CENTER FOR PUBLIC SAFETY MANAGEMENT, LLC

Standards of Cover and Utilization Study

Fair Oaks Ranch, TX

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CPSM®

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The Center also represents local governments at the federal level and has been involved in numerous projects with the Department of Justice and the Department of Homeland Security. In 2014 as part of a restructuring at ICMA, the Center for Public Safety Management (CPSM) spun out as a separate company and is now the exclusive provider of public safety technical assistance for ICMA. CPSM provides training and research for the Association's members and represents ICMA in its dealings with the federal government and other public safety professional associations such as CALEA, PERF, IACP, IFCA, IPMA-HR, DOJ, BJA, COPS, NFPA, IAFC, etc.

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SECTION 1. INTRODUCTION

The Center for Public Safety Management LLC (CPSM) contracted with the City of Fair Oaks Ranch to complete a utilization and service level analysis of the city's Fire and Emergency Medical Services (EMS) services, which are delivered through contractual services by Emergency Services District 4 (fire protection services) and Acadian Ambulance Services (EMS). Also included in this analysis is a review of the city's draft *Emergency Operations Plan*.

The current fire protection and first responder EMS response services are provided through a contractual agreement between Bexar County Emergency Services District 4 (ESD 4) and the city, which was constructed as a one year contract with three one year options. The current contract was effective October 1, 2021, and if each one year option is authorized by the City Council, the contract will conclude September 30, 2025.

Bexar County ESD 4 contracts with the Leon Springs Fire Department (LSFD) to provide fire protection services to the ESD 4 service area. Subsequently, the LSFD is the fire services provider to Fair Oaks Ranch. Effective October 1, 2024, the LSFD will merge with ESD 4 and will formally become Bexar County ESD 4. All full time, part-time, and volunteer members will transition to ESD 4. The current infrastructure and equipment have already been transferred to ESD 4. The LSFD will formally dissolve after October 1, 2024.

The current EMS ground transport service is provided by Acadian Ambulance service through a contractual agreement. The current agreement is a renewal agreement that covers the period May 1, 2022, through April 30, 2025. This agreement is a successor to the initial agreement that began on May 1, 2014. Under this agreement, and pursuant to Section 5 of the agreement, Acadian is the exclusive provider of emergency ambulance services in the city.

The scope of work for this project also included components of a Standards of Cover (SOC). An SOC analysis is a systematic way of examining the basic service provided by fire and EMS agencies, the risks they face and must prepare for, and how fire and EMS agencies align with national benchmarking and best practices.

The key elements in a Standards of Cover document include:

- A community risk assessment identifying the population, building, transportation, environmental, fire and EMS, and other risks the community both the fire and EMS agencies are exposed to.
- An analysis of levels of service provided to the areas protected by the fire and EMS agencies.
- An analysis of the agency's current response capability in terms of staffing, equipment, and response time performance.

To begin this analysis, project staff requested certain documents, data, and information from the city, LSFD and AAS. The project staff used this information/data to familiarize themselves with the fire and EMS providers staffing structure, assets, and operations. The provided information was supplemented with information collected during an on-site visit in November 2023, where CPSM interacted with city and fire department staff, visited each fire facility, reviewed fleet, and equipment, and completed an extensive tour of the city visualizing building, transportation, and other community risks. On several occasions, the project team interacted with Acadian Ambulance Service virtually, and visited Station 133 and the primary ambulance posting area at I-10 and Fair Oaks Parkway.

Our report includes comprehensive operational data and GIS analyses. The data and GIS analysis performed for this project provided technical support to our assessments, alternatives, considerations, and recommendations linked to call demand, call type and station workload, resiliency, current and future station locations, and response travel times.

Workload for Leon Springs Fire Department and Acadian Ambulance Service in Fair Oaks Ranch between October 1, 2022, and September 30, 2023, included:

Fire and Fire Related Incidents

- There were 509 Fire and EMS calls in Fair Oaks Ranch during the one year study period (excluding canceled calls) which the LSFD responded to. 103 calls were cancelled prior to a LSFD unit arriving.
- Overall, the LSFD responded to 1.7 calls per day in the city.
- 62% of the Fire and EMS calls are EMS related.
- Motor vehicle accidents make up 2.5% of Fire and EMS calls.
- Fire and Fire related calls make up 16.2% of Fire and EMS calls.
- Structure and Outside Fires make up 2.5% of Fire related calls.
- Non fire calls (typically false alarms good intent, hazard, and public service) make up 13.8% of Fire related calls.

EMS Incidents

- There were 407 EMS calls in Fair Oaks Ranch during the one year study period which AAS responded to.
- Overall, AAS responded to 1.1 calls per day.
- 33.9% of the EMS calls were Illness and Other call determinants (the largest % of EMS calls).
- Motor vehicle accidents make up 4.4% of EMS calls.
- Breathing Difficulty and Cardiac and Stroke related call determinants make up 19.9% of EMS calls.
- Fall and Injury call determinants make up 26.5% of EMS calls.
- Overdose and Psychiatric and Seizure and Unconsciousness related call determinants make up 15.2% of EMS calls.

Throughout our analysis, and more specifically when analyzing the operational deployment of fire resources, CPSM utilized two national benchmarks: the Insurance Services Office - Public Protection Classification (ISO-PPC) rating system, and NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Career Fire Departments*. Both are important national benchmarks. Although both are focused primarily on fire protection, it is important to understand they are independent of one another.

The 2014 ESD 4 ISO-PPC report, which includes the City of Fair Oaks Ranch, establishes a Class 3/8B for the Fire Protection Service Area (FPSA). The first number indicates a fire suppression system is present that includes a creditable dispatch center, fire department, and water supply (fire hydrants). The second number is the class that applies to properties within five road miles of a fire station but beyond 1,000 feet of a creditable water supply (fire hydrant). It is also important to understand the PPC is not just a fire department classification, but a compilation of community services that include the fire department, the emergency communications systems, and the water supply system.

A significant component of this report is the completion of an All-Hazards Risk Assessment of the Community. The All-Hazards Risk Assessment of the Community contemplates many factors that cause, create, facilitate, extend, and enhance risk in and to a community. The All-Hazards Risk

Assessment of the Community is an important component of this report as it links directly to deploying fire, EMS, and emergency management assets in the community.

The greatest amount of building risk in Fair Oaks Ranch is of a low hazard (single family dwellings-predominately wood frame construction). Fair Oaks Ranch does have a limited number of educational facilities/institutional facilities and multifamily residential structures (apartments/townhomes). All of these building risks present the LSFD and AAS with life-safety concerns.

Another key component of this report is the community survey CPSM conducted. The survey distributed to the community focused on the perceptions of services provided to the public by Leon Springs Fire Department and Acadian Ambulance, use of services provided, knowledge of services provided and community engagement opportunities, and thoughts on the how fire services should be provided moving forward. The summary report is broken into five main sections:

1) perceptions of Leon Springs Fire Department;
2) community engagement;
3) assessment of emergency services priorities;
4) fire services provide opinion; and
5) perceptions of Acadian Ambulance Service.

The survey was available for responses for 30 days and received 181 responses from the public. The 181 total survey responses represent 1.6% of the estimated 2022 population of Fair Oaks Ranch which is an admirable response rate for the general public.

When asked what their general perceptions of LSFD were, over 88% of respondents selected either "good" or "excellent" which indicates support for the LSFD and the services it provides.

Similar to the response for LSFD over 85% of respondents report a "good" or "excellent" general perception of Acadian Ambulance Service.

Other significant components of this report are an analysis of the current deployment and workload of resources, and the performance of these resources in terms of response times; a comprehensive review of the current ESD 4 ISO Public Protection Classification report; EMS clinical and operational components; emergency management preparedness; and analysis of each service provider's contracts, contract costs, and ability to meet contract performance.

This report and analysis are intended as an examination of the level of service provided by fire and EMS emergency services agencies in Fair Oaks Ranch as compared to national best practices and standards. Also, this analysis provides data and relevant information to be utilized for future planning and self-review of service levels for continued improvement. This will ensure that the agencies can meet community expectations and mitigate emergencies effectively and efficiently.

This report also contains a series of observations, assessments, fire and EMS service alternatives, and recommendations provided by CPSM which are intended to help the city understand the level of fire and EMS services they are receiving, the reasonableness of the contract costs, and alternatives the city may consider moving forward.

Most importantly, and after review of this analysis, what needs to be achieved by the city going forward is a reliable and sustainable Fire and EMS service delivery system. Alternatives moving forward for fire and EMS services include:

1. Status Quo: The first alternative to be considered is to maintain the status quo and continue multi-year contracts with ESD 4 for fire protection and EMS first response services, and Acadian Ambulance for EMS ground transport services.
2. Contract with ESD 4 for Fire and EMS Ground Transport. ESD 4 will begin offering EMS ground transport October 1, 2024. The city can opt to contract with ESD 4 for fire, EMS first response, and EMS ground transport. This alternative alleviates one contract and combines both important public safety functions into one contract.
3. Develop and Implement Fair Oaks Ranch Fire and EMS City Services. The city can develop and implement a fire and EMS department to deliver fire protection and EMS services within the city boundaries.
4. Develop and implement a Public Safety Officer department that delivers law enforcement, fire, and EMS emergency services.

CPSM assessments and recommendations are presented next.

Overall

- CPSM assesses that ESD 4 (LSFD), and Acadian Ambulance are providing contemporary, professional, and essential services to the city for reasonable contract costs.

Emergency Management

- CPSM reviewed the city's EOP and found the content valid.[1] CPSM cross-walked the key components recommended in FEMA's *Developing and Maintaining Emergency Operations Plans, 2021 v 3.0* guide with the city's EOP. CPSM assesses through this cross walk that the Fair Oaks Ranch EOP aligns with each FEMA component. CPSM also assesses the EOP aligns with the five mission areas outlined in Presidential Policy Directive 8 (PPD-8): National Preparedness.
- The city utilizes space designated as the police training room as the EOC when activation is required. The room is used regularly for roll call and training and is not set up for immediate EOC use. CPSM assesses the space is adequate and should follow the best practices as outlined herein.
- ***CPSM recommends*** the following additions to the Fair Oaks Ranch EOP:
  - For Level 1 and Level 2 EOC activation, the Finance Director should be added to the staffing compliment. The potential to expend funding for various operations and to track expenditures for state and/or federal reimbursement is likely to occur and is better coordinated by the finance department.
  - .[2] The five mission areas are:[3]
    - Prevention: refers to those capabilities necessary to avoid, prevent, or stop a threatened or actual act of terrorism. Prevention capabilities include, but are not

1. City of Fair Oaks Emergency Operations Plan (Basic Plan), Draft 2024.
2. Presidential Policy Directive 8 (PPD-8): National Preparedness, March 30, 2011.
3. ibid

limited to, information sharing and warning; domestic counterterrorism; and preventing the acquisition or use of weapons of mass destruction (WMD). For purposes of the prevention framework called for in this directive, the term "prevention" refers to preventing imminent threats.

- Protection: refers to those capabilities necessary to secure the homeland against acts of terrorism and manufactured or natural disasters. Protection capabilities include, but are not limited to, defense against WMD threats; defense of agriculture and food; critical infrastructure protection; protection of key leadership and events; border security; maritime security; transportation security; immigration security; and cybersecurity.
- Mitigation: refers to those capabilities necessary to reduce loss of life and property by lessening the impact of disasters. Mitigation capabilities include, but are not limited to, community-wide risk reduction projects; efforts to improve the resilience of critical infrastructure and key resource lifelines; risk reduction for specific vulnerabilities from natural hazards or acts of terrorism; and initiatives to reduce future risks after a disaster has occurred.
- Response: refers to those capabilities necessary to save lives, protect property and the environment, and meet basic human needs after an incident has occurred.
- Recovery: refers to those capabilities necessary to assist communities affected by an incident to recover effectively, including, but not limited to, rebuilding infrastructure systems; providing adequate interim and long-term housing for survivors; restoring health, social, and community services; promoting economic development; and restoring natural and cultural resources.

- ***CPSM recommends*** essential personnel assigned to the city (or county) EOC, and who have response assignments during an emergency or disaster, be trained to the appropriate NIMS level as outlined herein.
- Another important document ***CPSM recommends*** the city maintains is a Continuity of Operations Plan (COOP). A COOP is important to any organization, especially local governments that operate financial and human resources systems, facilities, public operations, and vital community services. A COOP is developed to serve as a roadmap that builds the organization's plan to prepare for, react to, and respond to any event that disrupts one or more operation, facility, service, or line of succession.

Fire and EMS Operations

- CPSM assesses the City of Fair Oaks Ranch has a moderate workload for fire and first response EMS resources. In the one-year data analysis period, the LSFD responded into Fair Oaks Ranch 509 times (103 calls were cancelled: 612 total). 67% of the calls were EMS related and 16.2% were fire related. Including cancelled calls, LSFD averaged 1.7 calls/day in Fair Oaks Ranch.
- The benchmark for response time for the LSFD into Fair Oaks Ranch as outlined in the contract for fire protection services is an eight minute turnout-travel time. As assessed in this report, LSFD only meets this performance standard for Motor Vehicle Accident responses.
  - It is further assessed that the LSFD has only moderate permeation into Fair Oaks Ranch with the current stations. This permeation is generally below Dietz Elkhorn Road. The addition of a new station 135 and Limestone Pass Frontage Road and Ranch Land View provides improved permeation into the city north of Dietz Elkhorn Road along the Fair

Oaks Parkway corridor, however, even when benchmarked against a 10-minute travel time, the northern areas of the city are not covered.

  - In-city stations 133 and 420 provide 100 percent coverage when benchmarked against the 8-minute travel time assessment. When benchmarked against the 6-minute travel time assessment, these stations cover the city near 100 percent. As noted herein, Stations 133 and 420 are not staffed by LSFD personnel. These stations have response apparatus in-station for available volunteer and part-time staff to respond.

- CPSM assesses the LSFD/ESD 4 has a robust mutual and automatic aid system. However, estimated response times as reported by the LSFD range from 10 minutes to 46 minutes depending on where the incident is occurring in the ESD 4 response area and where the mutual or automatic aid unit is responding from.

- It is assessed that the LSFD can assemble an Effective Response Force, when benchmarked against NFPA 1710, for single family dwellings in Fair Oaks Ranch utilizing automatic and mutual aid agreements, which is permitted under NFPA 1710.

- It is assessed that the LSFD cannot assemble an Effective Response Force, when benchmarked against NFPA 1710, for open air strip mall/commercial and apartment buildings in Fair Oaks Ranch using the current deployment matrix with automatic/mutual aid. However, with the arrival of automatic and mutual aid resources, the LSFD will assemble resources for the initial attack and prioritized additional critical tasks.

  - It is further assessed that the LSFD, based on time and distance of automatic and mutual aid resources, cannot assemble the entire Effective Response Force in eight minutes for building fires. However, the LSFD can initiate mitigation efforts with the two responding crews (Engines 132 and 134) as the remainder of the initial alarm resources are responding and arriving.

- It is assessed by CPSM that the current ISO-PPC report for ESD 4 (which includes Fair Oaks Ranch) includes deficiencies in Dispatch Circuits in the Bexar County 911 Center; the ESD 4 Deployment Analysis; the ESD 4 Company Personnel-staffing numbers; and ESD 4 Training for department personnel. The current ISO-PPC report CPSM reviewed is nearly ten years old. Because there have been station location changes (new Station 132); staffing changes to include additional career staff; a new Fire Chief and command staff; equipment changes/upgrades; and changes to the training regimen, it is possible that some or most deficiencies have been addressed. This said, ***CPSM further assesses and recommends*** ESD 4 should contact ISO and schedule another ISO-PPC rating analysis so that a new rating will align with ESD 4 changes and the new ISO-PPC rating schedule implemented in July 2014.

- CPSM assesses the City of Fair Oaks Ranch has a moderate workload for EMS ground transport resources (just over one call per day). In the one-year data analysis period, AAS responded into Fair Oaks Ranch 407 times. LSFD responded to 395 medical calls in Fair Oaks Ranch providing either medical care prior to AAS arriving or arriving with or after AAS and assisting with medical care.

- The *best efforts* response time reliability benchmark for Acadian Ambulance Service responding to City of Fair Oaks Ranch calls is eleven minutes at the 70th percentile. A 70th percentile means that 70 percent of calls had response times at or below that number. As assessed in this report, Acadian Ambulance meets this performance standard for all responses except cardiac and stroke responses. This response time *best efforts* benchmark is established in the current agreement between the City and Acadian Ambulance Service and is the standard set forth in the Acadian Ambulance Service contract with Bexar County.

- It is assessed that AAS has good permeation into the heavier demand areas of the city south of Dietz Elkhorn Road when benchmarked against the 6-minute travel time bleed. At the 8-minute travel time bleed AAS permeation extends north of Dietz-Elkhorn Road to the middle third of the city. At the 10-minute travel time bleed AAS permeation extends further north of Dietz-Elkhorn Road and further north up Ralph Fair Road filling in the middle third of the city. At the 12-minute travel time bleed AAS permeation extends into the upper third of the city to just south of W Ammann Road and Rolling Acres Trail areas.

- It is assessed the Acadian Ambulance Service medical direction program /practices are consistent with current EMS best practices for EMS Physician engagement, clinical oversight, and program development. It is further assessed AAS's medical protocols demonstrate a commitment to excellence in EMS care. By exceeding industry best practices, incorporating evidence-based strategies, and prioritizing quality improvement and provider education, Acadian Ambulances consistently deliver high-quality care to their patients.
- CPSM assesses at the time of our review the AAS training program ensures regular, routine, and validation-based training. The standards from Acadian Ambulance's QA/QI review and evaluation-led training are consistent with industry practices and are aligned with CAAS accreditation standards for a consistent QA/QI Training Program. It is further assessed that the AAS overall CQI program is contemporary and consistent with industry practices.
- CPSM assesses that Acadian Ambulance Service has resources available system wide and in proximity to Fair Oaks Ranch to handle the city's EMS workload. CPSM further assesses that, based on the System Status Management deployment method that Acadian Ambulance utilizes, resources dedicated to Fair Oaks Ranch and in proximity to the city may be assigned to calls for service. Acadian Ambulance system resources will be deployed to the Fair Oaks Ranch area as available and from other system areas, which potentially may extend response times. This would happen as well in a static-deployed EMS or fire-based EMS transport system as described herein.

Alternatives and Considerations

- CPSM assesses the current contracts with ESD 4 for fire services and Acadian Ambulance Service for EMS services are reasonable when compared to the costs of creating a Fair Oaks Ranch Fire and EMS city agency.
- The city should engage Acadian in the near future regarding a successor contract for services (and costs) prior to considering this alternative. ***CPSM recommends*** a contract from May 1, 2025, to September 30, 2025, then a contract with successor years beginning October 1, 2025, to September 30, 2026, and beyond. The city can then weigh separate and aggregate costs of ESD 4 and AAS contracts against a combined contract with ESD 4 for both fire and EMS services.
- If the city chooses to develop and implement their own Fire & EMS department, or a hybrid thereof, the annualized cost will be considerably more than the current contract costs for fire and EMS services with ESD 4 and Acadian Ambulance Service. That said, the CPSM conducted citizen survey on Fire and EMS services told us that 53.6% of the respondents to the survey were neutral or agreed that they would be willing to pay more in taxes to support a city fire department.
- ***CPSM recommends*** the city continue to optimize contract renewal discussions with the current Fire and EMS providers with the goal of continued, sustainable Fire and EMS services. These negotiations may include:

- An Acadian Ambulance contract that aligns with the city's fiscal budget year as such: a successor contract from May 1, 2025, to September 30, 2025, then a contract with successor years beginning October 1, 2025, to September 30, 2026, and beyond.
- Per call payment structure based on historical Fair Oaks Ranch workload for Fire and EMS services.
- Negotiation of a Level of Performance contract with Acadian Ambulance Service where the city stipulates an acceptable response time, and/or a dedicated ambulance in the city limits.
- Contract language in both the ESD 4 and Acadian Ambulance contract that has financial consequences for any call that does meet the contract language response time performance for the first arriving unit.
- Further evaluation and consideration of contracting with ESD 4 for both Fire and EMS services.

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SECTION 2. CPSM METHODOLOGY AND ANALYSIS CONCEPTS

CPSM Work Plan and Approach to Project

CPSM has developed a universal approach to public safety operational, administrative, and Standards of Cover analyses and reports. Our project work plan begins with a thorough review of the client's scope of work and is followed up with a project kick off meeting with our client to discuss the purpose of the project, ensure a mutual understanding of the scope of work, and discuss the desired outcomes. Through this process CPSM's and the client's expectations are managed throughout the analysis process. More specifically, for this project, CPSM utilized the following analysis methodology:

Data Analysis and Document Review

The CPSM Fire and EMS Team used numerous sources of data to support our conclusions and recommendations for the City of Fair Oaks Ranch to contemplate regarding fire and EMS service delivery. Information was obtained from the city and the city's fire and EMS service providers (Leon Springs Fire Department and Acadian Ambulance Service respectively), along with numerous sources of internal information garnered from a CPSM document/information request. Internal sources include data from the computer-aided dispatch (CAD) system for response time and workload information, the fire department's National Incident Reporting System (NFIRS) records management system for calls for service, monthly call data form the EMS provider, and other information regarding current and future growth and population projections.

Stakeholder Interviews

This study relied extensively on interviews and interaction with fire and EMS service providers and the city. On-site and in-person interviews to include virtual meetings were conducted with the Leon Springs Fire Department officials regarding the administration and operations of the department, as well as city leadership regarding current and future growth and population. Virtual meetings were conducted with Acadian Ambulance regarding EMS administration and operations, and workload in the city.

Operational/Administrative Observations

Over the course of the evaluation period, numerous observations were conducted. These included observations of fire and EMS operations; community risk; administrative functions; deployment of resources from a coverage perspective as benchmarked against national standards; and operational staffing benchmarked against national standards as it relates to assembling an effective response force. The CPSM Fire and EMS Team engaged all facets of fire and EMS provider operations from a ground floor perspective.

Deployment Analysis

In virtually all CPSM Fire and EMS studies, we are asked to identify appropriate staffing and resource deployment levels to include proper distribution of fire and EMS assets, response times, and workload as it relates to resiliency. This is the case in this analysis as well. In this report we discuss operational workload; critical tasking; assembling an effective response force; operational deployment, station locations; contract content, contract costs for services, and other factors to be considered when contemplating the utilization of fire and EMS resources.

Key Concepts of the Utilization Analysis

The scope of work for this project included the fire and EMS Standards of Cover concepts. The primary concepts of the Standards of Cover (SOC) are to develop an integrated response management plan that links the identified community's risk to the safe and effective fire and EMS resource response to fire suppression, emergency medical services, and specialty response incidents.

An important component of a SOC is the comprehensive Community Risk Assessment (CRA). Community risk factors have an impact on all fire department responses to include fire, non-fire related, and EMS responses. The analysis of community risk includes components such as community demographics; community growth and future development; natural hazards; transportation networks and hazards; fire management zone analysis for call type and demand; building risks and hazards; and hazards specific to a community.

Where applicable in this report CPSM utilizes national benchmarking as follows:

Insurance Services Office: The Insurance Services Office (ISO), a subsidiary of Verisk Analytics is a national, not-for-profit organization that collects and evaluates information from communities across the United States regarding their capabilities to combat building fires. The Verisk hazard mitigation team collects and evaluates information regarding the community's capabilities to provide municipal fire protection. This information is analyzed further utilizing the Fire Suppression Rating System from which individual section credits and points are tabulated and a Public Protection Classification for the community is assigned. Classifications range from 1 through 10, with one being the highest rating a community can achieve.[4]

NFPA 1710, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Career Fire Departments, 2020 edition (National Fire Protection Association, Quincy, MA): NFPA 1710 outlines the organization and deployment of operations by career, and primarily career fire and rescue organizations.[5] This standard serves as a benchmark to measure staffing and deployment of resources to certain building types and emergencies. Specific components of NFPA 1710 that are germane to staffing and deployment of resources include the assembling of an Effective Response Force (ERF -staffing to perform Critical Tasks on the fireground) for certain building risks, and response times (call processing or dispatch time; turnout time; and travel time to the scene).

Quality Improvement for the Fire and Emergency Services, 10th edition, Center for Public Safety Excellence: This manual details the process for conducting a community risk assessment, developing standards of cover, establishing a community-driven strategic plan, and self-assessing all segments of the fire department.[6]

4. Verisk's Community Hazard Mitigation Services (isomitigation.com)
5. NFPA 1710 is a nationally recognized standard, but it has not been adopted as a mandatory regulation by the federal government or the State of Texas. It is a valuable resource for establishing and measuring performance objectives for the CFD but should not be the only determining factor when making local decisions about the city's fire and EMS services.
6. Center for Public Safety Excellence, Chantilly, VA

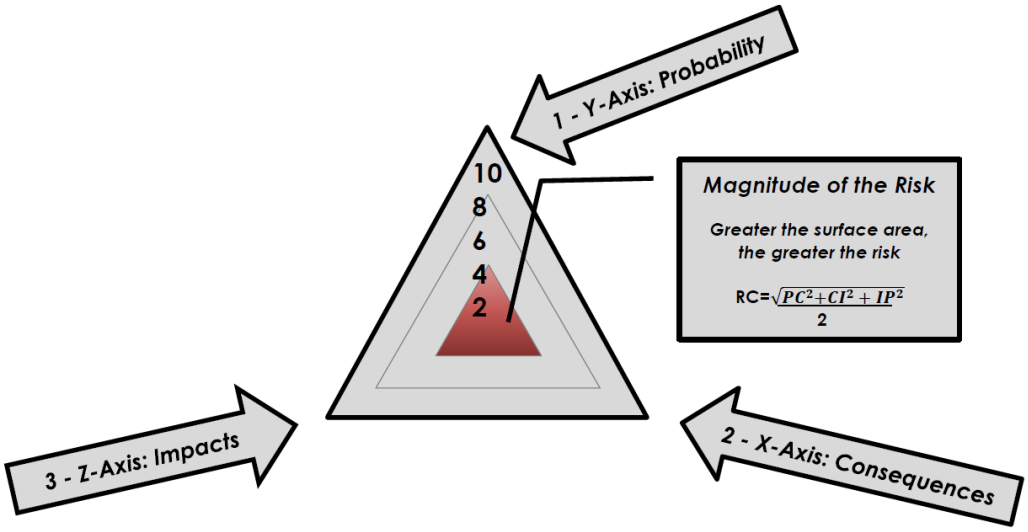
Risk Categorization

A comprehensive risk assessment is a critical aspect of assessing and creating a deployment analysis to meet the community's risk and can assist a fire department in quantifying the risks that it faces. Once those risks are known and understood, the fire and EMS service providers and the city are better equipped to determine if the current response resources are sufficiently staffed, equipped, trained, and positioned.

Risk is often categorized in three ways: the probability the event will occur in the community, the impact on the fire department, and the consequence of the event on the community. A CRA looks at the probability of the event occurring, which ranges from unlikely to frequent; consequence to the community, which is categorized as ranging from insignificant to catastrophic; and the impact to the organization, which ranges from insignificant to catastrophic.

Prior risk analysis has only evaluated two factors of risk: probability and consequence. Contemporary risk analysis considers the impact of each risk to the fire and EMS organization, thus creating a three-axis approach to evaluating risk as depicted in the following Figure. A contemporary risk analysis now includes probability, consequences to the community, and impact on the fire and EMS organization(s). In this analysis, information presented and reviewed in this section (Community Risk Profile) has been considered. Risk is categorized as Low, Moderate, High, or Special.

Figure 1: Three-Axis Risk Calculation (RC)

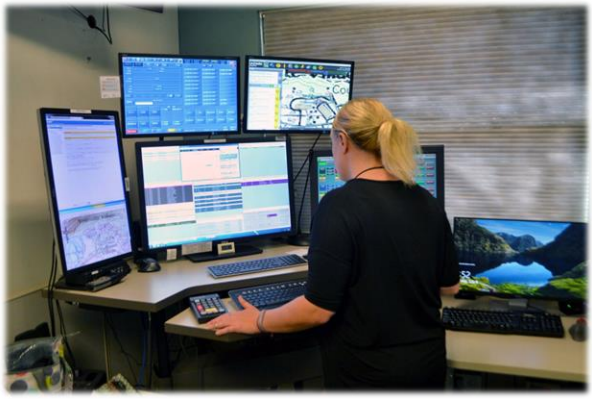


Response Time Performance

When analyzing response time, CPSM utilizes CAD data from the Public Safety Answering Point (PSAP) that dispatches the fire service provider and information received from the EMS provider. For these two service providers 911 calls go to the City of Boerne PSAP. Boerne PSAP then transfers fire calls to the Bexar County Sherriff's Office Public Safety Communications Center for dispatching. EMS calls are transferred from the Boerne PSAP to Acadian for further processing

and then dispatch. CPSM also utilizes the fire department's NFIRS report information to assess incident type and then crosswalk this information to the CAD information for accuracy of address, incident typing, units that responded, response times, staffing, property loss, and relevant incident information. Acadian Ambulance Service did not provide CAD data or specific call information from this agency's records management system to CPSM so that we could perform a comprehensive response time analysis. We were, however, provided monthly reports provided to the city to conduct our response time analysis.

For the purpose of this Standards of Cover, ***response time*** is a product of three components: ***dispatch time***, ***turnout time***, and ***travel time***.



Dispatch time (alarm processing time) is the difference between the time a call is received and the time a unit is dispatched. Dispatch time includes call processing time, which is the time required to determine the nature of the emergency and types of resources to dispatch. ***Turnout time*** is when the emergency response units are notified of the incident and ends when travel time begins. ***Travel Time*** is the difference between the time the unit is en route and arrival on scene. ***Response time*** is the total time elapsed between receiving a call to arriving on scene.

A crucial factor in the whole response time question is what we term "**detection time**." This is the time it takes to detect a fire or a medical situation and notify 911 to initiate the response. In many instances, particularly at night or when automatic detection systems (fire sprinklers and smoke detectors) are not present or inoperable, the fire detection process can be extended. The same holds true for EMS incidents.

Many medical emergencies are often thought to be something minor by the patient, treated with home remedies, and the true emergency goes undetected until signs and symptoms are more severe. When the fire-EMS department responds, they often find these patients in acute states. Fires that go undetected and are allowed to expand in size become more destructive, are difficult to extinguish, and require more resources for longer periods of time.

The next set of figures illustrates the cascade of events for fire and EMS incidents.

Figure 2: Response Time Cascade of Events-Fire

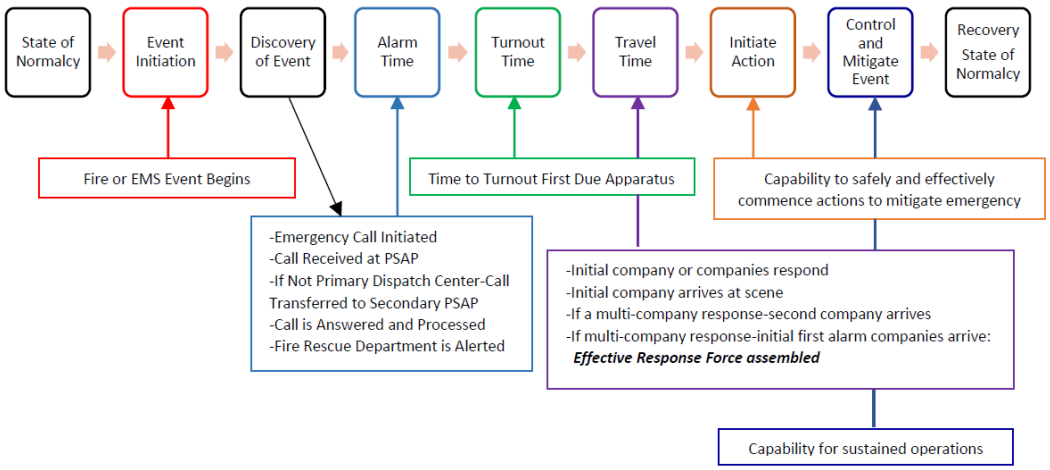
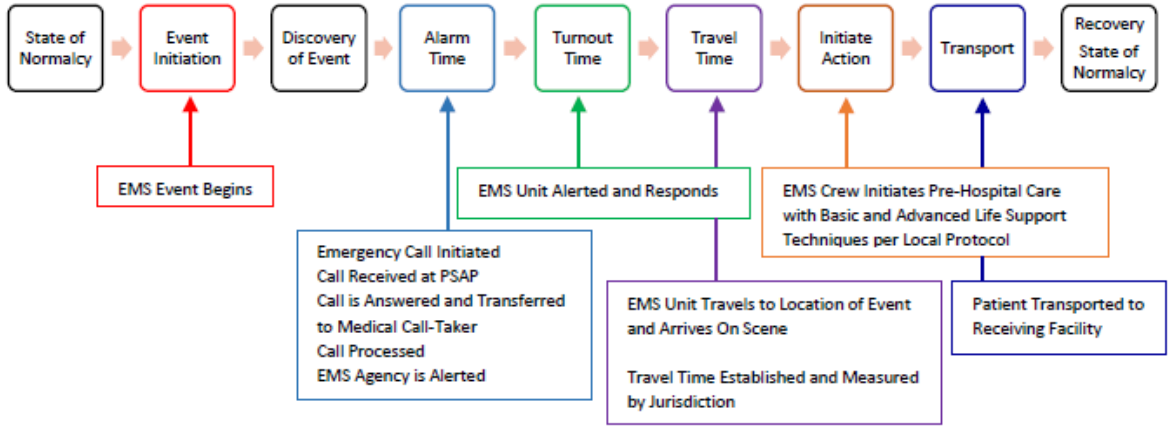


Figure 3: Response Time Cascade of Events-EMS



The next tables outline average turnout-travel response times for Leon Springs Fire Department and Acadian Ambulance Service.

The benchmark for response time for the LSFD into Fair Oaks Ranch as outlined in the contract for fire protection services is an eight minute turnout-travel time. As assessed in this report, LSFD only meets this performance standard for Motor Vehicle Accident responses.

The response benchmark for Acadian Ambulance service at the 70th percentile is eleven minutes. A 70th percentile means that 70 percent of calls had response times at or below that number. As assessed in this report, Acadian Ambulance meets this performance standard for all responses except cardiac and stroke responses.

Both agency response times are analyzed further later in this report.

Figure 4: Average Turnout and Travel Times-Fire

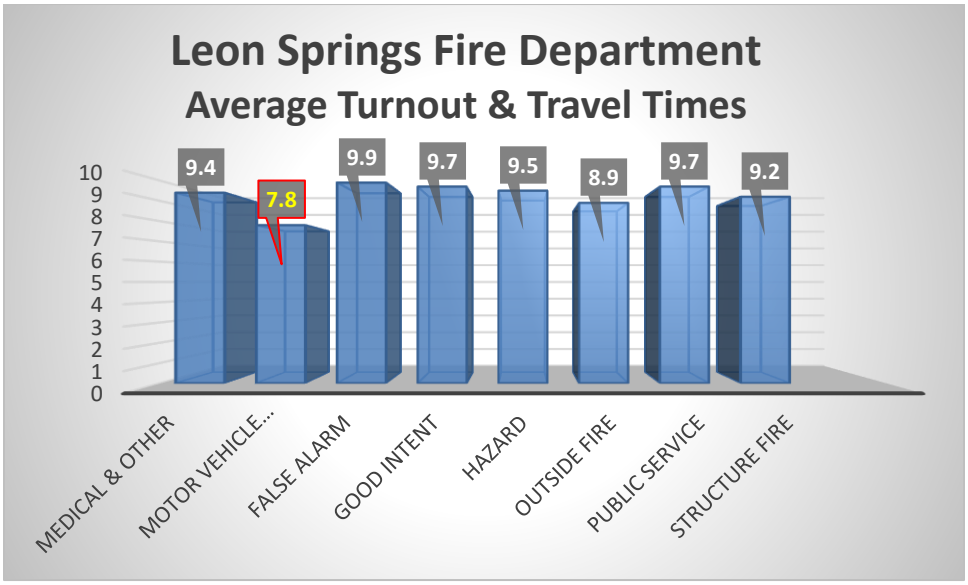
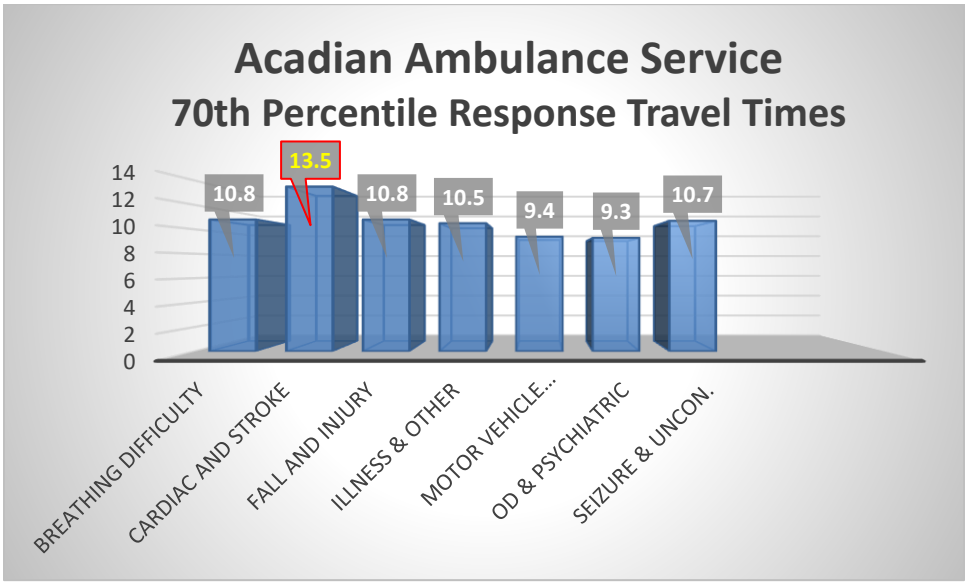


Figure 5: 70th Percentile Turnout and Travel Times -EMS



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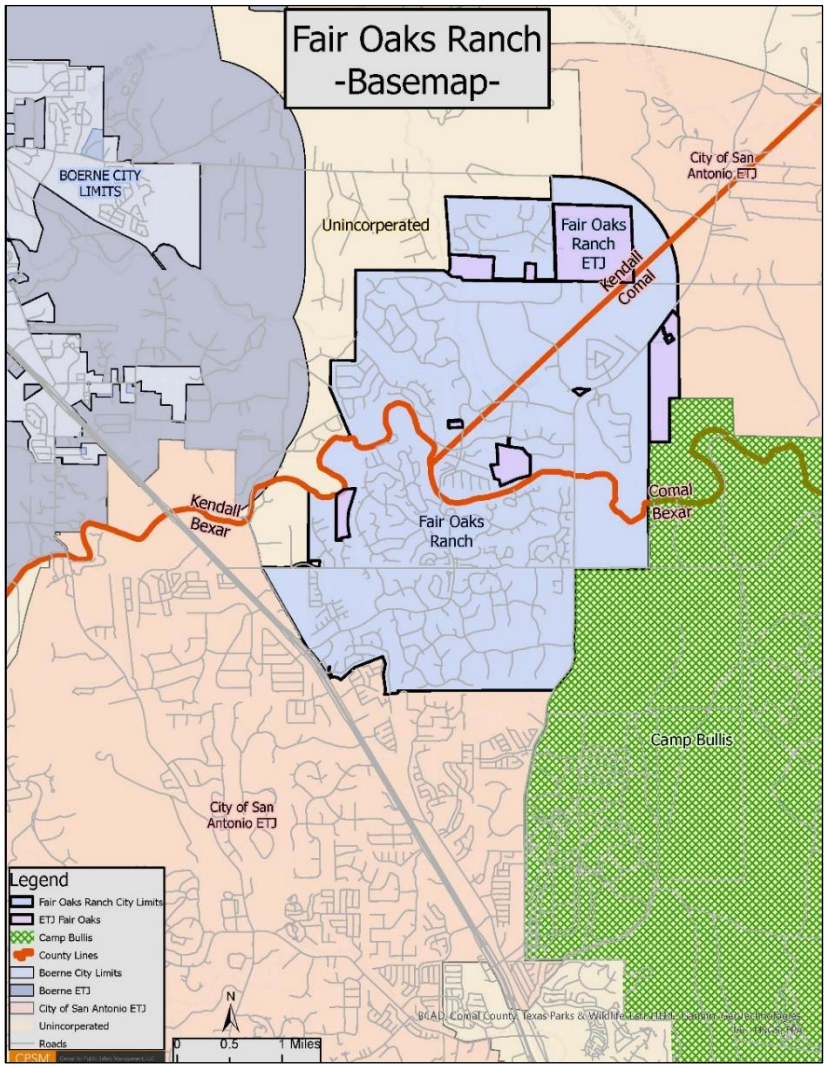
SECTION 3. COMMUNITY OVERVIEW

City of Fair Oaks Ranch

Fair Oaks Ranch is a city of primary single-family residences located in south central Texas. Fair Oaks Ranch is approximately twenty-two miles northwest of San Antonio and eight miles southeast of the City of Boerne. Fair Oaks Ranch is considered to be a part of the San Antonio Metropolitan Statistical Area.

Fair Oaks Ranch is in Bexar, Kendall, and Comal counties. Fair Oaks Ranch is contiguous with areas of unincorporated Bexar, Kendall, and Comal unincorporated areas, as well as Camp Bullis & Stanley (U.S. Army) on the southwest city boundary line. The total area of the city is currently 12.96 square miles (land and water). Fair Oaks Ranch has Extra Territorial Jurisdiction (ETJ) area within and contiguous to the city that lies in each of the three counties the city resides.

Figure 6: City of Fair Oaks Ranch and Surrounding Area



Governance

Fair Oaks Ranch is a Home Rule municipal government that operates under the Council-Manager form of government. The City Council includes six council members and a Mayor who serves as the presiding officer of the Council. The City Council serves as the policy making body for the city. By Article 1.06 of the city's Code of Ordinances, the Mayor also serves as the head of the city's Emergency Management program.[7]

The City Manager is appointed by the City Council and serves as the chief administrator of the city. Among other duties and responsibilities delineated in the city's Code of Ordinances, the City Manager is responsible for the proper and efficient management of the affairs of the city and the day to day operations.[8]

The city has established departments that include police, finance, public works, animal control, building codes, engineering, human resources/communications, mapping municipal, and waste/wastewater customer service. Through Section 5.05 (C) *The City Council by ordinance may create, change, and abolish offices, departments, or agencies other than offices, departments and agencies established by the Charter.* Importantly, through the Code of Ordinances, the city may establish a fire department and/or EMS department or combination Fire-EMS department to provide these services. The Police Chief serves as the city's public safety liaison with the fire and EMS providers.

The current fire protection, first responder EMS, and other emergency response services are provided through a contractual agreement between Bexar County Emergency Services District 4 (ESD 4) and the city, which was constructed as a one year contract with three one year options. The current contract was effective October 1, 2021, and if each one year option is authorized by the City Council, the contract will conclude September 30, 2025. As a note here, Bexar County contracts with the Leon Springs Fire Department (LSFD) to provide fire protection services to the ESD 4 service area. Subsequently, the LSFD is the fire services provider to Fair Oaks Ranch.

Article III of the current fire agreement outlines ESD 4 (LSFD) emergency services to the city as:

- District shall provide the necessary qualified and certified personnel and equipment for providing Emergency Services to the City in accordance with this Agreement and the operational standards and practices used by the District and its subcontractors and shall enter into and maintain reciprocal mutual aid agreements with surrounding governmental entities and/or fire departments when necessary or advisable.
- Monitor the fire alarm or alert system and radio system utilized by the District.
- Respond to and fight fires within the city limits of Fair Oaks Ranch 24 hours a day, 7 days a week. The District will strive to achieve an average response time consistent with the District's contract with the emergency service provider Leon Springs Fire department (Attachment B of the agreement). Response time shall be measured by the amount of time lapsing between the time of dispatch notification and arrival of the fire vehicle at the dispatched location.

  As a note here, Section 7.1.6 of the aforementioned ESD 4 and LSFD contract outlines LSFD performance as:

  - *Maintain an average response time goal for an LSFD emergency vehicle at not more than 8 minutes.*

7. Code of Ordinances City of Fair Oaks Ranch, Texas.
8. ibid

- Respond to emergency medical and incident response calls within the city limits of Fair Oaks Ranch 24 hours a day, 7 days a week.

Article V of the agreement outlines the payment schedule for fire protection, first responder EMS, and other emergency response services as follows:

- Initial one year term October 1, 2021-September 30, 2022: $362,927
- First one year term renewal October 1, 2022-September 30, 2023: $417,981
- Second one year term renewal October 1, 2023-September 30, 2024: $492,105
- Third one year term renewal October 1, 2024-September 30, 2025: $528,581

The current EMS ground transport service is provided by Acadian Ambulance service through a contractual agreement. The current agreement is a renewal agreement that covers the period May 1, 2022, through April 30, 2025. This agreement is a successor to the initial agreement that began on May 1, 2014. Under this agreement, and pursuant to Section 5 of the agreement, Acadian is the exclusive provider of emergency ambulance services in the city.

Pursuant to Sections 3 and 4 of the agreement, Acadian's obligations to the city are facilitated as a Level of Effort (LOE), wherein Acadian Ambulance has been engaged to supply a dedicated ambulance service, with Acadian qualified and appropriate state certified personnel as outlined below.

- One staffed ambulance eight hours/day, five days/week (between the hours of 8:00 am and 5:00 pm).
- After 5:00 pm and until 8:00 am and 24-hours a day on weekends a standby crew will be utilized. The standby crew will be available at the station location within the city.
- Acadian will post one ambulance, as arranged, at the location agreed upon with the city. Acadian, if indicated, may amend the posting location from time to time to meet specified response criteria (the agreement does not stipulate response criteria for the city, only that Acadian will use its best efforts to produce response time reliability for all city calls, comparable to the standards set forth in the contract for the unincorporated areas of Bexar county). The city acknowledges and understands that Acadian is allowed and permitted to use the stationed unit in City to respond to other areas in Bexar County. This agreement is intended for non-dedicated, priority posting only. However, should the unit be dispatched outside of the city, Acadian shall use all reasonable efforts to send a spare unit and crew towards the city to standby and cover until the city unit returns.

As a note here, the Acadian-Bexar County contract outlines Acadian performance as:

  - *Acadian will provide continuous response capability for all EMS calls and shall maintain an average fractile monthly emergency response time of not greater than eleven (11) minutes and shall strive to achieve an average fractile monthly emergency response time of less than eleven (11) minutes, for at least 70% of responses.*

For edification here, there are typically two types of contracts for EMS ground transport services. These are: "***Level of Effort***" or "***Level of Performance"*** contracts. A "***Level of Effort"*** contract consists of a written agreement (contract) that describes the scope of work in general terms and requires the contractor to provide a specified level of effort (number of hours, number of units, or percentage of effort) over a stated period of time.

It is common as well for ambulance providers and jurisdictions to operate under a ***"Performance-Based or Level of Performance"*** agreement (contract), which specifies desired

performance levels for key clinical, experiential, and response time metrics. For example, when mutually agreed upon between both parties could include a specific number of ambulances and performance level indicators (i.e., response time metrics, level of care providers that links to quality improvement/quality insurance metrics involving patient care outcomes, community paramedicine etc.). The Acadian Ambulance contract is a ***Level of Effort*** contract.

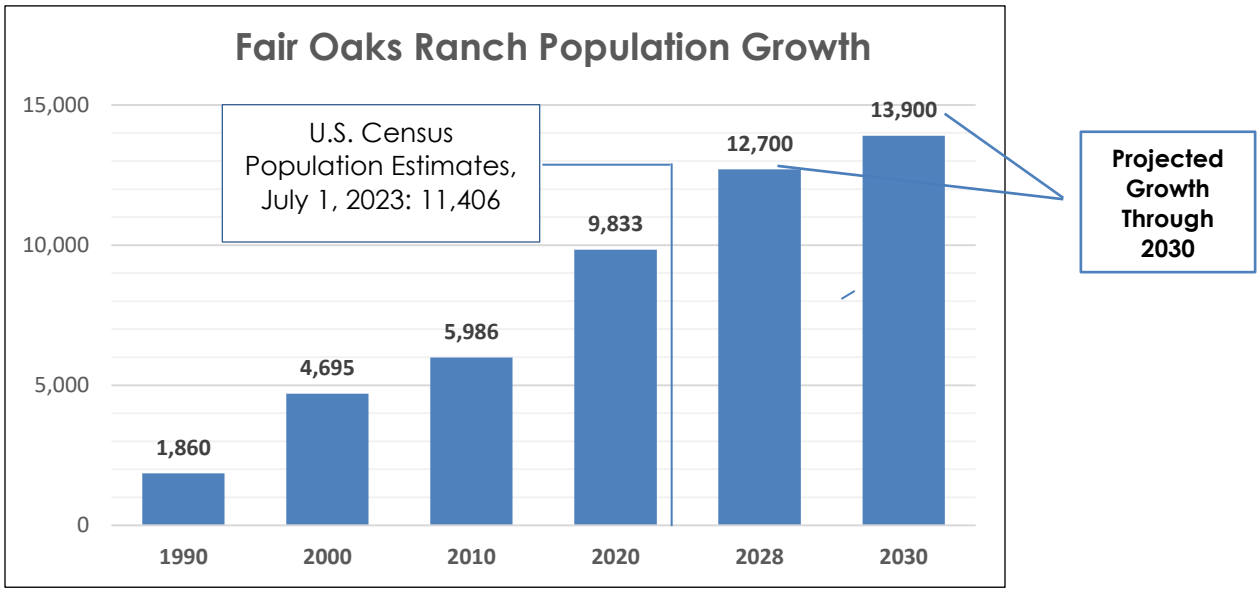
The May 2022 renewal agreement between the city and Acadian Ambulance Service outlines the payment schedule for EMS ground transport services as follows:

- May 1, 2022, through April 30, 2025: $6,125 per month, which is annualized as $73,500.

Population and Growth

The U.S. Census Bureau indicates the population of the Fair Oaks Ranch, TX in 2020 was 9,833. This is a 64 percent increase in population since the 2010 census of 5,986. The city has 12.26 square miles of land mass. Land mass at the time of the 2010 census was 8.49 square miles. The population density is 802 per square mile. This is an increase of 97 people per square mile over the 2010 census numbers.

Figure 7: City of Fair Oaks Ranch Population Growth: 1990-2030



- Population for 1990 and 2000, (Texas State Library and Archives Commission,1990 and 2000 Census: Population of Texas Cities).
- Population for 2010 and 2020, (U.S. Census Bureau QuickFacts: Fair Oaks Ranch, Texas).
- Population for 2028, (Fair Oaks Ranch Comprehensive Plan 2018; 10 year population projection, page 10).
- Build-Out Population: 13,900 by 2030; Range Projection: 13,200 – 14,600, (Fair Oaks Ranch Comprehensive Plan 2018, page 10).

The population of Fair Oaks Ranch grew significantly over the last 30 years, with the largest increase coming between 2010 and 2020, experiencing a 64 percent increase. The projected population estimate for 2030 is 13,900.

In terms of fire and EMS risk, the age and socio-economic profiles of the population can have an impact on the number of requests for fire and EMS services. Evaluation of the number of seniors and children by fire and EMS management zones can provide insight into trends in service delivery and quantitate the probability of future service requests. In a 2021 National Fire Protection Association (NFPA) report on residential fires, the following key findings were identified for the period 2015-2019:[9]

- Males were more likely to be killed or injured in home fires than females and accounted for larger percentages of victims (57 percent of the deaths and 55 percent of the injuries).
- The largest number of deaths (20 percent) in a single age group was among people aged 55 to 64.
- 59 percent of the victims of fatal home fires were between the ages of 39 and 74, and three of every five (62 percent) of the non-fatally injured were between the ages of 25 and 64.
- Slightly over one-third (36 percent) of the fatalities were age 65 or older; only 17 percent of the non-fatally injured were in that age group.
- Children under the age of 15 accounted for 11 percent of the home fire fatalities and 9 percent of the injuries.
- Children under the age of 5 accounted for 5 percent of the deaths and 4 percent of the injuries.
- Adults of all ages had higher rates of non-fatal fire injuries than children.
- Smoking materials were the leading cause of home fire deaths overall (23 percent) with cooking ranking a close second (20 percent).
- The highest percentage of fire fatalities occurred while the person was asleep or physically disabled and not in the area of fire origin; key factors to vulnerable populations.

In Fair Oaks Ranch, the following age and socioeconomic factors are considered herein when assessing and determining risk for fire and EMS preparedness and response:[10]

- Children under the age of five represent 2.8 percent of the population.
- Persons under the age of 18 represent 27.5 percent of the population.
- Persons over the age of 65 represent 20.7 percent of the population.
- Female persons represent 50.2 percent of the population.
- There are 2.71 persons per household in Fair Oaks Ranch, (2018-2022).
- The median household income (in 2022 dollars), 2017-2021 was $150,237.
- People living in poverty make up 2.9 percent of the population.
- Black or African American alone represents 6.9 percent of the population. The remaining percentage of population by race includes White alone (not Hispanic or Latino) at 70.4

9. M. Ahrens, R. Maheshwari "Home Fire Victims by Age and Gender," Quincy, MA: NFPA, 2021.
10. U.S. Census Bureau QuickFacts: Fair Oaks Ranch, Texas.

percent, American Indian or Alaska Native alone at 0.5 percent, Asian alone at 2.3 percent, two or more races at 8.3 percent, and Hispanic or Latino at 14.6 percent.

The demographics in Fair Oaks Ranch overall pose a moderate to low risk in totality. While not a high risk, a single call involving vulnerable population (fire or EMS) poses a higher risk on that particular response. Through pre-fire planning and response district knowledge of residential and other structures housing a vulnerable population as identified above, the LSFD and Acadian Ambulance Service will have the necessary situational awareness and be better prepared to mitigate the emergency once on the scene of the incident.

Growth and Planning

Fair Oaks Ranch Yesterday and Today[11]

The Fair Oaks Ranch Comprehensive Plan was adopted in June 2018. Information from this plan is utilized when discussing planned future growth and what effect that may have on the delivery of fire and EMS services. The City's population is expected to continue to grow well into the future as Fair Oaks Ranch develops available land for housing, commercial, and other land uses. Chapter 5, Managing the Future Section of the Plan sets policies for land use in the City and the ETJ, establishing the foundation for future development.

The City of Fair Oaks Ranch started as a ranch. The ranch - stretching across the frontiers of Bexar, I, and Comal counties – was acquired in the 1930s by Ralph Fair Sr. After a fire in the 1950s, the family remodeled the house into the 13,000 square-foot home that is known today as the Fair Oaks Ranch Golf and Country Club and remains a focal point of activity in the community. After Fair Sr. and his wife passed, the family decided to take the 5,000-acres that made up Fair Oaks Ranch and make it into a residential community. They started selling off small acres of land and started a homeowner's association in 1975.

Expansion continued and by the 1980s residents of "The Ranch" explored their options to form a city. Two cities, Fair Oaks North, and Fair Oaks South were formed due to state restrictions on population density. Eventually, the two communities combined into one and the City of Fair Oaks Ranch was incorporated on January 1,1988.

The original 5,000-acre city grew to include an additional 3,200 acres of extra-territorial jurisdiction, (ETJ), ceded from San Antonio and Boerne. Most of the City's ETJ was annexed by Fair Oaks Ranch in late 2017. The City today is primarily single-family residential, with a few commercial uses mostly near I-10 or at the intersections of the few major streets in the city.

Fair Oaks Ranch became a Home Rule City in 2017. This empowered residents to file petitions to initiate and repeal local ordinances and to recall elected officials. Home rule provides the City with additional authority to annex property in ETJs and to control development therein.

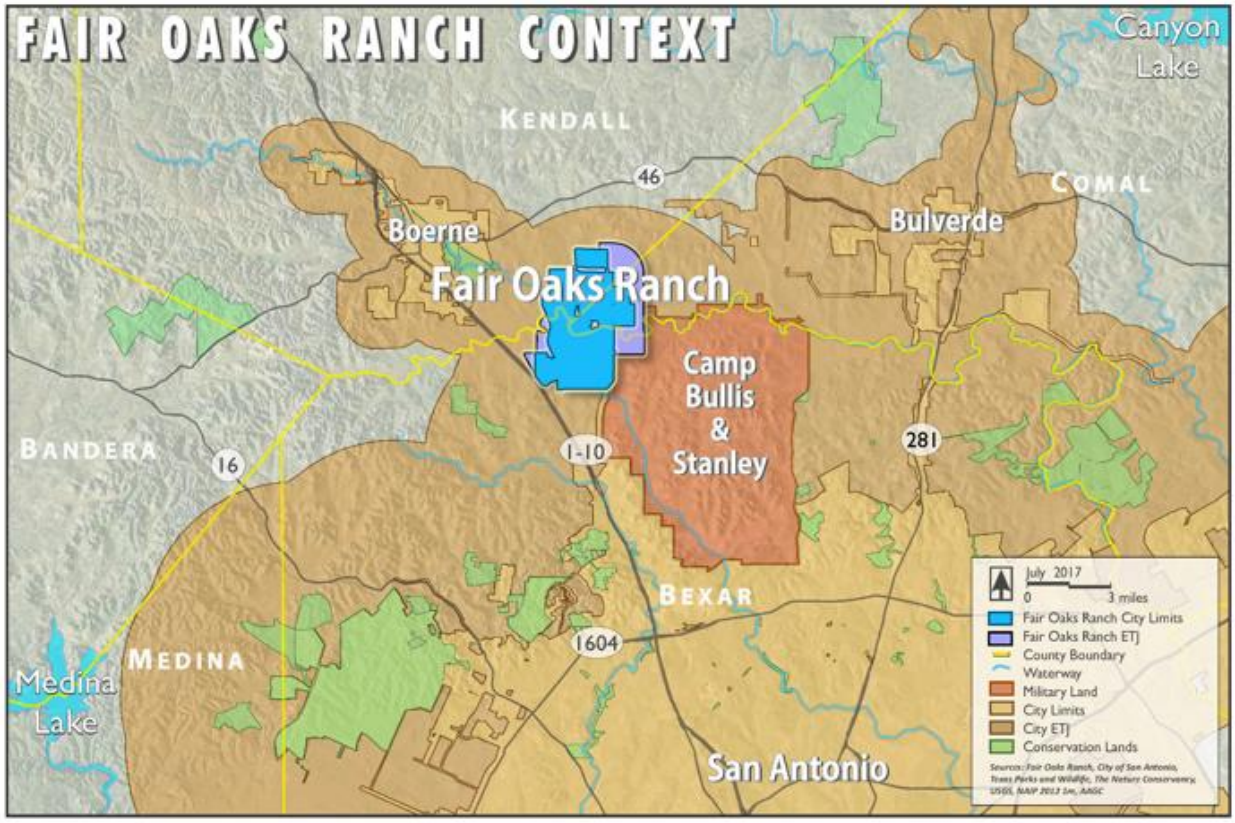
Natural and Manmade Constraints[12]

Fair Oaks Ranch is located in the scenic Texas Hill Country and falls on both sides of Cibolo Creek. The creek forms the border between Bexar and Comal counties. The City sits over the Balcones Escarpment, a geological fault zone that separates the wooded hills of the Hill Country and the Coastal Plains.

11. Fair Oaks Ranch Comprehensive Plan, June 2018, chapter 2.
4. Fair Oaks Ranch Comprehensive Plan, June 2018, chapter 5.

Major regional roadways help define Fair Oaks Ranch. Interstate Highway 10 bounds a small portion of the City to the southwest at the intersection of Ralph Fair Road (FM 3351). Ammann Road provides a boundary to the north, and Old Fredericksburg Road to the west.

Figure 8: Fair Oaks Ranch Context Map.[13]



Land Use and Future Growth[14]

The San Antonio areas has become one of the fastest growing metropolitan statistical areas (MSAs) in the United Sates. Regional projections prepared by the Alamo Metropolitan Planning Organization, (MPO) forecast continued rapid population growth through 2040, by which time the greater San Antonio area is projected to add 1.5 million new residents, bringing the urban area population to 3.4 million people. The population planning scenario adopted by the MPO forecasts continued low-density growth along the I-10 corridor in the Fair Oaks Ranch and Boerne areas.

Bexar, Comal, and Kendall Counties – the three counties containing parts of Fair Oaks Ranch – are all expected to experience substantial growth through the next several decades, according to Texas State Data Center projections, and according to the Alamo MPO.

Regional growth drives demand for housing in Fair Oaks Ranch and affects long-term population projections for the City. Based on projected regional demand for housing, and the availability of

13. Fair Oaks Ranch Comprehensive Plan, June 2018, chapter 5.
14. Fair Oaks Ranch Comprehensive Plan, June 2018, chapter 3.

jobs within commuting distance of Fair Oaks Ranch, the City is projecting strong continued demand for housing well into the future.

This demand, combined with limited land availability, indicates Fair Oaks Ranch is likely to "build out" by the early 2030s, meaning existing lots and developable land will be fully utilized.

While Fair Oaks Ranch can impose standards on growth and may institute its first zoning regulations as an outgrowth of the Comprehensive Plan, the City cannot simply close its doors to growth. State law does not permit it. Even though during the planning process many residents expressed a desire to stop or slow new development, it is the market that will largely determine whether Fair Oaks Ranch grows; the citizens may decide how it grows.

The Fair Oaks Ranch General Plan was adopted on June 21, 2018. Information from this plan is utilized when discussing planned future growth and what effect that may have on the delivery of fire and EMS services. The City's population is expected to continue to grow well into the future as Fair Oaks Ranch develops available land for housing, commercial, and other land use. The Future Land Use Section of the Plan sets policies for future land use and zoning in the City, establishing the foundation for future development.

The accompanying Future Land Use Map (FLUM) and descriptions describe the types of land use allowed within Fair Oaks Ranch:

- Mixed-Use Village (MU): Indicates areas where the City encourages a mixture of uses that create pedestrian scaled development at major nodes. These areas generally conform to a Hill Country design aesthetic, similar to the materials and mass that can be found in downtown commercial districts in communities such as Boerne, and Fredericksburg.
- Neighborhood Commercial (NC): Intended to provide areas for commercial activity that are relatively compatible with residential areas or are located within residential neighborhoods. Other light commercial uses that are not major daily traffic generators and are generally compatible with nearby residential activity are also allowed.
- Community Facilities (CF): Intended for locations at which facilities are provided for governmental, religious, educational, health care, social service, and special facilities.
- Logistics (LO): Intended to provide an area for appropriately scaled office-warehouse and what is sometimes called light industrial/commercial uses at discrete locations in the City. It is also appropriate for non-commercial uses that may generate significant traffic at limited times, such as places of worship and educational or community institutions.
- Existing Residential: Intended to capture the neighborhoods already existing in Fair Oaks Ranch at the time the comprehensive plan was developed. These neighborhoods were platted, and mostly built-out, before zoning districts were created. Construction standards and densities in these areas were historically governed by land covenants and deed restriction committees.

Within Existing Residential, there are the following categories:

- Existing Residential 1: Governs the densest existing residential types, with lot sizes generally under 0.3 acres. All building, landscaping and other standards are controlled by applicable Restriction Committees.
- Existing Residential 2; Governs areas where the existing lot sizes are generally 0.3 to 1.3 acres. All buildings, landscaping and other standards are controlled by applicable Restriction Committees.

- Existing Residential 3; Governs areas where the existing lot sizes are generally between approximately 1.3 and approximately 5 acres. All buildings, landscaping and other standards are controlled by applicable Restriction Committees.
- Existing Residential 4: Governs areas where the existing lot sizes are generally larger than 5 acres.

Further Residential Categories Include:

- Rural Residential (RR): A residential district that includes land subdivided for single-family residential purposes and associated uses (outside Existing Residential districts). The lots are generally large and are generally not served by urban infrastructure. For example, City sewer service may not be available – or even scheduled for construction. This district is intended to retain a rural character.
- Neighborhood Residential (NR): Serves as a residential zone for areas where low-to-medium density development is appropriate, (beyond the Existing Residential districts). The district accommodates a fairly wide variety of housing needs and types by allowing for contextual development standards. NR developments provide pedestrian-friendly residential neighborhoods, protected from incompatible uses.

Though much of Fair Oaks Ranch is already developed, large tracts of developable land still exist on the City's edges, and major gateways into the City are still evolving.

Fair Oaks Ranch has seen single-family growth which is expected to continue as several large undeveloped parcels are platted and built-out. These are primarily in the Ralph Fair Road and Ammann Road corridors on the eastern and northeastern side of town.

Fair Oaks Ranch is essentially hemmed in on the south and east by development pressure from San Antonio and to the west by Boerne. Despite rapid population growth in the region, the City has maintained a small town or semi-rural character which, in turn, is driving additional growth pressure as Fair Oaks Ranch is seen as a desirable place for both retirees and young families to live.

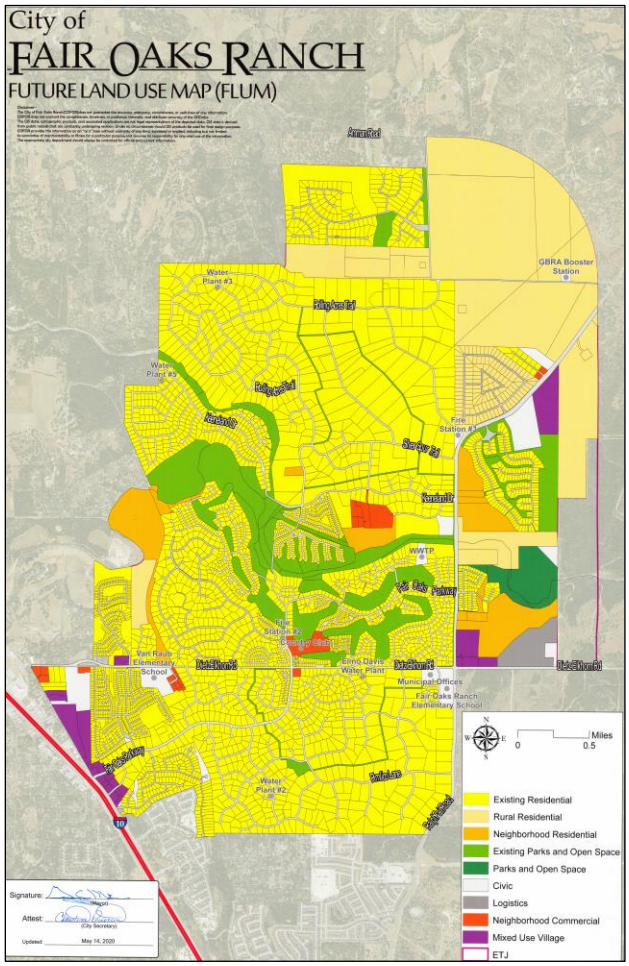
Considering all the activity in the I-10 corridor, as well as TXDOT projects that will change the face of major corridors within the City itself, Fair Oaks Ranch will work quickly to ensure residents have full control over the direction of their community. It will require active planning and new tools such as zoning regulations to balance the competing narratives of change and preservation.

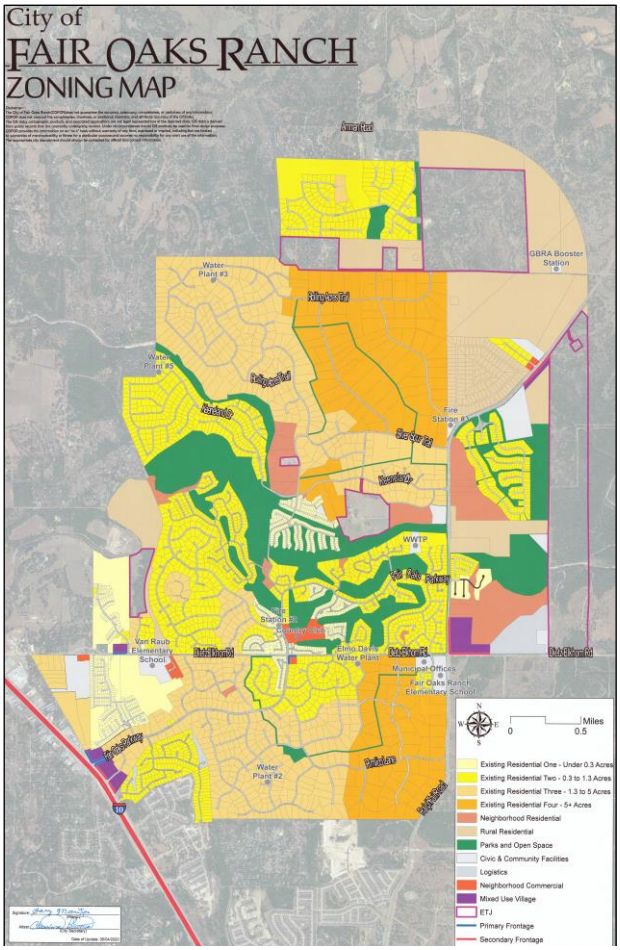
From a real estate perspective, Fair Oaks Ranch is in a strategic position to leverage its strong demographic base for attractive retail and commercial development (in select areas). The City lacks substantial highway frontage on I-10 or a traditional "Main Street" that would be the typical economic drivers. However, there is some existing commercial development in the I-10 corridor, and there are a couple of locations that would serve well for mixed-use villages. These undeveloped, or underdeveloped tracts, create unique opportunities that can sustain quality growth and support a stronger tax base over the next few decades, as the City builds out.[15]

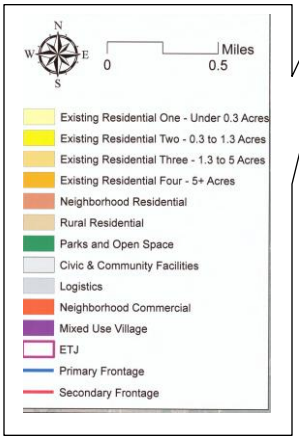
The next maps illustrate the future land use and current zoning. Both of these maps indicate Fair Oaks Ranch will largely remain a residential community (low-medium building risk) with a moderate population and moderate density.

15. Fair Oaks Ranch Comprehensive Plan, June 2018, chapter 5.

Figure 9:
General Plan 2018 Future Land Use Map[16] Fair Oaks Ranch Zoning Map[17]







16. https://www.fairoaksranchtx.org/DocumentCenter/View/1960/Signed-FLUM---Final---6-22-18
17. https://www.fairoaksranchtx.org/DocumentCenter/View/1919/FairOaks_ZoningMap_?bidId=

Transportation Infrastructure

Fair Oaks Ranch historically has been dominated by single-family housing, thus the need for good connections to the region takes on additional importance. Within the city there are a limited number of jobs, services, shopping opportunities, medical care, and educational facilities. As a result, most residents travel outside the city on a routine basis. The City's Comprehensive Plan: 2018 Community Survey revealed 89 percent of the responders reported traveling to San Antonio, Boerne, or other locations in adjoining counties for work or school.

Fair Oaks Ranch has adopted the "Complete Streets" concept – now embraced by hundreds of cities and agencies across the country – which is intended to focus on street form and function as important parts of the city's overall sense of place. New streets designed and built in Fair Oaks Ranch should be designed mindful of the needs of everyone who may use that street – motorists, pedestrians, and more; sidewalks, bike lanes, street trees, traffic calming, and other features that enhance the overall livability and quality of life in the city should be considered as integral parts of transportation policy and street design.

Most existing streets in Fair Oaks Ranch will not see any change, especially in the near term. These policies will affect primarily new subdivisions and new street construction, but, over time, will also guide reconstruction and repair on existing streets.

The Comprehensive Plan: 2018 identifies and categorizes several types of streets. All streets in the City are now in one of five basic groups, designated on the Transportation Map:

- Arterial Streets: serving to connect the region, or connect major high2ays, with higher speeds and heavy traffic. The only arterial streets in Fair Oaks Ranch at the present time are I-10, and Ralph Fair Road (FM3351).
- Collector Streets: used for major circulation between developments or neighborhoods. At the present time, these are Old Fredericksburg Road, Fair Oaks Parkway, Dietz-Elkhorn Road, and Ammann Road
- Local Connectors: for minor circulation within developments and neighborhoods and carrying moderate traffic. Though they have some characteristics of local neighborhood streets, they collect traffic from larger areas, or from multiple local streets.
- Local Neighborhood Residential Streets: intended primarily for use within neighborhoods that are suburban in nature.
- Local Rural Residential: serving lower density neighborhoods or estate neighborhoods.

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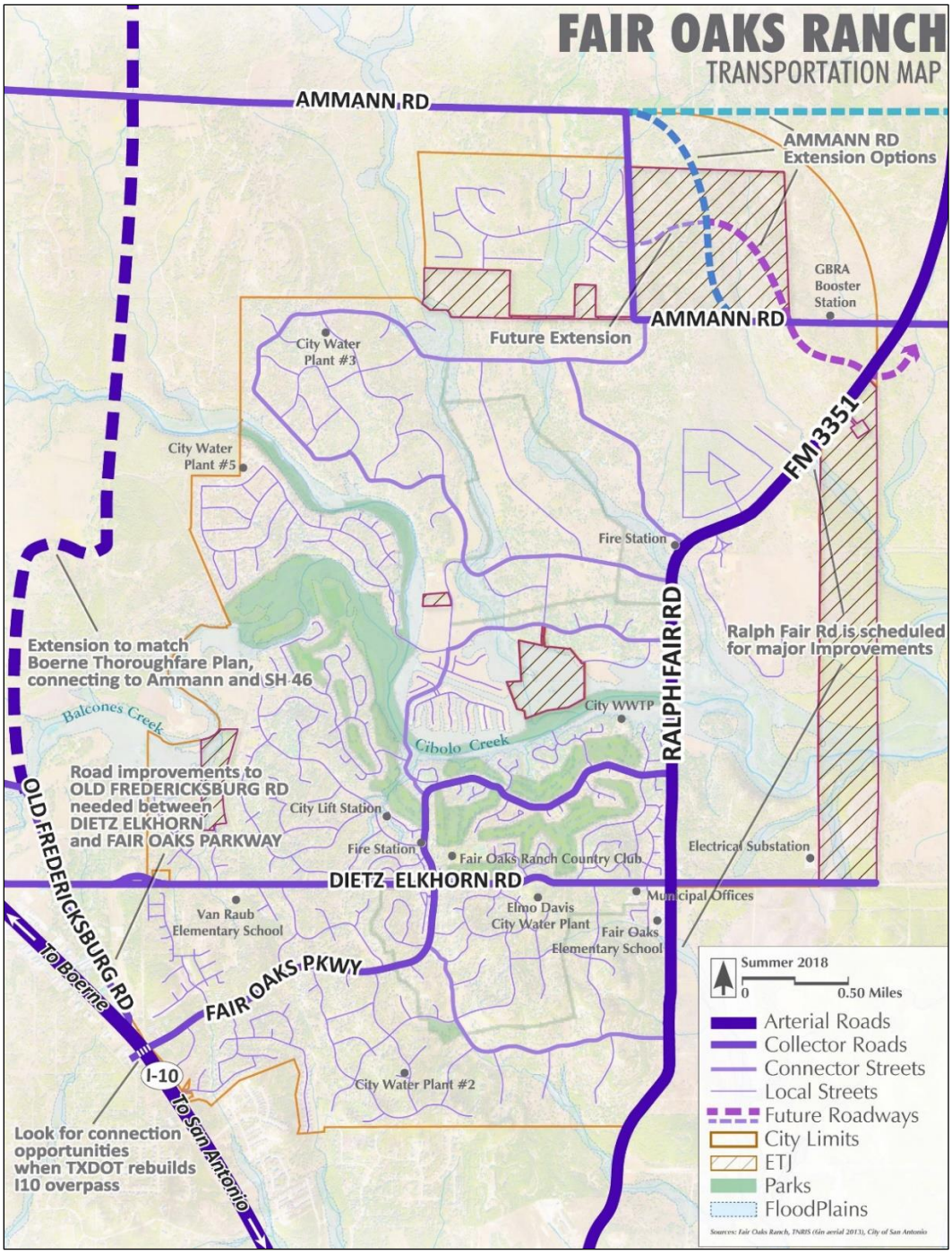
Figure 10. Fair Oaks Ranch Street Classification[18]

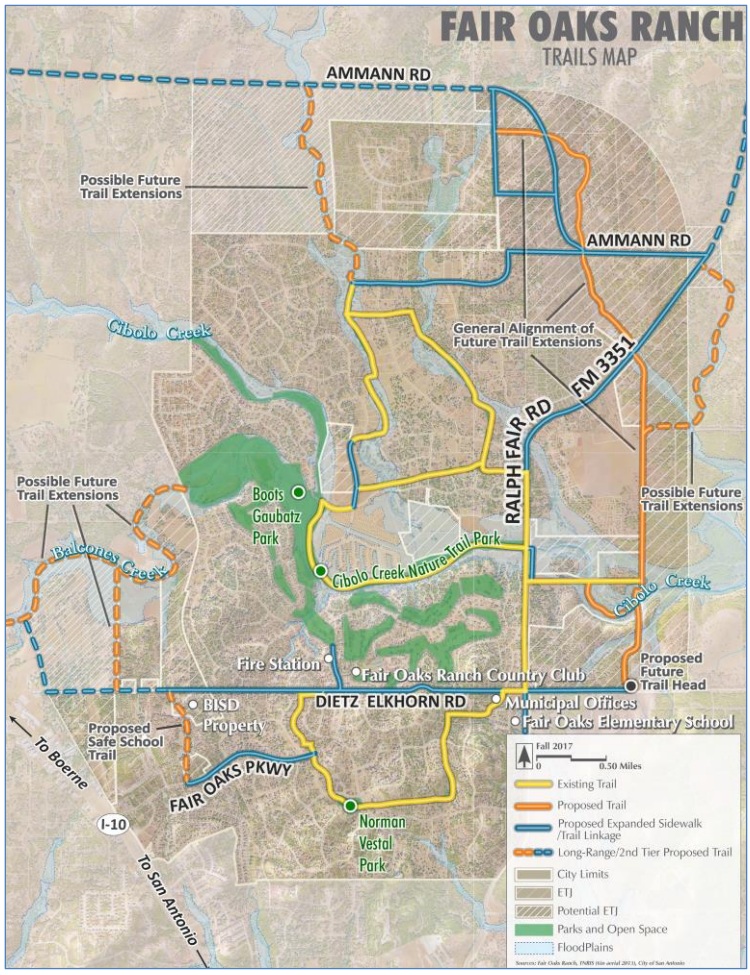


No rail transportation lines travel through the city, which relieves the city of this risk.

There are no mass transit systems that travel through the city such as public bus transportation. The city does have school transportation services when schools are in session that present a transportation risk.

18. Fair Oaks Ranch Comprehensive Plan, 2018.

Figure 11: Fair Oaks Ranch Trails Map[19]



The Fair Oaks Ranch Homeowners Association (FORHA) manages the City's existing trails system which includes 1.3 miles of hardscape (pavement) trails and an impressive 10 miles of softscape (dirt) trails.

The road and transportation network In Fair Oaks Ranch poses limited risks for a vehicular accident, some at medium to greater than medium speeds, as well as vehicular-versus-pedestrian risks. The predominant, maximum speed throughout the city is 45 mph, with a limited portion of Ralph Fair Rd having a 55 mph speed limit. There are limited transportation risks since tractor-trailer and other commercial vehicles traverse the I-10 corridor and frontage road providing access to Fair Oaks Ranch to deliver mixed commodities to business locations within the city. Fires or releases of products involving these commodities can produce vapors, smoke and other products of combustion that may be hazardous to health.

Fire and EMS Demand

An indication of the community's fire risk is the type and number of fire-related, non-fire related, EMS, technical rescue, and hazard incidents the fire department responds to. The entire service area (city and ETJ) is subject to these types of calls for service.

Statistically, fires are more likely to occur in residential structures, and are more likely due to human causes. Statistically, EMS calls for service involve one patient whose symptoms are such

19. Ibid.

that the capabilities of the initial arriving unit(s) can handle the call. Mass casualty incidents may occur in Fair Oaks Ranch, and the impacts on the department may be overwhelming, likely triggering the need for mutual aid.

Technical Rescue incidents in Fair Oaks Ranch will typically involve vehicle/machinery extrication. Depending on building type and height, these incident types may also involve elevator emergencies. Due to routine infrastructure work (traffic and utility) and potential growth, there is also the potential for trench and/or structural collapse, and rope rescue (moderate risk).

Hazardous Materials or hazard calls for service may include transportation accidents with leaks/spills/release of hazardous materials on roadways (moderate risk). Fair Oaks Ranch may have some fixed sites that store/use hazardous materials as well (moderate risk).

The following tables detail the call types and call type totals for fire, fire-related, and EMS calls between October 1, 2022, and September 30, 2023.

The first table analyzes Leon Springs Fire Department calls in Fair Oaks Ranch. During this time period Leon Springs fire units responded to 612 calls inside the city. Of these, 410 were EMS related, 99 were fire related, and 103 were cancelled (prior to leaving the station or enroute).

Table 1: Fire Unit Calls by Type

Call Type	Total Calls	Calls per Day
Medical and other	395	1.1
MVA	15	0.0
EMS subtotal	**410**	**1.1**
False alarm	28	0.1
Good intent	11	0.0
Hazard	20	0.1
Outside fire	6	0.0
Public service	25	0.1
Structure fire	9	0.0
Fire subtotal	**99**	**0.3**
Canceled	103	0.3
Total	**612**	**1.7**

- There were 509 Fire and EMS calls in Fair Oaks Ranch during the one year study period (excluding canceled calls) which the LSFD responded to. 103 calls were cancelled prior to a LSFD unit arriving.
- Overall, the LSFD responded to 1.7 calls per day in the city.
- 62% of the Fire and EMS calls are EMS related.
- Motor vehicle accidents make up 2.5% of Fire and EMS calls.
- Fire and Fire related calls make up 16.2% of Fire and EMS calls.
- Structure and Outside Fires make up 2.5% of Fire related calls.
- Non fire calls (typically false alarms good intent, hazard, and public service) make up 13.8% of Fire related calls.

The next table details the call types and call type totals for these types of **EMS-related risks** between October 1, 2022, and September 30, 2023. During this time Acadian Ambulance Services (AAS) units responded to 407 runs.

Table 2: EMS Unit Calls by Type

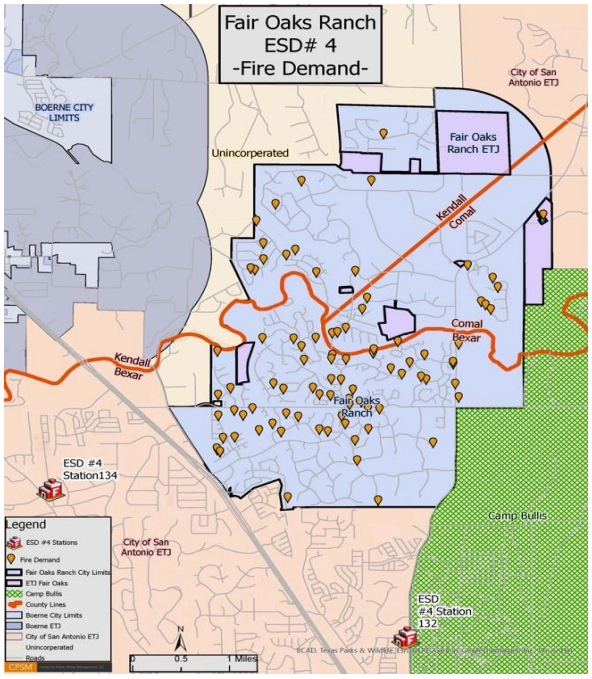
Run Type	Total Runs	Runs per Day
Breathing difficulty	32	0.1
Cardiac and stroke	49	0.1
Fall and injury	108	0.3
Illness and Other	138	0.4
MVA	18	0.0
Overdose and Psychiatric	22	0.1
Seizure and Unconsciousness	40	0.1
Total	**407**	**1.1**

- There were 407 EMS calls in Fair Oaks Ranch during the one year study period which AAS responded to.
- Overall, AAS responds to 1.1 calls per day.
- 33.9% of the EMS calls were Illness and Other call determinants (the largest % of EMS calls).
- Motor vehicle accidents make up 4.4% of EMS calls.
- Breathing Difficulty and Cardiac and Stroke related call determinants make up 19.9% of EMS calls.
- Fall and Injury call determinants make up 26.5% of EMS calls.
- Overdose and Psychiatric and Seizure and Unconsciousness related call determinants make up 15.2% of EMS calls.

Analyzing where the fire and EMS incidents occur, and the demand density of fire and EMS incidents, helps to determine adequate fire and EMS management zone resource assignment and deployment. The following figures illustrate fire and EMS demand in a more defined manner by specific call types.

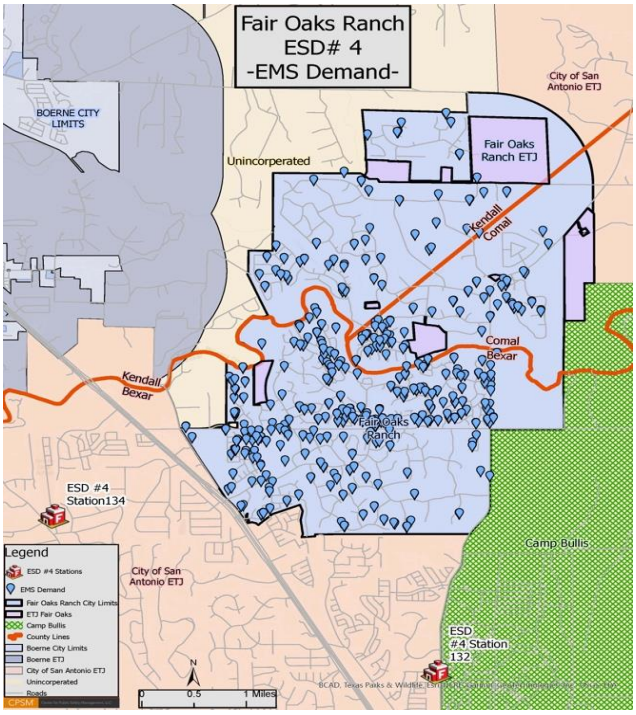
The first map illustrates fire call demand location in Fair Oaks Ranch.

Figure 12: Fire Demand (All Fire Related Calls)



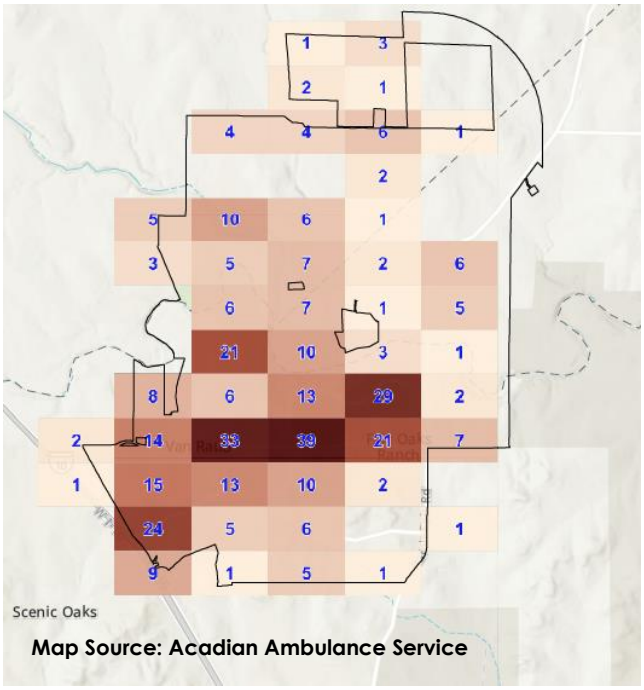
- Fire demand is concentrated in the more densely populated residential areas around the Fair Oaks Ranch Golf & Country Club and along the western boundary, north and south of Dietz Elkhorn Rd.
- Overall fire workload for the one-year CPSM analysis was 99 calls.
- Of the six Outside Fires, none were extinguished by fire department personnel.
- Of the nine Structure Fires, fire department personnel extinguished three fires.

Figure 13: EMS Demand: Responded to by LSFD



- EMS demand, like fire demand, is concentrated in the more densely populated residential areas around the Fair Oaks Ranch Golf & Country Club and along the western boundary, north and south of Dietz Elkhorn Rd. EMS demand however is much heavier than fire demand in these areas.
- Overall EMS demand for the LSFD for the one-year CPSM analysis was 410 calls.
- Overall EMS demand for AAS for the one-year CPSM analysis was 407 calls and corresponds with the LSFD EMS demand.
- There were 284 transports completed by AAS (69.8% of the EMS responses).

Figure 14: EMS Demand: Responded to by AAS



Map Source: Acadian Ambulance Service

Utilities

Water

Fair Oaks Ranch Utilities is owned and operated by the City. The Utilities manage and operate groundwater pumps from the Trinity Aquifer, four Water Treatment Plants, and a distribution system to deliver water to residents. Treated water is also purchased from the Guadalupe-Blanco River Authority (GBRA) and mixed with the treated groundwater.[20]

The existing water distribution system consists of a network of water lines ranging in size from 2-inches to 12-inches, and four pump stations with associated ground storage tanks and wells, one of which is supplied by the Guadalupe-Brazos River Authority (GBRA) surface water.[21] The purchased Surface Water comes from Canyon Lake, which the Guadalupe Blanco River Authority (GBRA) extracts and treats at the Western Canyon Water Treatment Plant located in Comal County.[22]

Wastewater

Fair Oaks Ranch Utilities manages and operates a collection system and a 500,000 gallon per day wastewater treatment plant. The City's existing wastewater system is primarily located along Cibolo Creek and includes six lift stations,

The Fair Oaks Ranch Recycled Water Program provides the least amount of water relative to the other water sources, yet it is a reliable source that reduces potable water needs to irrigate the Fair Oaks Ranch Golf Course. Treated wastewater produced in the winter can be stored in the golf course storage ponds for use at other times of the year. Using the water to irrigate the golf course replaces the use of potable water and eliminates the need for the wastewater to be placed into Cibolo Creek.[23]

Approximately, 45% of the residential properties use septic systems and are not part of the city's wastewater collection. Septic systems are permitted, inspected, and monitored by the county where the property is located.

Energy Utilities

There are two providers of electrical service within the City of Fair Oaks Ranch. CPSEnergy services Bexar and Comal County portions of the City. CPSEnergy is the nation's largest community-owned provider of electric and natural gas services. CPSEnergy services 930,000 electric and 381,000 natural gas customers in San Antonio and portion of seven adjoining counties.

The Kendall County portion of the City is serviced by Pedernales Electric COOP (PEC). PEC was founded in 1938 by then-Congressman Lyndon B. Johnson. PEC is a member-owned electric cooperative serving more than 400,000 meters over an 8,100 square mile area across the Texas Hill Country.

20. https://www.fairoaksranchtx.org/222/Citys-Water-Sources.
21. Fair Oaks Ranch Comprehensive Plan, 2018.
22. https://www.fairoaksranchtx.org/DocumentCenter/View/4854/2022-Annual-Drinking-Water-Quality-Report
23. https://twri.tamu.edu/media/1442/tr-492.pdf

Natural Gas

Natural gas is provided to Fair Oaks Ranch by Grey Forest Utilities who provides natural gas distribution services for customers located in a 600 square mile served are in northwest metropolitan San Antonio.

ISO-PPC Analysis

The ISO is a national, not-for-profit organization that collects and evaluates information from communities across the United States regarding their capabilities to combat building fires. ISO conducts field evaluations in an effort to rate communities and their relative ability to provide fire protection and mitigate fire risk. This evaluation allows ISO to determine and publish the Public Protection Classification (PPC). The data collected from a community is analyzed and applied to ISO's Fire Suppression Rating Schedule (FSRS) from which a Public Protection Classification (PPC) grade is assigned to a community (score from 1 to 10). This is an analysis of the structural fire suppression delivery system in a community.

Class 1 (highest classification/lowest numerical score) represents an exemplary community fire suppression program that includes all of the components outlined below. A Class 10 indicates that the community's fire suppression program does not meet ISO's minimum criteria. ***It is important to understand the PPC is not just a fire department classification, but a compilation of community services that include the fire department, the emergency communications center, and the community's potable water supply system operator.***[24]

A favorable PPC numerical rating potentially may translate into lower insurance premiums for business owners and homeowners. This more favorable classification makes the community more attractive from an insurance risk perspective. How the PPC for each community affects business and homeowners can be complicated because each insurance underwriter is free to utilize the information, as they deem appropriate. Overall, many factors feed into the compilation of an insurance premium, not just the ISO-PPC.

A community's PPC grade depends on:

- **Needed Fire Flows** (building locations used to determine the theoretical amount of water necessary for fire suppression purposes). The needed fire flow in Fair Oaks Ranch is 2,500 gallons per minute. This is based on the fifth-largest needed fire flow in the city.
- **Emergency Communications** (10 percent of the evaluation).
- **Fire Department** (50 percent of the evaluation).
- **Water Supply** (40 percent of the evaluation).

It is important to note that Fair Oaks Ranch and Leon Springs Fire Department are part of the Bexar County Emergency Services District (ESD) No. 4. As such they are both considered and evaluated in the current ISO rating for ESD No. 4.

Bexar County ESD No. 4 has an ISO rating of Class 3/8B for the Fire Protection Service Area (FPSA). This includes Fair Oaks Ranch. The first number indicates a fire suppression system is present that includes a creditable dispatch center, fire department, and water supply (fire hydrants). The second number is the class that applies to properties within five road miles of a fire station but beyond 1,000 feet of a creditable water supply (fire hydrant). The district's ISO rating was effective December 1, 2014.

24. Bexar County ESD No. 4 ISO PPC report Effective December 2014.

ESD 4's 2014 ISO report included the following credit points by major category:

- **Receiving and Handling Fire Alarms**: 6.30 earned credit points/10.00 credit points available.
- **Fire Department**: 29.99 earned credit points/50.00 credit points available.
- **Water Supply:** 38.62 earned credit points/40.00 credit points available.

Overall, the community PPC rating yielded 72.16 earned credit points/100 credit points available. There was a -7.3 point divergence reduction assessed as well, which is automatically calculated based on the relative difference between the fire department and water supply scores. **70.00 points or more qualify a community for a rating of 3/8B.**

Table 3: Bexar County ESD #4 ISO Earned Credit Overview

FSRS Component	Earned Credit	Credit Available
414. Credit for Telephone Service	1.80	2
422. Credit for Operators	3.00	3
432. Credit for Dispatch Circuits	1.50	5
440. Credit for Receiving and Handling Fire Alarms	**6.30**	**10**
513. Credit for Engine Companies	10.00	10
523. Credit for Reserve Pumpers	0.75	1
532. Credit for Pumper Capacity	5.00	5
549. Credit for Ladder Service	3.27	5
553. Credit for Reserve Ladder and Service Trucks	0.33	1
561. Credit for Distribution	1.28	4
571. Credit for Company Personnel	2.58	15
581. Credit for Training	3.52	9
580A. Supplemental Credit for Texas State Training *Note: Maximum value for 581 + 580A = 9 points	3.26	3.26*
590. Credit for Fire Department	**29.99**	**50**
616. Credit for Supply System	35.00	35
621. Credit for Hydrants	2.00	2
631. Credit for Inspection and Condition	1.62	3
640. Credit for Water Supply	**38.62**	**40**
Divergence	**-7.31**	--
Texas Addendum Credit	**4.56**	6.5
Total Credit	**72.16**	**100**

The following figures illustrate the PPC ratings across the United States and in Texas. The values presented in the Bexar County ESD No. 4 report were current on the effective date of the report (December 2014). The following Countrywide and Texas values are current ISO data(2024).

Figure 15: PPC Ratings in the United States[25]

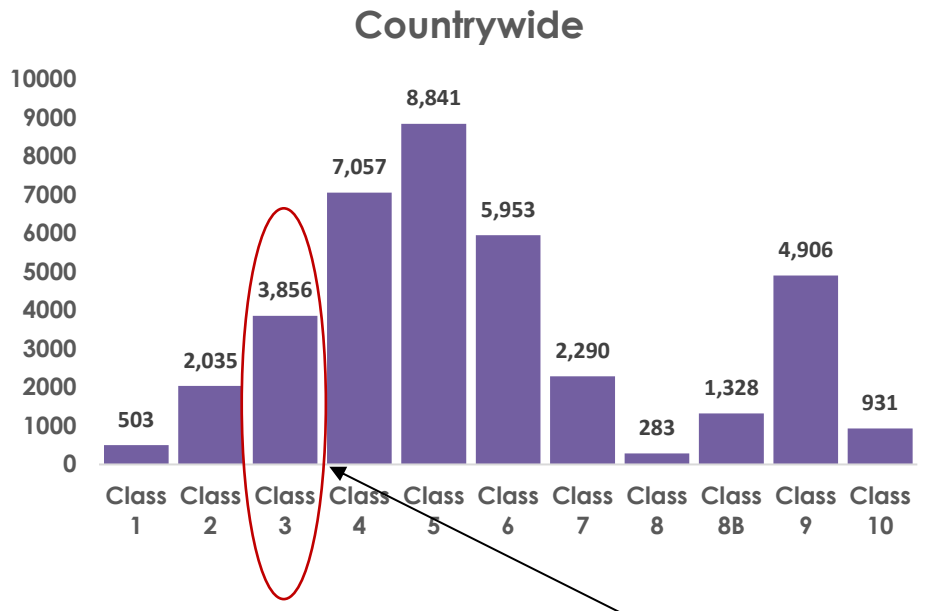
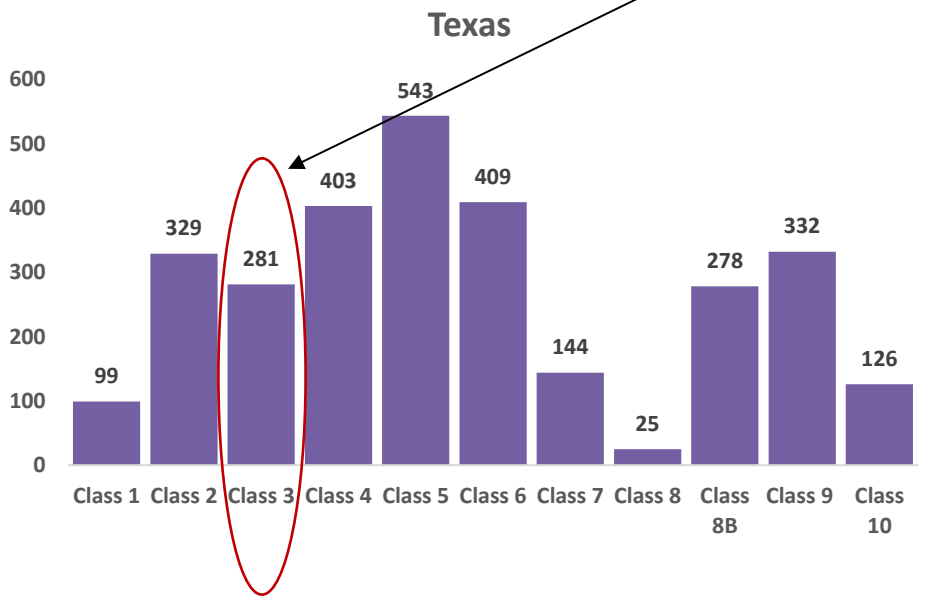


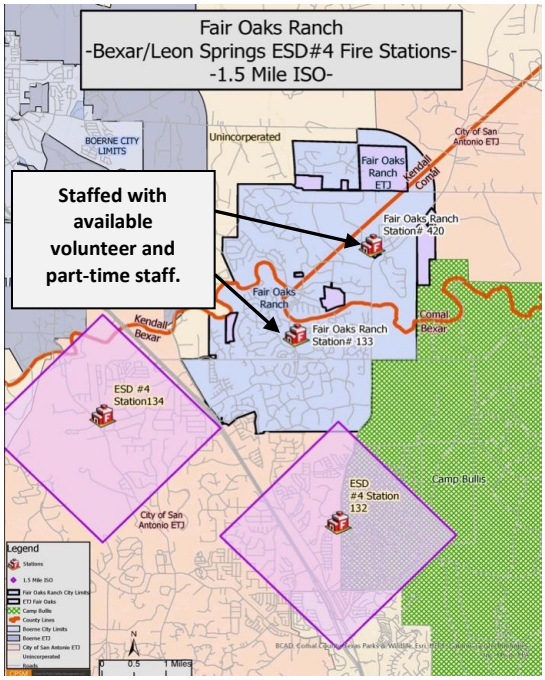
Figure 16: PPC Ratings in Texas[26]

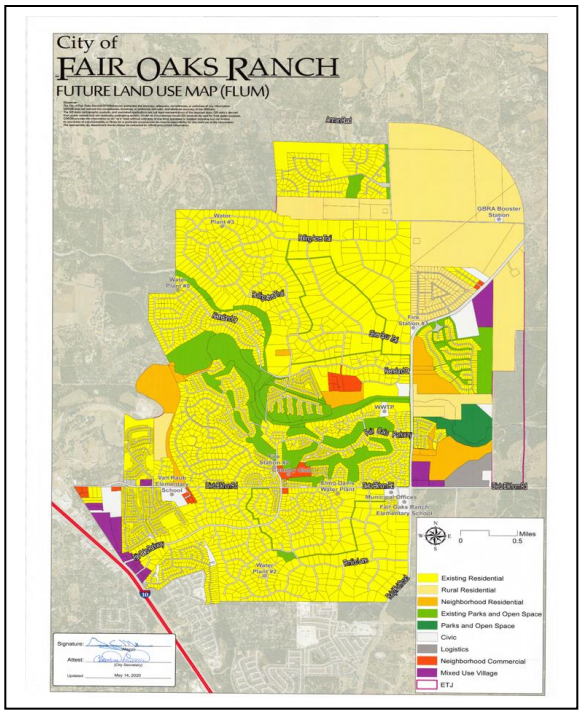


25.https://www.isomitigation.com/ppc/program-works/facts-and-figures-about-ppc-codes-around-the-country/
26. Ibid.

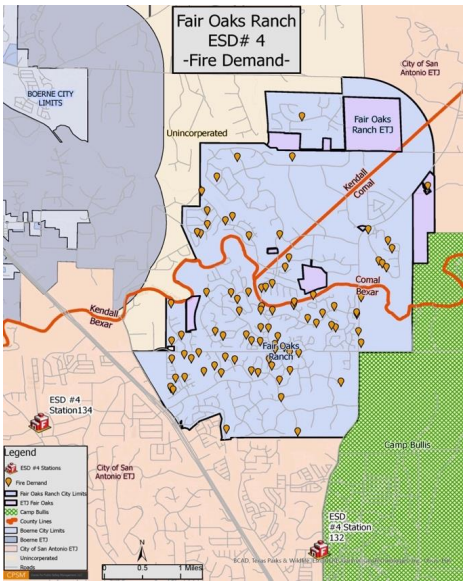
Under the ISO-PPC grading system, a jurisdiction is graded on the distribution of engine and ladder companies within built-upon areas (deployment analysis). For greater credit in the Fire Suppression Rating Schedule (FSRS), a jurisdiction's fire protection area with residential and commercial properties will have a first-due engine company within 1.5 road miles and a ladder service company within 2.5 road miles.[27] As engine and ladder companies both respond from fire facilities, and because engine companies are the more prevalent fire suppression company, fire facilities are predictably sited based on the response needs of engine companies.

Figure 17: Current Staffed Stations: 1.5 Mile Engine Company Locations (ISO-PPC Benchmark)



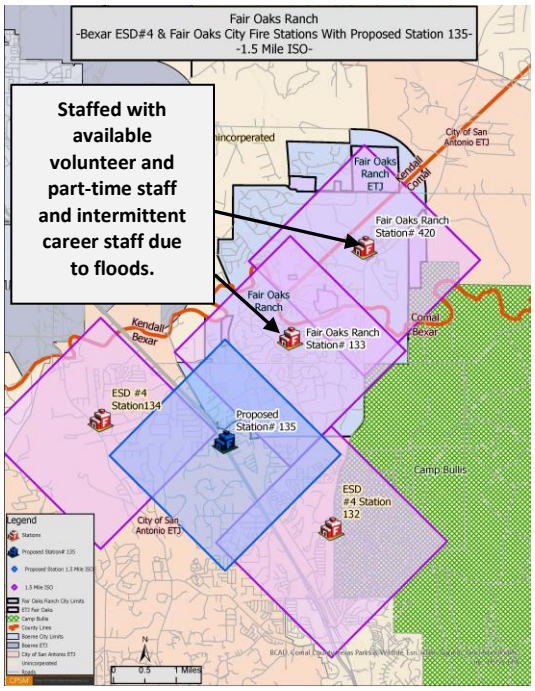


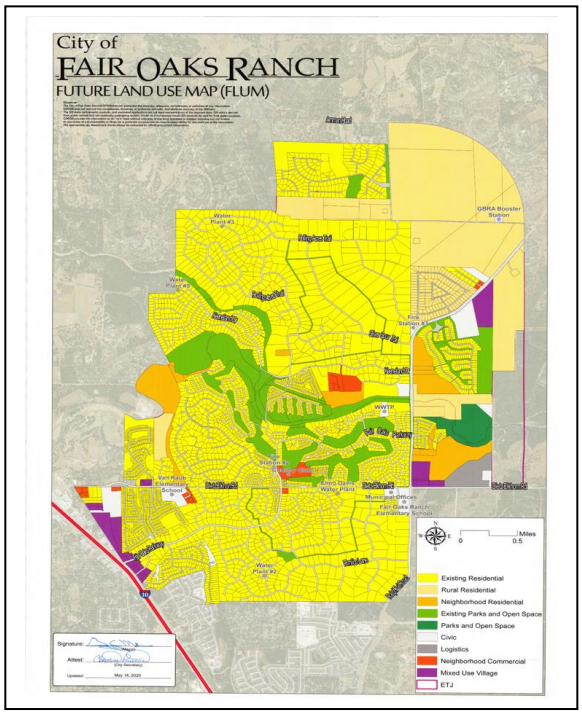
In review of the 1.5 mile ISO-PPC map, the first observation is the built-upon area of Fair Oaks Ranch does not have a staffed first due engine company within 1.5 miles with a minor exception of the very northern tip of Engine 132. Further observations include: the greater percent of built upon land is illustrated in the Future Land Use Map; south and west of the country club and golf course to the city limits. The greater fire demand follows the Future Land Use Map indicating the more densely populated areas of the City, generally below the Balcones/Cibolo Creeks within the Bexar County portion of the City. Likewise, these are the areas of the City closest to ESD #4 stations 132 and 134, even though they lie outside the 1.5 mile distance.



27. Insurance Services Office, ISO Mitigation, Deployment Analysis.

Figure 18: Current Staffed Stations: 1.5 Mile Engine Company Locations (ISO-PPC Benchmark)





There are two fire stations located within the Fair Oaks Ranch city boundaries, which are owned by the city. These stations are equipped by the LSFD and staffed with available LSFD volunteers and part time personnel. The ISO does credit these two stations, the fire apparatus and equipment, and available volunteer and part time staff, however the staffing, as they are not as reliable as on-premises staff, are not given full credit.

Additionally, the LSFD is planning to build a new station at Limestone Pass Frontage Road and Ranch Land View. This station is projected to be operational in the 2027-2028 timeframe and will be staffed with career staff. The figure to the left shows some improvement

This said, the map above does show the additional two stations in the city (stations 133 and 420), and additional coverage and potential ISO credit that is available from these two stations and what will be available from the new Station 135. Equipment and staffing from Stations 133 and 420 are discussed in another section later in this analysis.

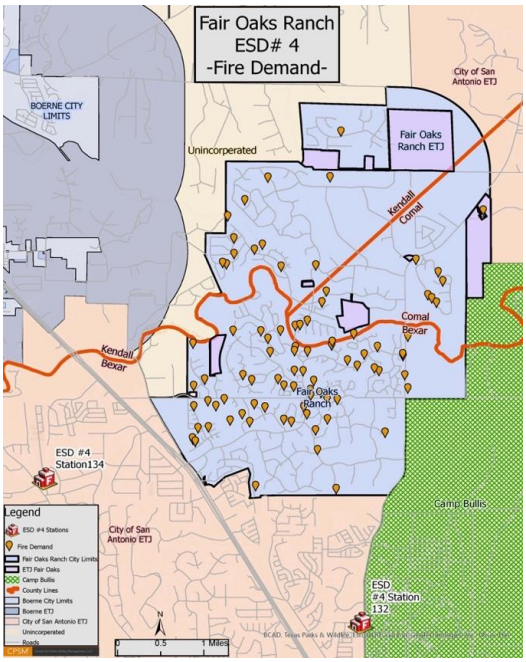
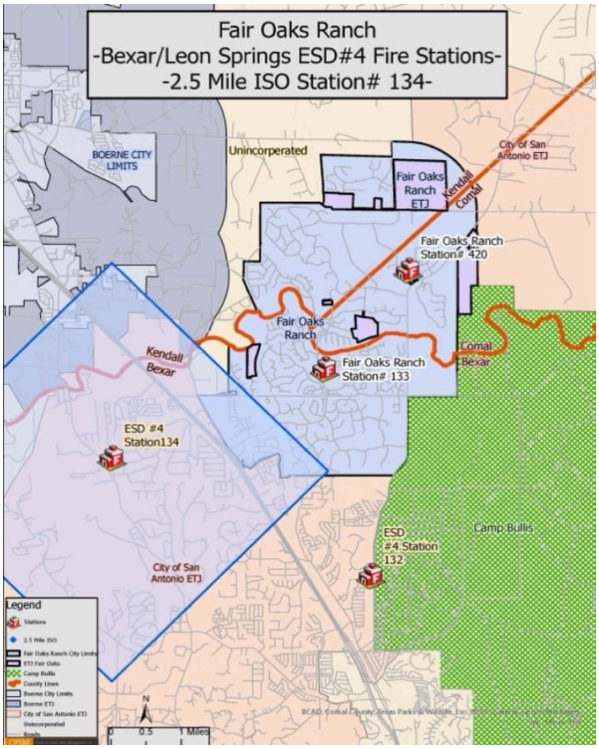
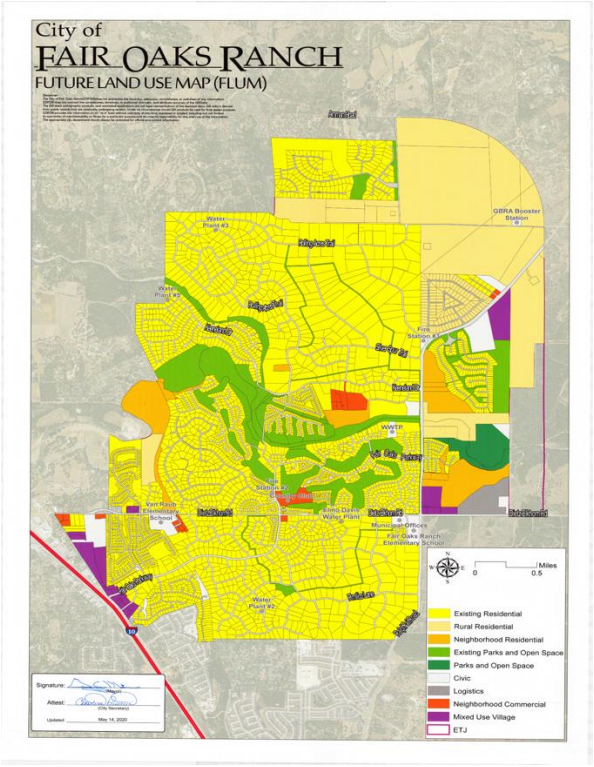
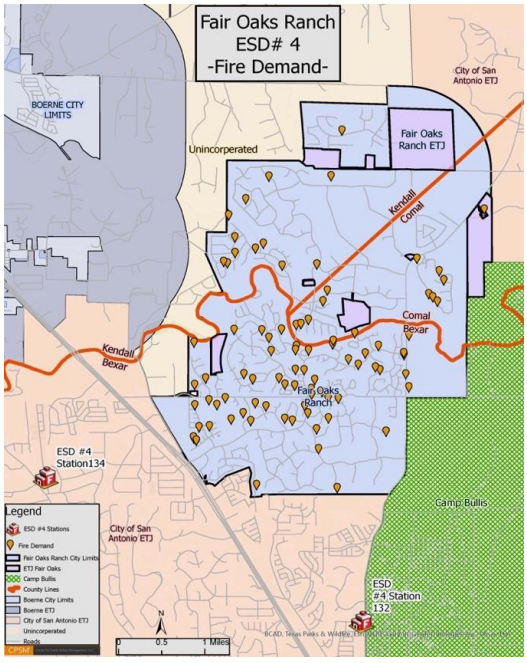


Figure 19: Current 2.5 Mile Ladder Company Locations (ISO-PPC Benchmark)





In review of the 2.5 mile ISO-PPC map, again the first observation is the built-upon area of Fair Oaks Ranch does not have a first due ladder company within 2.5 miles with a minor exception of the very southeast section of Fair Oaks Ranch. Further observations include: the greater percent of built upon land is illustrated in the Future Land Use Map; south and west of the country club and golf course to the city limits. The greater building fire demand follows the Future Land Use Map indicating the more densely populated areas of the City, generally below the Balcones/Cibolo Creeks within the Bexar County portion of the City. Likewise, these are the areas of the City closest to ESD #4 stations 132 and 134, even though they lie outside the 2.5 mile distance.



Currently the Bexar County ESD #4 received 3.27/5.00 for Ladder Service

The following categories have different credits earned and are discussed here in terms of deficient credits earned.

Dispatch Circuits. #432 (1.50/5.0).

- #431 (A) Dispatch Circuits Provided (20.00/40 credits).

The points are determined by prorating the value of the type of dispatch circuit using the percentage of members dependent upon each circuit. ***The County dispatch system is not meeting this section to its fullest potential.***

- #431 (B) Monitoring for Integrity of Circuit (0.00/30).

The dispatch circuit should have an automatic system that will detect faults and failures and send visual and audible indications to appropriate personnel. ***The County dispatch system is not meeting this section to its fullest potential.***

- #431 (C) Dispatch Recording Facilities at Communication Center (5.00/10).

All alarms that are transmitted over the required dispatch circuits need to be automatically recorded. ***The County dispatch system is not meeting this section to its fullest potential.***

- #431 (D) Emergency Power Supply (5.00/20).

Emergency power supplies need to be provided and regularly tested (one hour weekly, under load, with test documentation). ***The County dispatch system is not meeting this section to its fullest potential.***

Deployment Analysis (Distribution): #561 (1.28/4 credits).

This category contemplates the number and adequacy of engine and ladder companies to cover the built-upon areas of the Fire Protection Service Areas. Credits for engine companies (#513 – 10.00/10.00) and ladder service (#549 – 3.27/5.00) are considered in this rating section. The ISO benchmark is one engine company sited for every 1.5 miles in relation to built upon land, and a ladder company sighted for every 2.5 miles in relation to built upon land. The determination for Bexar County ESD #4 deployment analysis service area is made based on the percentage of built upon area covered by existing engine companies (1.5 miles) and existing ladder companies (2.5 miles).

Overall, and as discussed earlier, there is built upon area within the City that is outside of the 1.5 and 2.5 mile benchmarking as noted in the mapping herein.

There are areas within Fair Oaks Ranch that have the potential for growth and could drive densification and certain building types, which may subsequently drive increased fire demand. Additionally, there are current land use areas (mixed-use village, neighborhood commercial, logistics, civic, neighborhood residential, rural residential, existing residential, parks and open space, and ETJ areas) that have the potential for growth and could drive additional resource requirements at stations 133 and 420.

Company Personnel: #571 (2.58/15).

This item reviews the average number of existing firefighters and company officers available to respond to first alarm structure fires. The FSRS recognizes 3.0 on-duty personnel, and an average of 6.50 volunteers/off-shift personnel responding to first alarm structure fires.

On-duty strength is determined by the yearly average of total firefighters and company officers on-duty considering vacations, sick leave, holidays, "Kelly Days" and other absences. When a

fire department operates under a minimum staffing policy, this may be used in lieu of determining the yearly average of on-duty company personnel.

Automatic Aid companies are considered here if there is an automatic aid agreement in place, are dispatched for structural fires on the initial alarm, and the aid is available 24/7/365.

Credit is given to firefighters staffing ambulances that regularly respond to fires and participate in firefighting operations, the number depending upon the extent to which they are available and are used for response to first alarms of fire.

Chief officers are not creditable except when more than one chief officer responds to alarms; then extra chief officers may be credited as firefighters if they perform company duties.

Training #581 (Overall 3.52/9 credits)

- Training: #581 (A) Facilities and Aids (7.43/35 credits)

For maximum credit, under the 2014 FSRS criteria, each firefighter should receive 18 hours per year in structural fire-related subjects through a combination of single company, multi-company, and night drills. Training facilities should include appropriate props, training manuals library, and fire simulation buildings, to include drill tower, smoke house/room and combustible liquids pit. ***The ESD #4 system is not meeting this section to its fullest potential.***

- Training #581(B) Company Training (5.25/25 credits).

For maximum credit, under the 2014 FSRS criteria, each firefighter 20 hours per month in structure fire related subjects as outlined in the NFPA 1001 standard. ***The ESD #4 system is not meeting this section to its fullest potential.***

- Training #581 (C) Classes for Officers (7.03/15 credits).

For maximum credit, under the 2014 FSRS criteria, each officer should receive 2 days of leadership, management, supervisory, and incident management system training per year as outlined in the NFPA 1021 standard. ***The ESD #4 system is not meeting this section to its fullest potential.***

It is assessed by CPSM that the current ISO-PPC report for ESD 4 includes deficiencies in Dispatch Circuits in the Bexar County 911 Center; the ESD 4 Deployment Analysis; the ESD 4 Company Personnel-staffing numbers; and ESD 4 Training for department personnel. The current ISO-PPC report CPSM reviewed is nearly ten years old. Because there have been station location changes (new Station 132); staffing changes to include additional career staff; a new Fire Chief and command staff; equipment changes/upgrades; and changes to the training regimen, it is possible that some or most deficiencies have been addressed. This said, ***CPSM further assesses and recommends*** ESD 4 should contact ISO and schedule another ISO-PPC rating analysis so that a new rating will align with the new ISO-PPC rating schedule implemented in July 2014.

§§§

SECTION 4. COMMUNITY RISK PROFILE

Overview of Community Risks and Hazards

The LSFD/ESD 4 and Acadian Ambulance recognizes there are hazards and risks that exist currently in the Fair Oaks Ranch service area, and which will increase as the city continues to develop. Current and future risks bring with them an inherent risk to the citizens and visitors of the fire and EMS service area in Fair Oaks Ranch, including property and the environment itself. In less technical terms, hazards are the causes of danger and peril in the community and risk quantifies the degree of potential danger that the hazard presents.

Contemporary risk assessing utilizes three factors when analyzing risk. These are:

- **Probability** or likelihood of an incident occurring, which defines the frequency of the various incidents fire departments respond to.
- **Consequence** (magnitude) of an incident on the community, which is the measure of the outcome of a fire, fire related, EMS, technical rescue, or haz-Mat incident on the community.
    - ***Probability and Consequence*** combined identifies the risk based on the probability of an incident and the consequence on the community.
- **Impact** of an incident on the LSFD as an emergency response agency and its ability to provide ongoing services to the remaining areas for service demand analyzes.

Already discussed are specific risks that impact fire and EMS calls for service, and which link directly to probability of occurrence, consequence on the community, and impact on the LSFD and AAS. These are:

- Population and demographics drive incident demand. As the population increases so does the demand for public services, to include fire and EMS.
- Transportation Infrastructure, which includes roads and trails.
- Land Use and Growth, which links to population growth, and by the type of growth (residential, commercial, mixed use etc.), increases community risk and will affect critical tasking and levels of fire and EMS response by the types of buildings built (residential or commercial), as well as density.

Environmental Risk

Fair Oaks Ranch is part of the Bexar County Emergency Management Plan (BCEMP) through Joint Resolution between the County of Bexar and the City of Fair Oaks Ranch dated April 20, 2000.

According to the EMP, Bexar County and the Cities adhering to this plan are exposed to many hazards, as outlined next. The Federal Emergency Management Agency (FEMA) defines a hazard as an event or physical condition that has the potential to cause fatalities, injuries, interruption of business, or other types of hard or loss. Specific hazards are addressed in detail in the City of San Antonio and Bexar County Hazard Identification, Risk Assessment and Consequence Analysis.

The San Antonio and Bexar County Hazard Identification Plan identifies 13 natural and technological hazards that have the potential to cause damage in the county which includes Fair Oaks Ranch.

The following table summarizes the results of the San Antonio/Bexar County self-assessment for hazard risk ranking. Each hazard was assigned a rank of "High," "Moderate," or "Low" according to vulnerability of the study area to the hazard.

Table 4: Hazard Risk Ranking, San Antonio/Bexar County[28]

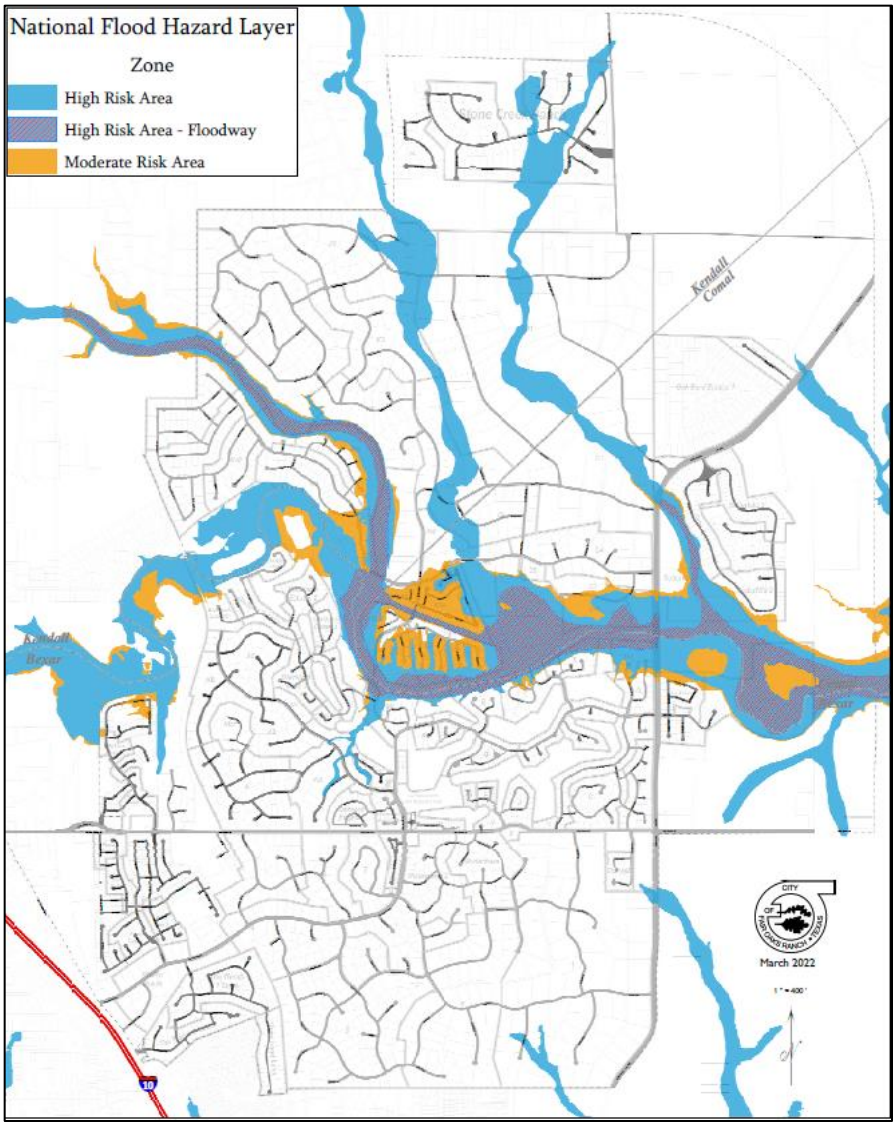
Hazard	Risk
Flood	High
Drought	High
Wildfire	High
Extreme Heat	Moderate
Extreme Wind	Moderate
Hail	Moderate
Hazardous Materials	Moderate
Infectious Disease	Moderate
Pipeline Failure	Moderate
Terrorism	Moderate
Tornado	Moderate
Winter Storm and Extreme Cold	Moderate
Dam Failure	Low

Specific Environmental Risks

Flood: Generally, the result of excessive precipitation can be classified under two categories: riverine flooding and flash flooding. Riverine flooding is defined as the rising and overflowing of rivers and streams onto normally dry land. Usually, the result of heavy or prolonged rainfall or snowmelt occurring in upstream inland watersheds. Flash flooding is defined as events that happen as a result of heavy rains over a short period of time or storm water run-off that occurs without sufficient warning for the community and/or individuals to take emergency protective measures. FEMA estimates that more than 30 percent of all floods occur in areas that are not or have not been identified as being within a known flood hazard area.

28. City of San Antonio and Bexar County Office of Emergency Management Hazard Identification, Risk Assessment.

Figure 20: Fair Oaks Ranch National Flood Hazard Layer[29]



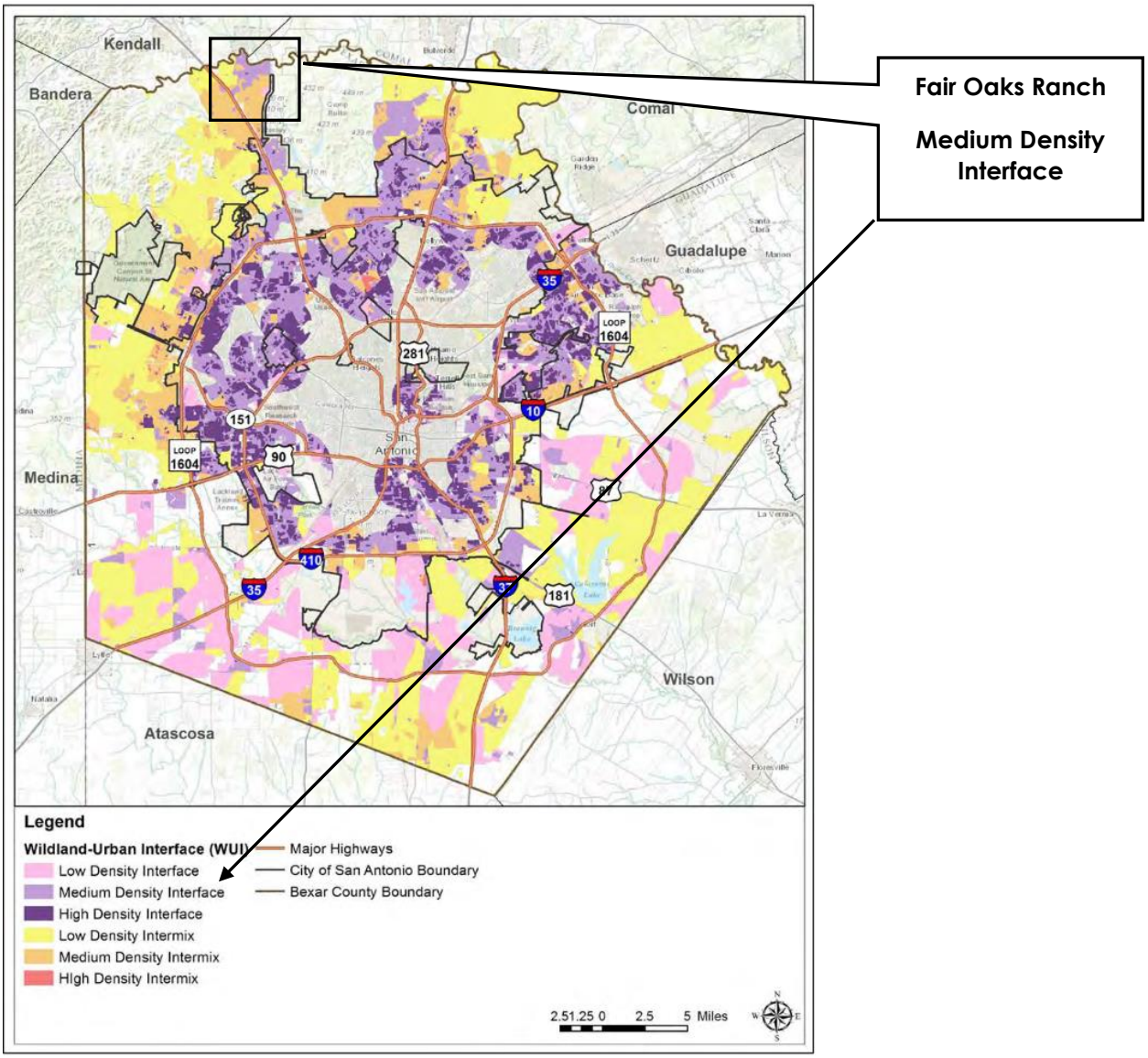
Drought: Drought is a normal occurrence in virtually all climatic regions, including areas of either high or low average rainfall. A Drought occurs when the region receives the amount of precipitation that is lower than expected over an extended period of time, usually a season or more in length. Severity depends on duration, intensity (degree of precipitation shortfall and/or the severity of impacts associated with the shortfall), geographic extent, and the demands on regional water supplies. High temperatures, prolonged high winds, and low relative humidity can intensify the severity of a drought and lead to other hazards such as wildfires. Drying vegetation serves as a prime ignition source.

Wildfire: A wildfire is any uncontrolled fire occurring in a wildland area (e.g., grassland, forest, brush land); uncontrolled fires are those not intentionally undertaken by authorized agencies. According to the U.S. Forest Service, nearly 85 percent of wildland fires in the United States are

29. https://www.fairoaksranchtx.org/DocumentCenter/View/4143/2022-03-FEMA-NFHL---Fair-Oaks-Ranch.

caused by negligent human behavior. The area where the built environment meets or intermingles with undeveloped areas and wildland, or vegetative fuels is referred to as the Wildland-Urban Interface (WUI). A WUI fire is the wildland fire hazard type that is most likely to impact Bexar County, including Fair Oaks Ranch. Fair Oaks Ranch has a medium density interface.

Figure 21: Wildland-Urban Interface (WUI) Areas, Bexar County[30]



Hazardous Materials: Hazardous materials are substances that have physical properties that can be dangerous to human health or the environment if they are not handled or managed correctly. In a hazardous materials incident, solid, liquid, and/or gaseous contaminants may be released from fixed or mobile containers.

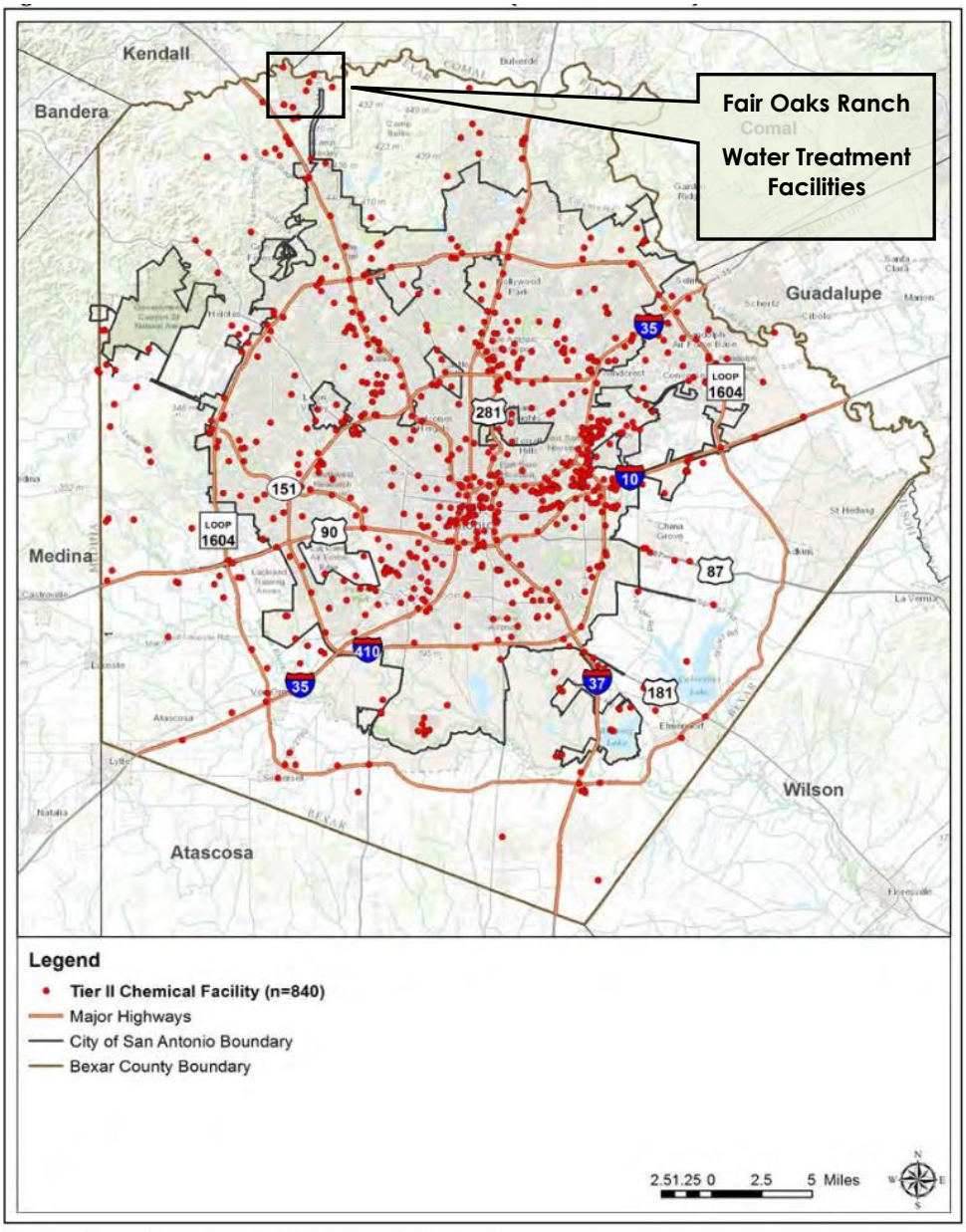
30. City of San Antonio and Bexar County Office of Emergency Management Hazard Identification, Risk Assessment.

Hazardous materials in various forms can cause death, serious injury, long-lasting health effects, and damage to buildings, homes, and other property. These products are also shipped daily on the nation's highways, railroads, waterways, and pipelines.

Generally, hazardous materials incidents will interrupt operations and services within a limited area. The incident may result in the closure of multiple facilities and transportation infrastructure until the area can be remediated and made safe and habitable.

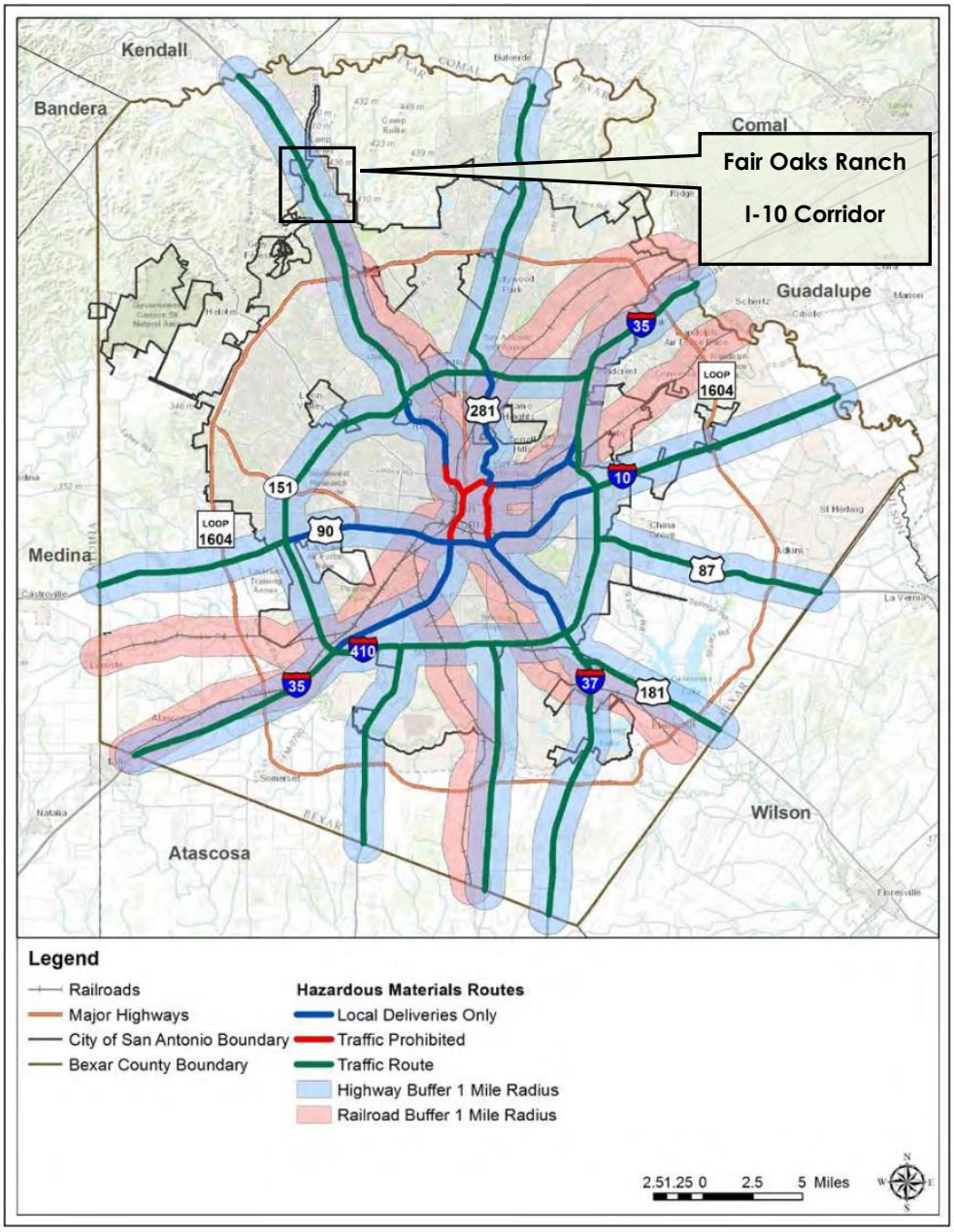
The greatest potential risk for a hazardous materials incident is along the I-10 corridor which borders the west side of Fair Oaks Ranch.

Figure 22: Potential Hazardous Materials Incident Locations Fixed Site – Tier II



(Source: *Texas Department of State Health Services*)

Figure 23: Hazardous Materials Transportation Corridors



(Source: *San Antonio Office of Emergency Management*)

Extreme Heat: Conditions of extreme heat are defined as summertime temperatures that are substantially hotter and/or more humid than average for location at the time of year. The combination of high temperatures mixed with humidity leads to heat waves or periods of extreme heat, presenting a significant threat to the safety and welfare of citizens and animals. Bexar County had 64 heat related deaths from 1999 to 2022.[31]

31. Texas Department of State Health Services.

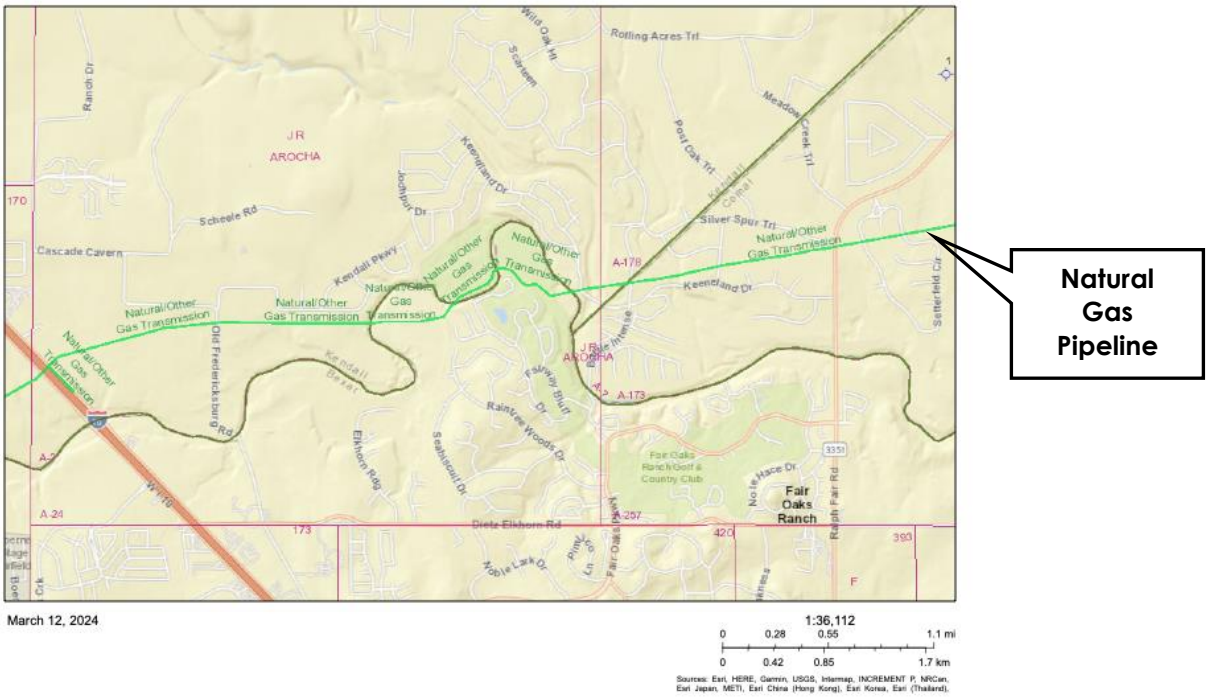
Extreme Wind: For the purposes of the BCEMP, extreme winds are defined as wind events that exceed 58 MPH (50KTS) and occur in the absence of a tornado. Extreme winds are most often associated with thunderstorms, hurricanes, and straight line winds. Bexar County is typically not directly affected by sustained hurricane or tropical storm winds. Straight line winds can have gusts exceeding 100 mph. Straight line wind may down trees and power lines, overturn mobile homes, and cause damage to well-built structures.

Hail: Hail is defined as falling ice, roughly round in shape and at least 0.2 inches in diameter. The Bexar County area can expect to experience the entire range of hazards, from potentially damaging to super hailstones. People living in mobile homes, homes built prior to modern building codes, and homes in deteriorating condition are particularly vulnerable to hail events.

Infectious Disease: Infectious pathologies are also called communicable diseases or transmissible diseases due to their potential of transmission from one person or species to another by a replicating agent. According to FEMA, infectious diseases are a major threat around the world, killing millions globally each year. Transmission of an infectious disease may occur through one or more pathways, including physical contact with infected individuals. These infecting agents may also be transmitted through liquids, food, body fluids, contaminated objects, airborne inhalation, or through vector-borne dissemination.

Pipeline Failure: A natural/other gas pipeline, Operated by Enterprise Products Operating LLC, runs east-west through Fair Oaks Ranch. It enters the City limits on the east side near the Setterfield Circle neighborhood, continues west, and exits the City limits between Fairway Vista Dr. and Balcones Creek.

Figure 24: Natural/Other Gas Transmission Pipeline[32]

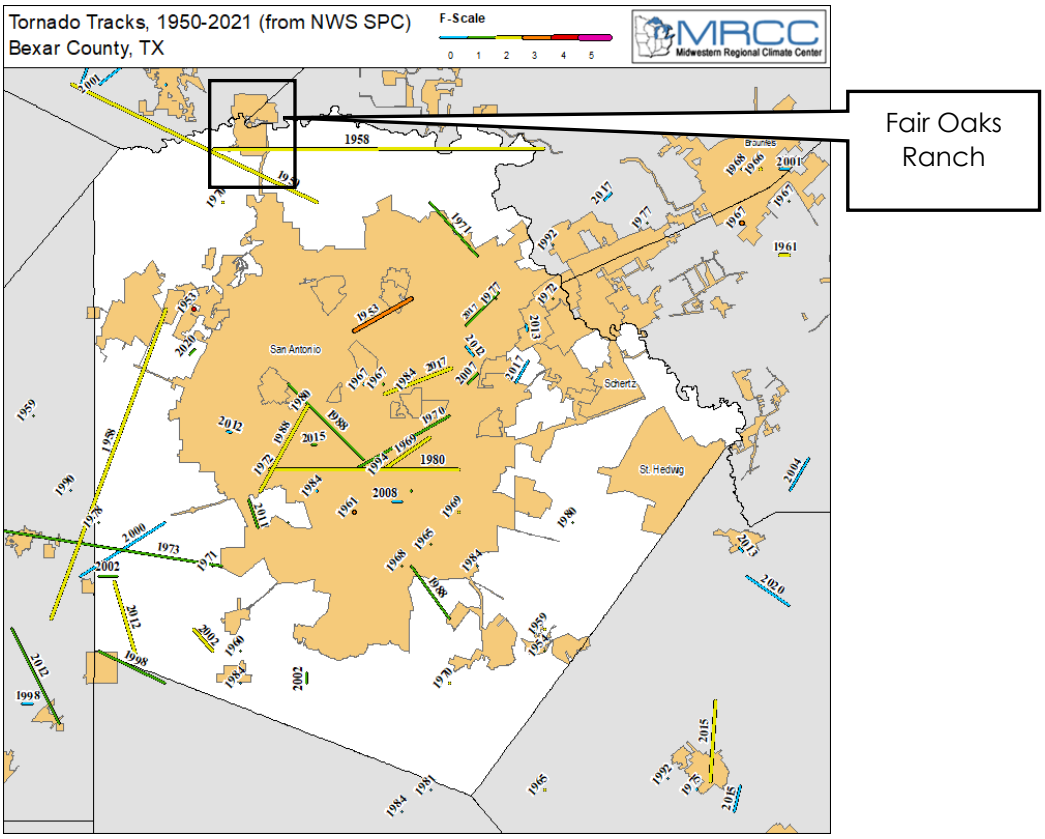


32. https://gis.rrc.texas.gov/GISViewer/

Terrorism: Terrorism is violence committed by groups or individuals in order to intimidate a population or government into granting their demands. Terrorism, being a technological hazard, is not tied to specific geography or topography, but rather is usually tied to specific features of a community. These features are usually of high value to the community or are necessary for the community's operations or livelihood. Government facilities, in particular military installations are common targets of terrorists. Bexar County is rich in such locations with a large military presence in the region to include Camp Bullis and Stanley bordering the southeast side of Fair Oaks Ranch.

Tornado: A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud extending to the ground. Tornadoes are most often generated by thunderstorm activity when cold, dry air intersects and overrides a layer of warm moist air forcing the warm air to rise rapidly. The damage caused by a tornado is a result of the high wind velocity and wind-blown debris. For the 10-year period 2012 - 2021 there was an annual average of 1,141 tornadoes across the United States, resulting in an average of 49 deaths per year for the period.[33]

Figure 25: Tornado Tracks in Bexar County, 1950-2021[34]



Winter Storm and Extreme Cold: A winter storm can range from moderate snow over a period of a few hours to blizzard conditions with blinding, wind-driven snow that lasts for several days. Some winter storms are accompanied by low temperatures and heavy and/or blowing snow,

33. https://lincolnweather.unl.edu/us-annual-tornadoes-tornado-fatalities-tornado-day
34. https://mrcc.purdue.edu/files/gismaps/tornadotracks/48029_Bexar.png

which can severely impair visibility. Winter storms may include snow, sleet, freezing rain, or a mix of these wintry forms of precipitation.

Severe winter weather can immobilize a region and paralyze a city, stranding commuters, closing airports, stopping the flow of supplies, and disrupting emergency and medical services. This is particularly true for areas that are unaccustomed to severe winter weather, such as Bexar County. Accumulations of snow and ice can knock down trees and power lines, causing electricity loss and impassable roadways. Homes, businesses, and farms may be isolated for days.

In February 2021 South-Central Texas, including the entire San Antonio/Bexar County region, experienced a historic winter storm event. This storm extended over an eight-day period. The storm spread snow and ice over a wide area with temperatures remaining below freezing and dipping into the single digits for several days. The extreme cold "broke" the power grid resulting in extended power outages throughout the region. The Leon Springs/Fair Oaks Ranch area received approximately 5-inches of snow during the period.

Building and Target Hazards

Building and target hazards are defined as significant hazards that can stretch fire department response capability—a plausible scenario in which a fire department could quickly become overwhelmed and for which additional resources would be needed to mitigate the incident.

The purpose of evaluating community risk is to evaluate the community as a whole, and regarding buildings, it will review all buildings and the risks associated with each property and then classifying the property as either a high-, medium-, or low-hazard depending on factors such as the life and building content hazard and the potential fire response force (equipment and staffing) required to mitigate an emergency in the specific property. According to the NFPA *Fire Protection Handbook*, these hazards are defined as:

- High-hazard occupancies: Schools, hospitals, nursing homes, explosives plants, refineries, high-rise buildings, and other high life-hazard (vulnerable population) or large fire-potential occupancies.
- Medium-hazard occupancies: Apartments (including townhomes, condos, residential over commercial), single-family housing units with basements, offices, and mercantile and industrial occupancies not normally requiring extensive rescue by firefighting forces.
- Low-hazard occupancies: One-, two-, or three-family dwellings and scattered small business and industrial occupancies.[35]

Fair Oaks Ranch has the following building types:

- Single family housing units: 4,035 detached (predominate building risk and primarily wood frame construction).

35. Cote, Grant, Hall & Solomon, eds., *Fire Protection Handbook* (Quincy, MA: National Fire Protection Association, 2008), 12.

- Multi-family housing units (townhomes, duplexes etc.): 3 (varying number of vertical floors and primarily wood frame construction).
- Commercial/industrial structures: 23 buildings, (varying square footage with a mix of construction materials).
- Strip malls: 4, (varying square footage with a mix of construction materials).
- Educational and day-care facilities, (2 elementary schools, 1 Montessori school, and two pre-school/day-care facilities).

Currently there are no high-rise structures (vertical elevation of 75 feet or more).

In terms of identifying target hazards, consideration must be given to the activities that take place (public assembly, life safety vulnerability, manufacturing, processing, etc.), the number and types of occupants (elderly, youth, handicapped etc.), and other specific aspects related to the construction of the structure.

Fair Oaks Ranch has a variety of target hazards that meet an established hazard class:

High Hazard

- Educational/school/public assembly (life safety)
- Public and private educational and day care facilities.

Medium Hazard

- Multifamily dwelling buildings.
- Multi-story storage facility.
- Medical offices.
- Strip malls.
- Single family residential over 3,000 square feet, particularly those built with light frame construction, with or without a basement.

The greatest amount of building risk in Fair Oaks Ranch is of a low hazard (single family dwellings-predominately wood frame construction). Fair Oaks Ranch does have a limited number of educational facilities/institutional facilities and multifamily residential structures (apartments/townhomes). All of these building risks present the LSFD with life-safety concerns.

Community Loss Information

Fire loss is an estimation of the total loss from a fire to the structure and contents in terms of replacement. Fire loss includes contents damaged by fire, smoke, water, and overhaul. Fire loss does not include indirect loss, such as business interruption.

In a 2022 report published by the National Fire Protection Association on trends and patterns of U. S. fire losses, it was determined that home fires still cause the majority of all civilian fire deaths, civilian injuries, and property loss due to fire.

Key findings from this report include:[36]

- Public fire departments in the U.S. responded to 1,504,500 fires in 2022, a 11.2 percent increase from the previous year.
- 522,500 fires occurred in structures (35 percent of the reported fires). Of these fires, 382,500 occurred in residential structures and 80,000 occurred in apartments or multifamily structures.
- 2,760 civilian fire deaths occurred in residential fires, and 470 deaths occurred in apartments or multifamily structures.
- Home fires were responsible for 10,320 civilian injuries.
- An estimated $18.07 billion in direct property damage occurred as a result of fire in 2022.

The following table shows overall fire loss in in ESD 4 in terms of dollars for the year as assessed and estimated by the LSFD. Fair Oaks Ranch is included in this data. This information should be reviewed regularly and discussed in accordance with response times to actual fire incidents, company level training, effectiveness on the fire ground, and effectiveness of incident command.

Table 5: Historical Property and Content Loss in ESD 4[37]

2019	2020	2021	2022	2023
$330,000	$255,000	$125,000	$783,000	$302,000

Three Axis Risk Analysis

A comprehensive risk assessment is a critical aspect of assessing and creating a deployment analysis to meet the community's risk and can assist the LSFD in quantifying the risks that it faces. Once those risks are known and understood, the department is better equipped to determine if the current response resources are sufficiently staffed, equipped, trained, and positioned.

Risk is often categorized in three ways: the probability the event will occur in the community, the impact on the fire department, and the consequence of the event on the community. The following three tables look at the probability of the event occurring, which ranges from unlikely to frequent; consequence to the community, which is categorized as ranging from insignificant to catastrophic; and the impact to the organization, which ranges from insignificant to catastrophic.

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36. Fire Loss in the United States During 2022, National Fire Protection Association. https://www.nfpa.org/education-and-research/research/nfpa-research/fire-statistical-reports/fire-loss-in-the-united-states. (accessed 23 November 2023).
37. Based on LSFD reporting – reflects estimates from NFIRS fire reports.

Table 6: Event Probability

Probability	Chance of Occurrence	Description	Risk Score
Unlikely	2%-25%	Event may occur only in exceptional circumstances.	**2**
Possible	26%-50%	Event could occur at some time and/or no recorded incidents. Little opportunity, reason, or means to occur.	**4**
Probable	51%-75%	Event should occur at some time and/or few, infrequent, random recorded incidents, or little anecdotal evidence. Some opportunity, reason, or means to occur; may occur.	**6**
Highly Probable	76%-90%	Event will probably occur and/or regular recorded incidents and strong anecdotal evidence. Considerable opportunity, means, reason to occur.	**8**
Frequent	90%-100%	Event is expected to occur. High level of recorded incidents and/or very strong anecdotal evidence.	**10**

Table 7: Impact on LSFD and AAS

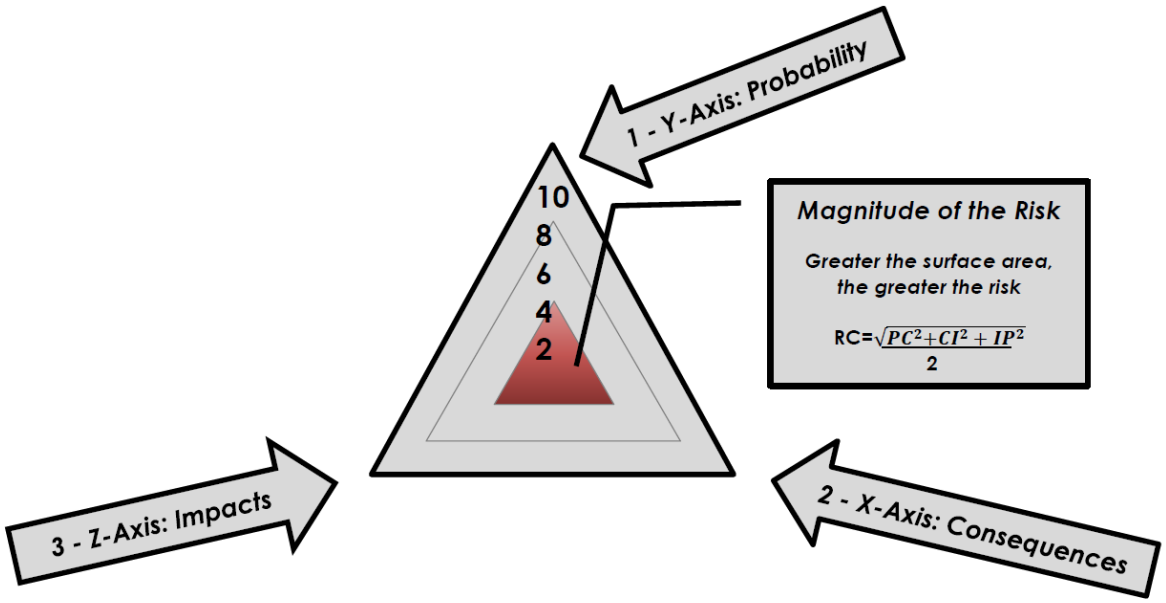
Impact	Impact Categories	Description	Risk Score
Insignificant	Personnel and Resources	One apparatus out of service for period not to exceed one hour.	**2**
Minor	Personnel and Resources	More than one but not more than two apparatus out of service for a period not to exceed one hour.	**4**
Moderate	Personnel and Resources	More than 50 percent of available resources committed to incident for over 30 minutes.	**6**
Significant	Personnel and Resources	More than 75 percent of available resources committed to an incident for over 30 minutes.	**8**
Catastrophic	Personnel, Resources, and Facilities	More than 90 percent of available resources committed to an incident for more than two hours or event which limits the ability of resources to respond.	**10**

Table 8: Consequence to Community Matrix

Impact	Consequence Categories	Description	Risk Score
Insignificant	Life Safety	■ 1 or 2 people affected, minor injuries, minor property damage, and no environmental impact.	**2**
Minor	Life Safety Economic and Infrastructure Environmental	■ A small number of people were affected, no fatalities, and a small number of minor injuries with first aid treatment. Minor displacement of people for <6 hours and minor personal support required. ■ Minor localized disruption to community services or infrastructure for <6 hours. Minor impact on environment with no lasting effects.	**4**
Moderate	Life Safety Economic and Infrastructure Environmental	■ Limited number of people affected (11 to 25), no fatalities, but some hospitalization and medical treatment required. Localized displacement of small number of people for 6 to 24 hours. Personal support satisfied through local arrangements. Localized damage is rectified by routine arrangements. ■ Normal community functioning with some inconvenience. Some impact on environment with short-term effects or small impact on environment with long-term effects.	**6**
Significant	Life Safety Economic and Infrastructure Environmental	■ Significant number of people (>25) in affected area impacted with multiple fatalities, multiple serious or extensive injuries, and significant hospitalization. ■ A large number of people were displaced for 6 to 24 hours or possibly beyond. External resources required for personal support. Significant damage that requires external resources. Community only partially functioning, some services unavailable. Significant impact on environment with medium- to long-term effects.	**8**
Catastrophic	Life Safety Economic and Infrastructure Environmental	■ A very large number of people in affected area(s) impacted with significant numbers of fatalities, large number of people requiring hospitalization; serious injuries with long-term effects. General and wide-spread displacement for prolonged duration; extensive personal support required. Extensive damage to properties in affected area requiring major demolition. ■ Serious damage to infrastructure. Significant disruption to, or loss of, key services for a prolonged period. ■ Community unable to function without significant support. ■ Significant long-term impact on environment ■ and/or permanent damage.	**10**

Prior risk analysis has only evaluated two factors of risk: probability and consequence. Contemporary risk analysis considers the impact of each risk to the organization, thus creating a three-axis approach to evaluating risk as depicted in the following figure. A contemporary risk analysis now includes probability, consequences to the community and impact on the organization, in this case the LSFD and AAS. In this analysis, information presented and reviewed in this section (Community Risk Profile) has been considered. Risk is categorized as Low, Moderate, High, or Special.

Figure 26: Three-Axis Risk Calculation (RC)



The following factors/hazards were identified and considered:

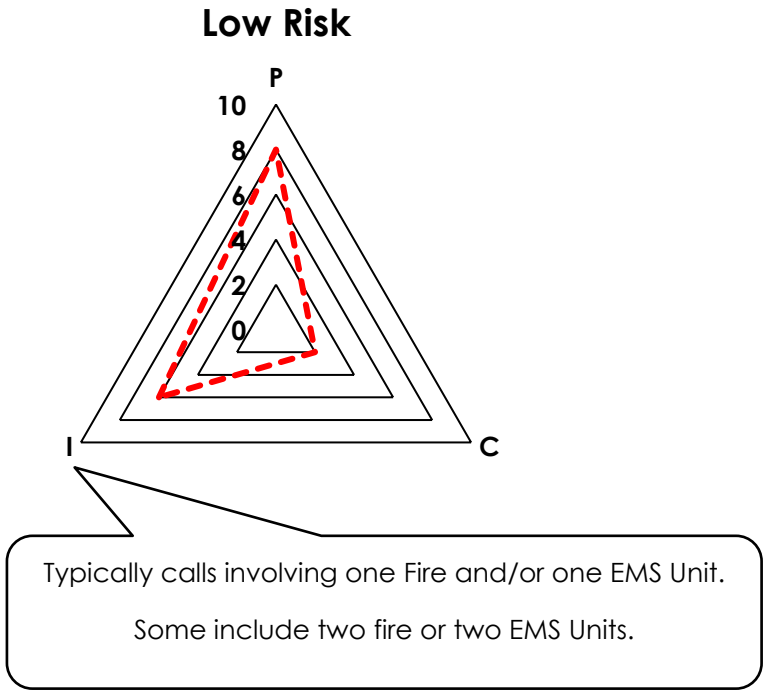
- **Demographic factors** such as age, socio-economic, vulnerability.
- **Natural hazards** such as flooding, snow and ice events, wind events, summer storms.
- **Manufactured hazards** such as transportation risks (road and rail) and target hazards.
- **Structural/building risks**.
- **Fire and EMS incident numbers and density**.
- **Resiliency.**

The assessment of each factor and hazard as listed below took into consideration the likelihood of the event, the impact on the city itself, and the impact on LSFD's ability to deliver emergency services, which includes LSFD resiliency and mutual aid capabilities as well. The list is not all-inclusive but includes categories most common or that may present to the city and the LSFD.

Low Risk

- Automatic fire/false alarms.
- Low-acuity BLS EMS Incidents.
- Low-risk environmental event.
- Motor vehicle accident (MVA)-no entrapment, 1-2 patients, low hazards.
- Good intent/hazard/public service fire incidents with no life-safety exposure.
- Outside fires such as grass, rubbish, dumpster, vehicle with no structural/life-safety exposure.

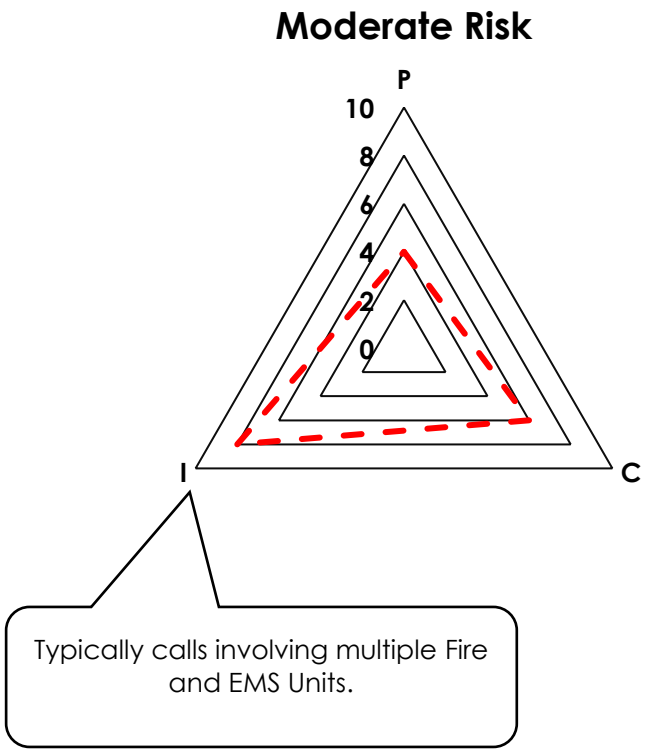
Figure 27: Low Risk



Moderate Risk

- Fire incident in a single-family dwelling where fire and smoke or smoke is visible, indicating a working fire.
- Suspicious substance investigation involving multiple fire companies and law enforcement agencies.
- ALS EMS incident.
- MVA with entrapment of passengers.
- Grass/brush fire with structural endangerment/exposure.
- Low-angle rescue involving ropes and rope rescue equipment and resources.
- Surface water rescue.
- Good intent/hazard/public service fire incidents with life-safety exposure.
- Rail or road transportation event with no release of product or fire, and no threat to life safety.

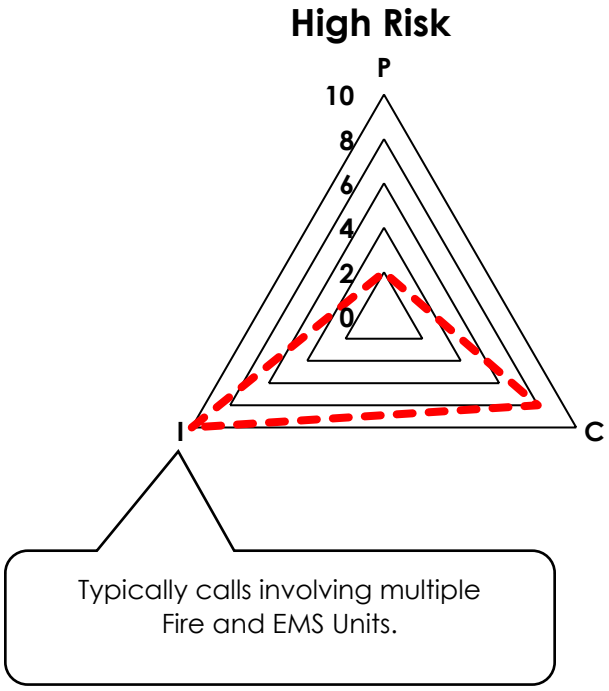
Figure 28: Moderate Risk



High Risk

- Working fire in a target hazard.
- Cardiac arrest.
- Mass casualty incident of more than 10 patients but fewer than 25 patients.
- Confined space rescue.
- Structural collapse involving life-safety exposure.
- High-angle rescue involving ropes and rope rescue equipment.
- Trench rescue.
- Suspicious substance incident with multiple injuries.
- Wildland fire burning through extensive acreage and threatening/consuming structures and property.
- Industrial leak of hazardous materials that causes exposure to persons or threatens life safety.
- Weather events that create widespread flooding, heavy snow or ice, heavy winds, building damage, and/or life-safety exposure.

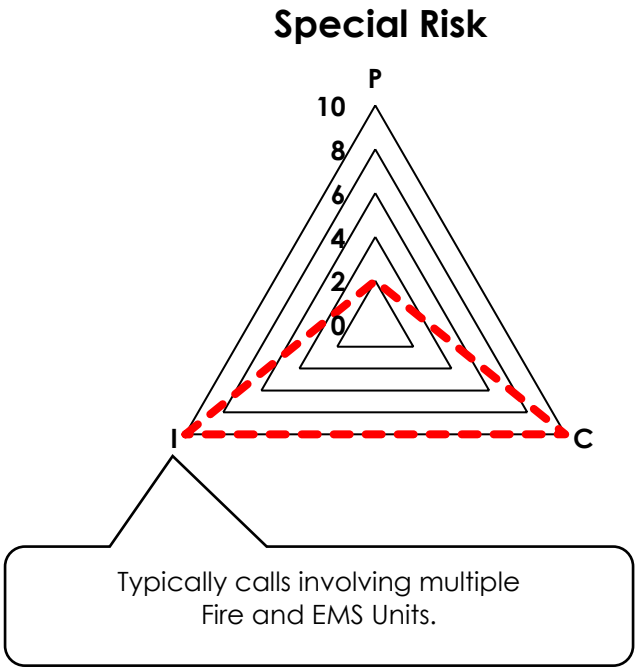
Figure 29: High Risk



Special Risk

- Working fire in a structure of more than three floors.
- Fire at an industrial building or complex with hazardous materials.
- Fire in an occupied targeted hazard with special life-safety risks such as age, medical condition, or other identified vulnerabilities.
- Mass casualty incident of more than 25 patients.
- Transportation incident that causes life-safety exposure or threatens life safety through the release of hazardous smoke or materials and evacuation of residential and business occupancies.
- Explosion in a building that causes exposure to persons or threatens life safety or outside of a building that creates exposure to occupied buildings or threatens life safety.
- Massive estuary flooding, fire in an occupied public assembly or medical institution, high-impact environmental event, pandemic.
- Mass gathering with threat of fire and threat to life safety or other civil unrest, weapons of mass destruction release.

Figure 30: Special Risk



SECTION 5. FIRE, EMS, AND EMERGENCY MANAGEMENT SERVICE DELIVERY

Leon Springs Fire Department

The Leon Springs Fire Department (LSFD) is a combination fire protection department that contracts with Bexar County as the fire service provider for Bexar County Emergency Services District 4 (ESD 4) .[38] As outlined above, Fair Oaks Ranch contracts with ESD 4 for fire protection services, which subsequently is the LSFD. The LSFD is funded through the ESD 4 and Fair Oaks Ranch contracts.

Effective October 1, 2024, the LSFD will merge with ESD 4 and will formally become Bexar County ESD 4. All full time, part-time, and volunteer members will transition to ESD 4. The current infrastructure and equipment have already been transferred to ESD 4. The LSFD will formally dissolve after October 1, 2024.

The LSFD is a combination career, part-time, and volunteer fire department and operates out of two stations full time, which are located in unincorporated Bexar County, and two stations located in Fair Oaks Ranch. The two full time staffed stations include the following resources and staffing and are located at:

- Station 132: 26217 Ralph Fair Road
  - 1 Engine
  - 1 Rescue
  - 1 Brush Truck
  - 3 career staff (1 Officer, 1 Driver Operator, 1 FF: minimum staffing)
    - Part-time and volunteers expand staffing to 5 or more/shift

- Station 134: 28036 Old Boerne Stage Road
  - 1 Engine
  - 1 Rescue
  - 1 Aerial Ladder
  - 1 Heavy Rescue
  - 1 Brush Truck
  - 3 career staff (1 Officer, 1 Driver Operator, 1 FF: minimum staffing)
    - Part-time and volunteers expand staffing to 5 or more/shift

38 . Emergency Services Districts in Texas are local government units working in conjunction with county governments and provide fire protection, emergency medical services (or both) to designated unincorporated territories. Funding originates from property tax revenue, sales tax, and service fees. ESDs are governed by a county commissioner court appointed commission or an elected commission and follow established state and local laws and ordinances.

The two unstaffed (by career staff) stations in Fair Oaks Ranch house response equipment that may respond if/when needed by volunteer personnel. The two Fair Oaks Ranch stations include the following resources and are located at:

- Station 133 (Owned by Fair Oaks Ranch): Fair Oaks Parkway and Raintree Woods Road
  - 1 Engine
    - Responds as needed when unit in-station and with available part-time and/or volunteer LSFD members.
- Station 420 (Owned by Fair Oaks Ranch): Meadow Creek Trail and Ralph Fair Road
  - 1 Engine
  - 2 Brush Trucks
  - 1 Rescue
    - Units respond as needed, when in-station, and with available part-time and/or volunteer LSFD members.
    - Staffed during heavy rain events and/or during heavy wildland/brush fire activity

At the time of this report, the LSFD has twenty-four full time employees that includes:

- 1 Fire Chief
- 1 Asst. Fire Chief
- 1 Deputy Chief of Support Services
- 1 Captain (Emergency Management Planner / Fire EMS Training Coordinator)
- 1 EMS Captain (Community Classes CPR, First Aid, Stop the Bleed, Mobile Integrated Health). *This employee provides all these services for Fair Oaks Ranch at no additional cost including the training for the Fair Oaks Ranch employees.*
- 3 shift Captains
- 3 Lieutenants
- 6 Driver Operators
- 6 FF/EMT
- 1 Office Manager
- The strength of volunteer members varies
- 2 Part-time firefighters per shift (total of 6)

Operationally, full time shift personnel work a 48 hours on and 96 hours off schedule. This is a form of the traditional 24 hours on and 48 hours schedule. The Fire Chief, Assistant Chief and Deputy Chief have a rotating one-week on-call schedule (6:00 pm-8:00 am) schedule to handle after hours issues and matters as needed, and emergency responses.

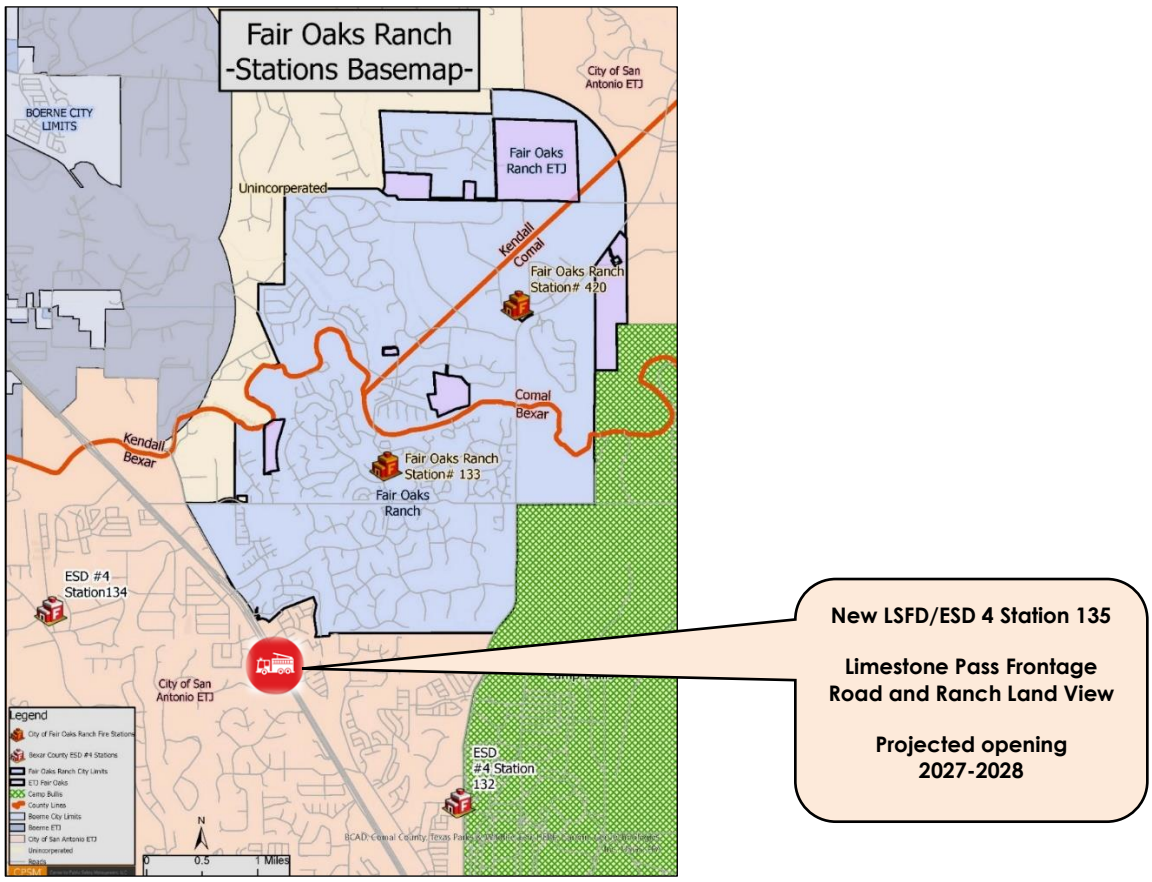
The LSFD/ESD 4 is planning to implement advanced life support (ALS) EMS ground transport services for the ESD service area on October 1, 2024. An additional twelve full time firefighter positions have been requested and six have been budgeted for to implement one ALS ambulance (staff of two) at each station (132 & 134). Start-up capital and non-capital expenses

include three ambulances (scheduled to arrive April 2024), basic and advanced level equipment, stretcher systems, and soft goods typical of EMS ground transport ambulances. LSFD/ESD 4 advised CPSM this service will be available to the city if the city chooses to contract for same.

In addition to the current LSFD/ESD 4 stations, ESD 4 is planning a third station at Limestone Pass Frontage Road and Ranch Land View. This station is in design and scheduled to be occupied 2027-2028.

Other capital improvements include the order of two heavy-duty Rescue Pumpers (ordered in 2023). The current build time for fire apparatus is 36-42 months depending on manufacturer. Additionally, the aerial ladder at Station 134 is undergoing 100 percent refurbishment, which will extend the service life of this apparatus.

Figure 31: LSFD/ESD 4 Station Locations
(Includes Stations 133 and 420 Owned by Fair Oaks Ranch)



LSFD Workload

CPSM received response data for the LSFD for the period October 1, 2022, to September 30, 2023. Incidents were classified based on the National Fire Incident Reporting System (NFIRS) incident type. The main workload analysis is focused on calls that were responded to by the LSFD in the City of Fair Oaks Ranch. Between October 1, 2022, and September 30, 2023, the LSFD answered 612 calls for Fair Oaks Ranch.

The first table shows the number of calls that LSFD responded to by call type, average calls per day, and the percentage of calls that fall into each call type category.

The second table outlines the workload of each station in terms of runs by call type. A run is different than a call in that a run involves more than one unit on a call (example-a structure fire call (single count) will include a response or two or more fire apparatus (multiple count as each unit receives credit for responding to the call). Subsequently there are more runs than calls when analyzing the workload of stations.

Table 9: LSFD Calls by Type

Call Type	Total Calls	Calls per Day	Call Percentage
Medical and other	395	1.1	64.5
MVA	15	0.0	2.5
EMS subtotal	**410**	**1.1**	**67.0**
False alarm	28	0.1	4.6
Good intent	11	0.0	1.8
Hazard	20	0.1	3.3
Outside fire	6	0.0	1.0
Public service	25	0.1	4.1
Structure fire	9	0.0	1.5
Fire subtotal	**99**	**0.3**	**16.2**
Canceled	103	0.3	16.8
Total	**612**	**1.7**	**100.0**

CPSM assesses the City of Fair Oaks Ranch has a moderate workload for Fire and first response EMS resources.

In the one-year data analysis period, the LSFD responded into Fair Oaks Ranch 509 times (103 calls were cancelled).

62% of the calls were EMS related, 16.2% were fire related, and 2.5 % were MVA related.

Table 10: LSFD Calls by Type

	Station	EMS	False Alarm	Good Intent	Hazard	Outside Fire	Public Service	Struct Fire	Cancel	Total
	132	215	22	12	16	10	20	13	61	**369**
	133	1	9	2	1	2	0	3	8	**26**
	134	171	17	11	7	6	8	18	31	**269**
	420	126	3	0	1	0	5	1	18	**154**
Total		**513**	**51**	**25**	**25**	**18**	**33**	**35**	**118**	**818**

The station workload table tells us:

- EMS runs are the highest incident responses into Fair Oaks Ranch by the LSFD.
- Fire and fire related runs made up 187 runs into Fair Oaks Ranch by the LSFD.
- Overall, there were 53 fire runs into Fair Oaks Ranch (structure + outside fires).
- Cancelled calls (calls canceled while LSFD units were enroute or before they left the station) made up 14 percent of all runs.
- Station 132 has the highest overall workload in Fair Oaks Ranch: 369 runs.

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Mutual Aid

Automatic aid is a system whereby fire, rescue, and EMS units respond automatically to another community through agreement based on proximity to the incident. **Mutual aid** is a system whereby surrounding communities provide fire, rescue, and EMS resources to another community through agreement and specific request from the jurisdiction in need of resources (not automatically and case by case). In an automatic aid scenario, resources from neighboring jurisdictions are built into run cards in the home jurisdiction for again, an automatic response; this aid is designed to supplement and bolster the Effective Response Force of the home jurisdiction.

Holistically, Bexar County fire departments have a mutual aid program in place so any resource can be requested from any organization within the county. The LSFD participates in this program. Mutual Aid fire departments the LSFD associates with, depending on the location of the incident and required resources. Response travel times for these assets, depending on the mutual aid station location when benchmarked against the potential area into ESD 4, is included in parenthesis (data reported by the LSFD). This outlines the expansive area of ESD 4 and the distance of available additional resources.

- Bexar County District 2 Fire & Rescue (30 minutes).
- Bexar County District 7 Fire & Rescue (23-26 minutes).
- Helotes Fire Department (22 minutes).
- Shavano Park Fire & EMS Department (22 minutes).
- Bexar County ESD 8 (18-19 minutes).
- Boerne Fire Department (16 minutes).
- Bergheim Vol. FD (19 minutes).
- Sisterdale Volunteer Fire Department (28 minutes).
- Bulverde Spring Branch Fire & EMS (20-46 minutes)
- Camp Bullis (23 minutes).

Depending on the location of the call for structural fires, ***automatic aid*** fire departments responding into ESD 4 include:

- Bexar County ESD 8: one engine and one ladder (18-19 minutes).
- Shavano Park FD: one ladder (two staff) (22 minutes).
- Boerne FD: one engine (16 minutes).
- Bergheim Vol. FD: one engine (Fair Oaks Ranch incidents). *As a note, as an automatic aid asset, Bergheim Fire Department is a volunteer fire department. If an alarm comes in for automatic aid to Fair Oaks Ranch, the response by Bergheim is delayed if there are no volunteer members in the station ready to respond. Travel time to the northeast quadrant of Fair Oaks Ranch is approximately 10 minutes.*

CPSM assesses the LSFD/ESD 4 has a robust mutual and automatic aid system. However, estimated response times as reported by the LSFD range from 10 minutes to 46 minutes depending on where the incident is occurring in the ESD 4 response area and where the mutual or automatic aid unit is responding from.

Response Times

Response times are typically a primary measurement for evaluating fire and EMS services. Response times can be used as a benchmark to determine how well a fire department is currently performing, to help identify response trends, and to predict future operational needs. Achieving the quickest and safest response times possible should be a fundamental goal of every fire department.

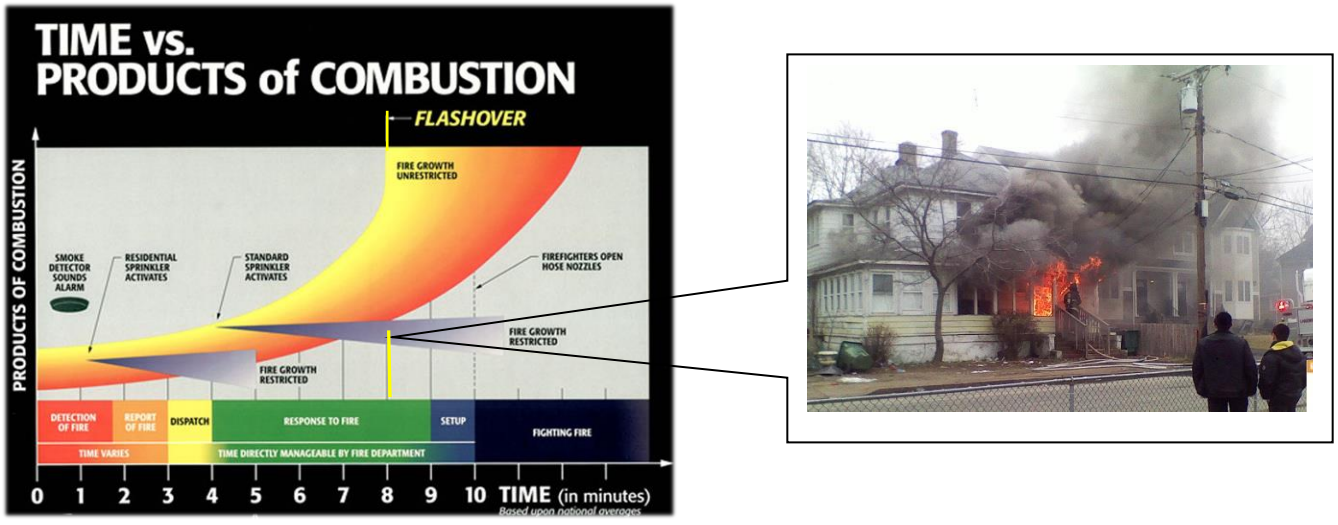
Travel time is a key point to understanding how fire station location influences a community's aggregate response time performance. Travel time can be mapped when existing and proposed station locations are known. The location of responding units is one key factor in response time; reducing response times, which is typically a key performance measure in determining the efficiency of department operations, often depends on this factor.

Response times for fire incidents are based on the concept of "flashover." A flashover is the near-simultaneous ignition of most of the directly exposed combustible material in an enclosed area. When certain organic materials are heated, they undergo thermal decomposition and release of flammable gases. Flashover occurs when the majority of the exposed surfaces in a space are heated to their auto ignition temperature and emit flammable gases. "Flashover is the transition phase in the development of a contained fire in which surfaces exposed to thermal radiation, from fire gases in excess of 600 degrees Celsius, reach ignition temperature more or less simultaneously and fire spreads rapidly throughput the space."[39]

When the fire does reach this extremely hazardous state, initial firefighting forces are often overwhelmed, a larger and more destructive fire occurs, the fire escapes the room and even the building of origin, and significantly more resources are required to affect fire control and extinguishment. Applying water in time to prevent a flashover is a serious challenge for any fire department. It is critical, however, in containing the fire to the room or origin.

The NFPA found that fires contained to the room of origin (typically extinguished before or immediately following flashover) had significantly lower rates of death, injury, and property loss compared to fires that had an opportunity to spread beyond the room of origin (typically extinguished post-flashover).

Figure 32: Fire Growth



39. National Institute of Standards and Technology, Definition of Flashover.

Response times for the LSFD are discussed next. As a predominately career fire department, the LSFD is benchmarked against the NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Career Fire Departments*. This standard establishes benchmark travel times for first arriving fire units to fire and EMS incidents as:

- ≤ 240 seconds for the first arriving engine company to a fire suppression incident 90 percent of the time.
- ≤ 240 seconds for the first arriving engine company to an EMS incident with automated external defibrillator (AED) or higher level capability.

This is a practical application in the suburban and urban areas of service. However, the LSFD also provides fire protection service to rural areas in ESD 4 as well. Fair Oaks Ranch is largely a suburban city with some less densified-rural areas in the northern areas of the city and ETJ. ***The benchmark for response time for the LSFD into Fair Oaks Ranch as outlined in the contract for fire protection services is an eight minute turnout-travel time.***

The next table breaks down the average total response times (in minutes) for the LSFD into Fair Oaks Ranch for the one-year CPSM response time analysis.

Table 11: Average Response Time of First Arriving Unit, by Call Type (Minutes)

Call Type	Dispatch	Turnout & Travel	Total	Call Count
Medical and other	1.5	9.4	10.9	347
MVA	1.4	7.8	9.1	14
EMS subtotal	**1.5**	**9.3**	**10.9**	**361**
False alarm	2.1	9.9	11.9	26
Good intent	2.2	9.7	12.0	11
Hazard	2.3	9.5	11.9	18
Outside fire	1.6	8.9	10.5	6
Public service	2.1	9.7	11.8	19
Structure fire	3.5	9.2	12.7	8
Fire subtotal	**2.2**	**9.6**	**11.9**	**88**
Total	**1.7**	**9.4**	**11.1**	**449**

It is assessed that the LSFD is meeting the 8-minute average Turnout-Travel Time contractual benchmark for Motor Vehicle Accidents only.

The average Turnout-Travel time for medical calls is: 10.9 minutes.

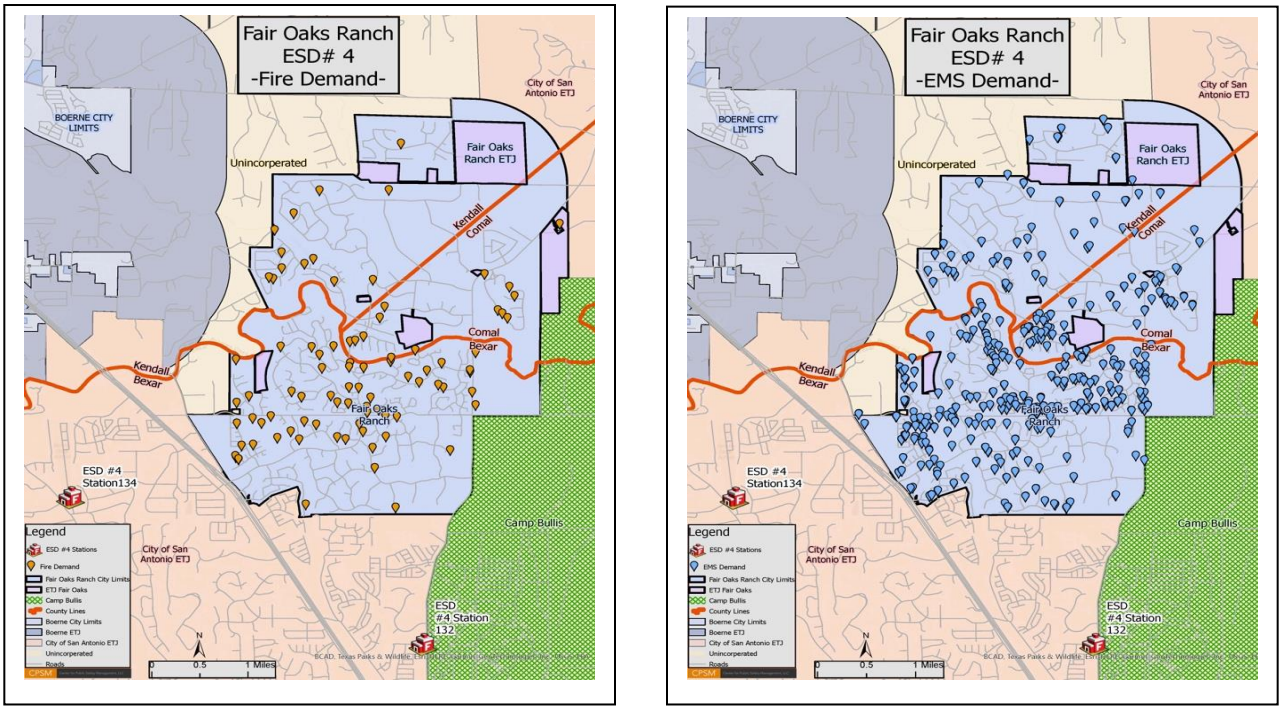
The average Turnout-Travel time for fire and fire related calls is calls is: 11.9 minutes.

CPSM also analyzes station location and response time coverage through GIS utilizing the city's road network. CPSM utilizes ArcGIS for response travel time mapping. ArcGIS drive time/bleeds are calculated from the stations towards the outer locations from the station using traffic laws (posted speed limit, stop signs, one-way streets, etc.) that are applied to the roads network. The CPSM GIS Specialist uses the *Drive-Time Areas* feature.

When analyzing travel times, it is important to link travel time to demand. As a review, the next figure illustrates LSFD fire and EMS demand in Fair Oaks Ranch. LSFD Fire demand is concentrated in the more densely populated residential areas around the Fair Oaks Ranch Golf & Country Club and along the western boundary, north and south of Dietz Elkhorn Rd.

LSFD EMS demand, like fire demand, is concentrated in the more densely populated residential areas around the Fair Oaks Ranch Golf & Country Club and along the western boundary, north and south of Dietz Elkhorn Rd. EMS demand however is much heavier than fire demand in these areas.

Figure 33: LSFD Fire & EMS Demand



Next, we review Stations 132 and 134 first, as they are typically the initial responding stations to fire and EMS incidents in Fair Oaks Ranch.

CPSM then analyzes eight minute travel time from Stations 133 and 420 (located inside of Fair Oaks Ranch) and then the addition of Station 135 (2027-2028 projected opening) benchmarked against the eight and ten-minute travel times.

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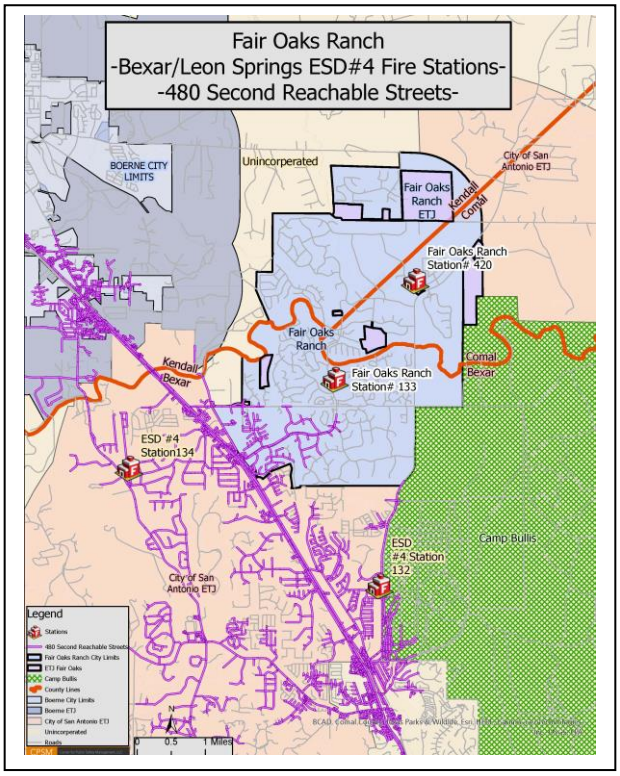
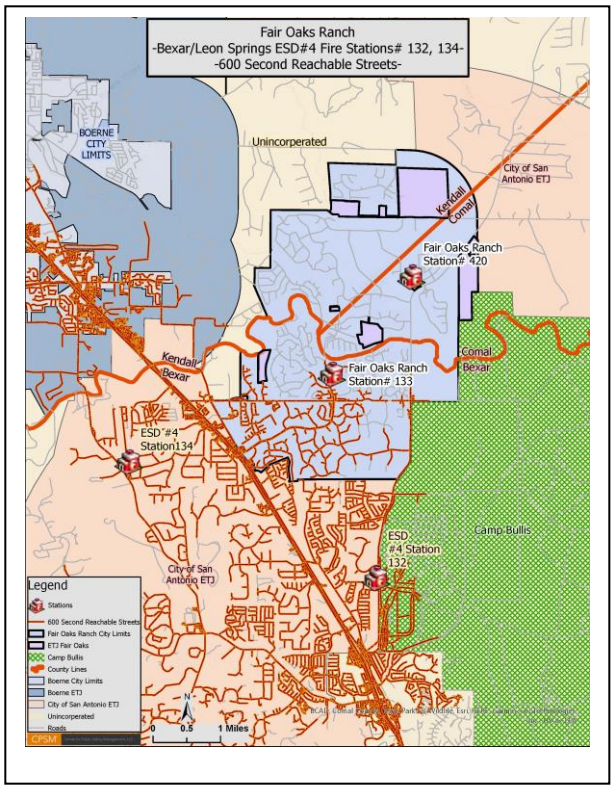
Figure 34: Eight and Ten Minute Travel Times: Stations 132 and 134





It is assessed that there is little permeation into Fair Oaks Ranch by the LSFD. Permeation is from Station 134 only when benchmarked against an 8-minute travel time bleed.

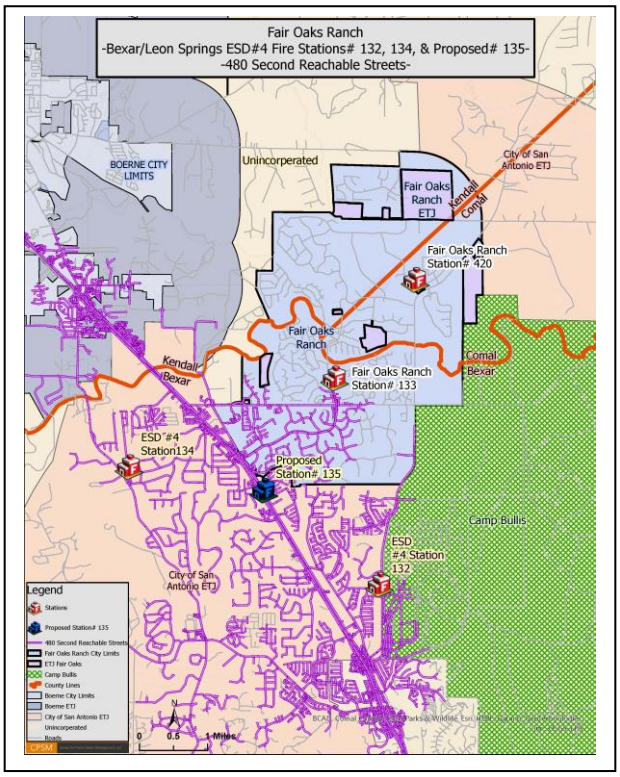
There is improvement when benchmarked against the 10-minute travel time benchmark from Station 134 in the southwest and central south areas of the city, and greater permeation from Station 132 in the southeast corner of the city.

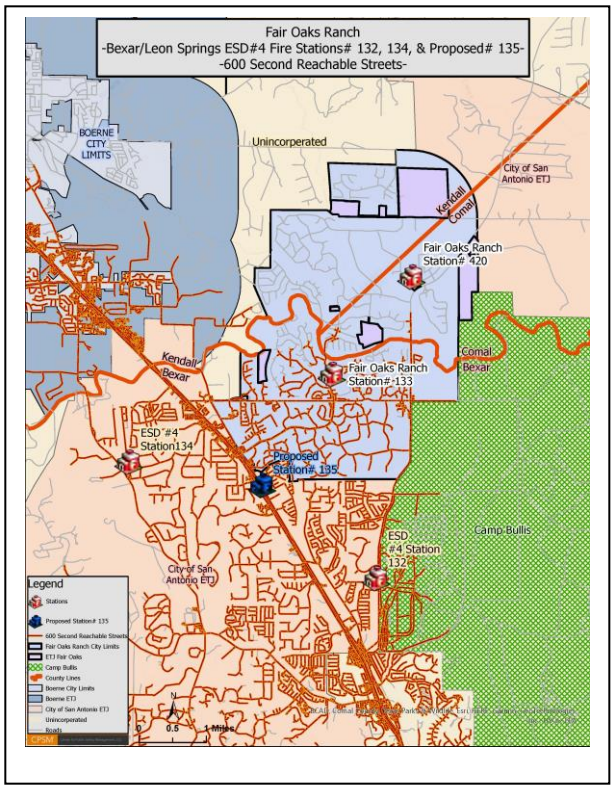
It is assessed that Stations 132 and 134 only moderately permeate the city with emergency response above Dietz Elkhorn Road (southwest and central south areas of the city), and south of Dietz Elkhorn Road in the southeast quadrant of the city.

It is overall assessed there is minimal permeation above Dietz Elkhorn Road by LSFD Stations 132 and 134.

Noted here, Stations 133 and 420, which are located in the city are not staffed and rely on volunteers or part-time staffing to respond apparatus.

Figure 35: Eight and Ten Minute Travel Times: Stations 132, 134, and 135





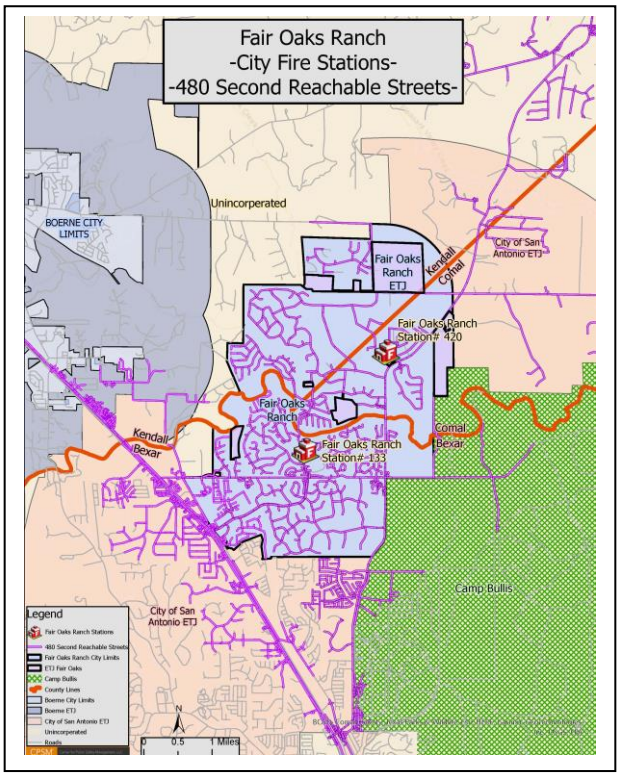
It is assessed that there is very good permeation into Fair Oaks Ranch from Station 135 in the southwest and central south (below Dietz Elkhorn Road) when benchmarked against the 8-minute travel time bleed.

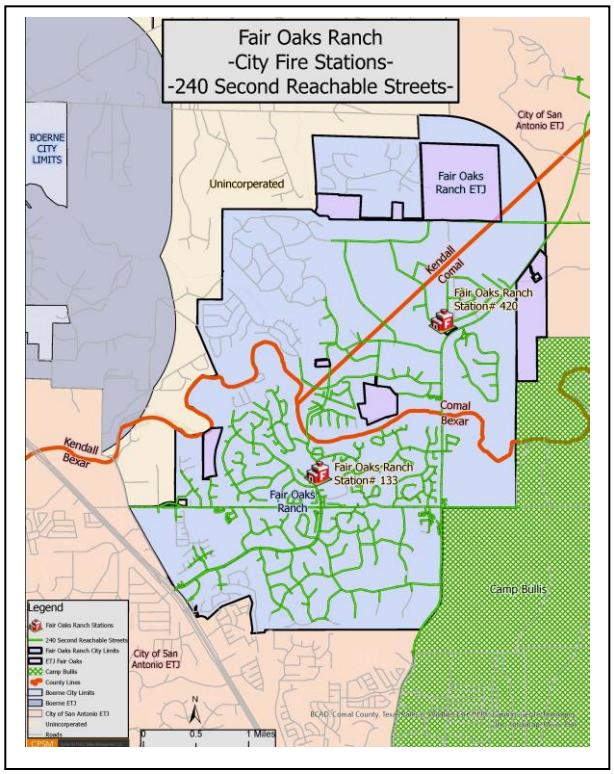
There is improvement when benchmarked against the 10-minute travel time benchmark from Station 135 above Dietz Elkhorn Road and permeation from Station 132 in the southeast corner of the city.

It is assessed the addition of Station 135 provides improvement in LSFD travel times south of Dietz Elkhorn Road and north of Dietz Elkhorn Road mainly along the Fair Oaks Parkway and Ralph Fair corridors.

The northern 1/3 of the city still remains outside of a LSFD 10-minute travel time. Automatic aide travel time from Bergheim Vol. FD to the northeast area of the city is 10-minutes. Turnout-Travel response time will be increased if there are no volunteer staff on-premises when the alarm is received. Boerne FD is reported to be a 16-minute response time to the city.

Figure 36: Eight Minute Travel Times: Stations 133 and 420





It is assessed that Stations 133 and 420 provide 100% coverage of the city when benchmarked against the 8-minute travel time.

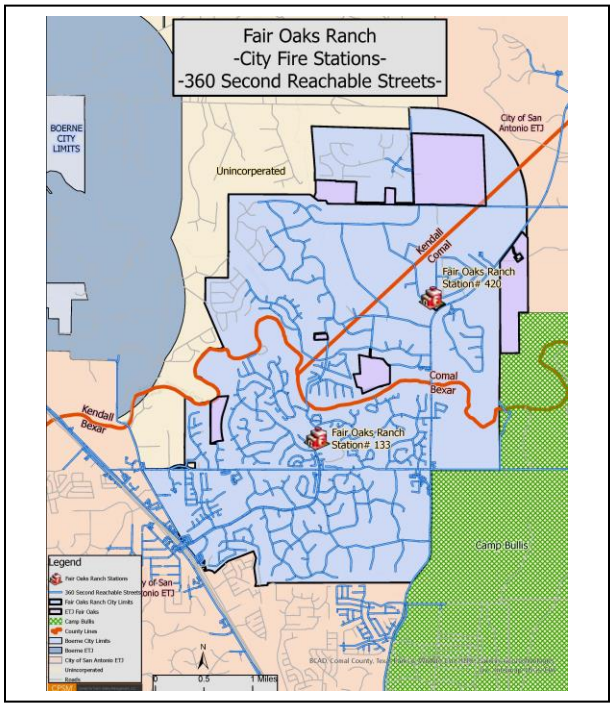
Noted here, Stations 133 and 420, which are located in the city are not staffed and rely on volunteers or part-time staffing to respond apparatus.

Station 420 is staffed during potential flooding events and during active wildland fire periods.

When benchmarked against the NFPA 1710 4-minute benchmark Stations 133 provides near 100% coverage in the southern area of the city and north along Fair Oaks Parkway. Station 420 provides coverage in the north, northeast, and north central areas of the city.

Areas of the city not covered when benchmarked against the 4-minute travel time are northwest and northeast areas.

When benchmarked against the 6-minute travel time, there is much improvement in the northwest and northeast areas.



Overall CPSM assesses that the LSFD is not meeting the 8-minute average turnout-travel time benchmark established in the contract between ESD 4 and the city, with exception of motor vehicle accidents.

It is further assessed that the LSFD has only moderate permeation into Fair Oaks Ranch with the current stations. This permeation is generally below Dietz Elkhorn Road. The addition of a new station 135 and Limestone Pass Frontage Road and Ranch Land View provides improved permeation into the city north of Dietz Elkhorn Road along the Fair Oaks Parkway corridor, however, even when benchmarked against a 10-minute travel time, the northern areas of the city are not covered.

In-city stations 133 and 420 provide 100 percent coverage when benchmarked against the 8-minute travel time assessment. When benchmarked against the 6-minute travel time assessment, these stations cover the city near 100 percent. As noted herein, Stations 133 and 420 are not staffed by LSFD personnel on a regular basis (Station 420 is staffed during flood events). These stations have response apparatus in-station for available volunteer and part-time staff to respond. Overall, during the one-year data analysis period, Engine 133 responded to 26 calls and Station 420 responded to 154 calls (126 of these were EMS calls).

Response-Staffing & Deployment Discussion

The operations necessary to successfully extinguish a structure fire, and do so effectively, efficiently, and safely, requires a carefully coordinated and controlled plan of action where certain operations such as venting ahead of the advancing interior hose line(s) must be carried out with a high degree of precision and timing. Multiple operations, frequently where seconds count, such as search and rescue operations and trying to cut off a rapidly advancing fire, must also be conducted simultaneously. If there are not enough personnel on the incident initially to perform all the critical tasks, some tasks will, out of necessity, be delayed. This can result in an increased risk of serious injury, or death, to building occupants and firefighters, as well as increased property damage.

The staffing of fire and EMS companies is a never-ending focus of attention among fire service and governmental leadership. While NFPA 1710 and OSHA provide guidelines (and to some extent the law, specifically OSHA in OSHA states) as to the level of staffing and response of personnel, the adoption of these documents varies from state to state and department to department. NFPA 1710 addresses the recommended staffing in terms of specific types of occupancies and risks. The needed staffing to conduct the critical tasks for each specific occupancy and risk are determined to be the Effective Response Force (ERF). The ERF for each of these occupancies is detailed in NFPA 1710 (2020 edition), section 5.2.4, Deployment.

Staffing and deployment of fire services is not an exact science. While there are many benchmarks that communities and management utilize in justifying certain staffing levels, there are certain considerations that are data driven and reached through national consensus.

Considerations for staffing and deployment of resources should include:

Fire Risk and Vulnerability of the Community: The community risk and vulnerability assessment are used to evaluate the community. With regard to individual property, the assessment is used to measure all property and the risk associated with that property and then segregate the property as either a high-, medium-, or low-hazard depending on factors such as the life and building content hazard and the potential fire flow and the staffing and apparatus types required to mitigate an emergency in the specific property. Factors such as fire protection systems are

considered in each building evaluation. Included in this assessment should be both a structural and nonstructural (weather, wildland-urban interface, transportation routes, etc.) analysis.

Population, Demographics, and Socioeconomics of a Community: Population and population density drive calls for local government service, particularly public safety. The risk from fire is not the same for everyone, with studies telling us age, gender, race, economic factors, and what region in the country one might live all contribute to the risk of death from fire. Studies also tell us these same factors affect demand for EMS, particularly population increase and the use of hospital emergency departments. Many uninsured or underinsured patients rely on emergency departments for their primary and emergency care, utilizing pre-hospital EMS transport systems as their entry point.

Call Demand: Demand is made up of the types of calls to which units are responding and the location of the calls. This drives workload and station staffing considerations. *Higher population centers with increased demand require greater resources.*

Workload of Units: The types of calls to which units are responding and the workload of each unit in the deployment model. This tells us what resources are needed and where; it links to demand and station location, or in a dynamic deployed system, the area(s) in which to post units.

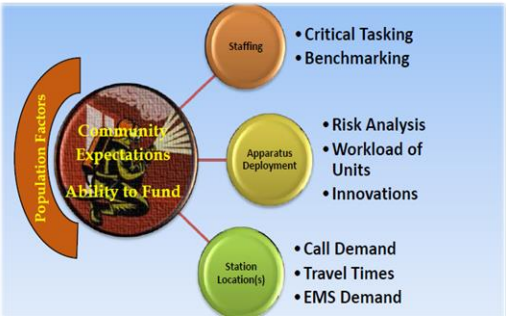
Travel Times from Fire Stations: Looks at the ability to cover the response area in a reasonable and acceptable travel time when measured against national benchmarks. Links to demand and risk assessment.

NFPA Standards, ISO, OSHA Requirements (and other national benchmarking). CPSM considers national benchmarks, standards, and applicable laws when making recommendations or alternatives regarding the staffing and deployment of fire and EMS resources.

EMS Demand: Community demand; demand on available units and crews; demand on non-EMS units responding to calls for service (fire/police units); availability of crews in departments that utilize cross-trained EMS staff to perform fire suppression.

Critical Tasking: The ability of a fire and EMS department to collect an effective response force as benchmarked against national standards when confronted with the need to perform required critical tasks on a fire or EMS incident scene defines its capability to provide adequate resources to mitigate each event. Department-developed and measured against national benchmarks. Links to risk and vulnerability analysis.

Innovations in Staffing and Deployable Apparatus: The fire department's ability and willingness to develop and deploy innovative apparatus, such as compressed air foam systems, or deploying quick response vehicles (light vehicles equipped with medical equipment and some light fire suppression capabilities) on those calls (typically the largest percentage) that do not require heavy fire apparatus.



Community Expectations: Measuring, understanding, and meeting community expectations.

Ability to Fund: The community's ability and willingness to fund all local government services and understanding how the revenues are divided up to meet the community's expectations.

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While each component presents its own metrics of data, consensus opinion, and/or discussion points, aggregately they form the foundation for informed decision making geared toward the implementation of sustainable, data- and theory-supported, effective fire and EMS staffing and deployment models that fit the community's profile, risk, and expectations.

Response Platform

The LSFD responds with primary response assets that include engine apparatus; ladder apparatus; rescue apparatus; brush apparatus, and command vehicles. These are outlined below.

- Engine Companies, which are primarily designed for firefighting operations, the transport of crew members, hose (fire attack and larger supply), tank water, ground ladders, self-contained breathing apparatus, and storage of an assortment of hand tools used for a broad spectrum of fire operational tasks. As engines are often utilized as first response units on EMS calls, they also carry an assortment of EMS equipment to treat patients and provide life-saving measures prior to the arrival of EMS transport units.
- Quint/Ladder Company, which is also primarily designed for firefighting operations, differs from engines in that they also have a hydraulically operated aerial device designed to reach above grade floors to transport crew members, effect rescues, and provide an elevated water stream. Ladder trucks also transport crew members, ground ladders, self-contained breathing apparatus, various forcible entry tools, ventilation equipment, and hydraulic rescue tools as well as other equipment to deal with an assortment of fires and technical rescues. LSFD' s ladder is a quint platform configuration that carries hose (fire attack and supply) and tank water and can operate as an engine when required. The LSFD ladder also carries an assortment of EMS equipment to treat patients and provide life-saving measures prior to the arrival of EMS transport units.
- Rescue Company (in LSFD) is designed as a quick response unit to fire, technical rescue, extrication, and EMS incidents. These units are equipped as an advanced life support unit EMS unit but do not have transport capability. These units also carry an array of forcible entry tools, hydraulic rescue tools, air bags, and other assorted technical rope and gear.
- Brush Unit is an all-terrain vehicle, mini-pumper, and a wilderness rescue vehicle, used to fight wildfires. It is sometimes also known as a brush truck. This type of vehicle is designed to assist in fighting wildfires by transporting firefighters to the scene and providing them with access to the fire, along with water or other brush/wild land firefighting equipment.
- Command Vehicles, which are typically SUV-type vehicles with command centers built into the cargo compartment are designed to carry a command level officer to the scene and are equipped with radio and command boards, as well scene personnel tracking equipment and associated equipment. A command vehicle is assigned to the Operations Shift Battalion Chief. These personnel are responsible for responding to fire and EMS incidents and establishing command and control of the incident.

Effective Response Force and Critical Tasking

Critical tasks are those activities that must be conducted on time by responders at emergency incidents to control the situation and stop loss. Critical tasking for fire and EMS operations involves the minimum number of personnel needed to perform the tasks needed to effectively control and mitigate a fire or other emergency. To be effective, critical tasking must assign enough personnel so that all identified functions can be performed simultaneously. However, it is important to note that initial response personnel may manage secondary support functions

once they have completed their primary assignment. Thus, while an incident may end up requiring a greater commitment of resources or a specialized response, a properly executed critical tasking assignment will provide adequate resources to immediately begin bringing the incident under control.

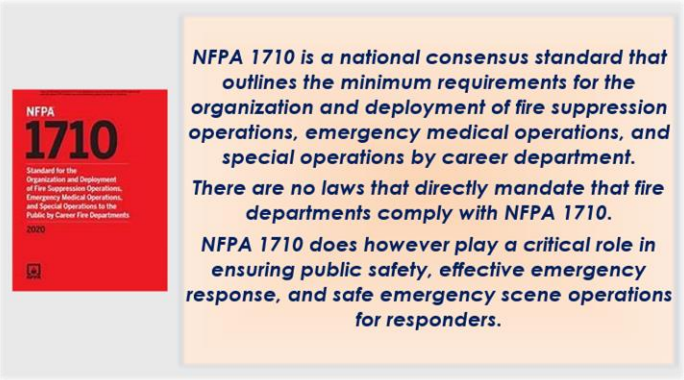
The specific number of people required to perform all the critical tasks associated with an identified risk or incident type is referred to as an *Effective Response Force* (ERF). The goal is to deliver an ERF within a prescribed period. NFPA 1710 (*Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*) provides the benchmarks for the assembling of an effective response force.

NFPA 1710 was the first organized approach to defining levels of service, deployment capabilities, and staffing levels for substantially career departments. Research work and empirical studies in North America were used by NFPA committees as the basis for developing response times and resource capabilities for those services as identified by the fire department.[40]

According to NFPA 1710, fire departments should base their capabilities on a formal all-hazards community risk assessment, as discussed earlier in this report, and taking into consideration:[41]

- Life hazard to the population protected.
- Provisions for safe and effective firefighting performance conditions for the firefighters.
- Potential property loss.
- Nature, configuration, hazards, and internal protection of the properties involved.
- Types of fireground tactics and evolutions employed as standard procedure, type of apparatus used, and results expected to be obtained at the fire scene.

Moreover, the fire department's ability to assemble an Effective Response Force (ERF) to complete the critical tasks required to safely mitigate the incident is paramount for successful operations.



The following discussion and tables will outline how critical tasking and assembling an effective response force is first measured in NFPA 1710, and how the LSFD is benchmarked against this standard ***for the predominate building types existing in Fair Oaks Ranch.***

This discussion will cover single-family dwelling buildings, open-air strip mall buildings, and apartment buildings as outlined in the NFPA standard. As mentioned already in this report, the LSFD relies on automatic and mutual aid to assemble an Effective Response Force.

40. NFPA, Origin and Development of the NFPA 1710, 1710-1.
41. NFPA 1710, 5.2.1.1, 5.2.2.2

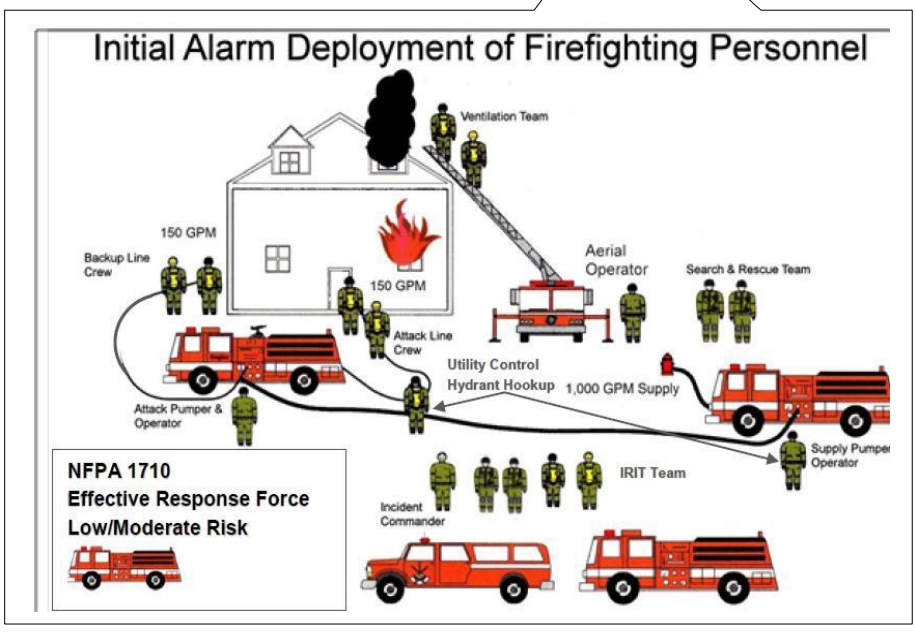
Single-Family Dwelling: NFPA 1710, 5.2.4.1

The initial full alarm assignment (ERF) to a structural fire in a typical 2,000 square-foot, two-story, single-family dwelling without a basement and with no exposures must provide for a minimum of 16 members (17 if an aerial device is used). The following figure illustrates this, and the subsequent table outlines the critical task matrix.

Table 12: NFPA 1710 Effective Response Force for Single-Family Dwelling Fire

Critical Tasks	Personnel
Incident Command	1
Continuous Water Supply	1
Fire Attack via Two Handlines	4
Hydrant Hook-up / Forcible Entry / Utilities	2
Primary Search and Rescue	2
Ground Ladders and Ventilation	2
Aerial Operator if Aerial is Used	1
Establishment of IRIC (Initial Rapid Intervention Crew)	4
Total Effective Response Force	**16 (17) If Aerial is Used**

Note: Single-family dwellings in Fair Oaks Ranch greater than 2,000 square feet should be considered a more moderate risk, particularly if built with lightweight wood-frame construction.



The next table outlines how LSFD is able to assemble an ERF for a single-family dwelling fire. As a note here, the NFPA 1710 benchmark to assemble the Effective Response Force is 480 seconds or 8 minutes.

Open-Air Strip Mall/Commercial Building, Apartment Buildings NFPA 1710 5.2.4.2; 5.2.4.3

The initial full alarm assignment to a structural fire in a typical open-air strip mall/commercial building ranging from 13,000 square feet to 196,000 square feet in size, and a typical 1,200 square-foot apartment within a three-story, garden-style apartment building must provide for a minimum of 27 members (28 if an aerial device is used). The next table outlines the critical tasking matrix for this type of building.

Table 13: NFPA 1710 Effective Response Force for Open-Air Strip Mall / Commercial Building Fire

Critical Tasks	Personnel
Incident Command	2
Continuous Water Supply	2
Fire Attack via Two Handlines	6
Hydrant Hook-up / Forcible Entry / Utilities	3
Primary Search and Rescue	4
Ground Ladders and Ventilation	4
Aerial Operator if Aerial is Used	1
Establishment of IRIC (Initial Rapid Intervention Crew)	4
Medical Care Team	2
Total Effective Response Force	**27 (28) If Aerial is Used**

The next table outlines the LSFD's ability to assemble an Effective Response Force for an open-air strip mall, commercial building, and apartments fires.

Table 14: LSFD Effective Response Force for Single Family Dwelling; Open-Air Strip Mall / Commercial Building; and Apartment Building Fires in Fair Oaks Ranch

LSFD Response Matrix	Personnel
LSFD Engine 132	3
LSFD Engine 134	3
ESD 8 Ladder	3
ESD Engine	3
Boerne Engine	3
Bergheim Engine	2
Shavano Park Ladder (Platform)	2
LSFD Chief Officer	1
Total ERF for LSFD	**20**

It is assessed that the LSFD can assemble an Effective Response Force, when benchmarked against NFPA 1710, for single family dwellings in Fair Oaks Ranch utilizing automatic and mutual aid agreements, which is permitted under NFPA 1710.

It is assessed that the LSFD cannot assemble an Effective Response Force, when benchmarked against NFPA 1710, for open air strip mall/commercial and apartment buildings in Fair Oaks Ranch using the current deployment matrix with automatic/mutual aid. However, with the arrival of automatic and mutual aid resources, the LSFD will assemble resources for the initial attack and prioritized additional critical tasks.

It is further assessed that the LSFD, based on time and distance of automatic and mutual aid resources, cannot assemble the entire Effective Response Force in eight minutes. However, the LSFD can initiate mitigation efforts with the two responding crews (Engines 132 and 134) as the remainder of the initial alarm resources are responding and arriving.

Acadian Ambulance Service

The provision of efficient and effective Emergency Medical Services (EMS) is a vital aspect of any community's public safety infrastructure. As the city experiences growth and evolving healthcare needs, it becomes increasingly important to assess and optimize its EMS service delivery.

Emergency Medical Services (EMS) in the city are provided by Acadian Ambulance Services (AAS) of Texas, LLC. Acadian provides this service through a contract with the city as outlined above and is the exclusive provider of mobile basic and advanced life support services.

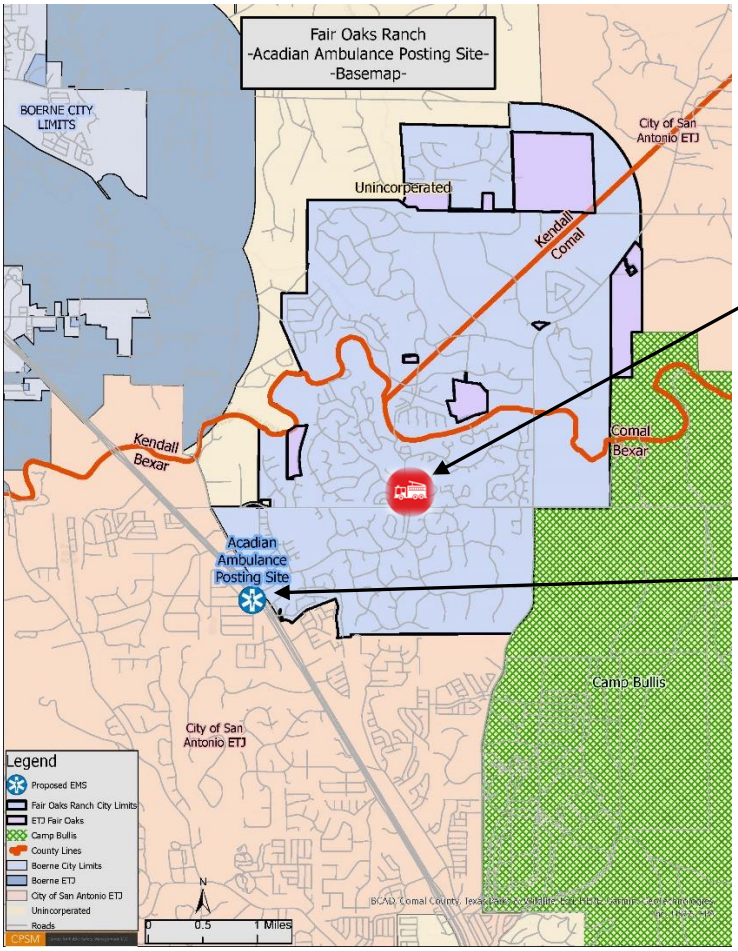
Acadian Ambulance is a private ambulance service that operates in Louisiana, Texas, Tennessee, and Mississippi.

Acadian Ambulance Service is currently accredited by the Commission on Accreditation of Ambulance Services (CAAS) and the Commission for Accreditation of Medical Transport Systems (CAMTS).

As discussed, AAS staffs and posts one advanced life support (ALS) ambulance around the clock available by location to Fair Oaks Ranch. AAS utilizes a System Status Management (SSM) level of deployment, which is a planned approach to resource allocation based on historical call demand in a designated area. System Status Management (SSM) or dynamic deployment is the process and implementation of strategically positioning ambulances in geographic locations during various times of the day based on historical data that can aid in predicting operational demands. The goal of system status management is to optimize response times by deploying EMS resources strategically.

This SSM deployment model allows Acadian Ambulance to efficiently manage resources based on real-time demand. ***In the context of Fair Oaks Ranch, this means that the posted ambulance near Fair Oaks Ranch can be bolstered with additional assets during periods of increased demand. Conversely, if the Acadian system is in a high demand period outside of Fair Oaks Ranch region, the Fair Oaks Ranch ambulance can be pulled and redeployed to other areas in the Acadian service area.***

Figure 37: Acadian Ambulance Service Fair Oaks Ranch Position Location



Currently, the AAS ambulance that services Fair Oaks Ranch changes out crews (shift change) at Station 133 in Fair Oaks Ranch. During crew change, the ambulance is checked out and crews ensure necessary inventory of equipment and supplies are on hand, with restocking available from this location.

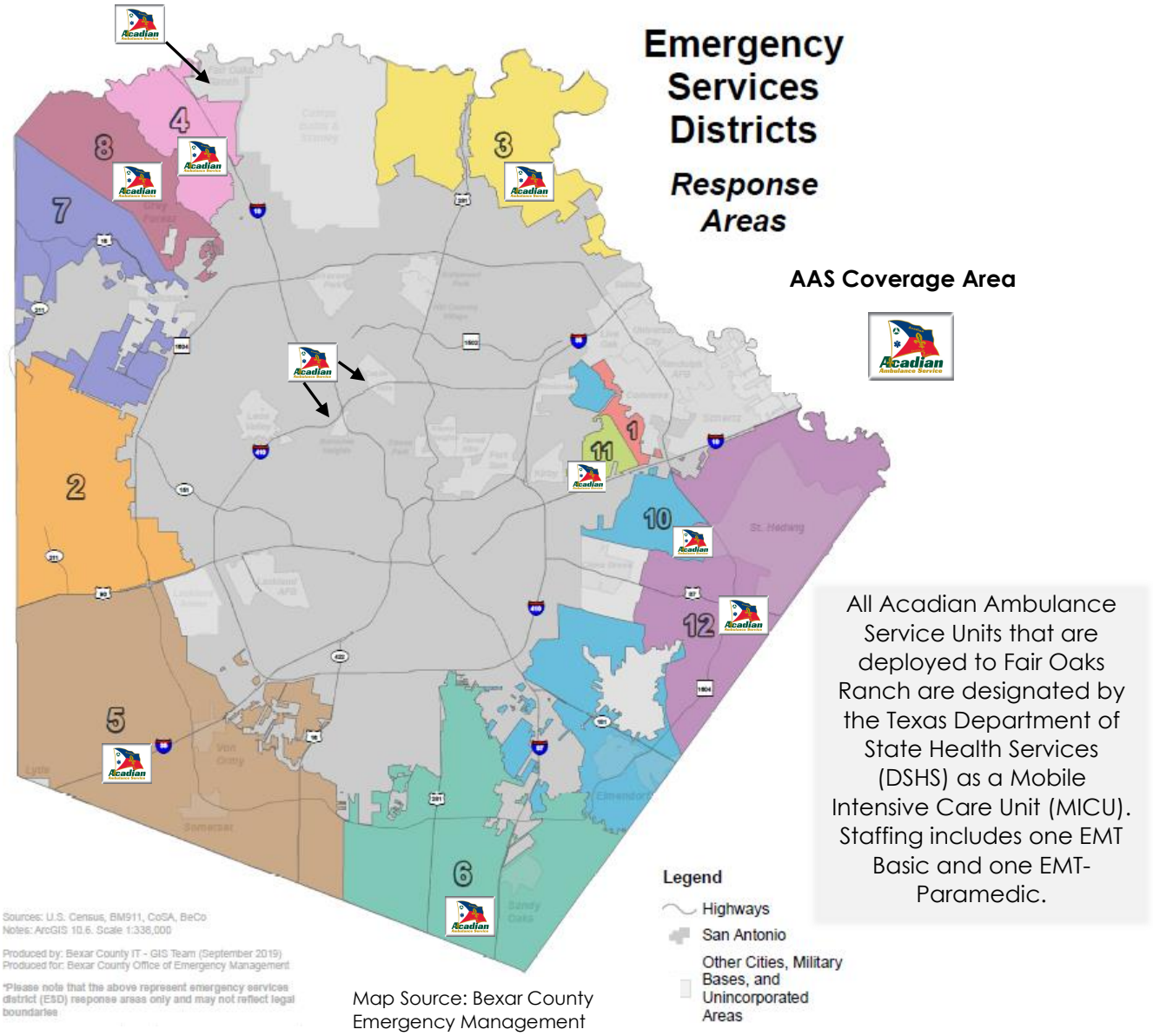
Once the unit is ready to go, the unit shifts to its primary posting location which is the Quik Trip lot at Interstate 10 and Fair Oaks Parkway (west side of Interstate 10). From this location, AAS responds into Fair Oaks Ranch and to other areas withing the response zone of this posting location.

The traditional fire-based EMS transport system deploys based on the static deployment model.

In the static deployment model, dispatched ambulances leave a coverage gap in their response district until the unit returns to their home district after service.

Overall AAS covers ESD's 3, 4, 5, 6, 8, 10, 11, and 12. Additionally AAS covers the City of castle Hills and the City of Balcones Heights. The map below illustrates the AAS coverage areas.

Figure 38: Acadian Ambulance Service Coverage Areas in Bexar County



Map Source: Bexar County Emergency Management

AAS Workload in Fair Oaks Ranch

CPSM received response data for Acadian Ambulance Services in the City of Fair Oaks Ranch for the period October 1, 2022, to September 30, 2023. We used the chief complaint descriptions from the CAD data to assign ambulance run categories for the workload analysis. The next table looks at the number of runs AAS responded to in Fair Oaks Ranch. CPSM classifies AAS workload in terms of runs as a typical call includes a LSFD unit (multiple units respond and each unit receives credit for the response as a run).

Table 15: Ambulance Runs by Type

Run Type	Total Runs	Runs per Day	Percentage
Breathing difficulty	32	0.1	7.9
Cardiac and stroke	49	0.1	12.0
Fall and injury	108	0.3	26.5
Illness and other	138	0.4	33.9
MVA	18	0.0	4.4
Overdose and psychiatric	22	0.1	5.4
Seizure and unconsciousness	40	0.1	9.8
Total	**407**	**1.1**	**100.0**

Note: 23 runs were either canceled by fire or police department or unit-not-need (UNN). In all these runs, an Acadian ambulance was dispatched and arrived on scene.

CPSM assesses the City of Fair Oaks Ranch has a moderate workload for EMS resources (just over one call per day.

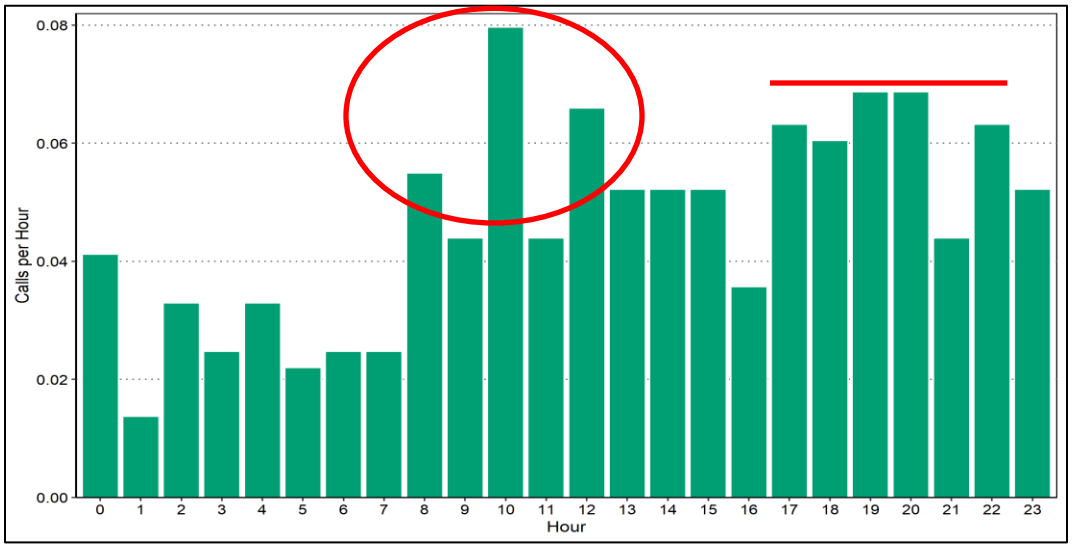
In the one-year data analysis period, AAS responded into Fair Oaks Ranch 407 times.

LSFD responded to 395 medical calls in Fair Oaks Ranch providing either medical care prior to AAS arriving or arriving with or after AAS and assisting with medical care.

It is important as well to look at the temporal variation of EMS response activity (activity over time), such as calls by month and calls by hour of the day.

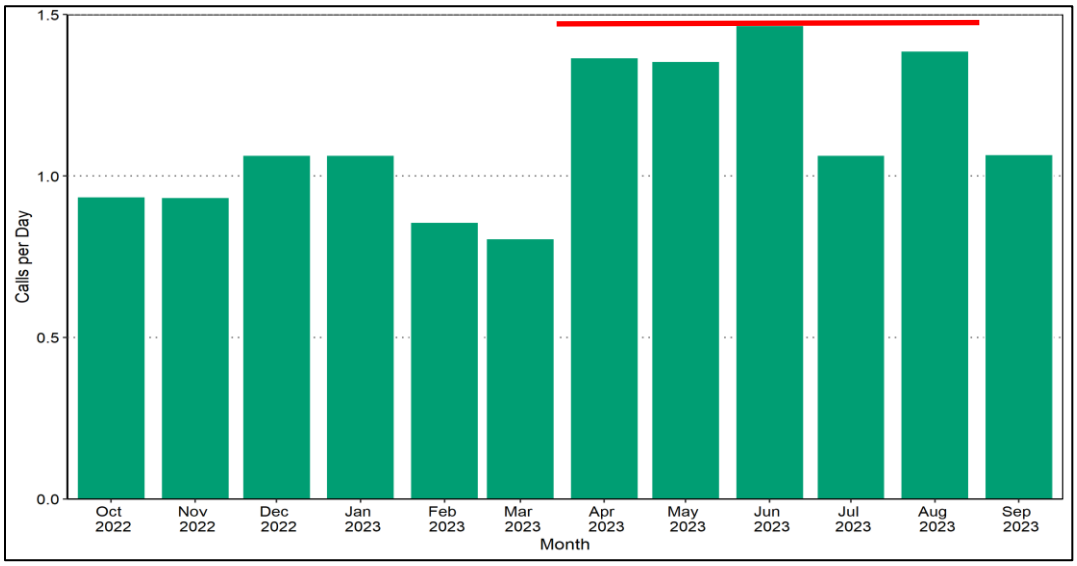
The next figures illustrate this. First, we look at AAS responses by time of day (calls per hour). As the analysis shows, the AAS has a higher demand for service between the hours of 5:00 pm and 8:00 pm with peaks at 8:00 am, 10:00 am, 12:00 pm, and 10 p.m.

Figure 39: Average Ambulance Runs by Hour of Day



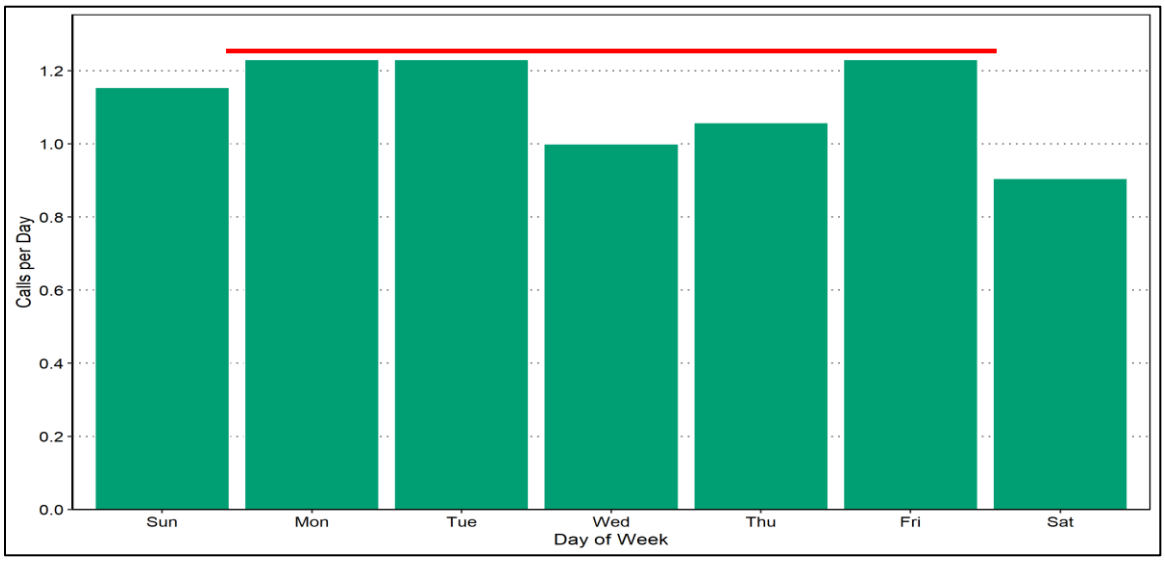
The monthly temporal variation analysis in the combined daily number of runs handled by AAS in the city tells us that calls peak in April, May, and June, with an additional peak in call volume in August.

Figure 40: Average Ambulance Runs by Month



The day of the week temporal variation analysis in the combined daily number of runs handled by AAS in the city tells us that calls peak on Monday, Tuesday, and Friday, with an additional peak above Wednesday, Thursday, and Saturday on Sunday.

Figure 41: Average Ambulance Runs by Day of Week



As we discussed earlier, AAS utilizes the system status management deployment model utilizing temporal variation data such as this when planning for and deploying ambulances. It should be understood here that the variation in calls by hour of the day, day of the week, and by the month vary from response area to response area with some areas requiring a heavier weighted presence of resources than others, or conversely a lighter weighted presence of resources. In this deployment model efficiencies are realized when units can be moved from posting location to posting location, however there are times when the system overall is stressed due to high demand.

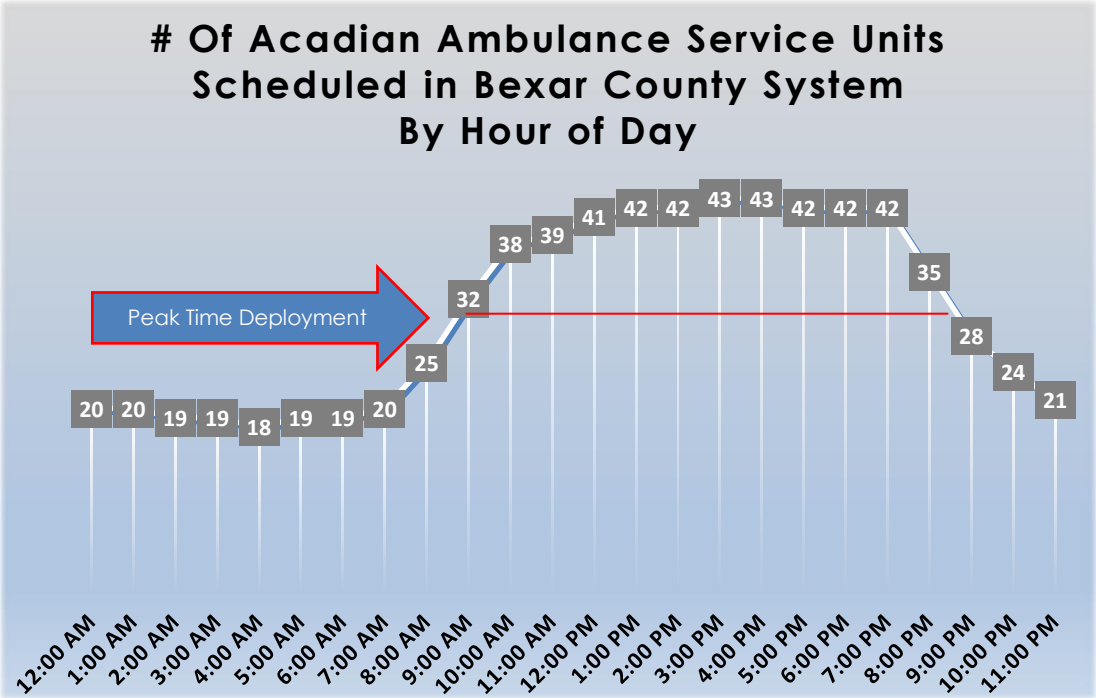
AAS System Capacity

As discussed above, AAS services eight other ESDs and two additional cities in Bexar County. The additional capacity and stations/posting points in and around Fair Oaks Ranch provides additional capacity for Fair Oaks Ranch when needed, and overall capacity in the system for all areas that contract with AAS.

Over a twenty-four hour period, AAS schedules the following number of ambulances. As discussed, AAS uses a System Status Management system that dynamically deploys units based on historical call volume over the twenty-four hour period. In this deployment model, typically there are less units during those timeframes where call volume is lower, with number of units peaking during the historical higher call demand periods.

The next three figures analyze the number of scheduled ambulances for three periods: Monday through Friday; Saturday; and Sunday.

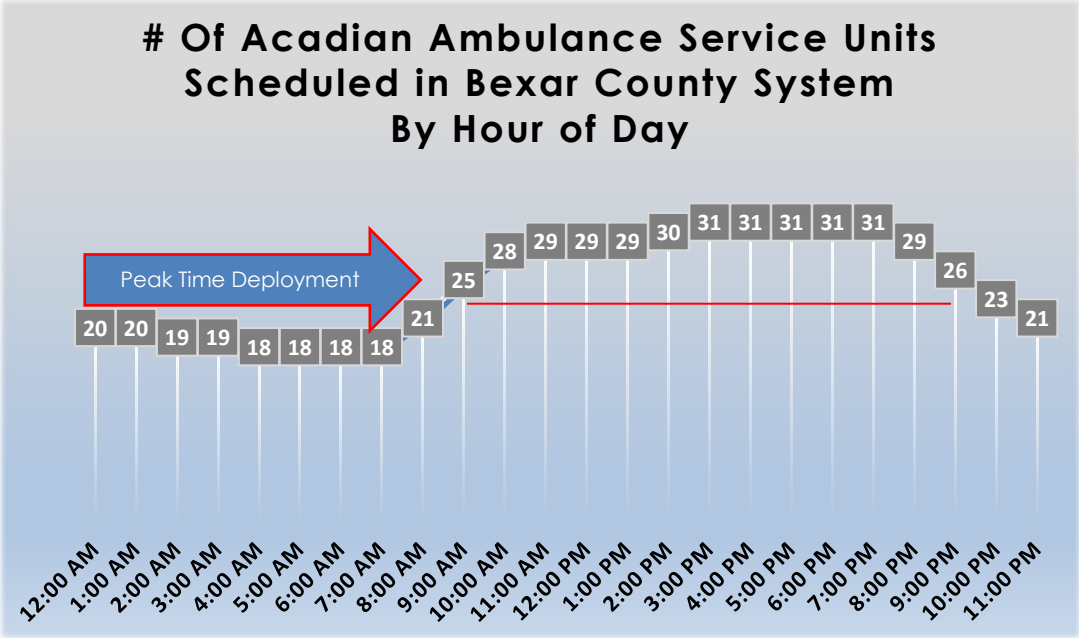
Figure 42: Acadian Ambulance Deployment Matrix: Monday through Friday



For the Monday through Friday staffing period, AAS deploys a low of 18 units between the hours of 5:00 AM and 6:00 AM and a high of 43 ambulances between the hours of 3:00 PM and 5:00 PM.

The peak time staffing is between the hours of 9:00 AM and 8:00 PM. During this period AAS deploys between 32 and 43 ambulances, depending on the time of day.

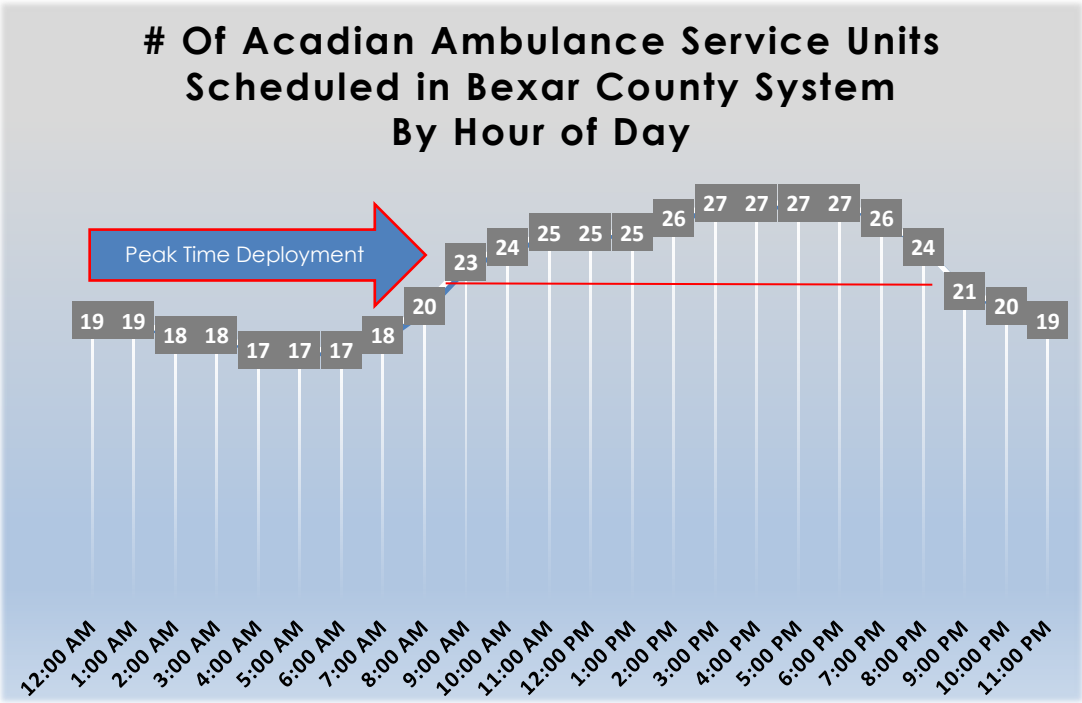
Figure 43: Acadian Ambulance Deployment Matrix: Saturday



For the Saturday staffing period, AAS deploys a low of 18 units between the hours of 5:00 AM and 7:00 AM and a high of 31 ambulances between the hours of 3:00 PM and 7:00 PM.

The peak time staffing is between the hours of 9:00 AM and 9:00 PM. During this period AAS deploys between 25 and 31 ambulances, depending on the time of day.

Figure 44: Acadian Ambulance Deployment Matrix: Sunday



For the Sunday staffing period, AAS deploys a low of 17 units between the hours of 4:00 AM and 6:00 AM and a high of 27 ambulances between the hours of 3:00 PM and 6:00 PM.

The peak time of staffing is between the hours of 9:00 AM and 8:00 PM. During this period AAS deploys between 23 and 27 ambulances, depending on the time of day.

CPSM assesses that Acadian Ambulance Service has resources available system wide and in proximity to Fair Oaks Ranch to handle the city's EMS workload. CPSM further assesses that, based on the System Status Management deployment method that Acadian Ambulance utilizes, resources dedicated to Fair Oaks Ranch and in proximity to the city may be assigned to calls for service. Acadian Ambulance system resources will be deployed to the Fair Oaks Ranch area as available and from other system areas, which potentially may extend response times. This would happen as well in a static-deployed EMS or fire-based EMS transport system as described herein.

Response Times

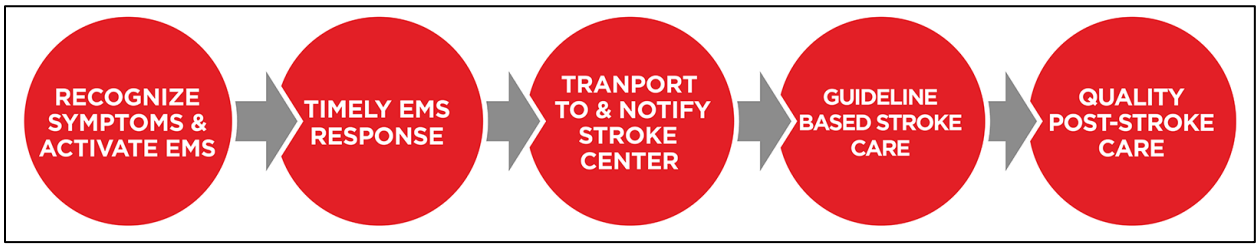
EMS response time as with fire response time is defined as "beginning with the initial receipt of an emergency ambulance call … and ending when the ambulance arrives at the location." Ambulance services are measured on the time it takes from receiving a 911 call to the vehicle arriving at the patient's location. EMS response times are measured differently than fire service response times. Where the fire service uses NFPA 1710 and 1720 as response time benchmarking documents, EMS' focus is and should be directed to the evidence-based research relationship between clinical outcomes and response times. Communities often work with Medical Direction and establish community-based response time performance goals.

Much of the current research suggests response times have little impact on clinical outcomes of low acuity calls. Higher acuity calls such as cerebrovascular accidents (stroke), injury or illness compromising the respiratory system, injury or illness compromising the cardiovascular system to include S-T segment elevation emergencies, certain obstetrical emergencies, and certain other medical emergencies are higher level emergencies. Each requires rapid response times, rapid on-scene treatment and packaging for transport, and rapid transport to the hospital. There are also other EMS incidents that are truly life-threatening, and the time of response can clearly impact the outcome. These involve emergencies such as full drownings, allergic reactions, electrocutions, and severe trauma (often caused by gunshot wounds, stabbings, and severe motor vehicle accidents, etc.) and acute medical emergencies. Again, the frequency of these types of calls is lower on average when looking at the totality of EMS responses.

As a low percentage of 911 patients have time-sensitive and advanced life support (ALS) needs, for those patients that do, time can be a critical issue. This becomes more critical in the more remote areas of the city where response times can be longer. For the remainder of those calling 911 for a medical emergency, though they may not have a medical necessity, they still expect rapid customer service. Response times for patients and their families are often the most important measurement of an EMS agency. ***Regardless of the service delivery model, appropriate response times are more than a clinical issue; they are also a customer service issue and should not be ignored.***

The next figure illustrates the out-of-hospital chain of survival for a stroke emergency, which is a series of actions that, when put in motion, reduce the mortality of a stroke emergency. ***An important component is timely EMS response.***

Figure 46: Cerebrovascular Emergency (Stroke) Chain of Survival



Source: https://nhcps.com/lesson/acls-acute-stroke-care/

The next figure illustrates the out of hospital chain of survival, which is a series of actions that, when put in motion, reduce the mortality of sudden cardiac arrest. Adequate EMS response times coupled with community and public access defibrillator programs can positively impact the survival rate of sudden cardiac arrest victims. ***Again, timely basic and advanced EMS response is an important component of the overall patient care system.***

Figure 47: Sudden Cardiac Arrest Out of Hospital Chain of Survival

From: 2020 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care.

Next, we review EMS response times. Based on the provided data, we separate response time into two identifiable components. *Turnout time* is the difference between assign time and the time a unit is en route to a call's location. *Travel time* is the difference between the time en route and arrival on scene. *Response time* is the total time elapsed between assigning a unit to arriving on scene.

In this response time analysis, we included all runs within the City of Fair Oaks Ranch to which at least one AAS unit arrived. For 407 total runs, we excluded 23 runs that were canceled by fire or police departments or unit-not-need (UNN). As a result, a total of 384 runs are included in this section's analysis.

The next table breaks down the average and 70th percentile response times by run type. A 70th percentile means that 70 percent of runs had response times at or below that number.

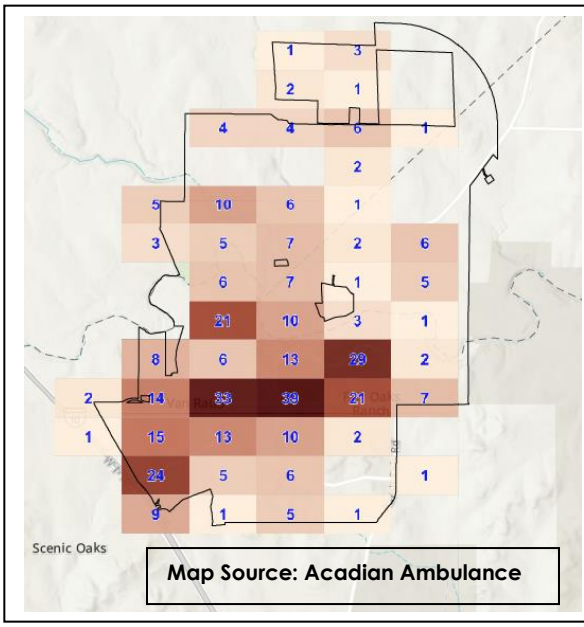
The current benchmark for AAS response times in the city originates from the Acadian-Bexar County contract which is: *Acadian will provide continuous response capability for all EMS calls, and shall maintain an average fractile monthly emergency response time of not greater than eleven (11) minutes and shall strive to achieve an average fractile monthly emergency response time of less than eleven (11) minutes, for at least 70% of responses.*

Table 16: Average and 70th Percentile Response Times of First Arriving Ambulance, by Run Type (Minutes)

Run Type	Average			70th Percentile			Number of Runs
	Turnout	Travel	Total	Turnout	Travel	Total	
Breathing difficulty	0.4	9.1	9.4	0.2	10.6	10.8	30
Cardiac and stroke	0.3	10.4	10.7	0.2	13.4	13.5	48
Fall and injury	0.3	9.7	10.0	0.2	10.3	10.8	106
Illness and other	0.5	8.6	9.2	0.2	10.0	10.5	127
MVA	0.4	7.3	7.7	0.2	9.1	9.4	15
Overdose and psychiatric	0.3	7.6	7.9	0.2	9.1	9.3	20
Seizure and unconsciousness	0.4	8.5	8.9	0.2	10.4	10.7	38
Total	**0.4**	**9.1**	**9.5**	**0.2**	**10.3**	**10.7**	**384**

It is assessed that overall, AAS is meeting the contractual obligations with the city for EMS response times as stated: *Acadian will use its best efforts to produce response time reliability for all city calls, comparable to the standards set forth in the contract for the unincorporated areas of Bexar county*, which as outlined above is 11-minutes 70-percent of the time. Individually, Cardiac and Stroke responses are over the 11-minute benchmark.

Figure 48: EMS Demand: Responded to by AAS

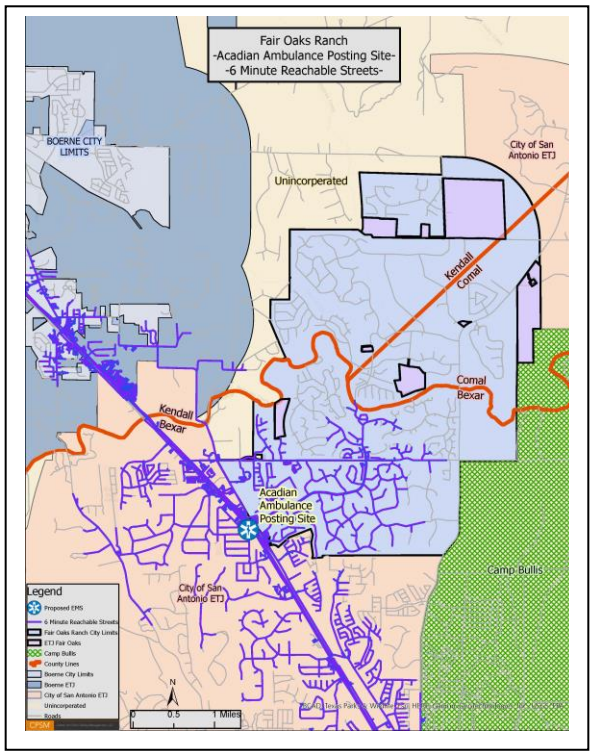


As with fire, when analyzing EMS travel times, it is important to link travel time to demand. As a review, the next figure illustrates AAS EMS demand in Fair Oaks Ranch.

AAS EMS demand, like fire demand, is concentrated in the more densely populated residential areas around the Fair Oaks Ranch Golf & Country Club and along the western boundary, north and south of Dietz Elkhorn Rd. EMS demand is much heavier than fire demand in these areas.

Next, we review the AAS posting site at I-10 and Fair Oaks Parkway, as this is typically the initial response location for EMS incidents in Fair Oaks Ranch. Here we analyze six, eight, ten, and twelve minute travel times. As AAS utilizes a SSM deployment model, turnout or chute times are very low and efficient, as the crew is posted and, in the ambulance, when they receive a call.

Figure 49: Acadian Ambulance Service Six and Eight Minute Travel Times into Fair Oaks Ranch



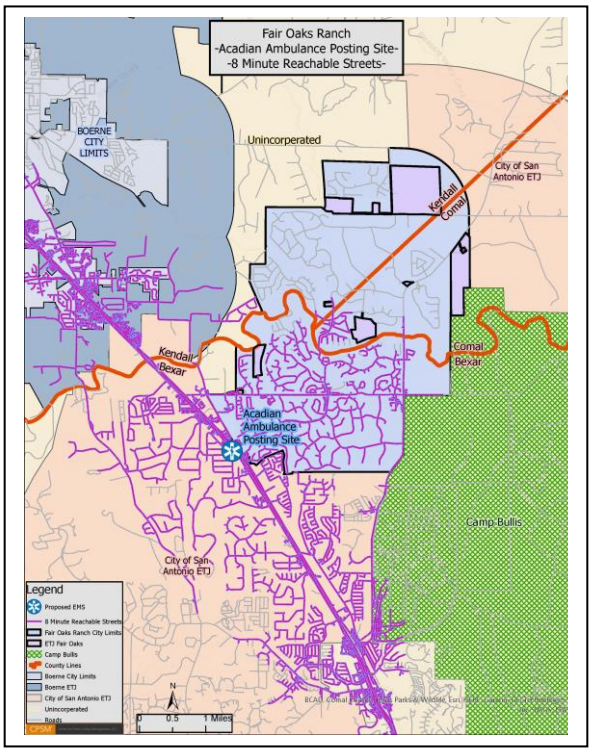
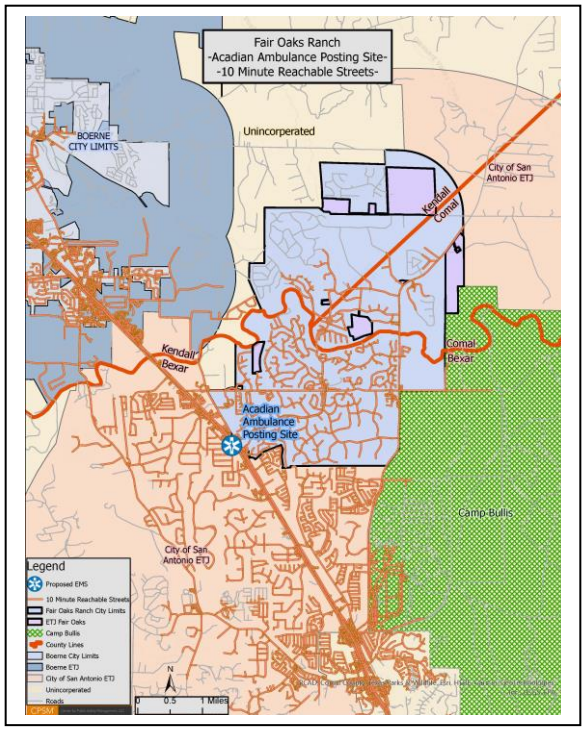
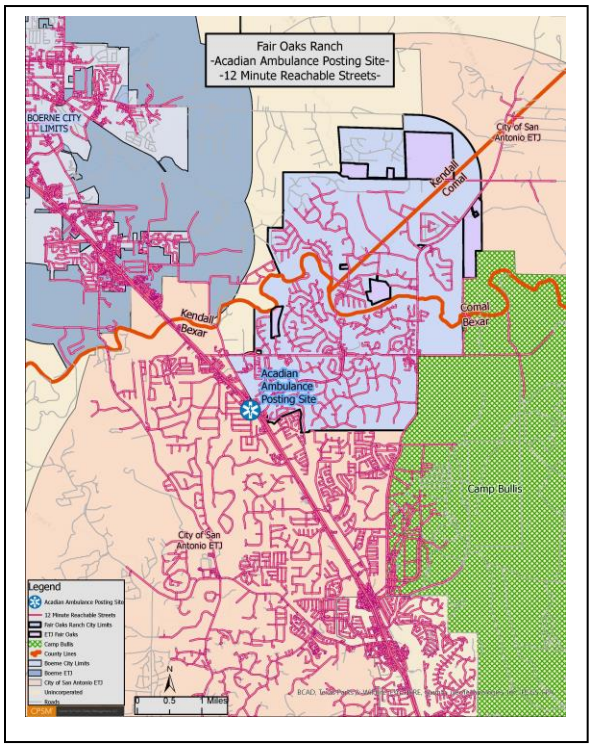


Figure 50: Acadian Ambulance Service Ten and Twelve Minute Travel Times into Fair Oaks Ranch





It is assessed that AAS has good permeation into the heavier demand areas of the city south of Dietz Elkhorn Road when benchmarked against the 6-minute travel time bleed. At the 8-minute travel time bleed AAS permeation extends north of Dietz-Elkhorn Road to the middle third of the city. At the 10-minute travel time bleed AAS permeation extends further north of Dietz-Elkhorn Road and further north up Ralph Fair Road filling in the middle third of the city. At the 12-minute travel time bleed AAS permeation extends into the upper third of the city to just south of W Ammann Road and Rolling Acres Trail areas.

CPSM was also able to review and analyze the number of transports AAS made out of Fair Oaks Ranch. Out of 407 EMS runs into the city, there were 284 transports (73.6% conversion rate).

Table 17: Run-Transport Conversion Data

Runs	Transports	Runs Per Day	Transports Per Day	Conversion Rate
407	284	1.1	0.8	73.6

The primary transport location is Methodist Hospital in San Antonio (35.6% of all transports), followed by Methodist Boerne Medical Center. Both are in the closest proximity to Fair Oaks Ranch. The next table shows the top ten hospital transport locations.

Table 18: Transport Runs by Destination

Destination	Transport	Percentage
Methodist Hospital San Antonio ED	101	35.6
Methodist Boerne Medical Center	72	25.4
University Hospital of San Antonio	51	18.0
Stone Oak Methodist Hospital ED	15	5.3
North Central Baptist Hospital ED	10	3.5
All other locations*	35	12.3
Total	**284**	**100.0**

*All other locations include: Methodist Hospital San Antonio; Methodist Texan Hospital; Methodist Children's Hospital of South Texas; Methodist Specialty and Transplant Hospital; St Luke's Baptist Hospital; San Antonio Military Medical Center; Santa Rosa Hospital Medical Center; Audie Murphy VA Hospital; Methodist Heart Hospital; Methodist Specialty and Transplant Hospital; North Central Baptist Hospital.

Medical Direction / Oversight / Medical Protocols

EMS Medical Direction is supported by the agency/organization's Medical Director(s), who are directly responsible for protecting the public and have the authority to grant or suspend medical credentials for all EMS providers in the system. Off-line protocols and standards of care are developed by the Medical Director, but the term for general oversight offered by the Medical Director is medical direction. EMS medical directors support EMS personnel and first responders through training, protocol development, and resource deployment advice.

Current EMS clinical treatment is authorized and directed by an agency/board appointed physician who is the *Primary Medical Director* dedicated to medical direction, clinical oversight, EMS Education, and various other EMS-related projects that are consistent with industry best practices for a valued EMS system such as Acadian Ambulance Service.

At the time of this review and evaluation it is noted that Acadian Ambulance has a vast network of Medical Directors that enhance their clinical oversight.

The Current Medical Director for Texas Operations is Dr. Emily Kidd, MD.

Dr. Kidd oversees the company's clinical operations throughout the state of Texas. She has an extensive background in clinical emergency medicine and emergency medical services (EMS) and is very familiar with both Bexar County and Houston, having served as the assistant medical director and interim medical director for the San Antonio Fire Department and the assistant medical director for the Houston Fire Department's Division of EMS.

She is double board certified in EMS and emergency medicine and is a fellow of the American College of Emergency Physicians. She is an assistant professor at the University of Texas Health Science Center, Department of Emergency Health Sciences, at San Antonio and worked at Christus Santa Rosa City Center and Methodist Hospitals.

Dr. Kidd has experience in disaster preparedness, public health, and medical emergency management at the local, regional, state, and federal levels. Since 2006, she has been a sitting committee member on the Governor's EMS and Trauma Advisory Council (GETAC) Disaster and Emergency Preparedness Committee. She is also a member of the Federal Emergency Management Agency (FEMA) National Advisory Council.

Dr. Kidd served her internship and residency at East Carolina University, received her Doctor of Medicine degree from the University of Texas at Houston Health Science Center and her Bachelor of Science degree from Texas A&M University.

Acadian Ambulances' medical protocols cover a comprehensive range of medical emergencies, including trauma, cardiac events, respiratory distress, and other common EMS scenarios.

The protocols are authorized by the state of Texas Department of State Health Services (DSHS), indicating compliance with regulatory standards and legal requirements. DSHS regulates EMS providers, including ambulances, emergency medical technicians (EMTs), paramedics, and EMS education programs.

DSHS establishes standards for EMS provider certification, licensure, and practice, ensuring that providers meet competency requirements and adhere to established protocols.

Compliance with Industry Best Practices

Acadian Ambulances' protocols exceed industry best practices in several areas. For instance, they incorporate advanced airway management techniques, such as the use of video laryngoscopy, which is considered superior to traditional intubation methods. Their approach to pain management includes the use of opioid alternatives and multi-modal analgesia strategies, aligning with current trends in pain management and opioid stewardship.

Evidence-Based Practices

Acadian Ambulances' protocols demonstrate a commitment to evidence-based practices. They reference current clinical guidelines and peer-reviewed literature to support their treatment algorithms. Regular updates to protocols reflect the integration of new evidence and emerging best practices, ensuring that care remains aligned with the latest scientific advancements.

Bundle of Care Consistency

Acadian Ambulances' protocols organize care into bundles for specific medical conditions or patient presentations, promoting consistency and standardization. Bundles address the continuum of care, from initial assessment and intervention to transport and handoff to definitive care facilities, ensuring a seamless transition between prehospital and hospital settings.

Quality Improvement and Patient Outcomes:

Acadian Ambulances have robust quality improvement processes in place. They regularly review clinical data and solicit feedback from healthcare providers and patients to identify areas for improvement. Patient outcomes associated with Acadian Ambulances' protocols are favorable, with high survival rates and positive patient satisfaction scores reported.

Training and Education:

EMS providers within Acadian Ambulances undergo rigorous training and education, ensuring proficiency in the implementation of medical protocols. Ongoing professional development opportunities, such as continuing education and skills maintenance programs, support providers in staying updated on changes to protocols and advancing their clinical skills.

It is assessed the Acadian Ambulance Service medical direction program /practices are consistent with current EMS best practices for EMS Physician engagement, clinical oversight, and program development. It is further assessed AAS's medical protocols demonstrate a commitment to excellence in EMS care. By exceeding industry best practices, incorporating evidence-based strategies, and prioritizing quality improvement and provider education, Acadian Ambulances consistently deliver high-quality care to their patients.

CQI, Training & Credentialing, QA/QI

The Continuous Quality Improvement (CQI) program is an ongoing, continuous evaluation of system performance to determine how the system, and providers within the system, are functioning. This insight allows Medical Direction and EMS providers to improve operational performance and, most importantly, patient outcomes. Continuous Quality Improvement is a never-ending process in which all levels of healthcare workers are encouraged to team together to develop and enhance the system within which they work. Based on EMS community collaboration and a shared commitment to excellence, the CQI process identifies areas for improvement within the EMS System. The CQI process identifies training opportunities, highlights outstanding clinical performance, audits compliance with the treatment protocols, and reviews specific illnesses or injuries along with their associated treatments.

Training, also known as continuing education, is required for workers to stay current with the latest developments, skills, and new technologies required for their EMS certifications. Continuing education is required to comply with laws, remain licensed or certified, or maintain membership in an association or licensing body.

Credentialing in EMS is the process of professional certification that provides a mechanism for individuals or agencies to demonstrate that they possess the knowledge and skills necessary to lead various levels of an EMS organization. This proficiency is demonstrated through education and experience that is validated through an independent evaluation process. Examples of Accreditation include The Commission on Ambulance Accreditation (CAAS) and the Center for Public Safety Excellence (CPSE). As noted, AAS is a CAAS accredited agency.

EMS agencies have an obligation to maintain a Quality Improvement (QI) or Quality Assurance (QA) program. Medical direction generally requires this program and identified process. These programs are linked to patient-care report reviews for compliance with protocols and policies. QA and QI are used to assess the current quality and develop, implement, and measure an improvement process. A QA/QI program focuses on desired health outcomes for patients and is utilized to improve outcomes based on process and evidence.

Training and quality improvement are essential hallmarks of liability prevention and risk management. For instance, ambulance-related vehicle accidents are a common risk area. Well-run driver training is essential, as are periodic updates and training refreshers. Becoming familiar with your response area can help avoid response delays, wrong turns, and last-minute maneuvers that can create risk. In addition, individual providers can help themselves by doing their "homework"—knowing their system's protocols and avoiding unjustified protocol deviations can help keep them out of hot water with their employer, medical director, and state EMS office.

EMS training - QA/QI (Quality Assurance/Quality Improvement) is an essential process that helps to ensure that EMS personnel receive high-quality training and that their skills are maintained and improved over time.

The QA/QI process involves several steps:

- Establishing performance standards: This involves defining the performance standards for EMS personnel, including the skills and knowledge required to provide effective emergency medical care.
- Monitoring performance: EMS agencies should regularly monitor the performance of their personnel to ensure that they are meeting the established performance standards. This may involve reviewing patient care reports, observing personnel in action, and reviewing other performance metrics.
- Identifying areas for improvement: Based on performance monitoring, EMS agencies should identify areas for improvement and develop plans to address any deficiencies in training or skills.
- Implementing improvements: EMS agencies should implement improvements to their training programs and other systems based on their performance monitoring and identification of areas for improvement.
- Evaluating effectiveness: After implementing improvements, EMS agencies should evaluate the effectiveness of their changes and make further adjustments as needed to ensure that EMS personnel are receiving the best possible training and support.

The QA/QI process is critical for ensuring that EMS personnel are well-trained and prepared to provide effective emergency medical care. By regularly monitoring performance and making improvements to training programs and other systems, EMS agencies can ensure that their personnel are providing high-quality care to patients in their communities.

CPSM assesses at the time of our review the AAS training program ensures regular, routine, and validation-based training. The standards from Acadian Ambulance's QA/QI review and evaluation-led training are consistent with industry practices and are aligned with CAAS accreditation standards for a consistent QA/QI Training Program. It is further assessed that the AAS overall CQI program is contemporary and consistent with industry practices.

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Emergency Management

Emergency management is the discipline of dealing with and avoiding risks. Its role in the community is to assess and prepare for current risk conditions, to proactively take steps to mitigate those risks, and to respond/recover should an emergency situation occur. Further, through the crucial roles of planning and preparedness and the coordination of response and management of resources, emergency management plays a major role in mitigating the impacts of disasters.

Pursuant to Article 1.06, Sec.1.06.031(a) of the Fair Oaks Ranch Code of Ordinances (city ordinances), the Emergency Management Director position for the city is held by the Mayor, in accordance with state law. This ordinance further defines the *operational emergency management organization of the city shall consist of the officers and employees of the city so designated by the Director (Mayor) in the emergency management plan.*

The emergency management community consists of many organizations (local, state, military, nonprofit, federal, and private). Examples of organizations that interact with a local Emergency Management office include: the Federal Emergency Management Agency (FEMA), local fire and EMS agencies, local public works departments, emergency communications centers (i.e., 911-dispatch), emergency management agencies at the municipal, county, and state level, public health agencies, National Guard, local and state law enforcement, public works, non-governmental, and the American Red Cross.

Most recently (since 2020) Bexar, Comal, and Kendall Counties (includes Fair Oaks Ranch) has participated in seven federal declarations. ***These serve as drivers to be better prepared and coordinated at the city level for natural and human caused emergency/disaster events.***

- FEMA EM-3458-TX (All Texas Counties) 03/13/2020, related to COVID-19; Individual and Public Assistance.
- FEMA DR-4485-TX (All Texas Counties) 03/25/2020, related to COVID 19; Individual and Public Assistance.
- FEMA EM-3530-TX (Includes Bexar County) 07/25/2020, related to Hurricane Hanna; Individual and Public Assistance.
- FEMA EM-3540-TX (Includes Bexar County) 08/24/2020 related to Tropical Storms Marco and Laura; Individual and Public Assistance.
- FEMA EM-3554-TX (Includes Bexar County) 02/14/2021 related to Texas Severe Winter Storm; Individual and Public Assistance.
- FEMA DR-4586-TX (Includes Bexar County) 02/19/2021 related to Texas Severe Winter Storm; Individual and Public Assistance (Categories A-G).
- FEMA DR-4705-TX (Includes Comal and Kendall Counties) 04/21/2023 related to Texas Severe Winter Storm; Public Assistance (Categories A-G).

Emergency Planning

The city has developed a draft Emergency Operations Plan (EOP). An EOP is designed to serve as a planning document that is an all-hazards plan developed to identify and address the natural and human-caused hazards that threaten a community. An EOP describes the system that a community will use to prevent, prepare for, respond to, and recover from an emergency or disaster event. An EOP also identifies triggers for activating the community's Emergency

Operations Center (EOC) and assigns specific areas of responsibility for coordinating resources to support the response to an emergency or disaster.

FEMA's *Developing and Maintaining Emergency Operations Plans, 2021 v 3.0* identifies several key components that should be included in an EOP. These are:

- Hazard and Threat Analysis Summary
- Concept of Operations
- Organization and Assignment of Responsibilities (Key Functions)
- Direction, Control and Coordination
- Information Collection, Analysis and Dissemination
- Administration, Finance and Logistics

FEMA's *Developing and Maintaining Emergency Operations Plans, 2021 v 3.0* also outlines EOP annexes that a locality may develop and that specific to that locality. Annexes are designed to provide greater detail beyond that which is outlined in the basic plan. These may include annexes for natural and/or human caused threats and hazards a community is known to be exposed to (flooding, winter storms as examples) or chooses to provide greater detail on (mass casualty incident, power outage as examples).

CPSM reviewed the city's EOP and found the content valid.[42] CPSM cross-walked the key components recommended in FEMA's *Developing and Maintaining Emergency Operations Plans, 2021 v 3.0* guide with the city's EOP as outlined next. CPSM assesses through this cross walk that the Fair Oaks Ranch EOP aligns with each FEMA component. CPSM also assesses the EOP aligns with the five mission areas outlined in Presidential Policy Directive 8 (PPD-8): National Preparedness.

FEMA EOP Recommendations		Fair Oaks Ranch EOP
Hazard and Threat Analysis Summary	⟷	Concept of Emergency Operations
Concept of Operations	⟷	Concept of Emergency Operations
Organization and Assignment of Responsibilities (Key Functions)	⟷	EOC Operations
Direction, Control and Coordination	⟷	EOC Operations
Information Collection, Analysis and Dissemination	⟷	EOC Operations; Communications
Administration, Finance and Logistics	⟷	EOC Operations
Hazard-Threat Specific Annexes	⟷	Emergency Condition Actions

CPSM recommends the following additions to the Fair Oaks Ranch EOP:

- For Level 1 and Level 2 EOC activation, the Finance Director should be added to the staffing compliment. The potential to expend funding for various operations and to track

42. City of Fair Oaks Emergency Operations Plan (Basic Plan), Draft 2024.

expenditures for state and/or federal reimbursement is likely to occur and is better coordinated by the finance department.

- Consider aligning Section 2-Phases under the Emergency Planning Guidelines (p. 11) with the five mission areas outlined in *Presidential Policy Directive 8 (PPD-8): National Preparedness*. PPD-8 was developed to *strengthen the security and resilience of the United States through systematic preparation for the threats that pose the greatest risk to the security of the nation, including acts of terrorism, cyber-attacks, pandemics, and catastrophic natural disasters.*[43] The five mission areas are:[44]
    - Prevention: refers to those capabilities necessary to avoid, prevent, or stop a threatened or actual act of terrorism. Prevention capabilities include, but are not limited to, information sharing and warning; domestic counterterrorism; and preventing the acquisition or use of weapons of mass destruction (WMD). For purposes of the prevention framework called for in this directive, the term "prevention" refers to preventing imminent threats.
    - Protection: refers to those capabilities necessary to secure the homeland against acts of terrorism and manufactured or natural disasters. Protection capabilities include, but are not limited to, defense against WMD threats; defense of agriculture and food; critical infrastructure protection; protection of key leadership and events; border security; maritime security; transportation security; immigration security; and cybersecurity.
    - Mitigation: refers to those capabilities necessary to reduce loss of life and property by lessening the impact of disasters. Mitigation capabilities include, but are not limited to, community-wide risk reduction projects; efforts to improve the resilience of critical infrastructure and key resource lifelines; risk reduction for specific vulnerabilities from natural hazards or acts of terrorism; and initiatives to reduce future risks after a disaster has occurred.
    - Response: refers to those capabilities necessary to save lives, protect property and the environment, and meet basic human needs after an incident has occurred.
    - Recovery: refers to those capabilities necessary to assist communities affected by an incident to recover effectively, including, but not limited to, rebuilding infrastructure systems; providing adequate interim and long-term housing for survivors; restoring health, social, and community services; promoting economic development; and restoring natural and cultural resources.

Four Phases of Emergency Management

National Preparedness: 5 Mission Areas

43. Presidential Policy Directive 8 (PPD-8): National Preparedness, March 30, 2011.
44. ibid

Emergency Operations Center

The city utilizes space designated as the police training room as the EOC when activation is required. The room is used regularly for roll call and training and is not set up for immediate EOC use. CPSM assesses the space is adequate and should follow the best practices outlined below.

This intermittently shared space should maintain adequate room so that individual key staff can plan and direct their functions, should include, and maintain communication equipment via telephone, radio comms, and internal I-T connectivity available at each EOP designated functional area, and functioning utilities with uninterrupted power supply and emergency generator. Ideally the EOC should be designed to be set up and functional at a moment's notice. Additional areas for consideration adjacent to the EOC include planning areas, adequate bathroom facilities and areas to rest for 24-hour operations, and a break area away from the operations room for nourishment.

Staffing, equipment, materials, and infrastructure considerations required in the set-up and continual operation of an EOC are many yet scalable to the size of the EOC, whether it is a permanent facility/area or a shared space, and what may work best for the locality, in this case the City of Fair Oaks Ranch.

FEMA has published a quick reference guide for the location, set-up, operations, suggested staffing, equipment, materials, and infrastructure of an EOC. This manual can be accessed and downloaded as a guide for city officials. The link to this document is:

https://www.fema.gov/sites/default/files/documents/fema_eoc-quick-reference-guide.pdf

National Incident Management System (NIMS)

Pursuant to Article 1.06, Sec.1.06.001, the city has adopted the National Incident Management System. It is important then that city employees who may be tasked with participating in the planning, response, mitigation, and recovery efforts of an emergency or disaster be trained in the National Incident Management System (NIMS) training components. This is necessary for employees with response and/or EOC assignments. The primary components of this training include Fundamentals and Concepts, Resource Management, Command and Coordination and Communications and Information Management. NIMS guides all levels of government, nongovernmental organizations, and the private sector to work together to prevent, protect against, mitigate, respond to, and recover from incidents.[45]

NIMS provides stakeholders across the entire community with the shared vocabulary, systems, and processes to successfully deliver the capabilities described in the National Preparedness System. In addition to the benefits of a coordinated response as outlined above, federal preparedness and other federal grants (including state pass-through in some instances) to a local entity is contingent on that entity being NIMS compliant.

The NIMS training classes listed below are designed to educate response personnel in the fundamentals of incident management, as well as the application of the NIMS components in the city. ***CPSM recommends*** essential personnel assigned to the city (or county) EOC, and who have response assignments during an emergency or disaster, be trained to the appropriate NIMS level as outlined here.

45. National Incident Management System | FEMA.gov

- NIMS ISC-100: Introduction to Incident Command System
  - All City employees with response and/or EOC assignments.
  - Independent study program offered through FEMA's Emergency Management Institute. http://training.fema.gov.nims
- NIMS ISC-200: ICS for Single Resources and Initial Action Incidents
  - All City employees with response and/or EOC assignments.
  - Independent study program offered through FEMA's Emergency Management Institute. http://training.fema.gov.nims
- NIMS ICS-300: Intermediate Incident Command System for Expanding Incidents
  - City employees who are decision makers, serve on respective agency unified command teams, and or may staff state or local emergency operations center.
  - In-class multi-day course. Courses are offered through local Emergency Management agencies.
- NIMS ICS-400: Advanced Incident Command System for Complex Incidents
  - City employees who are decision makers, serve on respective agency unified command team, and or may staff state or local emergency operations center.
  - In-class multi-day course. Courses are offered through local Emergency Management agencies.
- NIMS ISC-700: National Incident Management System, An Introduction
  - All City employees with response and/or EOC assignments.
  - Independent study program offered through FEMA's Emergency Management Institute. http://training.fema.gov.nims
- NIMS ISC-800: National Response Framework, An Introduction
  - All City employees with response and/or EOC assignments.
  - Independent study program offered through FEMA's Emergency Management Institute. http://training.fema.gov.nims

Continuity of Operations Plan (COOP)

Another important document ***CPSM recommends*** the city maintains is a Continuity of Operations Plan (COOP). A COOP is important to any organization, especially local governments that operate financial and human resources systems, facilities, public operations, and vital community services. A COOP is developed to serve as a roadmap that builds the organization's plan to prepare for, react to, and respond to any event that disrupts one or more operation, facility, service, or line of succession. COOP planning includes:

- Essential Functions – The critical activities performed by organizations, especially after a disruption of normal activities.
- Orders of Succession – Provisions for the assumption of senior agency offices during an emergency if any of those officials are unavailable to execute their duties.
- Delegations of Authority – Identification, by position, of the authorities for making policy determinations and decisions at the executive, middle management, and operational levels,

and all other organizational locations. Generally, pre-determined delegations of authority will take effect when normal channels of direction have been disrupted and will lapse when these channels have been reestablished.

- Continuity of Facilities – Locations, other than the primary facility, used to carry out essential functions, particularly in a continuity event. Continuity Facilities, or "Alternate facilities," refers to not only other locations, but also nontraditional options such as working at home, ("teleworking"), telecommuting, and mobile-office concepts.
- Continuity of Communications – Communications that provide the capability to perform essential functions, in conjunction with other agencies, under all conditions.
- Vital Records Management – The identification, protection, and ready availability of electronic and hard-copy documents, references, records, information systems, and data management software and equipment needed to support essential functions during a continuity situation.
- Human Capital – During a continuity event, emergency employees and other special categories of employees are activated by an agency to perform assigned response duties.
- Devolution of Control and Direction – Capability to transfer statutory authority and responsibility for essential functions from an agency's primary operating staff and facilities to other agency employees and facilities.
- Reconstitution – The process by which agency personnel resume normal agency operations from the original or replacement primary operating facility.[46]

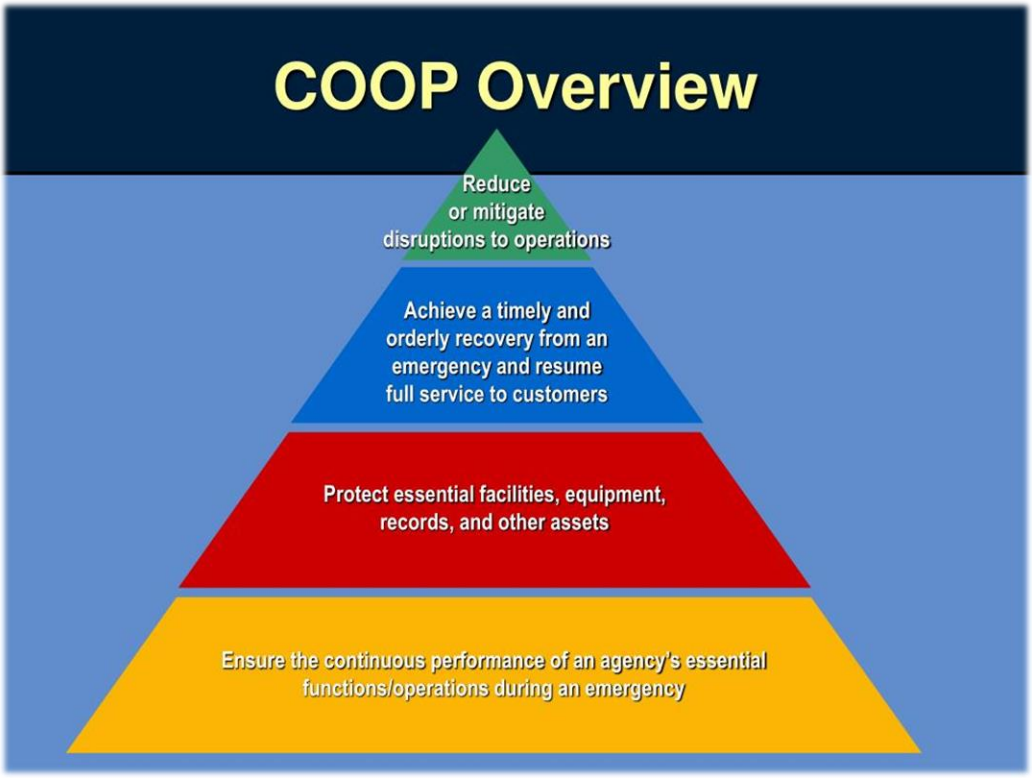


Image Source: San Diego County Office of Emergency Services

46. coop_brochure.pdf (fema.gov)

SECTION 6. EVALUATION AND RECOMMENDATIONS

Community Survey

In order to assess the perspectives of the community members of Fair Oaks Ranch, TX, CPSM conducted a survey drafted specifically for the interests of Fair Oaks Ranch. This summary report provides the survey methodology as well as demographics of respondents and key findings that may influence approaches to the provision of fire and emergency medical services in Fair Oaks Ranch, TX.

The survey distributed to the community focused on the perceptions of services provided to the public by LSFD and Acadian Ambulance, use of services provided, knowledge of services provided and community engagement opportunities, and thoughts on the how fire services should be provided moving forward. The summary report will be broken into five main sections:

6) perceptions of Leon Springs Fire Department;
7) community engagement;
8) assessment of emergency services priorities;
9) fire services provide opinion; and
10) perceptions of Acadian Ambulance Service.

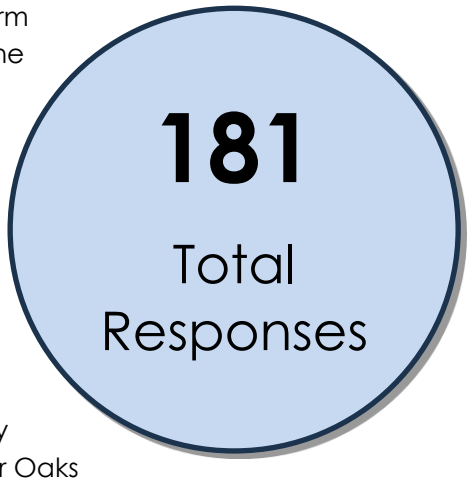
The purpose of this report is to provide a summary of survey responses that may assist city management in their decision-making process. Several interesting findings emerged from the survey and are listed below:

1) Assessments of LSFD are positive, overall.
2) Emergency medical services, fire suppression, and training of all staff were rated as the highest priority in emergency services whereas fire station tours were assessed as not important.
3) Assessments of Acadian Ambulance Service are positive overall, though not as high as LSFD.
4) Respondents are largely accepting of utilizing contracted providers for emergency services in Fair Oaks Ranch instead of establishing a municipal department.

Survey Methodology and Demographics

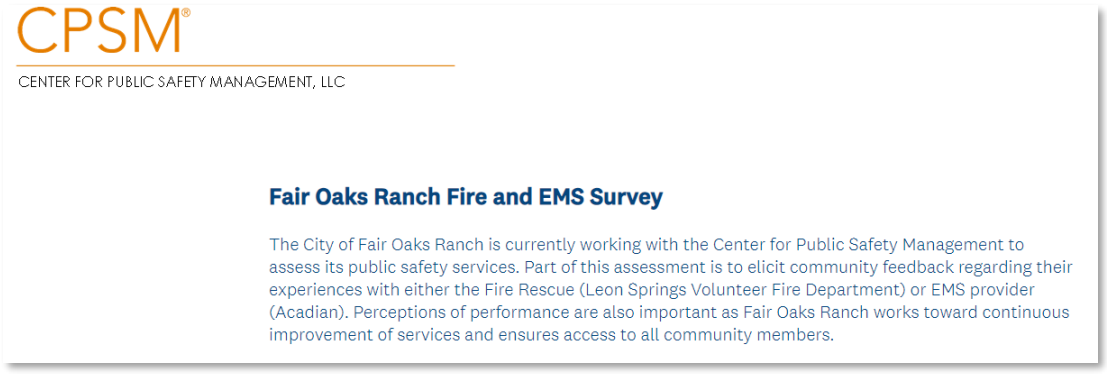
The community survey was developed through consultation with the city manager and CPSM staff via email to ensure the targeted concerns of Fair Oaks Ranch were addressed in the survey. Capturing perceptions regarding alternate provision of fire and emergency services was particularly important. Once the survey was finalized, it was approved by the city manager and the City Council members prior to being released to the public for response.

The survey was developed using the SurveyMonkey online platform and made available to residents on Fair Oaks Ranch online via the city's website, social media, and partnering agencies' social media pages. A QR code was also provided to maximize the reach of the survey. The survey was available for responses for 30 days and received 181 responses from the public. IP addresses were collected to ensure multiple surveys were not submitted by the same person. Seven duplicate IP addresses were identified and assessed for duplicate responses. In these instances, survey responses differed, indicating different people responded from the same device which is probable when two members of the same household participate. The 181 total survey responses represent 1.6% of the estimated 2022 population of Fair Oaks Ranch which is an admirable response rate for the general public.



Demographics of survey respondents reflected the demographics of the City of Fair Oaks Ranch according to the 2023 population estimates available in Census QuickFacts with regard to gender (approximately 52% female) and race (80% White), but survey respondents were older than the general population. Fifty-five percent of respondents were aged 65 or older, compared to nearly 21% of the population. Survey respondents were also asked their zip code to assess differences in perceptions based on area of the city, but 98% of respondents reported living in zip code 78015. Thus, zip code is not used in analyses to assess differences in perceptions for this report.

Although the response rate was relatively good for the survey, responses and analyses should be interpreted with care. Responses should not be representative of the population, so results are limited to people who actually responded to the survey. While results cannot be generalized to the entire population, the results are informative to provide a sense of the perceptions of emergency services provided to residents of the City of Fair Oaks.


CPSM®

CENTER FOR PUBLIC SAFETY MANAGEMENT, LLC

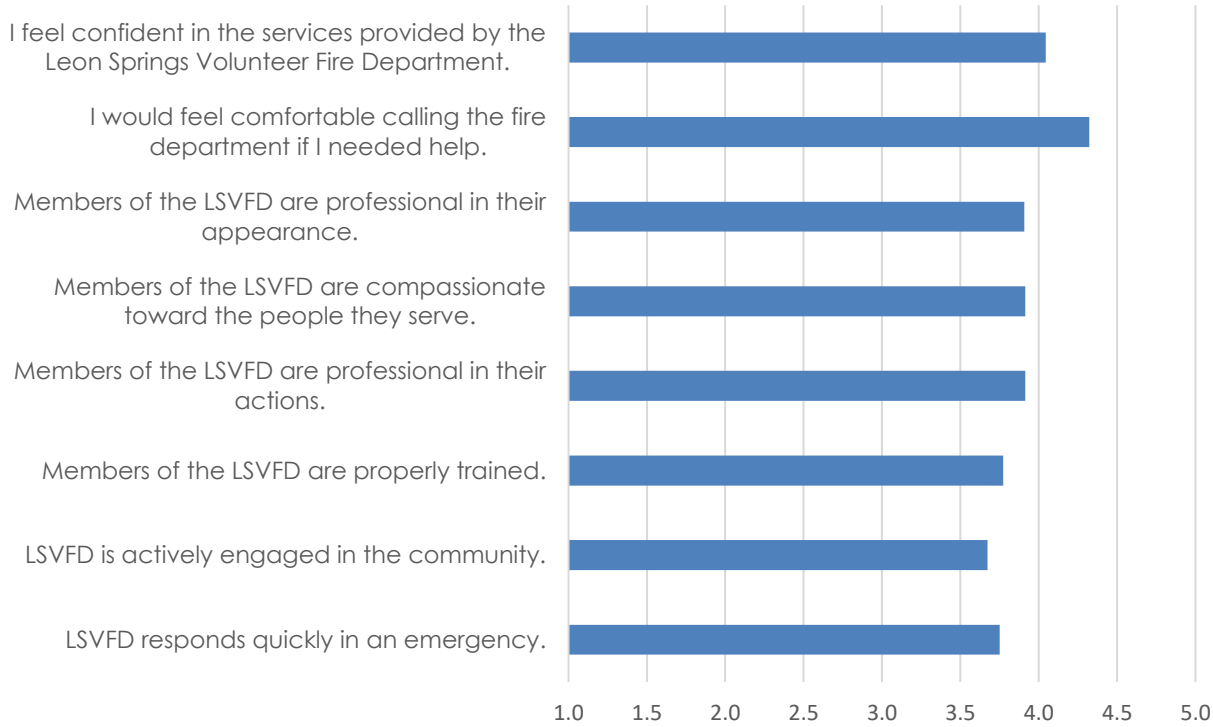
Fair Oaks Ranch Fire and EMS Survey

The City of Fair Oaks Ranch is currently working with the Center for Public Safety Management to assess its public safety services. Part of this assessment is to elicit community feedback regarding their experiences with either the Fire Rescue (Leon Springs Volunteer Fire Department) or EMS provider (Acadian). Perceptions of performance are also important as Fair Oaks Ranch works toward continuous improvement of services and ensures access to all community members.

Perceptions of Leon Springs Fire Department

Survey respondents were asked their perceptions of the Leon Springs Fire Department on a scale of 1 to 5, with 1 representing "Strongly Disagree" and 5 representing "Strongly Agree". As the figure below indicates, survey respondents largely approve of the job of the LSFD. It is important to note that those respondents who had experienced an emergency with LSFD response had higher-rated perceptions than those who had not had an emergency experience. Interestingly, younger respondents rated the LSFD higher than older respondents. On average, respondents aged 25-34 agreed or strongly agreed with the statements in Figure 1 below whereas respondents aged 65 or older were more neutral in their responses.

Figure 51: Average Perception of Leon Springs Fire Department



88% have a good overall perception of LSFD

When asked what their general perceptions of LSFD were, over 88% of respondents selected either "good" or "excellent" which indicates support for the LSFD and the services it provides. Only 20 of the 167 responses on this question provided a negative assessment of LSFD.

LSFD Community Engagement

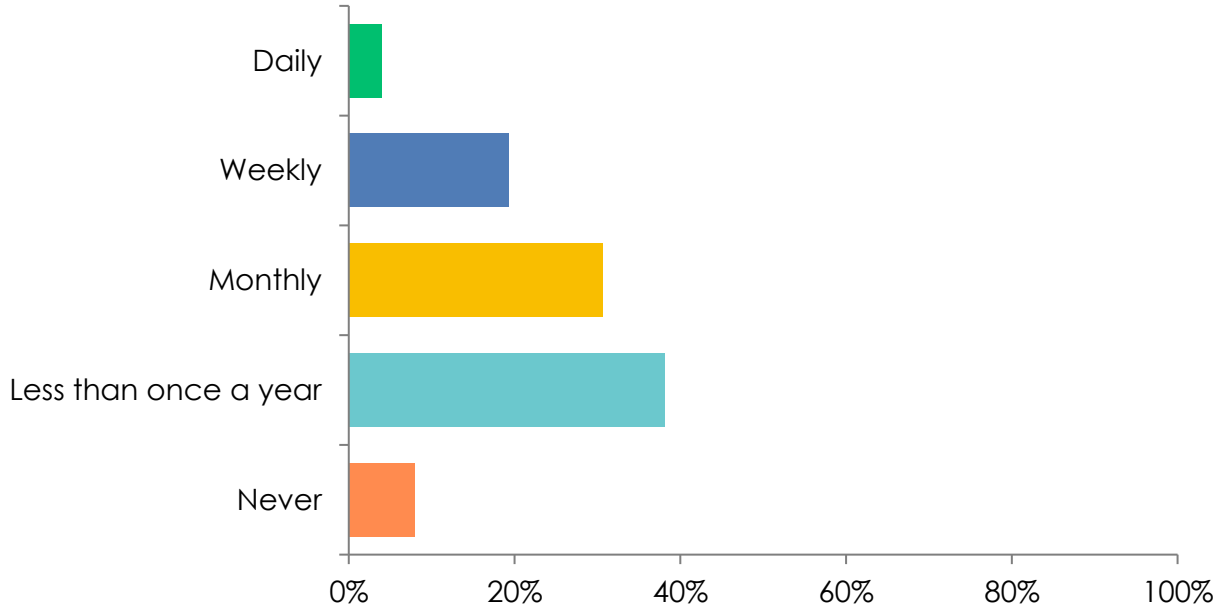
Picture retrieved from LSVFD Facebook page.

An important aspect of many local fire departments is community engagement often in the form of community education opportunities or other positive outreach or interactions. When there is no local fire department, it follows that community engagement could potentially be lacking. Perhaps unsurprisingly, responses were largely neutral regarding whether LSFD is actively involved in the community as seen in the above figure.

Further, most respondents had never attended a community education event or presentation hosted by the LSFD or knew that such events existed. Just over 1% of respondents had received a smoke detector from LSFD as well. Younger respondents (age 25-34) were more likely to have attended a community education event with the fire department which could possibly be an indicator of the types of programs more frequently held by LSFD.

Respondents also reported seeing the fire department in the community relatively infrequently. As the figure below shows, nearly forty percent of respondents saw LSFD in the community less than once a year.

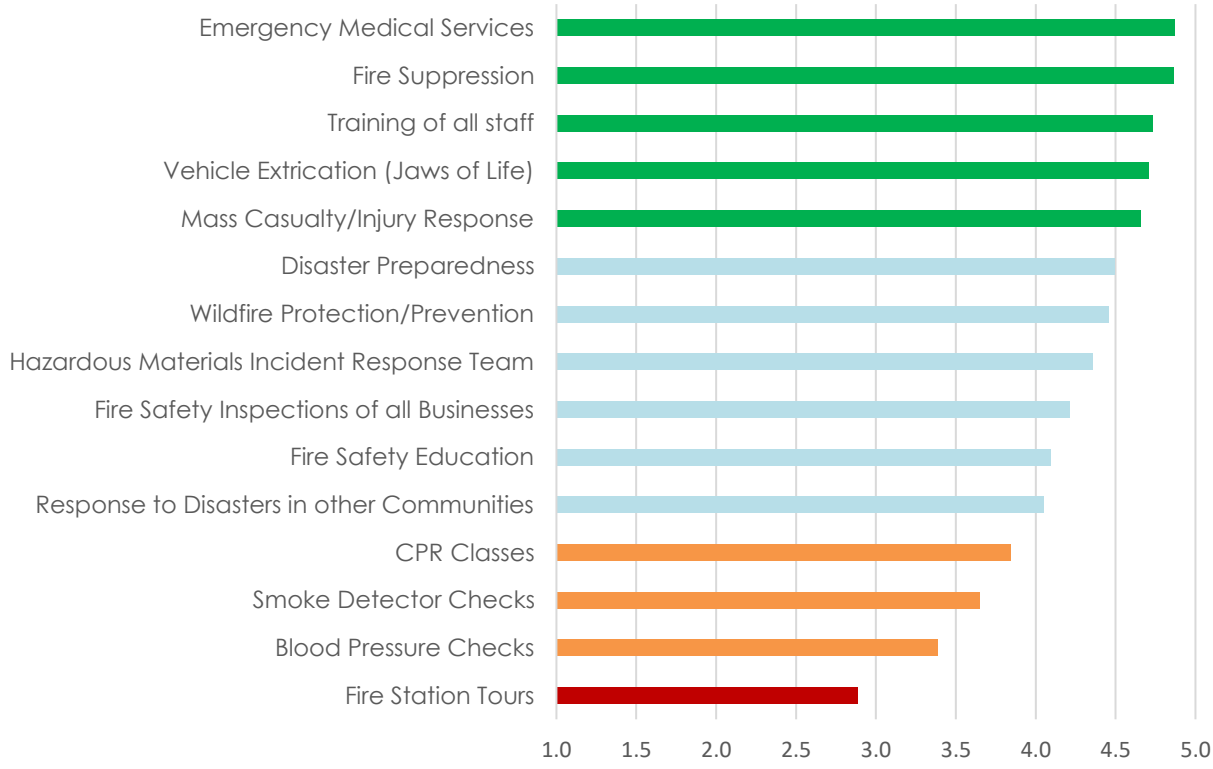
Figure 52: Percent Responses for "How often do you see the fire department in the community?"



Assessment of Emergency Services Priorities

Fire departments, whether local or contracted, are relied upon by the residents of a community to provide emergency services and other public safety services. While it seems commonsensical that residents will prioritize emergency medical services or fire suppression as necessary and important services provided by a fire department, other services might not be as important. The figure below demonstrates the ranking of importance for various services typically provided by fire departments. Respondents were asked to rate the services listed below on a scale of 1 to 5 (1 = Not important at all; 5 = Very important).

Figure 53: Ranked Average Responses for Importance of Services



As the figure above shows, services that are provided at fire stations or by members of fire departments that extend beyond emergency response/preparation or community education were rated as unimportant by survey respondents. This aspect of many fire departments may be an artifact of volunteer fire departments that may not be staffed 24 hours a day.

Few demographic differences exist regarding perceptions of emergency services. However, younger respondents (aged 25-34) rated fire safety education, fire station tours, and CPR classes noticeably lower than other age groups.

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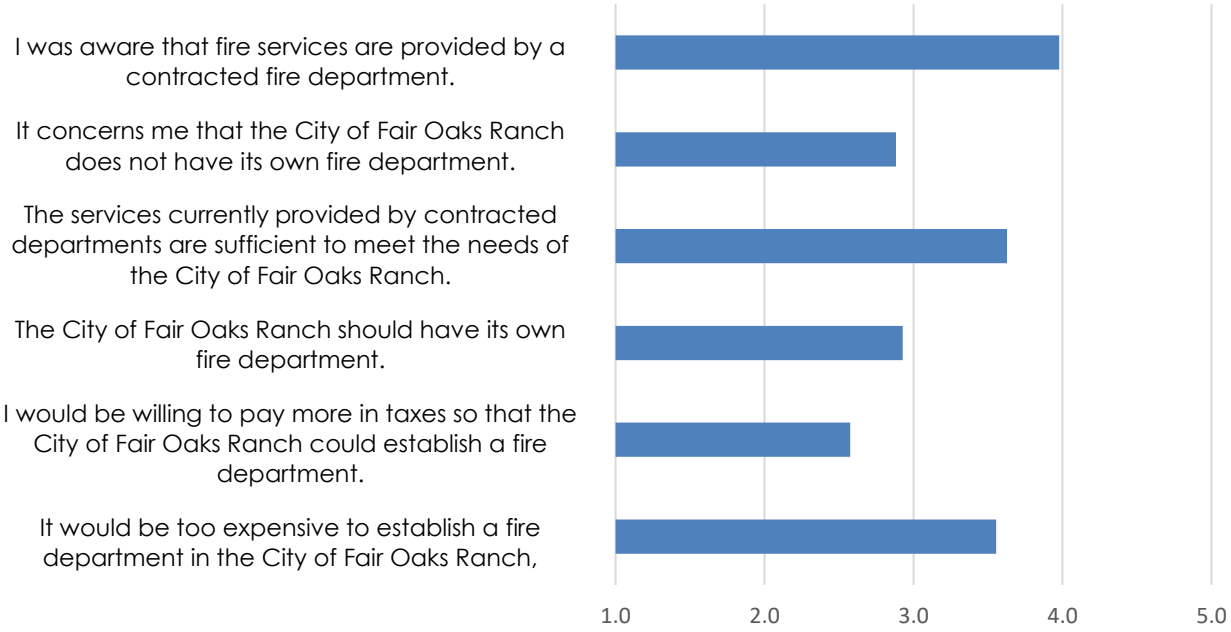
Fire Services Provider Opinion

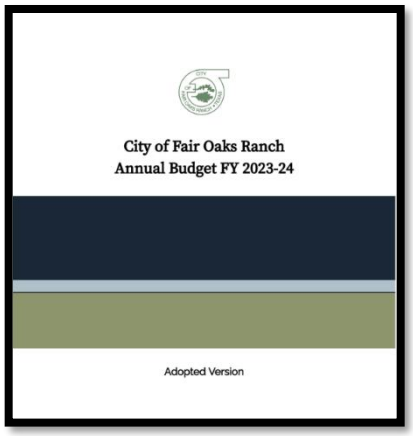
A primary goal of this community survey was to assess opinion on whether Fair Oaks Ranch should explore the potential of establishing its own local fire department. Similar to the question sets described above, survey respondents were asked to rate a series of questions on a scale of 1 to 5 (1 = Strongly disagree; 5 = Strongly agree). The average scores are provided in Figure 4 below. On average, respondents agreed that they were aware that fire services were provided by a contracted department. It should be noted here that the survey itself could have influenced this response as the agreement with LSFD was described in the instructions. However, most respondents did not seem concerned with this arrangement and considered the services provided by LSFD sufficient for the residents of Fair Oaks Ranch.

Although the average response was neutral regarding whether the City of Fair Oaks Ranch should have its own department, most would not be willing to pay more in taxes for it.

Figure 54: Fire Services Provider Average Response



The next table sheds further light on the distribution of opinion about a potential Fair Oaks Ranch fire department. More than 56% of respondents consider the current services sufficient. However, nearly 65% of respondents were either neutral or agreed that the City of Fair Oaks Ranch should have its own fire department. On the other hand, 53.6% were neutral or agreed that they would be willing to pay more in taxes to support a city fire department. Percentages are presented here in addition to the average scores because the neutral category was the largest response percent for nearly every question about establishing or paying for a City of Fair Oaks Ranch fire department.



An interesting demographic finding was that younger respondents were more likely to agree that the current services were sufficient and were less likely to agree that the City of Fair Oaks Ranch should have its own department or to agree that they would be willing to pay more in taxes. However, this was a small group of respondents (2) compared to the 99 respondents in the age 65+ category. As noted above, the survey is not representative of the population of Fair Oaks because it has a much higher proportion of older participants than the population. No other major demographic differences were observed.

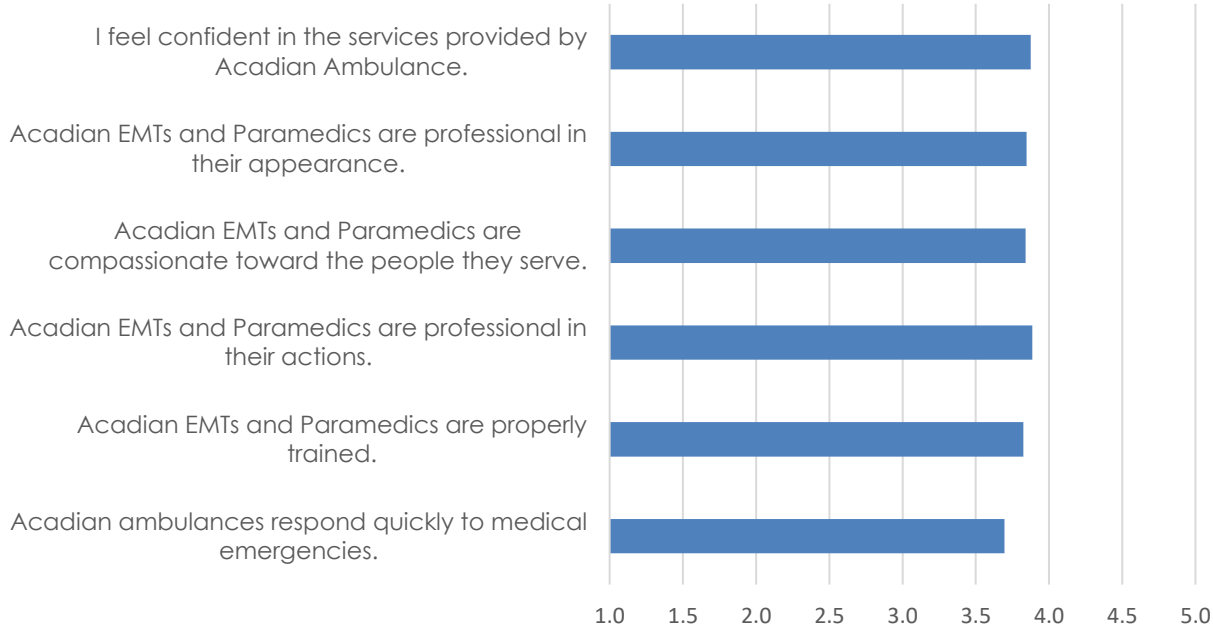
Table 19: Percent Response for Fire Services Provider

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I was aware that fire services are provided by a contracted fire department.	5.0%	9.4%	11.7%	30.6%	43.3%
It concerns me that the City of Fair Oaks Ranch does not have its own fire department.	21.1%	19.4%	24.4%	20.0%	15.0%
The services currently provided by contracted departments are sufficient to meet the needs of the residents of the City of Fair Oaks Ranch.	3.9%	12.2%	27.2%	30.6%	26.1%
The City of Fair Oaks Ranch should have its own fire department.	22.9%	12.3%	30.2%	18.4%	16.2%
I would be willing to pay more in taxes so that the City of Fair Oaks Ranch could establish a fire department.	29.6%	16.8%	29.6%	14.5%	9.5%
It would be too expensive to establish a fire department in the City of Fair Oaks Ranch.	5.6%	13.3%	30.0%	22.2%	28.9%

Perceptions of Acadian Ambulance Service

Acadian Ambulance Service serves as the primary emergency medical transport provider for the City of Fair Oaks Ranch. Similar to prior question groups, respondents were asked to rate a series or statements in terms of their level of agreement on a scale of 1 to 5 (1 = Strongly disagree; 5 = Strongly agree). Average responses were neutral leaning toward agreement for nearly all statements as shown in Figure 5. However, over 85% of respondents report a "Good" or "Excellent" general perception of Acadian Ambulance Service.

Figure 55: Average Response for Acadian Ambulance Performance



85% have a good general perception of Acadian

Similar to the response for LSFD, it should be noted that those respondents who had been transported by Acadian Ambulance Service at any time in the past had a more approving perception of Acadian than those who had not.

No other notable demographic differences were observed.

Utilization Evaluation-Service Level Considerations and Alternatives

A Fire and EMS utilization analysis typically evaluates service level workload, response times, and cost for services. For this fire and EMS analysis, CPSM completed an analysis of the two agencies that provide fire and EMS services to Fair Oaks Ranch and included a workload and response time analysis for both agencies, service level analysis, and a review of each contract's fees and per call costs. Discussion of each agency along with considerations and alternatives for fire and EMS service in the city are discussed next.

Bexar County ESD 4

In review, the city contracts with Bexar County ESD 4 for fire protection services. ESD 4 contracts with Leon Springs Fire Department to provide fire protection services for the ESD 4 district.

Article III of the current fire agreement outlines ESD 4 (LSFD) emergency services to the city as:

- District shall provide the necessary qualified and certified personnel and equipment for providing Emergency Services to the City in accordance with this Agreement and the operational standards and practices used by the District and its subcontractors and shall enter into and maintain reciprocal mutual aid agreements with surrounding governmental entities and/or fire departments when necessary or advisable.
- Monitor the fire alarm or alert system and radio system utilized by the District.
- Respond to and fight fires within the city limits of Fair Oaks Ranch 24 hours a day, 7 days a week. The District will strive to achieve an average response time consistent with the District's contract with the emergency service provider Leon Springs Fire department (Attachment B of the agreement). Response time shall be measured by the amount of time lapsing between the time of dispatch notification and arrival of the fire vehicle at the dispatched location).
- Section 7.1.6 of the aforementioned ESD 4 and LSFD contract outlines LSFD performance as:
  - ***Maintain an average response time goal for an LSFD emergency vehicle at not more than 8 minutes.***
- Respond to emergency medical and incident response calls within the city limits of Fair Oaks Ranch 24 hours a day, 7 days a week.

It is assessed that the LSFD is meeting the 8-minute average Turnout-Travel Time contractual benchmark for Motor Vehicle Accidents only.

The average Turnout-Travel time for medical calls is: 10.9 minutes.

The average Turnout-Travel time for fire and fire related calls is calls is: 11.9 minutes.

88% have good overall perception of LSFD

When asked what their general perceptions of LSFD were, over 88% of respondents selected either "good" or "excellent" which indicates support for the LSFD and the services it provides. Only 20 of the 167 responses on this question provided a negative assessment of LSFD.

Article V of the agreement outlines the payment schedule for fire protection, first responder EMS, and other emergency response services as follows:

- Initial one year term October 1, 2021-September 30, 2022: $362,927 — **Base contract cost**
- First one year term renewal October 1, 2022-September 30, 2023: $417,981 — **+15.2% increase**
- Second one year term renewal October 1, 2023-September 30, 2024: $492,105 — **+17.7% increase**
- Third one year term renewal October 1, 2024-September 30, 2025: $528,581 — **+7.4% increase**

Beginning with the October 1, 2024, contract, contract costs will have increased 40.3% aggregately over the term of the contract.

CPSM conducted a workload and response time data analysis that provided the following information for the period October 1, 2022 to September 30, 2023.

- ESD 4 responded to 509 calls for service into Fair Oaks Ranch (103 calls were cancelled prior to ESD 4 units arriving or prior to leaving the station for a total of 612 alerts to respond).
    - Overall, between October 1, 2022, and September 30, 2023, ESD 4 responded to 2,270 calls in the ESD district. ***The 612 calls LSFD was alerted to respond to in Fair Oaks Ranch represents 27% of the overall call volume of ESD 4 units.***

Next CPSM looked at the cost per call for fire services in Fair Oaks Ranch provided by ESD 4.

The cost of the First one year term renewal ESD 4-Fair Oaks Ranch contract for the period October 1, 2022-September 30, 2023, is $417,981.

The cost per fire protection/EMS first tier response call when ESD 4 arrived on scene was: $821.18 in FY 23.

When cancelled calls are included, ESD 4 answered 612 calls for service for Fair Oaks Ranch. The cost for all calls answered by ESD 4 for Fair Oaks Ranch was: $682.98 in FY 23.

The cost of the Second one year term renewal ESD 4-Fair Oaks Ranch contract for the October 1, 2023-September 30, 2024, is $492,105.

Utilizing a 3% increase in call volume applied in FY 24 (calls where a ESD unit arrives on scene: (509 + 3% =524 calls), the cost for all calls when ESD 4 arrives on scene in Fair Oaks Ranch would be: $939.13.

Utilizing a 3% increase in call volume applied in FY 24 (including cancelled calls: 612 + 3% =630 calls answered), the cost for all calls answered by ESD 4 in Fair Oaks Ranch would be: $781.12.

The cost of the Third one year term renewal ESD 4-Fair Oaks Ranch contract for the October 1, 2024-September 30, 2025, is $528,581.

Utilizing a 3% increase in call volume applied in FY 25 (calls where a ESD unit arrives on scene: (524 + 3% =540 calls), the cost for all calls when ESD 4 arrives on scene in Fair Oaks Ranch would be: $978.85.

Utilizing a 3% increase in call volume applied in FY 25 (including cancelled calls: 630 + 3% = 649 calls answered), the cost for all calls answered by ESD 4 in Fair Oaks Ranch would be: $814.45

Acadian Ambulance Service

In review, the city contracts with Acadian Ambulance Service for EMS ground transport services.

Pursuant to Sections 3 and 4 of the agreement, Acadian's obligations to the city are facilitated as a Level of Effort (LOE), wherein Acadian Ambulance has been engaged to supply a dedicated ambulance service, with Acadian qualified and appropriate state certified personnel, and shall strive to achieve a response time as outlined below.

- One staffed ambulance eight hours/day, five days/week (between the hours of 8:00 am and 5:00 pm).
- After 5:00 pm and until 8:00 am and 24-hours a day on weekends a standby crew will be utilized. The standby crew will be available at the station location within the city.
- Acadian will post one ambulance, as arranged, at the location agreed upon with the city. Acadian, if indicated, may amend the posting location from time to time to meet specified response criteria (the agreement does not stipulate response criteria for the city, only that Acadian will use its best efforts to produce response time reliability for all city calls, comparable to the standards set forth in the contract for the unincorporated areas of Bexar county). The city acknowledges and understands that Acadian is allowed and permitted to use the Fair Oaks Ranch dedicated unit to respond to other areas in Bexar County. This agreement is intended for non-dedicated, priority posting only. However, should the unit be dispatched outside of the city, Acadian shall use all reasonable efforts to send an available unit and crew towards the city to standby and cover until the dedicated city unit returns.

As a note here, the Acadian-Bexar County contract outlines Acadian performance as:

- *Acadian will provide continuous response capability for all EMS calls and shall maintain an average fractile monthly emergency response time of not greater than eleven (11) minutes and shall strive to achieve an average fractile monthly emergency response time of less than eleven (11) minutes, for at least 70% of responses.*

It is assessed that overall, AAS is meeting the contractual obligations with the city for EMS response times as stated: *Acadian will use its best efforts to produce response time reliability for all city calls, comparable to the standards set forth in the contract for the unincorporated areas of Bexar county*, which as outlined above is 11-minutes 70-percent of the time. ***Individually, Cardiac and Stroke responses are over the 11-minute benchmark.***

CPSM conducted a workload and response time data analysis that provided the following information for the period October 1, 2022, to September 30, 2023.

- AAS responded to 407 calls for service into Fair Oaks Ranch.
  - Overall, between October 1, 2022, and September 30, 2023, AAS answered 15,460 needs in Bexar County. ***The 407 calls AAS responded to in Fair Oaks Ranch represents 3% of the overall call/needs volume of AAS units in Bexar County.***

85% have a good general perception of Acadian

Similar to the response for LSFD, it should be noted that those respondents who had been transported by Acadian Ambulance Service at any time in the past had a more approving perception of Acadian than those who had not.

No other notable demographic differences were observed.

Next CPSM looked at the cost per call for EMS services in Fair Oaks Ranch provided by AAS.

The cost of the May 2022, renewal agreement between the city and Acadian Ambulance Service outlines the payment schedule for EMS ground transport services as follows:

May 1, 2022, through April 30, 2025: $6,125 per month, which is annualized as $73,500.

- Acadian Ambulance Service responded to 407 calls for service into Fair Oaks Ranch.

The cost per EMS ambulance run was: $180.59 in FY 23.

The FY 24 term Acadian Ambulance - Fair Oaks Ranch contract for the period October 1, 2023-September 30, 2024, is $73,500.

With a 3% increase in call volume applied in FY 24 (407 + 3% =419 calls), the cost per EMS ambulance run will be: $175.42.

With a 3% increase in call volume applied in FY 25 (419 + 3% =432 calls), the cost per EMS ambulance run will be: $170.14.

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The cost per incident for fire and EMS services varies depending on the size of the agency (number of stations or posting locations), call demand, geographic area covered, infrastructure, debt, staffing costs (volunteer, career, combination), fees, equipment, maintenance, fuel, training, to name a few the more common costs.

In review of historical fire and EMS analyses CPSM has conducted in the United States, and based on the agency's budget and number of calls responded to, the average cost per call for services include (includes CPSM analyses within the last three years):

Fire only agency: $1,225 to $3,340 per call.

EMS only agency: $400 to $800 per call (EMS ambulance responses).

$600 to $1,200 per transport

CPSM assesses Fair Oaks Ranch expenditures for fire and EMS services are below that which CPSM has analyzed and are currently economical, based on the services and level of effort provided.

The city has a decision to make on both fire and EMS services in the near term. The contract for fire services terminates September 30, 2025, and the contract for EMS services terminates April 30, 2025. Next, CPSM discusses alternatives and considerations going forward regarding fire and EMS services.

Alternative 1-Status Quo

As always, the first alternative to be considered is to maintain the status quo and continue multi-year contracts with ESD 4 for fire protection and EMS first response services, and Acadian Ambulance for EMS ground transport services.

The current EMS contract remains stable throughout, the per call cost is reasonable, and overall, the citizens have a good general perception of AAS. The city could negotiate a Level of Performance contract where the city stipulates an acceptable response time, and/or a dedicated ambulance in the city limits. As a note here, a level of performance contract typically has enhanced costs, as the customer is paying for a specific ambulance and a specific performance (response time in so many minutes). To guarantee this, the provider potentially will have to add additional staff and units to ensure they meet the performance stipulations of the contract. ***Participating in the bigger system keeps costs economical to the customer.***

The fire contract has grown 32.9 percent in the initial two years and will have grown 40.3 percent at the end of the third one-year term. The per call cost, however, is reasonable when compared to what CPSM has analyzed in the most recent three years. ESD 4 is adding an additional fire station in 2027-2028, which will provide beneficial response into Fair Oaks Ranch. There is a potential the annual contract fee will increase to assist the funding of this new station, equipment, and staffing. Negotiations between the city and ESD 4 should include ESD 4 budget projections (example-future programs, future staff, future apparatus/equipment replacements) and cost per call for Fair Oaks Ranch projected throughout the life of the contract. ***The goal is to maintain a sustainable annual contract and cost per call costs.***

Alternative 2-Contract with ESD 4 for Fire and EMS Ground Transport

ESD 4 will begin offering EMS ground transport October 1, 2024. The city can opt to contract with ESD 4 for fire, EMS first response, and EMS ground transport. This alternative alleviates one contract and combines both important public safety functions into one contract. Annualized costs will potentially increase with this alternative as ESD 4 is adding a program that includes infrastructure and staffing. Current FY 2024 fire and EMS contract costs aggregately are $565,605.

The city should engage Acadian in the near future regarding a successor contract for services (and costs) prior to considering this alternative. ***CPSM recommends*** a contract from May 1, 2025, to September 30, 2025, then a contract with successor years beginning October 1, 2025, to September 30, 2026, and beyond. The city can then weigh separate and aggregate costs of ESD 4 and AAS contracts against a combined contract with ESD 4 for both fire and EMS services. ***Again, the goal is to maintain a sustainable annual contract and cost per call costs.***

Alternative 3: Develop and Implement Fair Oaks Ranch Fire and EMS City Services

The city can develop and implement a fire and EMS department to deliver fire protection and EMS services within the city boundaries, to the ETJ, and of course provide mutual and automatic aid beyond city boundaries (mutual and automatic aid is reciprocal and this concept will be needed by a city fire and EMS department). Developing and implementing a full time fire and

EMS department does not come without initial and recurrent costs. A new city department will also require an agency head (Fire Chief), administrative assistance, and operational staff.

Additionally, a fire and EMS department, even small, takes considerable infrastructure, equipment, and supplies. In review of the city's risk profile, current call demand, and current infrastructure, CPSM suggests the city begin with one fire station that houses and responds one engine apparatus (staffing of three) for fire protection and EMS first response, and one advanced life support ambulance (staffing of two-dual certified in fire and EMS) for EMS ground transport services. To achieve an Effective Response Force for building fires, the city will rely heavily on automatic and mutual aid.

If Station 133 can be renovated to accommodate the apparatus and five staff members, CPSM recommends this station serve as the primary Fair Oaks Ranch fire & EMS station due to its central location in the city (will require renovation to accommodate full size engine, or a short-wheelbase engine). Operational shifts would consist of a traditional 24-hour shift on and 48-hours off, or a combination thereof that aligns with the Fair Labors Standard Act as it relates to non-exempt firefighters and the 53-hour workweek.

Estimated Capital Start-Up Costs

Item	Per Unit Cost	Aggregate Cost
Station Renovation (133 or 420)	Station 133 or Station 420	Market cost at time of renovation contract.
Engine Apparatus-Custom Chassis-fully equipped. 1-Frontline 1-Reserve Build-Time: 30-42 months dependent on chassis and manufacturer.	$850,000	$1.7 Million
Ambulance Apparatus-Type 1 with truck chassis fully equipped. 1-Frontline 1-Reserve Build-Time: 24-36 months dependent on chassis and manufacturer.	$450,000	$900,000
Estimated additional furniture, fixtures, equipment, IT, and maintenance (Fleet and Facility)	$300,000	$300,000
Fire Chief Vehicle (Mid-Size SUV) Division Chief Vehicle (Mid-Size SUV)	$45,000 $45,000	$90,000
Radios	Potable: 9 ($4,000 ea.) Mobile: 6 ($4,000 ea.)	$36,000 $24,000
Capital Contingency	$250,000	$250,000
Total		**$3,300,000**

Estimated Personnel Costs (First Year)

Position	Per Position Cost	Aggregate Cost
1-Fire Chief	$116,500-$122,500 Position salary equivalent to Police Chief.	w/40% benefit costs: $163,100-$171,500
1-Admin Assistant	$41,288	w/40% benefit costs: $57,803
1-Fire Division Chief	$85,342 Position salary equivalent to Police Lieutenant	w/40% benefit costs: $119,479
Crew Leaders (Fire Lieut. Rank)- 3 positions	$77,226 Position salary equivalent to Police Sergeant Total base salary: $231,678	w/40% benefit costs: $324,349
Firefighter positions 12 positions	$57,243 Position salary equivalent to Police Officer Total base salary: $686,916	w/40% benefit costs: $961,682
Total Positions:18	**Total Base Salary Costs: $1,161,724 -$1,167,724**	**Total Base Salary Costs w/40% benefit costs: $1,626,414 - $1,634,814**

All personnel base salary costs derived from the city's compensation plan.

Division Chief position detail: Manages training, fire safety inspections, operations, infrastructure, and logistics for department. Responds to incidents and serves as incident commander. Acts as Fire Chief in his/her absence.

Crew leader position detail: Supervise day-to-day station and crew activities. Serves as initial incident commander on incidents.

Firefighter position detail: Assigned to either the fire apparatus or ambulance. Respond to emergency and non-emergency calls for service. Maintain equipment and station in a ready state.

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Additional personnel start-up and first year estimated costs:

Item	Per Position Cost	Aggregate Cost
Advanced EMT Pay Station Personnel	$2,500 5 positions	$12,500
Paramedic Pay	$5,000 5 positions	$25,000
FLSA cost based on a 28-day FLSA work period (156 hours per year-15 operational personnel).	Crew Leaders: $24,823 Firefighters: $73,598	$98,421
Potential overtime to cover open shifts due to leave, training, off-duty functions (150 hours/year per operational employee).	Crew Leaders: $23,868 Firefighters: $70,767	$94,635
Uniform allowance-17 positions	$800 per uniform position	$13,600
Structural ensemble-17 positions Wildland gear-17 positions	Structural: $4,200 per person (17) Wildland: $2,800 per person (17)	$71,400 $47,600
Ancillary personal gear and uniform items-17 positions.	$125 per person	$2,125
Total		**$365,281**

Estimated Capital Start Up and First Year Personnel Costs:

Category	Aggregate Cost
Capital	**$3,300,000**
Salary & Benefits: 18 Positions	**$1,626,414 - $1,634,814**
Additional Personnel Costs	**$365,956**
Total	**$5,291,695-$5,300,095**

Cost per call year 1:
$4,895 to $4,903

Cost per call year 2:
$1,789 to $1,797

A Fair Oaks Ranch Fire and EMS department first year per call cost based on FY 25 ESD 4 and AAS contract year call projections (1,081 fire and EMS calls): $4,895 to $4,903 per call. Year 2 estimated costs to include salary, additional personnel costs, operational and administrative costs $1,991,695-$2,000,095. Estimated year 2 per call cost: $1,789 to $1,797 (based on 3% increase in call volume and does not include capital expenses).

The cost per call for a Fair Oaks Ranch Fire & EMS Department is considerably more than what the city aggregately paid in FY 23 per call for fire and EMS: $863.57 per call (1,019 calls-includes LSFD cancelled calls).

An alternative to the traditional deployment of resources is the public safety director and public safety officer form of service delivery. In this form of service delivery, some—and in some instances, all members of both the police and fire agencies are cross-trained to deliver both categories of public safety services in an efficient and effective manner.

In this model the Fire Chief/Administrator reports to the Public Safety Director. In the more formal public safety administrative model, one person is designated as the administrator of law enforcement services, and one is designated for fire services. Each is responsible for ensuring that all areas related to their public safety discipline are properly managed.

For efficiencies, in Fair Oaks Ranch, the Police Chief may become the Public Safety Director; the Police Lieutenant may become the administrator for police services; and a fire division chief would be hired to be the administrator for fire services. An efficiency gained in the public safety administration model is the sharing of administrative services and resources.

The next figure illustrates an organizational chart for a public safety administration model.

Figure 56: Public Safety Administration Model

As mentioned, an alternative to the traditional deployment of police and fire resources is the Public Safety Officer (PSO) form of public safety service delivery. The success of a fully consolidated agency depends on having individuals work together as a team regardless of their specific training and the specific primary discipline they are assigned (police or fire).

Although the cross-training of command staff is less critical than those assigned to field operations, it will make the model more successful. The cross-training of individuals responsible for incident command duties, however, is essential. Additionally, the more exposure the command staff has to all aspects of the public safety mission, the better the decision-making will be both administratively and operationally

In a fully staffed PSO service delivery model, the agency would be comprised totally of public safety officers. This of course may take considerable time to complete the training. Additionally, the city may have employees who are unwilling to undertake the cross-training, and this should be considered prior to implementation. Further, in a fully integrated public safety department, the public safety director should hold the title of police and fire chief to give clarity that this individual is responsible for all public safety activities.

As an alternative, the city may choose to implement a PSO program that may include:

- Training police officers to the EMT level only and equipping patrol vehicles with EMS first response gear. Then police patrol units can respond to EMS calls as the first tier either with or in lieu of fire department units. This model will be most useful when there are concurrent fire and/or EMS calls in the city.
- Training police officers in the firefighting discipline only and equipping each with firefighter personal protective clothing and associated gear. Then police patrol units can respond to fire calls and be included in the assembling of an *Effective Response Force*. This model creates efficiencies in the fire division and staffing can be reduced to a staff of two on the engine.
- Training police officers in both the firefighting discipline and to the EMT level with issued gear and equipment as described above, and dispatch police units to either all EMS and fire calls or as necessary when there are concurrent fire/EMS calls in the city.
- Long term- training firefighter staff in law enforcement and equipping each with required and necessary law enforcement equipment.

Estimated Capital Start-Up Costs-PSO Model

Item	Per Unit Cost	Aggregate Cost
Station Renovation (133 or 420)	Station 133 or Station 420	Market cost at time of renovation contract.
Engine Apparatus-Custom Chassis-fully equipped. 1-Frontline 1-Reserve Build-Time: 30-42 months dependent on chassis and manufacturer.	$850,000	$1.7 Million
Ambulance Apparatus-Type 1 with truck chassis fully equipped. 1-Frontline 1-Reserve Build-Time: 24-36 months dependent on chassis and manufacturer.	$450,000	$900,000
Estimated additional furniture, fixtures, equipment, IT, and maintenance (Fleet and Facility)	$300,000	$300,000
Fire Chief Vehicle (Mid-Size SUV)	$45,000	$45,000
Radios	Potable: 8 ($4,000 ea.) Mobile: 5 ($4,000 ea.)	$32,000 $20,000
Capital Contingency	$250,000	$250,000
Total		**$3,247,000**

Estimated Personnel Costs (First Year)-PSO Model

Position	Per Position Cost	Aggregate Cost
1-Fire Division Chief	$85,342 Position salary equivalent to Police Lieutenant	w/40% benefit costs: $119,479
1-Admin Assistant	$41,288	w/40% benefit costs: $57,803
Crew Leaders (Fire Lieut. Rank)- 3 positions	$77,226 Position salary equivalent to Police Sergeant Total base salary: $231,678	w/40% benefit costs: $324,349
Firefighter positions 9 positions	$57,243 Position salary equivalent to Police Officer Total base salary: $516,807	w/40% benefit costs: $723,530
Total Positions: 14	**Total Base Salary Costs: $875,115**	**Total Base Salary Costs w/40% benefit costs: $1,225,161**

Additional Personnel Start-Up and First Year Estimated Costs-PSO Model:

Item	Per Position Cost	Aggregate Cost
Advanced EMT Pay Station Personnel	$2,500 5 positions	$12,500
Paramedic Pay	$5,000 5 positions	$25,000
FLSA cost based on a 28-day FLSA work period (156 hours per year-12 operational personnel).	Crew Leaders: $24,823 Firefighters: $55,198	$90,021
Potential overtime to cover open shifts due to leave, training, off-duty functions (150 hours/year per operational employee-12).	Crew Leaders: $23,868 Firefighters: $53,075	$76,943
Uniform allowance-13 positions	$800 per uniform position	$10,400
Structural ensemble-13 positions Wildland gear-13 positions	Structural: $4,200 per person (13) Wildland: $2,800 per person (13)	$54,600 $36,500
Ancillary personal gear and uniform items-13 positions.	$125 per person	$1,625
Total		**334,256**

Estimated Capital Start Up and First Year Personnel Costs-PSO Model:

Category	Aggregate Cost
Capital	**$3,247,000**
Salary & Benefits	**$1,225,161**
Additional Personnel Costs	**$334,256**
Total	**$4,806,417**

Cost per call year 1: $4,446

Cost per call year 2: $1,401

Per call cost fire and EMS based on FY 25 ESD 4 and AAS contract year call projections (1,081 calls): $4,446 per call (fire and EMS). The cost per call for a Fair Oaks Ranch Fire & EMS PSO model is considerably more than what the city aggregately pays now per call for fire and EMS: ***$863.57 per call (1,019 calls-includes LSFD cancelled calls).*** Year 2 estimated costs to include salary, additional personnel costs, operational and administrative costs $1,559417. Estimated year 2 per call cost: $1,401 (based on 3% increase in call volume and does not include capital expenses).

In conclusion, what needs to be achieved by the city going forward is a reliable and sustainable Fire and EMS service delivery system.

CPSM assesses the current contracts with ESD 4 for fire services and Acadian Ambulance Service for EMS services are reasonable when compared to creating a Fair Oaks Ranch Fire and EMS city agency or implementing a Public Safety Officer service delivery model.

If the city chooses to develop and implement their own Fire & EMS department, or a hybrid thereof, the annualized cost will be considerably more than the current contract costs for fire and EMS services with ESD 4 and Acadian Ambulance Service. That said, the CPSM conducted citizen survey on Fire and EMS services told us that 53.6% of the respondents to the survey were neutral or agreed that they would be willing to pay more in taxes to support a city fire department.

CPSM recommends the city continue to optimize contract renewal discussions with the current Fire and EMS providers with the goal of continued, sustainable Fire and EMS services. These negotiations may include:

- An Acadian Ambulance contract that aligns with the city's fiscal budget year as such: a successor contract from May 1, 2025, to September 30, 2025, then a contract with successor years beginning October 1, 2025, to September 30, 2026, and beyond.
- Per call payment structure based on historical Fair Oaks Ranch workload for Fire and EMS services.
- Negotiation of a Level of Performance contract with Acadian Ambulance Service where the city stipulates an acceptable response time, and/or a dedicated ambulance in the city limits.
- Contract language in both the ESD 4 and Acadian Ambulance contract that has financial consequences for any call that does meet the contract language response time performance for the first arriving unit.
- Further evaluation and consideration of contracting with ESD 4 for both Fire and EMS services.

End of Report