire Stations, Training Facilities, Apparatus, Equipment, and Staffing

LOS ALAMOS FIRE STATION, 1950'S

LOS ALAMOS FIRE STATION, 2019

Built in 1952, **Fire Station 1** located on West Jemez Road houses some of the department's most sophisticated response equipment. Station 1 has five bays, three of which are drive-through bays. Response units from this station include 1 Engine, 1 Ladder Truck, 1 Light Rescue, 1 Medic Unit, and the battalion chief vehicle. Cross-staffed units include a Heavy Rescue, a 2200-gallon Water Tender and a Type VI Wildland Engine. This station has sleeping, living, and work areas overhead and additional work and storage areas in the lower level east wing. Station 1 is owned by the Department of Energy (DOE) and located on DOE property. This station's first response is to most of the major sites at LANL and a small portion of the county. Some of the apparatus from this station respond to all other districts in the county based on the nature of the emergency.

Station 1 has a minimum of 12 personnel on duty. Staffing consists of one battalion chief, one captain that serves as the support officer (SO), two additional captains (CO), three driver engineers (DE), and six firefighters (FF). Of the personnel assigned at Station 1, at least two are licensed paramedics.

Table 16: Fire Station 1 Resources

ID NUMBER	DESCRIPTION	YEAR	Capability	Min Staff
Battalion 1	Chevy Suburban	2013	Front Line	2
Engine 1	Pierce Arrow	2016	Front Line	3
Medic 1	4500 Dodge	2019	Front Line	2
Rescue 1	Dodge 550	2016	Front Line	2
Truck 1	105' Smeal	2014	Front Line	3
Brush Engine 7	Ford Type V Skeeter	2016	Cross Staffed	3
Heavy Rescue	Emergency One	2016	Cross Staffed	2
Brush Engine 1	Ford 550 Type 5 Wildland Engine	2019	Cross Staffed	2
Tender-1	E-One CAF	2002	Cross Staffed	2
Battalion 10	2500 Chevy Suburban	2013	Reserve	2
UT1	2500 Dodge	2013	Support	1

See Appendix J for program and fleet photos.

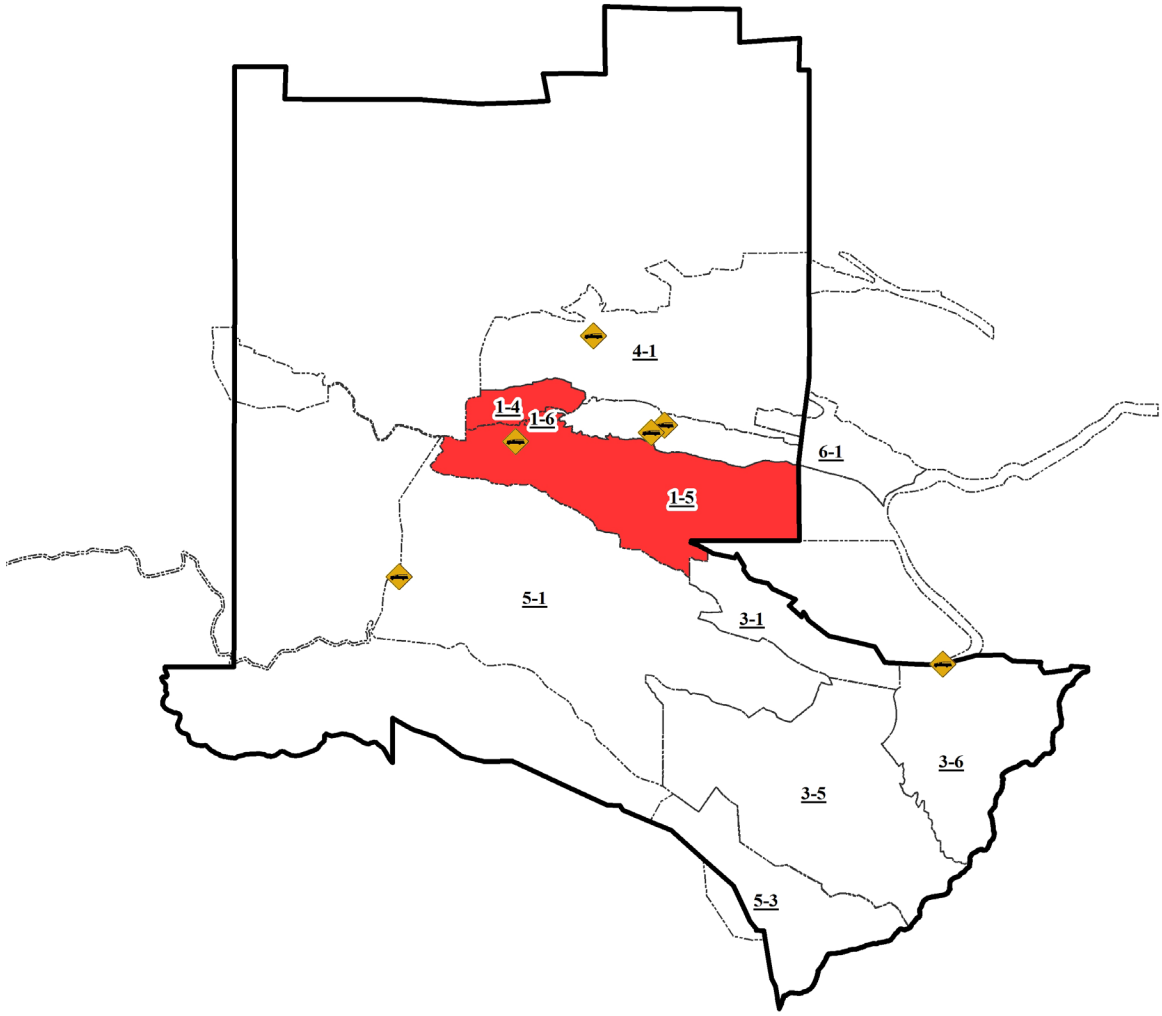
Response District Boundaries

District 1-4 - From the north end of the Los Alamos Bridge and all areas West of Diamond Drive and Canyon Road intersections; from Diamond Drive to the North Road and Diamond Drive intersection, not including the intersection; all Los Alamos High School property; Denver Steels, Olive, Orange, and Nickel Street area, Ridgeway Drive (Both sides of Diamond Drive).

District 1-5 - From the north end of Los Alamos Bridge to include all of Los Alamos Canyon; East Jemez Road, to County Line (TA 72); Pajarito Road to the intersection of TA 51; West Jemez Road to West Road intersection, excluding Camp May Road.

District 1-6 - From the intersection of Diamond and Trinity Drive to include 3301 Canyon Road (Caballo Peak Apartments) to include the Trinity side access; Canyon Road all areas and occupancies up to and including 3700 Canyon Road (Catholic Church); from the north end of the Los Alamos Bridge and all areas East of Diamond Drive and Canyon Road intersections to include TA-43 and LAMC.

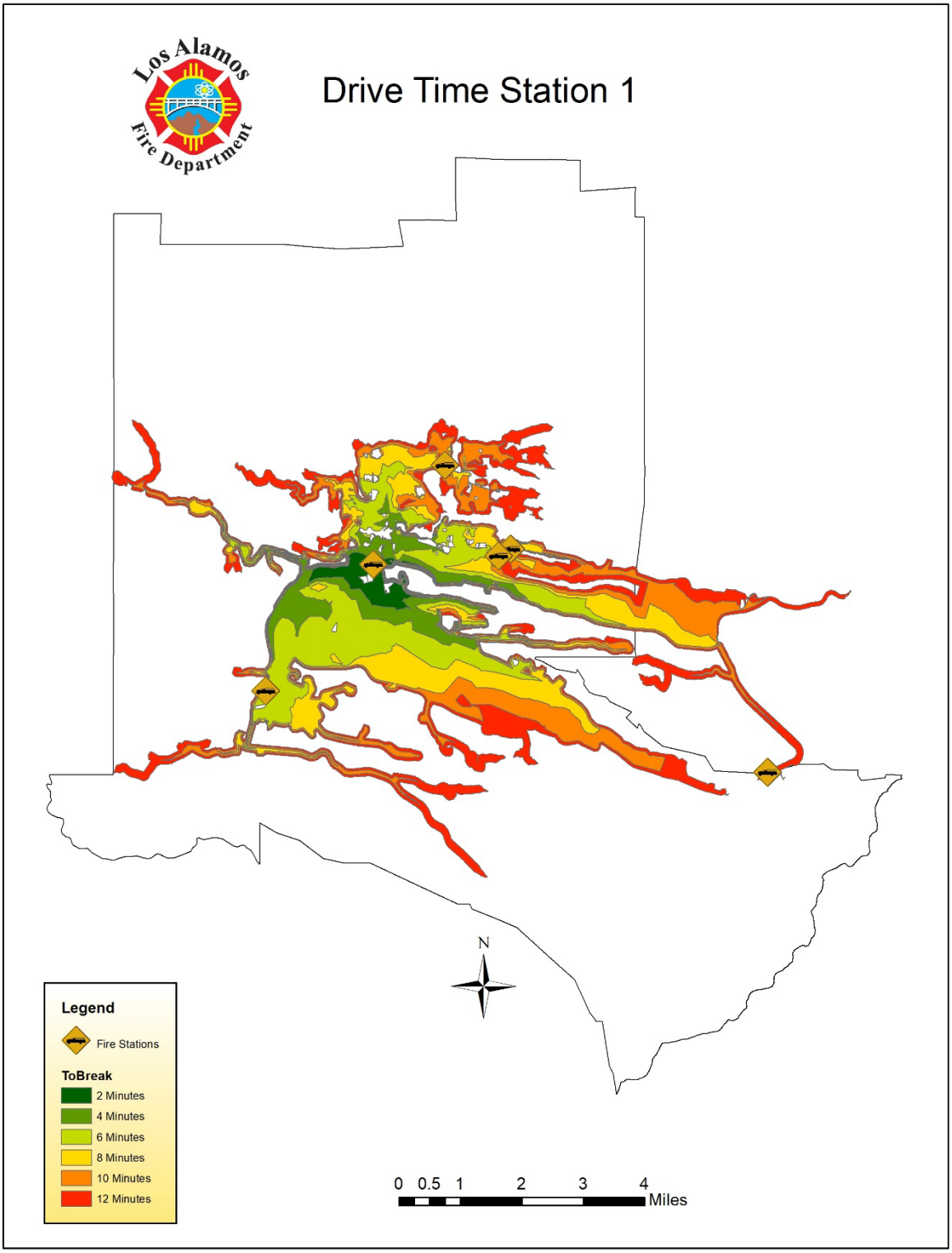
Map 18: Station 1's First Due Response Area



Special considerations and challenges for the Station 1 response area include:

- The largest hazard in District 1 is the Los Alamos National Laboratory (LANL) which is the majority of the response area. Much of LANL's mission involves processes and projects that may produce nuclear, radiological, chemical, biological and electrical hazards.
- The Los Alamos County ice rink is located in Los Alamos Canyon which presents some access issues due to the curvy, narrow single-lane road. Also, due to the property bordering the Department of Energy, notifications to LANL Emergency Management are required in the event their property becomes involved in the incident.
- Located at Diamond Drive and West Jemez Road is the Vehicle Access Point (VAP), a LANL security access checkpoint that could cause delays during peak traffic hours.
- The 180 space Elk Ridge mobile home park located in the district presents challenges with water supply due to the fact that there are only two privately maintained hydrants in the park with unreliable water pressure. Due to that fact, tenders are deployed to incidents in this area to ensure adequate and reliable water supply.
- A ~7 mile stretch of State Road 501, known as the "Truck Route" runs from State Road 4 to West Jemez Road. It is a major vein into and out of the laboratory property and gets quite congested. Accidents on this stretch of highway pose a higher threat to responders due to the speed limit and narrow curvy roads. In addition to the road and speed risks, wildlife is often present on this road and pose an additional hazard.
- New development of multi-story condominiums expected in 2020 just east of the Los Alamos Medical Center at 35th and Finch. The development will increase the population in this district. Increased traffic during construction is expected.
- The Los Alamos Medical Center, the only hospital in the county and is one of the larger target hazards in the district.
- Additional target hazards include the county's only high school and University of New Mexico Los Alamos Branch campus (with about 1000 students each).
- Some of District 1's response area borders US Forest Service property to the north and west. The main canyon in the district is Los Alamos Canyon, which is a large wildland-urban interface (WUI). This canyon has extremely steep terrain with very dense forest (pine trees and scrub oak) which did not burn in the last two major fires.

Map 19: Drive Time - Station 1



Fire Station 2 owned by the county was built in 1951 and is home to the LAFD Training Division. It is located on DP Road near the entrance from Trinity Drive, with access directly to DP Road. Converted from a response station in 1989, it is now used exclusively for ongoing training for current staff as well as for new recruit academies. On the 1.9-acre property sits a four-story concrete training tower and a two-story station with two apparatus bays, living quarters, offices, and a training room. Also, on the drill yard are a confined space rescue prop, ventilation prop, a search and rescue facility, a Denver drill prop, Bullex propane burn car, and a pump test pit. In 2011, LAFD completed the construction of a Firefighter Practical Learning Center at which live fire burns and other practical training evolutions are conducted. The LAFD strives to achieve excellence through a well-qualified, confident and high performing workforce.

Staffing consists of one training officer (captain) who can backfill Monday through Friday in the event of a significant event that taxes resources.

Table 17: Fire Station 2 Resources

ID NUMBER	DESCRIPTION	YEAR	Capability	Min Staff
Polaris 3197	Polaris Ranger ATV (6x6) 800	2013	Cross Staffed	1
Tender 2	E-One CAF	2003	Cross Staffed	2
Engine 20	E-One Class A Pumper	2003	Reserve	3
Training 1	2500 Dodge	2013	Support	1
Training 2	Chevy Passenger Van	2016	Support	1

See Appendix J for program and fleet photos.

The mission of the Training Division is to provide personnel with the highest level of training and education to ensure the safety, preparedness, effectiveness, and career development of personnel while meeting all contractual, state, federal, and local mandates.

The LAFD bases its training off the Insurance Services Office (ISO) required training for fire departments. ISO requires all operational firefighters to conduct 192 hours of company training, 6 hours of hazmat training, and 18 hours of facility training. Driver engineers are required to do an additional 12 hours of driver training and company officers are required to do an additional 12 hours of officer training.

The training facility gives LAFD the ability to simulate real-life emergencies with several training buildings and props.

- Burn Building: within the burn building firefighters can train on live-fire situations as well as rescue profiles. There is a sprinkler system inside the building which allows training on connecting to and supplementing a sprinkler system. The facility is constructed with steel doors that allow firefighters to train on breaching a locked door.
- Training Tower: the training tower is used for training on breaching walls, conducting rescues, standpipe, laddering a building, structural collapse, and it also has anchor points within it that allow for technical rescue high angle and confined space training. The training tower also has a standpipe connection which allows for training on connecting to and pumping a hose line connected to the standpipe.
- Bullex propane burn car, the burn car has four distinct burn zones, smashable lights, pryable hood, and an integrated smoke machine. Firefighters train on extinguishing fires as well as extricating patients from the car.
- Bullex digital fire training system: the digital fire training system combines digital flames, sound, and smoke to create a range of fire conditions that respond to hose line application. This allows firefighters to train on hose and nozzle application on a fire when live fire is not possible.
- Rescue prop, the rescue prop is a building that simulates a building collapse inside. firefighters must crawl throughout the structure in order to conduct a rescue
- Ventilation prop: the ventilation prop is set up so that firefighters can train on cutting open a roof for ventilation.
- Denver drill prop: the Denver drill prop is a confined space rescue, based on lessons learned from a Line of Duty Death that occurred in Denver.
- Pump Test Pit: the pump test pit allows LAFD to conduct its own pump testing on all their apparatus.
- Forcible door prop: the forcible door prop provides the ability to force left or right-handed door, opening in or out, and allows training with a hydraulic rabbit tool.

The Training Division and the facility at Station 2 provide for and maintain the department's preparedness for incident management, fire suppression, fire investigation, wildland-urban interface firefighting, aircraft rescue and firefighting, hazmat response, technical rescue training, emergency medical services training, and other

emergency and non-emergency training. All new hire recruit academies for the LAFD are conducted at this training facility.

Training Requirements

LAFD has many training requirements stemming from various regulatory agencies. The following table illustrates the initial and ongoing training requirements and references the source detailing the type of training, with initial and on-going training requirements, as the standard is interpreted.

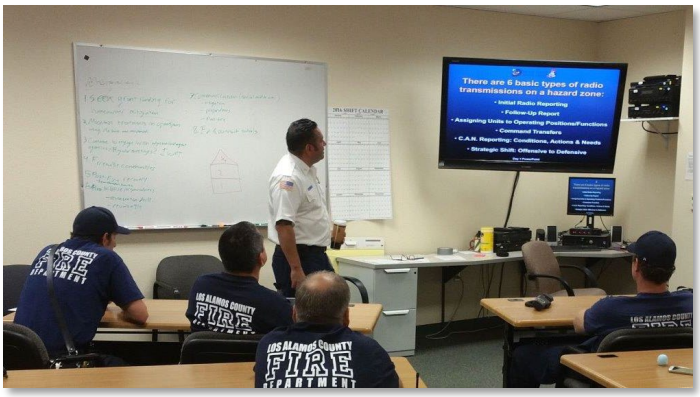


Table 18: Training Requirements Matrix

Area of discipline	Standard or Source referenced	Initial Hours Required	Additional Training Hours or CE/Refresher Required	A=Annually B = Biannually Q = Quarterly M = Monthly
General Safety (hearing, traffic, etc.)	OSHA, NFPA, CFR	16	4	A
Firefighter I & II	NFPA 1001, ISO, NIMS	1,000+	200+	A
Driver Operator	NFPA 1002, ISO	80	12	A
Fire Officer I	NFPA 1021, 1041, ISO, NIMS	40	12	A
Fire Officer II	NFPA 1021, ISO, NIMS	40+	12	A
EMT-B CE	NMDOH EMS Bureau	120	24 Refresher + 24 hrs additional	B
EMT-I CE	NMDOH EMS Bureau	120	30	B
EMT-P CE	NMDOH EMS Bureau, and National Registry	1000+	48	B
Wildland	NFPA 1051, NWCG PMS 310-1, NIMS	40	8	A
Physical Fitness Training	NFPA 1500	N/A	10	M
Technical Rescue Level 1 (high angle, confined space, trench, structural collapse, etc.)	NFPA 1006	40	8	A
Technical Rescue Level 2	NFPA 1006 & 1670, CFR, NMFFTA	80	32	A
Vehicle Extrication	NFPA 1006, NMSFFA	24	8	A
Driver training (EVOC/CEVO/DDC)	NFPA 1002, NM PRC, DOT, & OSHA	16	4	B
Respiratory Protection	NFPA 1001 & OSHA	8	8	A
HazMat	NFPA 1001, 472, 473 & OSHA	40	3	A
Company Training	NFPA 1001	192	192	A
Pre-Incident Plans	NFPA 1001, 1620	4	2	A
Fire Investigation Team	NFPA 921, 1001, 1033	40	8	A
Fire Inspections	NFPA 101, 1001, 1031, 1730	8	8	A
Fire Fighter Survival	NFPA 1001, 1670, 1006, 1983	24	4	A
Weapons of Mass Destruction (WMD)	NFPA 1001 & OSHA	8	N/A	N/A
LANL Security	LANL	2	2	A
LANL Site Specific Training	LANL	*	As needed, assigned or scheduled	*
Radiation Specific	10 CFR 835	24	8	A, B, Q
LANL Medical Screening	NFPA 1500, OSHA	-	-	A

The newest of the stations, **Fire Station 3** was built in White Rock in 2008. This state-of-the-art station has received several national awards for its design and function ability. This station is equipped with 5 large drive-through bays, 24 private sleeping quarters, 12,000 square feet of living quarters, offices, a workout area, and a 65-seat classroom. Staffed with ten personnel, the first due response units include 1 Engine, 1 Ladder Truck, 2 Medic Units, a 2200-gallon Water Tender, and a Type VI Wildland Engine. LAFD's hazardous materials apparatus, HazMat 1, is cross-staffed at Station 3. This station also houses reserve units and response trailers along with the LAFD Mobile Command Unit (MOC). This station is owned by the County.

Staffing consists of two captains, two driver engineers, and six firefighters. One or more of these positions are at the paramedic level.

Table 19: Fire Station 3 Resources

ID NUMBER	DESCRIPTION	YEAR	Capability	Min Staff
Engine 3	E-One Class A Pumper	2003	Front Line	3
Medic 3	4500 Dodge	2019	Front Line	2
Medic 30	4500AMB	2012	Front Line	2
Engine 3	Alexis Pumper	2018	Front Line	3
TRK 3	105' Smeal	2015	Front Line	3
Hazmat 1	E-One Rescue Cyclone	2014	Cross Staffed	2
Brush Engine 3	Ford 550 Type 5 Wildland Engine	2019	Cross Staffed	2
Mobile Command	E-One MCU	2004	Cross Staffed	1
Polaris	Polaris Ranger ATV (Red)	2010	Cross Staffed	1
Tender 3	E-One CAF	2002	Cross Staffed	2
TRK 10	E-One 75' Aerial Boom	1997	Reserve	3
TRK 30	E-One 75' 1250Q	2002	Reserve	3
UT-3	2500 Dodge	2013	Support	1

See Appendix J for program and fleet photos.

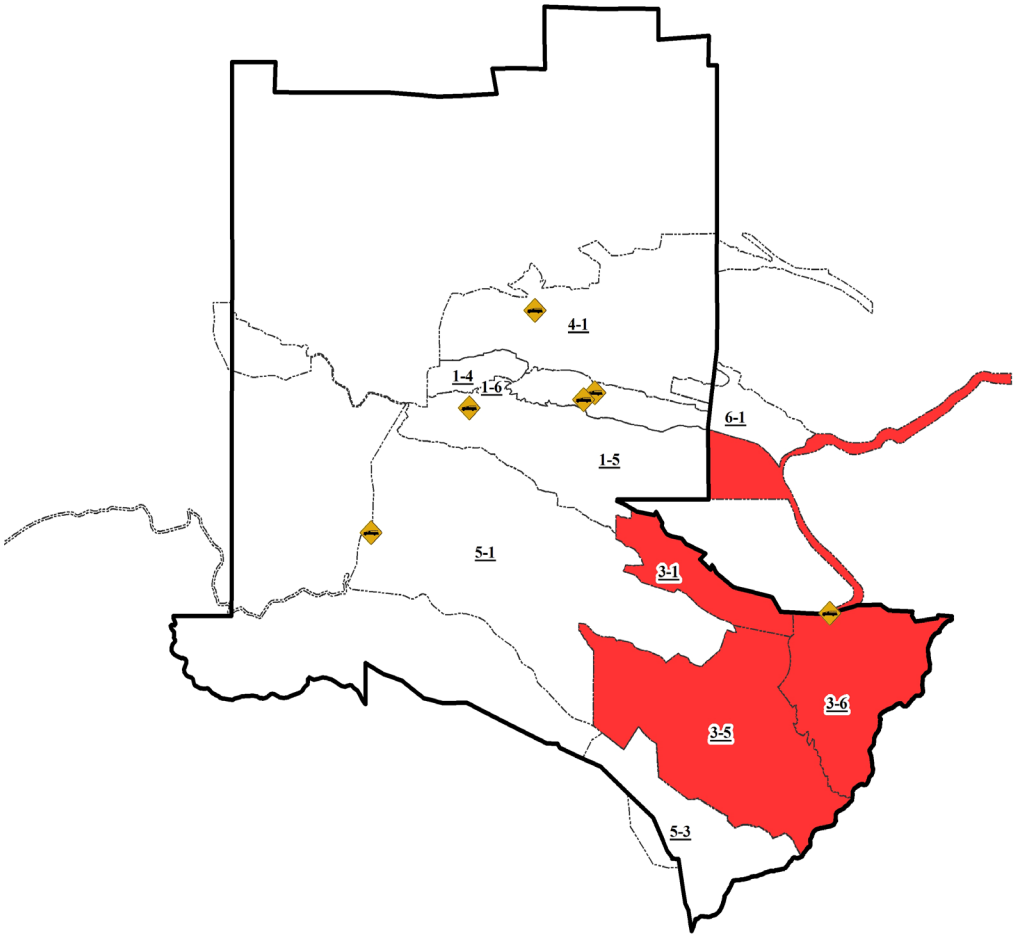
Response District Boundaries

District 3-1 - North on Pajarito Road to include TA 51; Potrillo Road including TA-18 and TA-36 Buildings to the access gate to the firing areas; west on East Jemez to the county line.

District 3-5 - State Road 4 South of South Monte Rey Drive up to TA-33 excluding the intersection (includes TA-39).

District 3-6 - White Rock Proper and Pajarito Acres; State Road 4 North of White Rock Proper to westbound lane of State Road 502 that merges onto State Road 4 to include the State Road 4 and East Jemez and Pajarito Road intersections (including the "Y"); east on State Road 502 to State Road 30, to include the "Twin Tank" area of State Road 502; State Road 4 south to South Monte Rey Drive to include the intersection.

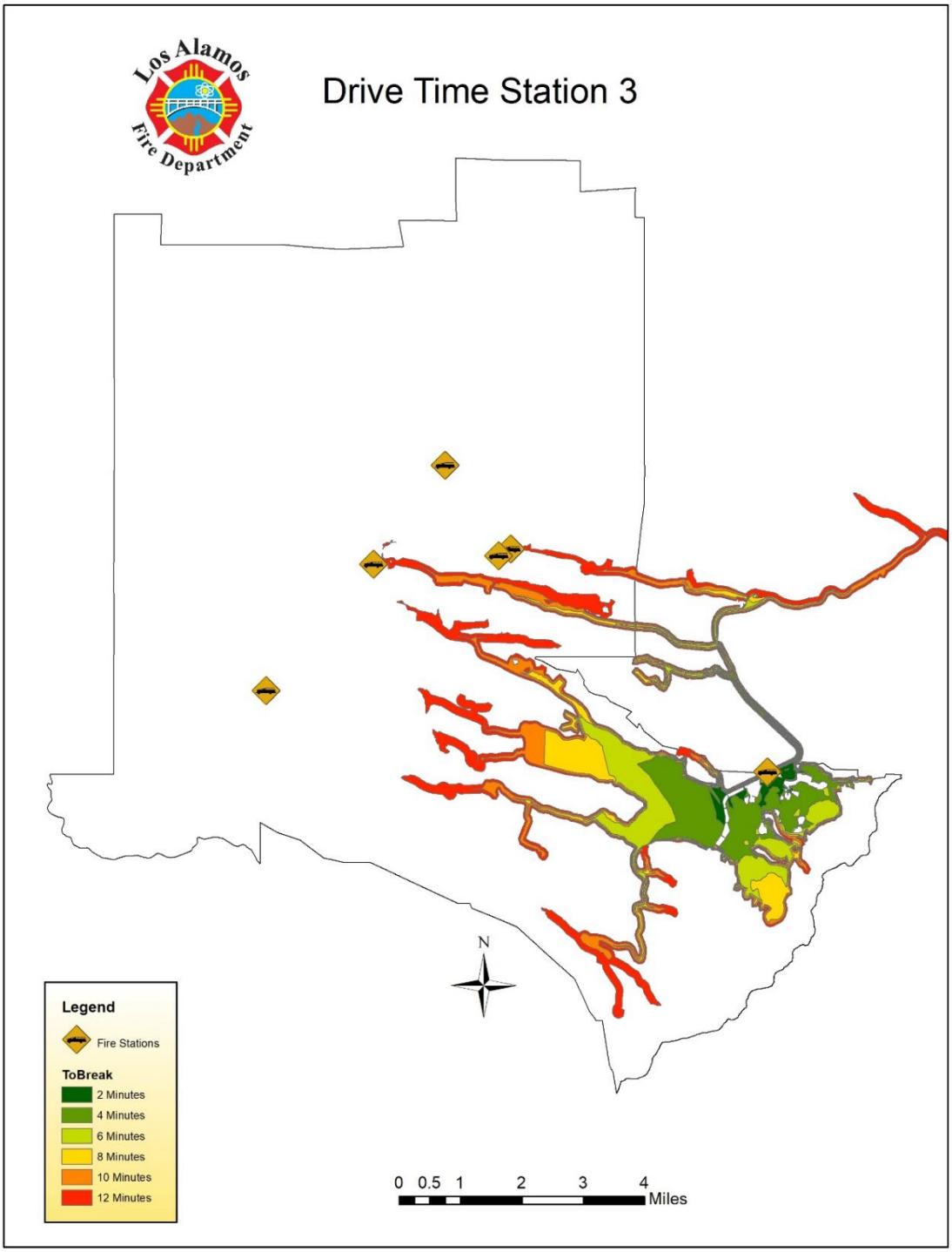
Map 20: Station 3's First Due Response Area



Area characteristics, special considerations, and challenges of Station 3's response include:

- White Rock is a small city within the county, primarily residential, but includes a three-story hotel, two elementary schools, several churches, gas stations, retail, library, RV park, and visitor's center.
- Largest potential in this district for technical rescue due to the topography – steep canyons and loose rock surfaces.
- State Road 4 is the main highway that runs through District 3 bordering Santa Fe county to east and Bandelier National Monument to the south. This narrow, curvy, road poses a higher threat to responders due to the speed limit and narrow curvy roads. In addition to the road and speed risks, wildlife is often present on this road posing an additional hazard.
- District 3 is bordered by tribal lands, Santa Fe County and DOE property. Depending on the nature of the incident, LAFD will interface with the appropriate entities during emergency response.
- High explosive operations take place at LANL technical areas within the district which have resulted in wildland fire incidents.
- A 160-home project is in development off State Road 4 (Pajarito Road to the west, just south of the Visitor's Center) with expectations to be completed by 2020. The development will increase the population and traffic in this district.
- The Overlook Park sports complex is home to several ball fields. Major community events, such as the Annual Kite Festival, Fourth of July event, and other county-wide events are held here drawing in nearly 20,000 people from throughout the region.
- The miles of trail system that intertwine through the district have proven to evoke emergency responses of the technical rescue team primarily on Blue Dot and Red Dot trails.
- "Hell's Hole" is a popular cave at the bottom of Red Dot Trail that draws in hikers, cavers, and curious teenagers to experience the thrill of exploring the cave systems. Due to Hell's Hole's physical configuration in the canyon, the risk of fall is heightened. LAFD has responded to numerous emergencies at this location.
- Opened in 2018, Bee Hive Nursing Home has welcomed a new community of residents to the district.

Map 21: Drive Time - Station 3



Fire Station 4

Fire Station 4 was constructed in 1964 and is in the County's northern community. Through LAC and the NM Fire Protection Distribution Funds, this station was upgraded in 2002, and a separate structure was constructed near the station to house additional apparatus operated by LAFD. In 2018, the station received another upgrade as the bunkroom, bathroom, kitchen, and day area was given a facelift. Fire Station 4 contains five bays with sleeping and living areas on the north side and work and storage areas on the south side. The Annex contains four additional bays and provides additional storage for reserve units. The basement of Station 4 is home to the storage cages for special programs such as uniform/clothing, EMS supply, spare hose, emergency operations equipment, technical rescue equipment, and ground ladder testing equipment, etc. There are five personnel assigned to this station and units assigned to this station include 1 Engine, 1 Medic Unit, a 2,200-gallon Water Tender, and a Type VI Wildland Engine.

Staffing consists of one captain, one driver engineer, and three firefighters. One or more of these positions are at the paramedic level.

Table 20: Fire Station 4 Resources

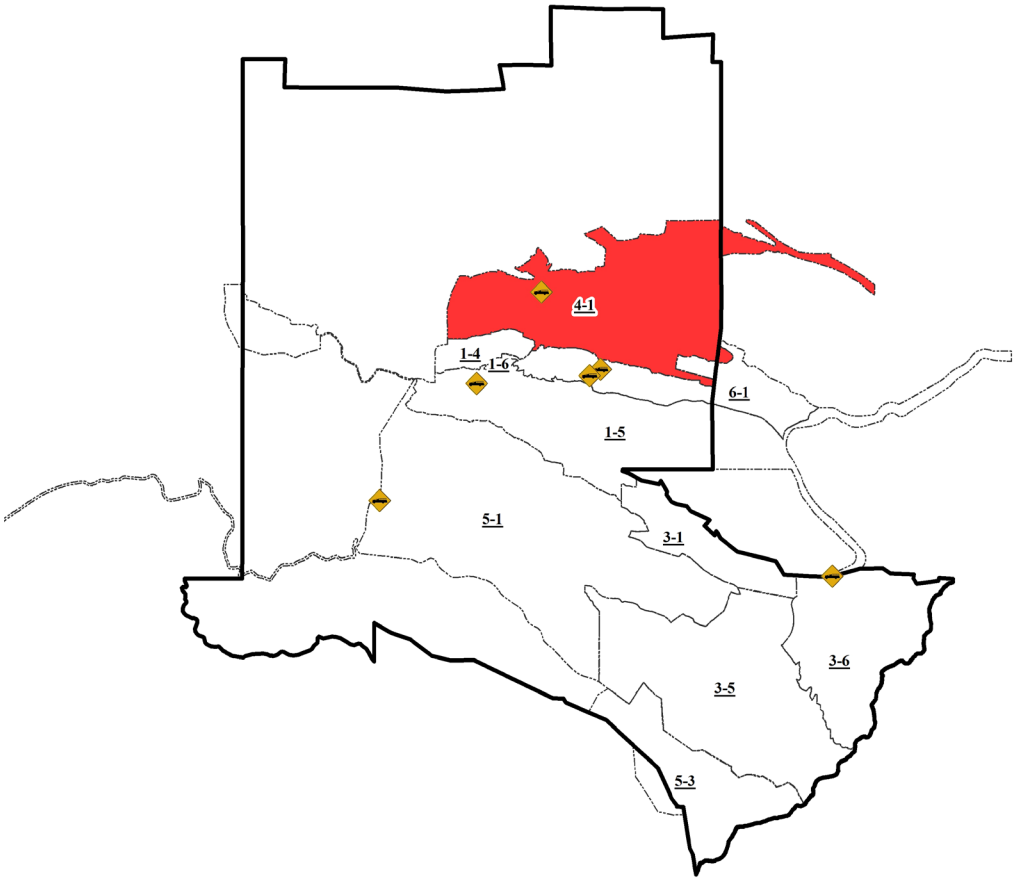
ID NUMBER	DESCRIPTION	YEAR	Capability	Min Staff
Engine 4	Pierce Velocity	2017	Front Line	3
Medic 4	4500 Dodge	2011	Front Line	2
Brush Engine 8	Internat'l Type IV Wildland	2016	Cross Staffed	3
Brush Engine 4	Ford 550 Type 5 Wildland Engine	2019	Cross Staffed	2
Polaris 3198	Polaris Ranger ATV (4x4) 800	2013	Cross Staffed	1
Tender 4	E-One CAF	2002	Cross Staffed	2
Engine 40	E-One Class A Pumper	2003	Reserve	3
Prevention Truck	Chevy CK3	2016	Support	1
UT4	2500 Dodge	2013	Support	1

See Appendix J for program and fleet photos.

Response District Boundaries

District 4-1 - All areas north of the Diamond and North Road intersection, including the intersection; all Quemazon Subdivision.

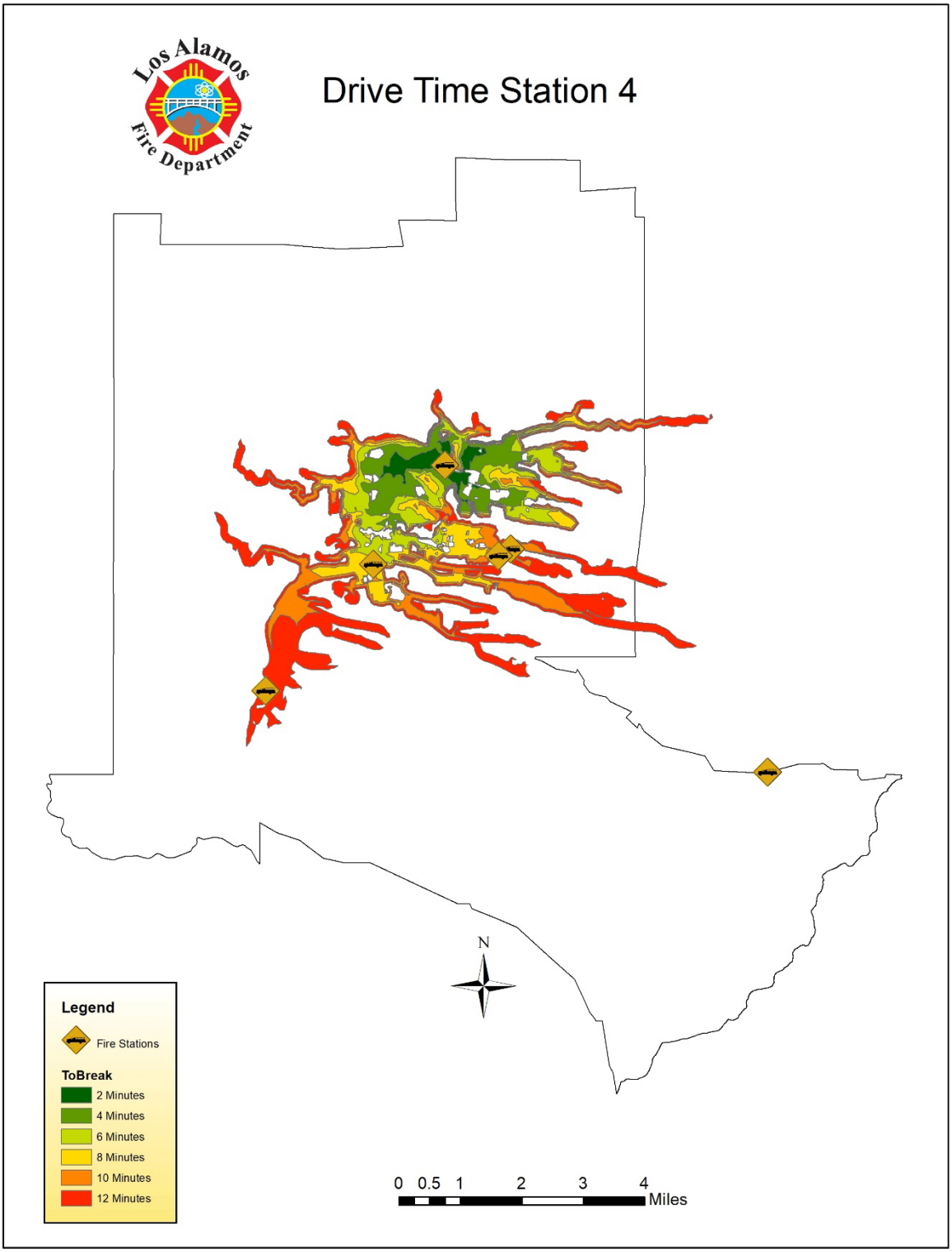
Map 22: Station 4's First Due Response Area



A four-bay Annex located on the Station 4 property houses the department's reserve units.

- District 4 border the US Forest Service to the north and Santa Clara tribal lands to the north and San Ildefonso tribal lands to the east.
- The district is primarily residential with higher-end home values in the Quemazon, Ponderosa Estates, Loma Linda and Barranca Mesa neighborhoods.
- This district includes three elementary schools (Aspen, Mountain, Barranca) and a Montessori school and several churches
- An 18-hole golf course, which includes a pro shop, restaurant/bar, and county offices sits at the center of the district.
- Access into the district is through only one major road (Diamond Drive).
- There is an extensive trail network running through District 4 creating a potential for technical rescue emergencies.
- There are two LANL leased commercial facilities and a retail strip mall in the district.
- A large sports complex, horse stables, sportsman's club (gun range) are located within the district.
- Steep cliff mesas create potential in this district for technical rescue.
- Pockets of urban interface are located throughout District 4.

Map 23: Drive Time - Station 4



Fire Station 5 was constructed in 1952 and is located on LANL property in Technical Area 16 near the intersection of State Highway 502 and State Road 4. The fire station has three bays (two drive-throughs) with direct access to LANL technical areas. This station has sleeping and living areas upstairs and work and storage areas in the lower level. Station 5 is owned by the DOE and is located on DOE property. This station is staffed with five personnel and first-due response units include 1 Engine, 1 Medic Unit, a 2,200-gallon Water Tender, and a Type VI Wildland Engine. This station's main response is to LANL and handles the majority of experimental explosive detonations.

Staffing consists of one captain, one driver engineer, and three firefighters. One or more of these positions are at the paramedic level.

Table 21: Fire Station 5 Resources

ID NUMBER	DESCRIPTION	YEAR	Capability	Min Staff
Medic 5	4500 Dodge	2019	Front Line	2
Engine 5	Alexis Pumper	2018	Front Line	3
Brush Engine 5	Ford 550 Type 5 Wildland Engine	2019	Cross Staffed	2
Polaris	Polaris Ranger ATV	2012	Cross Staffed	1
Tender 5	E-One CAF	2002	Cross Staffed	2
UT5	2500 Dodge	2013	Support	1

See Appendix J for program and fleet photos.

Response District Boundaries

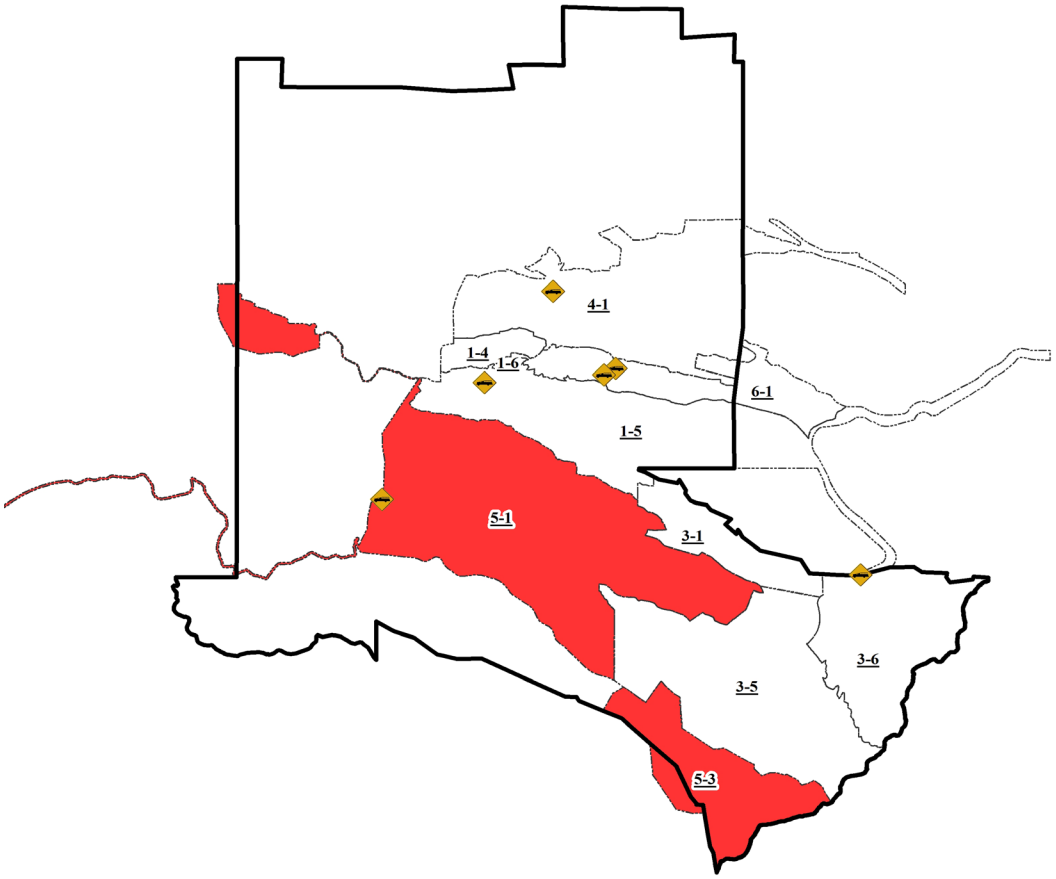
District 5-1

- West Jemez Road from the intersection of West Road to State Road 4.
- SR 4 East to Bandelier, not to include Bandelier National Monument and west to the county line.
- Include TA 57 as directed by BC.
- State Road 4 to TA-57, send second Engine in place of Truck-1 unless directed otherwise by BC.
- Firing areas including Potrillo Road up to the gate west of TA-36, Building 214.
- Camp May Road to Camp May Camp area to include the Ski Hill (send second Engine in place of Truck company unless requested).

District 5-3

- Include all of Bandelier National Monument east on State Road 4 including TA-33. Truck 3 to respond in this district.

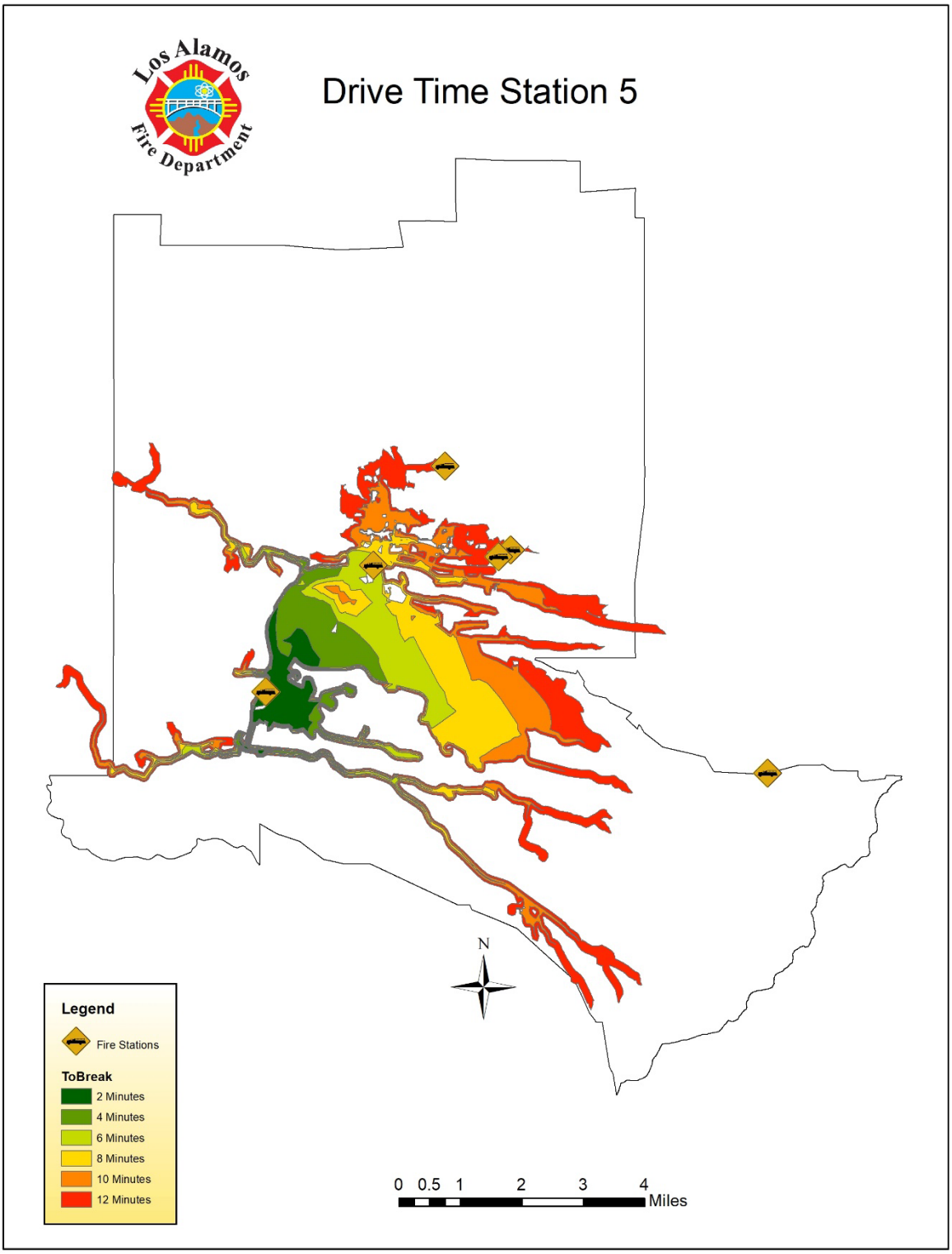
Map 24: Station 5's First Due Response Area



District 5 consists of primarily LANL structures.

- High explosive operations take place at LANL technical areas within the district which have resulted in wildland fire incidents.
- Bandelier National Monument is located in the southeastern section of the district which sees a fairly large visitor population annually that enjoys the vast trail system, petroglyphs, ruins, and campgrounds. There is a small residential population in this area as well.
- Sandoval County borders the district to the south and west. LAFD provides mutual aid when requested by Sandoval County Emergency Services.
- Santa Fe National Forest butts up against the district on the western edge.
- The Pajarito Ski hill falls within District 5's response area.
- Interagency Fire Center is located at LANL's Technical Area 49 and is home to the National Park Service's Bandelier fire crew, US Forest Service helipad, and LANL fire management office.
- Included in TA49 are the LANL hazmat training facilities, training props, and hazardous devices team.

Map 25: Drive Time - Station 5



Fire Station 6 was constructed in 1991 and is located on State Highway 502 on the east side of the Los Alamos townsite and west of the airport. Station 6 has five bays, which four are drive-throughs, with sleeping, living, work and storage areas located on the south side. This station houses five personnel and first-due response units include 1 Engine, 1 Medic Unit, a 2200-gallon Water Tender, a Type VI Wildland Engine, and the Crash Fire Rescue Unit (CFR) for response to the airport. In addition to first in response to the airport, this station is also located directly across from a nursing home and an assisted living facility. Fire Station 6 is owned by the county.

Staffing consists of one captain, one driver engineer, and three firefighters. One or more of these positions are at the paramedic level.

Table 22: Fire Station 6 Resources

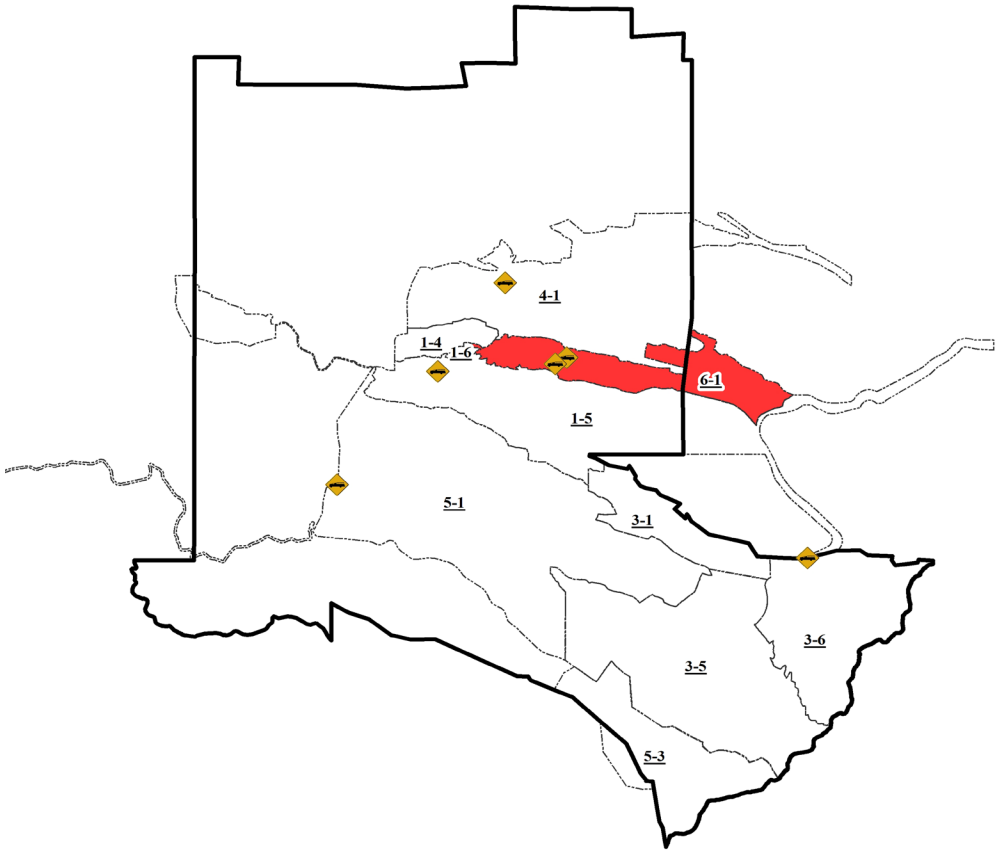
ID NUMBER	DESCRIPTION	YEAR	Capability	Min Staff
Engine 6	Pierce Velocity	2016	Front Line	3
Medic 6	Dodge 4500 HD	2018	Front Line	2
CFR-6	E-One CFR	2003	Cross Staffed	1
Brush Engine 6	Ford 550 Type 5 Wildland Engine	2019	Cross Staffed	2
Tender-6	E-One CAF	2003	Cross Staffed	2
UT-6	2500 Dodge	2013	Support	1

See Appendix J for program and fleet photos.

Response District Boundaries

District 6-1 - Trinity drive from the west entrance of the Canyon View complex; Canyon Road all areas and occupancies east of to include 3200 Canyon Road (including Canyon Village Apartments) to include the intersection; east on State Road 502 to the State Road 4 (White Rock exit and SR-4 onto SR 502 off-ramp), and to the merger of State Road 4 onto State Road 502(excluding the "Y").

Map 26: Station 6's First Due Response Area



- District 6 is the most diverse. It consists of residential, business, commercial, historical and LANL property and is home to the county's business district.
- The Los Alamos County Airport (LAM) located at the easternmost section of the district sees approximately 33 flights per day.
- Sombrillo Nursing Home and Aspen Ridge Assisted living facility are responsible for the district's highest EMS related calls.
- The high-rise buildings in the district include the Los Alamos National Bank and the Senior Apartments.
- State Road 502 "Main Hill Road" is the main thoroughfare into and out of the County through District 6. This road shares the 6000 to 10,000 commuter traffic with the Truck Route.
- In addition to the vast trail network, District 6 enjoys the only two paved trails in the county.
- New development in the district includes the construction of a senior living complex and affordable apartment housing on DP Road and a round-about at the intersections of East Road, Trinity Drive, and Canyon Drive.
- 280 acres of LANL property at the end of DP Road is in the process of being remediated in anticipation of a land transfer to the county for future development.

Map 27: Drive Time - Station 6

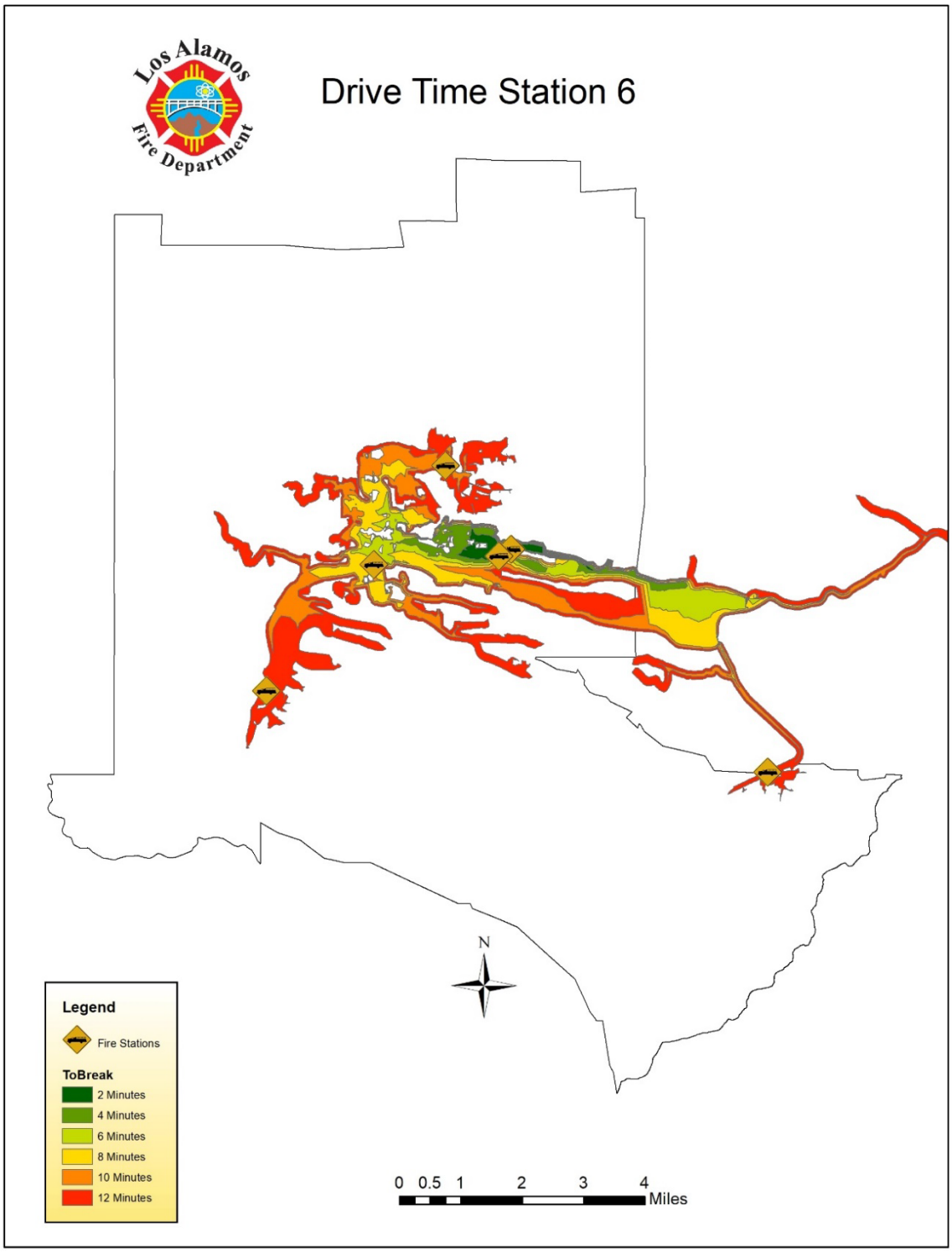


Table 23: Fire Administration Resources

ID NUMBER	DESCRIPTION	YEAR	Capability	Min Staff
Admin 1	Chevy Equinox	2013	Support	1
Chief 1 (Fire Chief)	Ford Expedition	2016	Support	1
Chief 2 (Deputy Chief)	Dodge RAM Powerwagon	2016	Support	1
Chief 3 (Wildland DCh)	Dodge RAM Powerwagon	2016	Support	1
Chief 4 (FSLM DCh)	Chevy Tahoe (Unit #1185)	2013	Support	1
Chief 5 (Safety DCh)	2500 Dodge	2013	Support	1
Chief 6 (EMS DCh)	Chevy Tahoe	2012	Support	1
Chief 7 (Training DCh)	Dodge RAM Powerwagon	2016	Support	1
Chief 8 (LANL Trng DCh)	Dodge RAM Powerwagon	2016	Support	1
EMS Training Captain	GMC Terrain	2013	Support	1
Prevention 1 (FLSM Coord)	Dodge Ram 2500	2018	Support	1
UT7	Dodge Ram 2500	2018	Support	1

The Cerro Grande Fire, May 2000, a prescribed burn by the National Park Service turned into a wildfire that threatened the Los Alamos National Laboratory (LANL) and destroyed 235 structures in and around Los Alamos, New Mexico. In response to the fire, the University of California, on behalf of the United States Department of Energy (DOE), awarded a $16 million contract to provide complete architectural design, engineering, and construction services for a new, state-of-the-art Command and Emergency Operations Center (EOC).

The facility would be jointly used by LANL and the County of Los Alamos — the first joint effort ever between a laboratory and a local government. The devastating fire taught LANL many lessons about emergency preparation, which would be directly applied to the design of the EOC. The two-story, 38,000 square foot facility provides an operations area, interagency coordination room, executive policy isolation room, radio communications center, director and staff offices, training facilities and offices for all emergency agencies in the event of an emergency. The EOC employs about 25 to 30 people day-to-day and about 120 during an emergency.

The EOC provides enhanced and coordinated command and management capabilities. The facility is designed and constructed to strengthened survivability performance standards, which exceed current codes for essential facilities. It also provides the capability for longer-term operations under emergency conditions, offering full self-support capabilities, including stand-by power generation, reserve potable water supply, kitchen, bunkroom, shower, and laundry facilities, and other requirements to independently sustain uninterrupted operations for 14 days.

The EOC provides the highest possible level of security, operational efficiency, and cost-effective self-sufficiency while offering users the comfort and support necessary in extended emergency conditions. Eight vehicle bays accommodate a variety of emergency response vehicles. The facility incorporates a number of sustainable design features and received a Sustainable Design/Pollution Prevention Award from the Department of Energy.

Source: http://www.theaustin.com/case-study/los-alamos-national-laboratory-emergency-operations-center

E. Summary of Community Response History

Table 24: All Calls by Type by Year

ALL CALLS BY TYPE BY YEAR (Including out of jurisdiction responses emergency and non-emergency)								
	2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
1 Fire	45	37	37	36	35	54	53	38
2 Overpressure Rupture, Explosion, Overheat (no fire)	5	4	2	2	7	3	1	0
3 EMS	1245	1242	1243	1298	1491	1586	1540	1649
4 Hazardous Condition (no fire)	66	50	44	48	86	90	113	97
5 Service call	197	197	171	158	174	201	285	254
6 Good Intent Call	51	45	53	64	49	50	87	80
7 False Alarm and False Call	231	261	254	230	202	214	284	264
8 Severe Weather and Natural Disaster	1	11	1	1	1	3	5	21
9 Special Incident Type	15	2	2	4	10	24	16	21
Total	1857	1849	1808	1841	2059	2226	2384	2424
Dollar Loss	$304,602	$24,924	$37,909	$349,853	$565,449	$339,912	$8153	$86,532

F. Community Priorities, Expectations, and Performance Goals

Mission Statement

Los Alamos Fire Department is honored to be entrusted with the safety and welfare of our community. We are dedicated and proud to provide exceptional services for the preservation of life, the environment, and property.

Community Service Priorities

To best dedicate time, energy, and resources to services most desired by its community, the Los Alamos County Fire Department (LAFD) needs to understand what the customers consider to be their priorities. With that, the community stakeholders were asked to prioritize the programs offered by the department through a process of direct comparison. The results were as follows:

Table 25: Community Service Priorities

Programs	Ranking	Score
Emergency Medical Services	1	513
Fire Suppression	2	483
Wildland Fire Services	3	418
Technical Rescue	4	324
Hazardous Material Mitigation	5	312
Domestic Preparedness Planning and Response	6	262
Community Risk Reduction	7	227
Public Fire and Life Safety Education	8	182
Fire Investigation	9	152
Aviation Rescue and Firefighting Services	10	144

Community Service Expectations

Understanding what the community expects of its fire emergency services organization is critically important to developing a long-range perspective. With this knowledge, internal emphasis may need to be changed or bolstered to fulfill the community needs.

Respondents were asked to list, in priority order, up to five expectations they have for the LAFD. Responses were then analyzed for themes and weighted. The weighting of the prioritized responses was as follows: if it was the respondent's first entry, then it received five weighted points. Weighting gradually decreased so that if it was the respondent's fifth entry, then it received one weighted point. The weighted themes were then sorted from the highest cumulative weight to the lowest cumulative weight and listed to follow. The numbers in the parentheses are the cumulative weighted value that correlated with the theme identified. While the themes are listed in prioritized, weighted order, all responses were important in the planning process.

The following are the career field future direction responses of the key stakeholders:

Community Expectations (in priority order)

1. Fire protection and safety - quick response times. Excellent response time. Responsiveness - response time. Respond to medical/fires in a timely manner. Ability to respond quickly and efficiently to all emergencies. Response - timely and efficient. Adequate response time to calls. Respond quickly and safely to any fire, putting life above property, but trying to save property too. (190)
2. Maintain high level of training. Well-trained firefighters and staff. Maintenance of latest training and physical conditioning. Certification/training. Continuous training - fresh, new, innovative practices/skills. Well trained in their job, i.e. firefighting based on the area we live in (high desert, wildfire). Well trained in acute medical care in the field. Interdepartmental training to include communications to build a better relationship. Trained - continuous training and practice. Shared training with LANL so everyone is on the same page in an emergency. (161)
3. Develop fire safety classes to present to the community - campfires, dead trees, yard maintenance. Citizen education - such as wildfire mitigation, smoke detectors. Community fire prevention activities - frequent and effective. Community involvement. Community education on domestic preparedness and response. Education of the individuals and community leaders. Educate the community on fire mitigation, also somehow encourage community members to do mitigation on their properties for their safety and the safety of neighboring homes. (120)
4. Keeping the community safe. In fighting fires, protect life first and property second. Protection of the community. Keep community safe from fire and other hazardous situations. Assured safety for community. Safety of firefighters. (67)
5. Equipment. Big equipment that meets the need. Equipped - top of the line equipment that's fully funded and maintained. (41)
6. Cooperative, effective agreements with other agencies. Partnerships with neighboring communities (commuter population). Provide firefighting or assistance to the region, state, and nation as able. Coordinate with other county departments to achieve safe responses (e.g. natural gas, electric, water emergencies). Communication with other leaders perhaps once/twice a year with hospital leaders/police/etc. - meet to discuss community issues. Better communication with dispatch and involvement of dispatch. Coordination with other public safety services/agencies, including dispatch. Department that coordinates with LANL and local forest service officer. (40)

A complete list of expectations is found in the Strategic Plan appendix.

Historical Performance Goals

In 2015, the department established benchmark performance goals that closely aligned with NFPA 1710 standards of call processing within 60 seconds and turnout within 60 seconds. Baseline performance analysis identified opportunities for improvement and the department began to aggressively pursue several avenues for addressing the gaps. Call processing times exceeded the benchmark objectives. Numerous contributing variables were identified, and steps were taken to address the issues identified. First, it was clear that the department needed to increase data reliability. Standing monthly meetings began with representatives from LAFD and the dispatch supervisors to review response times. Conversations included strategies to address possible issues: interface between CAD and the department's RMS; dispatcher training, quality assurance of incident reports, and other attempts to identify the causes of outliers and how to address them. Acquisition of a Fire-ProQA dispatch protocol with a thorough review and updates to the department's response plans took place in early 2016. In late 2016, the County upgraded to a new CAD system and began efforts for the acquisition and implementation of mobile data terminals to better improve status and collection of processing, turnout and travel times. In mid-2018, 48 MDTs were purchased and placed on all front-line apparatus. Security and access issues continue to be a challenge and the MDT project has not yet been fully implemented; however, an improvement to the data reliability has been realized.

G. Community Risk Assessment and Risk Levels

Risk Assessment Methodology

Methodology (Probability/Consequence/Impact of Event Risk)

Probability is the study of the hazards and what is the likelihood that those hazards can or will create an incident. Probability is determined by reviewing historical run data and frequency of occurrence.

Score	Historical Occurrence	Historical Response	Frequency of Occurrence	Frequency Designation
2	Yearly	Less than 1/qtr in 3 yrs.	Occurs rarely or has very low potential - annual basis	Very Low
4	Quarterly	1-2/qtr in 3 yrs.	Occurs somewhat rarely or has low potential - every six months	Low
6	Monthly	1-12/year	Occurs often or has potential to occur - monthly	Moderate
8	Weekly	13 - 36/year	Occurs frequently or has frequent potential - weekly	High
10	Daily	>36/year	Occurs very often or has great potential - daily	Maximum

Consequence is the study of the magnitude or reasonably expected loss that will be experienced by the response area, community, and citizenry of the area should an incident occur. The magnitude of loss is relative to the categorized risks and the significance to the affected area. Consequence considerations include outcome measures of property and/or life loss, or pain, suffering, fear, and/or sadness.

Score		Loss Value/ Potential Loss	# people impacted	Financial	Life Loss	Emotional	Consequence Designation
2	Individual	Very little or none	1-5	No financial loss	No loss of life	No emotional impact	Very Low
4	Business	</+$70K	6-15	Minor financial loss	Potential loss of single life	Very low emotional impact	Low
6	Multiple People/ Businesses	$70K-$500K	16-50	Moderate financial loss	Loss of a single life	Moderate emotional impact	Moderate
8	Multiple people/ Businesses/ Financial Impact to County	$500K - $1M	51-100	Significant financial loss	Loss of single life with potential loss of multiple lives	Significant emotional impact	High
10	County/ Community/ Region	>$1M	>100	Very high financial loss	High probability of multiple life loss	Very high emotional impact	Maximum

Impact to the department is determined by assessing the required commitment of agency resources for an emergency event category and class mitigation (based upon critical tasks). The study considers the numbers and types of resources needed to control and terminate the incident. Residual draw-down on the coverage system's resources and the capacity to serve other incidents.

Impact Score	Responders	Fire companies to achieve ERF	Impact Designation
2	Five or less	2	Very Low
4	Six to nine	3	Low
6	Ten to fourteen	4	Moderate
8	Fifteen to twenty	5	High
10	Twenty-one or more	6+	Maximum

Planning Areas/Zones

For the municipal areas of White Rock and Los Alamos, established predefined neighborhood zones were used to establish planning zones. For the Los Alamos National Laboratory (LANL), designated Technical Areas on the LANL property were used to establish planning zones.

There are a total of 83 planning areas/zones within the department's response jurisdiction. All zones are mostly rural population density; however, there are pockets of urban clusters and wilderness areas.

Map 28: LAFD Planning Areas

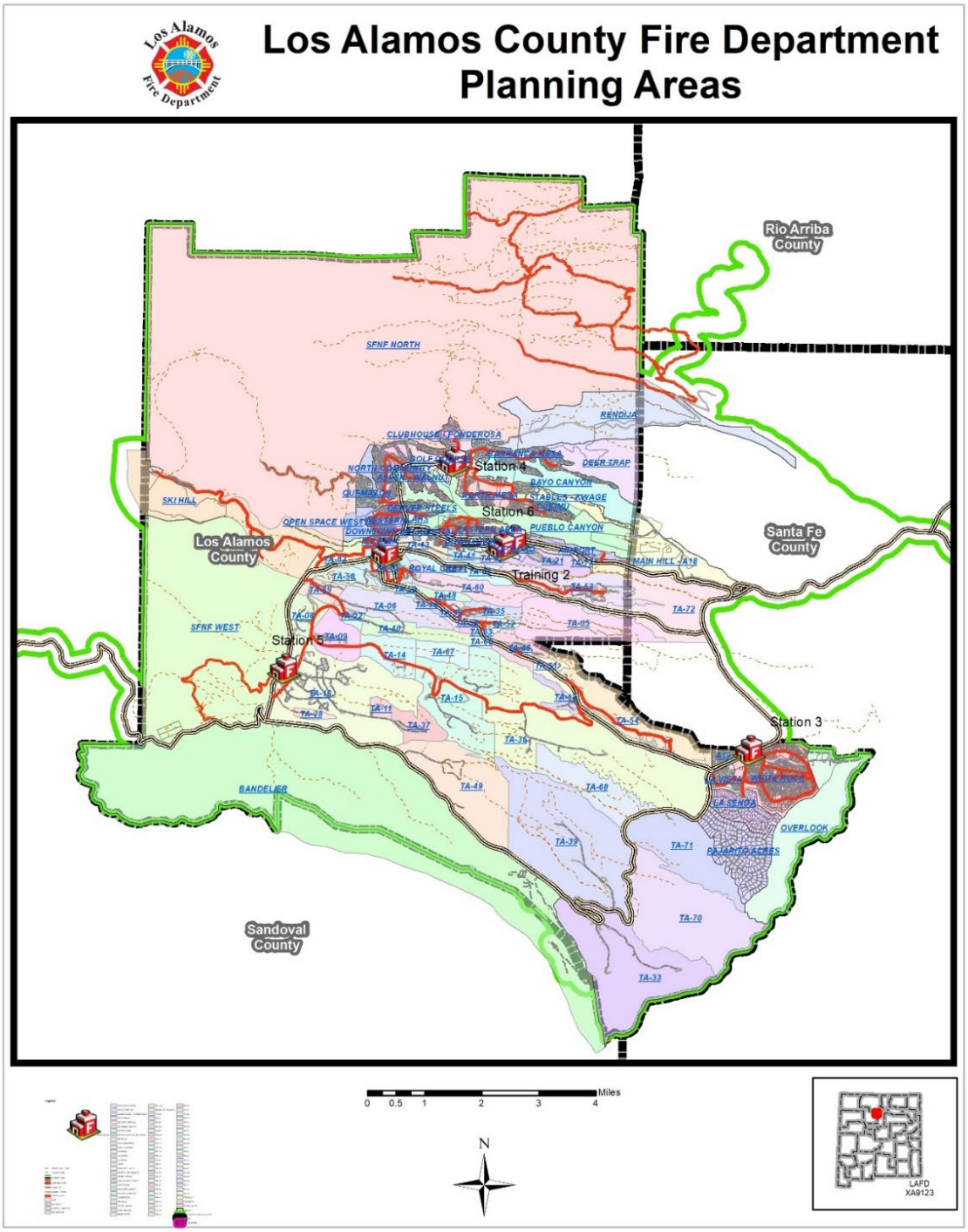


Table 26: District 1 Planning Zones

DENVER STEELS	TA-05	TA-52	TA-62
DOWNTOWN RESIDENTIAL	TA-35	TA-53	TA-63
ICE RINK	TA-41	TA-55	TA-64
LAHS	TA-43	TA-58	TA-66
ROYAL CREST	TA-46	TA-59	TA-72
TA-02	TA-48	TA-60	WESTERN
TA-03	TA-50	TA-61	

Map 29: District 1 Planning Zones Map

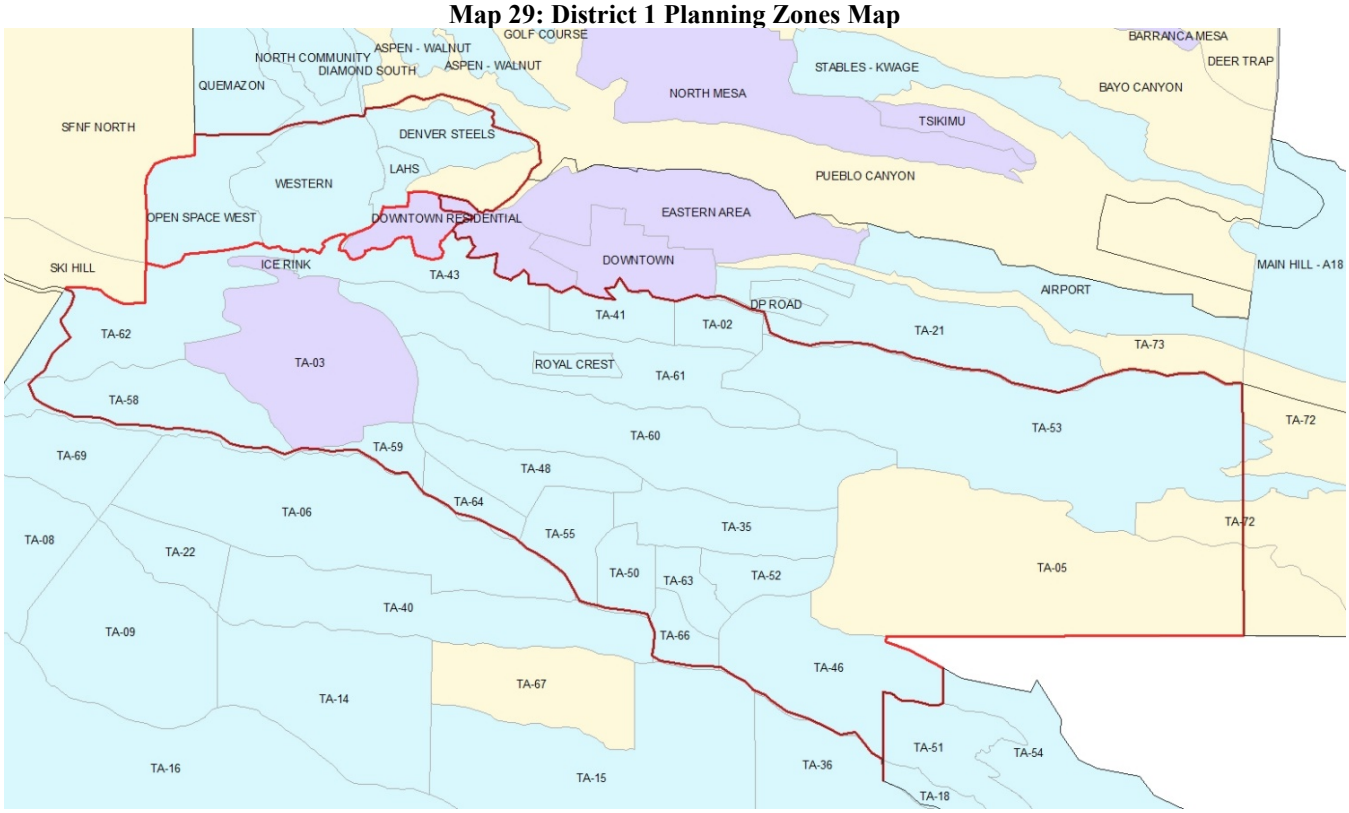


Table 27: District 3 Planning Zones

A19	TA-39
LA SENDA	TA-51
LA VISTA	TA-54
OVERLOOK	TA-70
PAJARITO ACRES	TA-71
TA-18	WHITE ROCK

Map 30: District 3 Planning Zones Map

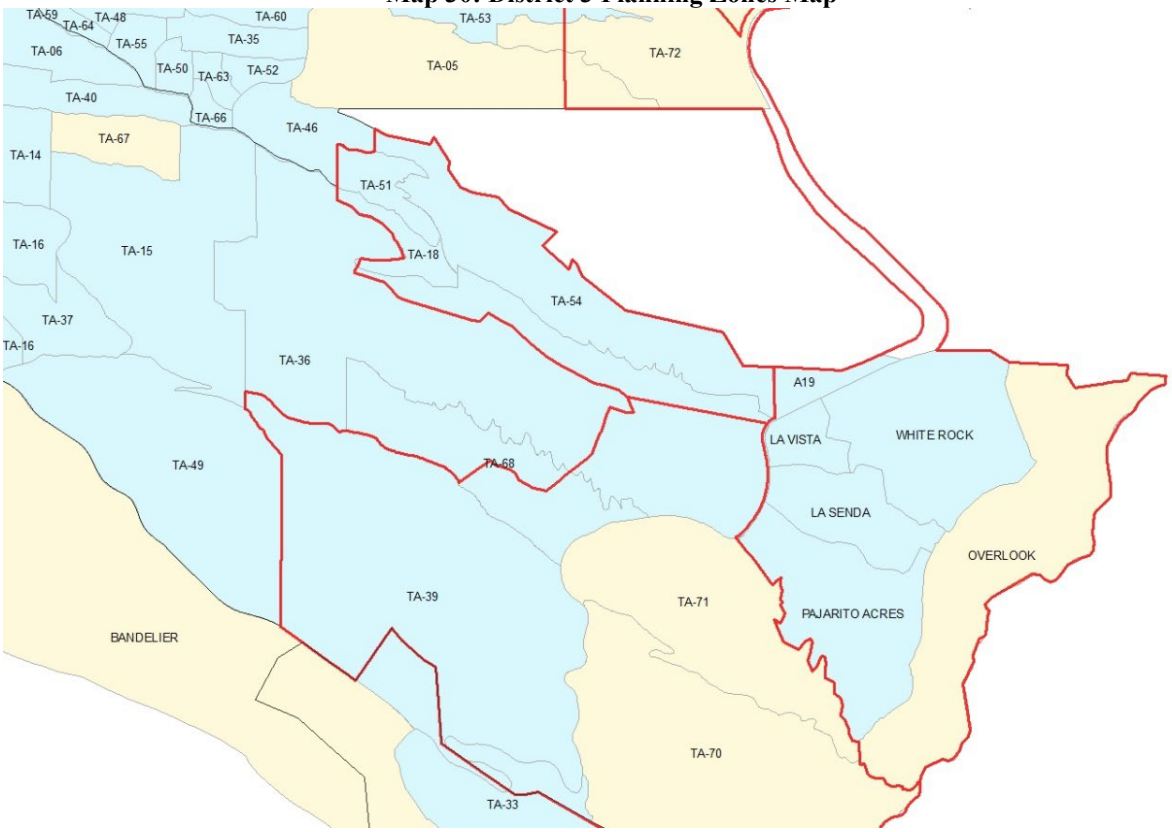


Table 28: District 4 Planning Zones

ASPEN - WALNUT	NORTH MESA
BARRANCA MESA	OPEN SPACE WEST
BAYO CANYON	PUEBLO CANYON
CLUBHOUSE - PONDEROSA	QUEMAZON
DEER TRAP	RENDIJA
DIAMOND SOUTH	SFNF NORTH
GOLF COURSE	STABLES - KWAGE
NORTH COMMUNITY	TSIKIMU

Map 31: District 4 Planning Zones Map

Table 29: District 5 Planning Zones

BANDELIER	TA-22
SFNF WEST	TA-28
SKI HILL	TA-33
TA-06	TA-36
TA-08	TA-37
TA-09	TA-40
TA-11	TA-49
TA-14	TA-67
TA-15	TA-68
TA-16	TA-69

Map 32: District 5 Planning Zones Map

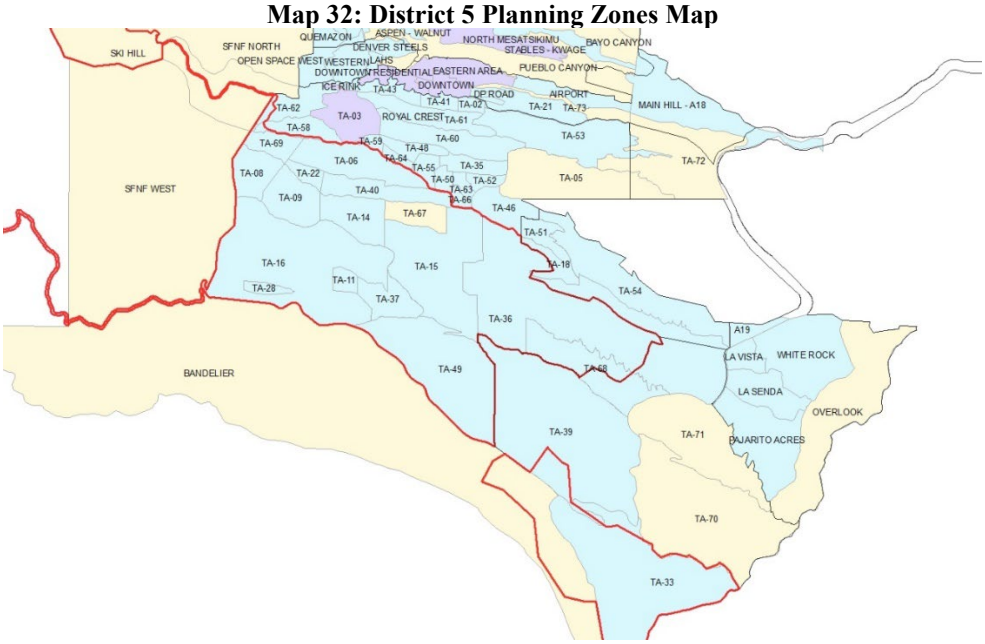
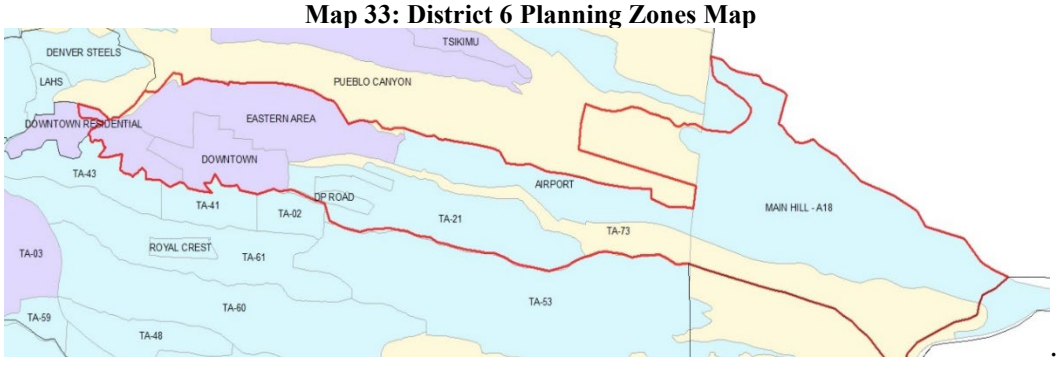


Table 30: District 6 Planning Zones

AIRPORT	EASTERN AREA
DOWNTOWN	MAIN HILL - A18
DOWNTOWN RESIDENTIAL	TA-21
DP ROAD	TA-73

Map 33: District 6 Planning Zones Map



Risk Assessment

The department has used the three-axis methodology to classify risks. A point placed on the Y-axis is indicative of the relative threat (**probability**) that a particular type of incident will occur. A second point placed on the X-axis is indicative of the relative loss (**consequence)** that a particular emergency might have on the community. A third point placed on the Z-axis is indicative of the potential **impact** drawn on the agency, should a particular incident occur. The three points form an inclusive tetrahedron triangle, noting that the triangle is three-dimensional. A numerical value should be assigned by severity to each axis length. Risk classification involves consideration of hazard type and event threat. This is achieved by providing separation and grouping of risk characteristics.

Fire Suppression Services

Low Fire Risk – Risk score of less than 14

Moderate Fire Risk – Risk score of 15-44

High Fire Risk – Risk score of 45-60

Maximum/Special Fire Risk – Risk score of greater than 60

Emergency Medical Services

Low Fire Risk – Risk score of less than 14

Moderate Fire Risk – Risk score of 15-44

High Fire Risk – Risk score of 45-60

Maximum/Special Fire Risk – Risk score of greater than 60

Hazardous Materials Services

Low Fire Risk – Risk score of less than 14

Moderate Fire Risk – Risk score of 15-44

High Fire Risk – Risk score of 45-60

Maximum/Special Fire Risk – Risk score of greater than 60

Technical Rescue

Low Fire Risk – Risk score of less than 14

Moderate Fire Risk – Risk score of 15-44

High Fire Risk – Risk score of 45-60

Maximum/Special Fire Risk – Risk score of greater than 60

Aircraft Rescue Firefighting Services

Low Fire Risk – Risk score of less than 14

Moderate Fire Risk – Risk score of 15-44

High Fire Risk – Risk score of 45-60

Maximum/Special Fire Risk – Risk score of greater than 60

Wildland Services

Low Fire Risk – Risk score of less than 14

Moderate Fire Risk – Risk score of 15-44

High Fire Risk – Risk score of 45-60

Maximum/Special Fire Risk – Risk score of greater than 60

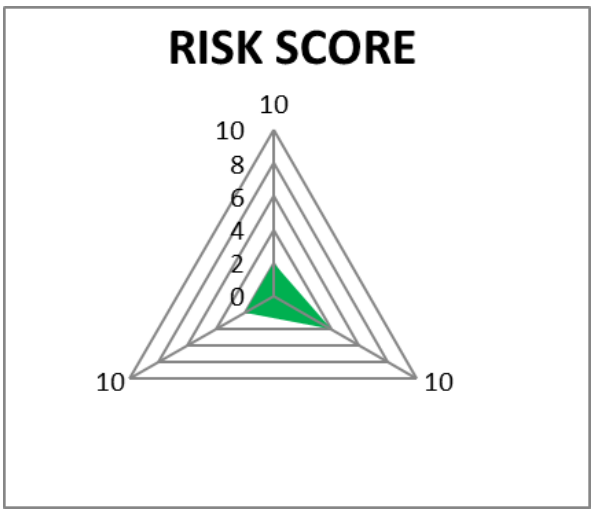
Critical Task Analysis

In conducting the critical task analysis, the department involved the lead personnel for each service type and discipline. Several random scenarios were presented in each area and members were tasked with determining the minimum number of personnel required to perform each task to begin mitigating the situation. The data collection was accomplished through a survey listing the scenarios and all the possible tasks to be performed. When the surveys were completed and submitted, an analysis was conducted to compare the results. The analysis was validated by the deputy fire chief and three operations battalion chiefs resulting in the following critical task analyses. See Appendix I for additional risk scenarios.

Fire Suppression: Low Risk

Dumpster Fire Behind Metzgers (67B01-BEM)

RISK	
Probability of occurrence	2
Consequence to community	4
Impact on Fire Department	2
SCORE	**8.485281374**



Critical Tasks - Fire Suppression: Very Low Impact

Dumpster Fire Behind Metzgers (67B01-BEM)

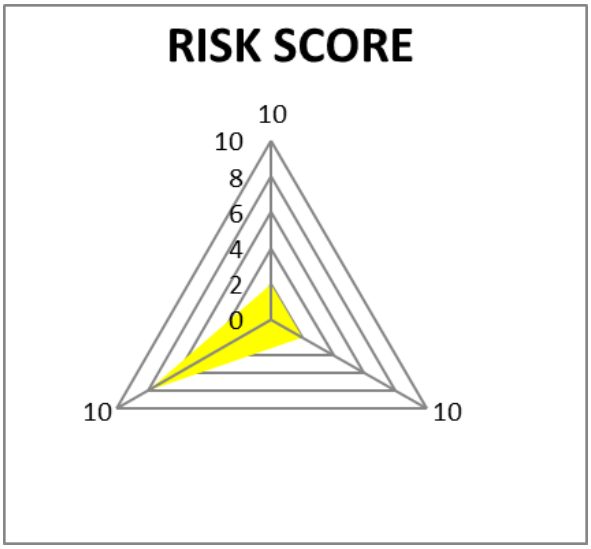
Task	Staffing Level	Units Assigned
Command, Safety, Initial attack	1	Engine (1)
Initial Attack	1	Engine (1)
Pump Ops	1	Engine (1)
Medical backup	2	Medic (2)
Total Personnel	**5**	

COMMUNITY RISK ASSESSMENT - STANDARDS OF COVER

Fire Suppression: Moderate Risk

Mobile home fire (Elk Ridge Mobile Home Park)

RISK	
Probability of occurrence	**2**
Consequence to community	**2**
Impact on Fire Department	**8**
SCORE	**16.24807681**



Critical Tasks - Fire Suppression: Moderate Impact

Mobile home fire (Elk Ridge Mobile Home Park)
Limited water supply (69D10-B2E2MRTK)

Task	Staffing Level	Units Assigned
Command and Safety	2	Battalion and Support Officer
Initial Attack, primary search and rescue, and water supply	4	1st Engine, 1st Medic
Ventilation, Ladder, Access	3	Truck
Backup and Hose line	3	2nd Engine
On Deck and Initial Medical Aid	2	2nd Medic
Secondary Search and Rescue	2	Rescue
Pump Ops/Accountability	1	1st Engine
Total Personnel	**17**	

COMMUNITY RISK ASSESSMENT - STANDARDS OF COVER

Fire Suppression: High Risk

Structure Fire in Multiple-Family Residence (69D02-B (3)E(2)MR(2)TK)

RISK	
Probability of occurrence	**2**
Consequence to community	**8**
Impact on Fire Department	**10**
SCORE	**59.39696962**

Critical Tasks - Fire Suppression: Maximum/Special Impact

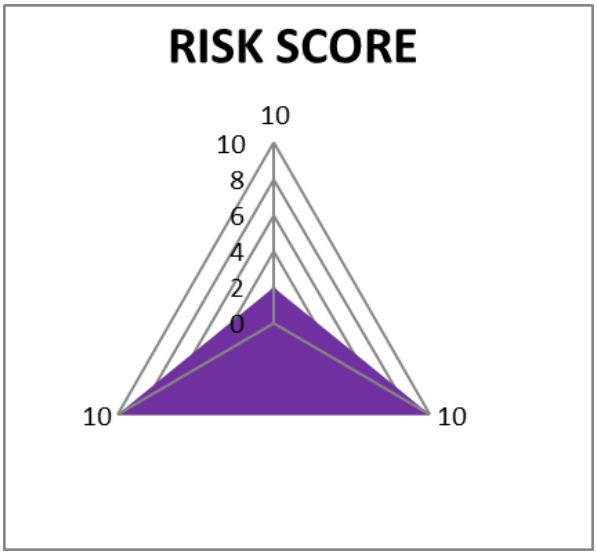
Structure Fire in Multiple-Family Residence (69D02-B (3)E(2)MR(2)TK)

Task	Staffing Level	Units Assigned
Command, Safety, Accountability	2	Battalion (2)
Initial Attack	5	1st Engine, 2nd Engine
Pump Operator	1	1st Engine
Primary Search and Rescue	2	1st Medic
Ventilation and Access,	3	Truck
On Deck	3	3rd Engine
Secondary Search and Rescue	2	Rescue and Heavy Rescue
Back up line, exposures	2	2nd Medic
Staging, Rehab	2	3rd Medic
Total Personnel	**22**	

Fire Suppression: Maximum Risk

Structure Fire in a LANL EPHA Facility (69E02R-B4E3MRHR2TK)

RISK	
Probability of occurrence	2
Consequence to community	10
Impact on Fire Department	10
SCORE	73.48469228



Critical Tasks - Fire Suppression: Maximum/Special Impact
Structure Fire in a LANL EPHA Facility (69E02R-B4E3MRHR2TK)

Task	Staffing Level	Units Assigned
Command, Safety	2	Battalion and Support Officer
Initial Attack	2	1st Engine
Primary Search and Rescue	2	1st Medic
Water Supply	3	2nd Engine
Ventilation, Ladder, Access	3	Truck
Back up and hose line	3	3rd Engine
On Deck	2	2nd Medic
Secondary Search and Rescue	2	Rescue
Pump Ops, Accountability	1	1st Engine
Evacuation, exposures	3	2nd Truck
Field monitoring Coordinate with RCTs	3	4th Engine
Rehab	2	3rd Medic
Total Personnel	**28**	

Emergency Medical Services

Emergency medical incidents are time-sensitive and require the prompt response of an appropriately staffed ambulance or first response unit. There is a direct correlation between the total time from injury/illness to definitive care and positive clinical outcomes. According to the American Heart Association, in a cardiac arrest, irreversible organ damage will occur in four to six minutes. In cardiac arrests, quick EMS response, CPR, and early defibrillation have a direct correlation in decreased mortality.

Medical director protocols have been developed for pre-arrival/arrival medical, trauma, and cardiac arrest responses. These protocols serve as a guide for the initial scene management of an emergency event. The identified positions are assigned as the incident progresses by the incident commander or the responder with the highest level of medical certification on scene.

All first-due units are capable of assessing scene safety and establishing command; sizing-up the situation; conducting an initial patient assessment, and initiate pre-hospital treatment.

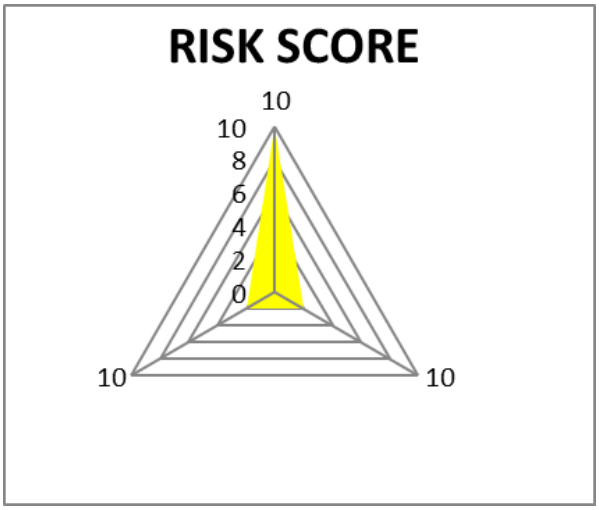
Through the critical tasking analyses, it was determined that all EMS calls were:

Moderate Risk response based on probability, consequence, and impact. Response to emergency medical calls are based upon the emergency medical call plan below:

- **Alpha** calls require an engine and a medic unit response – both respond non-emergency.
- **Bravo** calls require a medic unit and respond emergency. The engine will respond non-emergency.
- **Charlie** calls require an engine and a medic unit response – both respond emergency.
- **Delta** calls require an engine and a medic unit response – both respond emergency.
- **Echo** calls require an engine and a medic unit response – both respond emergency.

EMS: Moderate Risk

Alpha - Echo	
RISK	
Probability of occurrence	**10**
Consequence to community	**2**
Impact on Fire Department	**2**
SCORE	**20.199**



Critical Tasks – EMS (Alpha – Echo)

Task	Staffing Level	Units Assigned
Command and Patient Assessment	1	1st Engine or Medic Unit
Patient Assessment, BLS or ALS	1	1st Engine or Medic Unit
Total – ERF Met	**2**	**Critical Tasking**
On-Deck personnel for any extra patient care/equipment set-up/safety/command/lifting assistance	3	2nd Unit – not included in critical tasking
Total response includes 1 Medic unit and 1 Engine Unit	5	

Multiple Casualty Incident

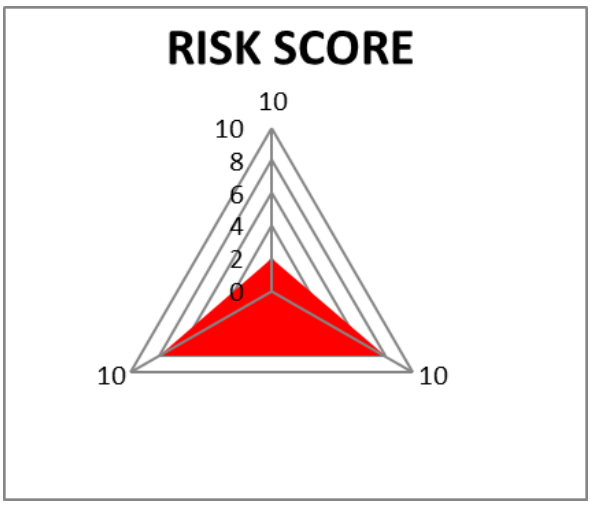
The only difference in EMS response that the validation groups found was in multiple casualty incidents (MCI). MCI response would require additional personnel to mitigate the original incident.

An example would be a school bus rollover with multiple patients, both trapped and ambulatory. This type of incident could require multiple services, technical rescue and an EMS – MCI response.

Critical tasking was also increased due to demand for service with another team call out. The critical tasking with additional team callout was placed at an eight (8) in the risk calculation.

EMS: High Risk

Multiple Casualty Incident	
RISK	
Probability of occurrence	**2**
Consequence to community	**8**
Impact on Fire Department	**8**
SCORE	**48**

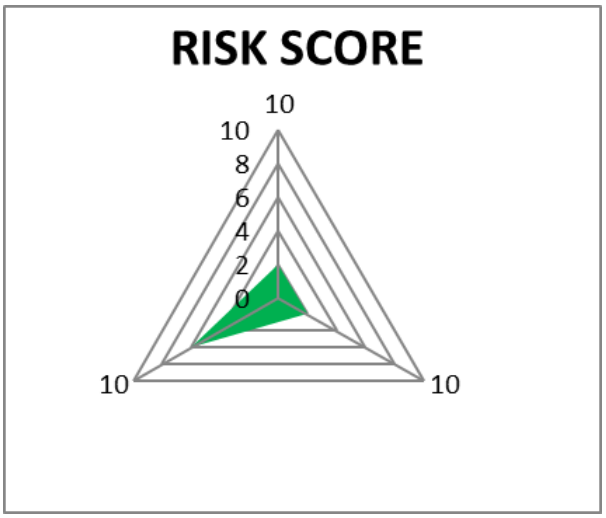


Critical Tasks – EMS: High Risk (Multiple Casualty Incident)		
Task	**Staffing Level**	**Units Assigned**
Command/Safety	2	Battalion Officer
Patient Triage	2	Engine Company EMT/PM
Patient care/transport	4	Medic Units (2)
Equipment Setup	2	Engine Company EMT/PM
Total MCI Personnel	11	Critical Tasking for MCI
Technical Rescue (equipment system setup/operation/patient assessment, patient rescue)	6	Engine, Rescue
Total Response Personnel	**17**	
Response includes 1 Battalion, 2 Engine, 1 Rescue and 2 Medic units.		

NOTE: Air ambulances are available in the cases that the patient's injuries or illness require a greater level of care than Los Alamos Medical Center can provide. Due to the 45 minute or greater drive time to a trauma or STEMI center, air ambulances are utilized to reduce travel time and get the patient to a higher level of care as quickly as possible.

Technical Rescue: Low Risk

Confined Space Rescue		
RISK		
Probability of occurrence		**2**
Consequence to community		**2**
Impact on Fire Department		**6**
SCORE		**12.3288**



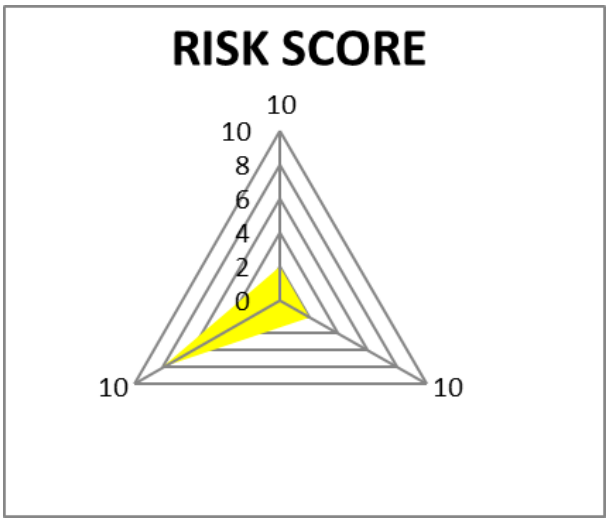
Critical Tasks - Technical Rescue: Moderate Impact

Confined Space Rescue (54C00C) (BEMRHR)

Task	Staffing Level	Units Assigned
Command, Safety & Accountability	2	Battalion
Technical Rescue (equipment system setup/operation /extrication/patient rescue)	5	Engine, Rescue
On Deck	2	Heavy Rescue
Patient Assessment, treatment and transport	2	Medic
Total Personnel	**11**	

Technical Rescue: Moderate Risk

Trench Collapse		
RISK		
Probability of occurrence		**2**
Consequence to community		**2**
Impact on Fire Department		**8**
SCORE		**16.2481**



Critical Tasks - Technical Rescue: High Impact

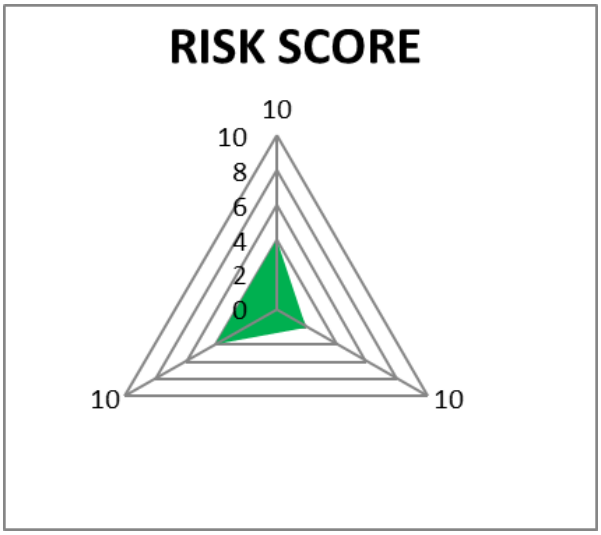
Trench Collapse (54C00T) (BEMRHR)*

Task	Staffing Level	Units Assigned
Command, Safety, Accountability	2	Battalion
Technical Rescue (equipment system setup/operation/patient rescue)	6	Rescue, and Heavy Rescue, Engine
Patient Assessment, treatment, transport	2	1st Medic
Primary Search and Rescue	3	Truck
On Deck, field monitoring of conditions	2	2nd Medic
Total Personnel	**15**	

HazMat: Low Risk

CO alarm sounding (52B01C – EMHAZ)

RISK	
Probability of occurrence	**4**
Consequence to community	**2**
Impact on Fire Department	**4**
SCORE	**13.8564**



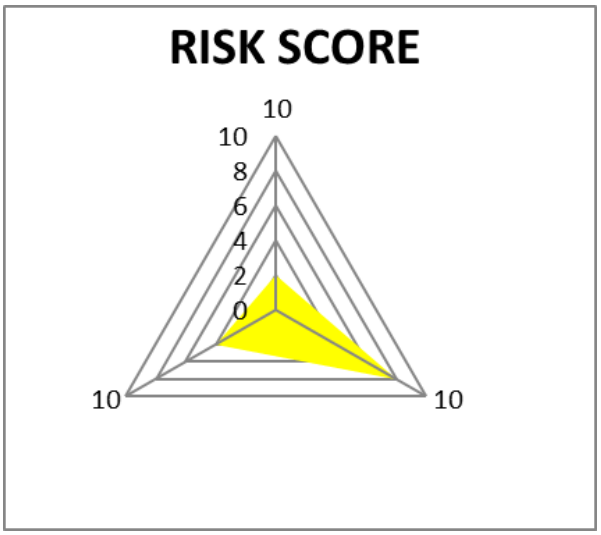
Critical Tasks - HazMat: Low Impact

CO alarm sounding (52B01C – EMHAZ)

Task	Staffing Level	Units Assigned
Command and Safety	1	Engine
Entry and field monitoring	2	Engine
On Deck	4	Medic and Hazmat
Total Personnel	**7**	

HazMat: Moderate Risk

Overturned tanker – fuel spill (59C01W – BEMHAZ)	
RISK	
Probability of occurrence	**2**
Consequence to community	**8**
Impact on Fire Department	**4**
SCORE	**25.923**



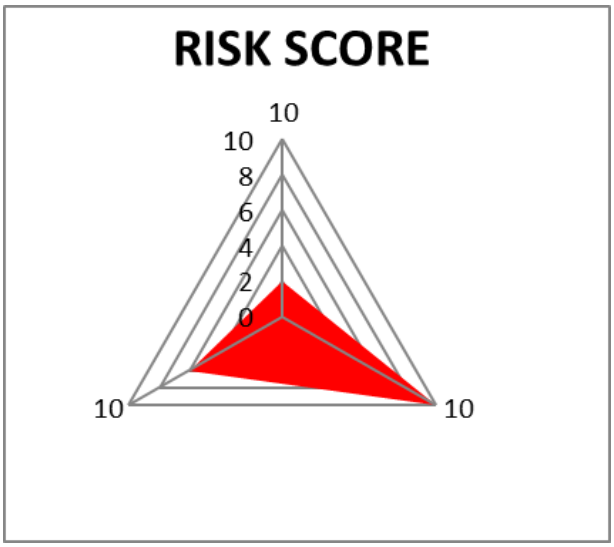
Critical Tasks - HazMat: Moderate Impact

Overturned tanker – fuel spill (59C01W – BEMHAZ)

Task	Staffing Level	Units Assigned
Command and Safety	2	Battalion
Perimeter, spill control	3	Engine
Decontamination (Haz Mat)	2	Medic
On Deck, Field Monitoring	2	Hazmat
Total Personnel	**9**	

HazMat: High Risk

Glove box breach	
RISK	
Probability of occurrence	**2**
Consequence to community	**10**
Impact on Fire Department	**6**
SCORE	**45.5192**



Critical Tasks - HazMat: High

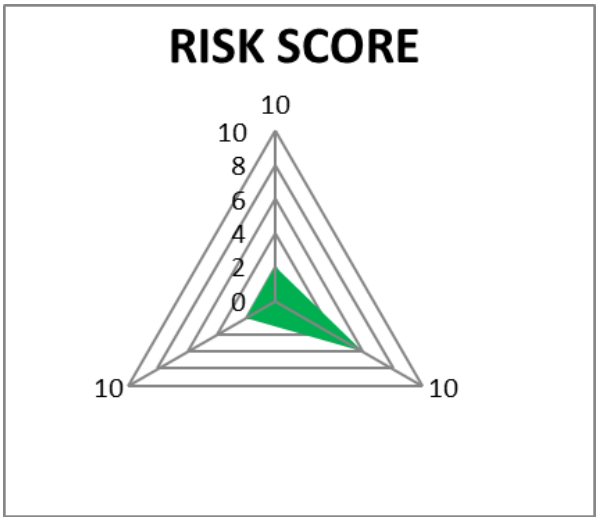
Glove box breach (BEMRTKHAZ)

Task	Staffing Level	Units Assigned
Command and Safety	2	Battalion
Entry (Haz Mat)	2	Engine
Back up (Haz Mat)	2	Rescue
Decontamination (Haz Mat)	2	Hazmat
Field monitoring of conditions	1	Engine
On Deck	5	Truck and Medic
Total Personnel	**14**	

Aircraft Rescue Firefighting: Low Risk

Incoming aircraft with gauge alert, low fuel alert indicator (51A01-EMCFR/T)

RISK	
Probability of occurrence	2
Consequence to community	6
Impact on Fire Department	2
SCORE	12.3288



Critical Tasks - Aircraft Rescue Firefighting: Very Low Impact

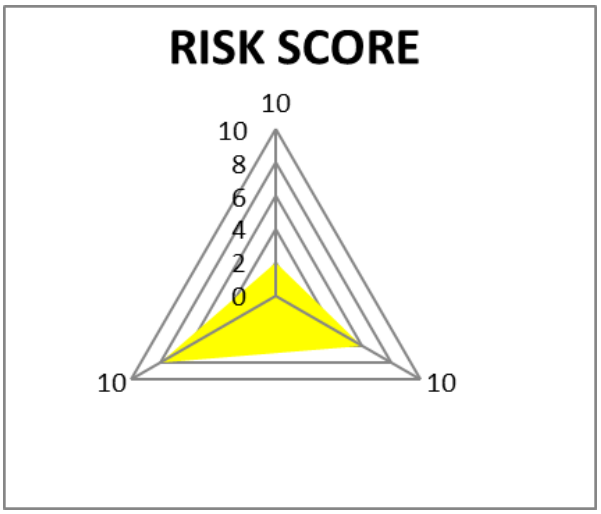
Incoming aircraft with gauge alert, low fuel alert indicator (51A01-EMCFR/T)

Task	Staffing Level	Units Assigned
Command and Safety	1	CFR
On Deck	3	CFR, Medic
Total Personnel	**4**	

Aircraft Rescue Firefighting: Moderate Risk

Medical helicopter at LAMC w/vortex impact with ground (51D01 – B2E2MTRCFR)

RISK	
Probability of occurrence	2
Consequence to community	6
Impact on Fire Department	8
SCORE	36.7696



Critical Tasks - Aircraft Rescue Firefighting: High Impact

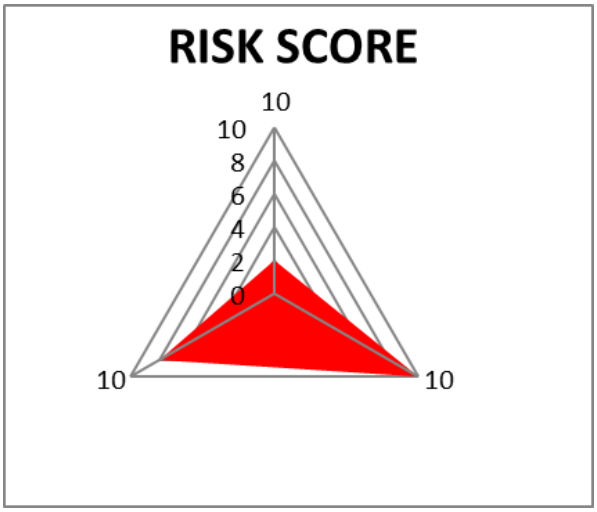
Medical helicopter at LAMC w/vortex impact with ground (51D01 – B2E2MTRCFR)

Task	Staffing Level	Units Assigned
Command and Safety	2	Battalion
Pulling a Safety Protection Line	2	CFR (1) and Engine (1)
Pump Operator	1	CFR (1)
Patient assessment, treatment transport	4	1st Medic (2), Rescue (2)
On Deck (for potential need for fire attack, pump ops, patient assessment, treatment and transport, exposures)	4	1st Engine (2), 2nd Medic
Staging	5	2nd Engine, Tender
Total Personnel	**18**	

Aircraft Rescue Firefighting: High Risk

Aircraft crash into neighborhood (51D02- B2E2MTRCFR)

RISK	
Probability of occurrence	2
Consequence to community	10
Impact on Fire Department	8
SCORE	59.397



Critical Tasks - Aircraft Rescue Firefighting: High Impact

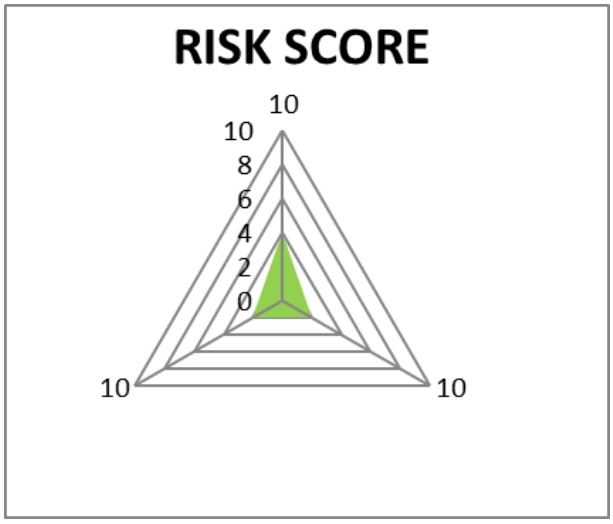
Aircraft crash into neighborhood (51D02- B2E2MTRCFR)

Task	Staffing Level	Units Assigned
Command and Safety	2	Battalion
Pulling a Safety Protection Line	2	CFR (1) and Engine (1)
Pump Operator	1	CFR (1)
Patient assessment, treatment transport	4	1st Medic (2), Rescue (2)
On Deck (for potential need for fire attack, pump ops, additional patient assessment, treatment and transport, exposures)	4	1st Engine (2), 2nd Medic
Staging	5	2nd Engine, Tender
Total Personnel	**18**	

Wildland Firefighting: Low Risk

Abandoned campfire (North Mesa)

RISK	
Probability of occurrence	4
Consequence to community	2
Impact on Fire Department	2
SCORE	8.48528



Critical Tasks - Wildland Firefighting: Very Low Impact

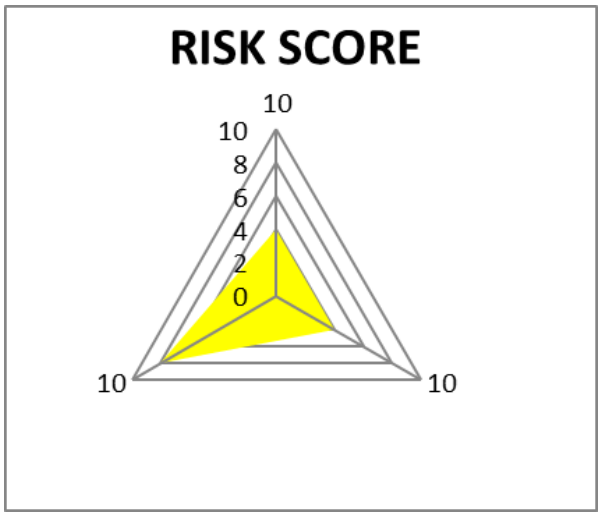
Abandoned campfire (North Mesa) (67B01) (BEM)

Task	Staffing Level	Units Assigned
Command	1	Engine
Initial Attack	1	Engine
Pump Ops	1	Engine
Total Personnel	**3**	

Wildland Firefighting: Moderate Risk

Chart Area *Fire from Shot Activity*

RISK	
Probability of occurrence	4
Consequence to community	4
Impact on Fire Department	8
SCORE	33.9411



Critical Tasks - Wildland Firefighting: High Impact

Fire from Shot Activity (67D02) (B2EM2T2M-T)

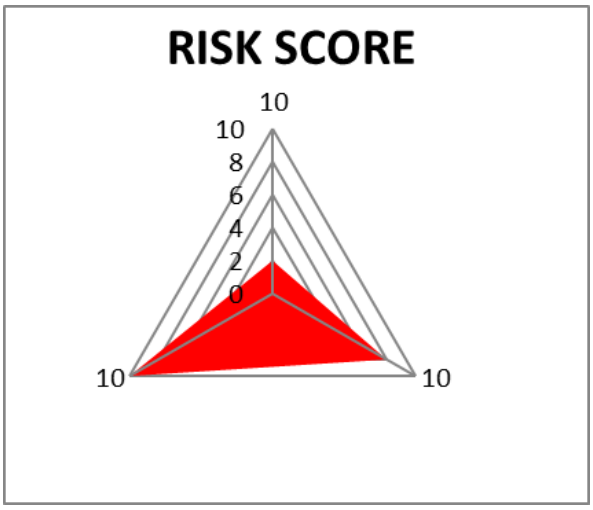
Task	Staffing Level	Units Assigned
Fire - Initial Attack	6	1st MT, 2nd MT, Engine
Command	2	Battalion
Pump Operator	3	1st Tender, 2nd Tender, Engine
On Deck	4	1st Medic and 2nd Medic
Lookout	1	Rescue
Safety and Accountability	1	Rescue
Total Personnel	**17**	

COMMUNITY RISK ASSESSMENT - STANDARDS OF COVER

Wildland Firefighting: High Risk

Wildland fire with multiple structural exposures. (Quemazon subdivision) (67D01R)

RISK	
Probability of occurrence	2
Consequence to community	8
Impact on Fire Department	10
SCORE	59.397



Critical Tasks - Wildland Firefighting: Maximum/Special Impact

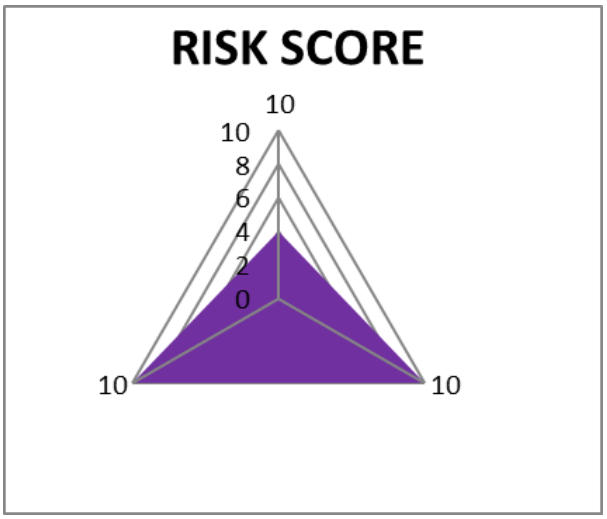
Wildland fire with multiple structural exposures. (Quemazon subdivision) (67D01R) (B2EM2T2M-T)

Task	Staffing Level	Units Assigned
Command	2	Battalion
Fire - Initial Attack	10	1st MT, 2nd MT,
Pump Operator	4	1st Tender, 2nd, Tender, 1st Engine, 2nd Engine
Structure Protection	6	1st Engine, 2nd, Engine, Tender
Division / Group Officer	2	1st Medic
Safety	1	2nd Medic
Accountability	1	2nd Medic
Total Personnel	**26**	

Wildland Firefighting: Maximum or Special Risk

Uncontrolled fire resulting from a prescribed burn in Guaje Canyon

RISK	
Probability of occurrence	**4**
Consequence to community	**10**
Impact on Fire Department	**10**
SCORE	**81.2404**



Critical Tasks - Wildland Firefighting: High Impact

Uncontrolled fire resulting from a prescribed burn in Guaje Canyon (B2EM2T2M-T)

Task	Staffing Level	Units Assigned
Command	2	Battalion
Fire - Initial Attack	7	1st MT, 2nd MT, 1st Engine
Pump Operator	3	1st Tender, 2nd, Tender, 1st Engine
Structure Protection	3	2nd Engine
Division / Group Officer	1	1st Medic
Safety and Accountability	2	2nd Medic
Total Department Personnel	**18**	
Interagency Resources		
Wildfire Line Construction	26	1 Hand Crew, 2 Type 6 Engines
Interagency Wildland Incident Commander	1	Type 3 IC
Total Resource Commitment	**45**	

** Interagency Resources

Interagency resources are not direct department resources and do not have an overall impact on the department. Los Alamos County also has an interagency base at TA-49, where during wildfire season many of these resources are based.

H. Historical Perspective and Summary of System Performance

Distribution Factors

The Los Alamos Fire Department (LAFD) currently staffs five stations with a minimum of 37 personnel on duty each day. Staffing is spread among six engine companies, two truck companies, one rescue company, six medic units, and one battalion unit. Specific first-in units, staffing, and their respective station assignments are identified on the daily Accountability and Activity Roster (sample below):

Table 31: Accountability and Activity Roster

Los Alamos Fire Department						Shift		A
Accountability and Activity Roster						Date:		7/18/2019
						BC		Saiz
Station 1								
Battalion 1			**Engine 1**			**Medic 1**		
BC	Saiz	5242	Capt.	L. Roybal	5362	FF	N. Sisneros	5426
Capt.	M. Lewis	5279	DE	K. Henry	5298	FF	R. Wolf	5454
			FF	A. Williams	5412			
Truck 30			**Rescue 1**					
Capt.	M. Pacheco	5302	DE	P. Thoma	5345			
DE	W. Walker	5182	FF	B. Quintana	5284			
FF	M. Paxson	5445						
Station 3								
Engine 3			**Medic 3**			**Trk-3**		
Capt.	A. Martinez	5360	FF	D. Martinez	5419	Capt.	M. Cionek	5172
DE	D. Gandara	5389	FF	M. Rodriguez	5342	DE	G. Hecathorn	5228
FF	N. Bever	5430				FF	J. Napier	5123
FF	R. Ortega	5300				FF	J. Wright	5439
M-30								
FF								
FF								
Station 4								
Engine 4			**Medic 4**					
Capt	Garcia, T.	5330	FF	McElyea	5447			
DE	Cooper	5246	FF	Crockett	5456			
FF	Sanchez, R.	5408						
Station 5								
Engine 5			**Medic 5**					
Capt.	Sandoval	5266	FF	K. Garcia	5329			
DE	Montoya	5211	FF	Hansen	5332			
FF	L. Chavey	5460						
Station 6								
Engine 6			**Medic 6**					
CO	T. Stidham	5212	FF	D. Mcbride	5260			
DE	R. Gonzales	5174	FF	O. Willard	5366			
FF	D. Baca	5317						

COMMUNITY RISK ASSESSMENT - STANDARDS OF COVER

The department's service area is broken into 11 response districts. Geospatial analysis is done by planning area square mileage by response district.

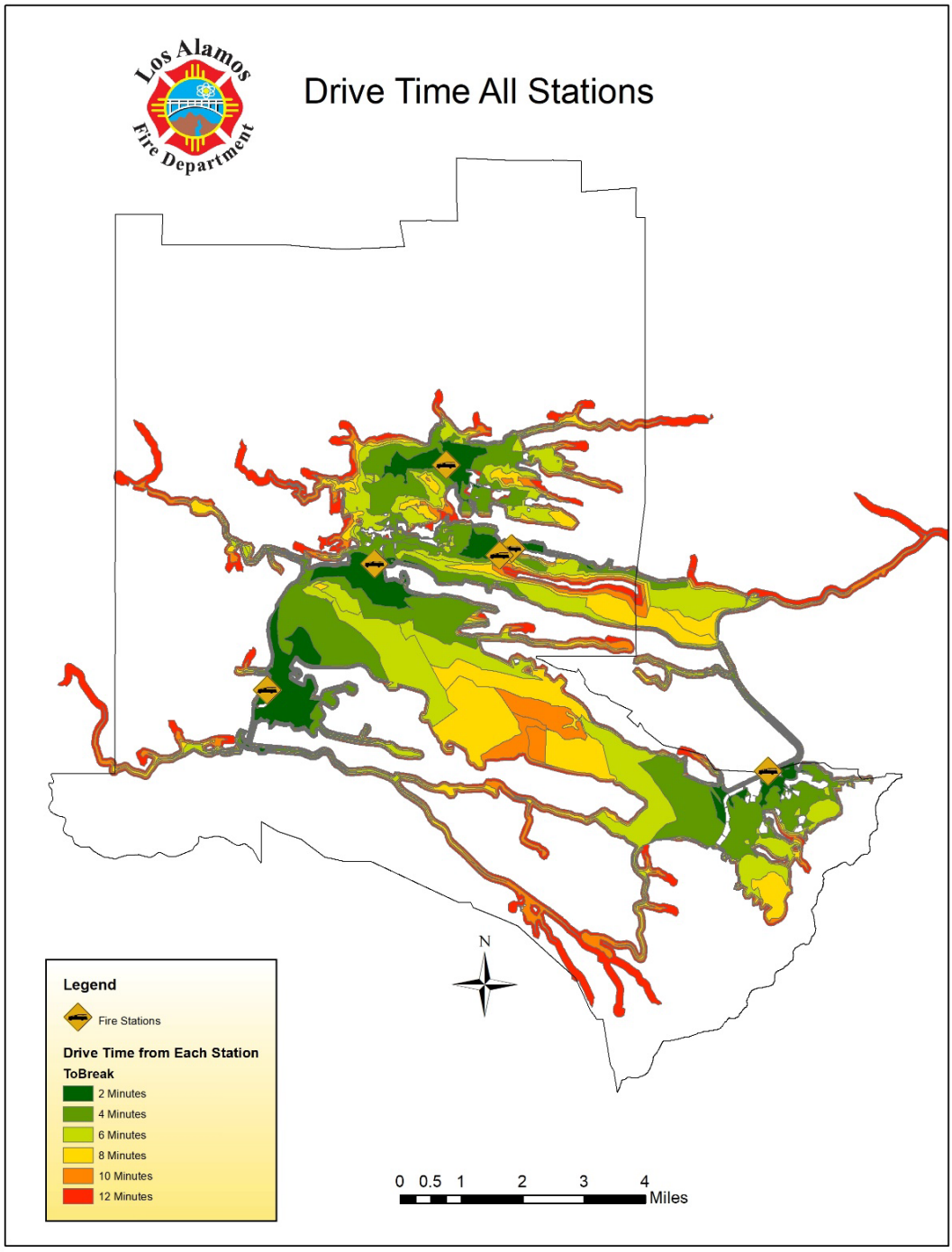
Table 32: Response District Characteristics

Station	Station 1			Station 1 Total	Station 3			Station 3 Total	Station 4	Station 4 Total	Station 5		Station 5 Total	Station 6	Station 6 Total	Los Alamos Fire Department Total Response
District	1-4	1-5	1-6		3-1	3-5	3-6		4-1		5-1	5-3		6-1		
District Coverage Area within the Jurisdictional Area	0.85	6.56	0.09	7.50	2.32	9.53	5.39	17.25	8.65	8.65	15.71	3.80	19.51	1.98	1.98	54.89
District Coverage Area that is Automatic Aid	0.00	0.00	0.00	0.00	0.01	0.00	2.42	2.42	0.69	0.69	0.82	0.47	1.29	1.40	1.40	5.80
Total Square Miles of District Coverage	0.85	6.56	0.09	7.50	2.33	9.53	7.81	19.67	9.34	9.34	16.53	4.27	20.8	3.38	3.38	60.69
Total District Miles in Jurisdictional Area by District	9.58	35.83	1.59	47.00	9.34	7.96	36.21	53.50	52.47	52.47	51.59	8.40	59.98	20.71	20.71	233.658
Total District Miles of Automatic Aid Provided	0.00	0.00	0.00	0.00	0.00	0.00	11.06	11.06	3.76	3.76	14.05	1.60	15.65	4.89	4.89	35.351
Total Number of Linear Road Miles by District	9.58	35.83	1.59	47.00	9.34	7.96	47.26	64.55	56.24	56.24	65.63	10.00	75.63	25.59	25.59	269.009
Population Density																
Urban Cluster	0	0.56	0.09	0.65	0	0	0	0	1.32	1.32	0	0	0	0.73	0.73	2.7
Rural	0.85	6	0	6.85	2.33	9.53	5.39	17.25	7.32	7.32	15.71	3.8	19.51	1.26	1.26	52.19
Wilderness**																54.12
Occupancy Type																
COUNTY	3	1	0	4	0	0	10	10	18	18	0	0	0	30	30	62
FEDERAL	1	733	5	739	116	27	0	143	11	11	261	37	298	28	28	1219
COMMERCIAL	4	0	5	9	0	0	45	45	1	1	1	0	1	2	2	58
CONDO	8	0	0	8	0	0	9	9	312	312	0	0	0	425	425	754
DUPLEX	17	0	0	17	0	0	0	0	94	94	0	0	0	0	0	111
CHURCH	1	0	2	3	0	0	11	11	8	8	0	0	0	8	8	30
SINGLE FAMILY	588	0	9	597	0	0	2192	2192	2062	2062	0	0	0	377	377	5228
TOWNHOUSE	176	0	0	176	0	0	134	134	472	472	0	0	0	105	105	887
SCHOOL	3	0	0	3	0	0	2	2	7	7	0	0	0	3	3	15
MOBILE PARK	0	1	0	1	0	0	0	0	1	1	0	0	0	0	0	2
APARTMENT	0	0	8	8	0	0	1	1	4	4	0	0	0	18	18	31
BED & BRFST	0	0	0	0	0	0	3	3	3	3	0	0	0	0	0	6
VACANT RESIDENTIAL	0	0	0	0	0	0	1	1	8	8	0	0	0	0	0	9
STABLES	0	0	0	0	0	0	0	0	99	99	0	0	0	0	0	99
LAND - RESIDENTIAL MOBILE HOME	0	0	0	0	0	0	0	0	25	25	0	0	0	0	0	25
OPEN AREA	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	4
MULTI-PLEX	0	0	0	0	0	0	0	0	16	16	0	0	0	0	0	16
Water Supply																
Hydrants	93	331	23	447	46	4	304	354	390	390	191	17	208	262	262	1661
Percent of Total Hydrants	5.60%	19.93%	1.38%	26.91%	2.77%	0.24%	18.30%	21.31%	23.48%	23.48%	11.50%	1.02%	12.52%	15.77%	15.77%	
Ownership																
Private	X	X	X		X				X					X		
DOE	X	X	X		X	X			X					X		
Los Alamos County	X	X	X		X	X	X		X		X	X		X		
US Forest Svc.									X					X		
Federal/Tribal					X				X		X	X				
Santa Fe County												X				
Sandoval Co.					X											

**Wilderness is a coverage area that has no population and is federally owned land. Example of the two primary landowners is US Forest Service and Bandelier National Monument. This area is managed as a dual response area with our interagency partners. Primary Hazard is Wildfire.

Drive time analysis is performed by ARC GIS Pro. The point analysis was used from each station with roads available from google earth, which was the default road availability in ARC GIS. With regard to population density, the analysis shows that the stations are appropriately located.

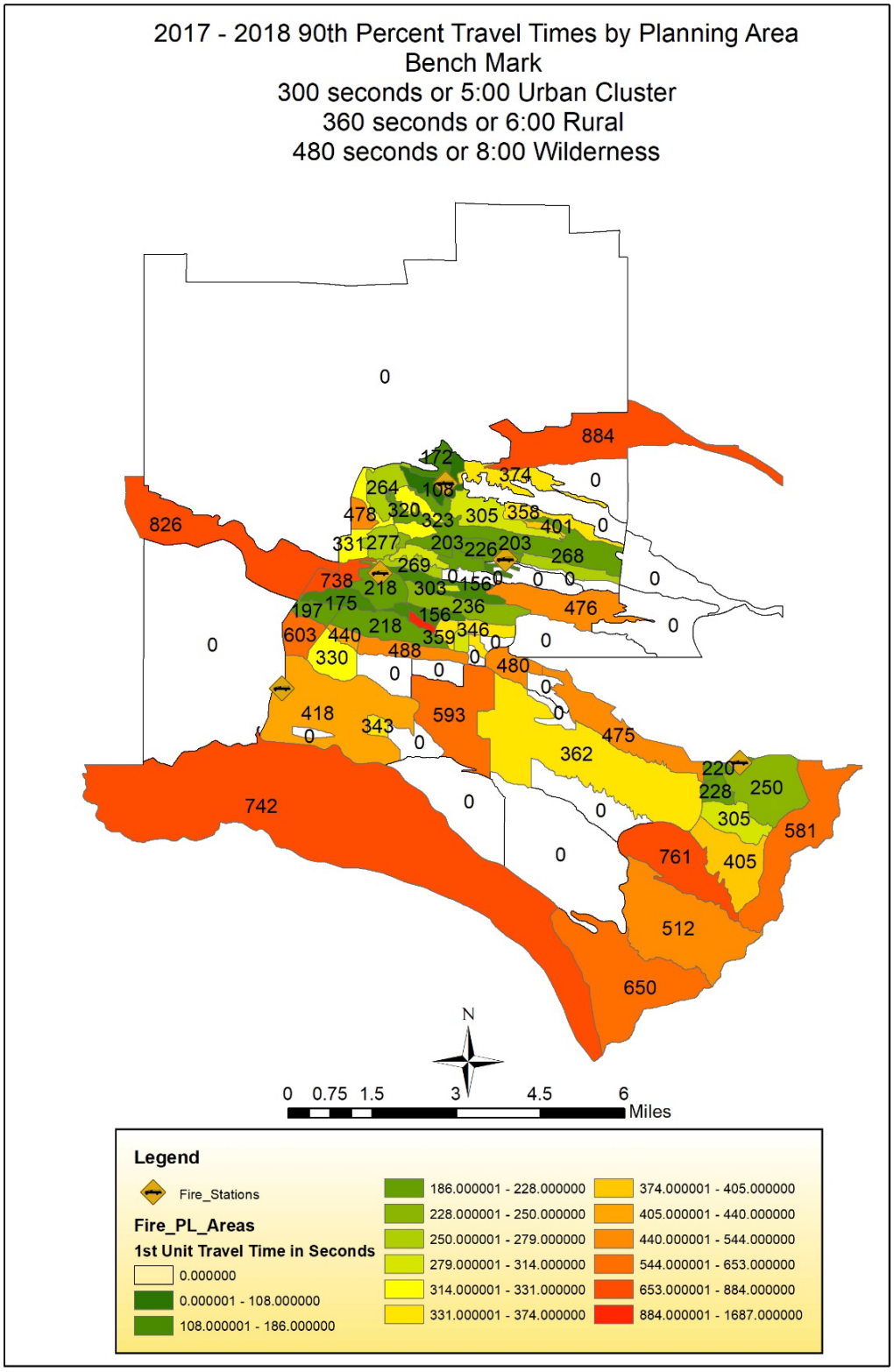
Map 34: Drive Time - All Stations



Drive time has been validated against the expected drive time from ARC GIS and all drive times were found to be within the parameters indicated on the map, with the exception of Station 5. This prompted the department to do a quality check of the times in the TA16 planning area, which revealed that security access delays

impacted travel time. A Fire Chief's Directive (FCD) has since been implemented to clarify when a unit marks themselves on-scene in security access stand-by situations.

Map 35: 90th Percentile Travel Times by Planning Area - Benchmark (2017-2018)



Map 36: LAFD Estimated Travel Time at 30mph - 3080 feet

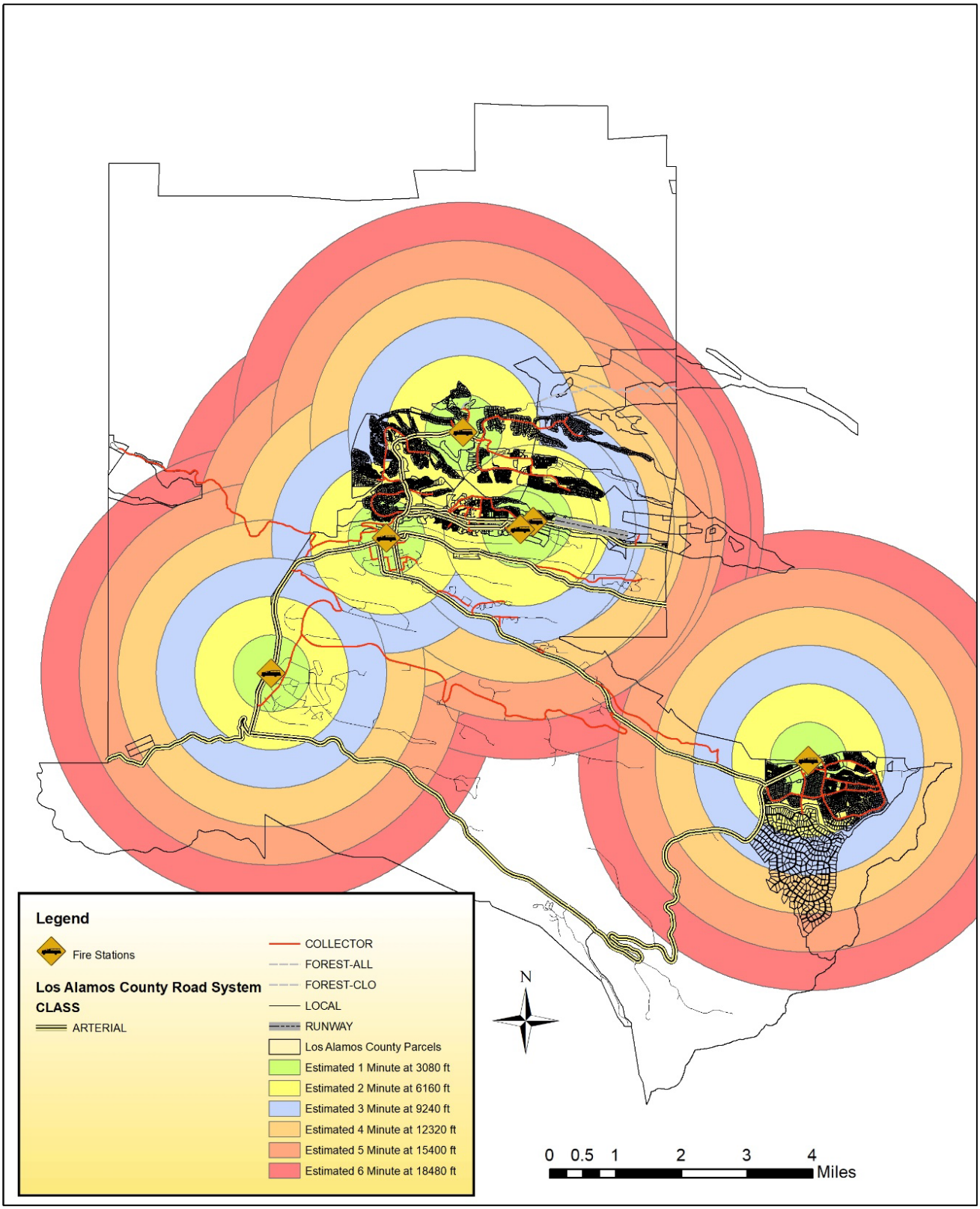


Figure 4: Total Response Times - All Stations, All Emergency Calls (2015-2019)

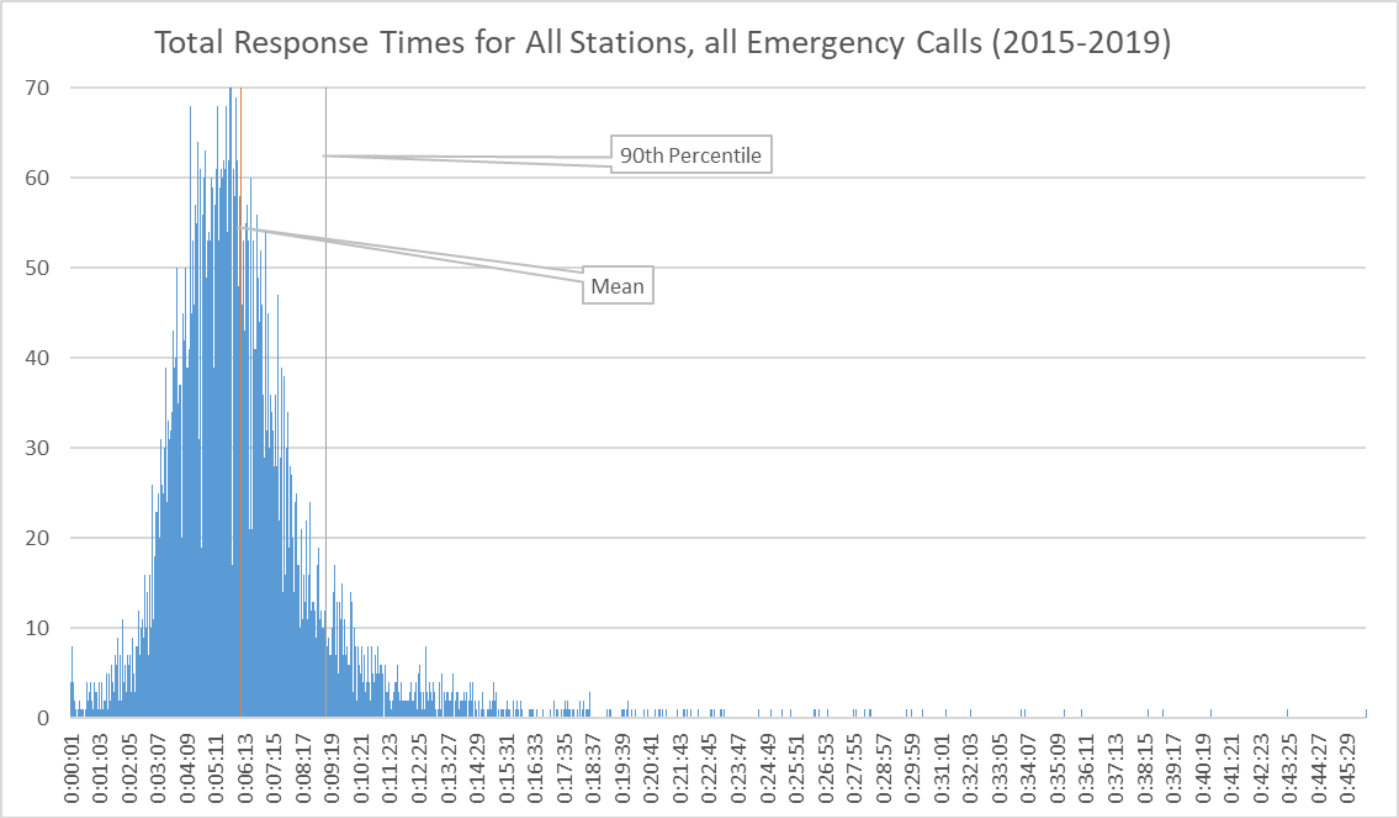


Table 33: 2015-2019 Response Time Range

	Call Processing	Turnout	Travel	Total Response
No. Of Calls	7421			
Mean	0:01:23	0:01:25	0:03:19	0:06:05
Median	0:01:11	0:01:21	0:02:56	0:05:40
Min	0:00:00	0:00:00	0:00:00	0:00:00
Max	0:14:31	0:12:46	0:34:50	0:46:08
Range	0:14:31	0:12:46	0:34:50	0:46:08
Standard Deviation	0:00:59	0:01:37	0:02:35	0:03:23
90th Percentile	0:02:15	0:02:24	0:05:43	0:09:06

Figure 5: Total Response Times - Station 1, All Emergency Calls (2015-2019)

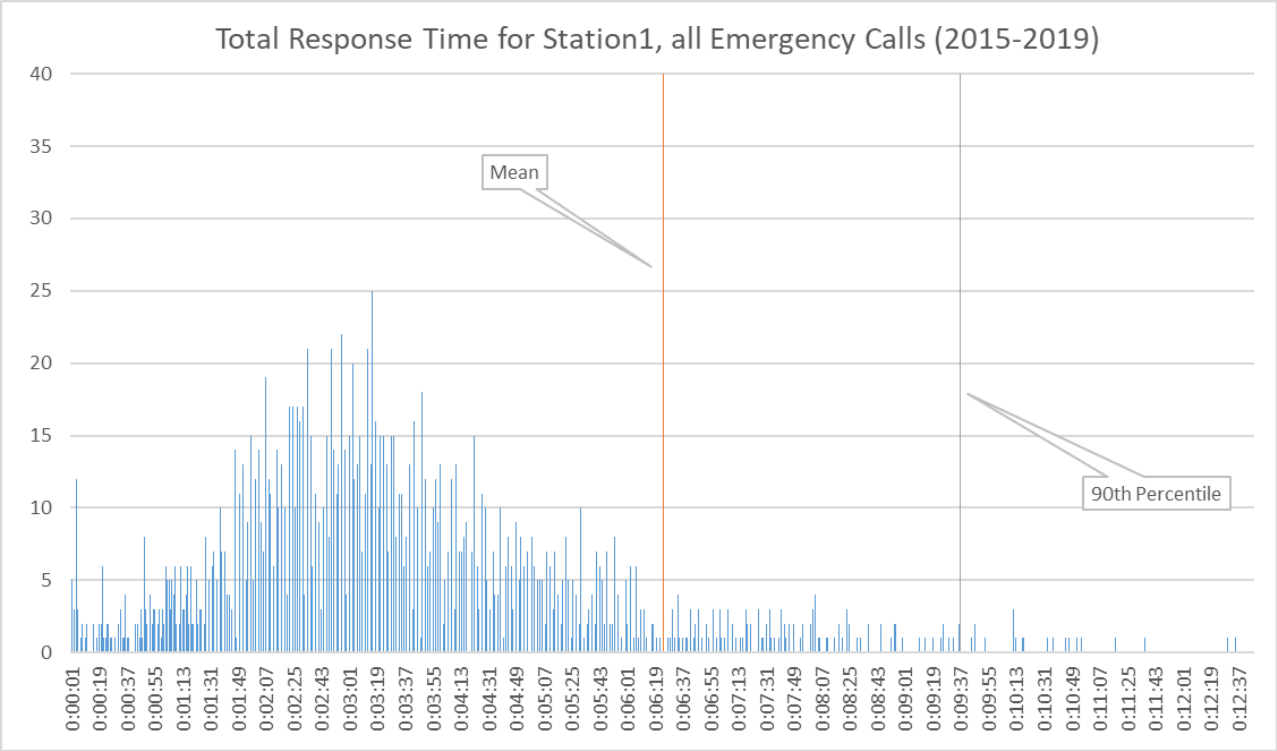


Table 34: 2015-2018 Response Time Range – District 1

	Call Processing	Turnout	Travel	Total Response
No. Of Calls	1598			
Mean	0:01:25	0:01:33	0:03:28	0:06:24
Median	0:01:11	0:01:29	0:03:07	0:06:00
Min	0:00:00	0:00:00	0:00:00	0:00:00
Max	0:13:21	0:12:46	0:34:50	0:43:21
Range	0:13:21	0:12:46	0:34:50	0:43:21
Standard Deviation	0:01:03	0:01:01	0:02:30	0:03:02
90th Percentile	0:02:24	0:02:37	0:06:00	0:09:36

Figure 6: Total Response Times - Station 3, All Emergency Calls (2015-2019)

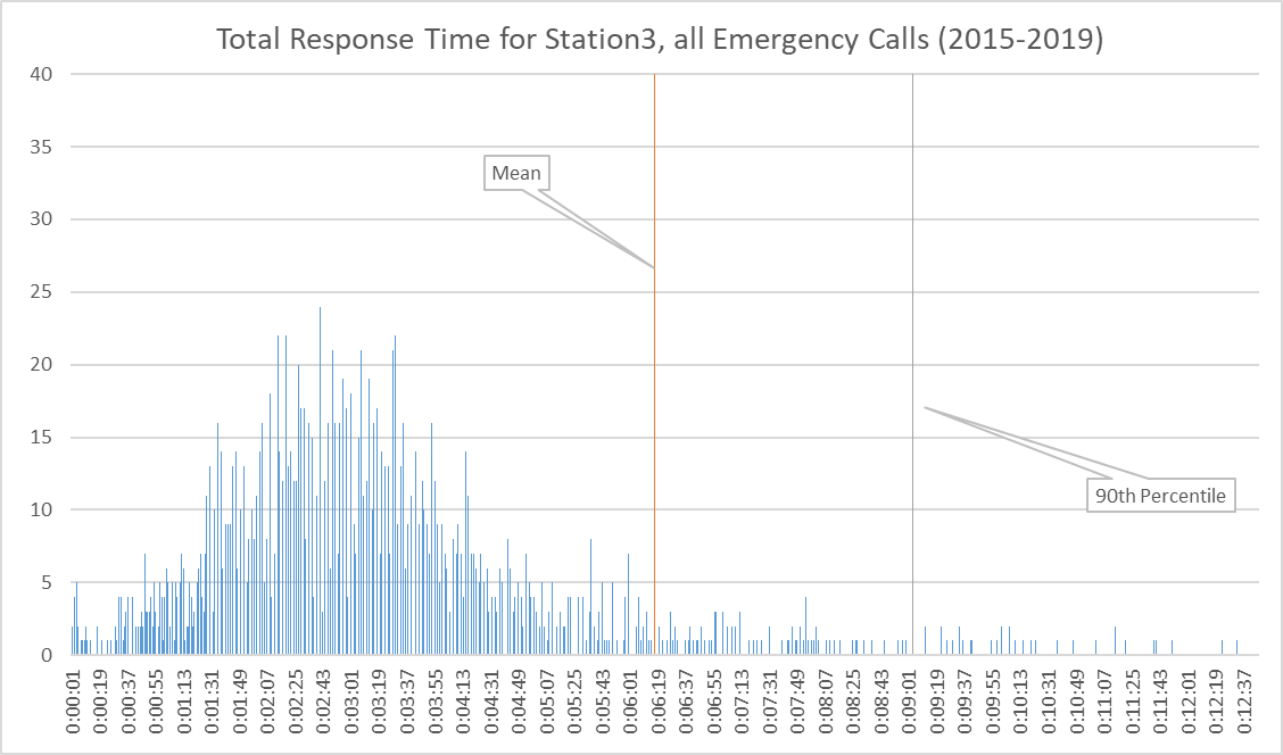


Table 35: 2015-2019 Response Time Range - District 3E

	Call Processing	Turnout	Travel	Total Response
No. Of Calls	1548			
Mean	0:01:22	0:01:41	0:03:18	0:06:17
Median	0:01:10	0:01:39	0:02:55	0:05:51
Min	0:00:00	0:00:00	0:00:00	0:00:00
Max	0:14:31	0:07:36	0:34:23	0:46:08
Range	0:14:31	0:07:36	0:34:23	0:46:08
Standard Deviation	0:01:06	0:00:51	0:02:32	0:03:09
90th Percentile	0:02:08	0:02:37	0:05:39	0:09:03

Figure 7: Total Response Times - Station 4, All Emergency Calls (2015-2019)

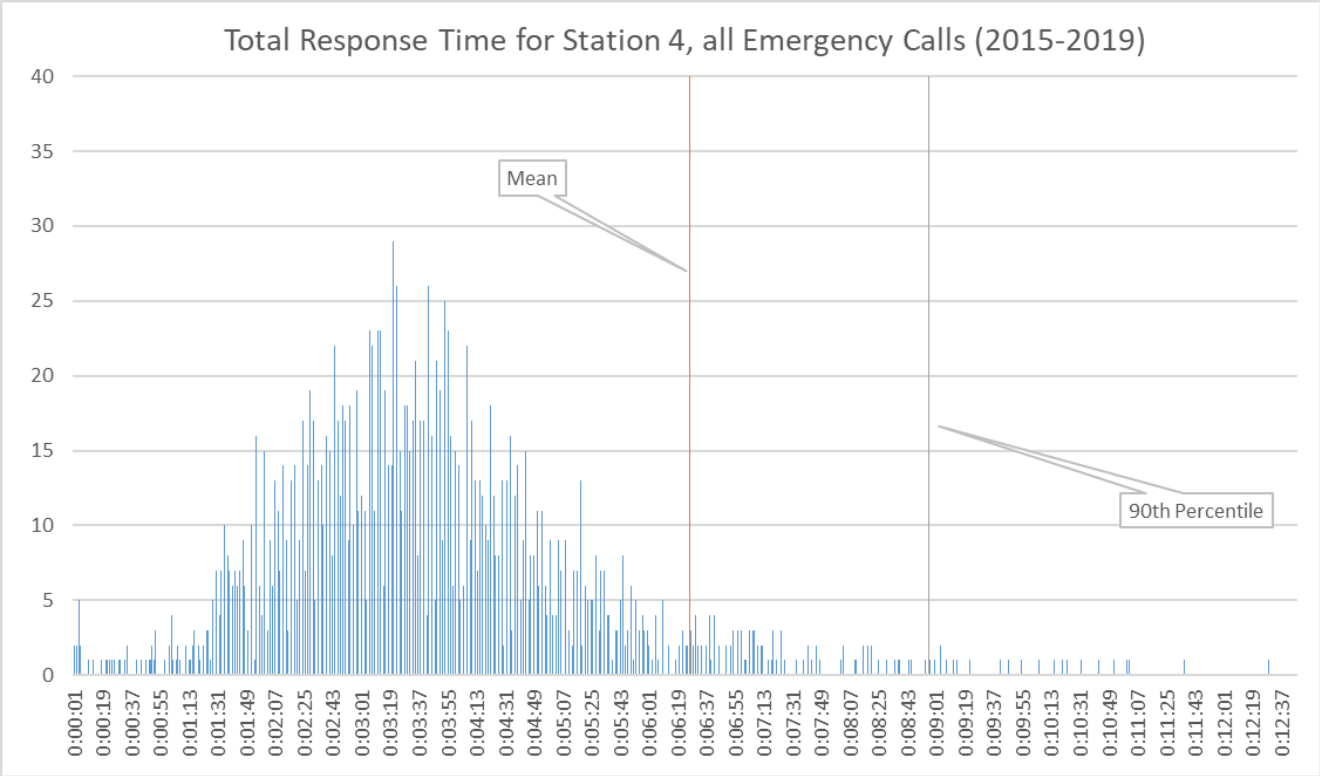


Table 36: 2015-2019 Response Time Range – District 4

	Call Processing	Turnout	Travel	Total Response
No. Of Calls	1633			
Mean	0:01:24	0:01:23	0:03:41	0:06:26
Median	0:01:13	0:01:17	0:03:29	0:06:13
Min	0:00:00	0:00:00	0:00:00	0:00:00
Max	0:14:18	0:08:17	0:34:43	0:38:53
Range	0:14:18	0:08:17	0:34:43	0:38:53
Standard Deviation	0:00:56	0:00:48	0:02:04	0:02:29
90th Percentile	0:02:16	0:02:16	0:05:39	0:08:56

Figure 8: Total Response Times - Station 5, All Emergency Calls (2015-2019)

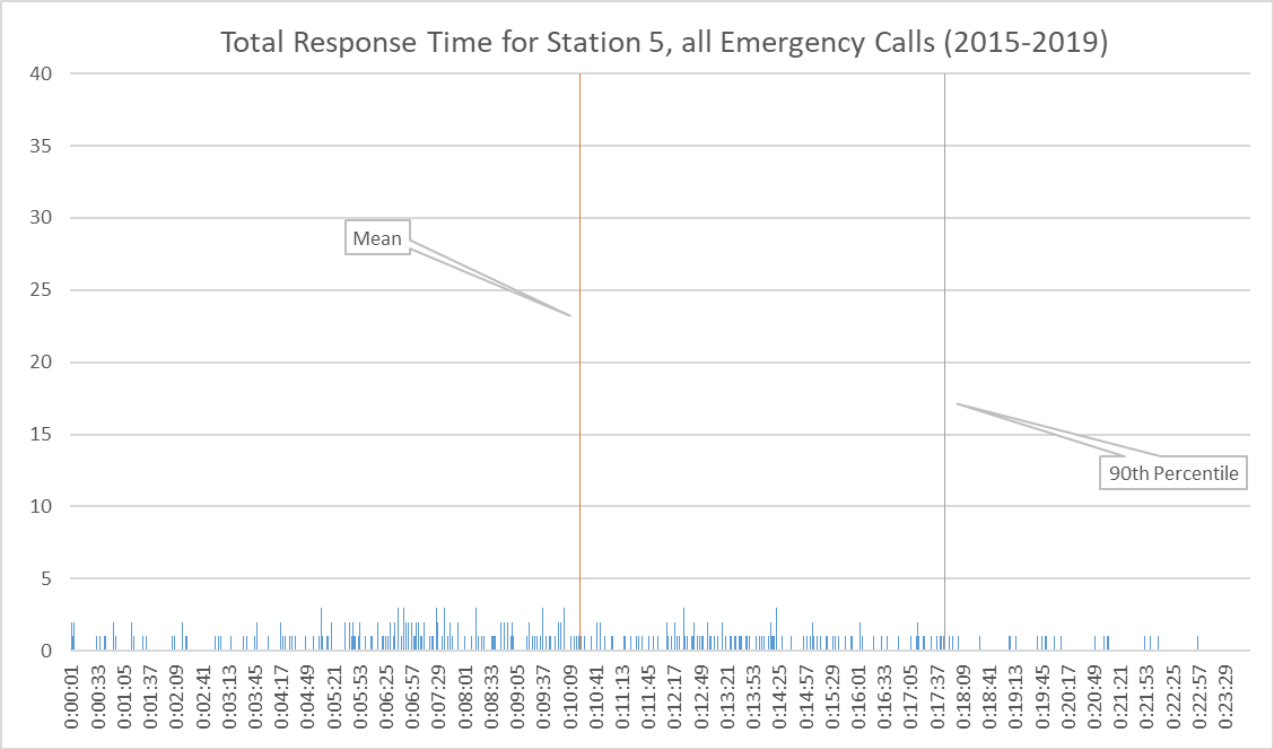


Table 37: 2015-2019 Response Time Range – District 5

	Call Processing	Turnout	Travel	Total Response
No. Of Calls	304			
Mean	0:01:36	0:01:37	0:07:15	0:10:22
Median	0:01:20	0:01:26	0:06:21	0:09:35
Min	0:00:00	0:00:00	0:00:00	0:00:00
Max	0:10:52	0:12:41	0:34:35	0:40:38
Range	0:10:52	0:12:41	0:34:35	0:40:38
Standard Deviation	0:01:15	0:01:25	0:05:33	0:06:20
90th Percentile	0:02:52	0:02:57	0:14:10	0:17:47

Figure 9: Total Response Times - Station 6, All Emergency Calls (2015-2019)

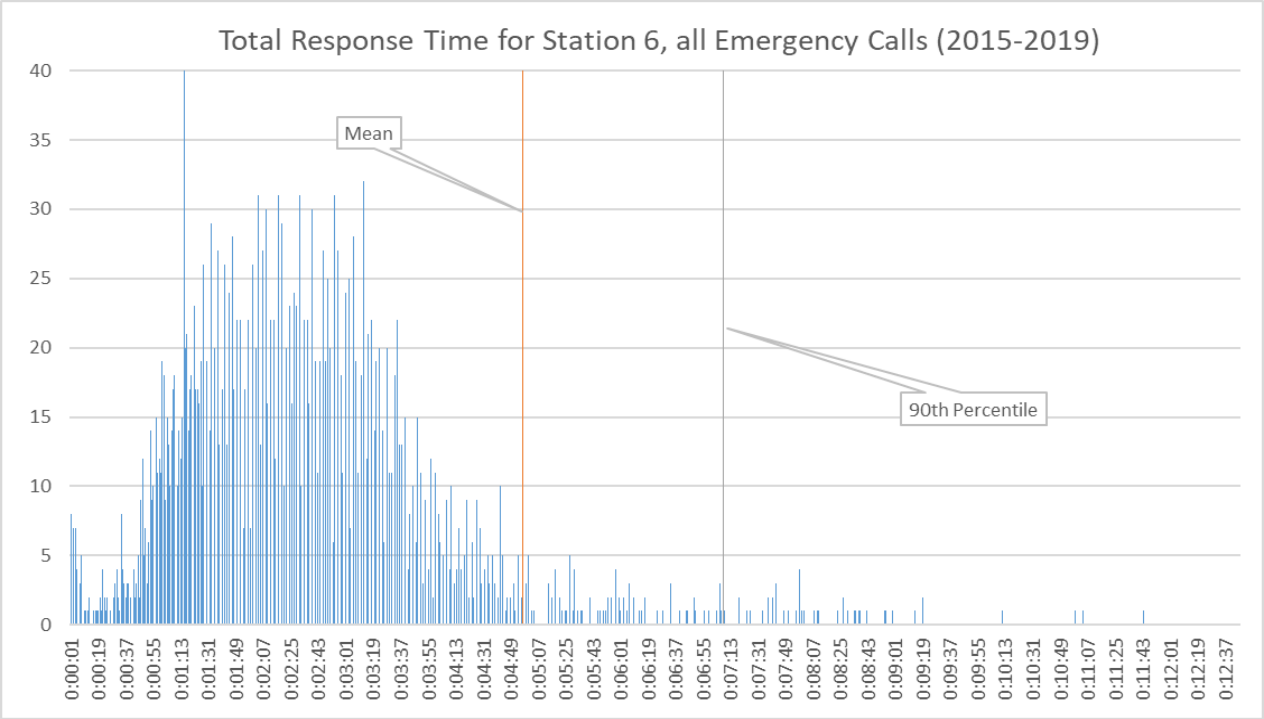


Table 38: 2015-2019 Response Time Range – District 6

	Call Processing	Turnout	Travel	Total Response
No. Of Calls	2338			
Mean	0:01:19	0:01:11	0:02:29	0:04:57
Median	0:01:11	0:01:07	0:02:16	0:04:43
Min	0:00:00	0:00:00	0:00:00	0:00:00
Max	0:10:38	0:08:20	0:30:22	0:35:24
Range	0:10:38	0:08:20	0:30:22	0:35:24
Standard Deviation	0:00:51	0:02:31	0:01:49	0:03:16
90th Percentile	0:02:06	0:02:03	0:04:07	0:07:08

To help analyze current station and apparatus distribution, the table below shows calls by station:

Table 39: Total Calls by Station (2015-2019)

Station	2019	2018	2017	2016	2015	Grand Total
Station 1	385	379	306	267	261	1598
Station 3	335	339	328	296	250	1548
Station 4	309	345	312	365	302	1633
Station 5	72	57	69	47	59	304
Station 6	519	462	491	496	370	2338
Grand Total	**1620**	**1582**	**1506**	**1471**	**1242**	**7421**

*Table above shows all calls, including non-emergency.

Concentration Factors

The term "concentration" is used to describe the spacing of multiple fire department resources so a fire department can assemble an initial "effective response force" (ERF) at the scene of an emergency incident. An ERF is that which will most likely stop the escalation of the emergency incident as it is categorized in each risk type. Differing incident types require different levels of initial and secondary staffing based on the nature of the incident. These incident-specific resource requirements are called critical tasking. It is important to develop specific service level objectives to address the concentration of resources for each risk area.

Table 40:2015-2019 Emergency Responses by Hour of Day

Hour of the D	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Total
0	21	24	16	16	13	26	26	142
1	14	21	14	21	13	25	22	130
2	14	19	14	17	15	13	17	109
3	14	15	14	14	10	20	12	99
4	10	25	14	21	12	7	14	103
5	18	19	20	10	10	23	14	114
6	25	22	29	32	27	26	22	183
7	33	43	60	50	54	40	32	312
8	39	56	80	56	50	58	61	400
9	37	56	77	57	63	70	48	408
10	54	73	83	77	86	72	51	496
11	62	65	84	101	95	65	67	539
12	60	72	59	82	64	77	55	469
13	55	72	88	64	72	64	58	473
14	54	67	73	82	63	70	52	461
15	55	83	70	81	83	65	46	483
16	45	69	69	84	77	64	46	454
17	39	71	80	84	78	57	48	457
18	43	43	64	66	61	50	56	383
19	32	53	45	57	42	45	38	312
20	36	33	39	46	42	38	42	276
21	41	35	35	36	37	44	34	262
22	34	28	27	16	32	21	39	197
23	21	14	16	20	30	32	26	159
Total	**856**	**1078**	**1170**	**1190**	**1129**	**1072**	**926**	**7421**

Figure 10: Emergency Call Volume by Days of the Week (2015-2019)

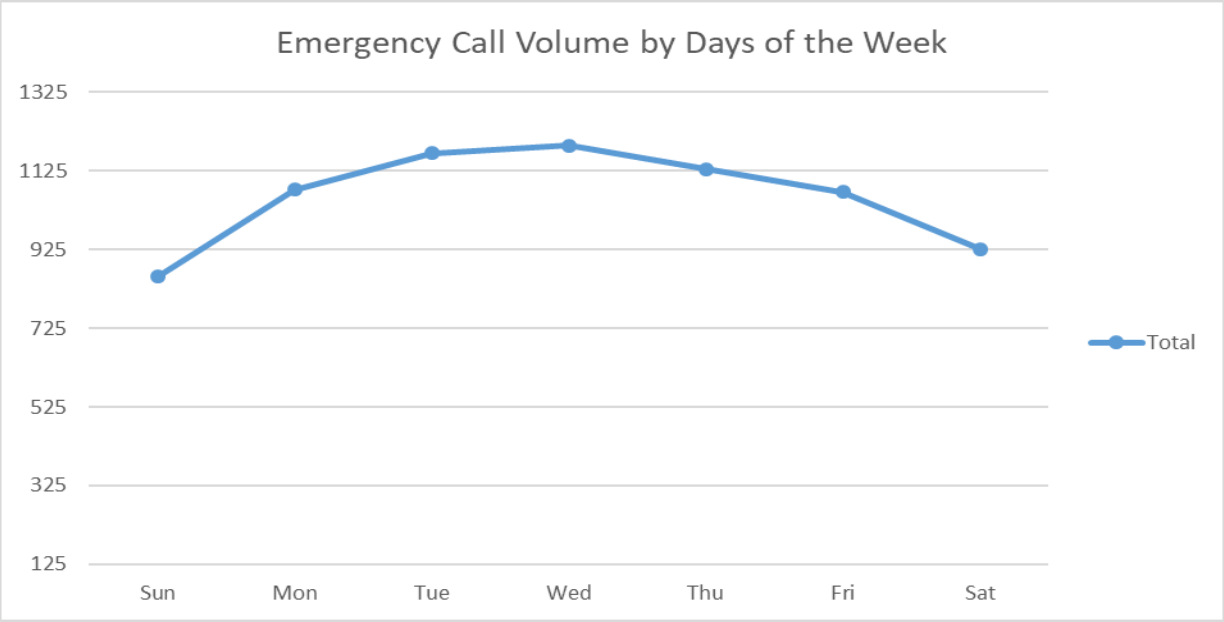


Table 41: Calls by Year, Emergency/Non-Emergency

Year	Emergency	Non-Emergency	Grand Total
2015	1242	589	1831
2016	1471	565	2036
2017	1506	670	2176
2018	1582	752	2334
2019	1620	755	2375
Grand Total	**7421**	**3331**	**10752**

Figure 11: Average Number of Calls Dispatched by Day of the Week

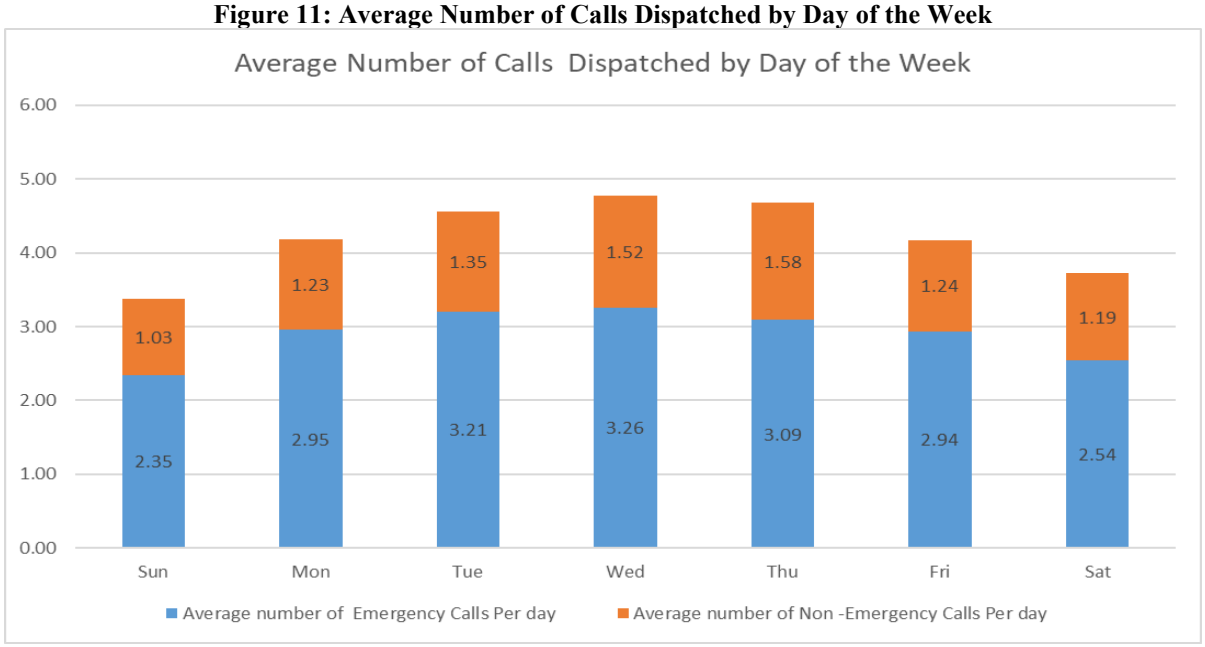


Figure 12: Percent of Emergency Calls by Incident Type (2015-2019)

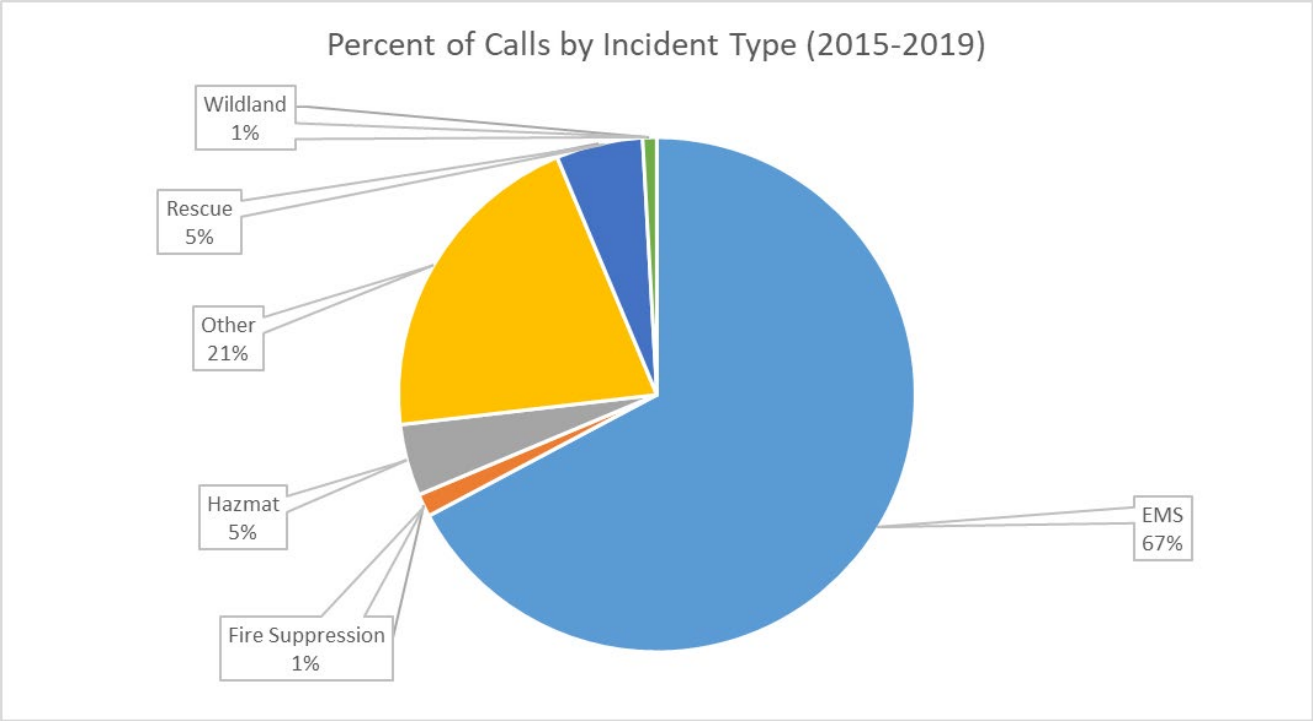


Figure 13: Call Types by Year (2015-2019)

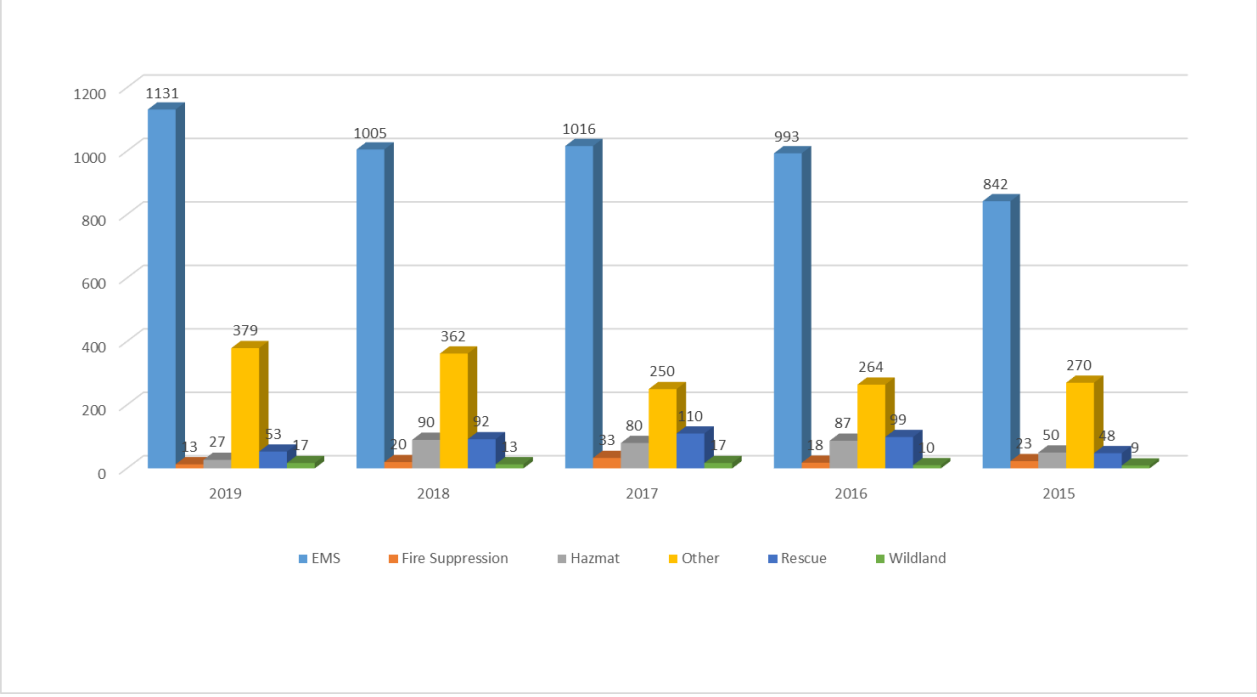


Table 42: 2015-2019 Total Calls by Month, by Station

Month	Station 1	Station 3	Station 4	Station 5	Station 6	Grand Total
January	143	135	129	40	189	636
February	103	110	112	23	161	509
March	134	114	141	21	194	604
April	136	110	141	13	185	585
May	118	123	154	20	224	639
June	123	154	136	24	201	638
July	144	156	132	43	215	690
August	163	122	140	27	187	639
September	148	120	121	31	211	631
October	138	144	147	20	195	644
November	124	133	147	21	180	605
December	124	127	133	21	196	601
Grand Total	**1598**	**1548**	**1633**	**304**	**2338**	**7421**

Table 43: Total Calls by Day of Week, by Station

Day of Week	Station 1	Station 3	Station 4	Station 5	Station 6	Grand Total
Sunday	123	204	214	39	276	856
Monday	254	219	238	30	337	1078
Tuesday	272	245	251	51	351	1170
Wednesday	282	236	240	56	376	1190
Thursday	285	242	217	43	342	1129
Friday	214	213	254	36	355	1072
Saturday	168	189	219	49	301	926
Grand Total	**1598**	**1548**	**1633**	**304**	**2338**	**7421**

Table 44: Call Percent by Weekday and Weekend

Weekday	75.99%
Weekend	24.01%

Reliability Factors

To follow are gross numbers for reliability. This measure can be skewed by the overriding of dispatch protocols by the shift battalion chief. Prior to 2017, the practice was an all-call with battalion chief deciding the initial response. Since 2017, emergency fire dispatch protocol was been implemented significantly reducing the need for the battalion chief to alter the fire response.

The geospatial analysis will only be for 2017 and 2018 which is when the new Computer Aided Dispatch (CAD) started capturing latitude and longitude.

Table 45: Reliability (2019)

Station	Total Emergency Calls	Emergency Calls with 1st in by other station	Percent of emergency calls serviced by other stations
1	372	24	6.45%
3	341	7	2.05%
4	309	11	3.56%
5	77	11	14.29%
6	532	25	4.70%
All Stations	**1631**	**78**	**4.78%**

Table 46: Reliability by Station and Service Type

Station	Call Type	Total Emergency Calls	Emergency Calls with 1st in by other station	Percent of emergency calls serviced by other stations
1	EMS	212	16	8%
	Fire Suppression	1	0	0%
	HazMat	9	2	22%
	Other	136	5	4%
	Rescue	11	0	0%
	Wildland	3	1	33%
1 Total		**372**	**24**	**6%**
3	EMS	261	3	1%
	Fire Suppression	4	0	0%
	HazMat	7	0	0%
	Other	53	3	6%
	Rescue	12	0	0%
	Wildland	4	1	25%
3 Total		**341**	**7**	**2%**
4	EMS	225	7	3%
	Fire Suppression	2	0	0%
	HazMat	4	0	0%
	Other	68	6	9%
	Rescue	8	0	0%
	Wildland	2	0	0%
4 Total		**309**	**11**	**4%**
5	EMS	30	7	23%
	Fire Suppression	2	0	0%
	Other	35	3	9%
	Rescue	5	1	20%
	Wildland	5	0	0%
5 Total		**77**	**11**	**14%**
6	EMS	403	22	5%
	Fire Suppression	3	0	0%
	HazMat	7	0	0%
	Other	99	2	2%
	Rescue	17	0	0%
	Wildland	3	1	33%
6 Total		**532**	**25**	**5%**
Grand Total		**1631**	**78**	**5%**

Table 47: Reliability (2018)

Station	Total Emergency Calls	Emergency Calls with 1st in by other station	Percent of emergency calls serviced by resources from other stations
1	381	28	7.35%
3	323	2	0.62%
4	339	10	2.95%
5	47	6	12.77%
6	460	16	3.48%
All Stations	1550	62	4.00%

Table 48: Reliability by Station and Service Type

Station	Call Type	Total Emergency Calls	Emergency calls with 1st in by other station	Percent of emergency calls serviced by other stations
1	EMS	185	16	8.65%
	Fire Suppression	6	1	16.67%
	Hazmat	23	2	8.70%
	Other	142	6	4.23%
	Rescue	22	2	9.09%
	Wildland	3	1	33.33%
1 Total		**381**	**28**	**7.35%**
3	EMS	238	0	0.00%
	Fire Suppression	6	1	16.67%
	Hazmat	20	1	5.00%
	Other	51	0	0.00%
	Rescue	7	0	0.00%
	Wildland	1	0	0.00%
3 Total		**323**	**2**	**0.62%**
4	EMS	240	5	2.08%
	Fire Suppression	5	0	0.00%
	Hazmat	24	0	0.00%
	Other	55	4	7.27%
	Rescue	12	1	8.33%
	Wildland	3	0	0.00%
4 Total		**339**	**10**	**2.95%**
5	EMS	11	4	36.36%
	Other	27	1	3.70%
	Rescue	8	1	12.50%
	Wildland	1	0	0.00%
5 Total		**47**	**6**	**12.77%**
6	EMS	321	8	2.49%
	Fire Suppression	2	0	0.00%
	Hazmat	22	1	4.55%
	Other	90	3	3.33%
	Rescue	23	3	13.04%
	Wildland	2	1	50.00%
6 Total		**460**	**16**	**3.48%**
Grand Total		**1550**	**62**	**4.00%**

Table 49: Reliability (2017)

Station	Total Emergency Calls	Emergency Calls with 1st in by other station	Percent of emergency calls serviced by resources from other stations
1	309	23	7.44%
3	298	3	1.01%
4	303	4	1.32%
5	60	9	15.00%
6	494	19	3.85%
Grand Total	**1464**	**58**	**3.96%**

Table 50: Reliability by Station and Service Type (2017)

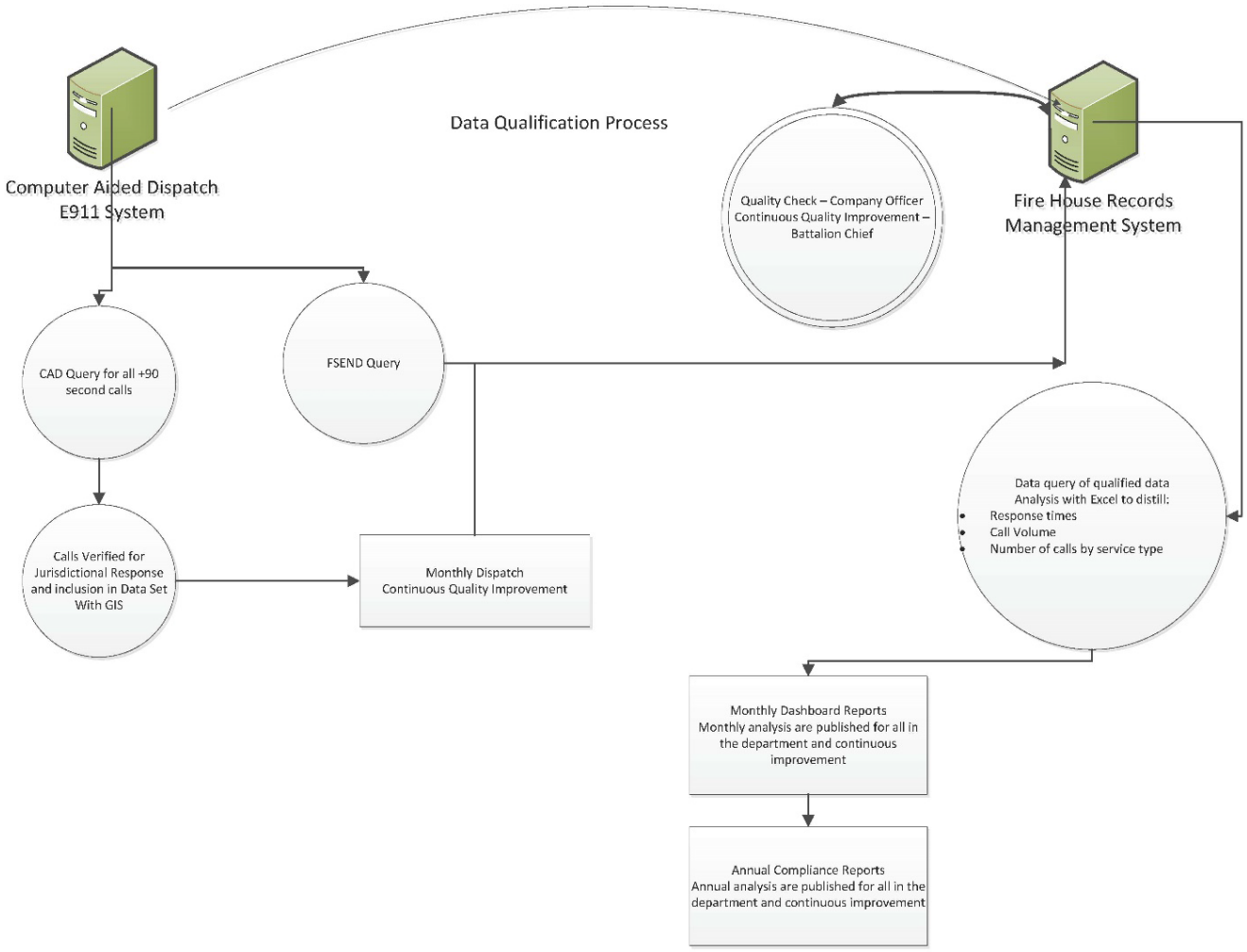
Station	Call Type	Total Emergency Calls	Emergency Calls with 1st in by other station	Percent of emergency calls serviced by other stations
1	EMS	153	14	9.15%
	Fire Suppression	10	1	10.00%
	Hazmat	15	3	20.00%
	Other	97	4	4.12%
	Rescue	33	1	3.03%
	Wildland	1	0	0.00%
1 Total		**309**	**23**	**7.44%**
3	EMS	223	2	0.90%
	Fire Suppression	6	0	0.00%
	Hazmat	16	0	0.00%
	Other	32	0	0.00%
	Rescue	17	1	5.88%
	Wildland	4	0	0.00%
3 Total		**298**	**3**	**1.01%**
4	EMS	219	3	1.37%
	Fire Suppression	11	0	0.00%
	Hazmat	25	0	0.00%
	Other	30	1	3.33%
	Rescue	14	0	0.00%
	Wildland	4	0	0.00%
4 Total		**303**	**4**	**1.32%**
5	EMS	21	4	19.05%
	Fire Suppression	4	0	0.00%
	Other	25	2	8.00%
	Rescue	6	2	33.33%
	Wildland	4	1	25.00%
5 Total		**60**	**9**	**15.00%**
6	EMS	382	12	3.14%
	Fire Suppression	2	0	0.00%
	Hazmat	23	1	4.35%
	Other	67	5	7.46%
	Rescue	18	1	5.56%
	Wildland	2	0	0.00%
6 Total		494	19	3.85%
Grand Total		**1464**	**58**	**3.96%**

Dataset Qualification

Most of the dataset qualification is done using Microsoft Excel. The department's record management system, FIREHOUSE Software®, is fed from a direct bridge/interface from the CAD once a call is closed in the CAD. Some data, such as latitude and longitude, are imported to Microsoft Excel directly from the CAD. Other data is imported to Microsoft Excel directly from FIREHOUSE.

The illustration below shows the path of information prior for analysis:

Figure 14: Dataset Qualification Process



During this study, the department adopted a policy for qualifying response data and outlining the performance compliance methodology. Outliers are data points that are distinctly separate from the rest of the data.

In 2017, while investigating calls with extremely long processing times, it was discovered that there were calls for service that were being created from law enforcement incidents already in progress. It was determined that calls using the automatic aid Fire Send (FSEND) protocol erroneously maintained the original alarm time of when law enforcement is dispatched. An FSEND protocol is a call created directly from another service call type; typically, law enforcement. These calls inflated alarm handling/call processing time significantly. To

address the alarm time error and accurately capture the true department notification time, a review, prior to the Continuous Quality Improvement (CQI) compliance meeting, is used to manually adjust any times erroneously reported due to the FSEND protocol. Each adjusted record is noted with the following statement, "Call created from law enforcement incident using FSEND protocol, Dispatch Notified time changed accordingly." Once the FSEND calls are corrected, a query in FIREHOUSE is performed and exported to Microsoft Excel for analysis.

Once the call is imported to the FIREHOUSE Incident Report module from the CAD, it is available for responders to complete specific information, (i.e., names of responders by response unit, investigation, and narrative information). When the incident report has been completed, the officer in charge conducts a quality review and makes corrections as necessary. A secondary review is conducted by the support officer (quality control).

A Daily Exception Report is published at the end of each shift which lists the incident particulars for that shift. Crews have another opportunity at that point to make additional corrections.

In Microsoft Excel, using latitude and longitude, calls for service outside of the county boundaries are filtered out and are not included in the analysis.

The data is then run through numerous filters to aid in the analysis of response time performance. Calls with processing times in excess of 90 seconds are pulled out for an investigation into the cause for the delay. These calls are shared with the dispatch manager who listens to the audio recordings of the calls and documents the reason for the delay, if any. At the monthly CQI team meeting, each call is discussed and it is determined if the data is to be excluded from the data set or not, if there are dispatcher training opportunities, or if there are technology-related issues to address.

Monthly data is published and distributed to all personnel. In addition, annual roll-up data tables are created using dashboard numbers to analyze for the annual report.

Baseline Performance Tables

It should be noted that when illustrating the data by risk category and population density the data set becomes very small rendering the data statistically insignificant. Therefore, a roll-up of all risk categories by population density is included in this study. See Appendix A for Rollup Data Tables.

The following table shows the number of calls by service type, risk category, and population density for the period of January 2015 to December 2019. The purpose of this chart is to demonstrate that *the more the pie is sliced, the smaller the slices.* The data sets are extremely small and difficult to analyze effectively.

Table 51: N Values - Calls by Service Type and Risk Category (2015-2019)

Incident Type	Risk Level	2015-2019	2019	2018	2017	2016	2015
FIRE	Low	41	5	5	17	6	8
	Moderate	6	0	0	2	2	2
	High	37	5	7	7	7	11
	Maximum	19	0	7	7	3	2
	TOTAL	**103**	**10**	**19**	**33**	**18**	**23**
EMS	Low	3751	1096	725	98	990	842
	Moderate	0	0	0	0	0	0
	High	0	0	0	0	0	0
	Maximum	0	0	0	0	0	0
	TOTAL	**3751**	**1096**	**725**	**998**	**990**	**842**
TECHNICAL RESCUE	Low	197	26	42	53	41	35
	Moderate	43	3	12	10	11	7
	High	41	4	10	8	17	2
	Maximum	59	5	8	17	25	4
	TOTAL	**340**	**38**	**72**	**88**	**94**	**48**
HAZMAT	Low	216	16	89	38	51	22
	Moderate	22	1	7	6	5	3
	High	105	6	28	28	24	19
	Maximum	34	3	11	7	7	6
	TOTAL	**558**		**349**	**72**	**87**	**50**
ARFF	Low	0	0	0	0	0	0
	Moderate	0	0	0	0	0	0
	High	0	0	0	0	0	0
	Maximum	0	0	0	0	0	0
	TOTAL	**0**	**0**	**0**	**0**	**0**	**0**
WILDLAND	Low	56	13	10	15	9	9
	Moderate	0	0	0	0	0	0
	High	0	0	0	0	0	0
	Maximum	0	0	0	0	0	0
	TOTAL	**43**	**0**	**10**	**15**	**9**	**9**
		4795	**1144**	**1175**	**1206**	**1198**	**972**

Fire Suppression Baseline Performance Tables

The low risk fire suppression data chart below shows a gross deviation in alarm handling for urban cluster population density due to the small data set making it statistically insignificant. Significant measures have been taken since 2015 to reduce alarm handling times overall.

Low Risk Fire Suppression - 90th Percentile Times - Baseline Performance			2015-2019	2019	2018	2017	2016	2015
Alarm Handling	Pick-up to Dispatch	Urban	02:21	00:38	N/A	02:45	01:25	01:20
		Rural	04:03	02:03	02:15	03:01	01:22	04:44
		Wilderness	01:44	N/A	N/A	01:44	N/A	N/A
Turnout Time	Turnout Time 1st Unit	Urban	05:07	01:52	N/A	06:31	01:29	00:48
		Rural	03:53	02:32	02:06	04:47	01:27	02:33
		Wilderness	01:30	N/A	N/A	01:30	N/A	N/A
Travel Time	Travel Time 1st Unit **Distribution**	Urban	04:24	03:28	N/A	04:26	04:20	03:33
		Rural	07:09	04:43	06:46	05:24	06:36	07:24
		Wilderness	07:01	N/A	N/A	07:01	N/A	N/A
	Travel Time ERF **Concentration**	Urban	15:40	07:10	N/A	16:39	13:21	06:07
		Rural	11:35	06:39	12:17	10:33	09:30	10:01
		Wilderness	15:23	N/A	N/A	15:23	N/A	N/A
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	08:48	05:58	N/A	09:49	06:24	05:41
			n=9	1	N/A	3	3	2
		Rural	11:57	08:49	10:50	09:03	09:03	12:42
			n=30	4	5	12	3	6
		Wilderness	10:14	N/A	N/A	10:14	N/A	N/A
			n=2	N/A	N/A	2	N/A	N/A
	Total Response Time ERF **Concentration**	Urban	19:06	08:16	N/A	20:13	16:30	09:19
			n=9	1	N/A	3	3	2
		Rural	15:45	10:13	16:48	14:11	11:30	12:57
			n=29	4	5	11	3	6
		Wilderness	06:49	N/A	N/A	06:49	N/A	N/A
			n=2	N/A	N/A	2	N/A	N/A

COMMUNITY RISK ASSESSMENT - STANDARDS OF COVER

High Risk Fire Suppression - 90th Percentile Times - Baseline Performance			2015-2019	2019	2018	2017	2016	2015
Alarm Handling	Pick-up to Dispatch	Urban	02:23	02:25	02:20	02:06	01:21	01:23
		Rural	02:45	00:19	02:35	00:49	01:53	02:52
		Wilderness	01:19	N/A	N/A	N/A	N/A	01:19
Turnout Time	Turnout Time 1st Unit	Urban	02:56	02:11	01:58	03:26	01:37	01:00
		Rural	02:30	02:30	01:53	00:50	02:29	02:13
		Wilderness	01:37	N/A	N/A	N/A	N/A	01:37
Travel Time	Travel Time 1st Unit **Distribution**	Urban	09:01	03:12	03:59	12:23	02:25	01:18
		Rural	06:09	02:59	04:53	02:20	05:17	06:43
		Wilderness	1:24	N/A	N/A	N/A	N/A	01:24
	Travel Time ERF **Concentration**	Urban	11:02	05:44	08:26	12:46	05:12	02:12
		Rural	20:08	16:45	09:29	04:30	22:23	11:15
		Wilderness	01:21	N/A	N/A	N/A	N/A	01:21
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	07:59	07:30	07:23	08:19	05:19	03:40
			n=18	3	3	6	3	3
		Rural	09:12	05:48	08:51	03:59	08:54	09:24
			n=18	2	4	1	4	7
		Wilderness	04:20	N/A	N/A	N/A	N/A	04:20
			n=1	N/A	N/A	N/A	N/A	1
	Total Response Time ERF **Concentration**	Urban	13:54	09:59	13:17	14:19	08:12	04:36
			n=18	3	3	6	3	3
		Rural	23:06	19:29	12:53	06:51	25:31	15:03
			n=18	2	4	1	4	7
		Wilderness	04:41	N/A	N/A	N/A	N/A	04:41
			n=1	N/A	N/A	N/A	N/A	1

COMMUNITY RISK ASSESSMENT - STANDARDS OF COVER

Maximum/Special Risk Fire Suppression - 90th Percentile Times - Baseline Performance			2015-2019	2019	2018	2017	2016	2015
Alarm Handling	Pick-up to Dispatch	Urban	02:29	N/A	02:36	01:16	01:43	02:15
		Rural	02:27	N/A	02:01	02:30	N/A	N/A
		Wilderness	01:27	N/A	N/A	N/A	00:47	01:31
Turnout Time	Turnout Time 1st Unit	Urban	02:05	N/A	02:10	01:44	01:36	01:54
		Rural	02:24	N/A	02:17	02:25	N/A	N/A
		Wilderness	01:11	N/A	N/A	N/A	00:03	01:19
Travel Time	Travel Time 1st Unit **Distribution**	Urban	04:36	N/A	02:31	04:43	04:21	01:45
		Rural	08:31	N/A	07:33	08:37	N/A	N/A
		Wilderness	02:13	N/A	N/A	N/A	01:26	02:18
	Travel Time ERF **Concentration**	Urban	09:16	N/A	03:02	05:24	06:52	05:54
		Rural	12:19	N/A	10:23	12:32	N/A	N/A
		Wilderness	05:52	N/A	N/A	N/A	02:16	05:08
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	07:17	N/A	05:53	07:43	06:17	05:54
			n=7	N/A	3	1	2	1
		Rural	11:55	N/A	10:25	12:05	N/A	N/A
			n=10	N/A	4	6	N/A	N/A
		Wilderness	04:51	N/A	N/A	N/A	02:16	05:08
			n=2	N/A	N/A	N/A	1	1
	Total Response Time ERF **Concentration**	Urban	11:59	N/A	07:40	08:26	09:02	13:15
			n=7	N/A	3	1	2	1
		Rural	16:14	N/A	13:51	16:30	N/A	N/A
			n=10	N/A	4	6	N/A	N/A
		Wilderness	07:40	N/A	N/A	N/A	07:51	06:02
			n=2	N/A	N/A	N/A	1	1

All Fire with Rollup on Risk Fire Suppression - 90th Percentile Times - Baseline Performance			2015-2019	2019	2018	2017	2016	2015
Alarm Handling	Pick-up to Dispatch	Urban	02:37	02:23	02:39	02:34	01:34	01:44
		Rural	02:50	01:49	02:22	02:40	02:06	02:56
		Wilderness	01:41	N/A	N/A	01:44	00:47	01:30
Turnout Time	Turnout Time 1st Unit	Urban	03:39	02:11	02:08	04:37	01:47	01:26
		Rural	03:23	02:36	02:07	03:55	02:13	02:25
		Wilderness	1:34	N/A	N/A	01:30	00:03	01:35
Travel Time	Travel Time 1st Unit **Distribution**	Urban	06:03	03:24	03:54	07:04	04:31	02:38
		Rural	07:46	04:22	07:39	07:00	07:50	07:06
		Wilderness	06:03	N/A	N/A	07:01	01:26	02:13
	Travel Time ERF **Concentration**	Urban	10:39	06:16	07:27	12:47	06:49	06:41
		Rural	13:26	11:30	09:58	12:23	14:08	10:37
		Wilderness	13:33	N/A	N/A	15:23	06:13	02:39
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	08:51	07:20	07:10	09:51	06:27	06:01
			n=36	4	6	10	9	7
		Rural	10:27	08:07	10:26	09:51	10:27	10:25
			n=62	6	13	21	8	14
		Wilderness	09:12	N/A	N/A	10:14	02:16	05:03
			n=5	N/A	N/A	2	1	2
	Total Response Time ERF **Concentration**	Urban	13:35	09:40	11:42	14:50	09:16	09:29
			n=36	4	6	10	9	7
		Rural	17:05	13:53	13:23	16:02	17:47	14:30
			n=61	6	13	20	8	14
		Wilderness	07:39	N/A	N/A	06:49	07:51	05:50
			n=5	N/A	N/A	2	1	2

Emergency Medical Services Baseline Performance Tables

There were no moderate, high, special/maximum risk EMS calls to analyze.

Low Risk EMS - 90th Percentile Times - Baseline Performance			2015-2019	2019	2018	2017	2016	2015
Alarm Handling	Pick-up to Dispatch	Urban	02:19	01:51	02:06	02:23	01:45	02:13
		Rural	02:18	01:37	01:56	02:27	01:43	02:05
		Wilderness	03:18	N/A	01:44	03:06	02:56	03:23
Turnout Time	Turnout Time 1st Unit	Urban	02:15	02:01	02:15	02:01	02:01	02:14
		Rural	02:39	02:28	02:47	02:22	02:22	02:22
		Wilderness	02:25	N/A	02:24	02:08	01:31	02:26
Travel Time	Travel Time 1st Unit **Distribution**	Urban	04:50	04:56	04:26	04:30	04:13	04:42
		Rural	05:32	05:34	04:53	05:19	05:17	05:28
		Wilderness	14:19	N/A	14:01	12:01	14:23	14:11
	Travel Time ERF **Concentration**	Urban	05:58	06:06	05:42	05:39	05:00	05:41
		Rural	06:42	06:57	05:49	06:01	06:11	06:20
		Wilderness	14:40	N/A	14:38	14:16	14:41	14:21
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	07:54	07:38	07:44	07:51	07:07	07:56
			n=2563	567	524	524	533	415
		Rural	08:52	08:42	08:17	08:59	08:15	08:25
			n=2260	529	457	452	439	383
		Wilderness	17:43	N/A	17:54	16:19	17:07	17:19
			n=98	N/A	14	22	18	44
	Total Response Time ERF **Concentration**	Urban	09:27	09:31	08:58	09:21	07:47	08:54
			n=2559	567	524	521	533	414
		Rural	10:00	10:04	09:28	09:55	08:59	09:23
			n=2257	529	457	450	438	383
		Wilderness	18:14	N/A	18:27	17:09	16:59	17:42
			n=98	N/A	14	22	18	44

Technical Rescue Baseline Performance Tables

Low Risk Technical Rescue - 90th Percentile Times - Baseline Performance			2015-2019	2019	2018	2017	2016	2015
Alarm Handling	Pick-up to Dispatch	Urban	02:19	01:20	01:24	02:41	01:20	01:46
		Rural	04:31	03:30	01:36	02:50	05:11	01:19
		Wilderness	03:22	N/A	02:16	03:16	03:24	01:05
Turnout Time	Turnout Time 1st Unit	Urban	02:56	03:22	02:11	01:46	02:16	01:58
		Rural	03:18	03:30	02:59	02:44	02:29	02:21
		Wilderness	03:00	N/A	03:27	00:56	01:57	01:11
Travel Time	Travel Time 1st Unit **Distribution**	Urban	04:13	04:02	03:31	03:25	03:47	04:20
		Rural	07:03	06:56	06:10	05:26	07:08	06:06
		Wilderness	14:07	N/A	09:45	15:59	08:49	07:26
	Travel Time ERF **Concentration**	Urban	10:13	11:23	08:28	04:16	05:48	06:16
		Rural	18:03	21:18	08:55	07:15	09:30	13:11
		Wilderness	20:55	N/A	17:47	22:16	09:50	10:00
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	06:58	05:57	06:42	06:57	05:36	06:59
			n=67	8	13	13	14	19
		Rural	12:43	12:11	07:49	09:40	13:05	09:03
			n=107	18	21	37	17	14
		Wilderness	18:35	N/A	14:50	20:11	12:07	09:42
			n=23	N/A	8	3	10	2
	Total Response Time ERF **Concentration**	Urban	11:25	12:46	09:11	09:24	06:53	09:08
			n=59	8	10	13	14	14
		Rural	19:54	23:51	10:28	11:14	13:38	13:58
			n=106	18	21	36	17	14
		Wilderness	24:16	N/A	19:14	26:26	15:01	12:53
			n=23	N/A	8	3	10	2

Moderate Risk Technical Rescue - 90th Percentile Times - Baseline Performance			2015-2019	2019	2018	2017	2016	2015
Alarm Handling	Pick-up to Dispatch	Urban	02:10	01:07	00:35	02:40	01:24	01:16
		Rural	05:09	00:58	04:44	05:20	00:32	N/A
		Wilderness	N/A	N/A	N/A	N/A	N/A	N/A
Turnout Time	Turnout Time 1st Unit	Urban	02:04	00:58	00:07	01:39	02:06	02:01
		Rural	02:21	02:24	01:56	02:15	01:43	N/A
		Wilderness	N/A	N/A	N/A	N/A	N/A	N/A
Travel Time	Travel Time 1st Unit **Distribution**	Urban	03:43	01:37	00:00	03:08	04:01	03:16
		Rural	03:42	01:54	03:30	03:46	03:34	N/A
		Wilderness	N/A	N/A	N/A	N/A	N/A	N/A
	Travel Time ERF **Concentration**	Urban	04:59	03:24	N/A	04:21	05:15	03:29
		Rural	07:46	08:54	05:00	04:24	05:06	N/A
		Wilderness	N/A	N/A	N/A	N/A	N/A	N/A
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	06:32	03:43	00:42	06:34	06:29	05:35
			n=21	2	1	3	8	7
		Rural	10:04	05:16	09:31	10:18	05:46	N/A
			n=22	1	11	7	3	N/A
		Wilderness	N/A	N/A	N/A	N/A	N/A	N/A
			n=0	N/A	N/A	N/A	N/A	N/A
	Total Response Time ERF **Concentration**	Urban	07:41	05:49	N/A	07:54	07:10	05:42
			n=19	2	0	3	7	7
		Rural	11:43	11:53	10:15	11:21	06:42	N/A
			n=21	1	10	7	3	N/A
		Wilderness	N/A	N/A	N/A	N/A	N/A	N/A
			n=0	N/A	N/A	N/A	N/A	N/A

High Risk Technical Rescue - 90th Percentile Times - Baseline Performance			2015-2019	2019	2018	2017	2016	2015
Alarm Handling	Pick-up to Dispatch	Urban	02:11	01:04	01:52	02:23	01:24	01:01
		Rural	04:27	01:13	01:29	04:11	04:38	00:47
		Wilderness	01:14	N/A	00:12	N/A	01:21	N/A
Turnout Time	Turnout Time 1st Unit	Urban	02:19	00:58	02:28	01:04	02:05	01:29
		Rural	02:11	01:30	01:57	02:15	02:04	01:35
		Wilderness	01:05	N/A	00:57	N/A	01:06	N/A
Travel Time	Travel Time 1st Unit **Distribution**	Urban	04:29	02:52	04:10	04:42	03:23	01:16
		Rural	09:12	02:34	02:19	05:56	11:22	00:45
		Wilderness	08:38	N/A	06:13	N/A	08:54	N/A
	Travel Time ERF **Concentration**	Urban	09:13	10:41	04:49	07:02	04:40	01:16
		Rural	12:59	13:33	02:57	12:09	10:24	01:06
		Wilderness	08:45	N/A	07:39	N/A	08:52	N/A
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	07:17	04:21	07:38	06:46	05:45	03:46
			n=25	3	6	4	11	1
		Rural	14:17	05:17	04:28	11:52	15:53	03:07
			n=14	1	3	4	5	1
		Wilderness	10:57	N/A	07:22	N/A	11:21	N/A
			n=2	N/A	1	N/A	1	N/A
	Total Response Time ERF **Concentration**	Urban	12:56	13:07	07:39	12:39	06:18	03:47
			n=24	3	6	3	11	1
		Rural	18:05	17:53	05:01	16:39	18:13	03:28
			n=13	1	3	4	4	1
		Wilderness	11:14	N/A	09:09	N/A	11:28	N/A
			n=2	N/A	1	N/A	1	N/A

Maximum/Special Risk Technical Rescue - 90th Percentile Times - Baseline Performance			2015-2019	2019	2018	2017	2016	2015
Alarm Handling	Pick-up to Dispatch	Urban	02:12	00:54	02:23	01:43	01:56	01:36
		Rural	02:37	01:23	01:00	03:05	01:33	N/A
		Wilderness	03:07	N/A	N/A	03:19	02:19	00:56
Turnout Time	Turnout Time 1st Unit	Urban	02:09	01:32	01:55	02:15	01:59	01:34
		Rural	02:12	02:03	02:16	02:00	00:58	N/A
		Wilderness	02:38	N/A	N/A	01:36	02:44	02:16
Travel Time	Travel Time 1st Unit **Distribution**	Urban	03:56	03:28	02:26	02:54	04:15	03:22
		Rural	07:46	08:21	03:50	05:48	06:23	N/A
		Wilderness	12:06	N/A	N/A	12:41	09:46	00:00
	Travel Time ERF **Concentration**	Urban	07:06	07:06	07:06	04:12	04:38	06:14
		Rural	05:43	05:07	05:07	05:39	05:45	N/A
		Wilderness	11:39	N/A	N/A	11:57	10:26	03:36
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	07:01	04:45	05:54	05:33	07:46	05:33
			n=24	2	4	6	9	3
		Rural	11:02	10:28	07:00	11:17	08:54	N/A
			n=18	3	4	10	1	N/A
		Wilderness	16:46	N/A	N/A	17:36	13:28	03:12
			n=17	N/A	N/A	1	15	1
	Total Response Time ERF **Concentration**	Urban	12:37	12:37	12:37	06:53	07:43	07:38
			n=19	2	4	6	7	0
		Rural	10:49	09:04	09:04	11:34	08:11	N/A
			n=17	2	4	10	1	N/A
		Wilderness	16:13	N/A	N/A	16:51	13:43	06:39
			n=17	N/A	N/A	1	15	1

COMMUNITY RISK ASSESSMENT - STANDARDS OF COVER

All Technical Rescue with Rollup on Risk Technical Rescue - 90th Percentile Times - Baseline Performance			2015-2019	2019	2018	2017	2016	2015
Alarm Handling	Pick-up to Dispatch	Urban	02:25	01:20	01:56	02:44	01:50	01:42
		Rural	04:31	03:03	02:41	03:11	05:25	01:19
		Wilderness	03:09	N/A	02:08	03:22	02:37	01:06
Turnout Time	Turnout Time 1st Unit	Urban	02:27	02:36	02:13	01:51	02:12	01:58
		Rural	03:08	03:22	02:47	02:34	02:25	02:20
		Wilderness	02:55	N/A	03:04	01:25	02:33	02:03
Travel Time	Travel Time 1st Unit **Distribution**	Urban	04:01	03:51	03:48	03:26	04:04	03:57
		Rural	08:16	08:09	05:04	05:28	08:21	06:05
		Wilderness	14:46	N/A	08:37	17:03	09:26	07:15
	Travel Time ERF **Concentration**	Urban	11:29	15:11	05:55	04:55	04:54	05:53
		Rural	16:40	19:15	06:12	07:39	10:25	12:47
		Wilderness	19:38	N/A	17:46	02:26	10:19	09:32
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	06:52	05:45	06:52	06:52	06:40	06:29
			n=137	15	24	26	42	30
		Rural	12:44	11:37	08:09	11:08	13:29	08:58
			n=161	23	39	58	26	15
		Wilderness	19:22	N/A	14:13	21:35	13:28	09:26
			n=42	N/A	9	4	26	3
	Total Response Time ERF **Concentration**	Urban	14:00	17:01	09:28	09:09	07:12	08:17
			n=121	15	20	25	39	22
		Rural	19:10	22:26	10:08	12:32	14:16	13:43
			n=157	22	38	57	25	15
		Wilderness	23:07	N/A	19:14	24:47	14:13	12:02
			n=42	N/A	9	4	26	3

Hazardous Materials Baseline Performance Tables

Low Risk Hazmat - 90th Percentile Times - Baseline Performance			2015-2019	2019	2018	2017	2016	2015
Alarm Handling	Pick-up to Dispatch	Urban	02:13	01:59	01:56	02:01	02:21	01:47
		Rural	02:34	01:27	02:16	02:46	02:08	02:00
		Wilderness	01:54	N/A	01:27	01:57	N/A	N/A
Turnout Time	Turnout Time 1st Unit	Urban	02:55	03:15	02:18	02:25	02:17	02:24
		Rural	03:07	02:43	03:22	02:02	02:10	02:23
		Wilderness	02:46	N/A	02:59	00:49	N/A	N/A
Travel Time	Travel Time 1st Unit **Distribution**	Urban	06:41	07:00	05:00	06:12	05:55	05:13
		Rural	05:36	05:08	04:33	05:50	05:16	03:54
		Wilderness	04:21	N/A	04:21	04:19	N/A	N/A
	Travel Time ERF **Concentration**	Urban	11:27	13:46	06:31	07:58	06:52	05:37
		Rural	07:28	07:03	05:59	06:02	07:44	05:51
		Wilderness	04:22	N/A	04:23	04:16	N/A	N/A
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	10:10	10:28	08:16	08:54	09:43	08:29
			n=61	8	13	13	21	6
		Rural	09:06	07:54	08:26	09:33	08:08	07:49
			n=107	8	29	24	30	16
		Wilderness	08:37	N/A	08:47	07:05	N/A	N/A
			n=2	N/A	1	1	N/A	N/A
	Total Response Time ERF **Concentration**	Urban	14:05	16:21	09:00	10:41	09:53	08:33
			n=61	8	13	13	21	6
		Rural	10:56	10:16	10:06	11:22	10:04	09:53
			n=107	8	29	24	30	16
		Wilderness	09:58	N/A	10:15	07:24	N/A	N/A
			n=2	N/A	1	1	N/A	N/A

Moderate Risk Hazmat - 90th Percentile Times - Baseline Performance			2015-2019	2019	2018	2017	2016	2015
Alarm Handling	Pick-up to Dispatch	Urban	05:19	00:39	02:15	01:53	06:23	03:44
		Rural	01:57	N/A	00:55	02:13	01:11	01:19
		Wilderness	N/A	N/A	N/A	N/A	N/A	N/A
Turnout Time	Turnout Time 1st Unit	Urban	04:40	03:09	02:18	01:25	05:40	01:32
		Rural	02:24	N/A	02:01	02:09	02:30	00:05
		Wilderness	N/A	N/A	N/A	N/A	N/A	N/A
Travel Time	Travel Time 1st Unit **Distribution**	Urban	07:07	03:02	04:02	03:14	09:10	03:27
		Rural	02:23	N/A	01:12	02:43	01:37	01:21
		Wilderness	N/A	N/A	N/A	N/A	N/A	N/A
	Travel Time ERF **Concentration**	Urban	14:12	03:19	05:51	14:57	13:05	07:08
		Rural	22:38	N/A	09:21	05:06	02:08	28:20
		Wilderness	N/A	N/A	N/A	N/A	N/A	N/A
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	15:08	06:50	07:43	06:13	19:54	07:59
			n=13	1	5	2	3	2
		Rural	05:30	N/A	04:08	05:35	05:18	02:45
			n=9	0	2	4	2	1
		Wilderness	N/A	N/A	N/A	N/A	N/A	N/A
			n=0	N/A	N/A	N/A	N/A	N/A
	Total Response Time ERF **Concentration**	Urban	20:08	06:59	08:21	17:08	22:08	12:28
			n=13	1	5	2	3	2
		Rural	25:48	N/A	16:08	07:59	05:59	29:56
			n=9	0	2	4	2	1
		Wilderness	N/A	N/A	N/A	N/A	N/A	N/A
			n=0	N/A	N/A	N/A	N/A	N/A

COMMUNITY RISK ASSESSMENT - STANDARDS OF COVER

High Risk Hazmat - 90th Percentile Times - Baseline Performance			2015-2019	2019	2018	2017	2016	2015
Alarm Handling	Pick-up to Dispatch	Urban	02:40	01:20	02:23	02:18	01:58	02:51
		Rural	02:44	01:12	02:21	02:29	02:54	02:17
		Wilderness	N/A	N/A	N/A	N/A	N/A	N/A
Turnout Time	Turnout Time 1st Unit	Urban	03:38	01:21	02:23	02:02	01:15	04:27
		Rural	02:45	02:14	02:59	02:19	01:42	02:23
		Wilderness	N/A	N/A	N/A	N/A	N/A	N/A
Travel Time	Travel Time 1st Unit **Distribution**	Urban	05:13	02:29	05:14	05:11	04:10	05:08
		Rural	06:30	05:37	03:19	04:53	07:05	05:23
		Wilderness	N/A	N/A	N/A	N/A	N/A	N/A
	Travel Time ERF **Concentration**	Urban	10:06	11:36	07:50	05:28	05:59	05:00
		Rural	11:37	10:30	11:03	07:39	11:59	06:58
		Wilderness	N/A	N/A	N/A	N/A	N/A	N/A
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	09:23	05:10	08:29	08:27	06:40	09:59
			n=55	2	17	19	11	6
		Rural	09:24	08:44	07:40	07:46	09:50	08:11
			n=50	4	11	9	13	13
		Wilderness	N/A	N/A	N/A	N/A	N/A	N/A
			n=0	N/A	N/A	N/A	N/A	N/A
	Total Response Time ERF **Concentration**	Urban	15:08	17:24	11:44	09:14	09:21	09:49
			n=55	2	17	19	11	6
		Rural	15:00	13:52	11:44	09:14	09:21	09:49
			n=49	4	11	8	13	
		Wilderness	N/A	N/A	N/A	N/A	N/A	N/A
			n=0	N/A	N/A	N/A	N/A	N/A

COMMUNITY RISK ASSESSMENT - STANDARDS OF COVER

Maximum/Special Risk Hazmat - 90th Percentile Times - Baseline Performance			2015-2019	2019	2018	2017	2016	2015
Alarm Handling	Pick-up to Dispatch	Urban	02:26	00:31	01:59	02:21	02:25	02:27
		Rural	01:53	00:50	02:13	01:23	00:32	01:13
		Wilderness	01:55	N/A	N/A	N/A	N/A	01:55
Turnout Time	Turnout Time 1st Unit	Urban	02:19	01:52	02:37	01:31	01:20	01:39
		Rural	02:51	02:33	03:03	00:57	00:27	01:51
		Wilderness	01:16	N/A	N/A	N/A	N/A	01:16
Travel Time	Travel Time 1st Unit **Distribution**	Urban	03:51	02:04	02:52	04:30	02:47	02:44
		Rural	05:58	03:39	04:30	03:06	06:57	02:57
		Wilderness	01:01	N/A	N/A	N/A	N/A	01:01
	Travel Time ERF **Concentration**	Urban	08:32	08:32	08:32	07:04	05:00	05:42
		Rural	17:53	05:44	05:44	04:59	09:09	23:42
		Wilderness	01:01	N/A	N/A	N/A	N/A	01:01
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	07:35	07:18	07:18	07:46	06:24	06:26
			n=19	1	5	4	5	4
		Rural	08:24	08:24	08:24	05:26	07:56	06:01
			n=14	2	6	3	2	1
		Wilderness	04:12	N/A	N/A	N/A	N/A	04:12
			n=1	N/A	N/A	N/A	N/A	1
	Total Response Time ERF **Concentration**	Urban	12:39	12:39	12:39	09:50	08:34	08:23
			n=19	1	5	4	5	4
		Rural	21:38	09:17	09:17	07:53	10:45	28:53
			n=14	2	6	3	2	1
		Wilderness	04:12	N/A	N/A	N/A	N/A	04:12
			n=1	N/A	N/A	N/A	N/A	1

All Hazmat with Rollup on Risk Hazmat - 90th Percentile Times - Baseline Performance			2015-2019	2019	2018	2017	2016	2015
Alarm Handling	Pick-up to Dispatch	Urban	02:53	01:53	02:23	02:17	02:34	03:05
		Rural	02:31	01:12	02:21	02:35	02:25	02:05
		Wilderness	01:57	N/A	01:27	01:57	N/A	01:55
Turnout Time	Turnout Time 1st Unit	Urban	02:54	03:08	02:33	02:06	02:28	02:22
		Rural	03:04	02:39	03:20	02:16	02:07	02:24
		Wilderness	02:38	N/A	02:59	00:49	N/A	01:16
Travel Time	Travel Time 1st Unit **Distribution**	Urban	06:20	06:49	04:59	05:12	05:37	05:00
		Rural	06:20	05:21	04:33	05:21	07:00	04:22
		Wilderness	04:21	N/A	04:21	04:19	N/A	01:01
	Travel Time ERF **Concentration**	Urban	10:58	13:28	06:39	07:14	06:47	05:43
		Rural	09:58	09:51	07:42	06:07	10:02	07:11
		Wilderness	04:22	N/A	04:23	04:16	N/A	01:01
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	09:45	09:45	08:25	08:30	09:45	09:06
			n=148	12	40	38	40	18
		Rural	08:50	07:58	08:29	08:42	08:56	08:10
			n=180	14	48	40	47	31
		Wilderness	08:27	N/A	08:47	07:05	N/A	04:12
			n=3	N/A	1	1	N/A	1
	Total Response Time ERF **Concentration**	Urban	14:00	15:52	11:11	10:07	10:32	09:53
			n=148	12	40	38	40	18
		Rural	13:49	12:05	11:26	11:11	13:57	13:38
			n=179	14	48	39	47	31
		Wilderness	09:41	N/A	10:15	07:24	N/A	04:12
			n=3	N/A	1	1	N/A	1

Wildland Baseline Performance Tables

There were no moderate, high, special/maximum risk wildland calls to analyze.

Low Risk Wildland - 90th Percentile Times - Baseline Performance			2015-2019	2019	2018	2017	2016	2015
Alarm Handling	Pick-up to Dispatch	Urban	03:11	01:24	02:02	01:54	01:42	03:57
		Rural	03:30	03:58	02:49	02:21	02:03	02:15
		Wilderness	02:11	N/A	N/A	02:11	N/A	N/A
Turnout Time	Turnout Time 1st Unit	Urban	02:06	01:58	02:04	02:07	01:49	01:48
		Rural	02:56	02:22	02:42	03:06	02:17	02:28
		Wilderness	01:41	N/A	N/A	01:41	N/A	N/A
Travel Time	Travel Time 1st Unit **Distribution**	Urban	06:04	03:05	05:01	04:57	02:09	06:47
		Rural	20:24	12:29	25:40	09:00	05:31	05:19
		Wilderness	25:18	N/A	N/A	25:18	N/A	N/A
	Travel Time ERF **Concentration**	Urban	12:55	02:46	08:36	05:48	14:51	10:02
		Rural	26:29	16:29	32:21	16:47	17:40	07:50
		Wilderness	14:37	N/A	N/A	14:37	N/A	N/A
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	09:27	06:27	08:39	08:53	05:20	09:50
			n=16	1	5	3	2	5
		Rural	24:30	16:24	29:54	13:41	07:49	08:41
			n=35	12	5	7	7	4
		Wilderness	27:14	N/A	N/A	27:14	N/A	N/A
			n=5	N/A	N/A	5	N/A	N/A
	Total Response Time ERF **Concentration**	Urban	18:20	08:41	12:41	09:28	21:12	14:02
			n=16	1	5	3	2	5
		Rural	32:38	19:56	38:45	23:27	21:15	12:27
			n=35	12	5	7	7	4
		Wilderness	18:52	N/A	N/A	18:52	N/A	N/A
			n=5	N/A	N/A	5	N/A	N/A

All Fire and Special Operations Baseline Performance Table

The table below shows all risk level fire, technical rescue, hazmat, and wildland fire calls.

All Fire and Specialty Services Risk rollup with population density - 90th Percentile Times - Baseline Performance			2015-2019	2019	2018	2017	2016	2015
Alarm Handling	Pick-up to Dispatch	Urban	02:40	02:23	02:24	02:45	02:32	02:19
		Rural						
		Wilderness						
Turnout Time	Turnout Time 1st Unit	Urban	02:49	02:53	02:44	02:27	02:18	02:22
		Rural						
		Wilderness						
Travel Time	Travel Time 1st Unit **Distribution**	Urban	05:05	00:15	04:53	05:13	04:41	04:53
		Rural	07:46	08:05	06:05	06:04	07:18	06:07
		Wilderness	15:38	N/A	07:29	18:18	09:23	06:39
	Travel Time ERF **Concentration**	Urban	09:31	11:52	05:26	05:50	05:34	06:00
		Rural	12:32	14:57	08:55	08:43	08:38	08:01
		Wilderness	15:25	N/A	12:49	14:12	14:46	15:42
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	08:26	07:47	08:12	08:32	08:04	08:16
			n=337	32	75	77	93	60
		Rural	11:18	11:22	09:33	10:44	11:13	09:16
			n=438	55	105	126	88	64
		Wilderness	19:59	N/A	13:35	22:44	13:28	08:37
			n=55	N/A	10	12	27	6
	Total Response Time ERF **Concentration**	Urban	11:53	13:22	08:36	09:25	08:24	09:40
			n=321	32	71	76	90	52
		Rural	16:35	19:31	12:12	11:59	11:57	12:03
			n=432	54	104	123	87	64
		Wilderness	18:14	N/A	16:43	17:37	18:10	18:15
			n=55	N/A	10	12	27	6

All Fire and EMS Baseline Performance Table

The table below shows all risk level fire and EMS calls.

All Fire and EMS - 90th Percentile Times - Baseline Performance			2015-2019	2019	2018	2017	2016	2015
Alarm Handling	Pick-up to Dispatch	Urban	02:25	01:46	02:04	02:33	01:52	02:12
		Rural						
		Wilderness						
Turnout Time	Turnout Time 1st Unit	Urban	02:30	02:19	02:36	02:18	02:14	02:21
		Rural						
		Wilderness						
Travel Time	Travel Time 1st Unit **Distribution**	Urban	04:50	04:56	04:31	04:41	04:18	04:42
		Rural	05:40	05:41	04:59	05:27	05:39	05:32
		Wilderness	14:08	N/A	14:01	12:39	12:54	14:11
	Travel Time ERF **Concentration**	Urban	06:17	06:26	05:51	06:03	05:21	05:51
		Rural	08:24	08:43	06:35	07:18	07:55	07:16
		Wilderness	17:00	N/A	17:24	16:03	13:34	14:16
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	08:04	07:39	07:49	08:08	07:16	07:59
			n=2900	599	599	601	626	475
		Rural	09:07	08:50	08:27	09:18	08:39	08:29
			n=2698	584	562	578	527	447
		Wilderness	17:47	N/A	17:54	17:31	15:22	17:15
			n=153	N/A	24	34	45	50
	Total Response Time ERF **Concentration**	Urban	09:46	09:45	09:07	09:46	08:13	09:18
			n=2880	599	595	597	623	466
		Rural	11:28	11:34	10:21	11:18	10:50	10:50
			n=2689	583	561	573	525	447
		Wilderness	19:07	N/A	19:13	18:54	15:41	17:29
			n=153	N/A	24	34	45	50

I. Evaluation of Service Delivery

The Los Alamos County Fire Department (LAFD) utilized an evaluative approach to identify the areas that are working well and those that require attention. The department tracks and analyzes performance over time against established benchmark objectives.

Benchmark is defined as a quality standard or target from which something can be judged. Searching for the benchmark or target helps define the superior performance of a product, service, or process.

Baseline is the measurement of actual performance in an organizational context; a usually initial set of critical observations or data used for comparison or control.

Performance Objectives – Benchmarks (minutes)

Measured at the 90th Percentile		Population Density	Fire Suppression	EMS	Tech Rescue	Haz-Mat	Aircraft	Wildland
			Time	Time	Time	Time	Time	Time
Alarm Handling	Pick-up to Dispatch	Urban	0:01:30	0:01:30	0:01:30	0:01:30	0:01:30	0:01:30
		Rural						
		Wilderness						
Turnout Time	Turnout Time 1st Unit	Urban	0:01:30	0:01:30	0:01:30	0:01:30	0:01:30	0:01:30
		Rural						
		Wilderness						
Travel Time	Travel Time 1st Unit **Distribution**	Urban	0:04:20	0:04:20	0:04:20	0:04:20	0:04:20	0:04:20
		Rural	0:09:20	0:09:20	0:09:20	0:09:20	0:09:20	0:09:20
		Wilderness	0:12:00	0:12:00	0:12:00	0:12:00	0:12:00	0:12:00
	Travel Time ERF **Concentration**	Urban	0:09:20	0:09:20	0:09:20	0:09:20	0:09:20	0:09:20
		Rural	0:12:20	0:12:20	0:12:20	0:12:20	0:12:20	0:12:20
		Wilderness	0:15:00	0:15:00	0:15:00	0:15:00	0:15:00	0:15:00
Total Response Time	Total Response Time 1st Unit **Distribution**	Urban	0:07:20	0:07:20	0:07:20	0:07:20	0:07:20	0:07:20
		Rural	0:12:20	0:12:20	0:12:20	0:12:20	0:12:20	0:12:20
		Wilderness	0:15:00	0:15:00	0:15:00	0:15:00	0:15:00	0:15:00
	Total Response Time ERF **Concentration**	Urban	0:12:20	0:12:20	0:12:20	0:12:20	0:12:20	0:12:20
		Rural	0:16:20	0:16:20	0:16:20	0:16:20	0:16:20	0:16:20
		Wilderness	0:18:00	0:18:00	0:18:00	0:18:00	0:18:00	0:18:00

Performance Objectives – Benchmarks (seconds)

Measured at the 90th Percentile		Population Density	Fire Suppression	EMS	Tech Rescue	Haz-Mat	Aircraft	Wildland
			Time in Seconds	Time in Seconds	Time in Seconds	Time in Seconds	Time in Seconds	Time in Seconds
Alarm Handling	Pick-up to Dispatch	Urban	90	90	90	90	90	90
		Rural						
		Wilderness						
Turnout Time	Turnout Time 1st Unit	Urban	90	90	90	90	90	90
		Rural						
		Wilderness						
Travel Time	Travel Time 1st Unit **Distribution**	Urban	260	260	260	260	260	260
		Rural	560	560	560	560	560	560
		Wilderness	720	720	720	720	720	720
	Travel Time ERF **Concentration**	Urban	560	560	560	560	560	560
		Rural	780	780	780	780	780	780
		Wilderness	900	900	900	900	900	900
Total Response Time	Total Response Time 1st Unit **Distribution**	Urban	440	440	440	440	440	440
		Rural	740	740	740	740	740	740
		Wilderness	900	900	900	900	900	900
	Total Response Time ERF **Concentration**	Urban	740	740	740	740	740	740
		Rural	980	980	980	980	980	980
		Wilderness	1080	1080	1080	1080	1080	1080

Fire Suppression Services Program

The fire suppression services program benchmark objective is to arrive in a timely manner with enough resources to mitigate all fire incidents and to stop the escalation of fire when found. Typically, this means conducting a search for any victims, confining the fire to the floor area of origin while limiting heat and smoke damage to the area of floor origin.

The first arriving unit can establish command and organizational structure in accordance with the Blue Card methodology. This means starting rescue work or advancing a first line for fire control. The second engine and truck company provide additional personnel for the task already started plus ventilation, salvage, and other work as necessary.

For 90 percent of **all risk level fire calls,** the total response time for the arrival of the **first-due unit**, staffed with three firefighters and officers shall be 7 minutes and 20 seconds in urban areas, 12 minutes and 20 seconds in rural areas, and 15 minutes in wilderness areas. The first-due unit shall be capable of establishing command, scene size-up, securing a water supply, placing one line in service at 150 gallons per minute, initiating search and rescue, initiating mitigation efforts within one minute of arrival, and providing first responder medical aid

using an automatic external cardiac defibrillator (AED). These operations shall be done in accordance with departmental standard operating procedures while providing for the safety of responders and the public.

For 90 percent of **all low risk fire calls**, the total response time for the arrival of the **effective response force** (ERF) staffed with three firefighters and officers shall be 12 minutes and 20 seconds in urban areas, 16 minutes and 20 seconds in rural areas, and 18 minutes in wilderness areas. The **ERF** shall be capable of establishing command, providing an uninterrupted water supply, advancing an attack line and a backup line for fire control, pump operations and accountability.

For 90 percent of **all moderate and special risk fire calls,** the total response time for the arrival of the **ERF** staffed with 17 firefighters and officers, shall be 12 minutes and 20 seconds in urban areas, and 16 minutes and 20 seconds in rural areas, and 18 minutes in wilderness areas. The **ERF** for **all moderate and special risk fire calls** shall be capable of establishing command, providing uninterrupted water supply, advancing an attack line and backup line for fire control, complying with the OSHA requirements of two in-two out, medical aid, completing forcible entry, search and rescue, ventilating the structure, controlling utilities, and performing salvage and overhaul, pump operations and accountability.

For 90 percent of **all high risk fire calls,** the total response time for the arrival of the **ERF**, staffed with 20 firefighters and officers, shall be 12 minutes and 20 seconds in urban areas, 16 minutes and 20 seconds in rural areas, and 18 minutes in wilderness areas. The **ERF** for **all high risk fire calls** shall be capable of establishing command, providing uninterrupted water supply, advancing an attack line and backup line for fire control, complying with the OSHA requirements of two in-two out, medical aid, completing forcible entry, search and rescue, ventilating the structure, controlling utilities, and performing salvage and overhaul, pump operations and accountability. The **ERF** for **all high risk fire calls** fires shall also be capable of placing elevated streams into service from aerial ladders.

For 90 percent of **all maximum/special risk fire calls**, the total response time for the arrival of the **ERF**, staffed with 28 firefighters and officers, shall be 12 minutes and 20 seconds in urban areas, 16 minutes and 20 seconds in rural areas, and 18 minutes in wilderness areas. The **ERF** for **all maximum/special risk fire calls** shall be capable of establishing command, providing uninterrupted water supply, advancing an attack line and backup line for fire control, complying with the OSHA requirements of two in-two out, initial rapid intervention and medical aid, completing forcible entry, search and rescue, ventilating the structure, controlling utilities, and performing salvage and overhaul, pump operations and accountability. The **ERF** for **all maximum/special risk fire calls** shall also be capable of placing elevated streams into service from aerial ladders.

Emergency Medical Services Program

For 90 percent of **all risk EMS calls**, the total response time for the arrival of the **first-due unit**, staffed with a minimum of two firefighters, shall be 7 minutes 20 seconds in urban areas, 12 minutes 20 seconds in rural areas, and 15 minutes in wilderness areas. The **first-due unit** shall be capable of assessing scene safety and establishing command, sizing-up the situation, conducting initial patient assessment, obtaining vitals and patient's medical history, initiating mitigation efforts within one minute of arrival, providing first responder medical aid including automatic defibrillation, initiating cardiopulmonary resuscitation (CPR), and assisting transport personnel with packing the patient.

For 90 percent of **all low risk EMS (≤2 patients) EMS calls**, the total response time for the arrival of the **ERF**, staffed with five firefighters, shall be 12 minutes and 20 seconds in urban areas, 16 minutes and 20 seconds in rural areas, and 18 minutes in wilderness areas. The **ERF** shall be capable of providing incident command and producing related documentation, completing the patient assessment, providing appropriate treatment, performing automatic external defibrillator (AED), initiating cardiopulmonary resuscitation (CPR), and providing intravenous (IV) assess-medication administration.

For 90 percent of **all moderate risk EMS calls**, the total response time for the arrival of the **ERF**, staffed with seven firefighters and officers, shall be 12 minutes 20 seconds in urban areas, 16 minutes 20 seconds in rural areas, and 18 minutes in wilderness areas. The **ERF** shall be capable of providing incident command and producing related documentation, completing the patient assessment, providing appropriate treatment, performing automatic external defibrillator (AED), initiating cardiopulmonary resuscitation (CPR), and providing intravenous (IV) assess-medication administration.

For 90 percent of **all high-risk EMS calls**, the total response time for the arrival of the **ERF**, staffed with 11 firefighters and officers, shall be 12 minutes 20 seconds in urban areas, 16 minutes 20 seconds in rural areas, and 18 minutes in wilderness areas. The **ERF** shall be capable of providing incident command and producing related documentation, completing the patient assessment, providing appropriate treatment, performing automatic external defibrillator (AED), initiating cardiopulmonary resuscitation (CPR), and providing intravenous (IV) assess-medication administration.

For 90 percent of **all maximum risk EMS calls**, the total response time for the arrival of the **ERF**, staffed with 21 firefighters and officers, shall be 12 minutes 20 seconds in urban areas, 16 minutes 20 seconds in rural areas, and 18 minutes in wilderness areas. The **ERF** shall be capable of providing incident command and producing related documentation, completing the patient assessment, providing appropriate treatment, performing automatic external defibrillator (AED), initiating cardiopulmonary resuscitation (CPR), and providing intravenous (IV) assess-medication administration.

Technical Rescue Services Program

For 90 percent of **all risk level technical rescue calls**, the total response time for the arrival of the **first-due unit**, staffed with three firefighters on the engine, shall be 7 minutes and 20 seconds in urban areas, 12 minutes and 20 seconds in rural areas, and 15 minutes in wilderness areas. The **first-due unit** shall be capable of establishing command, sizing up to determine if a technical rescue response is required, requesting additional resources, and providing basic life support to any victim without endangering response personnel.

For 90 percent of **all low risk level technical rescue calls**, the total response time for the arrival of the **ERF** staffed with five firefighters and officers, shall be 12 minutes and 20 seconds in urban areas, 16 minutes and 20 seconds in rural areas, and 18 minutes in wilderness areas. The **ERF** shall be capable of: establishing patient contact, staging and apparatus set up, providing technical expertise, knowledge, skills, and abilities during technical rescue incidents, and providing first responder medical support.

For 90 percent of **all moderate risk level technical rescue calls**, the total response time for the arrival of the **ERF** staffed with seven firefighters and officers, shall be 12 minutes and 20 seconds in urban areas, 16 minutes and 20 seconds in rural areas, and 18 minutes in wilderness areas. The **ERF** shall be capable of establishing patient contact, staging and apparatus set up, providing technical expertise, knowledge, skills, and abilities during technical rescue incidents, and providing first responder medical support.

For 90 percent of **all high risk level technical rescue calls**, the total response time for the arrival of the **ERF** staffed with 13 firefighters and officers, shall be 12 minutes and 20 seconds in urban areas, 16 minutes and 20 seconds in rural areas, and 18 minutes in wilderness areas. The **ERF** shall be capable of establishing patient contact, staging and apparatus set up, providing technical expertise, knowledge, skills, and abilities during technical rescue incidents, and providing first responder medical support.

For 90 percent of **all maximum/special risk level technical rescue calls**, the total response time for the arrival of the **ERF** staffed with 15 firefighters and officers, shall be 12 minutes and 20 seconds in urban areas, 16 minutes and 20 seconds in rural areas, and 18 minutes in wilderness areas. The **ERF** shall be capable of establishing patient contact, staging and apparatus set up, providing technical expertise, knowledge, skills, and abilities during technical rescue incidents, and providing first responder medical support.

Hazardous Materials Services Program

For 90 percent of **all risk level hazmat calls**, the total response time for the arrival of the **first-due unit**, staffed with three firefighters on the engine, shall be 7 minutes and 20 seconds in urban areas, 12 minutes and 20 seconds in rural areas, and 15 minutes in wilderness areas. The **first-due unit** shall be capable of approaching the incident from a direction of uphill, upgrade, and upwind, establishing command, establishing an incident command post in a safe area, setting up a staging area outside the perimeter, appointing a safety officer, sizing up the situation, identifying and assessing hazards from a safe distance, isolating and denying entry using the

Emergency Response Guidebook, performing rescue, beginning evacuation or sheltering in place, containing product by damming, diking, or diverting, and requesting additional resources in accordance with Fire Chief's Directives (FCDs). Emergency Response Guidebook, performing rescue, beginning evacuation or sheltering in place, containing product by damming, diking, or diverting, and requesting additional resources in accordance with FCDs.

For 90 percent of **all low risk level hazmat calls**, the total response time for the arrival of the **ERF**, staffed with three firefighters and officers, shall be 12 minutes and 20 seconds in urban areas, 16 minutes and 20 seconds in rural areas, and 18 minutes in wilderness areas. The **ERF** shall be capable of approaching the incident from a direction of uphill, upgrade, and upwind; establishing command, establishing an incident command post in a safe area, setting up a staging area outside the perimeter, appointing a safety officer, sizing up the situation, identifying and assessing hazards from a safe distance, isolating and denying entry using the Emergency Response Guidebook, performing rescue, beginning evacuation or sheltering in place, containing product by damming, diking, or diverting, and requesting additional resources in accordance with FCDs.

For 90 percent of **all moderate risk level hazmat calls**, the total response time for the arrival of the **ERF** at the hazardous materials first responder operations level, staffed with nine firefighters and officers, shall be 12 minutes and 20 seconds in urban areas, 16 minutes and 20 seconds in rural areas, and 18 minutes in wilderness areas. The **ERF** shall be capable of approaching the incident from a direction of uphill, upgrade, and upwind, establishing command, establishing an incident command post in a safe area, setting up a staging area outside the perimeter, appointing a safety officer, sizing up the situation, identifying and assessing hazards from a safe distance, isolating and denying entry using the Emergency Response Guidebook, performing rescue, beginning evacuation or sheltering in place, containing product by damming, diking, or diverting, and requesting additional resources in accordance with FCDs.

For 90 percent of **all high risk level hazmat calls**, the total response time for the arrival of the **ERF** at the hazardous materials first responder operations level, staffed with 15 firefighters and officers, shall be 12 minutes and 20 seconds in urban areas, 16 minutes and 20 seconds in rural areas, and 18 minutes in wilderness areas. The **ERF** shall be capable of approaching the incident from a direction of uphill, upgrade, and upwind, establishing command, establishing an incident command post in a safe area, setting up a staging area outside the perimeter, appointing a safety officer, sizing up the situation, identifying and assessing hazards from a safe distance, isolating and denying entry using the Emergency Response Guidebook, performing rescue, beginning evacuation or sheltering in place, containing product by damming, diking, or diverting, and requesting additional resources in accordance with FCDs.

For 90 percent of **all maximum/special risk level hazmat calls**, the total response time for the arrival of the **ERF** at the hazardous materials first responder operations level, staffed with 28 firefighters and officers, shall be 12 minutes and 20 seconds in urban areas, 16 minutes and 20 seconds in rural areas, and 18 minutes in

wilderness areas. The **ERF** shall be capable of approaching the incident from a direction of uphill, upgrade, and upwind, establishing command, establishing an incident command post in a safe area, setting up a staging area outside the perimeter, appointing a safety officer, sizing up the situation, identifying and assessing hazards from a safe distance, isolating and denying entry using the Emergency Response Guidebook, performing rescue, beginning evacuation or sheltering in place, containing product by damming, diking, or diverting, and requesting additional resources in accordance with FCDs.

Aircraft Rescue Firefighting Services Program

For 90 percent of **all risk level aircraft rescue firefighting calls,** the total response time for the arrival of the **first-due unit**, staffed with three firefighters on the engine or two firefighters on the medic unit, shall be 7 minutes and 20 seconds in urban areas, 12 minutes and 20 seconds in rural areas, and 15 minutes in wilderness areas. The **first-due unit** shall be capable of assessing the situation, request additional resources, effect rescue, apply fire control methods and/or establish incident command.

For 90 percent of **all low and moderate risk level aircraft rescue firefighting calls**, the total response time for the arrival of the **ERF** staffed with 18 firefighters and officers, shall be 12 minutes and 20 seconds in urban areas, 16 minutes and 20 seconds in rural areas, and 18 minutes in wilderness areas. The **ERF** shall be capable of supporting aircraft rescue firefighting.

For 90 percent of **all high and maximum/special risk level aircraft rescue firefighting calls**, the total response time for the arrival of the **ERF** staffed with 22 firefighters and officers, shall be 12 minutes and 20 seconds in urban areas, 16 minutes and 20 seconds in rural areas, and 18 minutes in wilderness areas. The **ERF** shall be capable of supporting aircraft rescue firefighting.

Wildland Firefighting Services Program

For 90 percent of **all risk level wildland-urban interface fire calls**, the total response time for the arrival of the **first-due unit**, staffed with a minimum of two firefighters, shall be 7 minutes and 20 seconds in urban areas, 12 minutes and 20 seconds in rural areas, and 18 minutes in wilderness areas. The **first-due unit** shall be capable of assessing the situation, request additional resources, constructing control lines, applying direct and indirect attacks and/or establish incident command, pump operation, and accountability.

For 90 percent of **all low risk level wildland-urban interface fire calls,** the total response time for the arrival of the **ERF** staffed with three firefighters and officers, shall be 12 minutes and 20 seconds in urban areas, 16 minutes and 20 seconds in rural areas, and 18 minutes in wilderness areas. The **ERF** shall be capable of providing additional fire suppression support.

For 90 percent of **all moderate risk level wildland-urban interface fire calls,** the total response time for the arrival of the **ERF** staffed with 12 firefighters and officers, shall be 12 minutes and 20 seconds in urban areas,

16 minutes and 20 seconds in rural areas, and 18 minutes in wilderness areas. The **ERF** shall be capable of providing additional fire suppression support.

For 90 percent of **all high risk level wildland-urban interface fire calls,** the total response time for the arrival of the **ERF** staffed with 20 firefighters and officers, shall be 12 minutes and 20 seconds in urban areas, 16 minutes and 20 seconds in rural areas, and 18 minutes in wilderness areas. The **ERF** shall be capable of providing additional fire suppression support.

For 90 percent of **all maximum/special risk level wildland-urban interface fire calls,** the total response time for the arrival of the **ERF** staffed with 28 firefighters and officers, shall be 12 minutes and 20 seconds in urban areas, 16 minutes and 20 seconds in rural areas, and 18 minutes in wilderness areas. The **ERF** shall be capable of providing additional fire suppression support.

Performance Objectives – Baselines

Fire Suppression Services Program

For 90 percent of **all low risk fire calls**, the total response time for the arrival of the **first-due engine**, staffed with three firefighters, is 8 minutes and 48 seconds in urban areas, 11 minutes and 57 seconds in rural areas, and 10 minutes and 14 seconds in wilderness areas. The **first-due unit** for all risk levels is capable of providing 500 gallons of water and 1,500 gpm pumping capacity, initiating command, requesting additional resources, establishing and advancing an attack line flowing a minimum of 150 gpm, establishing an uninterrupted water supply, containing the fire, rescuing at-risk victims, and performing salvage operations. These operations are done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of **all high risk fire calls**, the total response time for the arrival of the **first-due engine**, staffed with three firefighters, is 7 minutes and 59 seconds in urban areas, 9 minutes and 12 seconds in rural areas, and 4 minutes and 20 seconds in wilderness areas. The **first-due unit** for all risk levels is capable of providing 500 gallons of water and 1,500 gpm pumping capacity, initiating command, requesting additional resources, establishing and advancing an attack line flowing a minimum of 150 gpm, establishing an uninterrupted water supply, containing the fire, rescuing at-risk victims, and performing salvage operations. These operations are done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of **all maximum/special risk fire calls**, the total response time for the arrival of the **first-due engine**, staffed with three firefighters, is 7 minutes and 17 seconds in urban areas, 11 minutes and 55 seconds in rural areas, and 4 minutes 51 seconds in wilderness areas. The **first-due unit** for all risk levels is capable of providing 500 gallons of water and 1,500 gpm pumping capacity, initiating command, requesting additional

resources, establishing and advancing an attack line flowing a minimum of 150 gpm, establishing an uninterrupted water supply, containing the fire, rescuing at-risk victims, and performing salvage operations. These operations are done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of **all low risk fire calls**, the total response time for the arrival of the **ERF**, staffed with 20 firefighters and officers, is 19 minutes and 06 seconds in urban areas, 15 minutes and 45 seconds in rural areas, and 6 minutes and 49 seconds in wilderness areas. The **ERF** for **all low risk fire calls** is capable of establishing command, appointing a site safety officer, providing an uninterrupted water supply, advancing an attack line and a backup line for fire control, complying with the OSHA requirements of two-in and two-out, completing forcible entry, searching and rescuing at-risk victims, ventilating the structure, controlling utilities, performing salvage and overhaul, and operating elevated streams.

For 90 percent of **all high risk fire calls**, the total response time for the arrival of the **ERF**, staffed with 20 firefighters and officers, is 13 minutes and 54 in urban areas, 23 minutes and 06 seconds in rural areas, and 4 minutes and 41 seconds in wilderness areas. The **ERF** for **all high risk fire calls** is capable of establishing command, appointing a site safety officer, providing an uninterrupted water supply, advancing an attack line and a backup line for fire control, complying with the OSHA requirements of two-in and two-out, completing forcible entry, searching and rescuing at-risk victims, ventilating the structure, controlling utilities, performing salvage and overhaul, and operating elevated streams. There was only one **high risk fire call**. This is statistically insignificant to analyze.

For 90 percent of **all maximum/special risk fire calls**, the total response time for the arrival of the **ERF**, staffed with 22 firefighters and officers, is 11 minutes and 59 seconds in urban areas, 16 minutes and 14 seconds in rural areas, and 7 minutes and 40 seconds in wilderness areas. The **ERF** for **all maximum/special risk fire calls** is capable of: establishing command, appointing a site safety officer, providing an uninterrupted water supply, advancing an attack line and a backup line for fire control, complying with the OSHA requirements of two-in and two-out, completing forcible entry, searching and rescuing at-risk victims, ventilating the structure, controlling utilities, performing salvage and overhaul, and operating elevated streams.

There were no **moderate fire risk calls**, which required a first-due response or an effective response force to be assembled for 2014-2018, to provide reliable data. There are therefore no baseline service level performance statements provided in this report.

Emergency Medical Services Program

For 90 percent of **all low risk EMS calls,** the total response time for the arrival of the **first-due unit** staffed with a minimum of two firefighters, was 7 minutes and 54 seconds in urban areas, 8 minutes and 52 seconds in rural areas, and 17 minutes and 43 seconds in wilderness areas. The **first-due unit** is capable of assessing scene safety and establishing command, sizing-up the situation, conducting the initial patient assessment, obtaining vitals and patient's medical history, initiating mitigation efforts within one minute of arrival, providing first responder medical aid including automatic defibrillation, and assisting transport personnel with packing the patient.

For 90 percent of **all low risk EMS calls,** EMS response incidents, the total response time for the arrival of the **ERF**, staffed with a minimum two firefighters is 9 minutes and 27 seconds in urban areas, 10 minutes in rural areas, and 18 minutes and 14 seconds in the wilderness areas. The **ERF** is capable of providing incident command and producing related documentation, completing patient assessment, providing appropriate treatment, performing automatic external defibrillator (AED), initiating cardiopulmonary resuscitation (CPR), and providing intravenous (IV) assess-medication administration.

There were **no moderate, high, or maximum/special risk EMS calls**, which required a first-due response or an effective response force to be assembled for 2014-2018, to provide reliable data. There are therefore no baseline service level performance statements provided in this report.

Technical Rescue Services Program

For 90 percent of **all low risk technical rescue calls** the total response time for the arrival of the **first-due unit**, staffed with three firefighters is 6 minutes and 58 seconds in urban areas, 12 minutes and 43 seconds in rural areas, and 18 minutes and 35 seconds in wilderness areas. The **first-due unit** is capable of establishing command, sizing up to determine if a technical rescue response is required, requesting additional resources, and providing basic life support to any victim without endangering response personnel.

For 90 percent of **all moderate risk technical rescue calls**, the total response time for the arrival of the **first-due unit**, staffed with three firefighters is 6 minutes and 32 seconds in urban areas and 10 minutes and 04 seconds in rural areas. The **first-due unit** is capable of establishing command, sizing up to determine if a technical rescue response is required, requesting additional resources, and providing basic life support to any victim without endangering response personnel.

For 90 percent of **all high risk technical rescue calls,** the total response time for the arrival of the **first-due unit,** staffed with three firefighters is 7 minutes and 17 seconds in urban areas, 14 minutes and 17 seconds in rural areas, and 10 minutes and 57 seconds in wilderness areas. The **first-due unit** is capable of establishing command, sizing up to determine if a technical rescue response is required, requesting additional resources, and providing basic life support to any victim without endangering response personnel.

For 90 percent of **all maximum/special risk technical rescue calls**, the total response time for the arrival of the **first-due unit**, staffed with three firefighters is 7 minutes and 01 seconds in urban areas, 11 minutes and 02 seconds in rural areas, and 16 minutes and 46 seconds in wilderness areas. The **first-due unit** is capable of establishing command, sizing up to determine if a technical rescue response is required, requesting additional resources, and providing basic life support to any victim without endangering response personnel.

For 90 percent of **all low risk technical rescue calls,** the total response time for the arrival of the **ERF**, staffed with five firefighters and officers is 11 minutes and 25 seconds in urban areas, 19 minutes and 54 seconds in rural areas, and 24 minutes and 16 seconds in wilderness areas. The **ERF** is capable of establishing patient contact, staging, and apparatus set up, providing technical expertise, knowledge, skills, and abilities, performing rescue operations and providing patient care and medical support.

For 90 percent of **all moderate risk technical rescue calls**, the total response time for the arrival of the **ERF**, staffed with seven firefighters and officers is 7 minutes and 41 seconds in urban areas and 11 minutes and 43 seconds in rural areas. The **ERF** is capable of establishing patient contact, staging, and apparatus set up, providing technical expertise, knowledge, skills, and abilities, performing rescue operations and providing patient care and medical support.

For 90 percent of **all high risk technical rescue calls,** the total response time for the arrival of the **ERF**, staffed with seven firefighters and officers is 12 minutes and 56 seconds in urban areas, 18 minutes and 05 seconds in rural areas, and 11 minutes and 14 seconds in wilderness areas. The **ERF** is capable of establishing patient contact, staging, and apparatus set up, providing technical expertise, knowledge, skills, and abilities, performing rescue operations and providing patient care and medical support.

For 90 percent of **all maximum/special risk technical rescue calls**, the total response time for the arrival of the **ERF**, staffed with 15 firefighters and officers is 12 minutes and 37 seconds in urban areas, 10 minutes and 49 seconds in rural areas, and 16 minutes and 13 seconds in the wilderness areas. The **ERF** is capable of establishing patient contact, staging, and apparatus set up, providing technical expertise, knowledge, skills, and abilities, performing rescue operations and providing patient care and medical support.

Hazardous Materials Services Program

For 90 percent of **all low risk hazmat calls**, the total response time for the arrival of the **first-due unit** staffed with three firefighters and officers is 10 minutes and 10 seconds in urban areas,9 minutes and 06 seconds in rural areas, and 8 minutes and 37 seconds in wilderness areas. The **first-due unit** was capable of approaching the incident from a direction of uphill, upgrade, and upwind, establishing command, establishing an incident command post in a safe area, setting up a staging area outside the perimeter, appointing a safety officer, sizing up the situation, identifying and assessing hazards from a safe distance, isolating and denying entry using the

Emergency Response Guidebook, performing rescue, beginning evacuation or sheltering in place, containing product by damming, diking, or diverting, and requesting additional resources in accordance with FCDs.

For 90 percent of **all moderate risk hazmat calls**, the total response time for the arrival of the **first-due unit** staffed with three firefighters and officers is 15 minutes and 08 seconds in urban areas, 5 minutes and 30 seconds in rural areas, and there were **no moderate risk hazmat calls** in wilderness areas. The **first-due unit** was capable of approaching the incident from a direction of uphill, upgrade, and upwind, establishing command, establishing an incident command post in a safe area, setting up a staging area outside the perimeter, appointing a safety officer, sizing up the situation, identifying and assessing hazards from a safe distance, isolating and denying entry using the Emergency Response Guidebook, performing rescue, beginning evacuation or sheltering in place, containing product by damming, diking, or diverting, and requesting additional resources in accordance with FCDs.

For 90 percent of **all high risk hazmat calls**, the total response time for the arrival of the **first due unit** staffed with three firefighters and officers is 9 minutes and 23 seconds in urban areas, 9 minutes and 24 seconds in rural areas, and there were no **high risk hazmat calls** in wilderness areas. The **first due unit** was capable of approaching the incident from a direction of uphill, upgrade, and upwind, establishing command, establishing an incident command post in a safe area, setting up a staging area outside the perimeter, appointing a safety officer, sizing up the situation, identifying and assessing hazards from a safe distance, isolating and denying entry using the Emergency Response Guidebook, performing rescue, beginning evacuation or sheltering in place, containing product by damming, diking, or diverting, and requesting additional resources in accordance with FCDs.

For 90 percent of **all maximum/special risk hazmat calls**, the total response time for the arrival of the **first due unit** staffed with three firefighters and officers is 7 minutes and 35 seconds in urban areas, 8 minutes and 24 seconds in rural areas, and 4 minutes and 12 seconds in wilderness areas. The **first due unit** was capable of approaching the incident from a direction of uphill, upgrade, and upwind, establishing command, establishing an incident command post in a safe area, setting up a staging area outside the perimeter, appointing a safety officer, sizing up the situation, identifying and assessing hazards from a safe distance, isolating and denying entry using the Emergency Response Guidebook, performing rescue, beginning evacuation or sheltering in place, containing product by damming, diking, or diverting, and requesting additional resources in accordance with FCDs.

For 90 percent of **all low risk hazmat calls**, the total response time for the arrival of the **ERF**, staffed with three firefighters and officers including the hazardous materials response team is 14 minutes and 05 seconds in urban areas, and 10 minutes and 56 second in rural areas, and 9 minutes and 58 seconds in wilderness areas. The **ERF** is capable of: providing the equipment, technical expertise, knowledge, skills, and abilities to mitigate a hazardous materials incident in accordance with FCDs.

For 90 percent of **all moderate risk hazmat calls**, the total response time for the arrival of the **ERF**, staffed with nine firefighters and officers including the hazardous materials response team is 20 minutes and 08 seconds in urban areas and 25 minutes and 48 seconds in rural areas. The **ERF** is capable of: providing the equipment, technical expertise, knowledge, skills, and abilities to mitigate a hazardous materials incident in accordance with FCDs.

For 90 percent of **all high risk hazmat calls**, the total response time for the arrival of the **ERF**, staffed with nine firefighters and officers including the hazardous materials response team is 15 minutes and 08 seconds in urban areas, 15 minutes in rural areas. The **ERF** is capable of: providing the equipment, technical expertise, knowledge, skills, and abilities to mitigate a hazardous materials incident in accordance with the FCDs.

For 90 percent of **all maximum/special risk hazmat** calls, the total response time for the arrival of the ERF, staffed with nine firefighters and officers including the hazardous materials response team is 12 minutes and 39 seconds in urban areas, 21 minutes and 38 seconds rural areas, and 4 minutes and 12 seconds in wilderness areas. The **ERF** is capable of: providing the equipment, technical expertise, knowledge, skills, and abilities to mitigate a hazardous materials incident in accordance with the FCD's

Aircraft Rescue Firefighting Services Program

There were **no low, moderate, high, or maximum/special risk ARFF calls,** which required a first-due response or an ERF to be assembled for 2014-2018, to provide reliable data. There are therefore no baseline service level performance statements provided in this report.

Wildland Firefighting Services Program

For 90 percent of **all low risk wildland-urban interface fire calls**, the total response time for the arrival of the **first due unit**, is 9 minutes and 27 seconds in urban areas, 24 minutes and 30 seconds in rural areas, and 27 minutes and 14 seconds in wilderness areas. The **first-due unit** is capable of assessing the situation, request additional resources, constructing control lines, applying direct and indirect attacks and/or establish Incident Command, pump operation, and accountability.

For 90 percent of **all low risk wildland-urban interface fire calls**, the total response time for the arrival of the **ERF**, staffed with three firefighters and officers, is 18 minutes and 20 seconds in urban areas, 32 minutes and 38 seconds in rural areas, and 18 minutes and 52 seconds in wilderness areas. The **ERF** is capable of providing additional fire suppression support.

There were no **moderate, high, maximum/special risk wildland-urban interface fire calls**, which required a first-due response or an ERF to be assembled for 2014-2019. There are therefore no baseline service level performance statements provided.

Performance Gaps – Baseline to Benchmark Time Gap

The LAFD is committed to excellence and will fulfill the continuous improvement promise through the assessment of program effectiveness and analysis of program performance.

Monitoring performance is central to LAFD's commitment to continuous improvement. The department uses several tools to aid in monitoring performance. A Daily Exception Report, Monthly Dashboard, Monthly CQI Processing Time spreadsheet and monthly data analysis for the progress reports to DOE/NNSA all serve to reveal any gaps in performance for the evaluation period.

In addition, the department performed two studies shown to follow. The first, a reliability study is a geospatial analysis where calls for service were plotted by location and station district. The calls were then analyzed against the data set for the first responding unit. If the unit was from another district it was noted as an outlier. This analysis is relatively new for the department and could only be performed with 2017 and 2018 data, as the latitude and longitude fields were not available in the previous computer aided dispatch system.

The second analysis was the baseline performance measured against the benchmark performance objectives. This was then placed in a percentage, and gross deviation was highlighted at any value greater than 100%.

Reliability by Station

Table 52: Reliability (2019)

Station	Total Emergency Calls	Emergency Calls with 1st in by other station	Percent of emergency calls serviced by other stations
1	372	24	6.45%
3	341	7	2.05%
4	309	11	3.56%
5	77	11	14.29%
6	532	25	4.70%
All Stations	**1631**	**78**	**4.78%**

Table 53: Reliability (2018)

Station	Total Emergency Calls	Emergency Calls with 1st in by other station	Percent of emergency calls serviced by resources from other stations
1	381	28	7.35%
3	323	2	0.62%
4	339	10	2.95%
5	47	6	12.77%
6	460	16	3.48%
All Stations	**1550**	**62**	**4.00%**

Table 54: Reliability (2017)

Station	Total Emergency Calls	Emergency Calls with 1st in by other station	Percent of emergency calls serviced by resources from other stations
1	309	23	7.44%
3	298	3	1.01%
4	303	4	1.32%
5	60	9	15.00%
6	494	19	3.85%
Grand Total	**1464**	**58**	**3.96%**

Service Type Rollup Data Tables with Variance above Benchmark

Fire Suppression Services Program

All Fire with Rollup on Risk Fire Suppression - 90th Percentile Times - Baseline Performance			Benchmark	Baseline 2015-2019	Variance above Benchmark	Percent above Benchmark
Alarm Handling	Pick-up to Dispatch	Urban	0:01:30	0:02:37	0:01:07	74%
		Rural	0:01:30	0:02:50	0:01:20	88%
		Wilderness	0:01:30	0:01:41	0:00:11	12%
Turnout Time	Turnout Time 1st Unit	Urban	0:01:30	0:03:39	0:02:09	143%
		Rural	0:01:30	0:03:23	0:01:53	126%
		Wilderness	0:01:30	0:01:34	0:00:04	4%
Travel Time	Travel Time 1st Unit **Distribution**	Urban	0:04:20	0:06:03	0:01:43	40%
		Rural	0:09:20	0:07:46	N/A	N/A
		Wilderness	0:12:00	0:06:03	N/A	N/A
	Travel Time ERF **Concentration**	Urban	0:09:20	0:10:39	0:01:19	14%
		Rural	0:12:20	0:13:26	0:01:06	9%
		Wilderness	0:15:00	0:13:33	N/A	N/A
Total Response Time	Total Response Time 1st Unit **Distribution**	Urban	0:07:20	0:08:51	0:01:31	21%
		Rural	0:12:20	0:10:27	N/A	N/A
		Wilderness	0:15:00	0:09:12	N/A	N/A
	Total Response Time ERF **Concentration**	Urban	0:12:20	0:13:35	0:01:15	10%
		Rural	0:16:20	0:17:05	0:00:45	5%
		Wilderness	0:18:00	0:07:39	N/A	N/A

Emergency Medical Services Program

EMS - 90th Percentile Times – Baseline Performance			Benchmark	Baseline 2015-2019	Variance above Benchmark	Percent above Benchmark
Alarm Handling	Pick-up to Dispatch	Urban	0:01:30	0:02:19	0:00:49	54%
		Rural	0:01:30	0:02:18	0:00:48	54%
		Wilderness	0:01:30	0:03:18	0:01:48	120%
Turnout Time	Turnout Time 1st Unit	Urban	0:01:30	0:02:15	0:00:45	50%
		Rural	0:01:30	0:02:39	0:01:09	77%
		Wilderness	0:01:30	0:02:25	0:00:55	62%
Travel Time	Travel Time 1st Unit **Distribution**	Urban	0:04:20	0:04:50	0:00:30	12%
		Rural	0:09:20	0:05:32	N/A	N/A
		Wilderness	0:12:00	0:14:19	0:02:19	19%
	Travel Time ERF **Concentration**	Urban	0:09:20	0:05:58	N/A	N/A
		Rural	0:12:20	0:06:42	N/A	N/A
		Wilderness	0:15:00	0:14:40	N/A	N/A
Total Response Time	Total Response Time 1st Unit **Distribution**	Urban	0:07:20	0:07:54	0:00:34	8%
		Rural	0:12:20	0:08:52	N/A	N/A
		Wilderness	0:15:00	0:17:43	0:02:43	18%
	Total Response Time ERF **Concentration**	Urban	0:12:20	0:09:27	N/A	N/A
		Rural	0:16:20	0:10:00	N/A	N/A
		Wilderness	0:18:00	0:18:14	0:00:14	1%

Technical Rescue Services Program

Technical Rescue - 90th Percentile Times - Baseline Performance			Benchmark	Baseline 2015-2019	Variance above Benchmark	Percent above Benchmark
Alarm Handling	Pick-up to Dispatch	Urban	0:01:30	0:02:25	0:00:55	61%
		Rural	0:01:30	0:04:31	0:03:01	202%
		Wilderness	0:01:30	0:03:09	0:01:39	109%
Turnout Time	Turnout Time 1st Unit	Urban	0:01:30	0:02:27	0:00:57	63%
		Rural	0:01:30	0:03:08	0:01:38	109%
		Wilderness	0:01:30	0:02:55	0:01:25	94%
Travel Time	Travel Time 1st Unit **Distribution**	Urban	0:04:20	0:04:01	N/A	N/A
		Rural	0:09:20	0:08:16	N/A	N/A
		Wilderness	0:12:00	0:14:46	0:02:46	23%
	Travel Time ERF **Concentration**	Urban	0:09:20	0:11:29	0:02:09	23%
		Rural	0:12:20	0:16:40	0:04:20	35%
		Wilderness	0:15:00	0:19:38	0:04:38	31%
Total Response Time	Total Response Time 1st Unit **Distribution**	Urban	0:07:20	0:06:52	N/A	N/A
		Rural	0:12:20	0:12:44	0:00:24	3%
		Wilderness	0:15:00	0:19:22	0:04:22	29%
	Total Response Time ERF **Concentration**	Urban	0:12:20	0:14:00	0:01:40	13%
		Rural	0:16:20	0:19:10	0:02:50	17%
		Wilderness	0:18:00	0:23:07	0:05:07	28%

Hazardous Materials Services Program

All HazMat with Rollup on Risk Hazmat - 90th Percentile Times - Baseline Performance			Benchmark	Baseline 2015-2019	Variance above Benchmark	Percent above Benchmark
Alarm Handling	Pick-up to Dispatch	Urban	0:01:30	0:02:53	0:01:23	92%
		Rural	0:01:30	0:02:31	0:01:01	68%
		Wilderness	0:01:30	0:01:57	0:00:27	30%
Turnout Time	Turnout Time 1st Unit	Urban	0:01:30	0:02:54	0:01:24	93%
		Rural	0:01:30	0:03:04	0:01:34	104%
		Wilderness	0:01:30	0:02:38	0:01:08	76%
Travel Time	Travel Time 1st Unit **Distribution**	Urban	0:04:20	0:06:20	0:02:00	46%
		Rural	0:09:20	0:06:20	N/A	N/A
		Wilderness	0:12:00	0:04:21	N/A	N/A
	Travel Time ERF **Concentration**	Urban	0:09:20	0:10:58	0:01:38	18%
		Rural	0:12:20	0:09:58	N/A	N/A
		Wilderness	0:15:00	0:04:22	N/A	N/A
Total Response Time	Total Response Time 1st Unit **Distribution**	Urban	0:07:20	0:09:45	0:02:25	33%
		Rural	0:12:20	0:08:50	N/A	N/A
		Wilderness	0:15:00	0:08:27	N/A	N/A
	Total Response Time ERF **Concentration**	Urban	0:12:20	0:14:00	0:01:40	13%
		Rural	0:16:20	0:13:49	N/A	N/A
		Wilderness	0:18:00	0:09:41	N/A	N/A

Wildland/Urban Interface Services Program

Wildland - 90th Percentile Times - Baseline Performance			Benchmark	Baseline 2014-2018	Variance above Benchmark	Percent above Benchmark
Alarm Handling	Pick-up to Dispatch	Urban	0:01:30	0:03:11	0:01:41	112%
		Rural	0:01:30	0:03:30	0:02:00	134%
		Wilderness	0:01:30	0:02:11	0:00:41	46%
Turnout Time	Turnout Time 1st Unit	Urban	0:01:30	0:02:06	0:00:36	40%
		Rural	0:01:30	0:02:56	0:01:26	96%
		Wilderness	0:01:30	0:01:41	0:00:11	12%
Travel Time	Travel Time 1st Unit **Distribution**	Urban	0:04:20	0:06:04	0:01:44	40%
		Rural	0:09:20	0:20:24	0:11:04	119%
		Wilderness	0:12:00	0:25:18	0:13:18	111%
	Travel Time ERF **Concentration**	Urban	0:09:20	0:12:55	0:03:35	38%
		Rural	0:12:20	0:26:29	0:14:09	115%
		Wilderness	0:15:00	0:14:37	N/A	N/A
Total Response Time	Total Response Time 1st Unit **Distribution**	Urban	0:07:20	0:09:27	0:02:07	29%
		Rural	0:12:20	0:24:30	0:12:10	99%
		Wilderness	0:15:00	0:27:14	0:12:14	82%
	Total Response Time ERF **Concentration**	Urban	0:12:20	0:18:20	0:06:00	49%
		Rural	0:16:20	0:32:38	0:16:18	100%
		Wilderness	0:18:00	0:18:52	0:00:52	5%

Community Areas for Program Delivery and Coverage Improvement

Alarm handling and turnout times are areas of opportunity for improvement. Training, technology, and behavior strategies are being used to address time delays. The department continues to meet with representatives from the dispatch center to review and identify that are outside of the standard and determine if the cause for the delay is a training issue, technology issue, or caller issue. As causes are identified, strategies are developed to address them.

Table 55: 2019 January – March 90% Turnout Time

1st Qtr Jan - Mar All Units			1st Qtr Jan - Mar A Shift			1st Qtr Jan - Mar B Shift			1st Qtr Jan - Mar C Shift		
Unit	Shift	90th % Turno	Unit	Shift	90th % Turno	Unit	Shift	90th % Turno	Unit	Shift	90th % Turno
TK10	A	0:00:03	TK10	A	0:00:03	R1	B	0:00:51	MT3	C	0:00:28
MT3	C	0:00:28	TK1	A	0:01:27	E5	B	0:01:31	M5	C	0:00:41
M5	C	0:00:41	M1	A	0:01:32	E6	B	0:01:42	MT5	C	0:00:48
MT5	C	0:00:48	R1	A	0:01:34	M6	B	0:01:42	E6	C	0:01:24
R1	B	0:00:51	E10	A	0:01:47	M4	B	0:01:43	TK10	C	0:01:27
E6	C	0:01:24	E6	A	0:01:51	E4	B	0:01:46	E10	C	0:01:52
TK1	A	0:01:27	E4	A	0:02:01	M3	B	0:02:03	M4	C	0:02:01
TK10	C	0:01:27	E5	A	0:02:08	E3	B	0:02:20	M3	C	0:02:08
E5	B	0:01:31	E3	A	0:02:12	E1	B	0:02:21	R1	C	0:02:19
M1	A	0:01:32	M30	A	0:02:26	M1	B	0:02:24	E1	C	0:02:23
R1	A	0:01:34	M3	A	0:02:29	E10	B	0:02:25	E4	C	0:02:24
E6	B	0:01:42	M6	A	0:02:47	M30	B	0:02:37	M6	C	0:02:24
M6	B	0:01:42	M4	A	0:02:59				M1	C	0:02:29
M4	B	0:01:43	M5	A	0:03:00				M30	C	0:02:30
E4	B	0:01:46	E1	A	0:03:38				E3	C	0:02:33
E10	A	0:01:47							E5	C	0:03:00
E6	A	0:01:51							TK1	C	0:03:40
E10	C	0:01:52									
M4	C	0:02:01									
E4	A	0:02:01									
M3	B	0:02:03									
M3	C	0:02:08									
E5	A	0:02:08									
E3	A	0:02:12									
R1	C	0:02:19									
E3	B	0:02:20									
E1	B	0:02:21									
E1	C	0:02:23									
M1	B	0:02:24									
E4	C	0:02:24									
M6	C	0:02:24									
E10	B	0:02:25									
M30	A	0:02:26									
M1	C	0:02:29									
M3	A	0:02:29									
M30	C	0:02:30									
E3	C	0:02:33									
M30	B	0:02:37									
M6	A	0:02:47									
M4	A	0:02:59									
M5	A	0:03:00									
E5	C	0:03:00									
E1	A	0:03:38									
TK1	C	0:03:40									

Table 56: 2019 April - June 90% Turnout Time

2nd Qtr Apr - Jun All Units			2nd Qtr Apr - Jun A Shift			2nd Qtr Apr - Jun B Shift			2nd Qtr Apr - Jun C Shift		
Unit	Shift	90th % Turno	Unit	Shift	90th % Turno	Unit	Shift	90th % Turno	Unit	Shift	90th % Turno
MT3	B	0:00:02	TK30	A	0:00:05	MT3	B	0:00:02	MT3	C	0:01:05
E5	B	0:00:03	TK10	A	0:01:24	E5	B	0:00:03	E20	C	0:01:12
TK30	A	0:00:05	M6	A	0:01:42	E10	B	0:01:03	M4	C	0:01:21
E10	B	0:01:03	E6	A	0:01:49	E4	B	0:01:36	E6	C	0:01:25
MT3	C	0:01:05	E4	A	0:01:50	E3	B	0:01:36	M5	C	0:01:30
E20	C	0:01:12	E40	A	0:01:51	E20	B	0:01:39	E10	C	0:01:39
M4	C	0:01:21	M1	A	0:01:57	M5	B	0:01:41	E4	C	0:01:39
TK10	A	0:01:24	E1	A	0:02:06	MT5	B	0:01:45	M6	C	0:01:50
E6	C	0:01:25	E20	A	0:02:07	E6	B	0:01:47	E1	C	0:02:01
M5	C	0:01:30	R1	A	0:02:15	M4	B	0:01:53	M1	C	0:02:02
E4	B	0:01:36	M3	A	0:02:31	E1	B	0:02:02	E40	C	0:02:27
E3	B	0:01:36	M4	A	0:02:46	M30	B	0:02:05	M30	C	0:02:32
E10	C	0:01:39	M30	A	0:02:52	M6	B	0:02:14	M3	C	0:02:33
E4	C	0:01:39	E3	A	0:03:24	M1	B	0:02:24	E3	C	0:02:45
E20	B	0:01:39	M5	A	0:03:54	R1	B	0:02:26			
M5	B	0:01:41				M3	B	0:02:32			
M6	A	0:01:42				E40	B	0:03:34			
MT5	B	0:01:45									
E6	B	0:01:47									
E6	A	0:01:49									
M6	C	0:01:50									
E4	A	0:01:50									
E40	A	0:01:51									
M4	B	0:01:53									
M1	A	0:01:57									
E1	C	0:02:01									
M1	C	0:02:02									
E1	B	0:02:02									
M30	B	0:02:05									
E1	A	0:02:06									
E20	A	0:02:07									
M6	B	0:02:14									
R1	A	0:02:15									
M1	B	0:02:24									
R1	B	0:02:26									
E40	C	0:02:27									
M3	A	0:02:31									
M3	B	0:02:32									
M30	C	0:02:32									
M3	C	0:02:33									
E3	C	0:02:45									
M4	A	0:02:46									
M30	A	0:02:52									
E3	A	0:03:24									
E40	B	0:03:34									
M5	A	0:03:54									

Table 57: 2019 July - September 90% Turnout Time

3rd Qtr Jul- Present All Units			3rd Qtr Jul- Present A Shift			3rd Qtr Jul- Present B Shift			3rd Qtr Jul- Present C Shift		
Unit	Shift	90th % Turno	M6	A	0:01:41	T3	B	0:00:06	M4	C	0:01:24
T3	B	0:00:06	M30	A	0:01:42	E6	B	0:01:21	E3	C	0:01:45
E6	B	0:01:21	E4	A	0:01:53	M6	B	0:01:42	M6	C	0:01:49
M4	C	0:01:24	E1	A	0:02:00	M4	B	0:01:51	E4	C	0:01:51
M6	A	0:01:41	M4	A	0:02:03	M30	B	0:01:55	M1	C	0:01:54
M6	B	0:01:42	M3	A	0:02:09	E40	B	0:01:58	E40	C	0:01:54
M30	A	0:01:42	E3	A	0:02:39	M1	B	0:02:00	M3	C	0:01:59
E3	C	0:01:45	E6	A	0:02:45	R1	B	0:02:04	TK3	C	0:02:01
M6	C	0:01:49	R1	A	0:02:55	E3	B	0:02:05	E1	C	0:02:05
M4	B	0:01:51	TK3	A	0:02:56	TK3	B	0:02:16	M30	C	0:02:12
E4	C	0:01:51	M5	A	0:03:04	M3	B	0:02:18	R1	C	0:02:26
E4	A	0:01:53	TK1	A	0:03:11	E5	B	0:02:23	E6	C	0:02:26
M1	C	0:01:54	E40	A	0:03:13	E1	B	0:02:32	E5	C	0:02:49
E40	C	0:01:54	MT5	A	0:03:14	M5	B	0:02:37	MT3	C	0:02:57
M30	B	0:01:55	UT4	A	0:03:29	E4	B	0:02:52	MT5	C	0:03:18
E40	B	0:01:58	M1	A	0:04:36						
M3	C	0:01:59	E5	A	0:05:08						
M1	B	0:02:00									
E1	A	0:02:00									
TK3	C	0:02:01									
M4	A	0:02:03									
R1	B	0:02:04									
E3	B	0:02:05									
E1	C	0:02:05									
M3	A	0:02:09									
M30	C	0:02:12									
TK3	B	0:02:16									
M3	B	0:02:18									
E5	B	0:02:23									
R1	C	0:02:26									
E6	C	0:02:26									
E1	B	0:02:32									
M5	B	0:02:37									
E3	A	0:02:39									
E6	A	0:02:45									
E5	C	0:02:49									
E4	B	0:02:52									
R1	A	0:02:55									
TK3	A	0:02:56									
MT3	C	0:02:57									
M5	A	0:03:04									
TK1	A	0:03:11									
E40	A	0:03:13									
MT5	A	0:03:14									
MT5	C	0:03:18									
UT4	A	0:03:29									
M1	A	0:04:36									
E5	A	0:05:08									

Table 58: 2019 October - December 90% Turnout Time

4th Qtr October - December All Units			4th Qtr October - December A Shift			4th Qtr October - December B Shift			4th Qtr October - December C Shift		
Unit	Shift	90th % Turno	Unit	Shift	90th % Turno	Unit	Shift	90th % Turno	Unit	Shift	90th % Turno
MT5	C	0:00:00	TK1	A	0:00:07	TK3	B	0:00:06	MT5	C	0:00:00
TK3	B	0:00:06	TK3	A	0:01:39	M6	B	0:01:32	M30	C	0:01:01
TK1	A	0:00:07	M1	A	0:02:01	TK1	B	0:01:36	E20	C	0:01:27
M30	C	0:01:01	E6	A	0:02:03	M4	B	0:01:39	E4	C	0:01:39
E20	C	0:01:27	R1	A	0:02:15	E6	B	0:01:59	M6	C	0:01:44
M6	B	0:01:32	E3	A	0:02:16	R1	B	0:02:02	E1	C	0:01:45
TK1	B	0:01:36	M5	A	0:02:18	E4	B	0:02:09	TK1	C	0:01:59
E4	C	0:01:39	E4	A	0:02:20	E40	B	0:02:11	E6	C	0:02:03
TK3	A	0:01:39	E5	A	0:02:24	M3	B	0:02:17	E40	C	0:02:05
M4	B	0:01:39	M6	A	0:02:27	E1	B	0:02:19	M1	C	0:02:13
M6	C	0:01:44	M3	A	0:02:31	M5	B	0:02:35	M4	C	0:02:21
E1	C	0:01:45	M4	A	0:02:32	M1	B	0:02:42	M3	C	0:02:26
E6	B	0:01:59	M30	A	0:03:51	M30	B	0:02:58	E3	C	0:02:29
TK1	C	0:01:59	MT5	A	0:03:51	E3	B	0:03:23	R1	C	0:03:08
M1	A	0:02:01	E40	A	0:04:11	E5	B	0:03:31	MT3	C	0:03:08
R1	B	0:02:02	E1	A	0:04:12						
E6	A	0:02:03									
E6	C	0:02:03									
E40	C	0:02:05									
E4	B	0:02:09									
E40	B	0:02:11									
M1	C	0:02:13									
R1	A	0:02:15									
E3	A	0:02:16									
M3	B	0:02:17									
M5	A	0:02:18									
E1	B	0:02:19									
E4	A	0:02:20									
M4	C	0:02:21									
E5	A	0:02:24									
M3	C	0:02:26									
M6	A	0:02:27									
E3	C	0:02:29									
M3	A	0:02:31									
M4	A	0:02:32									
M5	B	0:02:35									
M1	B	0:02:42									
M30	B	0:02:58									
R1	C	0:03:08									
MT3	C	0:03:08									
E3	B	0:03:23									
E5	B	0:03:31									
M30	A	0:03:51									
MT5	A	0:03:51									
E40	A	0:04:11									
E1	A	0:04:12									

Recommendations for Improved Effectiveness in Deployment and Coverage

The department will continue to perform quality assurance reviews at various levels with multiple focus areas to ensure incident data is captured accurately and comprehensively. Documentation training is one approach to addressing data quality. Several strategies have been developed and the plans for aggressive implementation are being launched.

Enhancing the post-incident analysis process for all major or large incidents and events is another approach to improving effectiveness in deployment and coverage, as PIAs provide opportunities for all personnel to learn from actions on an incident whether they responded or not.

To improve turnout time performance, the department is emphasizing awareness of the time it takes to go en route and by exploring the use of technology from several angles:

Countdown clocks - This technology begins counting upward in one-second increments beginning when the station is notified of the incident. The timer continues to count upward each second until the responding apparatus acknowledges the incident.

Monitors in the stations directly synced to the CAD will serve as an off-the-shelf solution to get pre-alert information to stations. Monitors will display active calls as they are received in the dispatch center and will allow responders to see call information indicating units dispatched, address, type of incident, and other critical information on the way to the apparatus. This off-the-shelf solution is a work-around to the ownership barriers with legacy buildings on the federal property (Stations 1 and 5). Replacement plans/designs for Stations 1 and 5 will include considerations for a department-wide pre-alert system.

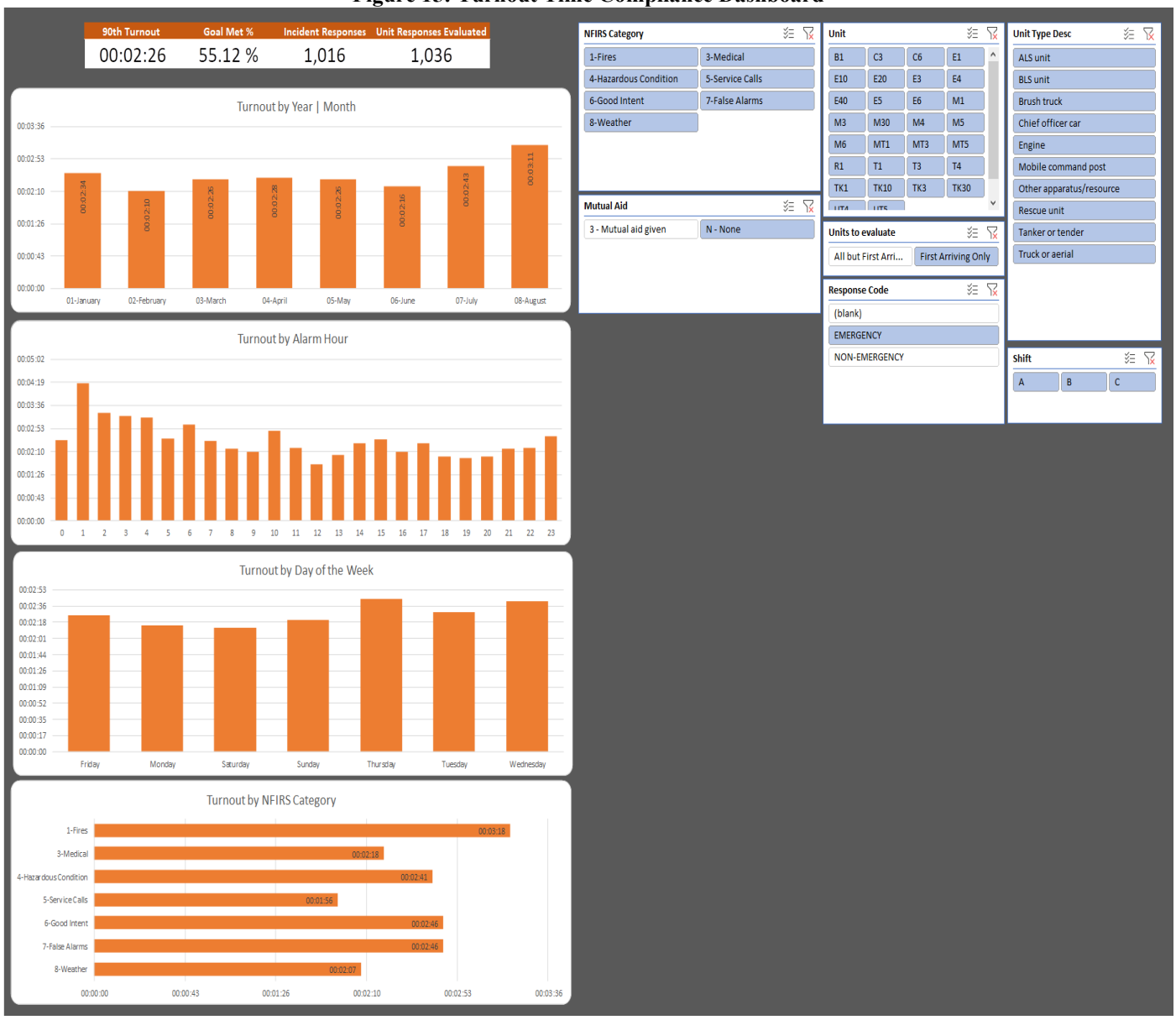
Recognizing that information is an effective tool for raising awareness and modifying behavior, the department will take several different approaches to provide information to responders for better decision making.

An interactive Excel tool for company officers to access response time information at will. Using this tool, company officers will be able to identify turnout time gaps by station, shift, day of the week, time of day, responding unit, and other data points to aid in awareness of response time gaps.

The department will begin publishing an enhanced 90th percentile Turnout Time Report by shift which will rank response apparatus in order by fastest turnout time to slowest turnout time.

A daily run activity report will be distributed to all personnel daily to show at-a-glance processing, turnout, travel, and total response time by call.

Figure 15: Turnout Time Compliance Dashboard



J. Performance Maintenance and Improvement Plans

Compliance Team / Responsibility

The LAFD is committed to excellence and will fulfill the continuous improvement promise through assessment of program effectiveness, analysis of program performance, and compliance with standards and regulations.

The Compliance Team consists of administrative staff, division chiefs, and members who have the lead responsibility for services or programs.

The department monitors compliance at varying levels of the organization. Division chiefs who have program oversight are responsible for ensuring that program requirements are accurately and appropriately documented in Fire Chief's Directives (FCDs) and performance measures are in place to monitor and ensure compliance. Administrative services staff are responsible for document control, data entry and analysis, and performance and compliance reporting.

In addition to department staff, the department reaches out to external stakeholders such as the Medical Advisory Committee (MAC), the Continuous Quality Improvement (CQI) committee, LAFD/LAC Technology advisory committee, LAFD/LANL/LASO interface group. These groups are comprised of allied agencies that address all aspects of compliance from technology to personnel.

The MAC is comprised of department personnel, medical director, staff from hospital and other medical facilities. Their primary focus is to review and update protocols, identify program needs, enhance provider skills, monitor time performance and customer service satisfaction.

The CQI is comprised of department personnel, county information technology, and 911-Dispatch personnel. The primary focus is to review alarm handling times produced by dispatchers and CAD. Both human and technology variables are monitored for performance compliance at 90 seconds.

The Technology Advisory Committee is comprised of department personnel and county information technology staff. This committee's focus is to ensure technology used by the department aligns with county policies, complies with the cooperative agreement and meets the functional needs of the department and current technology standards.

The LAFD/LANL/LASO interface group's primary focus to ensure statements of substantial involvement items in the cooperative agreement are met and followed through interoperability, information management, and data shared between the agencies.

Performance Evaluation and Compliance Strategy

The department, through the CQI Team, has evaluated compliance and program performance by establishing the standards and desired outcomes, collecting data to determine the baseline, identifying the service gaps, and with the approval of the fire chief, executing a plan for remediation. This is an on-going process that the Team addresses at each monthly meeting.

To remain current with the CFAI Standards of Cover and Self-Assessment requirements, the Compliance Team reviews the LAFD Dashboard monthly – a method of reporting cumulative performance compliance. In addition, the group meets quarterly with LAFD Leadership (Company Officers and Command Staff) to discuss program performance and strategies for process improvement.

Compliance Verification Reporting

A maintenance and compliance methodology system includes a Daily Exception Report submitted by the shift support officer to command staff reporting the previous day's staffing and response activity, an Interactive Response Times Dashboard performance report which can be filtered to show the response time performance for all incidents for a given period, data deliverables provided to National Nuclear Security Administration in a Monthly Progress Report (specifically reporting performance on response to the Los Alamos National Laboratory), and a monthly LAFD dashboard is developed, published and distributed to all personnel through the department intranet site. The LAFD dashboard is a synopsis of both the month and year-to-date measurements by program and/or division. The dashboard monitoring tool was created as a result of the self-assessment process and is intended to help the department review and evaluate performance in all program areas as well as administrative service areas.

The LAFD dashboard includes quantitative/qualitative data by month and cumulative year-to-date data for division, program, and administrative service performance deliverables. The dashboard includes service milestones, status of goals and objectives, FCD updates, financial activity, processing, turnout, travel and total response time analysis of call performance by service type and by station and shift, life safety code inspection activity and compliance, public education and community outreach events data, fleet, facilities, and equipment concerns, staffing or personnel changes, training compliance, administrative services performance timeliness, accidents, injuries and other occupational health and safety-related activity, and external partnerships.

In addition, a planned process of quarterly reporting of each performance goal stated within the Strategic Plan document, as well as progress reporting of division/program goals and objectives will be provided to the fire chief and command staff and discussed at Divisional Meetings, Leadership meetings, Labor Management Committee meetings, and interface group meetings with LANL and NNSA partners, as appropriate.

Institutionalized processes of compliance monitoring for EMS provider licensure, pharmaceuticals and ambulances are conducted in partnership with the respective regulatory agencies.

Incident performance reviews are conducted through post-incident analysis by crew, shift battalion chiefs and command staff. Training and compliance reporting of critical tasks are coordinated by the deputy fire chief, training division chief, shift battalion chiefs, and training officers. Safety compliance with regard to occupational health, wellness, fitness, accidents, and injuries are coordinated by the division chief/safety officer.

Finally, all program compliance is reported in the CFAI Annual Compliance Report.

Continuous Improvement Strategy

To ensure the LAFD is meeting current service level objectives, continuous monitoring of service level baselines is a perpetual process. Daily quality assurance checks of all responses are done at the battalion chief level prior to finalization of the FIREHOUSE incident records. This information is then analyzed monthly.

Monthly reviews are conducted with the gathering of all calls within the month and performance standards are reviewed at the 90th percentile. To complete the monthly review, quality improvement meetings are held with dispatch and other stakeholders to identify outliers for inclusion or exclusion into the data set. Gaps are then discussed with the various compliance groups in an effort to identify opportunities for improvement in policies, procedures, training, and practices. A performance evaluation is published in the LAFD Dashboard monthly and available for all members of the department to review.

In addition, weekly chief's meetings are held to discuss performance expectations and deviation from performance standards. These discussions lead to the development of process improvement initiatives and execution strategies which are then communicated to all personnel through their chain of command. Information distilled at the weekly chief's meetings lead to the agenda items for the quarterly meetings.

Monthly data analysis is summarized for the quarter and also discussed at the Quarterly Leadership meeting. The quarterly meeting is required for all personnel at the captain level and above to attend. A recent emphasis has been to identify opportunities to improve turnout performance with a large emphasis on providing individual station notification and raising the level of awareness for field personnel.

Updates on policy changes, program enhancements, organizational goals are shared with all leadership at the quarterly meetings, and the performance evaluation process repeats.

In addition to the review of service level objectives, the deputy fire chief and fire marshal review the response demands within each zone and the identified risks within. The deputy fire chief will determine if there have been any changes within a planning zone, changes to service demands or changes in standards or operations that impact the service level objectives or the Standards of Cover document. These reviews will be conducted on an annual basis.

To aid in the collection and presentation of this information, the Administrative Management Team will work as a group to assemble all required information and assist the Compliance Team in the interpretation of data and considerations for improvement towards achieving targets (benchmarks). Data and conclusions will be presented in the monthly LAFD Dashboard.

Annually, the department reports to the county manager and county council all successes and areas for improvement during the annual budget hearing process. Both written and in-person reports are given as part of the official record during the open meeting. A summary is included as part of the county's biennial budget published annually.

K. Appendices

Appendix A: Rollup Data Tables

All Fire With Rollup on Risk Fire Suppression - 90th Percentile Times - Baseline Performance			BM	Baseline 2015-2019	2019	2018	2017	2016	2015
Alarm Handling	Pick-up to Dispatch	Urban Cluster	0:01:30	0:02:37	0:02:23	0:02:39	0:02:34	0:01:34	0:01:44
		Rural		0:02:50	0:01:49	0:02:22	0:02:40	0:02:06	0:02:56
		Wilderness		0:01:41	N/A	N/A	0:01:44	0:00:47	0:01:30
Turnout Time	Turnout Time 1st Unit	Urban Cluster	0:01:30	0:03:39	0:02:11	0:02:08	0:04:37	0:01:47	0:01:26
		Rural		0:03:23	0:02:36	0:02:07	0:03:55	0:02:13	0:02:25
		Wilderness		0:01:34	N/A	N/A	0:01:30	0:00:03	0:01:35
Travel Time	Travel Time 1st Unit **Distribution**	Urban Cluster	0:04:20	0:06:03	0:03:24	0:03:54	0:07:04	0:04:31	0:02:38
		Rural	0:09:20	0:07:46	0:04:22	0:07:39	0:07:00	0:07:50	0:07:06
		Wilderness	0:12:00	0:06:03	N/A	N/A	0:07:01	0:01:26	0:02:13
	Travel Time ERF **Concentration**	Urban Cluster	0:09:20	0:10:39	0:06:16	0:07:27	0:12:47	0:06:49	0:06:41
		Rural	0:12:20	0:13:26	0:11:30	0:09:58	0:12:23	0:14:08	0:10:37
		Wilderness	0:15:00	0:13:33	N/A	N/A	0:15:23	0:06:13	0:02:39
Total Response Time	Total Response Time 1st Unit **Distribution**	Urban Cluster	0:07:20	0:08:51	0:07:20	0:07:10	0:09:51	0:06:27	0:06:01
		Rural	0:12:20	0:10:27	0:08:07	0:10:26	0:09:51	0:10:27	0:10:25
		Wilderness	0:15:00	0:09:12	N/A	N/A	0:10:14	0:02:16	0:05:03
		Urban Cluster		n=36	4	6	10	9	7
		Rural		n=62	6	13	21	8	14
		Wilderness		n=5	N/A	N/A	2	1	2
	Total Response Time ERF **Concentration**	Urban Cluster	0:12:20	0:13:35	0:09:40	0:11:42	0:14:50	0:09:16	0:09:29
		Rural	0:16:20	0:17:05	0:13:53	0:13:23	0:16:02	0:17:47	0:14:30
		Wilderness	0:18:00	0:07:39	N/A	N/A	0:06:49	0:07:51	0:05:50
		Urban Cluster		n=36	4	6	10	9	7
		Rural		n=61	6	13	20	8	14
		Wilderness		n=5	N/A	N/A	2	1	2

COMMUNITY RISK ASSESSMENT - STANDARDS OF COVER

All HazMat With Rollup on Risk Hazmat - 90th Percentile Times - Baseline Performance			BM	Baseline 2015-2019	2019	2018	2017	2016	2015
Alarm Handling	Pick-up to Dispatch	Urban Cluster	0:01:30	0:02:53	0:01:53	0:02:23	0:02:17	0:02:34	0:03:05
		Rural		0:02:31	0:01:12	0:02:21	0:02:35	0:02:25	0:02:05
		Wilderness		0:01:57	N/A	0:01:27	0:01:57	N/A	0:01:55
Turnout Time	Turnout Time 1st Unit	Urban Cluster	0:01:30	0:02:54	0:03:08	0:02:33	0:02:06	0:02:28	0:02:22
		Rural		0:03:04	0:02:39	0:03:20	0:02:16	0:02:07	0:02:24
		Wilderness		0:02:38	N/A	0:02:59	0:00:49	N/A	0:01:16
Travel Time	Travel Time 1st Unit **Distribution**	Urban Cluster	0:04:20	0:06:20	0:06:49	0:04:59	0:05:12	0:05:37	0:05:00
		Rural	0:09:20	0:06:20	0:05:21	0:04:33	0:05:21	0:07:00	0:04:22
		Wilderness	0:12:00	0:04:21	N/A	0:04:21	0:04:19	N/A	0:01:01
	Travel Time ERF **Concentration**	Urban Cluster	0:09:20	0:10:58	0:13:28	0:06:39	0:07:14	0:06:47	0:05:43
		Rural	0:12:20	0:09:58	0:09:51	0:07:42	0:06:07	0:10:02	0:07:11
		Wilderness	0:15:00	0:04:22	N/A	0:04:23	0:04:16	N/A	0:01:01
Total Response Time	Total Response Time 1st Unit **Distribution**	Urban Cluster	0:07:20	0:09:45	0:09:45	0:08:25	0:08:30	0:09:45	0:09:06
		Rural	0:12:20	0:08:50	0:07:58	0:08:29	0:08:42	0:08:56	0:08:10
		Wilderness	0:15:00	0:08:27	N/A	0:08:47	0:07:05	N/A	0:04:12
		Urban Cluster		n=148	12	40	38	40	18
		Rural		n=180	14	48	40	47	31
		Wilderness		n=3	N/A	1	1	N/A	1
	Total Response Time ERF **Concentration**	Urban Cluster	0:12:20	0:14:00	0:15:52	0:11:11	0:10:07	0:10:32	0:09:53
		Rural	0:16:20	0:13:49	0:12:05	0:11:26	0:11:11	0:13:57	0:13:38
		Wilderness	0:18:00	0:09:41	N/A	0:10:15	0:07:24	N/A	0:04:12
		Urban Cluster		n=148	12	40	38	40	18
		Rural		n=179	14	48	39	47	31
		Wilderness		n=3	N/A	1	1	N/A	1

COMMUNITY RISK ASSESSMENT - STANDARDS OF COVER

All Tech Rescue With Rollup on Risk Technical Rescue - 90th Percentile Times - Baseline Performance			BM	Baseline 2015-2019	2019	2018	2017	2016	2015
Alarm Handling	Pick-up to Dispatch	Urban Cluster	0:01:30	0:02:25	0:01:20	0:01:56	0:02:44	0:01:50	0:01:42
		Rural		0:04:31	0:03:03	0:02:41	0:03:11	0:05:25	0:01:19
		Wilderness		0:03:09	N/A	0:02:08	0:03:22	0:02:37	0:01:06
Turnout Time	Turnout Time 1st Unit	Urban Cluster	0:01:30	0:02:27	0:02:36	0:02:13	0:01:51	0:02:12	0:01:58
		Rural		0:03:08	0:03:22	0:02:47	0:02:34	0:02:25	0:02:20
		Wilderness		0:02:55	N/A	0:03:04	0:01:25	0:02:33	0:02:03
Travel Time	Travel Time 1st Unit **Distribution**	Urban Cluster	0:04:20	0:04:01	0:03:51	0:03:48	0:03:26	0:04:04	0:03:57
		Rural	0:09:20	0:08:16	0:08:09	0:05:04	0:05:28	0:08:21	0:06:05
		Wilderness	0:12:00	0:14:46	N/A	0:08:37	0:17:03	0:09:26	0:07:15
	Travel Time ERF **Concentration**	Urban Cluster	0:09:20	0:11:29	0:15:11	0:05:55	0:04:55	0:04:54	0:05:53
		Rural	0:12:20	0:16:40	0:19:15	0:06:12	0:07:39	0:10:25	0:12:47
		Wilderness	0:15:00	0:19:38	N/A	0:17:46	0:20:26	0:10:19	0:09:32
Total Response Time	Total Response Time 1st Unit **Distribution**	Urban Cluster	0:07:20	0:06:52	0:05:45	0:06:52	0:06:52	0:06:40	0:06:29
		Rural	0:12:20	0:12:44	0:11:37	0:08:09	0:11:08	0:13:29	0:08:58
		Wilderness	0:15:00	0:19:22	N/A	0:14:13	0:21:35	0:13:28	0:09:26
		Urban Cluster		n=137	15	24	26	42	30
		Rural		n=161	23	39	58	26	15
		Wilderness		n=42	N/A	9	4	26	3
	Total Response Time ERF **Concentration**	Urban Cluster	0:12:20	0:14:00	0:17:01	0:09:28	0:09:09	0:07:12	0:08:17
		Rural	0:16:20	0:19:10	0:22:26	0:10:08	0:12:32	0:14:16	0:13:43
		Wilderness	0:18:00	0:23:07	N/A	0:19:14	0:24:47	0:14:13	0:12:02
		Urban Cluster		n=121	15	20	25	39	22
		Rural		n=157	22	38	57	25	15
		Wilderness		n=42		9	4	26	3

All Fire And Specialty Services Risk and population density population rollup - 90th Percentile Times - Baseline Performance			BM	Baseline 2015-2019	2019	2018	2017	2016	2015
Alarm Handling	Pick-up to Dispatch	Urban Cluster	0:01:30	0:02:40	0:02:23	0:02:24	0:02:45	0:02:32	0:02:19
		Rural							
		Wilderness							
Turnout Time	Turnout Time 1st Unit	Urban Cluster	0:01:30	0:02:49	0:02:53	0:02:44	0:02:27	0:02:18	0:02:22
		Rural							
		Wilderness							
Travel Time	Travel Time 1st Unit **Distribution**	Urban Cluster	0:04:20	0:07:03	0:07:01	0:05:40	0:06:07	0:07:05	0:05:53
		Rural	0:09:20						
		Wilderness	0:12:00						
	Travel Time ERF **Concentration**	Urban Cluster	0:09:20	0:12:58	0:14:20	0:09:16	0:10:54	0:10:07	0:09:07
		Rural	0:12:20						
		Wilderness	0:15:00						
Total Response Time	Total Response Time 1st Unit **Distribution**	Urban Cluster	0:07:20	0:10:26	0:10:18	0:09:09	0:10:02	0:10:31	0:08:58
		Rural	0:12:20						
		Wilderness	0:15:00						
		Urban Cluster	[redacted]	n=830	87	190	215	208	130
		Rural							
		Wilderness							
	Total Response Time ERF **Concentration**	Urban Cluster	0:12:20	0:16:50	0:18:29	0:12:48	0:14:22	0:13:58	0:12:25
		Rural	0:16:20						
		Wilderness	0:18:00						
		Urban Cluster	[redacted]	n=808	86	185	211	204	122
		Rural							
		Wilderness							

COMMUNITY RISK ASSESSMENT - STANDARDS OF COVER

All Fire and EMS Rollup of Risk and Population Density - 90th Percentile Times - Baseline Performance			BM	Baseline 2015-2019	2019	2018	2017	2016	2015
Alarm Handling	Pick-up to Dispatch	Urban Cluster	0:01:30	0:02:25	0:01:46	0:02:04	0:02:33	0:01:52	0:02:12
		Rural							
		Wilderness							
Turnout Time	Turnout Time 1st Unit	Urban Cluster	0:01:30	0:02:30	0:02:19	0:02:36	0:02:18	0:02:14	0:02:21
		Rural							
		Wilderness							
Travel Time	Travel Time 1st Unit **Distribution**	Urban Cluster	0:04:20	0:05:34	0:05:18	0:04:54	0:05:21	0:05:18	0:05:43
		Rural	0:09:20						
		Wilderness	0:12:00						
	Travel Time ERF **Concentration**	Urban Cluster	0:09:20	0:07:25	0:07:29	0:06:21	0:07:19	0:06:55	0:07:09
		Rural	0:12:20						
		Wilderness	0:15:00						
Total Response Time	Total Response Time 1st Unit **Distribution**	Urban Cluster	0:07:20	0:09:03	0:08:09	0:08:25	0:09:13	0:08:21	0:08:48
		Rural	0:12:20						
		Wilderness	0:15:00						
		Urban Cluster		n=5751	1183	1185	1213	1198	972
		Rural							
		Wilderness							
	Total Response Time ERF **Concentration**	Urban Cluster	0:12:20	0:10:58	0:10:47	0:10:02	0:11:06	0:09:55	0:10:42
		Rural	0:16:20						
		Wilderness	0:18:00						
		Urban Cluster		n=5722	1182	1180	1204	1193	963
		Rural							
		Wilderness							

Appendix B: Planning Zones and Area Characteristics

DISTRICT 1 PLANNING ZONES										
PLANNING ZONE	LAND USE	SQ. MI.	Population Density	Owner-ship	Occupancy Types (Qty)	Water Supply	Accessibility	Transportation	Hazards Potential	Additional Considerations
DENVER STEELS	Residential	1	Urban Cluster	Private		Hydrants	Developed	Atomic City Transit	Avg. to od	
DOWNTOWN RESIDENTIAL	Residential	1	Urban Cluster	Private County	Churches (3) 300 SFR 25 units MFR	Hydrants	Developed and paved roads Maintained trails in canyons	Atomic City transit	Avg to Mod	
ICE RINK	Recreational	1	Rural	County	1 Commercial	None Tenders & MTs	Paved from town, dirt from national forest	All	Low Mod TRT	High wildland urban interface
LAHS	School		Urban	Other	1 school	Hydrants	Paved roads	All	Low	
ELK RIDGE	Mobile Home park	1	Urban	Private	Mobile hoes	Poor hydrants	Paved roads	All	Mod	Poor water supply
TA-02										
TA-03	Laboratory		Urban cluster	DOE	Industrial, commercial, recreational,	Hydrants	Paved roads	All	High	Sigma, CMR, high occupancy
TA-05	Laboratory		Open land	DOE		None			Low	
TA-35	Laboratory		Rural	DOE	Industrial	Hydrants	Paved, security fencing	All	High	
TA-41	Laboratory		Rural	DOE	Industrial	Tender	Paved, developed	None	High	
TA-43	Laboratory		Rural	DOE	Industrial	Hydrants	Paved	All	High	
TA-46	Laboratory		Rural	DOE	Industrial	Hydrants	Paved	All	High	
TA-48	Laboratory		Rural	DOE	Industrial	Hydrants	Paved	All	High	
TA-50	Laboratory		Rural	DOE	Industrial	Hydrants	Paved	All	High	
TA-52	Laboratory		Rural	DOE	Industrial	Hydrants, tenders	Paved	NA	High	
TA-53	Laboratory		Rural	DOE	Industrial	Hydrants, pump house	Paved	All	High	
TA-55	Laboratory		Rural	DOE	Industrial	Hydrants	Paved, residential access	All	High	
TA-58	Laboratory		Rural	DOE	Industrial	Hydrant	Paved	None	Low	
TA-59	Laboratory		Rural	DOE	Industrial	Hydrant	Paved	All	High	
TA-60	Laboratory		Rural	DOE	Industrial	Hydrant	Paved	Limited	High	
TA-61	Laboratory		Rural	DOE	Industrial	Tender		Limited	None	
TA-62	Laboratory		Rural	DOE	Industrial	Tender	Limited		Mod	
TA-63	Laboratory		Rural	DOE	Industrial	Hydrants	Paved	All	High	
TA-64	Laboratory		Rural	DOE	Industrial	Hydrants	Paved		High	
TA-66	Laboratory		Rural	DOE	Industrial	Hydrants	Developed		Low	
TA-72	Laboratory		Rural	DOE	Industrial	Hydrants	Developed		None	
WESTERN										

DISTRICT 3 PLANNING ZONES										
PLANNING ZONE	LAND USE	SQ. MI.	Population Density	Owner-ship	Occupancy Types (Qty)	Water Supply	Accessibility	Transportation	Hazards Potential	Additional Considerations
A19	Commercial	1	Rural	LAC, Private	Fire Station 3 & Visitor Cnt	Hydrants	Paved roads	Auto and bus	Mod	
LA SENDA	Residential	1		Private	100 +/- homes	Hydrants	Paved roads, gravel driveways	Auto and bus	Mod	
LA VISTA	Residential	1	Urban cluster	LAC, Private	200 homes, 1 park, 1 library	Tender	Paved roads	Auto and bus	Mod	
OVERLOOK	Canyons, trails	3	Rural	LAC	1 home, 9 fields	Tender	Park and trailheads, paved roads		Low	
PAJARITO ACRES	Residential		Urban Cluster	Private		Tender	Narrow long driveways	Auto and bus	Mod	
TA-18	Industrial	1	Rural	DOE		Tender	Paved roads		Low	Need to access through the gates
TA-39	Industrial	3	Wildland Rural	DOE		Tenders w/2 water supplies	Developed roads, paved, dirt		Mod	
TA-51	Industrial	1		DOE		2-4 water supplies, tenders	Paved roads		Mod	
TA-54	Industrial	2	Rural	DOE		Hydrants Low, Tenders	Paved and dirt		Mod	
TA-70	Raw land	4	Rural	DOE		Tender	Trails for hiking		Mod	
TA-71	Raw land	3.5	Rural	Doe		Tenders	Paved		Low	
WHITE ROCK	Residential commercial	7.2	Urban	LAC, DOE, private	2 schools, 10 churches, 1 nursing home, 500+ homes	Hydrants, tenders	Developed roads, paved streets	Auto, bus	High	Heavy rescue, haz-mat, tenders

COMMUNITY RISK ASSESSMENT - STANDARDS OF COVER

DISTRICT 4 PLANNING ZONES										
PLANNING ZONE	LAND USE	SQ. MI	Population Density	Owner-ship	Occupancy Types (Qty)	Water Supply	Accessibility	Transportation	Hazards Potential	Additional Considerations
ASPEN - WALNUT	Residential	1	Urban	LAC, LA schools, private	1 elementary, 1 preschool, 2 playgrounds trails	Hydrants	Developed roads		High to Avg	Structure back VP to wildland WUI, several loops and dead-end roads
BARRANCA MESA	Residential	2.5	Urban	Private, LAC, USFS	1 elementary, 1 church, Apartments	Hydrants	Paved streets	Buses	High	
BAYO CANYON	Trail system	2	Rural	LAC / other	Trail system	MT's & tenders, Heavy rescue -TRT	Trails, some paved roads		Avg to high	Need water shuttle OPS/ no hydrants, canyon ridges
CLUBHOUSE - PONDEROSA	Residential, wildland	1	Urban interface	LAC / private	200+ homes, trail system	Hydrants	Developed roads	Bus	Avg to high	Wildland urban interface
DEER TRAP	Trail system	2	Rural	LAC / other	Trail system		Trail access from neighboring zones		Avg	Need water shuttled, MT & Tenders, Heavy rescue – TRT
DIAMOND SOUTH	Trail system	1	Rural	LAC / other	Trail system	Lg water tank	Trail system, developed roads	Bus	Avg	Need water shuttled, MT & Tenders, Heavy rescue-TRT
GOLF COURSE	Recreational	1	Rural	Private	Golfing and trail system	Hydrants	Trails system, developed roads	Bus	Avg	May need to shuttle water, few hydrants
NORTH COMMUNITY	Residential	1	Urban	LAC, DOE, Private	1 elementary, 5 churches, 600+ homes, 1 lg prk, 2 sm prk	Hydrants	Developed roads, trail	Bus	High	Adjacent to wildland urban interface
NORTH MESA	Residential	1	Urban	Private, LAC	1 middle school, 1 church, 600+ homes, 3 picnic areas, posse shack	Hydrants	Developed roads, some trails	Bus	High	High angel rescue / canyon ridge
OPEN SPACE WEST	Trail system	1	Rural	LAC, other	1 lg water tank	Lg community water tank	Trails, developed roads		Avg	Need water shuttled, MTs, tenders.
PUEBLO CANYON	Trail system	1	Rural	LAC, other	1 lg water tank	Lg community water tank	Trails, developed roads		Low	Need water shuttled, MTs, tenders
QUEMAZON	Residential	1	Urban	Private	1 preschool, 200+ homes	Hydrants	Developed roads	Bus	High	Wildland urban interface
RENDIJA	Trail system	4	Rural	LAC, Private, other	Shooting and archery range		Trails, developed roads		Avg	Need water shuttled, MTs & Tenders, Heavy rescue-TRT
SFNF NORTH	Forest	10+	Wildland	US Forest			Rough trails, maintenance roads		Avg	Need water shuttled, MTs & Tenders, Heavy rescue-TRT
STABLES - KWAGE	Recreational		Urban cluster	LAC, Private	Rodeo grounds and arena, 75+ stables	Hydrants	Developed roads, trails		High	Need water shuttled, MTs & Tenders
TSIKIMU	Residential	1	Urban	Private	200+ homes	Hydrants	Developed roads	Bus	Avg to high	Zone located on mesa overlooking canyon ridge

DISTRICT 5 PLANNING ZONES										
PLANNING ZONE	LAND USE	SQ. MI	Population Density	Owner-ship	Occupancy Types (Qty)	Water Supply	Accessibility	Transportation	Hazards Potential	Additional Considerations
BANDELIER	Wildland		Rural w/ urban clusters	US Forest	Campgrounds, picnic shelters	Hydrants	Paved roads, trails from SR4 to entrance	Atomic City buses, Auto, bikes, trails	Mod	May need extra personnel, Polaris and helicopter
SFNF WEST	Wildland		Rural	US forest		MTs and Tenders	Paved roads and trails	Auto, bikes, trails	Extreme	Treacherous road during winter and after rain. Additional personnel, helicopter, plow truck
SKI HILL	Wildland		Urban cluster	Private	Campgrounds, outhouses, sheds, garages	Hydrants, MTs & Tenders	Paved roads trails	Auto, bikes, trails	High	During winter MVA potential, biking accidents. Additional personnel, Polaris, helicopter plow truck
TA-06	Forest		Rural	DOE	Industrial, commercial, special	Hydrants, MTs & Tenders	Security clearance	Auto, LANL shuttles	Mod	
TA-08	Laboratory		Urban cluster	DOE	Industrial	Hydrants, MTs & Tenders	Security clearance	Auto, LANL shuttles	Mod	Historical building site area
TA-09	Laboratory		Urban cluster	DOE	Industrial, special	Hydrants, MTs & Tenders	Security clearance	Auto, LANL shuttles	Mod	
TA-11	Forest		Rural	DOE	Industrial, special	Hydrants, MTs & Tenders	Security clearance	Auto, LANL shuttles	Mod	
TA-14	Forest		Rural	DOE	Industrial, special	Hydrants, MTs & Tenders	Security clearance	Auto, LANL shuttles	Mod	
TA-15	Laboratory		Rural	DOE	Industrial, special	Hydrants, MTs & Tenders	Security clearance	Auto, LANL shuttles	Mod	
TA-16	Laboratory		Urban cluster	DOE	178 labs, 178 specials	Hydrants, MTs & Tenders	Security clearance	Auto, LANL shuttles	Mod	
TA-22	Laboratory		Urban cluster	DOE	52 office, 52 labs	Hydrants, MTs & Tenders	Security clearance	Auto, LANL shuttles	Mod	
TA-28	Forest		Rural	DOE		Hydrants, MTs & Tenders	Security clearance	Auto, LANL shuttles	Mod	
TA-33	Forest, Lab		Urban cluster	DOE	70 office, 70 labs	Hydrants, MTs & Tenders	Security clearance	Auto, LANL shuttles	Mod	
TA-36	Forest, lab		Urban cluster	DOE	60 labs	Hydrants, MTs & Tenders	Security clearance	Auto, LANL shuttles	Mod	
TA-37	Forest, lab		Urban cluster	DOE	27 labs	Hydrants, MTs & Tenders	Security clearance	Auto, LANL shuttles	Mod	
TA-40	Forest, lab		Urban cluster	DOE	39 labs	Hydrants, MTs & Tenders	Security clearance	Auto, LANL shuttles	Mod	
TA-49	Forest, lab		Urban cluster	DOE	34 labs	Hydrants, MTs & tenders	Security clearance	Auto, LANL shuttles	Mod	
TA-67	Forest		Rural	DOE		MTs & Tenders	Security clearance	Auto, LANL shuttles	Low	
TA-68	Forest		Rural	DOE		MTs & Tenders	Security clearance	Auto, LANL shuttles	Avg	
TA-69	Forest, labs		Urban cluster	DOE	15 labs	Hydrants, MTs & Tenders	Security clearance	Auto, LANL shuttles	Mod	

DISTRICT 6 PLANNING ZONES										
PLANNING ZONE	LAND USE	SQ. MI	Population Density	Owner-ship	Occupancy Types (Qty)	Water Supply	Accessibility	Transportation	Hazards Potential	Additional Considerations
AIRPORT	Airport	89 acres	Rural	County	Airplanes, fuel storage	Hydrants	RFID County owned gates and two taxi ways		Unique	Consider medic w/ aircraft emergencies, CFR6 and hazmat unit.
DOWNTOWN	Commercial	1	Urban cluster	County, Private	Churches, apartments, 2000+ homes, 470 (grocery stores, restaurants, shops, gas station	Hydrants	Developed roads, maintained trails	Transit bus, auto, NM park and ride	Avg	
DOWNTOWN RESIDENTIAL	Residential	1	Urban	County, private	Churches, apartments, 325+ homes,	Hydrants	Developed & paved, maintained canyons	Transit bus, auto	Avg	
DP ROAD	Commercial	.7 mi	Urban	County, DOE, Private	Sta. 2, 15+ commercial	Hydrants	Paved road, trails,	Transit, auto, semi trucks	Avg	Consider UTV on the canyon rim trail
EASTERN AREA	Residential	2	Urban	Private	Pre-school, 10+ churches, 6+ apartments, 385+ homes, 250+ businesses	Hydrants	Sidewalks, trails	Transit buses	Normal	
MAIN HILL - A18	Forest	7 mi	Rural	LAC, SF cnty		Water tenders	Paved roads	Transit buses, NM park and ride, auto	High, MVA	Working w/SF county and BIA
TA-21	Laboratory	.4	Urban cluster	DOE, County	125 industrials	DOE / Cnty hydrants	DP Road		Limited	Unique, disposal of buildings and Cold War era weapons equip. including the possibility of legacy pyrophoric metals and unknown chemicals.
TA-73	Airport,	2	Rural	LAC, DOE		Hydrants	St. Rd 4, NM 502, Omega Canyon		Limited	Consider additional wildland resources in Omega Canyon

Appendix C: Occupancy Types and Locations

Churches

Our primary concern in churches for life safety is on the days of worship; however, many churches do use their facilities for evening activities such as bible study or during the summer for Bible Schools. Mainly- are the people who are attending services familiar with the exits and can the church be successfully evacuated in a safe and timely manner?

Church	Address	District
White Rock Baptist Church	80 La Paloma Dr.	3
United Church of Los Alamos	2505 Canyon Road	6
First United Methodist	715 Diamond Drive	1
First Baptist Church of Los Alamos	2200 Diamond Drive	4
Crossroads Bible	97 East Road	6
Los Alamos Church of Christ	2323 Diamond Drive	4
Trinity on the Hill	3900 Diamond Drive	4
Christian Church of Los Alamos	92 East Road	6
Unitarian Church	1738 N. Sage Street	6
Church of the Nazarene	15 Grand Canyon	3
Bryce Avenue Presbyterian Church	333 Bryce Ave.	3
White Rock Presbyterian Church USA	310 Rover Blvd.	3
White Rock United Methodist Church	580 Meadow Lane	3
St. Dimitri Orthodox Church	2270 39th Street	4
Pajarito Church of Christ	135 Longview Drive	3
Messiah Evangelical Lutheran	172 Meadow Lane	3
Immaculate Heart of Mary Catholic	3700 Canyon Road	6
Church of Latter Day Saints	1967 18th Street	6
Church of Christ Latter Day Saints	366 Grand Canyon	3
Redeemer Lutheran Church	2000 Diamond Drive	3
Bethlehem Evangelical Church	2390 North Road	4
Church of Latter Day Saints	240 Kimberly Lane	3
Saint Joseph's Catholic Church	196 Meadow Lane	3
Los Alamos Jewish Center	2400 Canyon Road	6
New Beginnings Fellowship	112 East Road	6
Christian Science Society	1725 17th Street	6
Grace Vineyard Christian	991 Central Ave.	6
Calvary Chapel of Los Alamos	580 N. Mesa Road	4
Kingdom Hall-Jehovah's Witnesses	4542 Yucca St.	4
Masonic Temple	15th and Canyon	6
Baha'I Faith	2290 39th Street Apt. A	4
Masonic Temple	1400 N Sage Loop	6
St. Job of Pochaiv	1319 Trinity Dr	6

Medical Facilities

The LAFD has identified the medical facilities as a unique and special hazard. As in most medical facilities, there are numerous patients in various stages of mobility. Some may not be ambulatory without specialized treatment and assistance. This poses several issues and has been identified through pre-incident plans. Fire and life safety inspections are conducted annually to ensure personnel have a good working knowledge of the facility.

Medical Facilities	Address	District
Los Alamos Medical Center	3917 West Road	1
Trinity Urgent Care	1460 Trinity Drive	6
Lahiri & Mesibov	118 Central Park Square	6
Occupational Medicine	TA 03 SM 1411	1
Children's Clinic of White Rock	35C Rover Blvd.	3
Endoscopy Center	1911 Central Park Square	6

Residental

The residential areas in Los Alamos are very diverse. There are many duplex and quad units, single family single story homes, single family multiple story homes, multiple family apartment and condominiums, mobile home parks and many homes are built on the edge of a canyon and some with great historical value.

Quad

Three-Story Home

Trailer park

Quemazon

Historical home on Bathtub Row

Apartments and Condominiums

WR Apartments

Canyon Condos

The LAFD identified apartments and condominiums in the community as they pose a unique hazard and are typically fully occupied. The department conducts pre-incident plans and fire and live safety inspections annually to ensure personnel have a good working knowledge of the facility.

Apartments and Condominiums	Address	District
10th Street Apartments	1075 Myrtle St	6
Aspen Apartments	3810 Gold St.	1
Aspen Studio Apartments	1027-1203 9th St.	6
Caballo Peak Apartments	3301 Canyon Rd.	6
Canyon Village Apartments	3200 Canyon View Dr.	6
Casa de Luz Apartments	799-801 6th St.	6
Central Park Condominiums	802 9th St.	6
Chapel Apartments	1926 24th St.	6
Cottonwoods Apartments	3711-37890 Gold St.	1
Court right Street Apartments	3807 Gold St.	1
Court right Apartments	509-587 Kiva St.	6
Iris Street Apartments	1300 Iris St.	6
Las Ventanas Townhomes	3200 Canyon Rd.	6
Loma Vista Condominiums	Loma Vista Dr.	6
Los Cerros Apartments	3000 Trinity Drive	6
Los Ventanas Apartment Complex	02-54 Short Dr. /64-90 Loma Vista Dr.	6
Mesa Del Norte Apartments	650 San Ildefonso Dr.	4
Mountain Vista Apartments	600- San Ildefonso Dr.	4
Oppenheimer Place	1001 Oppenheimer	6
Pondarosa Pines Apartments	3000 Trinity Dr.	6
Ridge Park Condominiums	505 Oppenheimer Dr.	6
Thirty 301 Apartment Homes	3301	1
The Village Apartments	72-77 Park Ln	3
Timber Ridge Condominiums	3055 Timber Ridge	6
Tre Casitas	536- 588 Central Ave.	6
UNM/9th Street Apartments	939 9th Street	6

Nursing Home/Assisted Living

Our primary concern is the inability for non-ambulatory patients who reside in nursing home/assisted living center to self-evacuate. The department conducts pre-incident plans and fire and live safety inspections annually to ensure our personnel have a working knowledge of the special needs associated with these facilities.

Nursing Home/Assisted Living	Address	District
Sombrillo	1010 Sombrillo Ct.	6
Aspen Ridge	1011 Sombrillo Ct.	6
Bee Hive	110 Longview Dr.	3
Las Cumbres Community	2056 Spruce St.	6

Assisted living

Senior Centers

The senior centers identified pose special risks in the fact that not all attendees are fully ambulatory and may not be able to self-extricate in the event of a fire. The department conducts pre-incident plans and fire and live safety inspections annually to ensure personnel have a good understanding of the facility.

Betty Hart Senior Center

Senior Centers	Address	District
Betty Ehart	1000 Oppenheimer	6
White Rock Senior Center	137 Longview Drive	3

Bed and Breakfast

The LAFD identified the local bed and breakfasts in the community as they pose a unique hazard. These are typically homes that will rent out rooms. The department conducts pre-incident plans and fire and live safety inspections annually to ensure personnel have a working knowledge of the facilities.

Bed and Breakfast	Address	District
Adobe Pines B&B	2101 Loma Linda Dr.	4
Back Porch B&B	13 Karen Circle	3
Canyon B&B	80 Canyon Road	6
A Bandelier B&B	135 La Senda	3
Pueblo Canyon Inn & Gallery	199 San Ildefonso Road	4
Margo's Bavarian B&B	104 Monte Rey Drive	3
North Road B&B	2127 North Road	4

Hotels/Motels

The LAFD identified hotels and motels in the community as they pose a unique hazard as these are typically filled to capacity and tenants don't always pay attention to evacuation routes from their rooms. The department conducts pre-incident plans and fire and life safety inspections annually to ensure personnel have working knowledge of the facilities.

Hotels/Motels	Address	District
Holiday Inn Express	60 Camino Entrada	6
Comfort Inn	2455 Trinity Rd.	6
Hampton Inn	124 State Road 4	3
Motel 6	2175 Trinity Rd.	6

Business

Del Norte Credit Union

Reel Deal Movie Theatre

Multiple Occupancy Business at Central Park Square

Auto parts store

Strip Mall

Multiple Occupancy Business at Central Park Square

Central Avenue Strip Mall

Central Park Square Strip Mall

Mixed Occupancy on Trinity Drive

Los Alamos Farmers Market

United States Post Office

Schools

The student population is the primary concern during the school day. Are the student and faculty able to recognize and respond properly to an event which requires protective actions, will they shelter in place or will an evacuation happen in a timely manner and will the action be successful? Schools are inspected annually by the fire marshal.

School	Address	District
Los Alamos High School	1300 Diamond Drive	1
Los Alamos Middle School	1 Hawk Drive	4
Aspen Elementary	2182 33rd. Street	4
Mountain Elementary	2280 North Road	4
Barranca Elementary	57 Loma Del Escolar	4
Piñon Elementary	90 Grand Canyon Drive	3
Chamisa Elementary	301 Meadow Lane	3
University of NM-Los Alamos	4000 University Drive	1

Los Alamos Schools Administration Building

Los Alamos High School

Los Alamos Middle School

Los Alamos National Laboratories

The LAFD recognizes the LANL as a special and unique hazard. Numerous sites and buildings are located throughout the county. The LAFD conducts pre-incident plans and fire and life safety inspections annually to ensure personnel have a good understanding of the facilities.

Los Alamos National Labs	Address	District
The Los Alamos National Laboratory encompasses 40 + square miles and LANL Technical areas are located within the following fire response districts: District 1 District 3 District 5 District 6		

Appendix D: Recreation Areas, Trails, Parks

Recreation Areas

The recreation areas are identified as special and unique hazards as the majority of these are seasonal in nature. The Los Alamos School of Gymnastics and YMCA are indoor facilities and thus are open year around. Brewer Arena is an outdoor equestrian arena that is operational year around. Overlook Park is a series of softball and soccer fields that are seasonal in use. Bomber Field is the high school baseball field and seasonal in use. Sullivan Field is the LA high school's track/field and football field. The Pajarito Ski Hill and the ice rink are both open to the public year around.

Recreation Areas	Address	District
Bomber Field	North Mesa Road	4
Overlook Park	Overlook Road	3
Ice Rink	4475 West Road	1
Pajarito Ski Hill	397 Camp May Road	1
Brewer Arena	North Mesa Road	4
Sullivan Field	Diamond Drive	1
LA School of Gymnastics	555 North Mesa Road	4
YMCA	1450 Iris Street	6
Ashley Pond	2300 Trinity	6
Urban Park		3
Bandelier Nation Monument	29 Entrance Rd	5
LAC Youth Community Center	475 20th St.	6
Los Alamos County Rodeo Grounds		4
Los Alamos County Golf Course	4242 Diamond Dr.	4
North Mesa Arena	750 North Mesa	4
North Mesa Park BMX Track	245 North Mesa Park	

Los Alamos County Rodeo Grounds

Hiking the Valles Caldera

Skiing at Pajarito

Mountain Biking at Pajarito Ski Hill

Community Center

Los Alamos County Park

Los Alamos Skate Park

Ice Rink

Historical Museum

Ashley Pond

Los Alamos County Golf Course Pro Shop

Swimming Pools

The swimming pools pose multi-faceted hazards and concerns for the LAFD. All, but the aquatic center, are outdoor pools thus offer a seasonal special hazard. Due to swimming pool chemicals, there may be is a hazardous materials component that is identified through our PIP's. The aquatic center is a year-round operation with annual shutdowns for cleaning of the pool. The aquatic center also has numerous classrooms, meeting rooms and offices that are routinely used for events. The department conducts pre-incident plans and fire and live safety inspections annually to ensure personnel have a working knowledge of the facility.

Larry H Walkup Aquatic Center

Larry H Walkup Aquatic Center

Swimming Pools	Address	District
Pinon Park Pool	104 Bryce Ave.	3
Canyon Vista	361 Aragon Ave.	3
East Park	111 East Road	6
Los Alamos County Aquatic Center	2760 Canyon Road	6
Barranca Mesa Pool	63 Loma Del Escolar	4
Mesa Meadow Pool	780 42nd St.	1

Wildland, Trails, Canyons

The LAFD recognizes and identifies the wildland, trails and canyons that encompass Los Alamos as its own unique hazard. These areas, although remote, are accessible from many of the populated areas in town. Access to these areas is through trailheads and forest access roads. This poses unique rescue, wildland-urban interface, and EMS issues for the department.

Terrain

Overlook of Los Alamos Area

River

Unique Terrain

Anderson Memorial Lookout

Omega Bridge

Vegetation Snow

Los Alamos Canyon

Hiking trail in Los Alamos County

Wildland, Trails, Canyons	Districts
The wildland, trails, and canyons encompass numerous square miles and acreage and lie within the following fire response districts: District 1 (Camp May, reservoir and canyon access) District 3 (Red Dot, Blue Dot and Rim Tailheads) District 4 (Mitchell Trailhead, Guaje Pines, numerous forest rd. access) District 5 (Numerous forest rd. access and Bandalier Trails) District 6 (Access to canyons)	

Appendix E: Highways, Roadways, and Access

State Highways

The LAFD recognizes the unique hazards of the State Roads that traverse the county. Incidents that can occur are typically EMS in nature. With a rescue component, however, there is the potential for fire and hazardous materials incidents.

State Highways	Districts Affected
State Road 501	Districts 1, 3 and 6
State Road 502	Districts 1, 3 and 5
State Road 4	Districts 3, 5 and 6
East Jemez	Districts 1 and 3

Evening Commute (Main Hill Road)

Ally at Quemazon Subdivision

Steep driveway - Quemazon

Narrow street at Canyon View Condo

Narrow roads at Brisa del Bosque

Narrow Streets (Quemazon)

Snowy roads

Ice packed roads

Appendix F: Stepping Into the Community

Community

Los Alamos Fire department is able to interact with the community at varies events and are able to bring many safety campaigns to the community throughout the year.

2019 Senior Night

Firefighter Demonstration

LAFD participating in Light Parade

9/11 Hill Climb

2019 Project Heartstart

LAFD in Rodeo Parade

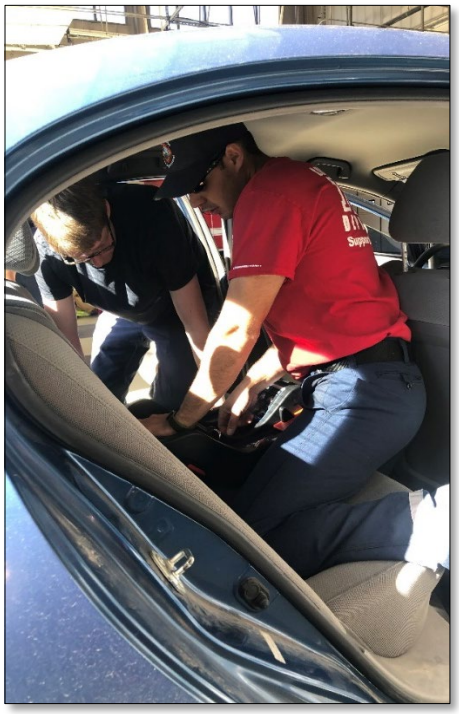
Resuscitation Academy

Christmas Gifts to Seniors

Public Outreach Event

Teddy Bear Clinic

Los Alamos Fire Department participating in St. Baldrick's campaign to fight childhood cancer



Car Seat Clinic

2019 National Sunglasses Day

Recruits line up to support a local entrepreneur

Summer Concert Series at Ashley Pond

Safety Town

2019 Movie in the Park

Employee Appreciation Luncheon

Bataan Death March honoring those serving during that time

Fire crews honor students during the Show up to School campaign

'Battle of the Badges' Blood Drive

Red Nose Day raising awareness of childhood poverty

Fill the Boot

Local Church holds thank you dinner to emergency personal

Breast Cancer Awareness month

Appendix G: Landmarks

Solar Panels

Judicial Complex

Municipal Building

Posse Shack

PEEC

MESA Public Library

WR Library

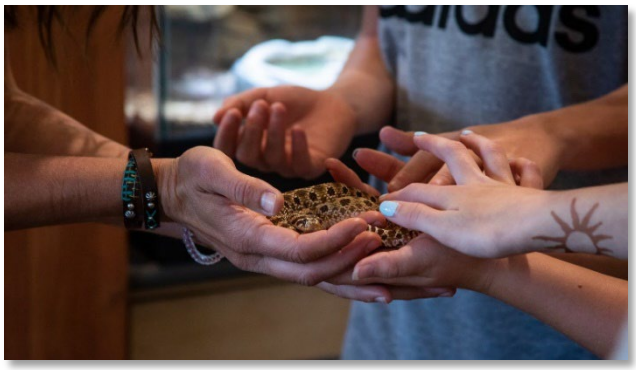
Historical Buildings

Historical spaces

Historical Buildings

Fuller Lodge

Wildlife



Appendix H: Construction and New Development

New Roundabout Construction (due for completion in 2021)

Location of New Grocery Store

WR Subdivision

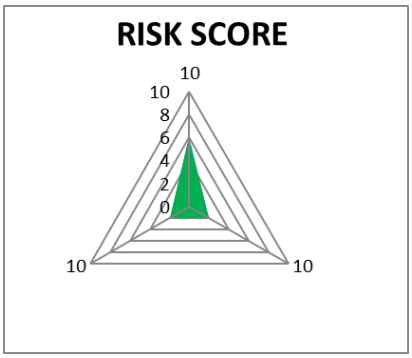
Removal of Condemned Buildings

Appendix I: Additional Risk Scenarios

Fire Suppression: Low Risk

Residential fire alarm at 1278-A 41st Street

RISK	
Probability of occurrence	6
Consequence to community	2
Impact on Fire Department	2
SCORE	**12.32882801**



Fire Suppression: Very Low Impact

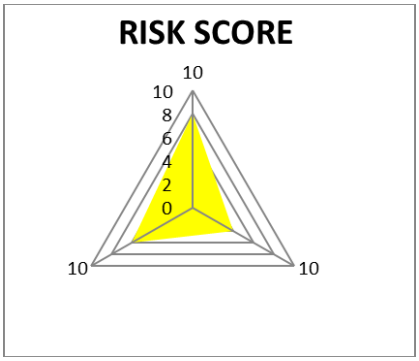
Residential fire alarm at 1278-A 41st Street (52B01)

Task	Staffing Level	Units Assigned
Command	1	Engine
Safety	1	Engine
Primary Search & Rescue	3	Medic (2) & Engine (1)
Total Personnel	5	

Fire Suppression: Moderate Risk

Commercial Fire Alarm at LAMC (52C01)

RISK	
Probability of occurrence	8
Consequence to community	4
Impact on Fire Department	6
SCORE	**44.18144407**



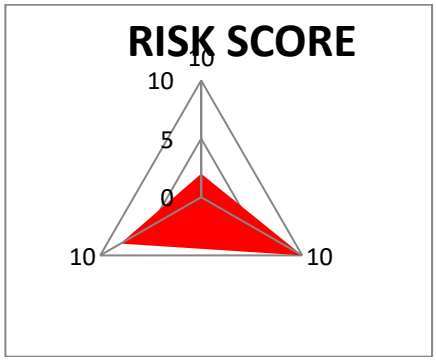
Fire Suppression: Moderate Impact

Commercial Fire Alarm at LAMC (52C01)

Task	Staffing Level	Units Assigned
Command	1	Battalion
Safety	1	Battalion
Primary Search & Rescue	10	1st Engine (3), Rescue (2), Truck (3), Medic (2)
Total Personnel	**12**	

Fire Suppression: High Risk

Structure Fire at Historical Building (Fuller Lodge) (69D03-)		
RISK		
Probability of occurrence		**2**
Consequence to community		**10**
Impact on Fire Department		**8**
SCORE		**59.39696962**



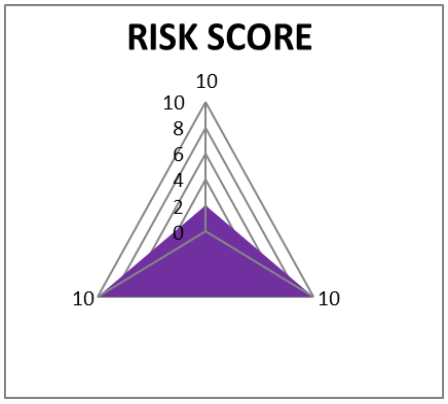
Los Alamos Fire Department called to an incident at Municipal building

Fire Suppression: Maximum/Special Impact *Structure Fire at Historical Building (Fuller Lodge) (69D03-)*		
Task	Staffing Level	Units Assigned
Command and Safety	2	Battalion and Support Officer
Initial Attack	2	1st Engine
Primary Search and Rescue, water supply	2	1st Medic
Back up and hose line	3	2nd Engine
Pump Ops and accountability	1	1st Engine
Ventilation, Ladder, Access	3	Truck
On Deck, and medical aid	2	2nd Medic
Secondary S&R	2	Rescue
Water Supply	2	3rd Engine
Rehab	1	3rd Engine
Total Personnel	**20**	

Fire Suppression: Maximum Risk

Structure Fire in a High Occupancy Commercial Structure (LAMC) (69E02R)

RISK	
Probability of occurrence	2
Consequence to community	10
Impact on Fire Department	10
SCORE	**73.48469228**



Fire Suppression: Maximum/Special Impact

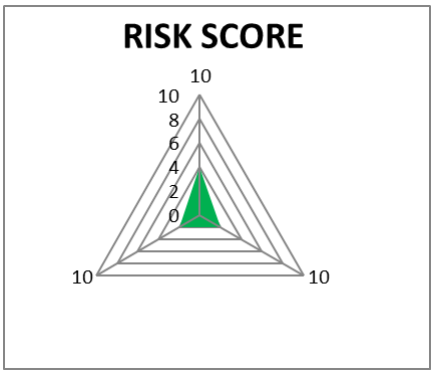
Structure Fire in a High Occupancy Commercial Structure (LAMC) (69E02R)

Task	Staffing Level	Units Assigned
Command, Safety	2	Battalion and Support Officer
Initial Attack	2	1st Engine
Primary Search and Rescue	2	1st Medic
Water Supply	3	2nd Engine
Ventilation, Ladder, Access	3	Truck
Back up and hose line	3	3rd Engine
On Deck	2	2nd Medic
Secondary Search and Rescue	2	Rescue
Pump Ops, Accountability	1	1st Engine
Evacuation, exposures	3	2nd Truck
Field monitoring	3	4th Engine
Rehab	2	3rd Medic
Total Personnel	**28**	

Technical Rescue: Low Risk

Elevator malfunction with occupants trapped inside

RISK	
Probabilityof occurrence	4
Consequence to community	2
Impact on Fire Department	2
SCORE	**8.485281**



Technical Rescue: Very Low Impact

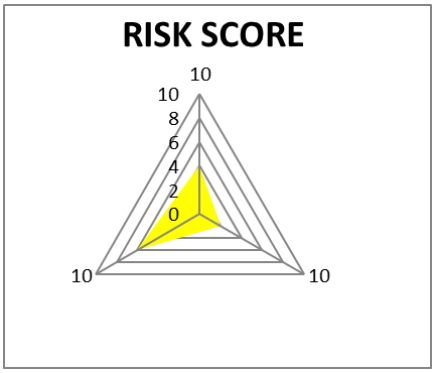
Elevator malfunction with occupants trapped inside

Task	Staffing Level	Units Assigned
Command, patient assessment	3	Engine
Rescue, treatment, transport	2	Medic
Total Personnel	5	

Technical Rescue: Moderate Risk

Single motor vehicle roll-over with two-person entrapment

RISK		
Probabilityof occurrence		4
Consequence to community		2
Impact on Fire Department		6
SCORE		**19.79899**



Technical Rescue: Moderate Impact

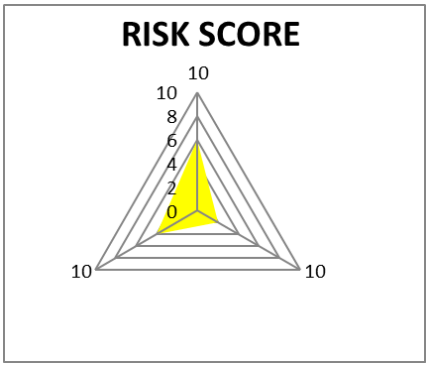
Single motor vehicle roll-over with two-person entrapment

Task	Staffing Level	Units Assigned
Command, Safety	2	Battalion
Technical Rescue (equipment system setup/operation/patient rescue), Extrication	3	Engine
Patient Assessment, patient care, treatment, transport	4	1st Medic, 2nd Medic
Total Personnel	**9**	

Technical Rescue: Moderate Risk

Rescue injured hiker from trail

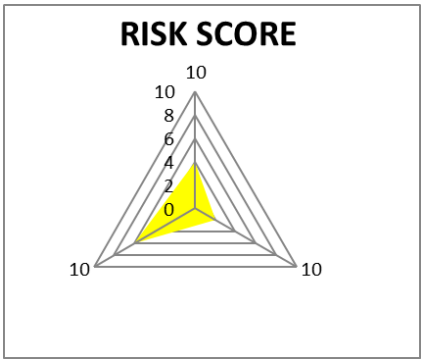
RISK		
Probabilityof occurrence		6
Consequence to community		2
Impact on Fire Department		4
SCORE		**19.79899**



Technical Rescue: Low Impact		*Rescue injured hiker from trail*
Task	Staffing Level	Units Assigned
Command, safety	3	Engine
Equipment setup, operation, patient rescue	2	Medic
Patient assessment, patient treatment, packaging, transport	2	Rescue
Total Personnel	**7**	

Technical Rescue: Moderate Risk

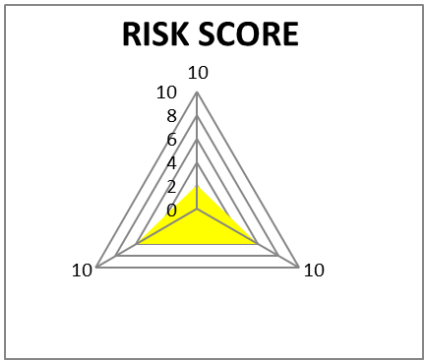
Rescue hiker who fell off cliff		
RISK		
Probabilityof occurrence		**4**
Consequence to community		**2**
Impact on Fire Department		**6**
SCORE		**19.79899**



Technical Rescue: Moderate Impact		*Rescue hiker who fell off cliff*
Task	Staffing Level	Units Assigned
Command, safety, accountability	2	Battalion and SO
Technical Rescue (equipment system setup/ operation/ patient assessment, patient rescue)	6	Engine, Rescue,
Patient treatment, packaging, transport	2	Medic
Total Personnel	**10**	

Technical Rescue: Moderate Risk

Building Collapse		
RISK		
Probabilityof occurrence		**2**
Consequence to community		**6**
Impact on Fire Department		**6**
SCORE		**28.14249**

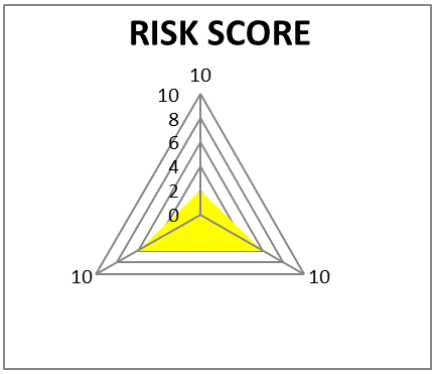


Technical Rescue: Moderate Impact		*Building Collapse*
Task	Staffing Level	Units Assigned
Command and accountability	2	Battalion and Support Officer
Technical Rescue (equipment system setup/ operation/ patient rescue)	6	Engine, Rescue
Patient Assessment, treatment, transport	2	Medic
On Deck, Safety and Rehab	2	Safety Chief
Total Personnel	**12**	

Crews respond to a structure collapse of the Sonic awning due to heavy snow

Technical Rescue: Moderate Risk

Vehicle crash into a building	
RISK	
Probabilityof occurrence	**2**
Consequence to community	**6**
Impact on Fire Department	**6**
SCORE	**28.14249**

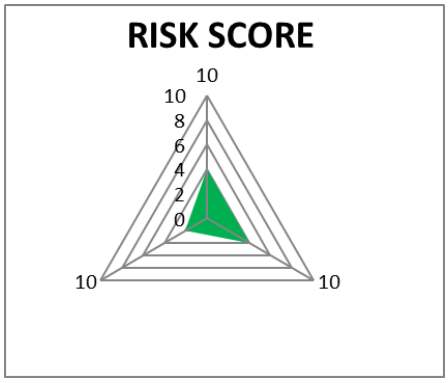


Technical Rescue: Moderate Impact		*Vehicle crash into a building (BEMRHR)*
Task	Staffing Level	Units Assigned
Command, Safety and Accountability	2	Battalion
Technical Rescue (equipment system setup/operation /extrication/patient rescue)	5	Engine, Rescue
On Deck	2	Heavy Rescue
Patient Assessment, treatment and transport	2	Medic
Total Personnel	**11**	

HazMat: Low Risk

Fuel spill (less than 5 gallons) at Metzger's gas station – EM

RISK	
Probabilityof occurrence	**4**
Consequence to community	**4**
Impact on Fire Department	2
SCORE	**13.85641**



HazMat: Very Low Impact

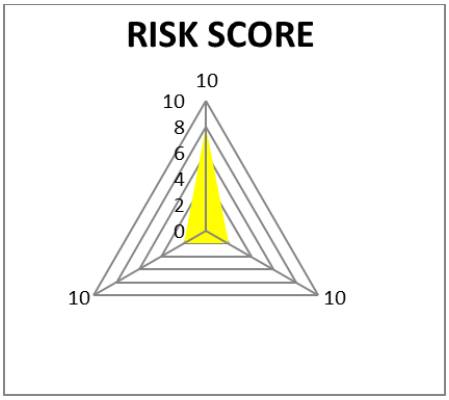
Fuel spill (less than 5 gallons) at Metzger's gas station – EM)

Task	Staffing Level	Units Assigned
Command and Safety	2	Engine
Mop up	1	Engine
On Deck	2	Medic
Total Personnel	5	

HazMat: Moderate Risk

Unknown fuel odor, odor check (59B03O – EM)

RISK	
Probabilityof occurrence	**8**
Consequence to community	**2**
Impact on Fire Department	2
SCORE	**16.24808**



HazMat: Very Low Impact

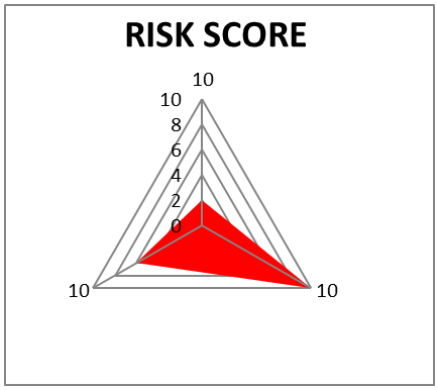
Unknown fuel odor, odor check (59B03O – EM)

Task	Staffing Level	Units Assigned
Command and Safety	1	Engine
Entry and field monitoring	2	Engine
On Deck	2	Medic
Total Personnel	**5**	

HazMat: High Risk

Contaminated patient at LANL (61D04C-BEMRHAZ)

RISK	
Probabilityof occurrence	2
Consequence to community	10
Impact on Fire Department	6
SCORE	**45.51923**



HazMat: Moderate Impact

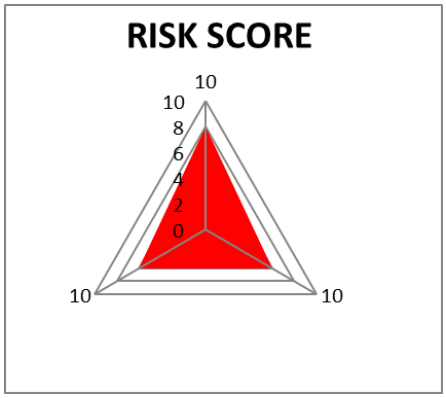
Contaminated patient at LANL (61D04C-BEMRHAZ)

Task	Staffing Level	Units Assigned
Command, Safety	2	Battalion
Decontamination (Haz Mat)	2	Hazmat
Perimeter control	1	Engine
Patient assessment / treatment	2	Engine
Transportation	2	Medic
Support (doffing gear)	2	Rescue
Total Personnel	**11**	

HazMat: High Risk

Natural gas leak in multiple family dwelling (60DO4W – BEMRHAZ)

RISK	
Probabilityof occurrence	8
Consequence to community	6
Impact on Fire Department	6
SCORE	**54.33231**



HazMat: Moderate Impact

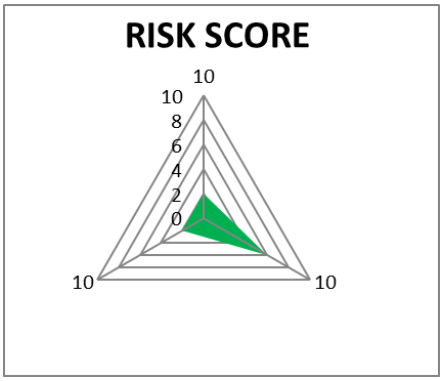
Natural gas leak in multiple family dwelling (60DO4W – BEMRHAZ)

Task	Staffing Level	Units Assigned
Command and Safety	2	Battalion
Entry and field monitoring	3	Engine
On Deck	2	Medic
Back up (Haz Mat)	2	Hazmat
Evacuation	2	Rescue
Total Personnel	**11**	

Aircraft Rescue Firefighting: Low Risk

Standby for incoming aircraft carrying US Dignitaries (51A01 – EMCFR/T)

RISK	
Probabilityof occurrence	2
Consequence to community	6
Impact on Fire Department	2
SCORE	**12.32883**



Aircraft Rescue Firefighting: Very Low Impact

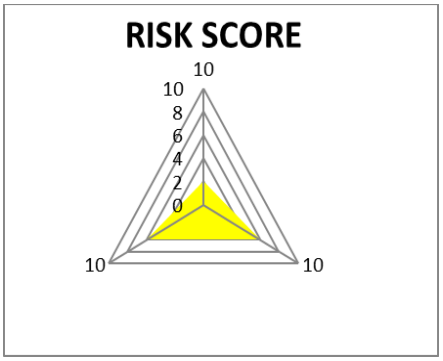
Standby for incoming aircraft carrying US Dignitaries (51A01 – EMCFR/T)

Task	Staffing Level	Units Assigned
Command and Safety	1	CFR
On Deck	3	CFR, Medic
Total Personnel	4	

Aircraft Rescue Firefighting: Moderate Risk

Incoming aircraft with landing gear malfunction (51C00 – BE2MTCFR)

RISK	
Probabilityof occurrence	2
Consequence to community	6
Impact on Fire Department	6
SCORE	**28.14249**



Aircraft Rescue Firefighting: Moderate Impact

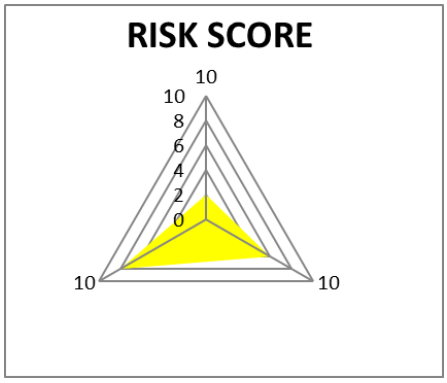
Incoming aircraft with landing gear malfunction (51C00 – BE2MTCFR)

Task	Staffing Level	Units Assigned
Command and Safety	2	Battalion
On Deck (for potential need for fire attack, pump ops, patient assessment, treatment and transport, exposures)	5	Engine, CFR
Staging	4	Medic, Tender
Total Personnel	**11**	

Aircraft Rescue Firefighting: Moderate Risk

Aircraft crash on runway (51D01 – B2E2MTRCFR)

RISK	
Probabilityof occurrence	2
Consequence to community	6
Impact on Fire Department	8
SCORE	36.76955



Aircraft Rescue Firefighting: High Impact

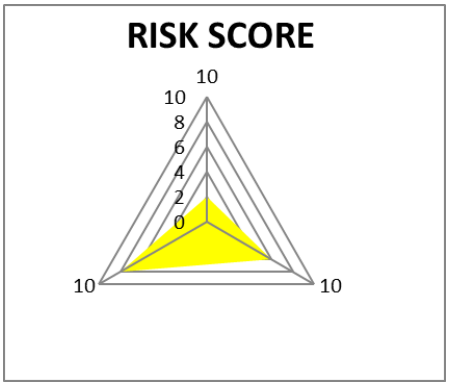
Aircraft crash on runway (51D01 – B2E2MTRCFR)

Task	Staffing Level	Units Assigned
Command and Safety	2	Battalion
Pulling a Safety Protection Line	2	CFR (1) and Engine (1)
Pump Operator	1	CFR (1)
On Deck (for potential need for fire attack, pump ops, patient assessment, treatment and transport, exposures)	6	1st Engine (2), 1st Medic (2), Rescue (2)
Staging	7	2nd Engine, 2nd Medic, Tender
Total Personnel	**18**	

Aircraft Rescue Firefighting: Moderate Risk

Aircraft crash in canyon (51D03 – B2E2MTRCFR)

RISK	
Probabilityof occurrence	2
Consequence to community	6
Impact on Fire Department	8
SCORE	36.76955



Aircraft Rescue Firefighting: High Impact

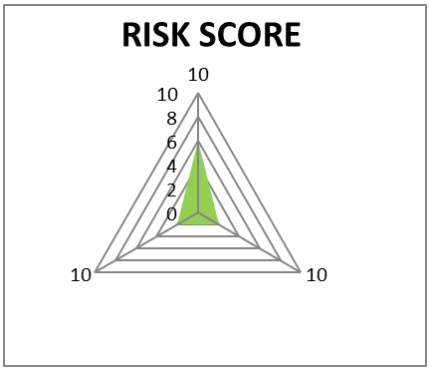
Aircraft crash in canyon (51D03 – B2E2MTRCFR)

Task	Staffing Level	Units Assigned
Command and Safety	2	Battalion
Pulling a Safety Protection Line	2	CFR (1) and Engine (1)
Pump Operator	1	CFR (1)
Patient assessment, treatment transport	4	1st Medic (2), Rescue (2)
On Deck (for potential need for fire attack, pump ops, additional patient assessment, treatment and transport, exposures)	4	1st Engine (2), 2nd Medic
Staging	5	2nd Engine, Tender
Total Personnel	**18**	

COMMUNITY RISK ASSESSMENT - STANDARDS OF COVER

Wildland Firefighting: Low Risk

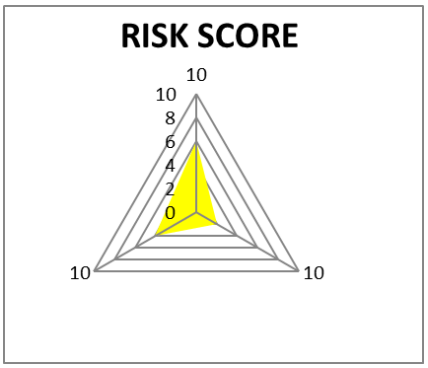
Stump fire in Pajarito Acres		
RISK		
Probabilityof occurrence		6
Consequence to community		2
Impact on Fire Department		2
SCORE		**12.32883**



Wildland Firefighting: Very Low Impact		
		Stump fire in Pajarito Acres (67B01) (BEM)
Task	Staffing Level	Units Assigned
Command	1	Engine
Initial Attack	1	Engine
Pump Ops	1	Engine
Total Personnel	**3**	

Wildland Firefighting: Moderate Risk

Small brush fire near East Gate		
RISK		
Probabilityof occurrence		6
Consequence to community		2
Impact on Fire Department		4
SCORE		**19.79899**



Wildland Firefighting: Moderate Impact		
		Small brush fire near East Gate (BEMM-T)
Task	Staffing Level	Units Assigned
Command	2	Battalion
Initial Attack	5	Engine, Medic
Pump Ops	2	MT
Total Personnel	**9**	

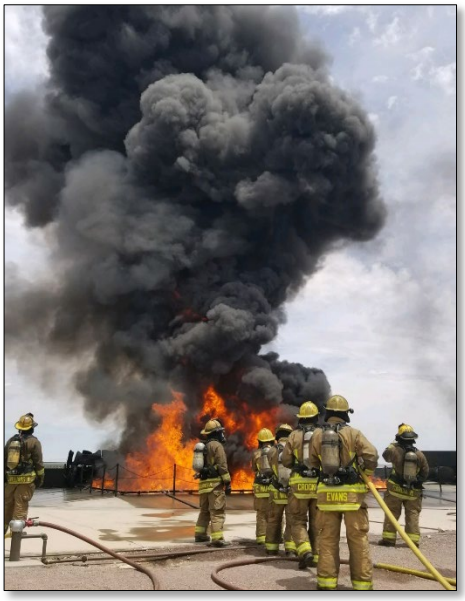
Appendix J: Program and Fleet Photos

Fire Suppression

Live Burns at Station 2

Live Burns at Station 2

Live burns at NM Firefighters' Training Academy in Socorro, NM

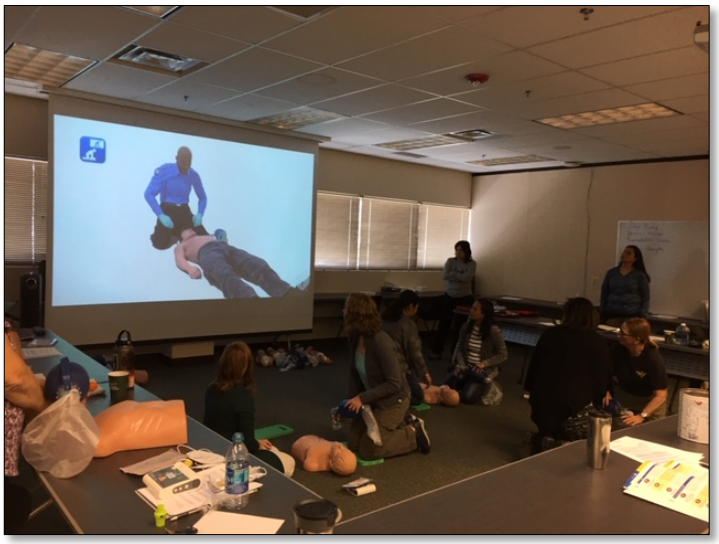


Live Burn at NM State Fire Academy, Socorro, NM

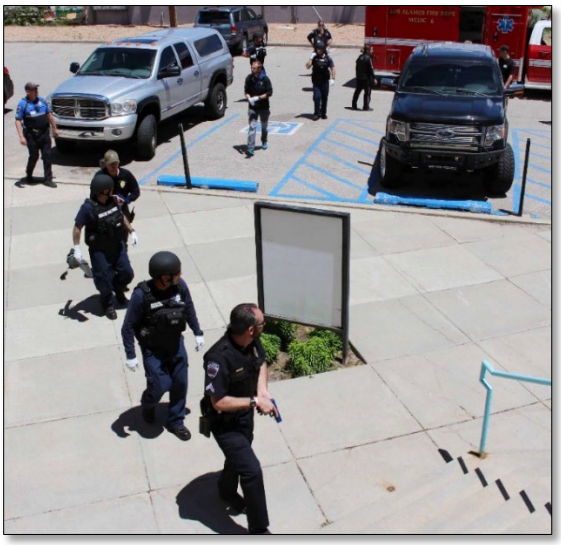
Emergency Medical Services

Phoenix award - April 9, 2019

Response to Incident at Municipal Building



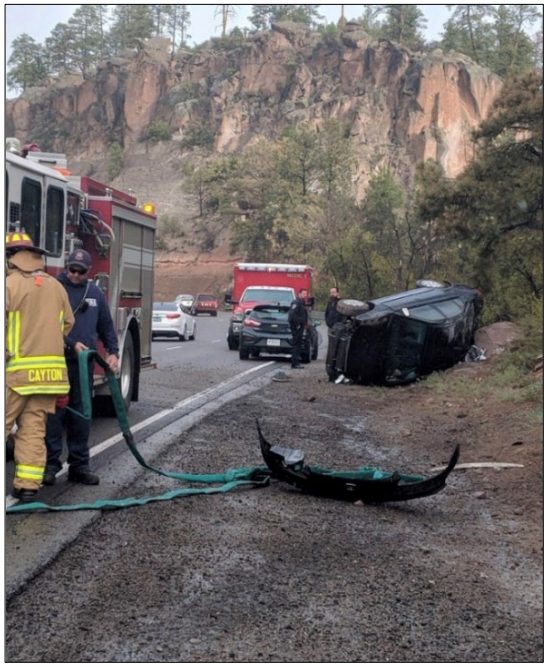
Hands-only CPR Class



Active Shooter Drill/Multiple Agency Drill

Technical Rescue

TRT Training



Stabilization of Vehicle

TRT Training

Vehicle stabilization on incident

TRT Team giving aide for a recovery at Taos Gorge

Hazardous Materials

HazMat Challenge

Hazmat Challenge

Wildland Firefighting

Brush-7

Brush-8

Engine-4

Truck-1

Engine-6

Mobile Operation Center

Medic-3

Polaris-4

Hazmat 1

Heavy Rescue

Truck-3

Pub-Ed Truck and Trailer

Chief-4

Wildland

Works Cited

Center for Public Safety Excellence. *Community Risk Assessment: Standards of Cover, 6th Edition*.

Center for Public Safety Excellence. *Fire and Emergency Service Self-Assessment Manual, 9th Edition*. 2015.

New Mexico Administrative Code (NMAC)

CODE OF ORDINANCES County of LOS ALAMOS, NEW MEXICO Codified through Ordinance No. 02-299, enacted November 26, 2019. (Supp. No. 62)

Other Sources Cited

Cooperative Agreement (CA) between the Department of Energy/National Nuclear Security Administration (DOE/NNSA) and the Incorporated County of Los Alamos (LAC) Award No. DE-NA0002067

Fire Chief's Directives – Division 100 – Administration

Fire Chief's Directives – Division 200 – Personnel

Fire Chief's Directives – Division 300 – Fire Prevention

Fire Chief's Directives – Division 400 – Emergency Operations

Fire Chief's Directives – Division 500 – Emergency Medical Services

Fire Chief's Directives – Division 600 – Apparatus, Tools, Equipment, Buildings and Grounds

Fire Chief's Directives – Division 700 – Training and Education

Fire Chief's Directives – Division 800 – Safety

Fire Chief's Directives – Division 900 – Dispatch and Communications

Incorporated County of Los Alamos Budget Book (2019-2020)

LAFD Training Plan (2020-2022)

National Fire Protection Association (various standards and editions)

Los Alamos National Laboratory Baseline Needs Assessment (2018)

Intrastate Mutual Aid System

Emergency Management Assistance Compacts

New Mexico Resource Mobilization Plan

Photo credits

Smug Mug – Los Alamos, NM Image Gallery

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Micah Brittelle, C Shift Operations Battalion Chief

Marisha Ballew, LAFD Human Resources

Louisa Martinez, LAFD Technology Specialist

Danial Garcia, Technical Rescue Team Leader

Daniel DeVall, Fire Captain

Van Leimer, Driver Engineer

Donna McHenry, EMS Training Coordinator (retired)

Glossary of Terms, Acronyms, and Initialisms

Accreditation	A process by which an association or agency evaluates and recognizes a program of study or an institution as meeting certain predetermined standards or qualifications. It applies only to institutions or agencies and their programs of study or their services. Accreditation ensures a basic level of quality in the services received from an agency.
AFR	Albuquerque Fire Rescue
ARFF	Aircraft Rescue and Firefighting
ALS	Advanced Life Support
APA	Annual Program Appraisal
APS	Adult Protective Services
ATF	Bureau of Alcohol, Tobacco, Firearms, and Explosives
AWA	Alternative Work Assignment
BNA	Baseline Needs Assessment
BC	Battalion Chief
BACON	Being Accountable and Compliance for Operational Needs
CA	Cooperative Agreement (CA) between the Department of Energy/National Nuclear Security Administration (DOE/NNSA) and the Incorporated County of Los Alamos (LAC) Award No. DE-NA0002067
CASS	Commission on Accreditation of Ambulance Services
CAD	Computer Aided Dispatch
CDC	Consolidated Dispatch Center
CE	Continuing Education
CEDD	Community Economic Development Department
CISM	Critical Incident Stress Management
CFAI	Commission on Fire Accreditation International
CO	Company Officer
COOP	Continuity of Operations Plan
CRF	Crash Fire Rescue
CPS	Child Protective Services
CPSE	Center for Public Safety Excellence
CTT	Criterion Task Test
CQI	Continuous Quality Improvement
Customer(s)	The person or group who establishes the requirement of a process and receives or uses the

	outputs of that process; or the person or entity directly served by the department or agency.
CYFD	Children Youth and Family Department
DC	Deputy Fire Chief
DDC	Defensive Driving Course
DE	Driver Engineer
DOE	Department of Energy
DPU	Los Alamos County Department of Public Utilities
DSHEM	Department of Homeland Security
EAP	Employee Assistance Program
Efficiency	A performance indication where inputs are measured per unit of output (or vice versa).
EMAC	Emergency Management Assistance Compact
EMC	Emergency Management Coordinator
EMS	Emergency Medical Services
EMT	Emergency Medical Technician
EMT	Expanded Management Team
EMR	Emergency Management and Response Group
Environment	Circumstances and conditions that interact with and affect an organization. These can include economic, political, cultural, and physical conditions inside or outside the boundaries of the organization.
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
EPHA	Emergency Planning Hazard Assessment
ER	Emergency Room
ERF	Effective response Force
EVT	Emergency Vehicle Technician
FCD	Fire Chief's Directive
FEMA	Federal Emergency Management Agency
FF	Firefighter
FIIT	Fire Inspection and Investigation
FLST	Fire and Life Safety Team
FMO	Fire Marshal's Office
FSRS	Fire Suppression Rating Schedule (ISO)

GPM	Gallons per minute
GIS	Geographic Information Systems
GSA	General Services Administration
HR	Human Resources
HISN	Homeland Information Security Network
IAFF	International Association of Fire Fighters
IAP	Incident Action Plan
IBC	International Building Code
IDRC	Interdepartmental Review Committee
IFSAC	International Fire Service Accreditation Congress
IM	Information Management Division of Los Alamos County
IMAS	Interagency Mutual Aid System
Input	A performance indication where the value of resources is used to produce an output.
IAAI	International Association of Arson Investigators
ISO	Insurance Services Office
ISO	Incident Safety Officer
KSA	Knowledge, skills, and abilities
LA	Los Alamos
LAC	Los Alamos County
LAFD	Los Alamos County Fire Department
LAMC	Los Alamos Medical Center
LANL	Los Alamos National Laboratory
LAPD	Los Alamos Police Department
LAPS	Los Alamos Public Schools
LASO	Department of Energy Los Alamos Site Office
LEPC	Los Alamos Emergency Planning Committee
MA	Management Analyst
MET	Metabolic Equivalence Test
Mission	An enduring statement of purpose; the organization's reason for existence. Describes what the organization does, for whom it does it, and how it does it.
MOC	Mobile Operations Center
MOU	Memorandum of Understanding

NAI	National Association of Fire Investigators
NFPA	National Fire Protection Association
NFIRS	National Fire Incident Reporting System
NMFPF	New Mexico Fire Protection Fund Distribution Act
NMFFTA	New Mexico State Firefighters' Training Academy
NMAC	New Mexico Administrative Code
NMML	New Mexico Municipal League
NMSFMO	New Mexico State Fire Marshal's Office
NMSP	New Mexico State Police
NMDHSEM	New Mexico Department of Homeland Security and Emergency Management
NNSA	National Nuclear Security Administration
NRF	National Response Framework
NIMS	National Incident Management System
Occ Med	Los Alamos National Laboratory Occupational Medicine Group
OSHA	Occupational Safety and Health Administration
Outcome	A performance indication where qualitative consequences are associated with a program/service; i.e., the ultimate benefit to the customer.
Output	A performance indication where a quality or number of units produced is identified.
PIA	Post Incident Analysis
PERA	Public Employees Retirement Association of New Mexico
Performance Measure	A specific measurable result for each goal and/or program that indicates achievement.
PPE	Personal Protective Equipment
PR	Public Relations
PRR	Personnel Rules and Regulations
QA	Quality Assurance review
QC	Quality Control by Officer in Charge
RMP	Resource Mobilization Plan
RMS	Record Management Systems
RFP	Requests for Proposals
RTW	Return to Work
SFCFD	Santa Fe County Fire Department

SMA	Senior Management Analyst
SME	Subject Matter Expert
SMT	Senior Management Team
Stakeholder	Any person, group, or organization that can place a claim on, or influence the organization's resources or outputs, is affected by those outputs, or has an interest in or expectation of the organization.
Strategic Goal	A broad target that defines how the agency will carry out its mission over a specific period of time. An aim. The final result of an action. Something to accomplish in assisting the agency to move forward.
Strategic Objective	A specific, measurable accomplishment required to realize the successful completion of a strategic goal.
Strategic Plan	A long-range planning document that defines the mission of the agency and broadly identifies how it will be accomplished, and that provides the framework for more detailed annual and operational plans.
Strategic Planning	The continuous and systematic process whereby guiding members of an organization make decisions about its future, develop procedures and operations to achieve that future, and determine how success is to be measured.
Strategy	A description of how a strategic objective will be achieved. A possibility. A plan or methodology for achieving a goal.
STT	Shift Training Team
SLA	Service Level Agreement
SWOT	Strengths, Weaknesses, Opportunities and Threats.
TRT	Technical Rescue Team
UHF	Ultra-high frequency
VHF	Very-high frequency
VRP	Vehicle Replacement Plan
Vision	An idealized view of a desirable and potentially achievable future state - where or what an organization would like to be in the future.