Fire District
MASTER PLAN
Community Risk Assessment
Standards of Cover

South Placer
FIRE DISTRICT

March 2024

AP TRITON
VISION · INNOVATION · SOLUTIONS

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Acknowledgments

AP Triton Consulting wishes to extend its sincere appreciation to each of the individuals from South Placer Fire District and others whose contributions and assistance made this project possible.

Our sincere appreciation is extended to each of you…

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Dan Bajtos
Board Member

Gary Grenfell
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Mike Johnson
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…and the firefighters, officers, and support staff

who daily serve the citizens and visitors of the South Placer Fire District!

Introduction

The South Placer Fire Protection District has enlisted the services of AP Triton to create a Fire Department Master Plan. The purpose of this master plan is multifaceted:

- Understanding Current Situation: It seeks to provide a comprehensive understanding of the district's current status in relation to the risks faced by the community at present.
- Anticipating Community Growth: The plan aims to anticipate future community growth and, consequently, the potential increase in risks. By doing so, it prepares the fire district to address these growth-related challenges proactively.
- Resource and Infrastructure Planning: It recommends the necessary steps for the district to be adequately equipped with resources and infrastructure to cope with the anticipated growth in the community. This ensures that the fire district does not fall behind in providing essential services as the community expands.
- Policymaking Tool: The master plan serves as a crucial tool for policymaking and budgeting. It helps elected officials make informed decisions about where and how the community will develop in the future and what policies and budgetary support will be needed to address these developments effectively.
- Response Performance Analysis: AP Triton's team analyzed data provided by the district, as well as data from other sources, to assess the current levels of response performance. This analysis helps identify areas that need improvement and opportunities for enhancing the delivery system.
- Setting Response Time Objectives: The document establishes specific response time objectives, which are critical in measuring the effectiveness of the fire department's resources and deployment.
- Resource Deployment: It outlines how resources should be deployed strategically to maximize their effectiveness in responding to emergencies.
- Findings and Recommendations: The master plan concludes with findings and recommendations, which are categorized as short-term, medium-term, and long-term. This categorization allows the fire district to prioritize and plan for the implementation of improvements over time.

- Flexibility: AP Triton acknowledges that not all recommendations need to be implemented immediately and recognizes that some may need to wait for more favorable economic conditions. Nonetheless, all recommendations provided in the plan are intended to guide the fire district toward improved capabilities and service delivery.

In summary, the Fire Department Master Plan by AP Triton aims to help the South Placer Fire Protection District stay ahead of community growth and associated risks, ensuring that it continues to provide effective services to the community while also serving as a valuable resource for policymaking and budgeting decisions.

Section I:
EVALUATION OF CURRENT CONDITIONS

Overview of the South Placer Fire District

Agency Overview

South Placer Fire District (SPFD) is an independent fire district that provides fire protection, community risk reduction, and Advanced Life Support (Paramedic) emergency medical treatment and ambulance transportation to a population of about 34,768 in 42.05 square miles. SPFD serves the communities of Granite Bay, Loomis, and the southern areas of Newcastle and Penryn. SPFD owns six fire stations, four of which are staffed full-time and two of which are totally unstaffed, with 57 full-time career personnel and one volunteer. The district also owns one former fire station currently used for storage. SPFD is dispatched by Placer County Sheriff's Office. SPFD provides ambulance transport within the boundaries of the original district, but not within the Loomis annexation area, where AMR is the transport provider.

Figure 1: Old Rescue at SPFD

Background

SPFD was formed in 1952. SPFD began its ambulance transport service in 1962. In 2017, South Placer Fire District and Loomis Fire District consolidated.

SPFD established a Master Plan in 2008 and a Standards of Cover in 2004. A Strategic Plan, which includes Mission, Vision, and Goals and Objectives, was completed in 2019. All of the planning documents have been adopted by the governing body.

SPFD received a Class 3/3Y ISO Rating in its most recent rating from the Insurance Services Office (ISO) in February 2018.

Over the last few years, most cost minimization efforts have resulted from reducing resources as a budget reduction strategy. The reductions include the following:

- Stations 15 and 19 were closed in late 2022.
- The ladder truck was taken out of service at the same time.
- A new deployment model was implemented that pairs a transport ambulance with a two-person engine (for a total of four personnel) at two stations.
- Daily minimum staffing was reduced from 18 to 16 firefighters.

Parcels within Division 1 (the former Loomis Fire District) are assessed as both a voter-approved Special Tax and a Benefit Assessment (totaling $384 annually) for services provided by the Fire District. Both revenue sources have annual increases based on the Consumer Price Index (CPI). Parcels within original SPFD boundaries (Division 2) are assessed at $70 per year. There is no inflator on this assessment; it has been static since its inception in 1981. Fire mitigation fees are also assessed on new construction within the Town of Loomis and in the unincorporated county areas within the district.

In 2022, the SPFD conducted a Proposition 218-compliant Benefit Assessment process in Division 2 (original SPPD boundaries) in an attempt to increase revenue to maintain operations. The Benefit Assessment did not pass.

The Fire Chief has indicated that the facilities are generally in good repair, but some deferred maintenance projects will come due soon. There are three stations that need major overhaul work due to the changing deployment model. Apparatus are considered top-notch; SPFD received a grant to replace the oldest piece of apparatus, a water tender.

According to the Fire Chief, the South Placer area is ripe with opportunity to leverage economies of scale to improve services. South Placer could consolidate services with both Penryn and Newcastle, leading to improved services for both communities, along with Loomis and Granite Bay. Another opportunity for sharing services is to leverage the use of SPFD's mechanic shop and reserve fleet. SPFD has a robust reserve fleet that could support other communities, as well as an in-house fire mechanic and apprentice that can support most fleet concerns.

The Fire Chief's top three critical issues:

- Adequate funding, as expenses are rising faster than revenue
- Communications
- Automatic/Mutual Aid

The Fire Chief's top three opportunities to increase value and/or efficiency for the public:

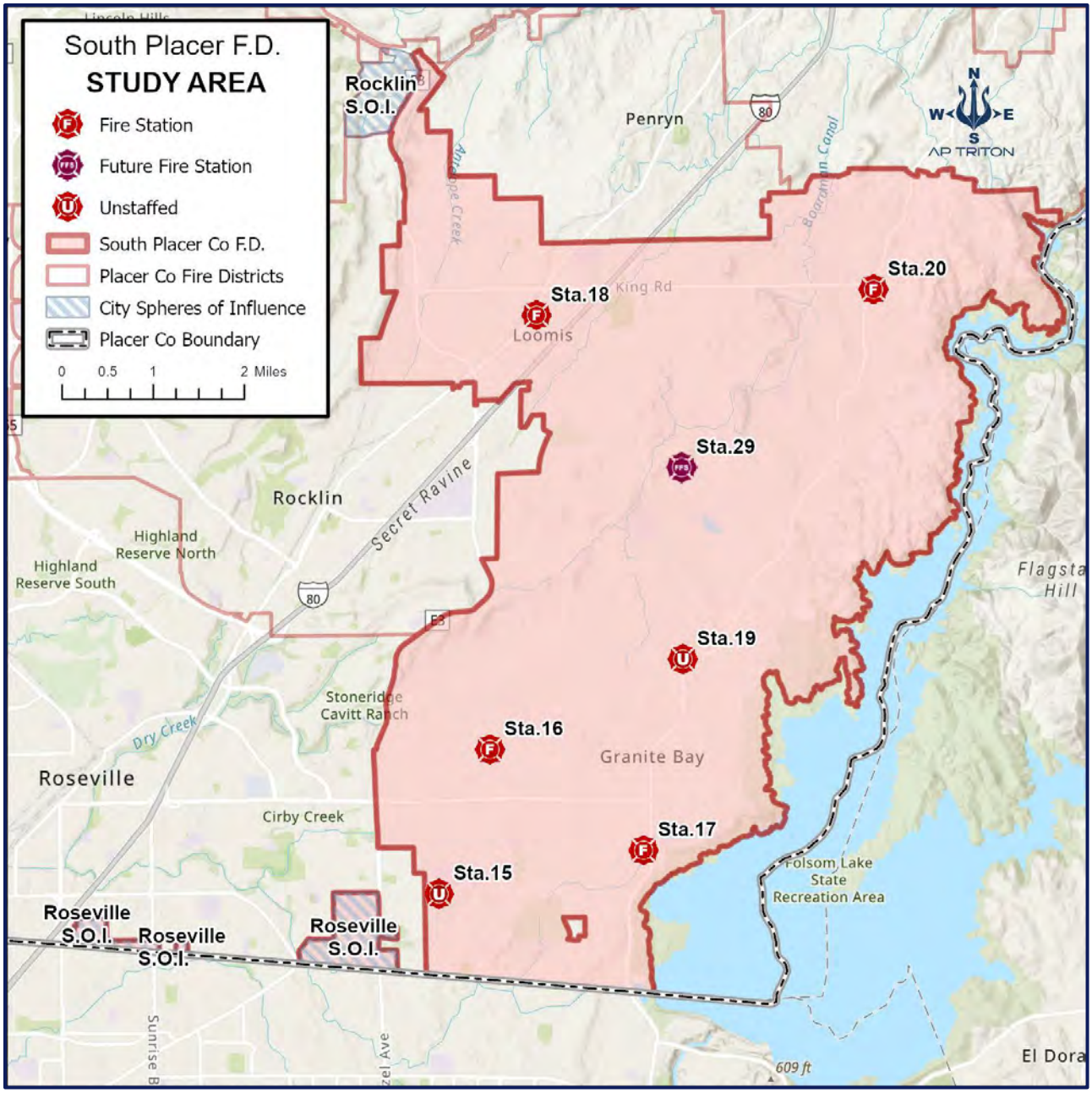
- Reorganization of smaller Fire Districts in the County through consolidation, annexation, or merger
- Creation of a fire dispatch center serving all the non-CAL FIRE districts and cities
- Community paramedicine

Boundaries & Sphere of Influence

The South Placer Fire District occupies the southeastern corner of the county with the Sacramento County line forming the southern border and the El Dorado County line the eastern border. The Newcastle and Penryn fire districts are on the district's north boundary; the cities of Lincoln, Rocklin, and Roseville lie to the west.

A small island of Western Placer Fire (CSA 28 Zone 76) lies adjacent to the northwesternmost boundary along Sierra College Bl. The SPFD territory includes two Divisions: Division 1 is the former Loomis Fire District; Division 2 is the original South Placer Fire District. Annexations to the City of Roseville have left some islands of SPFD territory within the extreme south end of Roseville. SPFD service area includes the Town of Loomis. The following figure shows the SPFD service area and current fire stations locations.

Figure 2: SPFD Service Area



Type & Extent of Services

Services Provided

SFPD provides a full range of services for its residents, including being one of only three fire agencies in the county to be the primary ambulance provider. The following figure represents each of the services and the level performed.

Figure 3: Overview of Services Provided

Service	Y/N	Level
Fire Suppression	Yes	
Wildland Fire Suppression	Yes	Wildland engine-based suppression (Type 3, 5, and 6)
Statewide Mobilization	Yes	OES Type 1 Engine assignee; OES USAR Type 2 trailer assignee
EMS First Response	Yes	EMT and Paramedic Level
Ambulance Transport	Yes	Paramedic Level (primary provider)
Specialized/Technical Rescue	Yes	
HazMat Response	Yes	FRO/FRA
Fire Inspection/Code Enforcement	Yes	
Plan Reviews	Yes	
Public Education/Prevention	Yes	
Fire & Arson Investigation	Yes	

Service Area

The South Placer Fire District was formed in 1952. In 2017, SPFD consolidated with Loomis Fire District. Altogether, the district consists of approximately 42.05 square miles with a population nearing 34,768. The community is characterized as a bedroom community with high-end homes. New homes average over 6,000 square feet, with many homes double that size.

The Loomis Basin is home to many small ranches and family orchards. The entire service area faces a wildland/urban interface fire threat. About half of the SPFD territory is State Responsibility Area for wildland fires. Other major hazards include two rail lines, Interstate 80 and a High-Pressure Fuel pipeline.

Collaboration

- Western Placer County Fire Chiefs (WPCFCA) thirteen-agency Closest Resource Agreement (CRA) provides for the dispatch of the closest appropriate resource.
- The district maintains and operates OES Engine 4106 under an agreement with the Governor's Office of Emergency Services. SPFD personnel staff this Type 1 engine when requested to respond to major incidents anywhere in the state.
- Much of the unincorporated land within the District boundary is classified as State Responsibility Area (SRA) for wildland fires. Thus, CAL FIRE dispatches a full wildland response—including engines, aircraft, crews, and bulldozers) to any reported wildfire.
- SPFD gives and receives mutual aid from the following agencies:
  - Auburn Fire Department
  - Roseville Fire Department
  - Folsom Fire Department
  - Rocklin Fire Department
  - Sacramento Metro Fire District
  - Penryn Fire District
  - Newcastle Fire District
  - Automatic aid and Mutual aid agreement with AMR for ambulance transport
  - Participant in Placer County Incident Management Team

Contracts to Provide Services to Other Agencies

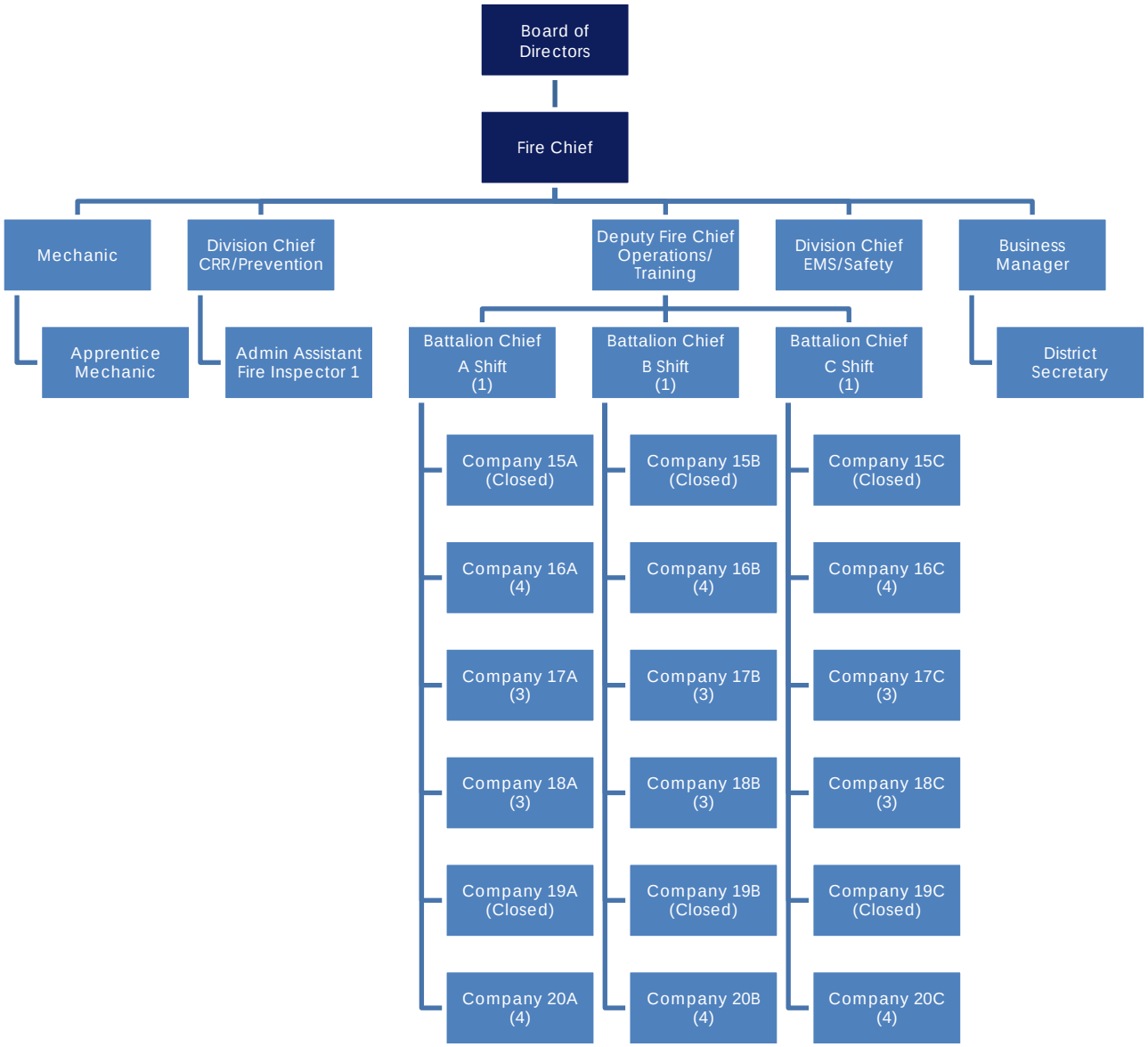
SPFD operates two ALS (paramedic) ambulances under an Exclusive Operating Area agreement with Sierra/Sacramento Valley EMS Authority. This agreement was finalized in 2007 and SPFD maintains its historic 1791.201 rights.

Governance & Administration

The SPFD is governed by a seven-member elected Board of Directors; comprised of four members from the original boundaries of the SPFD and three members from the boundaries of the former Loomis Fire District. The Fire Chief reports to the Board of Directors.

The organization is comprised of three Divisions: Operations/Training, Emergency Medical Services/Safety and Community Risk Reduction/Prevention.

Figure 4: South Placer Fire District Organizational Chart



Financial Review

Historical Information

SPFD operates through one fund, the General Fund, to manage the district's operations, mitigation fees, and capital requirements. The SPFD operates as an independent special district and provides an all-hazard response to the communities of Granite Bay, Loomis, Folsom Lake State Recreation Area and portions of Penryn and Newcastle. Services provided by the district include structural and wildland fire response and advanced life support (ALS) ambulance transport service.

SPFD is governed by an elected seven-member Board of Directors and provides oversight and direction to the professional staff, apprentices and volunteers of the organization. SPFD operates on a July through June fiscal year.

Revenues

SPFD is funded by property taxes and a $70 per parcel special tax applied to Division 2 parcels and a special tax and benefit assessment averaging $384 per parcel applied to Division 1, mostly the Town of Loomis, parcels. The Division 2 assessment was enacted in 1981 but did not include a provision to increase the assessment amount for inflation, resulting in revenues falling short of escalating costs. Additional revenue is provided by billings for ambulance transport services to the communities served by the district, cellular tower lease, fire prevention and mitigation fees, and cost recovery for response to emergency incidents.

A significant amount of information regarding the General Fund was reviewed to develop a financial trend analysis for the five-year period. This review of the historical information of General Fund (GF) revenues revealed a minimal impact on revenues received by the SPFD during the COVID-19 pandemic.

In 2022, the district sought to increase revenues from Division 2 through a Benefit Assessment under a Proposition 218 election. The Benefit Assessment would have increased the Division 2 assessment of $214 annually in addition to the existing $70 and would have provided for an annual Cost of Living Adjustment (COLA) tied to the San Francisco Bay Area consumers' price index but capped at 3% annually. On June 9, 2022, the measure failed by a 53 to 47% vote margin.

The failure of the Benefit Assessment measure resulted in the closure of Stations 19 and 15 with the reassignment of personnel and equipment from Station 15 to previously closed Station 16. The failure of the measure also resulted in the removal from service Truck Company (Truck 17). While the measure's defeat did not result in direct layoffs, six full-time equivalent positions were eliminated due to attrition with no current plans to replace them.

Property tax revenues are based on assessed valuation and are the largest source of revenue to the district.[1] This revenue source accounts for approximately 70% of General Fund Revenues annually. Other sources of revenue include special assessments (17%), ambulance revenues (10%), cost recovery charges (2%), investment income and other sources. SPFD has been successful in obtaining grants for various purposes including replacing cardiac monitors and a 30-plus-year-old water tender. The district receives no funding from the State or Placer County.

The following figure provides a detail of revenues for the SPFD.

Figure 5: South Placer FD General Fund Revenues (FY 2019–FY 2023)[2]

Revenue	Actual FY 2019	Actual FY 2020	Actual FY 2021	Actual FY 2022	Actual FY 2023
Ambulance Service Charges	1,549,284	1,534,099	1,573,545	1,747,537	2,152,370
GEMT & Other Miscellaneous	340,317	52,676	188,569	230,222	260,654
SAFER Revenues	417,306	281,262	95,497	—	—
Fees and Cost Recovery	185,457	203,976	181,647	322,803	303,824
CFAA Revenues	464,635	141,757	453,444	435,212	181,204
Other	719	944	929	—	—
Total Program Revenues	2,957,718	2,214,714	2,493,631	2,735,774	2,898,052
Property Tax Revenue	7,919,672	8,240,091	8,601,032	9,070,472	10,383,978
Special Tax	1,147,635	1,170,742	1,187,130	1,205,068	702,157
Loomis Assessment	945,828	993,349	1,022,929	1,048,996	1,099,907
Mitigation Fees	312,615	369,461	346,393	525,147	909,103
Cellular Tower Lease	83,757	98,981	96,539	94,353	92,461
Interest	86,251	61,314	11,070	7,601	69,508
Other	—	—	—	72	7,555
Total General Revenues	10,495,758	10,933,938	11,265,093	11,951,709	13,264,669
Proceeds from Equip. Financing	—	—	700,154	—	—
Total Revenues:	$13,453,476	$13,148,652	$14,458,878	$14,687,483	$16,162,721

Expenses

SPFD operates through three divisions: Operations, EMS, and Fire Prevention. Services to the community and related revenue streams to pay for those services are divided into two response areas: Division 1, consisting primarily of the Town of Loomis, and Division 2, which includes Granite Bay, unincorporated Loomis, and the southern areas of Penryn and Newcastle.

The South Placer FD operates four staffed fire stations and one volunteer station. The department operates four ALS engine companies, and two ALS ambulance units. SPFD participates in the CalPERS pension system and has incurred a significant unfunded actuarial liability (UAL) on its pension obligations. Annual payments on this UAL are projected at more than $930,000 per year, increasing to over $1M next year and will continue to increase for the foreseeable future. The UAL will represent a very significant portion of SFPD's costs associated with providing services to the community. Additionally, the District issued bonds in an effort to paydown the UAL using a lower interest rate. These bonds add another $500,000 to the total actual expenditures but are reflected in as debt service.

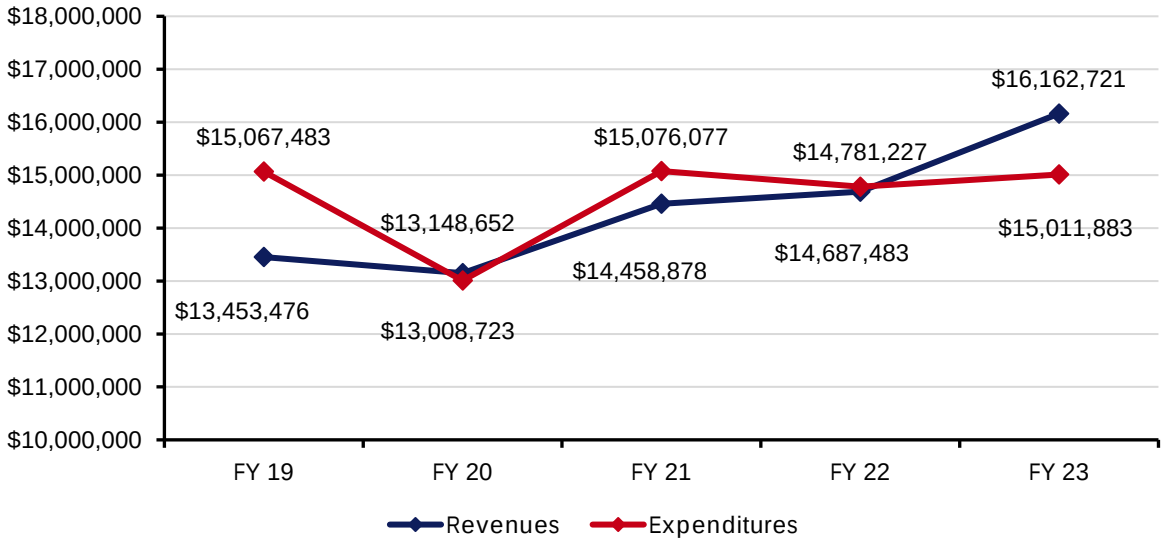
SPFD expends funds for salaries and benefits, strike team expenses, services and other operations, and mitigation expenses of the organization. Additionally, funds are expended on the purchase of fixed assets. The following figure indicates these costs on an annual basis and the growth of these expenditures.

Figure 6: South Placer FD General Fund Expenditures (FY 2019–FY 2023)

Expenditures	Actual FY 2019	Actual FY 2020	Actual FY 2021	Actual FY 2022	Actual FY 2023
Total Salaries & Benefits	9,733,287	10,421,691	10,905,713	11,782,261	11,593,367
Services & Operations	2,681,670	2,066,749	2,502,115	2,469,323	2,489,209
Total Operating Costs	12,414,957	12,488,440	13,407,828	14,251,584	14,082,576
Capital Expenditures	2,652,526	520,283	1,668,249	529,643	929,307
Total Expenditures:	15,067,483	13,008,723	15,076,077	14,781,227	15,011,883

Shown graphically, the preceding information indicates the minimal impact of the pandemic on SPFD's property tax revenues. The next figure illustrates the General Fund revenues and expenditures over the previous 60-month study period.

Figure 7: General Fund Revenues & Expenditures (FY 2019–2023)



Financial Projections

Revenues are projected to grow by 5% annually with salary, benefits, and other operating expenses growing at 7% annually.[3] These forecast growth factors create a cash flow deficit beginning in FY 2025 and following years. The following figure summarizes these projections.

Figure 8: Summarized Projected GF Revenues & Expenditures

Revenue/Expenses	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Revenue	14,921,543	15,447,586	15,999,257	16,577,814	17,184,582	18,043,811
Expenditures	14,537,735	15,555,376	16,644,252	17,809,349	19,056,003	20,389,923
Surplus (Deficit):	383,808	(107,790)	(644,995)	(1,231,535)	(1,871,421)	(2,346,112)

Capital Planning

A formal capital improvement plan for the South Placer Fire District was obtained and reviewed. The review identified numerous vehicles that have reached or passed their estimated replacement year. The fund balance for the apparatus replacement plan is only $501,705 at the end of FY 2023.[4] The limited fund balance and the minimal contributions to the replacement fund from the general fund and the development fees will not produce funds sufficient to meet the capital needs of the replacement schedule.

Management Components

Managing today's fire service can be highly complex. A progressive fire district needs to address various elements, including maintaining a stable, qualified workforce, ever-increasing health, and safety concerns, addressing community expectations, ensuring an adequate and timely emergency response in serving the community, and providing stewardship over the available financial resources.

In addition to these organizational challenges, managing a fire district requires developing foundational elements, including the district's Mission, Vision, and Values, setting goals and objectives, identifying critical issues and challenges, providing effective internal and external communication, ensuring proper and up-to-date recordkeeping, and employing multiple planning processes. This section of the report examines SPFD's efforts.

Foundational Elements

Mission, Vision, Values

SPFD has developed its Mission, Vision, and Values Statement, which is proudly displayed on the district's annual report as well as at each of its facilities and fire stations:

One Mission/One Vision

The SPFD has combined its Mission and Vision into a single "shared" statement, "To Provide Exceptional Service to Our Community."

> *"District sees its mission and vision as one and the same. It is both the reason we are here and the standard that we aspire to deliver every day. It is shared by every member of our team.*
>
> *As public servants, we take pride in the fact that everything we do, we do for our community. Usually that includes serving within our district boundaries. Often that includes servicing neighboring regions and at times even distant locations for mutual aide. In all cases, we know the job always comes down to taking care of people.*
>
> *We recognize that we provide more than emergency response. Yes, we are there when you need us most for emergency medical and fire services. We are also there to provide outreach, education, and prevention services that reduce the risk to our community in the first place. Across all of our efforts, our standard of care is to be exceptional. We take pride in the responsibility the public has entrusted to us, and we make sure we give back our very best in all that we do."*

SPFD Core Values

Ride for the Brand

"We take pride in our organization and are honored to serve and protect. We show this loyalty through words and actions in our commitment and dedication."

Integrity

"We maintain trust with each other and the public with honor and devotion."

Respect

"We respect one another, treat others as we would like to be treated, and understand that everyone brings value."

Excellence in Action

"We train and prepare to perform our duties in a professional and effective manner in accordance with the needs of our community."

Accountability

"We provide transparency in all district operations and responsibilities. We are accountable for our own actions, the treatment of our co-workers, and the public we serve."

Strategic Goals

In early 2020, the SPFD authored the Strategic Management Plan (SMP), listing strategic goals and objectives. These strategic goals serve as high-level long-range categories for success. Each of these goals is supported by key objectives that provide greater specificity on areas of focus over the subsequent 6–18-month period. Though the current plan is near the end of its effective life span, the goals and objectives remain relevant, and it continues to serve as a guide until a successor plan takes its place.

Internal Assessment of Critical Issues

The Fire Chief has identified several critical issues facing the SPFD. The overlap between critical issues facing SPFD today and future challenges for the fire district should be noted, as none of these challenges lend themselves to quick, or simple solutions. Rather, some of these critical issues will persist well into the future requiring the fire district to commit to managing them over time and adjusting to changes as they develop. The critical issues facing the Fire District are revenue/funding shortfalls; internal and external communication challenges; maintaining adequate staffing levels; recruitment and retention of personnel, and community engagement and public outreach.

Internal Assessment of Future Challenges

Several future challenges were identified by the Fire Chief for the SPFD: First, will be the organization's ability to recruit and retain the personnel necessary to sustain the organization and provide a talent pool from which to develop future leaders. Second, is the organization's ability to address recruitment and retention challenges while creating greater diversity, equity, and inclusion.

Third, is the increasing average age of the community, which will bring greater demand for emergency medical services and a potential shift in the number of Medicare participants, ultimately impacting the community payer mix. Finally, fiscal sustainability and the rising cost of infrastructure and apparatus replacement costs, are also concerns for the SPFD.

Communications

Internal Communication

Internal communication within the SPFD is accomplished in several ways. Each Tuesday, the Fire Chief meets with the entire executive team and administrative staff. This weekly meeting serves as a team huddle, providing an opportunity for team members to check in with one another, share important details about key issues and projects within their respective divisions, and get direction from the Fire Chief when necessary.

To ensure two-way communication flow between the Fire Chief's office and emergency response personnel, the Deputy Chief of Operations conducts monthly meetings with the operations division. This standing meeting is supported by a detailed agenda that provides organization and structure, so important topics and issues facing the organization are discussed. The agenda also serves as a tool for keeping attendance and as a tracking tool for action items.

Action items are lined out with a brief description, the date the task was assigned, to whom the task has been assigned, the projected completion date, and any important comments, or updates. This simple yet functional tool is an excellent internal communication and project-tracking device. The Fire Marshal and Battalion Chiefs representing all three platoons ensure information is communicated up and down the chain of command.

At least bi-monthly Company Officer Training also provides an opportunity to share important information, answer questions, and correct any misinformation, or rumors that may be circulating through the organization. Each month, shift Battalion Chiefs coordinate training for company officers and first-line supervisors.

The training agenda and any accompanying training material are developed with assistance from the district's executive staff and Administrative Chief officers. This type of recurring training serves an important role as an internal communications tool while helping to ensure that first-line supervisors are kept up to date on important issues.

Twice each calendar year, the Fire Chief and Executive Management Team conduct All-Hands meetings, which are open to the entire department. The first half of the meeting is structured as a briefing to ensure important information regarding the State of the district is thoroughly covered. The Fire Chief and his staff report on district finances, recruitment, staffing, operational issues, and political matters.

The second half of the meeting is a forum discussion open to all district staff. This portion of the meeting is less structured by design and is meant to serve as an opportunity for anyone in the organization to address the Fire Chief and staff with issues, questions or concerns. The informal nature of this portion of the meeting is intentional to allow the Fire Chief to be transparent and is intended to be more relaxed, open and comfortable for everyone.

Monthly station visits and lunch with the Fire Chief provide an excellent opportunity for line-level personnel to engage one-on-one with the district's Leadership. They provide not only an opportunity for open dialogue and two-way communication, but perhaps more importantly, a chance to build and maintain personal relationships. These relationships serve an important role in reminding everyone that regardless of rank or assignment, it's people, that make up the organization.

To help ensure there is open dialogue with labor, the Fire Chief and members of the Executive Management Team meet regularly with the Executive Board from Local 522 to address and collaborate on labor/management issues.

The following figure summarizes SPFD's internal communications.

Figure 9: SPFD Internal Communications

Internal Communication	SPFD
Regularly scheduled FD staff meetings	Yes
All personnel Department e-mail	Yes
Agency Intranet	In process
Written memos used	Yes
Member newsletters	No
Member forums (all hands meetings)	Yes
Open-door policy	Yes
Chain of command clearly identified	Yes

External Communication

Information is shared with the public primarily through the district's website and open houses conducted every quarter at a different station resulting in all stations hosting one each year. The district does not conduct community surveys, or regular customer satisfaction surveys. The district is using the most current social media platforms, including Facebook, Twitter, and Instagram. Additionally, information is shared through hyperlocal social networking sites like Nextdoor.com.

As of May 2023, the SPFD has approximately 4,800 Facebook followers, 1,839 Twitter followers, 2,193 Instagram followers and 16,000 Nextdoor.com subscribers.

Reporting & Recordkeeping

Proper recordkeeping is essential to any organization's success. Collecting complete and accurate information from each division within the district ensures that relevant data is obtained and provides for timely reporting based on local, state, and federal requirements.

SPFD utilizes a third-party platform, ImageTrend®, as the district's electronic repository for all fire and EMS reporting data. District training records are also captured electronically through a third-party provider, Vector Solutions®.

Additional records maintained and archived by the SPFD include those for maintenance and testing of self-contained breathing apparatus (SCBA), fire hose, ladders, and apparatus pumps. In addition, vehicle maintenance is performed by SPFD shop, with records maintained accordingly by shop personnel.

Regulatory Documents

Government agencies depend on written policies, standard operating procedures (SOPs), and reports as effective management and legal compliance components.

The following figure summarizes SPFD's regulatory documents.

Figure 10: Regulatory Documents

Regulatory Documents	SPFD
Rules available for review	Yes
SOPs available for review	No
SOPs regularly updated	No
SOPs used in training evolutions	No
Department policies available for review	Yes
Internally reviewed for consistency	Yes
Reviewed for legal mandates	Lexipol
Training on policies provided	In process

Document Control & Security

SPFD utilizes computer-based controls and manual recordkeeping platforms for human resources and similar-type documents. Security for the SPFD is based on two areas: document security and facility/apparatus security.

Document security is achieved using password-protected computers, computer workstations, and cloud-based applications. Usernames and passwords are managed via active directory domain services through Microsoft Office 365 utilizing two-factor authentication and passwords with a minimum character length of eight characters. District workstations are not accessible from the outside, and the intranet is protected via Fortinet FortiGate Firewall hardware and licensing Sentinel One Virus software on all endpoints. To help ensure compliance with security, cybersecurity training is provided to all employees via Vector Solutions.

Facility security is achieved using physical barriers and electronic access controls at external doors. The system is comprised of cypher locking doors equipped with automatic closure devices. Apparatus day doors have timers for automatic closure and facilities are protected by external video capture and motion-activated lighting.

Documentation & Compliance Testing

Proper recordkeeping and secure archives are essential when meeting government agencies' legal and regulatory requirements, while ensuring business best practices. Secure document archiving can also play a key role when addressing legal or other administrative actions.

The following figure summarizes SPFD's reporting and recordkeeping.

Figure 11: Reporting & Recordkeeping

Record Type	SPFD
Electronic incident records kept	Yes
Software for documenting non-EMS calls	Image Trend
Software used for EMS	Image Trend
Periodic Reports to Elected Officials	
Financial reports	Yes
Management reports	Yes
Operational reports	Yes
Annual report	Yes
Required Records Maintained & By Whom	
Incident reports	Yes
Patient care reports	Yes
Exposure records	Yes
SCBA testing	External/Contracted
Hose testing	Internal
Ladder testing	External/Contracted
Pump testing	External/Contracted
Breathing air testing	External/Contracted
Vehicle maintenance records	Internal, Shop personnel

SPFD's recordkeeping appears to be efficient and effective. Vehicle maintenance is conducted and documented by the district's shop. The process supports general maintenance and helps identify the need for future capital expenditures.

Information Technology Systems

The SPFD Information Technology Manager provides maintenance of district computers, hardware, software, printers, phones (landline and cellular), tablets, peripherals, and any necessary technical support. When necessary, additional technical support is available through an outside vendor, Network Design Associates.

Planning for Fire Protection & EMS

Fire Service Planning Process Overview

Fire and EMS services are continually evolving and adapting to meet the demands of our expanding communities. To stay ahead of this growth and maintain an adequate service level, proactive planning is essential. Enhancing fire ground safety, integrating new technologies, and updating equipment are necessary to comply with evolving regulations and to grow alongside our communities. The most effective approach to managing rapid changes is to develop a process for regularly reviewing their impact on the organization. Establishing a culture of continuous improvement is key to addressing future needs successfully.

The optimization of service delivery is best achieved by identifying which programs are functioning effectively and efficiently and determining which need modifications or discontinuation. Organizational planning enables a department to formulate a vision that proactively anticipates future changes, rather than reacting abruptly and unprepared. Proper planning is a crucial element in making informed and successful decisions.

The first step in any planning process is to understand the current state. Agencies must evaluate and understand their risks, identify metrics to measure performance, and evaluate existing service levels. Once the current situation is thoroughly understood and the vision defined, agencies should document steps to meet future needs. These steps are rarely published in a single plan. Typically, multiple planning documents are required to properly address both strategic and operational needs.

Strategic planning provides a clear direction and understanding of future requirements. Operational plans outline specific steps and resources required for strategy implementation. These plans can vary in scope, from immediate, short-term actions to long-term plans projecting many years into the future.

The following figure lists the levels and plan types that fire and other public agencies typically employ.

Figure 12: Planning for the Future

Level	Description	Time	Examples
Operational Planning	These plans deal with specific resource needs, time frames, directions or processes to meet strategic or mission requirements.	Immediate	• Standard operating procedures and policies. • Incident tactical plans. • Incident preplanning.
		Short-Term	• Annual budgets. • Annual project plans.
		Mid-Term	• Apparatus Replacement. • SCBA/Radio replacement schedules. • Emergency Management plans.
		Long-Term	• Facilities replacement plans.
Strategic Planning	This document category utilizes information about the future and the organization's mission, vision and values. The plan creates a pathway to change and gives the agency its heading and general directions.	Mid-Term	• 3-5 Year Strategic Plan.
Master Planning	This type is part operational and part strategic plan. It combines current and forecasted positions with potential and probable changes in the agency's environment to produce direction on maintaining operations.	Mid- and Long-Term Plans	• 5-20 Year Master Plan

In the preceding figure, the immediate plans define ongoing activities. Accomplishing short-term objectives requires only current resources. These plans get completed during the current budget cycle. Mid-term plans will spill over budget cycles but typically be completed by department leadership working with their governing bodies. Long-term plans will likely outlast the sitting government and potentially the current administration.

Agencies may produce or combine any number of plans to help them address challenges. They may have the resources to follow an internally developed or predefined process. On the other hand, they may need outside professional assistance to help them develop their plans and planning process. The key to success is not necessarily to follow one approach over another or create a standardized document. Instead, success comes through creating clear, concise, relevant information publicized and used by members and leaders in everyday decisions.

Effective plans incorporate ongoing review to ensure they are followed and meet defined goals and objectives. They are closely followed or changed as the situation warrants. They are updated periodically, reported to the governing body, and used as a leadership and decision-making tool.

Effectiveness of SPFD's Planning Efforts

SPFD planning efforts are both operational and strategic in nature. Though some strategic planning documents have expired, this master plan document may help fulfill some strategic requirements for effective management. Still, the agency will benefit from a renewed and expanded strategic planning effort.

SPFD's Planning Preparation

SPFD maintains control and planning documents to assist management and the members with daily and near-term decisions. The district has a documented vision, mission and values statement, which the SPFD gives life to through a set of well-defined principles and organizational philosophies.

Strategic Management Plan

The stated purpose of the SPFD Strategic Management Plan (SMP) is to, "To serve the community moving forward with excellence." The SMP provides a bridge between short and mid-term planning efforts coupled with a vision for the community, governance and provision of public services by the South Placer Fire District.

The SMP articulates the organization's strategic goals and objectives through specific recommendations. To provide ongoing stewardship of the SMP, Goal Steward Teams are created as part of the planning process. Goal Steward Teams provide a mechanism for accountability and a means to ensure relevant information and input is shared throughout our organization. This simple, but important process provides an opportunity for all members of the South Placer Fire District to have a voice in the direction of the district.

Balanced Strategic Goals

Safety & Well-Being

"We prioritize the physical, mental, and behavioral safety and well-being of all our employees while in the station and on calls. We look out for each other today and for our long-term health."

Outreach & Engagement

"We take the initiative to those we serve through prevention, awareness, education and social functions."

Team of Professionals

"We are a committed and recognized team of highly trained professionals."

Continuous Improvement

"We recognize the need and are willing to evolve our service delivery and business operations to maintain excellence."

Fiscal Responsibility

We recognize the need and are willing to evolve our service delivery and business operations to maintain excellence.

As previously stated, completion of this long-range master plan is an important step. However, the South Placer Fire District is strongly encouraged to take advantage of the opportunity and momentum to take an additional step forward and complete a community-driven strategic plan.

A comprehensive community-driven strategic plan contains several key features that increase transparency and assist in developing an accurate understanding of the community's needs and expectations.

- A community survey to understand the priorities, opinions, and expectations related to service delivery, core services, and programs.

- An anonymous member survey to gather feedback on the members' priorities, opinions, expectations, core service, and programs.
- A review of the mission, vision, and value statements to ensure they still represent the agency.
- An evaluation of the agency's strengths, processes, or resources that the agency wants to continue to capitalize on.
- Assistance in evaluating SPFD's weaknesses. This process and its findings should be made public, but the temptation to minimize agency issues is compelling. However, addressing these weaknesses is at the heart of strategic improvement and should not be ignored.
- An evaluation of those opportunities outside the agency's control but on which the agency may be able to capitalize.
- An evaluation of the threats and outside pressures put upon the agency.

Operational Planning

Regional Operational Planning

Planning for large events and incidents requiring specialized resources, or a large amount of mutual aid, is critical. To do so effectively requires forethought and regional cooperation to ensure a multi-agency response is coordinated and an appropriate surge capacity is maintained for wildfire, flooding, earthquakes and other natural or manmade disasters.

To ensure proper management and coordination of resources, SPFD works with other local, state, and federal agencies in the county, to establish and maintain response and communications plans, to ensure the necessary resources are dispatched and communication between the myriad agencies is coordinated. Operational readiness is monitored and tracked on the Placer County Operational Area (XPL) website and updated as necessary by SPFD staff. The Western Placer County Fire Chiefs Association oversees the writing and maintenance of the Placer County Operational Area Mutual Aid & Strike Team Mobilization Plan. This plan serves as a guideline for mass local government emergency resource response involving the Placer County Operational Area. Agreements are in place for mutual aid and sharing of resources and provide important details on the types and quantity of resources each agency will commit to. These agreements articulate key information such as which agency or jurisdiction bears the financial burden for suppression or incident mitigation.

Local Operational Planning

Pre-incident plans must be easy to use under intense operational situations and readily available to all arriving companies and incident commanders. These plans should contain information that is useful for responders and include information such as:

- Building layout and specific characteristics
- Building Construction
- Occupant characteristics
- Location and types of fire protection and hazard containment systems
- Water supply volume and access locations
- Exposures
- Employee or industrial response personnel capabilities

Typically developing a process from a pre-established system or program has the highest probability of success and adoption. Resources such as NFPA 1620 are available and provide detailed information on developing and using pre-incident plans.

SPFD has developed and maintains several types of planning tools to provide emergency response personnel with important information and details about specific hazards in their response area. Personnel collaborate with Fire Prevention staff on new construction and significant building remodels and conduct periodic inspections to gather detailed information about occupancies while conducting hazard assessments.

Financial Planning

SPFD Budget Planning Process

The SPFD budget planning process is managed by the Fire Chief working in conjunction with the Fiscal Operations Business Manager and Budget Committee. For operational items, the Deputy Chief of Operations works closely with Division Chiefs, and individual Program Managers to build the budget and allocate funds through the budget cycle and planning process.

Program Managers come from all ranks and assist with budget preparation. Program Managers plan, coordinate, and budget for the equipment and training necessary to support the district's goals and objectives. The Fire Chief, Business Manager, and Operations Chief work closely with all the Program Managers to evaluate recommended purchases, project timelines, and forecasting needs for the organization.

Sharing responsibility for the budget planning process with operational staff is an effective way to distribute workload and ensure district programs have the requisite oversight to ensure they remain effective, efficient, and aligned with the fire district's goals. Additionally, the opportunity for all members to take an active role in this critical administrative function provides an opportunity for future leaders to learn through doing and deepen their understanding of the organization, the complexity of public procurement, and the necessity for planning and fiscal accountability.

Governance & Transparency

To ensure the district's governing board is well-informed and prepared to provide the necessary oversight and transparency, financial planning for the SPFD is done in collaboration and close coordination with the Board's standing Finance Committee. The Fire Chief oversees the budget planning process for the district, ensuring the essential inputs are provided and all required analysis is accomplished.

Succession Planning & Professional Development

For a fire department to identify recruitment and retention as a critical issue facing the organization is not unusual. Over the past decade, fire departments all over the United States have seen a drop in the number of applicants and people gravitating toward the profession. What once seemed like a limitless supply of young people wanting to join the fire service is now beginning to slow. In some places, the pipeline is almost dry. Like other agencies, the SPFD has seen a decline in the number of people interested in joining their ranks, and the competition for talent both sworn and non-sworn is higher across the board.

These challenges underscore the need for organizations to acknowledge the value of their personnel and nurture the talent within their ranks. Absent this, organizations will continue to struggle to attract the best candidates and retain and prepare those individuals best suited to lead.

The SPFD does not have a documented succession plan. The organization supports professional development through tuition reimbursement and support for personnel attending conferences and seminars. The SPFD's bi-monthly Company Officer Training also provides an opportunity to provide mentoring and internal staff development. This type of recurring training serves an important role as a communications tool while helping to ensure that first-line supervisors are kept up to date on important issues.

Staffing & Personnel

Fire departments and districts must consider their employees as their most valuable asset in today's fire service. Managing personnel to achieve maximum efficiency, professionalism, and personal satisfaction is both an art and a science. Consistency, fairness, safety, and opportunities for personal and professional growth are critical values for a healthy management culture. This is especially true in departments that are evolving and progressing to meet today's emergency response challenges.

The size and structure of a fire department's staff depend on the department's specific needs. These needs must directly correlate to the needs and funding capacity of the community. A structure that works for one department may not necessarily work for another. This section provides an overview of the SPFD staffing configuration and management practices.

Fire department staffing is typically divided into two distinctly different groups: 1) Administration and Support, and 2) Operations. The Administration and Support group usually provides oversight and support to the Operations group. This support enables emergency response personnel to deliver effective services to the community. The second group, Operations, provides the necessary resources to perform emergency and non-emergency services for the community.

Administrative & Support Staffing

As with every other division within a fire department, the administration and support division must have the appropriate number of resources to function adequately. Maintaining a balance of administration and support personnel in comparison to operational personnel is critical to the organization's success in accomplishing its mission.

Typical responsibilities of the administration and support personnel include planning, organizing, directing, coordinating, and evaluating the various programs within a fire department. This list is not exhaustive and may encompass other elements as needed. It is essential to recognize that tasks associated with each of these functions often occur simultaneously, requiring the Fire Chief and administrative support staff to focus on multiple areas at once.

SPFD operates with civilian administrative support staff, who are responsible for critical tasks including clerical, financial, records management, budgetary, and customer service support. The Fiscal Operations Business Manager oversees the Administration Division and also serves as an analyst for other divisions within the district as required.

The following figure lists the administrative and support staff for the SPFD.

Figure 13: Administrative & Support Staffing

Assignment	FTEs
Fire Chief	1
Deputy Chief	1
Division Chief – EMS/Training	1
Division Chief – Fire Marshal	1
Fiscal Operations Manager	1
District Secretary	1
Administrative Assistant/Fire Inspector 1	1

Emergency Response Staffing

The SPFD's emergency response staffing level is determined by the risks associated with the community, the financial ability of the District to fund the department, and the expectations of those residing within the jurisdiction.

The SPFD operates using a three-platoon system (A, B, and C shifts), with each platoon scheduled for 48 hours on duty per shift. This schedule achieves the current minimum staffing level of 15 personnel, which includes 4 Engine crews, 2 ambulance crews, and 1 Battalion Chief.

The following figure illustrates the daily operational staffing at each station.

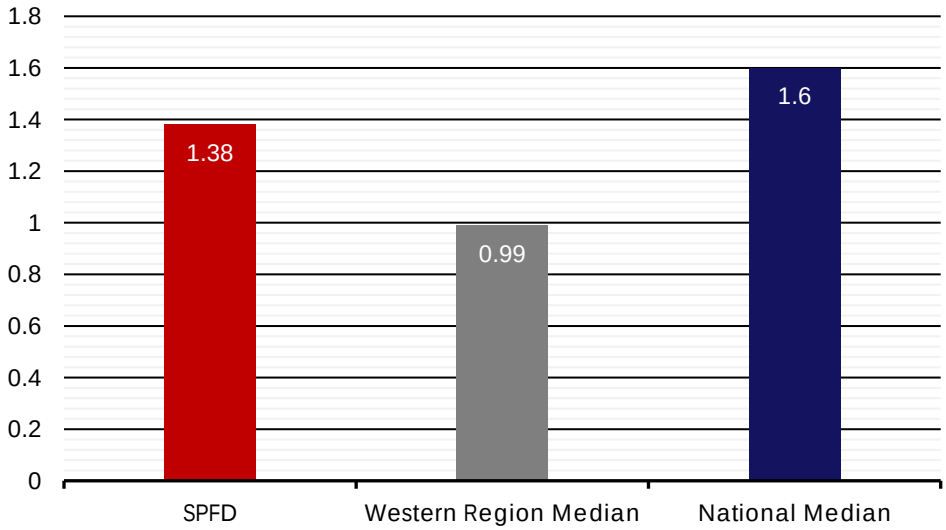
Figure 14: Daily Staffing

Station	Daily Staffing	Unit Staffing
15	0	Station is currently closed
16	4	Engine (2), Ambulance (2)
17	4	Engine (3), Battalion Chief (1)
18	3	Engine (3)
19	0	Station is currently closed
20	4	Engine (2), Ambulance (2)
Total:	15	

The National Fire Protection Association (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* is frequently cited as an authoritative document addressing fire department staffing. In addition, the Center for Public Safety Excellence (CPSE) publishes benchmarks for the number of personnel recommended on the emergency scene for various levels of risk.

SPFD currently has 52 uniformed (sworn) uniformed personnel. Of these, 48 emergency responders provide fire suppression, rescue, and EMS services to the community. In comparing the number of Firefighters on staff per 1,000 population of the service area, the following figure illustrates the current comparison of the SFPD's staffing compared to the western region median listed within the *2020 United States Fire Department Profile* published by NFPA. The career staffing level for SPFD is 1.38 per 1,000 population, which is above the western regional median of 0.99 per 1,000 population, however, falls below the national median of 1.6.

Figure 15: Firefighters per 1,000 Population (2020)



SFPD also can request mutual-aid resources from neighboring departments to assist during significant incidents. The following figure lists mutual-aid resources available to the district.

Figure 16: Mutual Aid Resources

Department	Engines	Aerials	Other	Total Staff
Auburn Fire Department	2	0	1 Brush	5
Roseville Fire Department	2	1	1-HazMat 1-Heavy Rescue 3-Brush	10
Folsom Fire Department	4	1	3-Medics 2-Brush 2-Grass	16
Rocklin Fire Department	2	1	2-Brush	10
Penryn Fire District	1	0	1-Brush	2
Newcastle Fire District	1	0	1-Grass	2

Personnel Management

Personnel who deliver emergency services to the residents, businesses, and visitors of a community are a critical component of any fire department. Effective and efficient management of an organization is crucial for the district's success. Without adequate administrative and support personnel, fulfilling the district's mission may become compromised. An essential function of the department's success is managing human resources—providing for its greatest assets.

Policies, Rules, Regulations, & Guidelines

Department policies and procedures are maintained using Lexipol®, a third-party, state-specific policy developer. SPFD conducts policy reviews as needed, with the last review completed in 2023. The policies developed between the district and Lexipol are geared toward all department personnel.

SPFD uses various standard operating guidelines (SOG). Formal guidelines include fire ground operations derived from internal and external sources. Technical rescue standards are contained within the district's policies and procedures. However, the district does not provide certain technical rescue services as noted within the policies/procedures manual. SPFD also has standards used for engine company operations; however, at the time of this study, these standards have not been fully implemented.

Job Descriptions

Job descriptions were not available on the district's website, other than for specific, open-recruitment positions.

Compensation

An Annual Salary Schedule listing full-time employee salary steps for all SPFD employees is available electronically on the district's website, listed under the Public Documents tab. The schedule contains the salary range and position steps: Each class within the SPFD has five steps available for placement. The schedule was last updated in January 2024. Memorandums of Understanding (MOUs) and employee benefit summaries are also listed on the district's website.

Disciplinary Process

Personnel-related decisions can be made at various department levels, with the Fire Chief having authorization to hire, discharge, and promote. Levels of discipline and associated procedures are listed within district policy and the Memorandums of Understanding (MOU) between the District and Sacramento Area Firefighters (South Placer Unit), Local 552 (January 1, 2023–December 31, 2025). SPFD Battalion Chiefs are also represented through a separate agreement through Local 522 (BC Unit). The district policies and approved MOUs provide all personnel with an appeal process through the established grievance procedure.

Personnel-related decisions can, and often do, subject an organization to potentially expensive liability exposure. Risk is presented that can result from a hiring mistake, improperly processed disciplinary process, wrongful termination claims, and more. Access to legal counsel can reduce this liability. The SPFD consults with District Council as necessary on personnel-related matters.

Counseling Services

Critical Incident Stress Management (CISM) Program

Changing the fire service culture is a tremendous task, especially as it relates to the mental health of our first responders. "Toughing it out" should no longer be considered the usual way to conduct business. Believing you are not at risk for mental health issues or admitting you may have a problem is a sign of weakness that must be addressed at all department levels.

In recognizing the stressors associated with physical, emotional, and mental health concerns, both on and off duty, SPFD assists members experiencing post-traumatic stress injuries/illness in conjunction with Sacramento Area Firefighters Local 522. The joint-sponsored program is made up of representatives from Sacramento Metro Fire, Sacramento Fire, Sacramento County Airport System, South Placer Fire District, Cosumnes Fire District, West Sacramento Fire Department, Lincoln Fire Department, and the City of Folsom Fire Department.

Developing a Critical Incident Stress Management (CISM) program requires a comprehensive and organized approach to reducing and controlling stress. The consolidated CISM program is based on recommendations set forth within NFPA 1500, *Fire Department Occupational Safety and Health Program* (Chapter 12, Behavioral Health and Wellness Programs), as well as the *Fire Service Joint-Labor/Management Wellness and Fitness Initiative* developed by the International Association of Firefighters (IAFF) and the International Association of Fire Chiefs (IAFC).

The SPFD also provides an employee assistance program at no cost to the employee or family members experiencing emotional, family, financial, substance abuse, or related problems.

Application, Recruitment, & Retention Process

The SPFD advertises on its website and social media platforms for open, full-time Firefighter positions and ongoing recruitment for apprentice firefighters. The hiring process for SPFD includes a completed application, background check, reference, and qualifications check, possession of a Cal-JAC CPAT (Candidate Physical Ability Test) card, passing a skills assessment, a structured interview, and a physical examination and psychological evaluation.

Performance Reviews, Testing, Measurement, & Promotion Process

SPFD conducts written tests and performance reviews for all new firefighters at the end of their one-year probationary period. Performance standards are being developed by the district but have not been completed at the time of this study. The district provides physical assessments on an annual basis, in accordance with NFPA 1582 for all operational personnel. In addition to annual health assessments, the district participates in cancer screening of personnel. This program was originally funded through an Assistance to Firefighters Grant (AFG) and is now included in the district's general fund. Promotional assessments are conducted as needed to fill open positions following the current SPFD and Local 522 bargaining agreement and the district's promotional guidelines.

Health & Safety

Establishing a committee utilizing NFPA 1500: *Standard on Fire Department Occupational Safety and Health Program,* Chapter 4 (Section 4.5) is the industry standard for developing and administering a fire department safety program. Establishing a safety committee can significantly increase the safety of Firefighters. Safety committees should be diverse in their representation from across the department to be effective. Uniformed, non-uniformed, and staff members should make up the committee.

The primary focus of the safety committee should be to 1) help create a safe working environment for all employees, 2) identify safety concerns and considerations for improvement, 3) work collectively to establish safety education programs, and 4) bring labor and management together in a cooperative way to solve problems. Another task within the committee should be to review accidents, injuries, near-miss incidents, and workplace safety suggestions. The committee should analyze the information presented and report their findings to the Fire Chief.

SPFD has a standing Safety Committee in place, which is made up of five members of the district: One Division Chief, one Battalion Chief, one Captain, and two Engineers. The committee meets quarterly unless the need to meet more often is warranted due to an accident or safety concern. Specifically related to vehicle accidents involving district apparatus/equipment, SPFD has developed a Vehicle Accident Committee (referenced in SPFD Policy 919) which reviews the circumstances and causes of employee-involved vehicle accidents.

Capital Facilities & Apparatus

Apparatus and other vehicles, trained personnel, firefighting and emergency medical equipment, and fire stations are the essential capital resources necessary for a fire district to carry out its mission. No matter how competent or numerous the firefighters are, if appropriate capital equipment is not available for operations personnel, it would be impossible for the South Placer Fire District to perform its responsibilities effectively. The essential capital assets for emergency operations are facilities, apparatus, and other emergency response vehicles. This section of the report assesses SPFD's fire stations and frontline apparatus and ambulances.

Fire Station Features

Fire stations play an integral role in the delivery of emergency services for several reasons. To a large degree, a station's location will dictate response times to emergencies. A poorly located station can mean the difference between confining a fire to a single room and losing the structure, or survival from sudden cardiac arrest. Fire stations also need to be designed to adequately house equipment and apparatus and meet the needs of the organization and its personnel.

Fire station activities should be closely examined to ensure the structure is adequate in both size and function. Examples of these functions can include the following:

- Kitchen facilities, appliances, and storage
- Residential living space and sleeping quarters for on-duty personnel (all genders)
- Bathrooms and showers (all genders)
- Training, classroom, and library areas
- Firefighter fitness area
- The housing and cleaning of apparatus and equipment, including decontamination and disposal of biohazards
- Administrative and management offices, computer stations, and office facilities
- Public meeting space

In gathering information from SPFD, AP Triton asked the district to self-rate the condition of its fire stations using the criteria from the next figure. In addition, AP Triton's team inspected each of these facilities. The results will be seen in the following figures.

Figure 17: Criteria Utilized to Determine Fire Station Condition

Excellent	Like new condition. No visible structural defects. The facility is clean and well maintained. Interior layout is conducive to function with no unnecessary impediments to the apparatus bays or offices. No significant defect history. Building design and construction match the building's purposes. Age is typically less than 10 years.
Good	The exterior has a good appearance with minor or no defects. Clean lines, good work flow design, and only minor wear of the building interior. Roof and apparatus apron are in good working order, absent any significant full-thickness cracks or crumbling of apron surface or visible roof patches or leaks. Building design and construction match the building's purposes. Age is typically less than 20 years.
Fair	The building appears to be structurally sound with weathered appearance and minor to moderate non-structural defects. The interior condition shows normal wear and tear, but flows effectively to the apparatus bay or offices. Mechanical systems are in working order. Building design and construction may not match the building's purposes well. Showing increasing age-related maintenance, but with no critical defects. Age is typically 30 years or more.
Poor	The building appears to be cosmetically weathered and worn with potentially structural defects, although not imminently dangerous or unsafe. Large, multiple full-thickness cracks and crumbling of concrete on apron may exist. The roof has evidence of leaking and/or multiple repairs. The interior is poorly maintained or showing signs of advanced deterioration with moderate to significant non-structural defects. Problematic age-related maintenance and/or major defects are evident. May not be well suited to its intended purpose. Age is typically greater than 40 years.

South Placer Fire Stations

The following figures outline the basic features of each of the SPFD's fire stations. The condition of the stations is rated based on the criteria identified in the introduction to this section of the report.

Figure 18: SPFD Company 15

Address/Physical Location:	4650 East Roseville Parkway, Granite Bay, CA
	General Description: The SPFD Company 15 Station is currently closed, however, the station and grounds are consistently maintained by SPFD personnel. This station meets the needs of a modern fire service facility. SPFD Truck 17 (out of service) is stored at this station.
Structure	
Date of Original Construction	1987
General Condition	Excellent
Seismic Protection	Yes
Auxiliary Power	Yes
ADA Compliant	Yes
Number of Apparatus Bays	Drive-Throughs: 2 | Back-Ins: | Total Bays: 2
Total Square Footage	3,420
Facilities Available	
Sleeping Quarters	Bedrooms: 4 | Beds: 3 | Dorm Beds: 0
Maximum Staffing Capability	4 (Total number of staff that can be housed at station)
Bathroom/Shower Facilities	
Gender Segregation (Y/N)	Bathrooms: 2 | Showers: 3 | Bedrooms:
Exercise/Workout Facilities	Yes
Kitchen Facilities	Yes
Individual Lockers Assigned	Yes
Training/Meeting Rooms	No
Washer/Dryer/Extractor	Yes/Yes/No
Safety & Security	
Station Sprinklered	Yes
Smoke Detection	Yes
Decon & Biological Disposal	No
Security System	No
Apparatus Exhaust System	Yes

Figure 19: SPFD Company 16

Address/Physical Location:	5300 Olive Ranch Road, Granite Bay, CA
	General Description: The Company 16 Station is a well-maintained facility, meeting most of the needs of a modern fire service facility. SPFD Engine 16, Medic 16, and Brush 16 (which is cross-staffed) respond from this station.
Structure	
Date of Original Construction	2008
General Condition	Good
Seismic Protection	Yes
Auxiliary Power	Generator to be installed in June 2024
ADA Compliant	Yes
Number of Apparatus Bays	Drive-Throughs: 2 | Back-Ins: 0 | Total Bays: 2
Total Square Footage	6,500
Facilities Available	
Sleeping Quarters	Bedrooms: 4 | Beds: 4 | Dorm Beds: 0
Maximum Staffing Capability	4 (Total number of staff that can be housed at station)
Bathroom/Shower Facilities	Yes
Gender Segregation (Y/N)	Bathrooms: Y | Showers: Y | Bedrooms: Y
Exercise/Workout Facilities	Yes
Kitchen Facilities	Yes
Individual Lockers Assigned	Yes
Training/Meeting Rooms	No
Washer/Dryer/Extractor	Yes/Yes/No
Safety & Security	
Station Sprinklered	Yes
Smoke Detection	Yes
Decon & Biological Disposal	No
Security System	No
Apparatus Exhaust System	Yes

Figure 20: SPFD Company 17

Address/Physical Location:	6900 Eureka Road, Granite Bay, CA								
	General Description: SPFD Company 17 station is in poor condition, lacking features necessary for today's modern fire stations. SPFDs Administrative and Prevention staff are collocated within this facility. SPFD Engine 17, Grass 17 (cross-staffed), and a Battalion Chief respond from Company 17.								
Structure									
Date of Original Construction	1975								
General Condition	Poor								
Seismic Protection	No								
Auxiliary Power	Generator being installed in June 2024								
ADA Compliant	No								
Number of Apparatus Bays	Drive-Throughs	3	Back-Ins	0	Total Bays:	3			
Total Square Footage	9,920								
Facilities Available									
Sleeping Quarters	Bedrooms	6	Beds	7	Dorm Beds	0			
Maximum Staffing Capability	7	(Total number of staff that can be housed at station)							
Bathroom/Shower Facilities	Yes								
Gender Segregation (Y/N)	Bathrooms	Y	Showers	Y	Bedrooms	Y			
Exercise/Workout Facilities	Yes								
Kitchen Facilities	Yes								
Individual Lockers Assigned	Yes								
Training/Meeting Rooms	Yes								
Washer/Dryer/Extractor	Yes/Yes/Yes								
Safety & Security									
Station Sprinklered	No								
Smoke Detection	Yes								
Decon & Biological Disposal	No								
Security System	No								
Apparatus Exhaust System	Yes								

Figure 21: SPFD Company 18

Address/Physical Location:	5840 Horseshoe Bar Road, Loomis, CA
	General Description: The SPFD Company 18 station is 65 years old and lacks many of the features needed for a modern fire station, however, crews take pride in the upkeep of this facility. Response from this station includes Engine 18 and Brush 18 (cross-staffed).
Structure	
Date of Original Construction	1959 (Truck Room) 2007
General Condition	Fair
Seismic Protection	No
Auxiliary Power	Yes
ADA Compliant	No
Number of Apparatus Bays	Drive-Throughs: 1 | Back-Ins: 1 | Total Bays: 2
Total Square Footage	4,756
Facilities Available	
Sleeping Quarters	Bedrooms: 4 | Beds: 5 | Dorm Beds: 0
Maximum Staffing Capability	5 (Total number of staff that can be housed at station)
Bathroom/Shower Facilities	Yes
Gender Segregation (Y/N)	Bathrooms: Y | Showers: Y | Bedrooms: Y
Exercise/Workout Facilities	Yes
Kitchen Facilities	Yes
Individual Lockers Assigned	Yes
Training/Meeting Rooms	Yes
Washer/Dryer/Extractor	Yes/Yes/Yes
Safety & Security	
Station Sprinklered	No
Smoke Detection	Yes
Decon & Biological Disposal	No
Security System	No
Apparatus Exhaust System	Yes

Figure 22: SPFD Company 19

Address/Physical Location:	7070 Auburn Folsom Road, Granite Bay, CA
	General Description: SPFD Company 19 Station is closed at the time of this report, however, it is still well-maintained by on-duty district crews and the Battalion Chiefs. This station meets most of the needs of a modern fire service facility. Company 19 serves as a storage facility for unstaffed equipment including Water Tender-19, a reserve Brush Unit, a reserve Medic Unit, and OES4106.

Structure							
Date of Original Construction	2003						
General Condition	Good						
Seismic Protection	Yes						
Auxiliary Power	Yes						
ADA Compliant	Yes						
Number of Apparatus Bays	Drive-Throughs	3	Back-Ins	0	Total Bays:	3	
Total Square Footage	7,527						
Facilities Available							
Sleeping Quarters	Bedrooms	2	Beds	7	Dorm Beds	6	
Maximum Staffing Capability	7	(Total number of staff that can be housed at station)					
Bathroom/Shower Facilities	Yes						
Gender Segregation (Y/N)	Bathrooms	Y	Showers	Y	Bedrooms	Y	
Exercise/Workout Facilities	Yes						
Kitchen Facilities	Yes						
Individual Lockers Assigned	Yes						
Training/Meeting Rooms	No						
Washer/Dryer/Extractor	Yes/Yes/Yes						
Safety & Security							
Station Sprinklered	Yes						
Smoke Detection	Yes						
Decon & Biological Disposal	No						
Security System	No						
Apparatus Exhaust System	Yes						

Figure 23: SPFD Company 20

Address/Physical Location:	3505 Auburn Folsom Road, Loomis, CA
	General Description: Although the crews take pride in the maintenance of SPFD Company-20, the facility is rated in "Poor" condition and lacks most features necessary for a modern fire station. Responding apparatus includes Engine 20 with 2-0 staffing, and Medic 20. In addition, Grass 20 is cross-staffed with on duty personnel.

Structure						
Date of Original Construction	1985					
General Condition	Poor					
Seismic Protection	No					
Auxiliary Power	Yes					
ADA Compliant	No					
Number of Apparatus Bays	Drive-Throughs	0	Back-Ins	3	Total Bays:	3
Total Square Footage	3,500					
Facilities Available						
Sleeping Quarters	Bedrooms	3	Beds	4	Dorm Beds	0
Maximum Staffing Capability	4	(Total number of staff that can be housed at station)				
Bathroom/Shower Facilities	Yes					
Gender Segregation (Y/N)	Bathrooms	Y	Showers	Y	Bedrooms	0
Exercise/Workout Facilities	Yes (in apparatus bay)					
Kitchen Facilities	Yes					
Individual Lockers Assigned	No					
Training/Meeting Rooms	No					
Washer/Dryer/Extractor	Yes/Yes/No					
Safety & Security						
Station Sprinklered	No					
Smoke Detection	Yes					
Decon & Biological Disposal	No					
Security System	No					
Apparatus Exhaust System	Yes					

Fire Stations Discussion

Only one of the SPFD fire stations was considered in "Excellent" condition. Three of the remaining five fire stations were rated as "Good" or "Fair," and Station 17 and Station 20 are rated "Poor" in condition. Fire station ages range from 15 to 65 years, with an average of just over 37 years. The following figure summarizes SPFD's fire stations and their features.

Figure 24: Station Configuration & Condition

Station	Apparatus Bays	Staffing Capacity	General Condition	Station Age
Station 15	2	4	Excellent	36 years
Station 16	2	4	Good	15 years
Station 17	3	7	Poor	48 years
Station 18	2	5	Fair	65 years
Station 19	3	7	Good	20 years
Station 20	3	4	Poor	38 years
Totals/Average:	15	31		37 years average

Some fire stations were further evaluated utilizing a checklist based on National Fire Protection Association (NFPA) 1500: *Standard on Fire Department Occupational Safety, Health, and Wellness Program*.

Generally, SPFD's stations are well maintained and functional. As the firefighting environment has changed, the technology, equipment and safety systems have changed to meet new demands. Older buildings do not typically have the space or engineering systems to meet that new environment. Modern living also requires much more access to electrical outlets than was expected in older buildings. The older SPFD stations are no exception.

For example, older buildings do not meet the requirements due to the need to decontaminate personnel and equipment after many responses in the current firefighting context. Every crew member should have access to facilities to decontaminate immediately after a fire event, and showers should allow for gender separation.

In addition, there needs to be enough partitioned space to allow for gear and equipment to be thoroughly washed and designed to control contamination in the living and working space of the station.

While all structures require routine maintenance, fire stations require even more maintenance due to the continuous occupancy by a minimum of three adults. Multiple departures and returns of heavy apparatus also affect these structures.

Detailed Fire Station Discussion

Station 15

SPFD Station 15 is a single-story, medium-sized station that is currently unstaffed (closed). The station was originally constructed in 1987 and remodeled in the mid-2000s. The building meets most modern construction features with ADA accommodations, gender segregation, station alerting features, and an interior workout area away from the apparatus floor. The station is equipped with fire sprinklers, smoke detectors, and an emergency generator.

As with the other stations within the district, Station 15 does not have adequate space for decontaminating PPE or other equipment. In addition, Station 15 has a diesel exhaust system installed for apparatus, however the storing of turnouts and other personal gear in the apparatus bay, greatly reduces the ability to protect personnel, cooking/eating surfaces, and interior living spaces from diesel exhaust and particulates created by apparatus exiting the facility.

Station 16

Station 16 is a single-story station constructed in 2008 and is in good condition. The station was constructed with several ADA features and has many features of a modern fire station. For example, turnouts are stored adjacent to the apparatus floor in a separate room. Equipment maintenance and storage of chemicals, cleaning supplies and tools are also stored in separate rooms. However, each of these rooms had the doors propped open with wedges. This practice negates the ability to protect firefighter turnouts and equipment from diesel exhaust and particulates, even though the station has a diesel exhaust system in-place.

Station 17 (Administrative Complex)

The Station 17 complex houses a single-story fire station, constructed in 1975. This station has only been lightly remodeled since its inception and is listed in poor condition. The building lacks modern construction features, including a fire sprinkler system, ADA accommodations and gender-segregated areas (unisex signage should be installed).

As with Station 16, rooms within the apparatus bay used for storage of PPE, equipment maintenance, and tool storage were propped open, greatly reducing the ability to protect personnel and interior surfaces from diesel exhaust and particulate created by apparatus exiting the facility.

The Administrative Support Division and Fire Prevention Bureau are housed within the station footprint, separated by an interior wall from the crews and apparatus bay. In addition, adjacent to the station is a modular structure constructed in 2003. This structure houses the Chief's and Chief Officers' offices, as well as the Board of Directors meeting room, which also serves as a training room.

The Fleet Services Division is also located at the complex. Although the structure is dated and does not meet the needs of a modern repair facility, the building boasts a large parts area, adequate maintenance equipment and lifts, and is large enough to store apparatus and other equipment comfortably.

The remaining area of the complex is dedicated as a training facility. The grounds have several props, including a three-story masonry training tower (non-burn), various roof props, and a small metal building used for firefighter survival training.

Station 18

SPFD Station 18 serves the community of Loomis. This station is a two-bay, single-story facility, originally built as a truck bay in 1959 and added on to with portable buildings in 2007. Although the station is listed as "fair" it lacks many modern construction features and ADA accommodations. Firefighter turnouts are stored in open lockers in the apparatus bay and there is no separation between the PPE extractor and the residential washer and dryer. Although the station has a diesel exhaust system in-place, storing firefighter turnouts and equipment within the bay can reduce the ability to protect personnel, as well as interior surfaces from diesel exhaust and particulate created by apparatus exiting the facility.

Station 19

Station 19 was constructed in 2003 and is listed in "good" condition. This station is currently closed, and serves as an apparatus storage facility, housing the district's water tender (WT19), brush unit (BR1), a reserve ambulance and OES engine 4106. The station is a single-story building that meets most needs of a modern fire station. Station 19 is well-maintained by on-duty crews from neighboring stations, as well as the Battalion Chiefs.

Station 20

SPFD Station 20 is a small, single-story, prefabricated metal building constructed in 1985 and sits on a very large footprint. This station's condition is listed as "poor" as it lacks many of the modern construction features and ADA accommodations. In the apparatus bay, ice is made and stored for human consumption, firefighter PPE gear is stored in open lockers, and workout equipment is used in the bay as well. Even though the station has an exhaust system for the apparatus, the above findings can reduce the ability to protect personnel, as well as interior surfaces, from diesel exhaust and particulate created by apparatus exiting the facility, as well as running equipment in an open environment.

Facility Remodels

The Fire Chief has indicated that major deferred maintenance projects will come due soon. There are three stations that are ready for major overhaul work due to the expansion of district services and the changing deployment model.

Status of Shared Facilities

SPFD does not currently share any facilities, however, there is potential for sharing vehicle maintenance services with other fire agencies. The shop facility has the capacity to service a larger number of vehicles; this option will be explored further when an additional mechanic is in place and performing competently.

SPFD Fleet Inventory

Apparatus was evaluated by SPFD staff based on age, miles/hours, service, condition, and reliability. Fleet maintenance is provided in-house by SPFD mechanics and has systems in place for emergency assistance after hours.

The following figures represent all apparatus and vehicles operated by SPFD.

Figure 25: SPFD Apparatus

Unit	Type	Status	Year	Condition	Features
Engines & Aerial Apparatus					
Engine 16	Type 1	Frontline	2018	Excellent	1500 gpm/500 gal.
Engine 17	Type 1	Frontline	2021	Excellent	1500 gpm/600 gal.
Engine 18	Type 1	Frontline	2021	Excellent	1500 gpm/600 gal.
Reserve E-17	Type 1	Reserve	2005	Poor	1500 gpm/600 gal.
Reserve E-20	Type 1	Reserve	2001	Poor	1250 gpm/800 gal.
Engine 16	Type 1	Frontline	2005	Poor	1500 gpm/600 gal.
Reserve E-18	Type 1	Reserve	2004	Poor	1500 gpm/600 gal.
Truck 17	Truck	Reserve	2013	Excellent	100' Aerial Ladder
Brush 17	Type 3	Frontline	2013	Excellent	500 gpm/500 gal.
Brush 18	Type 3	Frontline	2013	Excellent	500 gpm/500 gal.
Res. Brush	Type 2	Reserve	2007	Good	1000 gpm/750 gal.
Grass 16	Type 6	Frontline	2008	Good	150 gpm/340 gal.
Grass 20	Type 6	Frontline	2008	Good	150 gpm/340 gal.
Medics/Rescues/Other					
Medic 16	Ambulance	Frontline	2017	Excellent	
Medic 20	Ambulance	Frontline	2017	Excellent	
Res. Medic	Ambulance	Reserve	2013	Excellent	
WT 17	Tender	Frontline	1985	Fair	4,300 Gallon Tank

Figure 26: Supervisor & Command Vehicles

Unit	Assigned To	Manufacturer	Year	Condition
Chief 1700	Fire Chief	Ford Expedition	2021	Excellent
Chief 1701	Deputy Chief	Ford Expedition	2020	Excellent
Fire Marshall	Division Chief/Prevention	Ford F250 Pickup	2017	Excellent
Chief 1702	Division Chief/EMS	Ford Expedition	2009	Poor
BC 17	Duty Battalion Chief	Ford Expedition	2016	Excellent
Reserve BC	Battalion Chief Reserve	Ford Expedition	2009	Poor
Shop	Mechanic 1	Ford F550	2006	Fair
Res. Shop	Mechanic	Ford F550	1998	Poor
Utility	Pool Vehicle	GMC 2500	2002	Poor
Pool Truck	Pool Vehicle	Ford F150 Pickup	2014	Poor
Pool Van	Admin/Training	Ford Transit van	2020	Excellent
Pool Car	Pool Vehicle	Ford Crown Vic	2003	Poor
Utility	Reserve/Pool Utility Vehicle	Ford F350	2001	Good

Fleet maintenance is accomplished through a combination of in-house mechanics and outsourced vendors. The SPFD mechanic is Emergency Vehicle Technician (EVT) qualified/certified. Maintenance manuals are available; preventative maintenance checks are conducted regularly; maintenance records are kept for all apparatus and vehicles; pump tests are performed annually in accordance with NFPA 1911. The shop facility has the capacity to provide fleet maintenance to other agencies, however, SPFD is minimally staffed and additional personnel would be needed to expand services.

Service Delivery & Performance

This section is designed to provide the South Placer Fire District with an insightful overview of pertinent response data. Its primary purpose is to aid the department in assessing its current performance levels and establishing a benchmark for expected performance standards. This information is invaluable for SPFD and its political leaders, enabling them to comprehend the impact of their decisions, policies, and external factors on the department's operational efficiency. By utilizing this analysis, SPFD can strategically navigate challenges and optimize service delivery for enhanced community safety.

Research Information

The information within this section was developed from various sources provided by SPFD. Detailed information was provided between January 1, 2019, and December 31, 2022. In addition, less comprehensive total incident volumes were provided between January 2015 and December 2022 to identify long-term trends.

Statistics Discussion

Mathematical and technological methodologies must be used judicially to evaluate something as complex as an emergency incident response. There are historical examples where incorrect evaluations lead to severe consequences in deployment and operational decisions. This analysis is designed to quantify and analyze available information. It is intended to be a starting place for the agency as it seeks to improve performance. However, leaders must understand the limitations of making decisions based solely on statistical study and utilize sound judgment with proven analytics.

Statistical Tools

Various statistical analytical tools were employed to create this section. The fundamental tools were categorization, percentile, and regression analysis. This helps paint a picture of historical performance, with some inferences that may help leaders identify positive and negative performance trends.

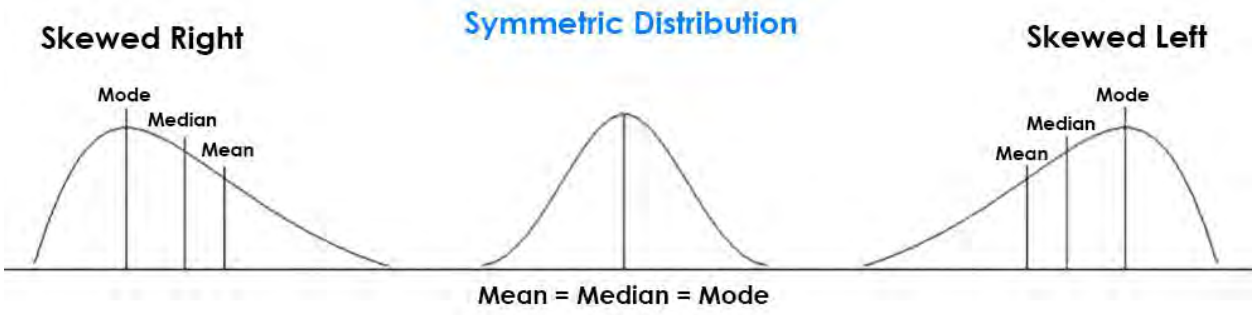
90th Percentile

The time performance measures for this report are done using the 90th percentile measure. While discussing the mathematics behind this measure is outside this report's scope, it is helpful to understand why it is utilized.

The most common reason to use this measure is that the industry has adopted it. If a fire agency wishes to judge its performance against standards or other agencies, it must use the 90th percentile. For example, the National Fire Protection Association (NFPA) utilizes the 90th percentile measure in most of its standards. In addition, the Commission on Fire Accreditation International (CFAI) requires reporting performance measures at the 90th percentile.

The statistical reason to use the measure is that it more fully captures performance and will identify trends in performance more quickly. Unfortunately, the time performance data used in this study has a skew, making other statistical measures less sensitive and representative. The following figure is a general example of data skew.

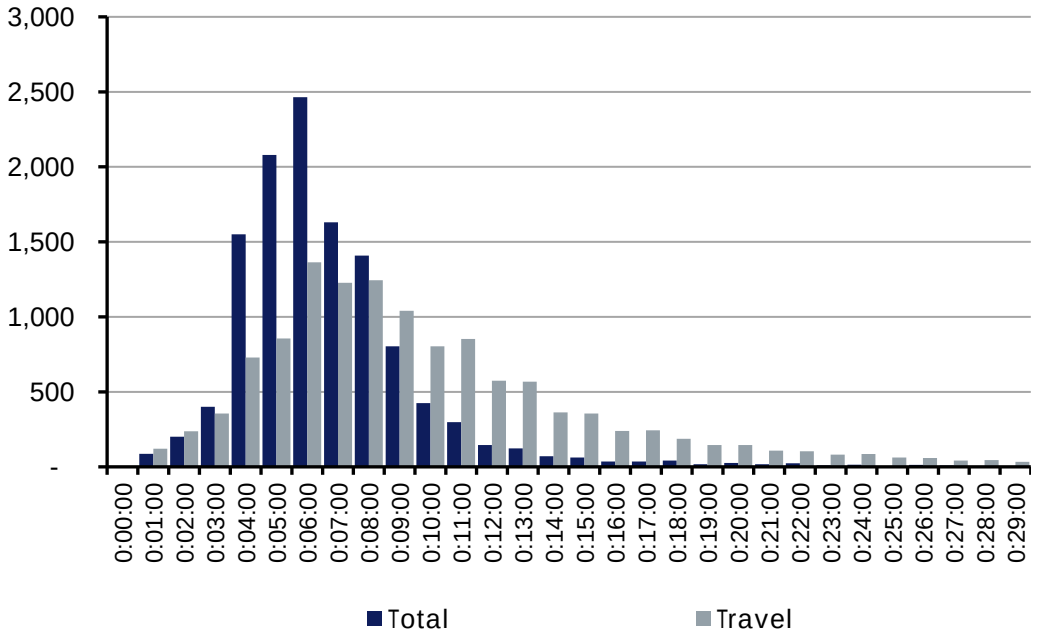
Figure 27: Data Skew[5]



In a symmetric distribution, the mean (average), median (middle of the data), and mode (the most frequent) are all equal. When the distribution skews, these three measures of the middle shift. Using the average, or mean, in skewed data left would underrepresent the bulk of the performance. While the opposite is true when skewed right. In SPFD's case, most of the time-performance data is skewed right. In this case, using the average would over-represent the performance.

This directional skew is very typical for the fire service. The following figure shows the agency's total and travel time segments in a distributed frequency chart, illustrating the definitive right skew to the information.

Figure 28: SPFD Data Skew Evaluation



Data Discussion

Detailed data was provided from SPFD's primary incident reporting software (RMS), its electronic patient contact report (ePCR) software, and the computer-aided dispatch (CAD) system. These different database tables were combined utilizing proven data engineering techniques into one analytical data set.

Data Engineering Findings

The number of incident records for the RMS and CAD systems was similar. There were 14,952 unique incidents for the RMS and 12,528 for the CAD system. In addition, there were 31,708 complete unit records in the CAD system and 26,330 RMS units. Combining these data sets resulted in a 2.6% data drop. This variation is minor and a statistically acceptable loss between the two systems.

Unit records were combined between the RMS and ePCR systems. The error rate was slightly higher, with 4% of the data not matching between the two systems. While this is a more significant error rate than the overall incident combination, it does not challenge the statistical significance of the analysis.

Data Error Handling

Data collection within the various data sets has the potential for significant errors. Although there can be many reasons for incorrect information, these errors are typically a combination of human input and collection errors. Various methods exist to manage these errors, including statistical exclusion, real-time exclusion, formula manipulation, and logic testing.

For SPFD, the information in the data fields had minimal error-prone data. Therefore, most of the data did not require statistical intervention. However, some data was excluded by formula or logic tests. The time segment math utilized a logic tree to eliminate negative and null sets. The turnout time was limited to a 5-minute maximum as it was a natural break between the meaningful data and the extremes outside the maximum limit.

In addition, the turnout and travel time segments were evaluated against an inversion error. When the turnout time was greater than the capped high and significantly higher than the travel time, these time segments were removed. These limitations still left 70% of the records available for analysis. The analysis is organized into volume and performance, and specific data limitations will be discussed in each of the appropriate sections and subheadings.

Service Demand

The first dimension of the analysis is the overall system call load. Because this is a simple count of the incidents by type and location, no data was excluded after engineering. Therefore, all data from the three previously discussed systems will be used for most aspects of this analysis, except for the volume projection. There was a 7% alarm date error, resulting in some research by date or time to be adjusted.

Volume Analysis

A simple volume analysis can indicate how often the department is called upon to respond to an incident. The first look is at the overall call counts grouped by primary categories in the National Fire Incident Reporting System (NFIRS). Establishing the incident jurisdiction required a match between the geocoded information and the provided geographic boundaries. The following figure is the total number of responses recorded by the agency for the entire data set and the percentage of the categorized responses.

Figure 29: Total Incident Count (2019–2022)

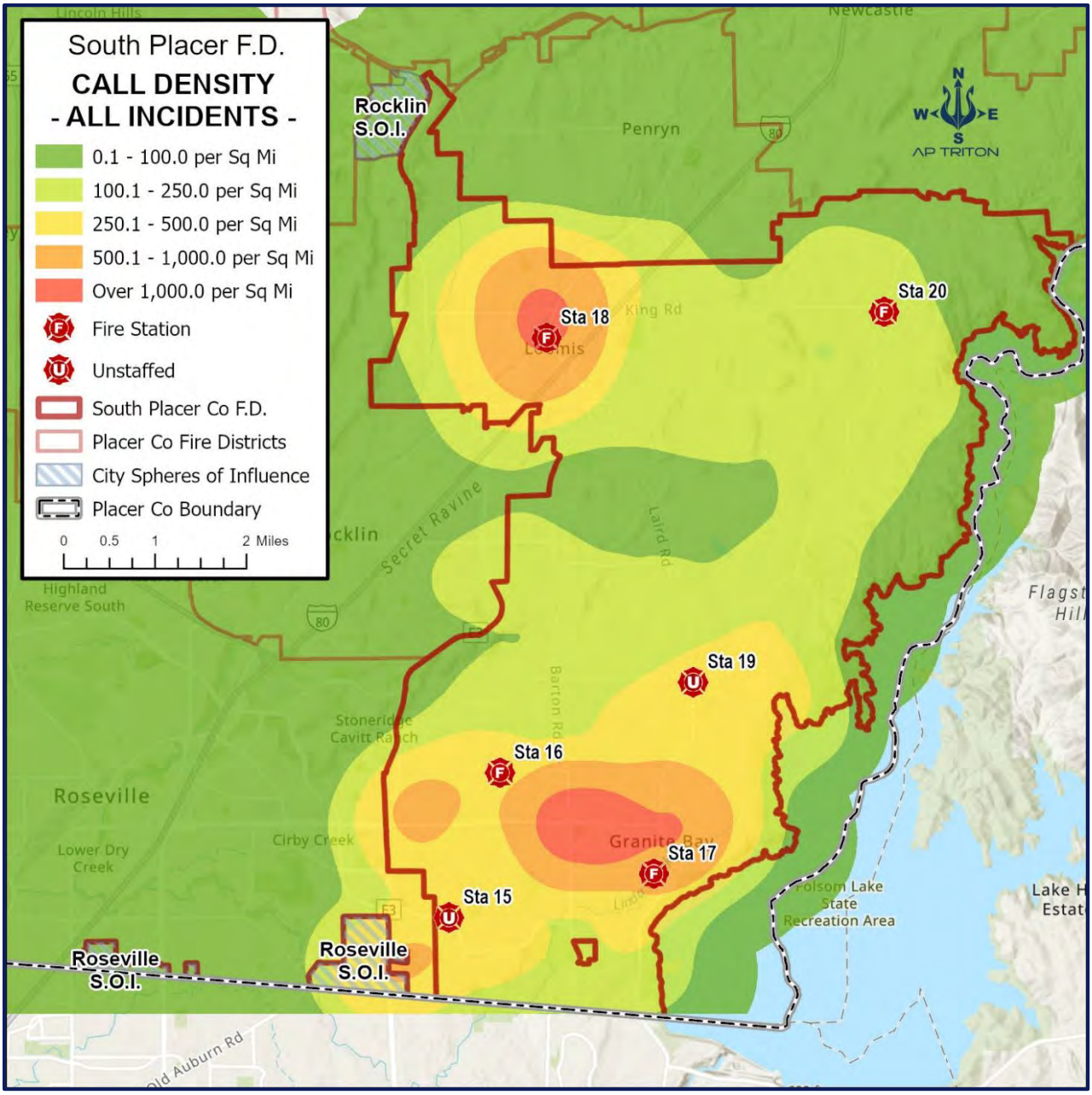
Incident (NIFRS Group)	Count	Percentage of Total Responses
District Responses		
Fire (100)	528	3.5%
Overpressure (200)	48	0.3%
Rescue-Medical (300)	9,755	65.4%
Hazardous condition (400)	299	2.0%
Service (500)	1,252	8.4%
Good Intent (600)	2,201	14.8%
False Alarm (700)	798	5.4%
Disaster (800)	9	0.1%
Special (900)	21	0.1%
Total SPFD Responses	14,911	100.0%
Mutual Aid		
Auto/Mutual Aid Received	1,101	7.4%
Auto/Mutual Aid Given	1,997	13.4%

SPFD offers mutual aid about twice as often as it receives. This is primarily true in the EMS component, which will be discussed later. This district's incident distribution is typical within the industry, with EMS incidents accounting for the most significant incident volume.

Geographic Analysis

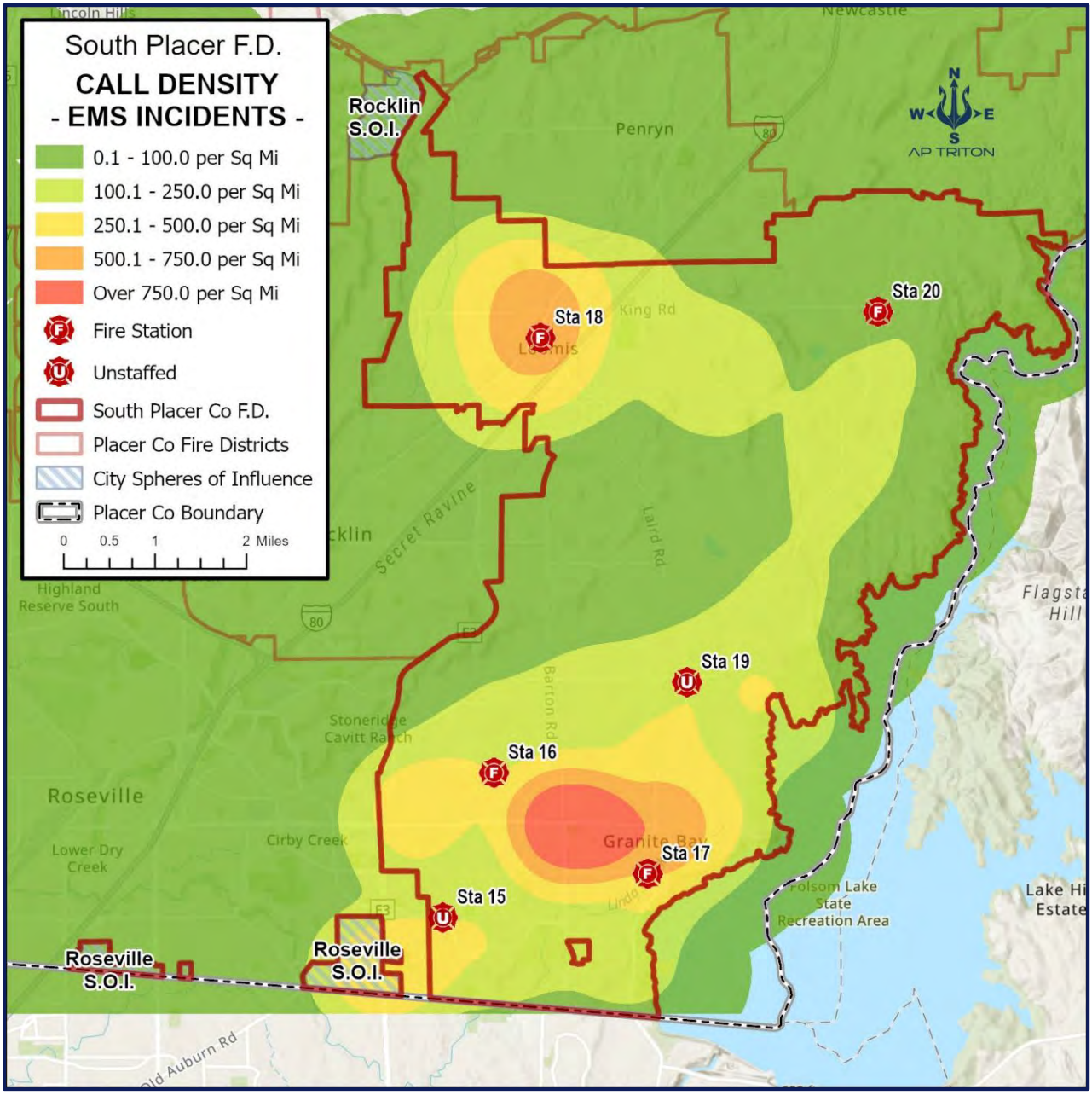
A call density analysis is helpful when reviewing the best location for apparatus placement. It is also useful when evaluating where the prevention programs may have the most impact. The following figure geographically represents the incident density for the study period.

Figure 30: Incident Density (2019–2022)



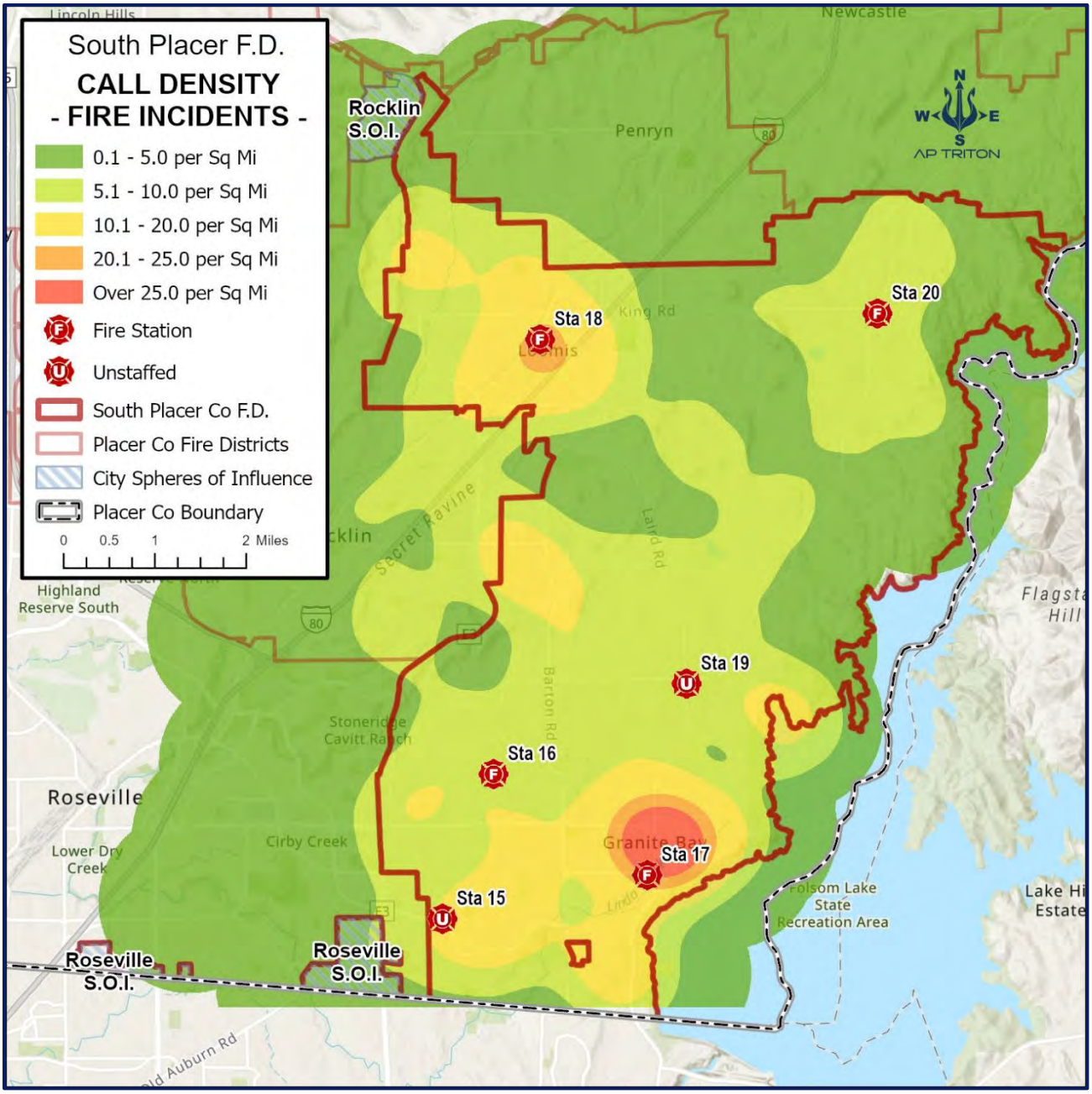
As indicated in the previous figure, incident density is the most concentrated around the Town of Loomis, the Granite Bay area, and Interstate 80. These areas are mixed-use but appear to have the highest density of buildings in the district. This density is telling. However, it is primarily driven by the district's volume of emergency medical system incidents. The following figure is similar to the overall density but shows the EMS incident concentration for the same period.

Figure 31: EMS Incident Density (2019–2022)



The preceding figures indicate a strong correlation between the EMS incidents and the total call volume. While this may give a general idea of where to focus medical prevention efforts, it does not address the more hazardous incident types. The following figure is the incident density for fire incidents within the study period.

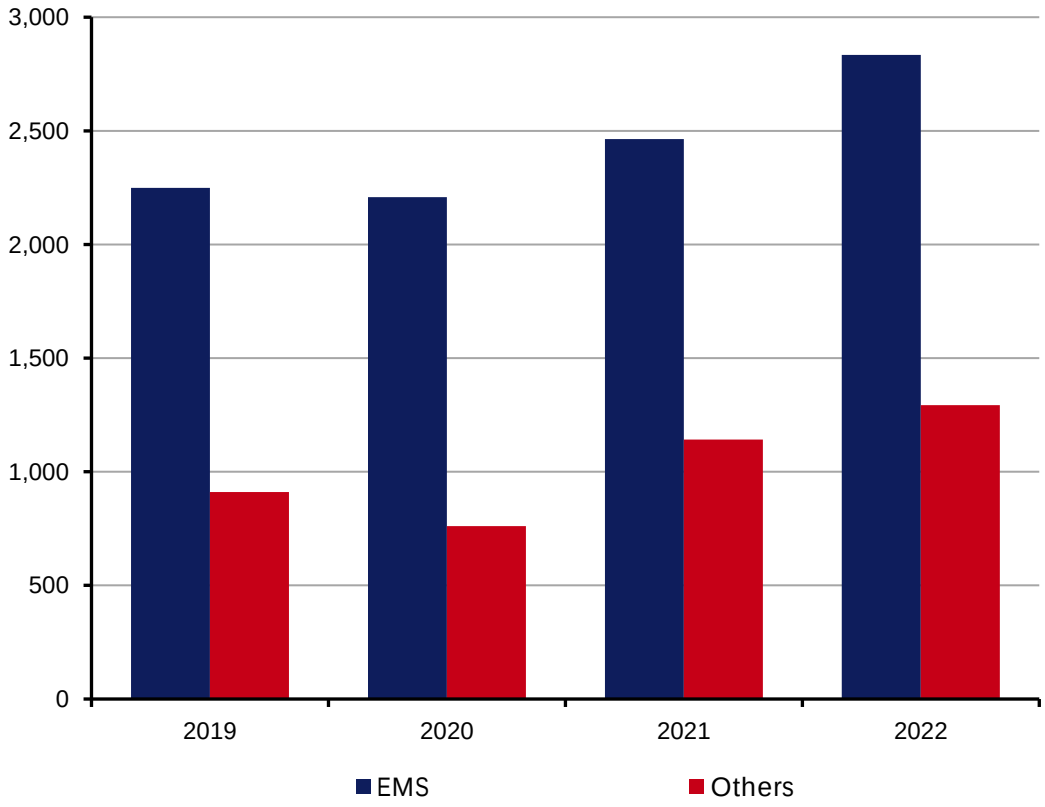
Figure 32: Fire Incident Density (2019–2022)



Temporal Analysis

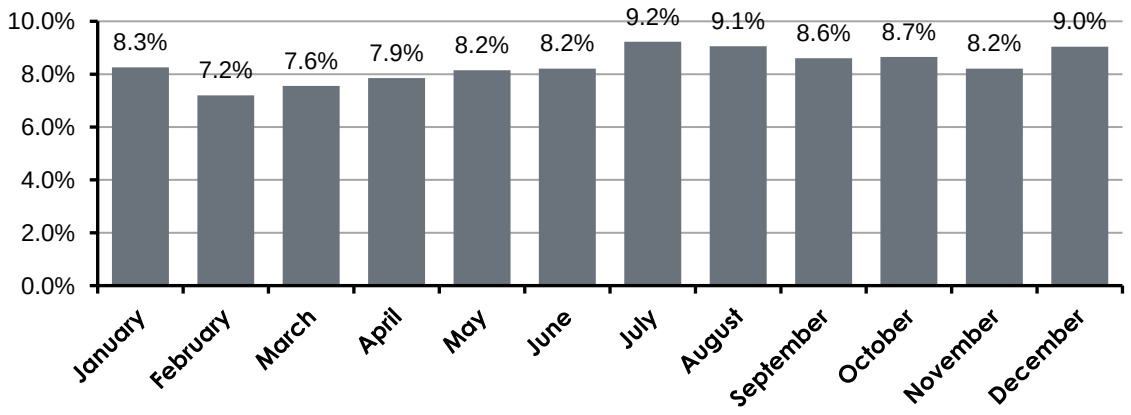
The annual incident count for SPFD has steadily increased in both EMS and other incident types. While there appeared to be a dip in incident volume during the COVID-19 pandemic, the incident volume is growing again. It seems to be rebounding past pre-pandemic levels. The following figure shows the annual incident volume by EMS incidents and all other incident types.

Figure 33: Annual Incident Volume (2019–2022)



Analyzing the incident volume by month, day of the week, and hour is valuable when attempting to schedule events or add staffing. Additionally, months may reveal seasonality for the service needs. At the same time, days and hours may indicate the population movement and activities throughout the days. The following figure analyzes incident percentages by month for 2019 through 2022.

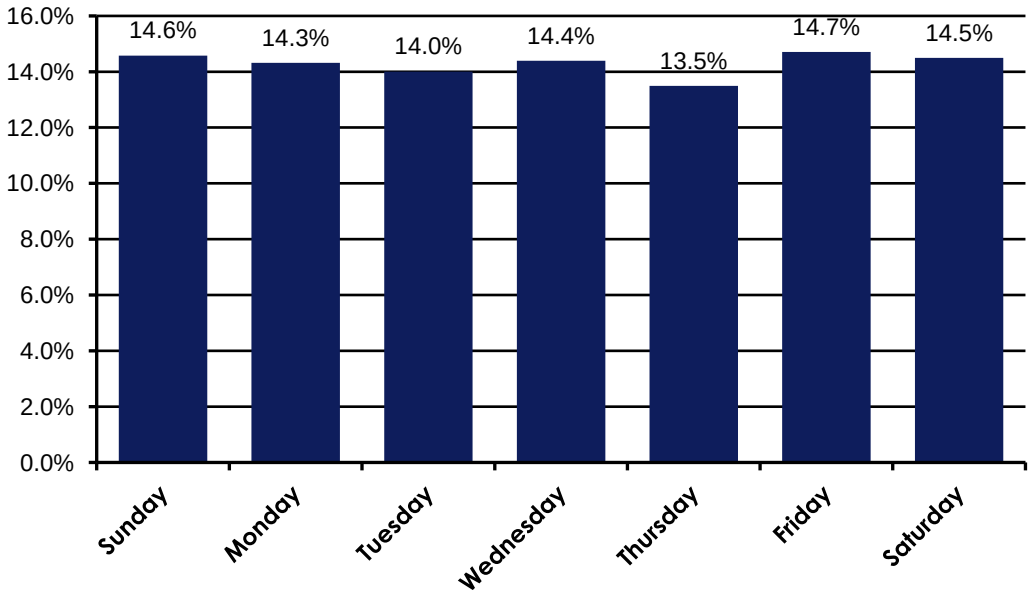
Figure 34: Incident Volume by Month (2019–2022)



For SPFD, the incident volume appears to have a slight seasonality. February is usually lower than the other months as it has fewer days, and the variation from expectation was 0.5% for February and 0.9% for March. However, there is an approximate 2% variation between the slowest month by expectation, March, and the busiest of July. This heavier-than-expected variation lasts throughout the summer and bumps again in December.

Another dimension for evaluation is the percentage of incidents that happen by the day of the week. The following figure is the percentage of incidents that occur by day of the week and includes all the detailed incident data.

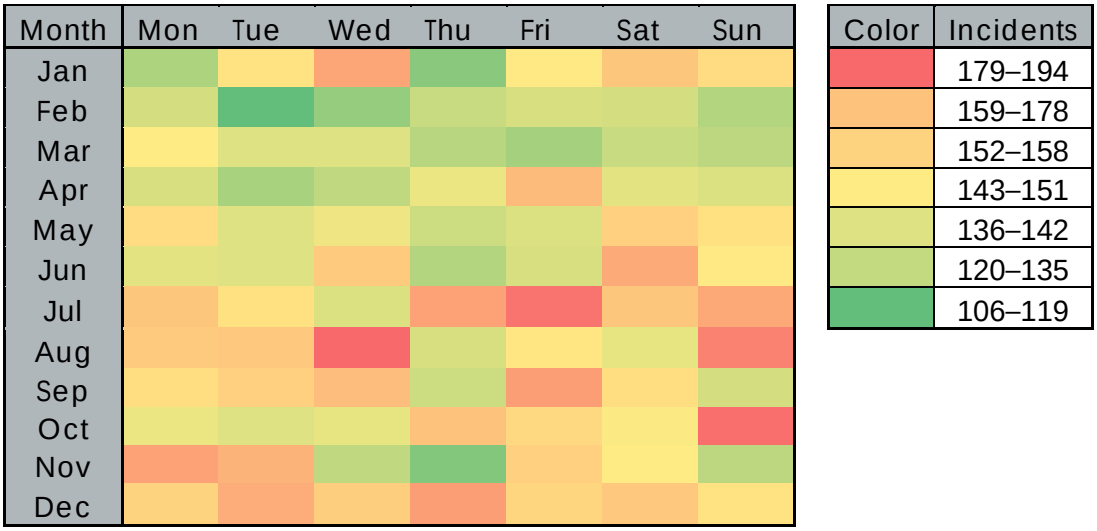
Figure 35: Incident Variation by Day (2019–2022)



There does not appear to be any significant variation by the day of the week. However, Friday and Sunday appear to be slightly busier.

It can be helpful to combine the month and day dimensions to identify potentially significant combinations of the month and weekday. For example, the following figure shows the density of call volume by month and day of the week.

Figure 36: Month & Day Heat Map (2019–2022)

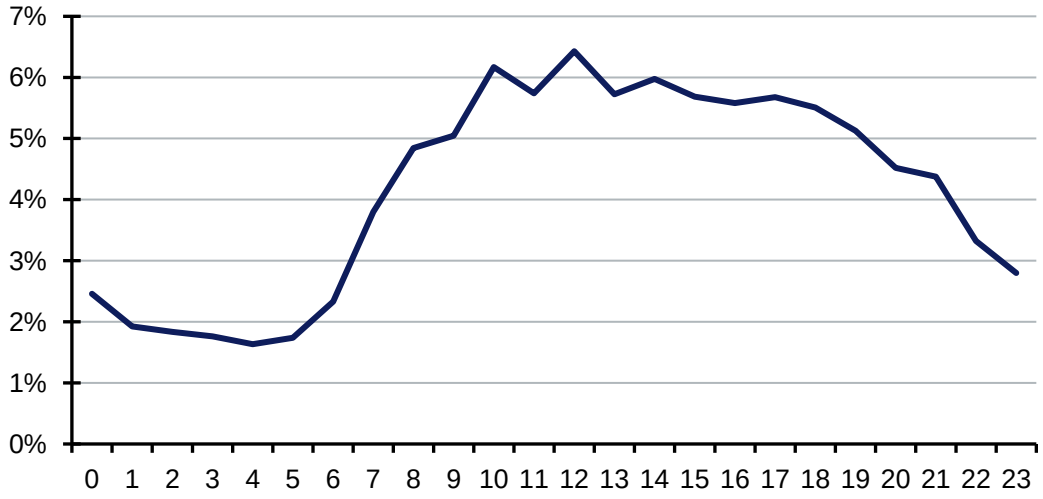


This analysis shows a few days with higher and lower incident volumes throughout the months. Thursday through Sundays in July, Wednesdays and Sundays in August, and Sundays in October are more likely to see incident volume increases. In contrast, work weekdays remain consistently lower through the winter months.

Another analytic dimension is to evaluate call volume throughout the hours of the day. For example, fire and EMS incidents are distributed unequally throughout most systems throughout the day. The daytime is typically more active than the evening, night, and early morning. The driving force behind this phenomenon is likely that people are awake and moving.

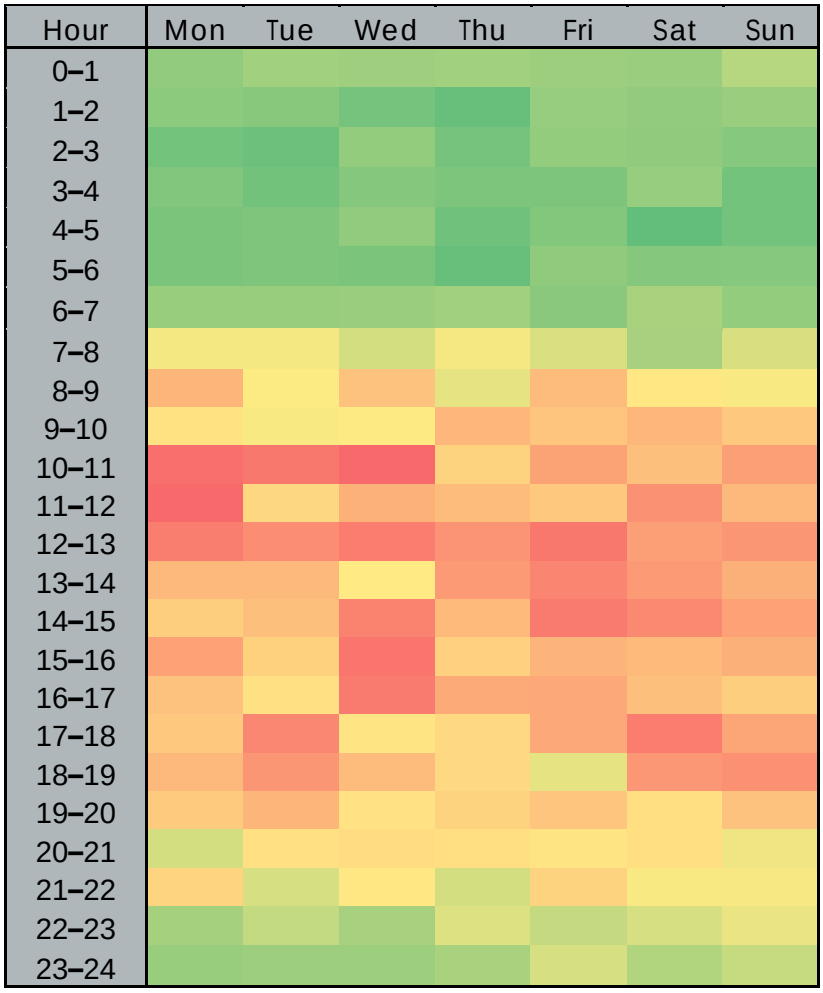
The following figure indicates that SPFD closely follows this daytime pattern, with approximately 70% of incidents occurring between 8 AM and 8 PM.

Figure 37: Volume by Hour of Day (2019–2022)



It is essential to understand the combination of the hour of the day and the day of the week. By evaluating that density, some hot spot times can be identified. In SPFD's case, the evaluation shows a consistent and statistically significant pattern of daytime calls, regardless of the day of the week. The following figure indicates incident density by the hour and day of the week.

Figure 38: Hour & Day Heat Map (2019–2022)



Color	Incidents
	117–125
	102–116
	91–101
	81–90
	62–80
	42–61
	35–41

Resource Distribution

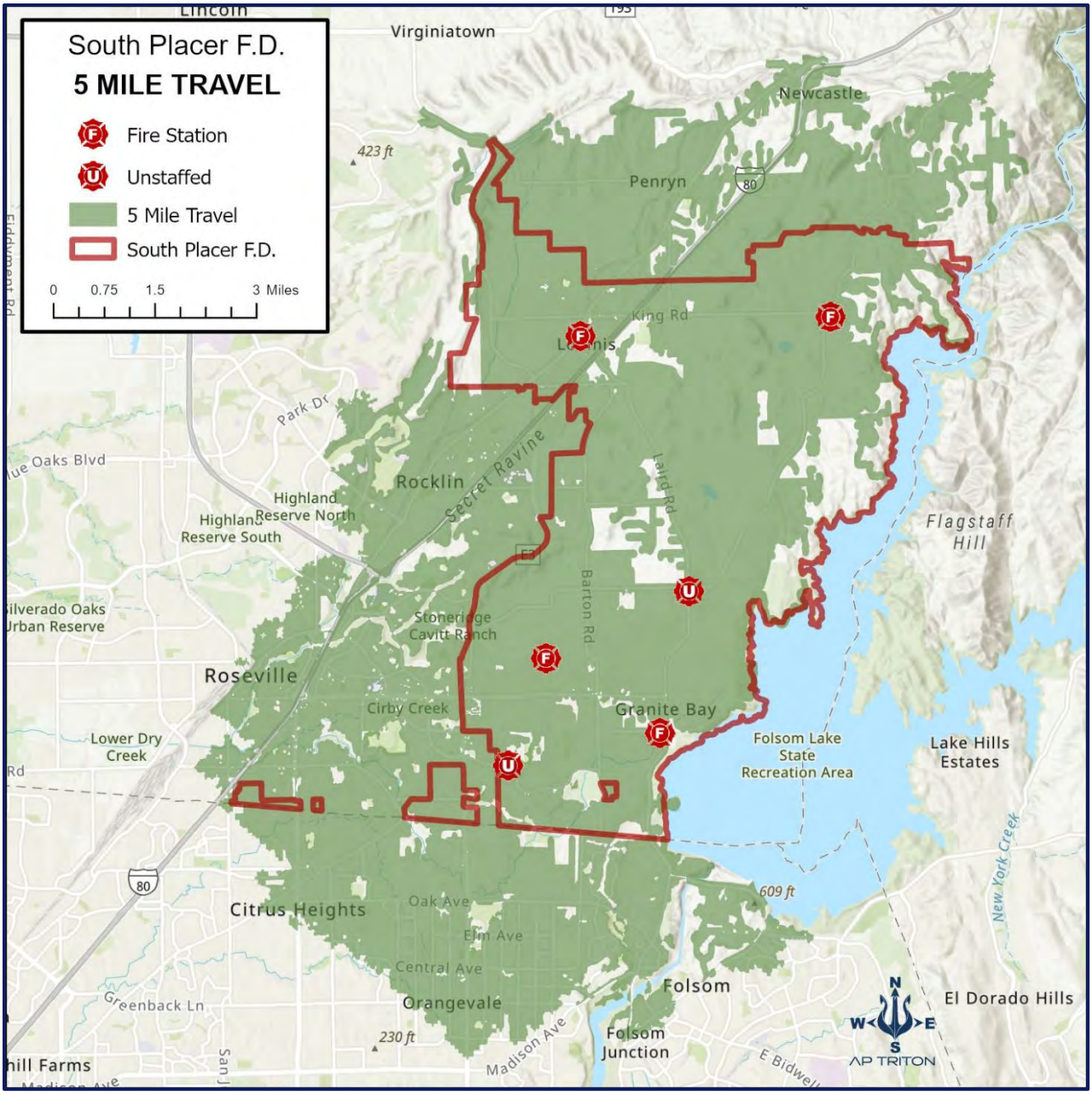
This section focuses on various crucial performance metrics that are instrumental in evaluating the efficiency of resource allocation. A comprehensive distribution of resources is fundamental for ensuring a swift initial response across different areas. However, the first responding unit represents just one aspect of the overall deployment strategy. It is imperative to maintain an adequate number of units to effectively handle the volume, nature, and severity of incidents. Equally important is the endeavor to achieve a balanced distribution of unit responses, ensuring consistent and effective coverage throughout the service area.

Geographic Distribution Analysis

This analysis examines the strategic placement of units and stations to maximize the likelihood of reaching incidents promptly, particularly during their initial stages. There are two principal performance standards that guide this geographic distribution: the criteria set by the Insurance Services Office, Inc. (ISO) and the National Fire Protection Association (NFPA).

The ISO standard is based on distance, specifically using a 5-mile radius from a fire station as its benchmark. The accompanying figure illustrates the areas covered within a 5-mile travel distance from each fire station. NFPA adopts time as its key criterion for determining effective geographic distribution, focusing on response times to incidents. Together, these standards provide a comprehensive framework for evaluating and enhancing the geographic deployment of fire service resources.

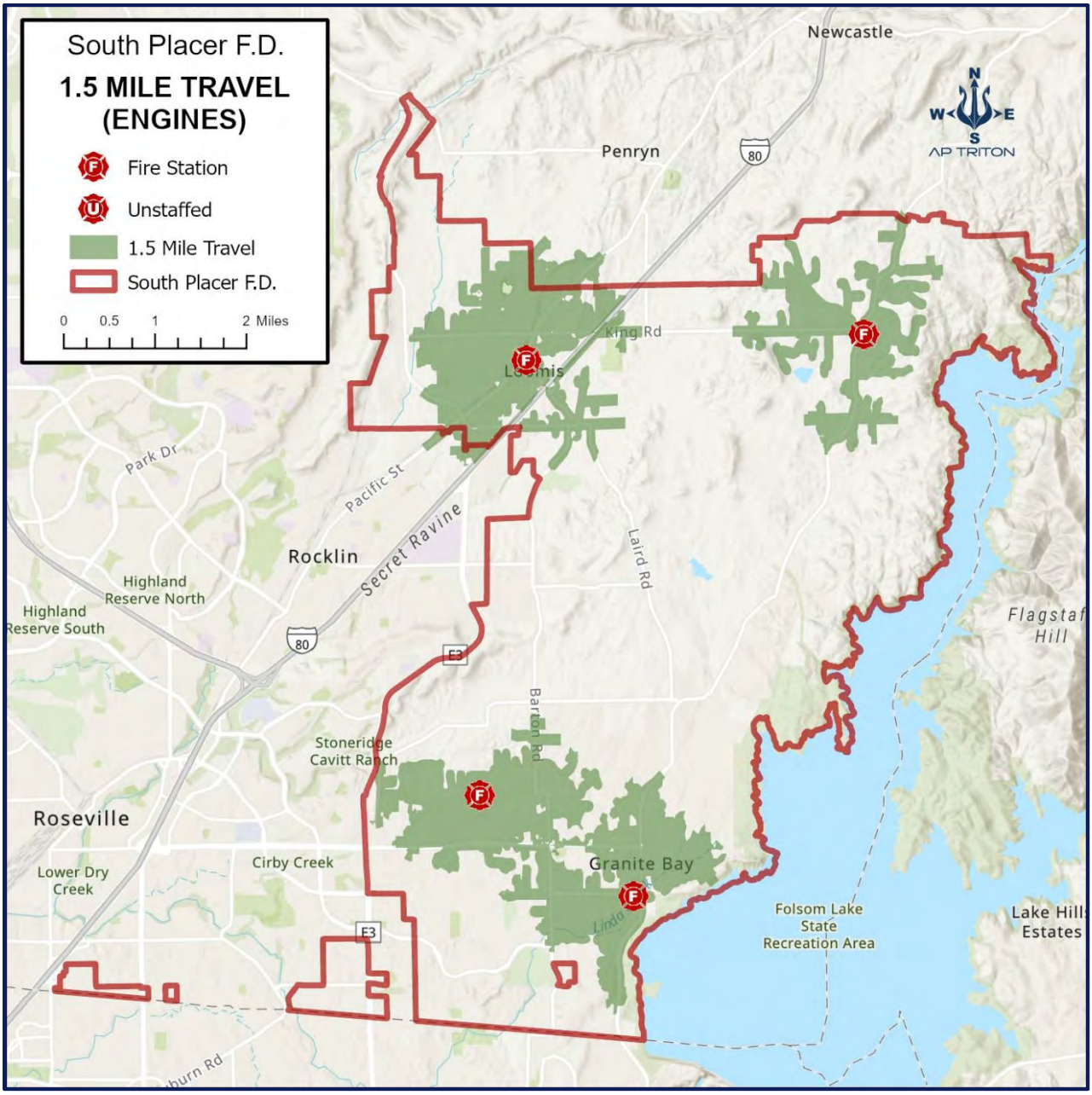
Figure 39: ISO 5-Mile Travel Distance



For maximum credit under ISO's Fire Suppression Rating Schedule (FSRS), it is essential that every building within a jurisdiction falls within specific proximity to fire service resources. Specifically, a building should be located no more than 1.5 miles from an engine company and within a 2.5-mile radius of a ladder or truck company.[6]

The district struggles to provide uniform service across its response area, with some notable gaps in coverage. The northern and southern regions experience longer travel times, while the central area is predominantly beyond the effective reach of the currently staffed stations. This issue is highlighted in the subsequent figure, which illustrates the 1.5-mile travel distance from each station, focusing on those housing engine companies. This visual representation underscores the areas where service accessibility is limited, thereby aiding in identifying zones that require strategic attention to improve response times and overall service efficiency.

Figure 40: ISO 1.5 Mile Engine Travel Distance

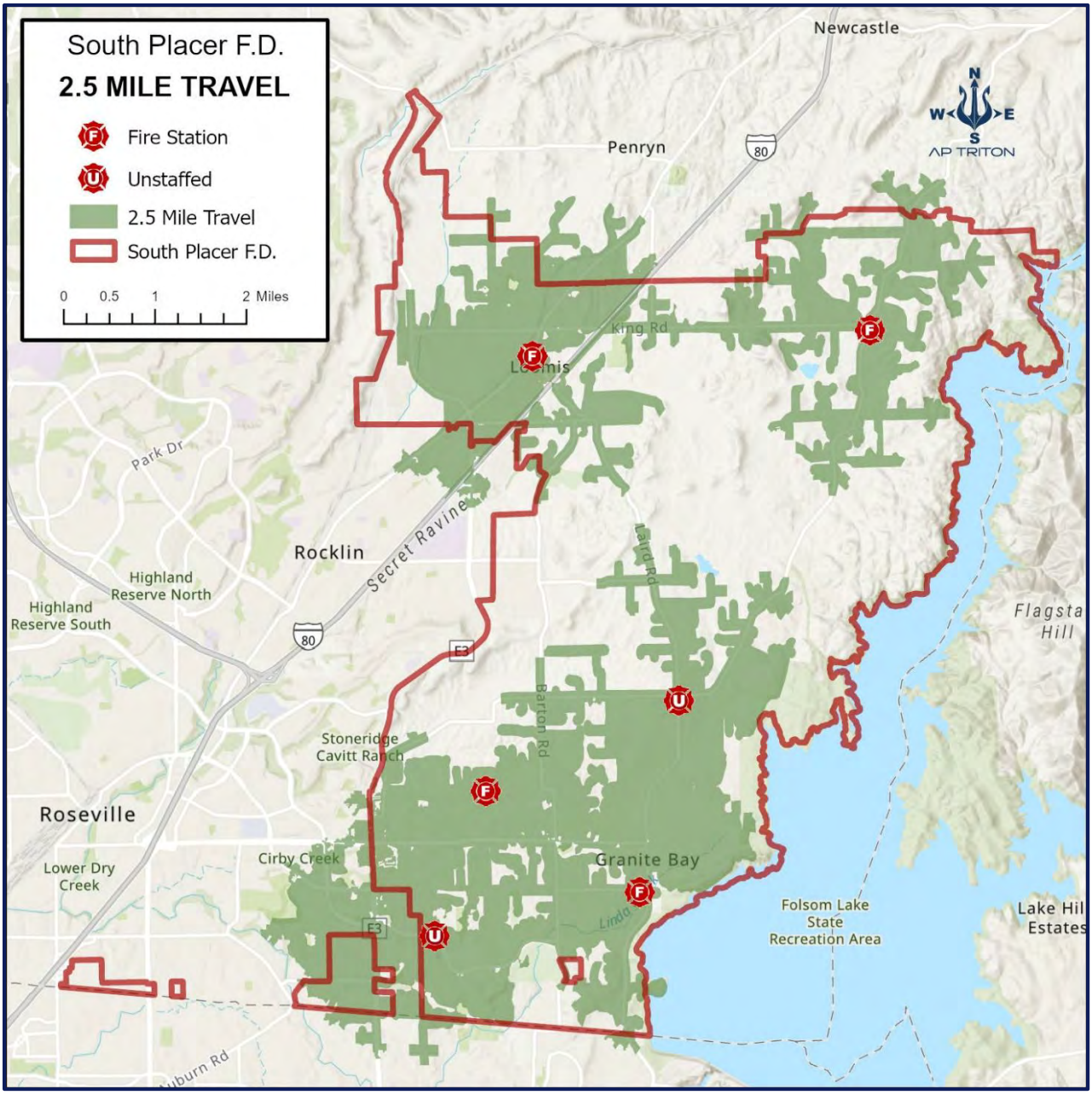


ISO evaluates specialized equipment, such as truck companies, distinctively from engine companies. While engine companies are commonly present at most fire stations, truck companies are stationed only at select locations. According to ISO standards, these truck companies should be situated within a 2.5-mile radius of any building in the jurisdiction.

Currently, the SPFD does not fully staff its truck company, making a detailed analysis of specific stations challenging. However, all existing station locations have been assessed to determine their suitability should the district decide to introduce additional specialty apparatus.

The following figure represents the coverage of 2.5 miles from each station.

Figure 41: ISO 2.5-Mile Coverage



Unit Workload Analysis

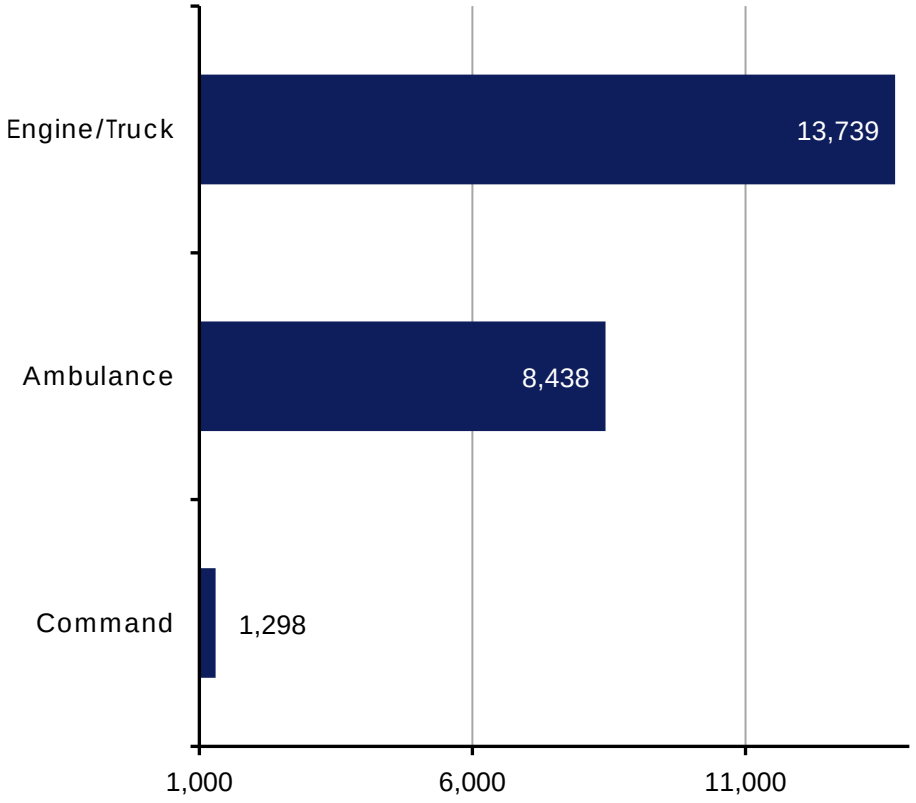
It is essential for unit workload within SPFD to be evenly distributed to ensure sustained readiness, resiliency, and service availability. Although it is common for some units to be busier than others, it is crucial that no single crew is burdened with an excessively heavy load, as this can compromise their effectiveness.

Incidents by Unit

In the examined incident records, SPFD had 133 unique units responding to various incidents. Of these, 21 units are SPFD-specific apparatus, comprising 10 distinct crew sets. Notably, over 90% of all unit responses were carried out by frontline engines, the truck, ambulances, and the Battalion Chief.

The remainder of the responses involved Chief Officers, specialty units, and other response vehicles. The engines/trucks responded to 58.5% of all incidents, while ambulances responded to approximately 36%. The following figure provides a detailed breakdown of SPFD's responses by apparatus types from 2019 through 2021, offering a clear perspective on the distribution and frequency of unit deployments.

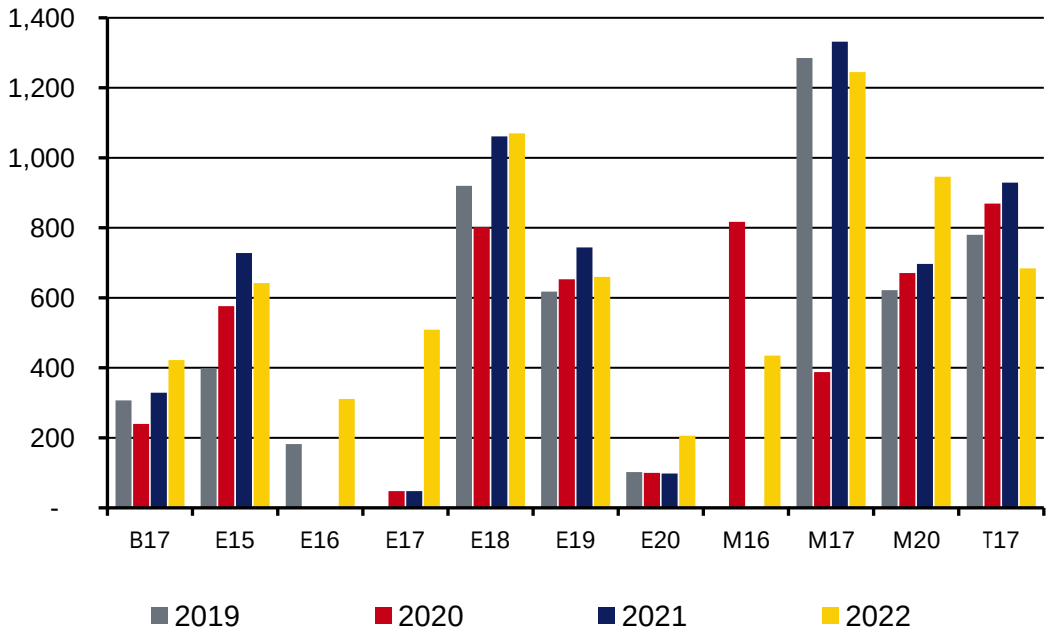
Figure 42: Annual Incident Volume by Apparatus Type (2019–2022)



It should be noted that there are more units in the incident records than currently in service within the district, and some of the units changed in service status during the evaluation period. Overall, apparatus responses are up 30%, but individual unit trends are difficult to identify due to the changing apparatus status.

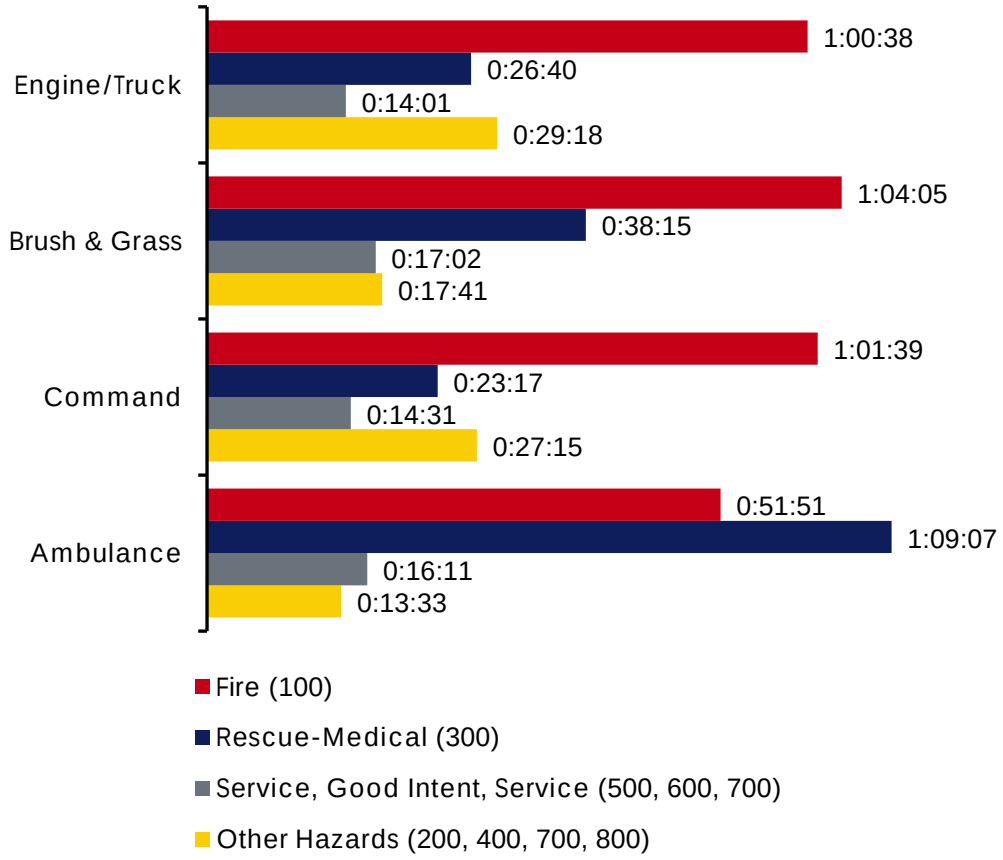
The following figure shows each apparatus response volume for each year.

Figure 43: Apparatus Response Volume by Year (2019–2022)



Each incident requires a unit to remain on the scene to handle the situation. Therefore, a general idea of how long a specific crew will stay on the incident can assist operational planning. SPFD has four primary types of units that respond to emergencies. First, ambulances are typically committed longer on rescue and medical scenes. Trucks and engines have different specific functions. However, their average time on the incidents is similar, so they are grouped for this analysis. Next, the engines and trucks' brush, grass, and auxiliary units specialize in remote area responses. Finally, command officers are any chief officers within the SPFD system. The following figure shows the average minutes each apparatus type was committed to a given incident category for the entire study period.

Figure 44: Apparatus Commit Time by Apparatus & Incident Types (2019–2022)



One final dimension of unit workload is how much time each unit is committed to incidents throughout the year. The unit hour utilization (UHU) calculation evaluates how much time a crew is committed to an incident versus the total time on duty during a specific time frame. The formula for this calculation is the total time committed to an incident divided by the sum of all time the unit is staffed.

$$UHU = \frac{\sum Time\ Commited\ to\ a\ Scene}{\sum Time\ Unit\ is\ Staffed\ and\ In\ Service}$$

The desire is for the primary unit at a station, typically an engine or quint company, the most flexible response unit, to be under 10% UHU. Maintaining 10% UHU should indicate that the area has 90% availability from unscheduled events. Stations with multiple engines and quint companies should aggregate to less than 10% UHU for all similar units. However, ambulance UHU is the subject of much debate within the fire service.

Ambulances working a 24-hour shift unit should not have an incident UHU above 45%. Anything more than this, and these crews likely do not have enough time to perform ancillary duties like training or maintenance. They are also likely not getting enough downtime for rest and meals, which could lead to safety concerns. Because of the 45% incident UHU rule, any 24-hour ambulance approaching 30% should be evaluated to determine whether the crews are getting enough training, rest, and fitness time to ensure they do not burn out.

SPFD's system is reasonably busy and appears to be under response control. None of the engines or trucks, including cross-staffed times, are approaching the 10% cautionary level. The most active medic unit, Medic 17, is also well under the advisory 30% for an ambulance. The following figure shows the UHU for each staffed apparatus and the brush apparatus.

Figure 45: Unit Hour Utilization Percentages (2019–2022)

Unit	Average	2019	2020	2021	2022
Engine 15 & Cross Staffed Units	3.2%	2.3%	3.8%	3.6%	3.0%
Engine 16 & Cross Staffed Units	1.4%	2.0%	0.8%	0.9%	2.0%
Medic 16	4.2%	0.0%	11.7%	0.0%	4.8%
Engine/Truck 17 & Cross-Staffed Units	5.0%	4.9%	4.9%	4.5%	5.6%
Medic 17	13.2%	18.4%	4.9%	15.5%	13.8%
Engine 18 & Cross Staffed Units	5.5%	5.6%	5.2%	5.7%	5.4%
Engine 19 & Cross Staffed Units	3.8%	3.9%	3.9%	4.1%	3.3%
Engine 20 & Cross Staffed Units	0.9%	0.8%	0.9%	0.8%	1.1%
Medic 20	9.3%	8.8%	9.6%	8.4%	10.5%
Battalion 17	2.1%	1.9%	1.8%	2.0%	2.4%

Not all the time committed to an incident is apparent in the data. Crews may be out of service for maintenance, training, or other events that do not appear in this analysis. Approximately half of a crew's day is spent in administrative, training, or recovery activities. For example, assuming the crews are allowed 8 hours of rest and recovery daily, 2 hours for meals, and 2 hours for station, equipment, and vehicle maintenance, that totals 12 hours. Additional time is typically given to employees for physical fitness, training, and public education.

Concurrency Analysis

Incidents that happen simultaneously can impact an agency's ability to respond. While SPFD maintains multiple units at each station, there may be times when all crews are engaged, leaving the jurisdiction reliant on outside aid.

The first dimension of the concurrency evaluation is how often, within SPFD's primary jurisdiction, there is more than one incident at any given time. For example, the following figure shows how often multiple incidents happen simultaneously within SPFD's jurisdiction.

Figure 46: Concurrent Incidents within Jurisdiction (2019–2022)

Incidents In Process	Percent of Responses
1	69.5%
2	25.2%
3	4.5%
≥ 4	0.8%

As is evident, it is not uncommon for SPFD to be running simultaneous incidents within the jurisdiction. The data collected had additional information that split the incidents into specific ambulance response areas within the jurisdiction. The following figure shows how often incidents within the jurisdiction happen within the same ambulance response area.

Figure 47: Concurrent Incidents within Ambulance Service Areas (2019–2022)

Incidents In Process	Percent of Responses
1	77.7%
2	19.0%
3	2.8%
≥ 4	0.4%

The preceding figure indicates that concurrent incidents are more prevalent in the entire district versus the ambulance service area. In this case, regions other than the Town of Loomis are more likely to have simultaneous incidents. However, Loomis can also be expected to run concurrent incidents. In addition, the agency also responds outside the district a significant amount of the time, as indicated in the jurisdictional incident count study.

The following figure demonstrates how often SPFD works on multiple incidents throughout the response system.

Figure 48: Concurrent Incidents All Responses (2019–2022)

Incidents In Process	Percent of Responses
1	74.3%
2	20.9%
3	4.1%
≥ 4	0.7%

When considering its entire workload, not just incidents within the district the number of concurrent incidents decreases slightly.

Another factor in unit workload is the number of units assigned to a specific incident. The majority of SPFD incidents, over 72%, are accomplished by either one or two companies. The following figure shows the percentage of incidents where the specified number of response units were assigned to an incident.

Figure 49: Multiple Units Simultaneously Assigned to Incidents (2019–2022)

No. of Apparatus	% of Responses
1 unit	27.5%
2 units	45.2%
3 units	19.6%
4 units	4.3%
5 units	1.2%
6 units	0.6%
7 units	0.3%
8 units	0.2%

Apparatus combinations are well distributed throughout the system. While many apparatus response groupings are possible, SPFD sends the same apparatus combination approximately 36% of the time. The following figure shows the top 10 apparatus combinations.

Figure 50: Top 10 Apparatus Combinations (2019–2022)

Apparatus Combinations	% of Responses
M17, T17	8.4%
E15, M17	6.1%
E19, M17	4.9%
E19, M20	3.8%
E15, M17	3.1%
E18, M20	3.0%
M16, T17	2.4%
M20, T17	1.4%
E15, M16	1.3%
E17, M16	1.2%

Performance Review

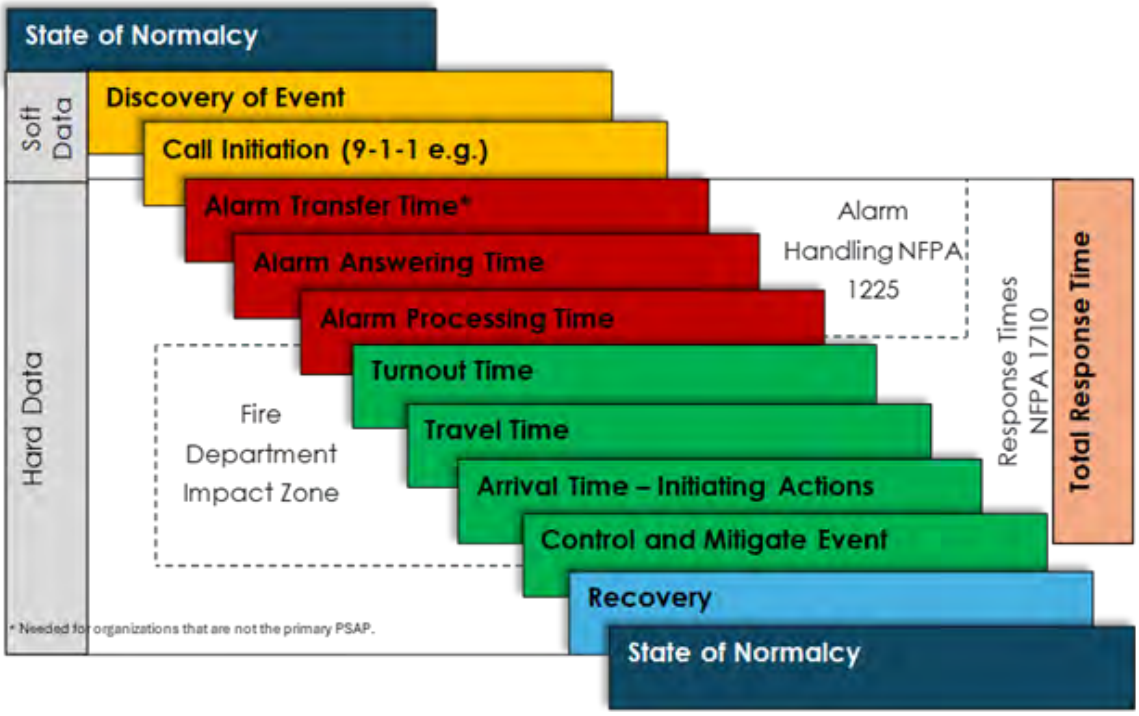
When evaluating a system, having a set of objectives or standards to judge performance against is helpful. While national and state standards may be recommended, in California, it is up to the authority having jurisdiction to adopt specific ones. In this case, neither has adopted two specific performance standards. Turnout time, or the time from when an apparatus is notified until they begin their response, is set at 60 seconds, while other incident types are judged at 90 seconds.

Total incident response time, or the time from when the first apparatus is notified, until the first unit arrives on scene, is set to 7 minutes. There are other time performance segments to be evaluated. Therefore, as a reference, the National Fire Protection Association (NFPA) standards will be utilized as a reference where appropriate and not identified by the district. This will include 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* (NFPA 1710). It will also include portions from NFPA 1225: *Standard for Emergency Services Communications* (NFPA 1225).

Evaluating overall performance requires an understanding of the lifecycle of an incident. It starts with a normal state and should end with a new normal state, but there are many measurable time segments in between.

Some elements, such as call processing time and turnout time, can be improved by tactical management techniques, such as training and policy. However, other time segment performances, such as travel time, are typically managed by a strategic methodology such as station location. The following figure identifies each time segment in the incident lifecycle.

Figure 51: Incident Lifecycle



The incident data provided did not allow for analysis of all time segments in the above list. However, enough information was provided to evaluate call processing, turnout, travel, and total response time. While SPFD has adopted turnout and department response time standards, other available time segments do not have an associated standard. Therefore, the NFPA standards will be used as a performance benchmark.

The following figure indicates each time segment, standards referenced, and the most influential organizational actions.

Figure 52: Incident Segment KPIs

Incident Segment	Primary Agency Influence	Standard	Benchmark
Normalcy	Prevention	Local Codes & Ordinances	Community Risk Assessment
Discovery	Public Education		TBD
Notification	Public Education		TBD
Call Answer[1]	Dispatch Staffing, Systems, Policy, & Training	NFPA 1225	15 Sec 90th Percentile 20 Sec 95th Percentile
Call Transfer			30 Sec 90th Percentile
Call Processing			60 Sec 90th Percentile (priority)[2]
Turnout Time	Station Design, Policy & Training	Agency Defined	60 Sec 90th Percentile (EMS) 90 Sec 90th Percentile (Other)
Travel Time (1st Due)	Station Location, Systems, & Training	NFPA 1710	4 Min 90th Percentile
Travel Time (2nd Due)			6 Min 90th Percentile
Travel Time (ERF)			8 Min 90th Percentile (Low or Moderate Risk) 10 Min 10 Sec 90th percentile (High Risk)
Total Agency Time	Station Design, Station Location, Systems, & Training	Agency Define	7 Min regardless of type (assumed 90th percentile) [First Dispatch to First Arrived]
Action Initiation or Patient Contact	Station Location, Systems, Staffing, & Training		TBD
Control/Mitigation			TBD
Recovery	Prevention & Public Education	Updated Codes & Ordinances	Community Risk Assessment
New Normal	Prevention	Local Codes & Ordinances	Community Risk Assessment

[1] Applies to both PSAP and Secondary Answering (Agency) Dispatch Centers.

[2] Non-Priority Incidents are exempt from NFPA 1225. Agencies are expected to set standards.

The time segment performance standards are evaluated as a percentile. This will allow SPFD to compare its performance against other agencies and the standard with a similar statistical technique.

Call Processing Analysis

There are several time measures of a dispatch center. The metrics identified in NFPA 1225 and NFPA 1710 are ring time and call processing. Ring time measures when the phone in dispatch begins to ring until someone answers. NFPA 1225 requires the ring time to be less than 15 seconds, 90% of the time, and less than 20 seconds, 95% of the time. Call processing indicates the time it takes from when a person answers the call for help, until the first unit is notified there is an incident. Unfortunately, ring time is typically captured in a separate system and was unavailable for this report. However, sufficient data were available to evaluate call processing.

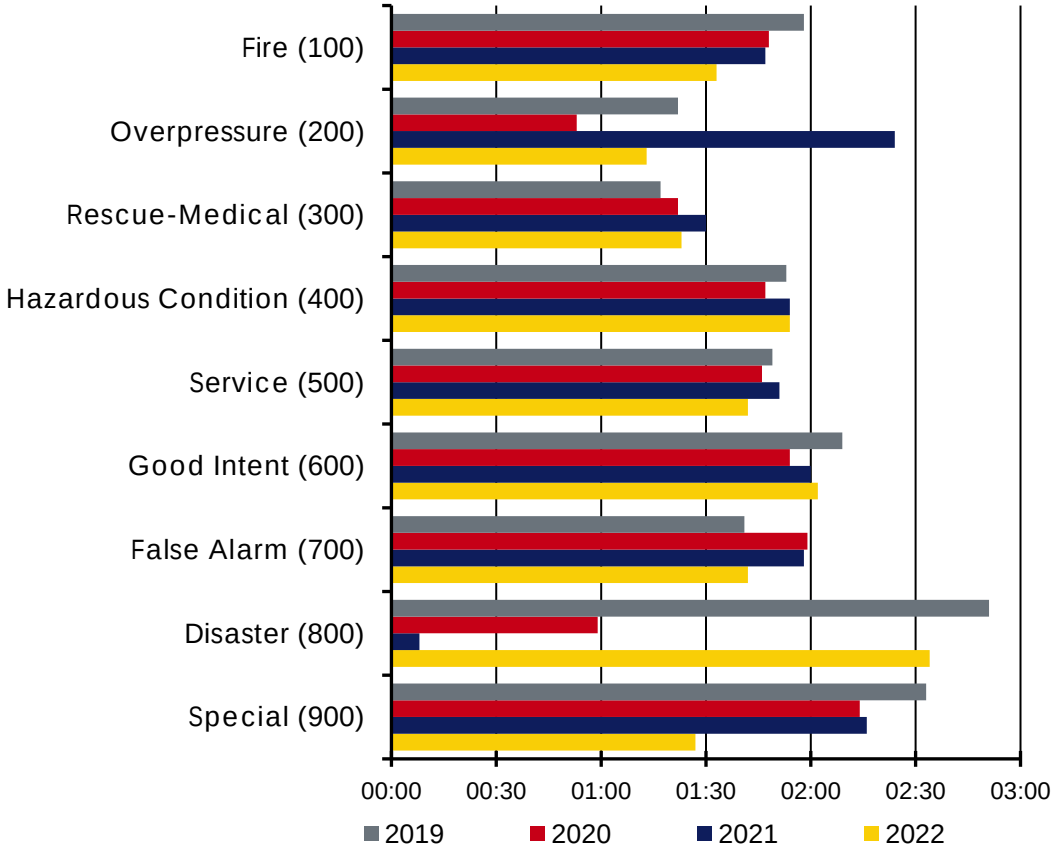
Call processing should start from when the phone is answered, until the first, preferably correct unit, has been notified that an incident is in progress. However, there is typically a short period, seconds usually, from when the phone is answered, and the incident is started in the computer-aided dispatch system.

For this analysis, it is assumed that this short period, while not captured, is inconsequential. The NFPA 1225 and NFPA 1710 standards indicate that a high-priority incident should be processed within 60 seconds, 90% of the time. NFPA further defines specific call types to be processed within 90 seconds, 90% of the time, and 120 seconds, 99% of the time.

These incident types include those requiring emergency medical questioning, hazardous materials incidents, and technical rescue incidents. This additional time is available for persons needing translation, calls from devices used by hard-of-hearing individuals, text messages, and calls requiring location determination.

The data provided was evaluated for integrity and reliability. It was found that 16.3% of the data was statistically unreliable. However, that did leave 12,783 incidents for evaluation. Overall, the Placer County Sheriff's Office Dispatch Center (PCSO) processes calls at approximately 1 minute, 33 seconds, 90% of the time. The following figure shows the call processing time at the 90th percentile based on the NFIRS incident grouping for 2019–2022.

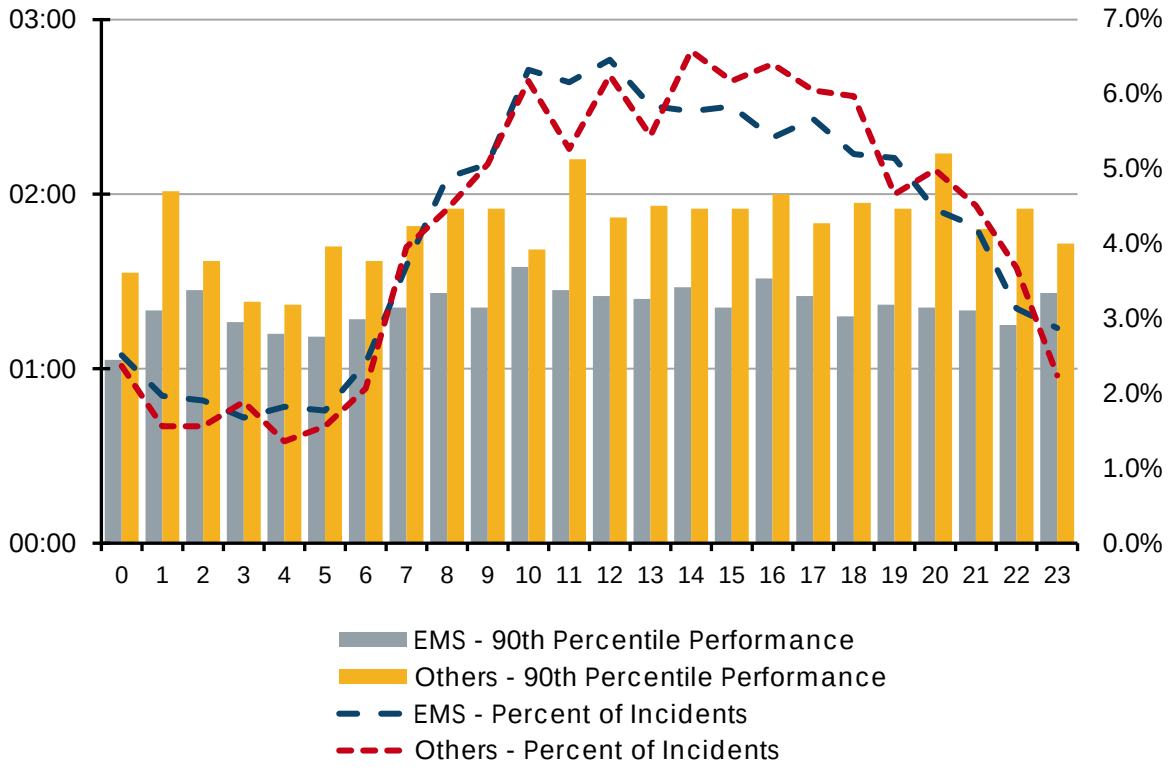
Figure 53: Call Processing by Incident Type (2019–2022)



Another dimension of the call processing time is how incident workload affects dispatch center performance. The PCSO manages the workload well, and the call processing time is consistent by the hour.

The following figure is the call processing times of medical incidents and all other incidents by the hour of the day, with the call load added as a reference.

Figure 54: Call Processing by Hour (2019–2022)



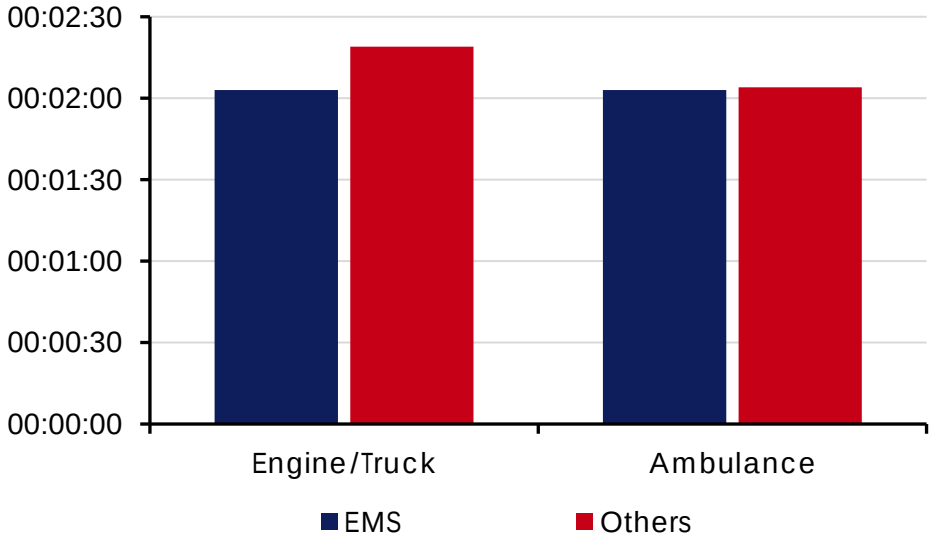
Turnout Time Analysis

Turnout time is the time difference between when the unit is notified of an incident and when they start to respond. NFPA 1710 indicates the performance measure for this time segment is 60 seconds for medical incidents and 80 seconds for fire incidents. SPFD has adopted 60 seconds for medical incidents and 90 seconds for other incidents standard. For this analysis, the incidents will be grouped by EMS and others.

The data was analyzed for statistical reliability; over 21,000-unit records could be measured. This represents over 78% of the recorded information, slightly better than the typical reliability for this data point. In addition, to ensure the responding crew was facing an urgent situation, only incidents in which the unit responded with lights and sirens were evaluated. Overall, SPFD staffed apparatus has a turnout time of 2 minutes, 6 seconds at the 90th percentile.

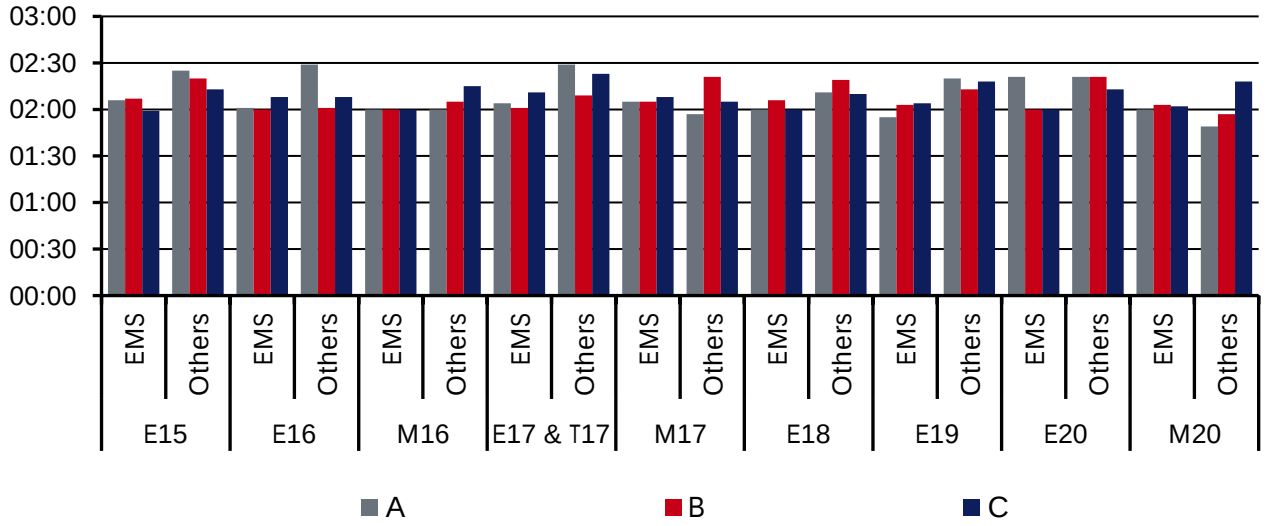
The following figure shows the turnout times by unit and general Incident types.

Figure 55: Turnout Time by Incident & Unit Type (2019–2022)



Each apparatus is staffed with three shifts that may have better turnout methodologies than others. The following figure shows the turnout time in the 90th percentile for each staffed unit grouped by shift and general incident type.

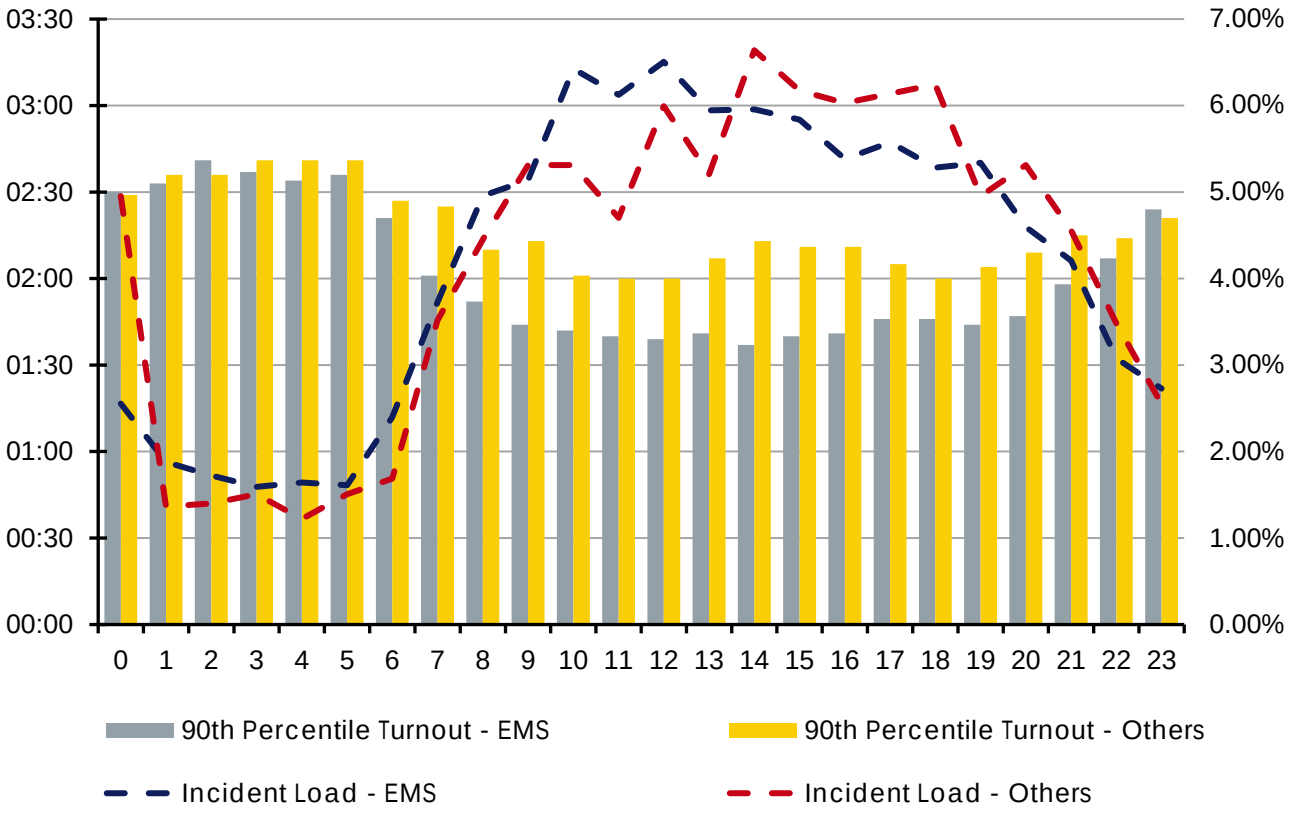
Figure 56: Turnout Time by Apparatus & Shift (2019–2022)



One final dimension of the turnout time analysis is the changes in the percentile by the hour of the day. Since SPFD staffs their units 24 hours a day, it is expected that crews can try and sleep at night. However, sleeping personnel can impact how fast they can get to the apparatus and begin to respond. SPFD's crews can turnout in 1 minute, 49 seconds during the day, and 2 minutes, 28 seconds at night, both at the 90th percentile.

The following figure shows the turnout percentile by the hour of the day, with the workload by general incident type added for reference.

Figure 57: Turnout Time by Hour with Workload Reference (2019–2022)



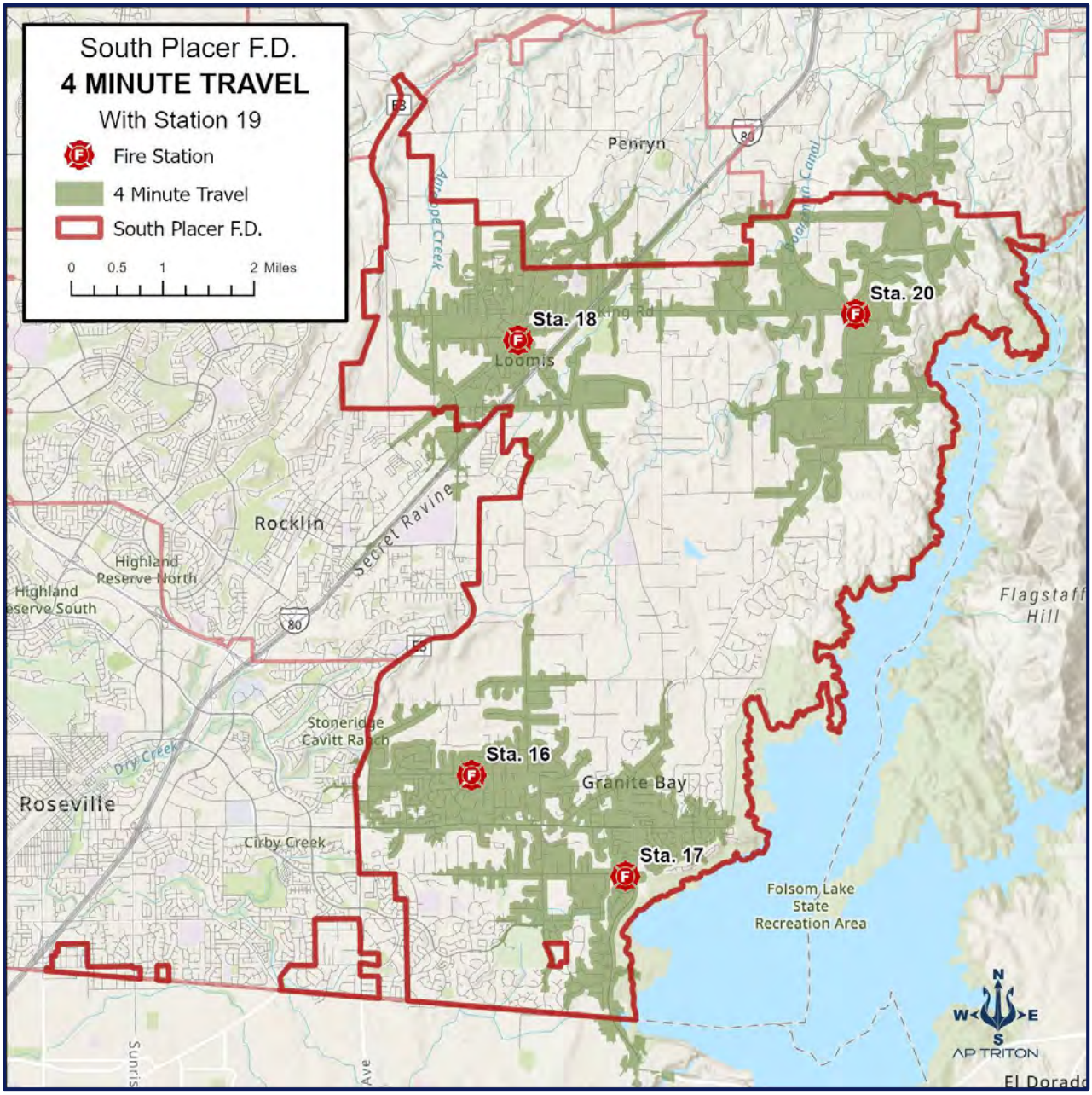
It is interesting to note the inverse pattern of turnout times and workload. This phenomenon is common in agencies with lower call volume at night. This can be explained as a combination of crews resting and fewer incidents to analyze. A limited data set is typically much more susceptible to higher times and more obvious data swings.

Travel Time Analysis

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, lists several travel time requirements for apparatus. The first defined travel time is the first unit, either an engine or a truck, that can operate as an engine for 4 minutes. The second-due engine travel time should be 6 minutes, and the first alarm should arrive within 8 minutes for a moderate-risk structure fire.[7] NFPA historically defined ALS travel time as 8 minutes. However, the new standard leaves that up to the authority having jurisdiction (AHJ).

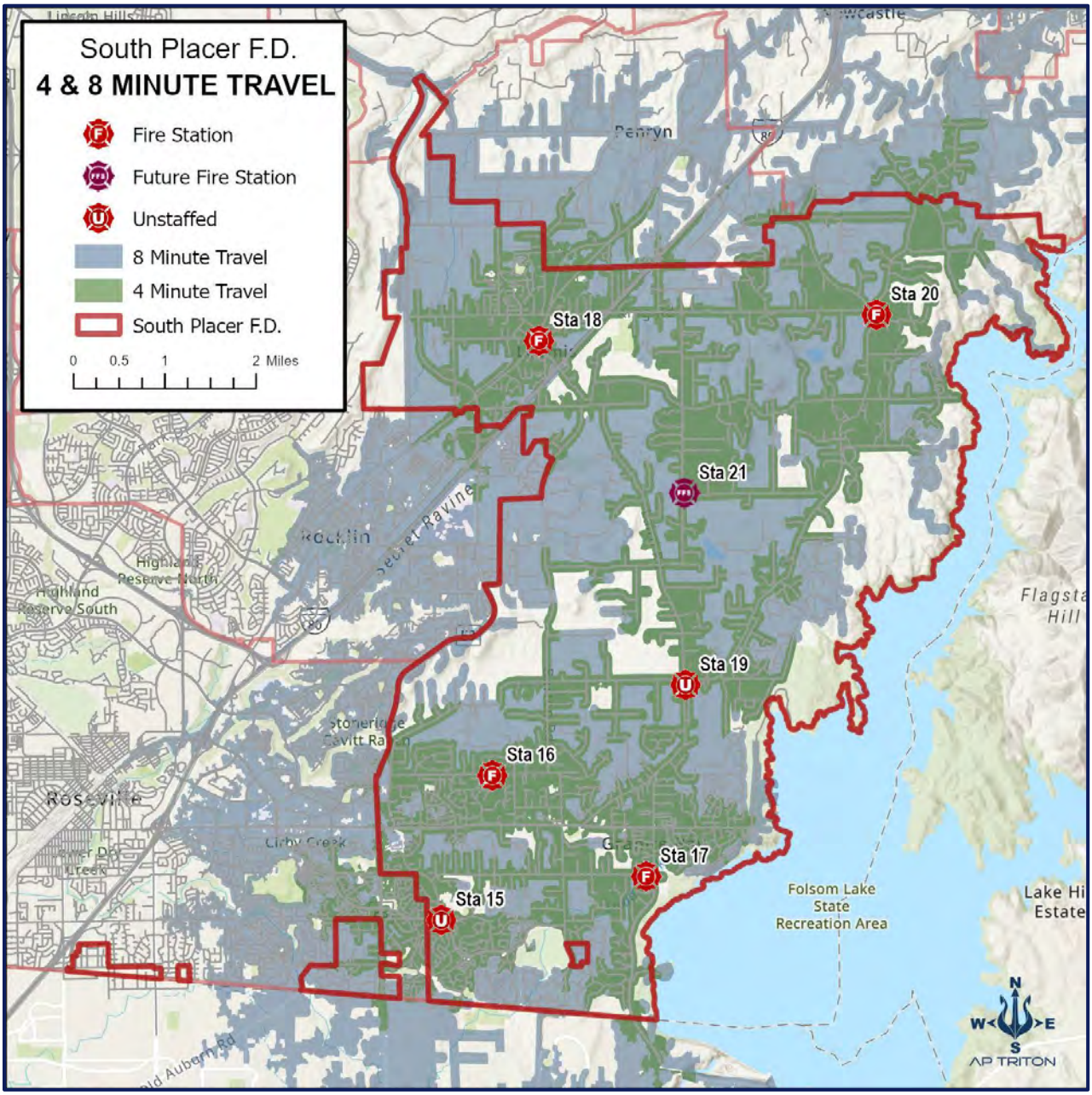
Travel time is the difference between when the apparatus checks the en route and when it arrives on the scene. The following figure shows the theoretical travel times from the staffed SPFD stations.

Figure 58: 4-Minute Travel, Staffed Stations



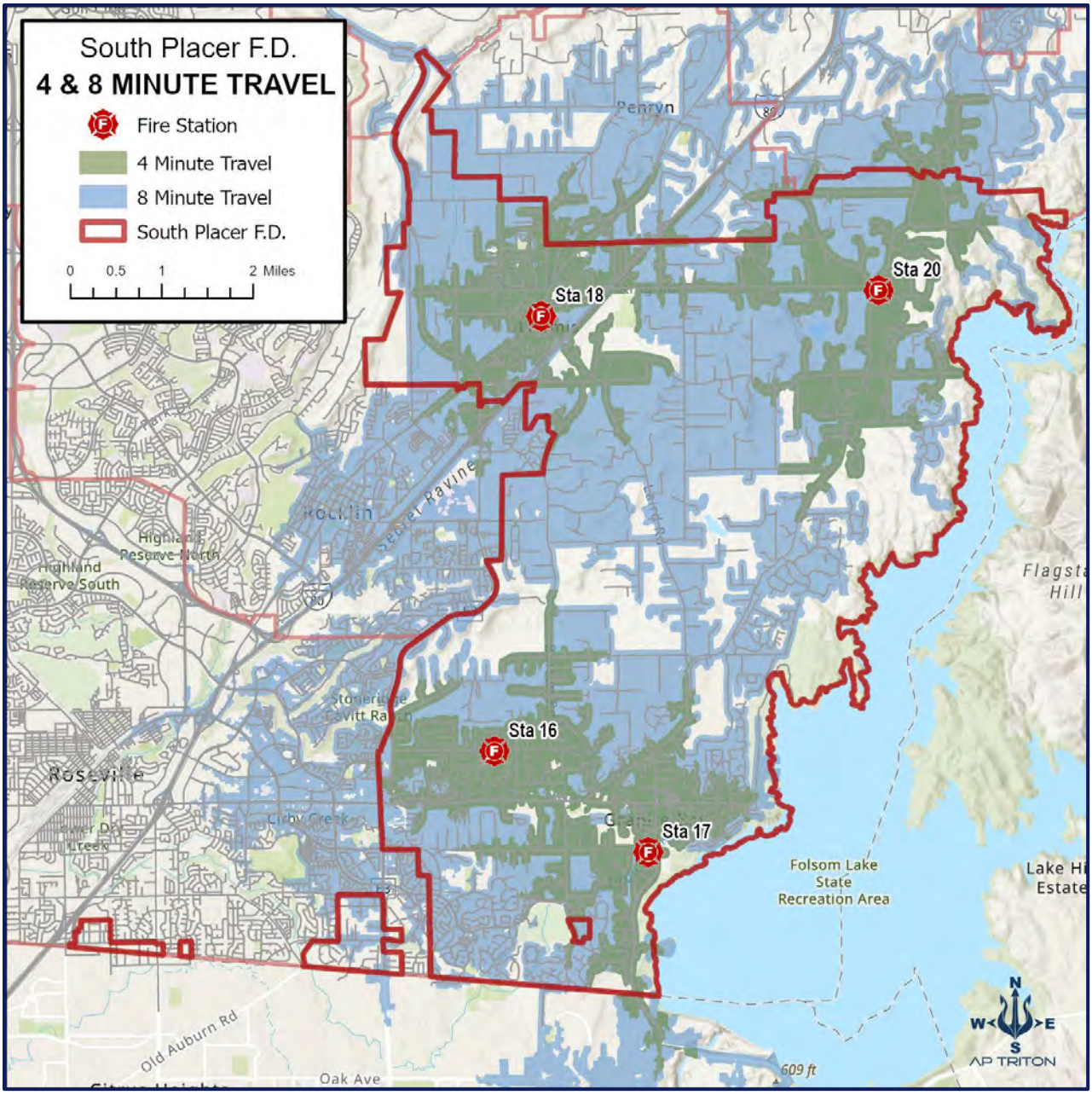
The following figure shows the 4- and 8-minute travel times from SPFD's fire stations.

Figure 59: 4- & 8-Minute Travel, All Stations



The 4-minute coverage for most populated areas would be adequate if all the stations were staffed. In addition, the second due would also likely be within 8 minutes. However, with Stations 15 and 19 unstaffed, the actual coverage looks quite different. The following figure shows the 4- and 8-minute travel times from the stations currently in operation.

Figure 60: 4- & 8-Minute Travel Staffed Stations



The center of the district is not well protected. This area has a lower population and incident density. However, some of the southwest portion of the district is also not well covered. This area is primarily single-family homes, but there are some multi-family homes, which may include the Granite Bay High School. Theoretic models are beneficial when evaluating what can happen. However, considering the actual performance may give a better understanding of what the agency can provide.

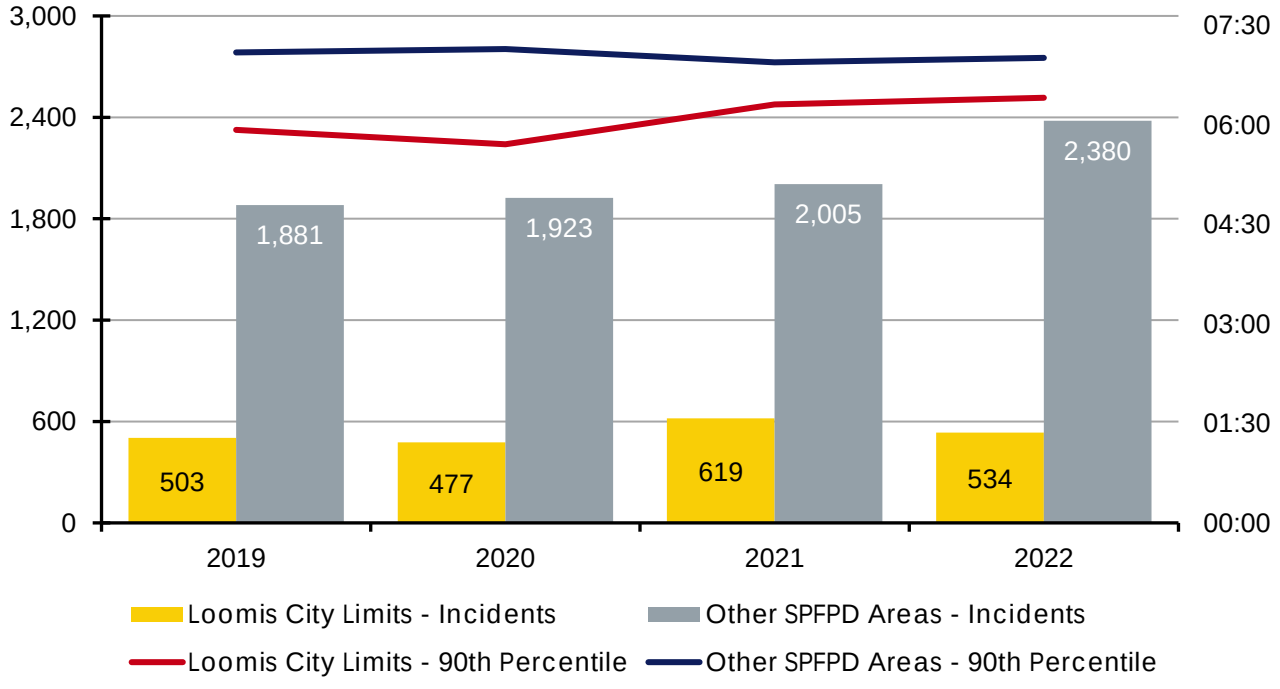
First Due Apparatus

While there were 14,911 incidents in the data set, there were significantly fewer incidents to evaluate for first-due performance. The total number of incidents analyzed was reduced by 30% to 10,444. The reduction was produced by removing missing data and limiting the first-due travel performance to only emergency incidents within the district.

The first due performance for SPFD is 6 minutes, 59 seconds at the 90th percentile for all incidents within the district. Understanding the agency's capabilities is more manageable when defining smaller geographic areas. Since the Loomis Fire District and SPFD merged in 2017, and the data starts in 2019, this makes a natural geographic break.

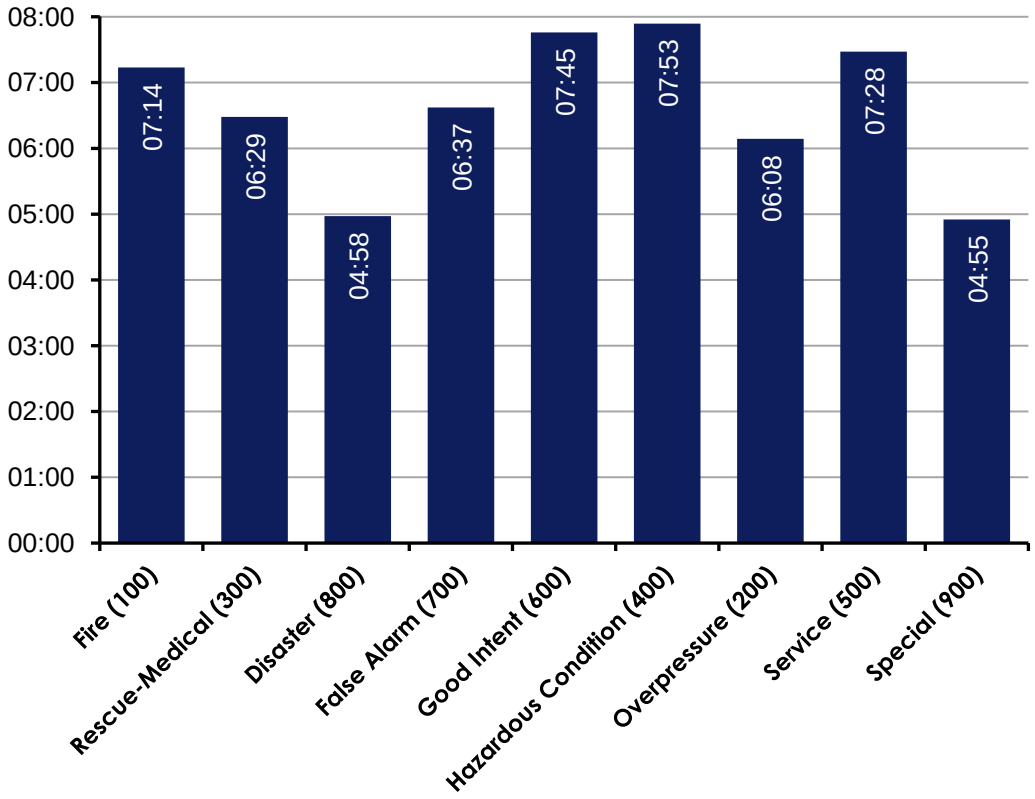
The following figure shows the 90th percentile travel time by the Town of Loomis and other SPFD areas by volume and travel time.

Figure 61: Travel Time by Area (2019–2022)



Because EMS calls are the most significant percentage of emergent incidents and the stations are so similarly staffed, the EMS times appear to be the primary driver of the overall performance time. The following figure shows the travel time of the first due apparatus for emergency responses by the general NFIRS category.

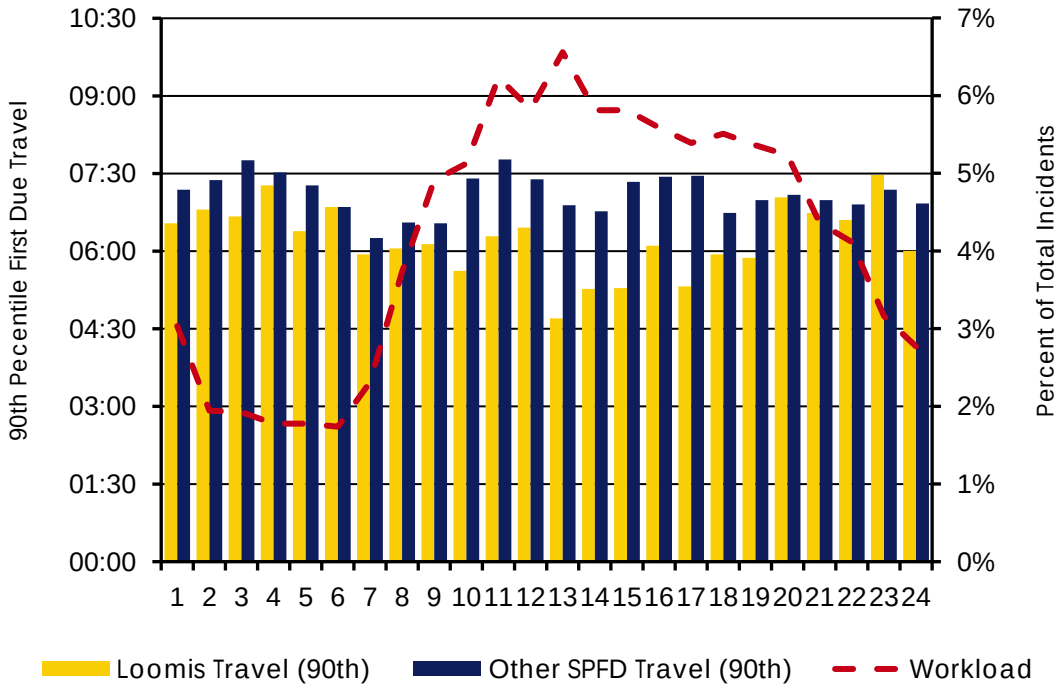
Figure 62: First Due Travel by NFIRS Category (2019–2022)



Time of day can have an enormous impact on travel times. In addition, crew readiness, traffic patterns, and incident volume can impact travel times. This appears particularly true for the Town of Loomis area, but does not affect the rest of the district as much.

The following figure shows the first due travel times by the hour, grouped by the Town of Loomis and the rest of the district, with the workload shown for reference.

Figure 63: Travel Time by Hour (2019–2022)

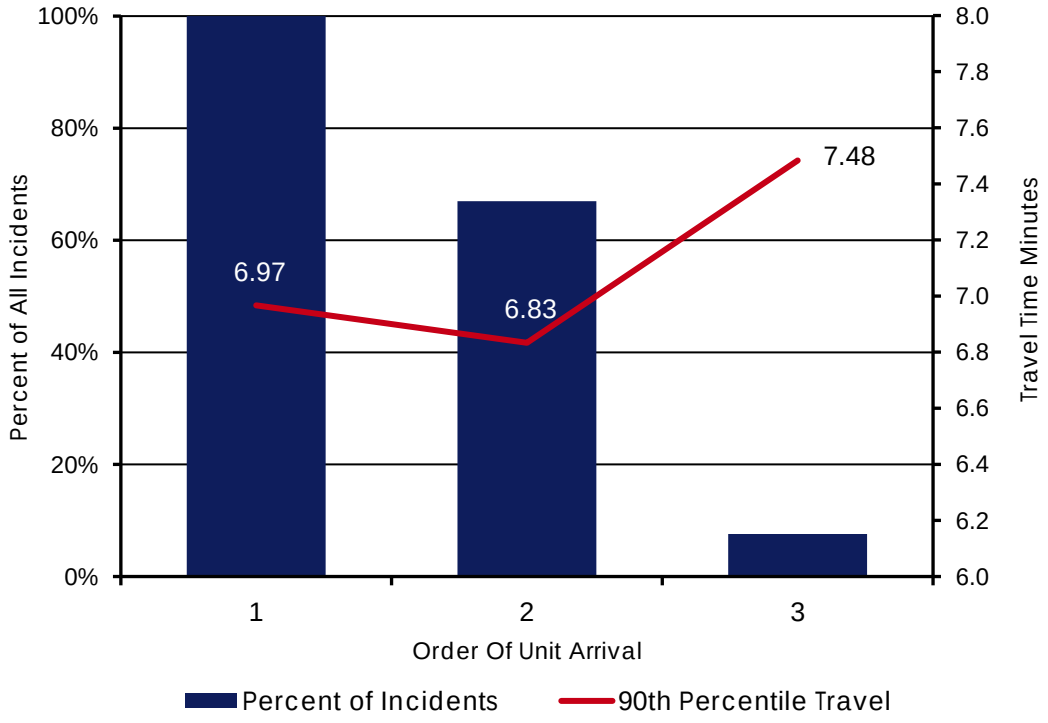


Effective Response Force

The second dimension of the travel time analysis is how well the effective response force (ERF) needed for a type of incident can be assembled. ERFs change with the complexity and resources required of any incident. They can range from one unit to multiple units with specialty equipment. Two commonly evaluated ERFs are EMS incidents and a moderate risk structure fire. NFPA 1710 sets the first due travel time at 4 minutes, the second due at 6 minutes, and a complete ERF for a moderate-risk structure fire at 8 minutes. The following figure is the 8-minute ERF travel times for a moderate-risk structure fire, based on the total number of responders SPFD can muster.

SPFD's ERF for a moderate risk EMS incident is an ambulance and one engine, or truck or a combination of engines and trucks. However, for this analysis, there were very few arrivals for this type of incident and the ERF was adjusted to one engine/truck and one ambulance. In contrast, moderate-risk structure fires include four engines/trucks, one chief, and one ambulance. The following figure shows the travel time for emergent incidents of the first three units arriving.

Figure 64: First Three Unit Travel Time (2019–2022)

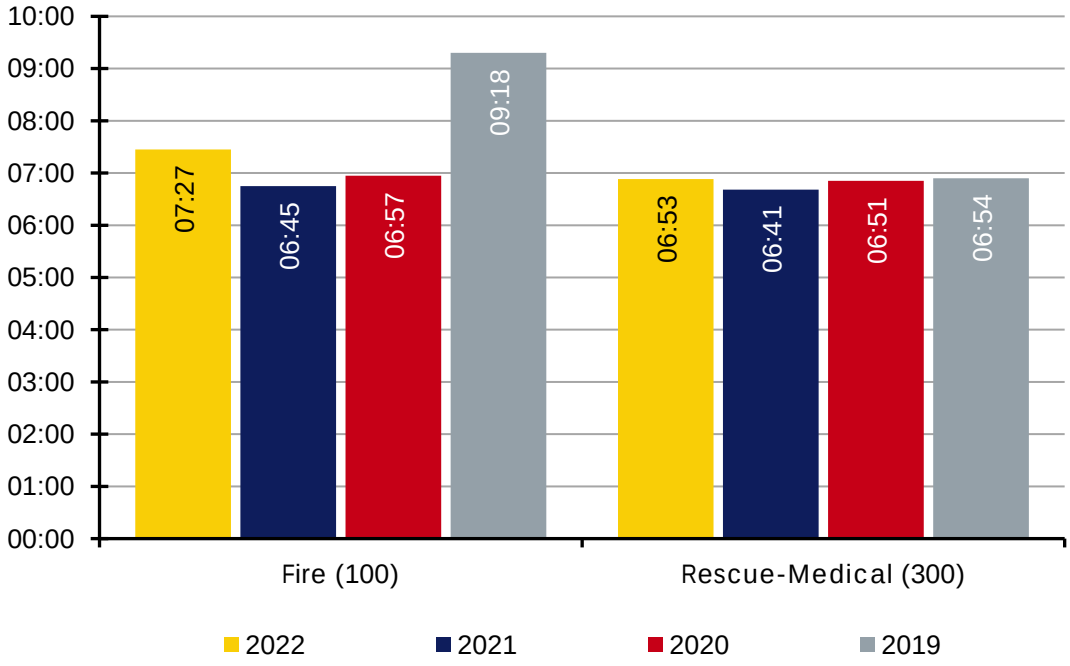


One interesting phenomenon that is not common is that the second 90th percentile travel time appears lower than the first due. After analysis, it was discovered that the reduction resulted from the volume of incidents with two units and the distance traveled by incidents with only one unit responding.

These factors combine to create a more extensive data set of first-arriving units with longer travel times and a significant second-due data set with lower travel times. This phenomenon is captured throughout the ERF study in this report. This became evident in both fire and EMS incident type analysis.

The following figure is the 90th percentile travel times for the agency's ERF based on the EMS and structure fire call types.

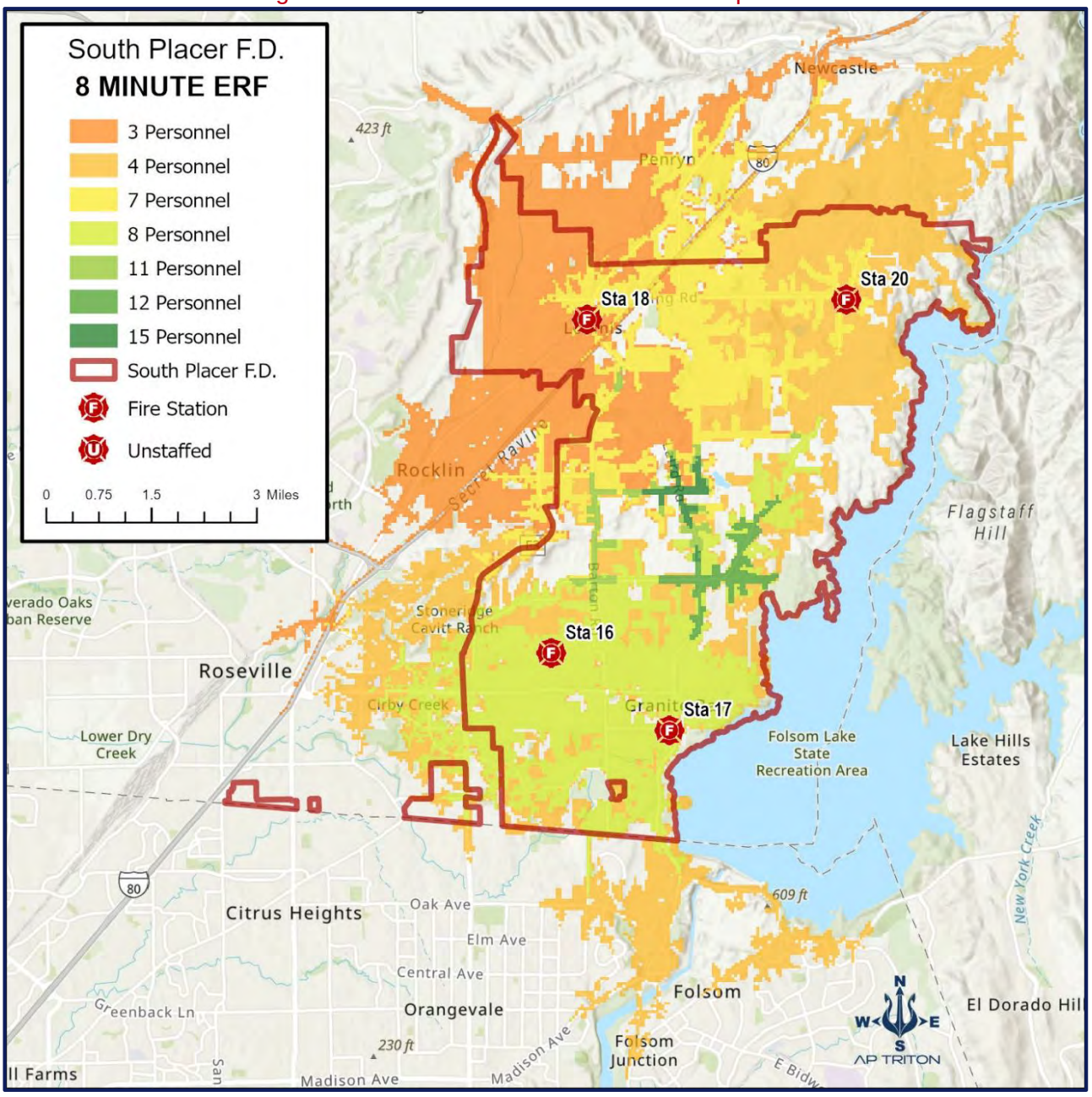
Figure 65: ERF Travel Time by Incident Type



Fortunately for SPFD, most incidents are grouped tightly around staffed station areas. However, a very different picture arises when evaluating the potential ERF response throughout the district.

The following figure shows the modeled performance for gathering an adequate number of people within 8 minutes.

Figure 66: 8-Minute ERF Travel Time Complement



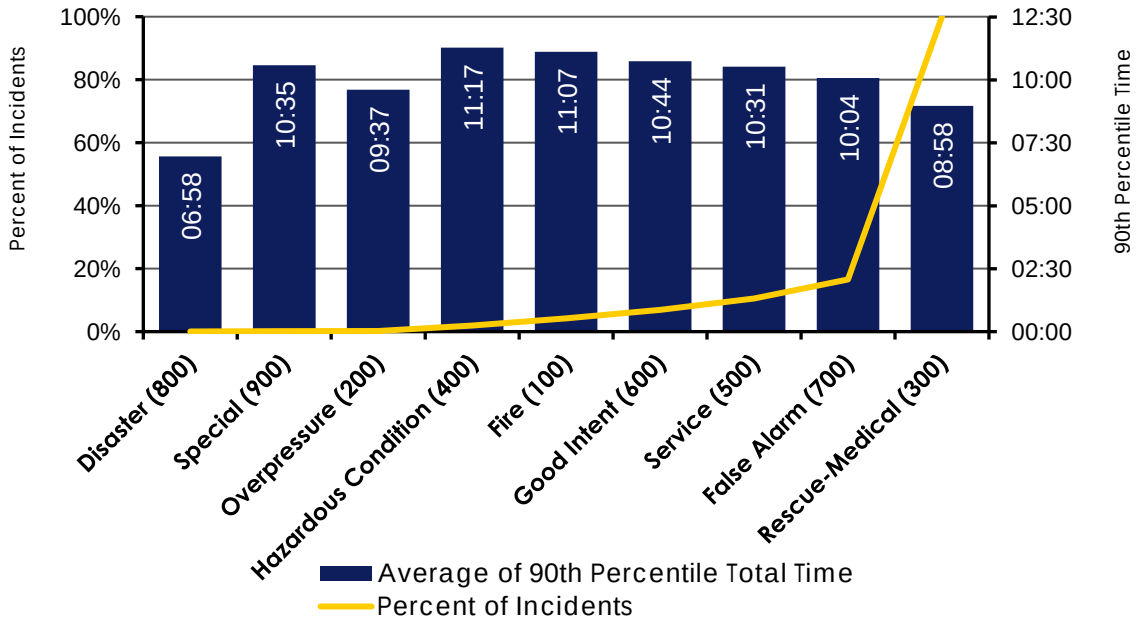
Due to the SPFD's unit distribution and lack of concentration, obtaining 15 personnel within 8 minutes in the district is difficult. While additional units may come from mutual aid locations, none are closer than the SPFD stations.

Total Response Time Analysis

The reason each time segment is analyzed is to get an understanding of where performance can be measured and improved. However, the primary performance measurement is the total response time. The person in need sees this as the district's performance. For example, SPFD's first due travel time is almost 7 minutes. Still, the person on the phone experiences 9 minutes, 16 seconds total response time at the 90th percentile.

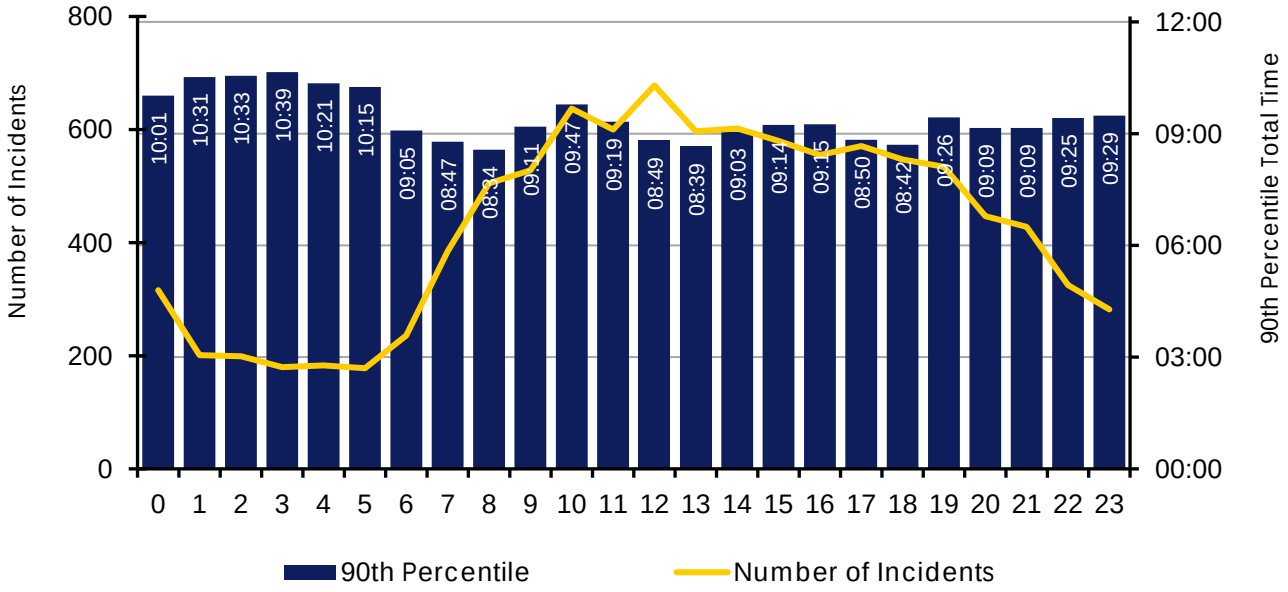
The following figure shows incident types and their first-due total-response times.

Figure 67: Total Time by NFIRS Category (2019–2022)



This remains relatively consistent throughout the day. The following figure shows the total time by hour with the total number of incidents by hour.

Figure 68: Total Response Time by Hour (2019–2022)



It may seem that the 90th percentile call processing plus the 90th percentile turnout and travel times would equal the 90th percentile total time. However, this is not usually the case. Each time segment is analyzed independently, including the total response time. The total response time does not add the segments' percentiles due to the variability of the time segments within each incident.

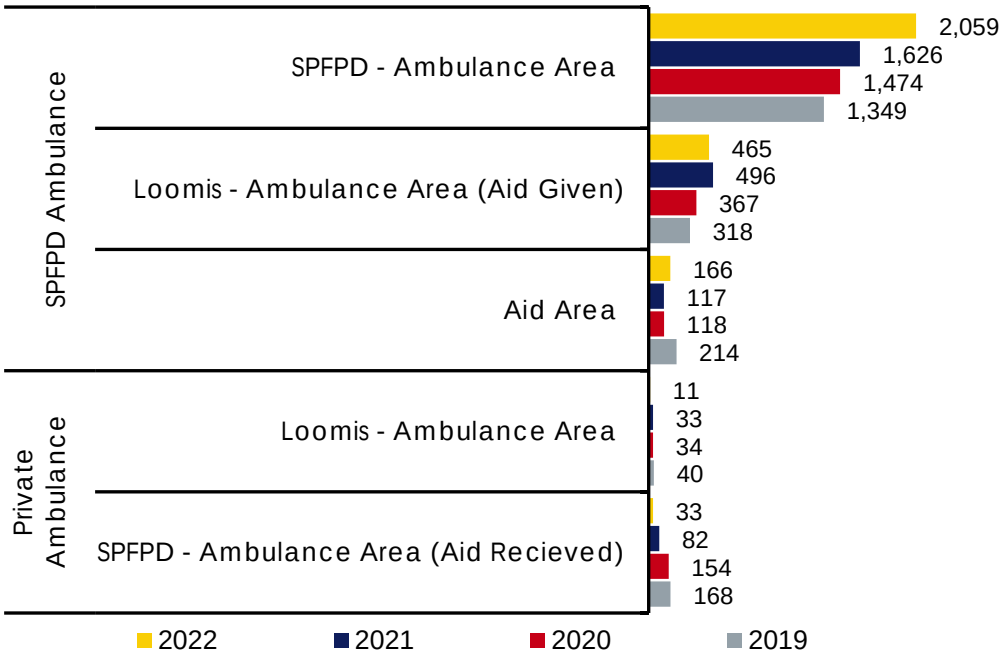
Emergency Medical Service System Performance

Because SPFD provides medical transportation services, a more thorough investigation of the Emergency Medical Services (EMS) response segment is warranted. SPFD primarily operates two ambulances, although the Medic 16 crew will respond on Engine 16 if dispatched to a fire. However, unlike the analysis of cross-staffed apparatus, Medic 16 will always be analyzed as a standalone unit.

The Sierra–Sacramento Valley Emergency Medical Services (S-SV EMS) agency approves the medical transport system. When Loomis Fire District and SPFD merged in 2017, the ambulance response was not combined under SPFD. Under the current system, a private ambulance provider is responsible for medical transport and Advanced Life Support (ALS) for Loomis and surrounding areas outside the district. Therefore, this analysis is broken into two geographic zones. The regions where the SPFD is responsible for transport and those where the private ambulance remains responsible.

The following figure shows the total ambulance responses separated into areas of ambulance responsibility and the SPFD overall area.

Figure 69: Ambulance Responses by Area (2019–2022)



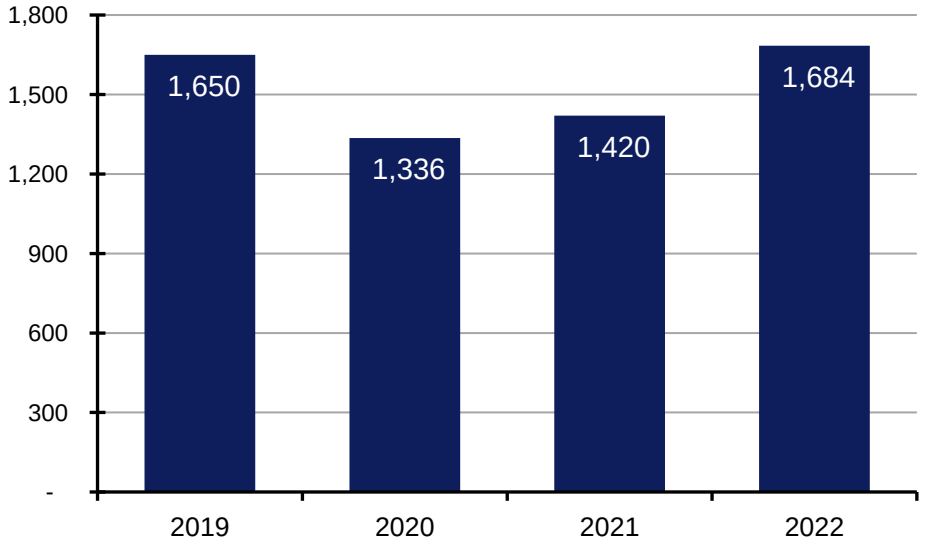
From this volume, it is apparent that SPFD provides more responses in the Loomis ambulance area and receives very little aid from the private ambulance. It also becomes apparent that the district provides ambulances into the surrounding areas at a much more significant percentage than they receive support, into either Loomis or the SPFD ambulance area.

EMS Temporal Study

Medical transport follows the general incident density temporal study to a large degree. One slight deviation was the total percentage of decrease in transports during 2020's COVID-19 pandemic. Overall incident volume dropped approximately 6% from 2019 to 2020. However, ambulance transports dropped 19% during the same period. While incidents rebounded in 2021 to over the 2019 volume, medical transports have barely recovered to pre-pandemic levels in 2022.

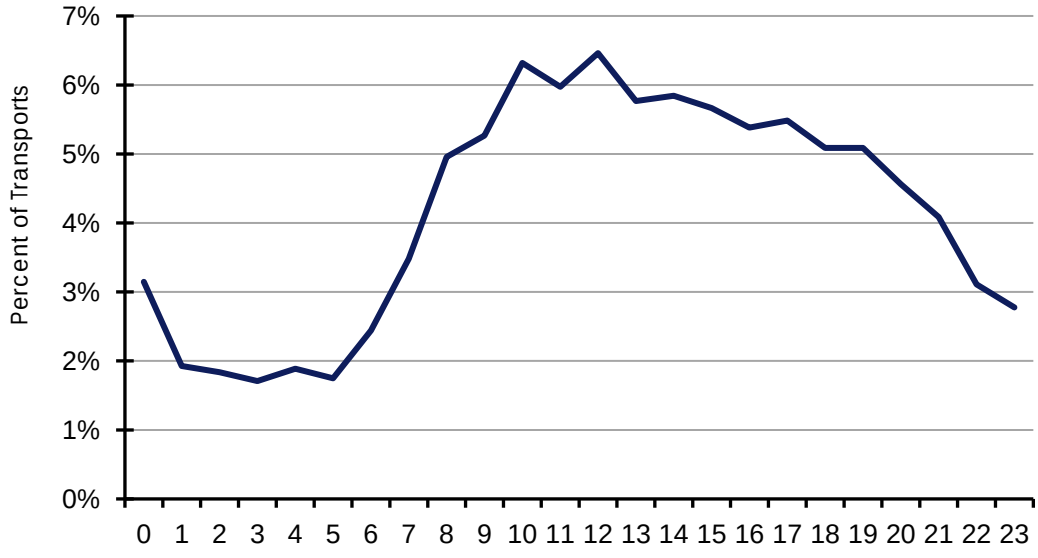
The following figure shows the annual transport volume.

Figure 70: Annual Patient Volume (2019–2022)



Overall transport volume follows a very similar curve-by-hour trend. The following figure shows medical transports by hour.

Figure 71: Hourly Transports as a Percentage (2019–2022)

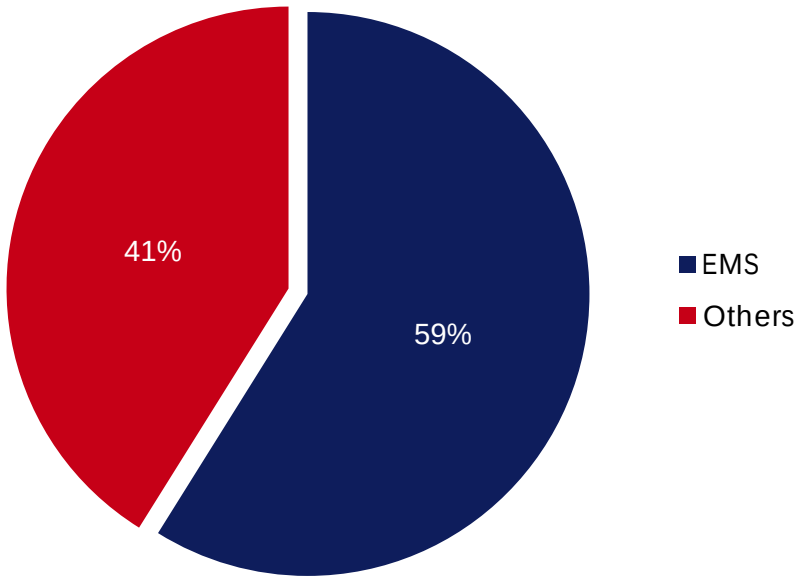


EMS System & Unit Performance

EMS incidents not only account for 70% of the responses, they also account for 59% of crew incident commit time. While this is a heavy portion of the emergency response time, it is interesting that the time dedicated to these scenes does not account for more of the overall incident time. This can be explained as some other incident types take more time and resources to mitigate.

The following is the percentage of response time crews are committed to EMS incidents.

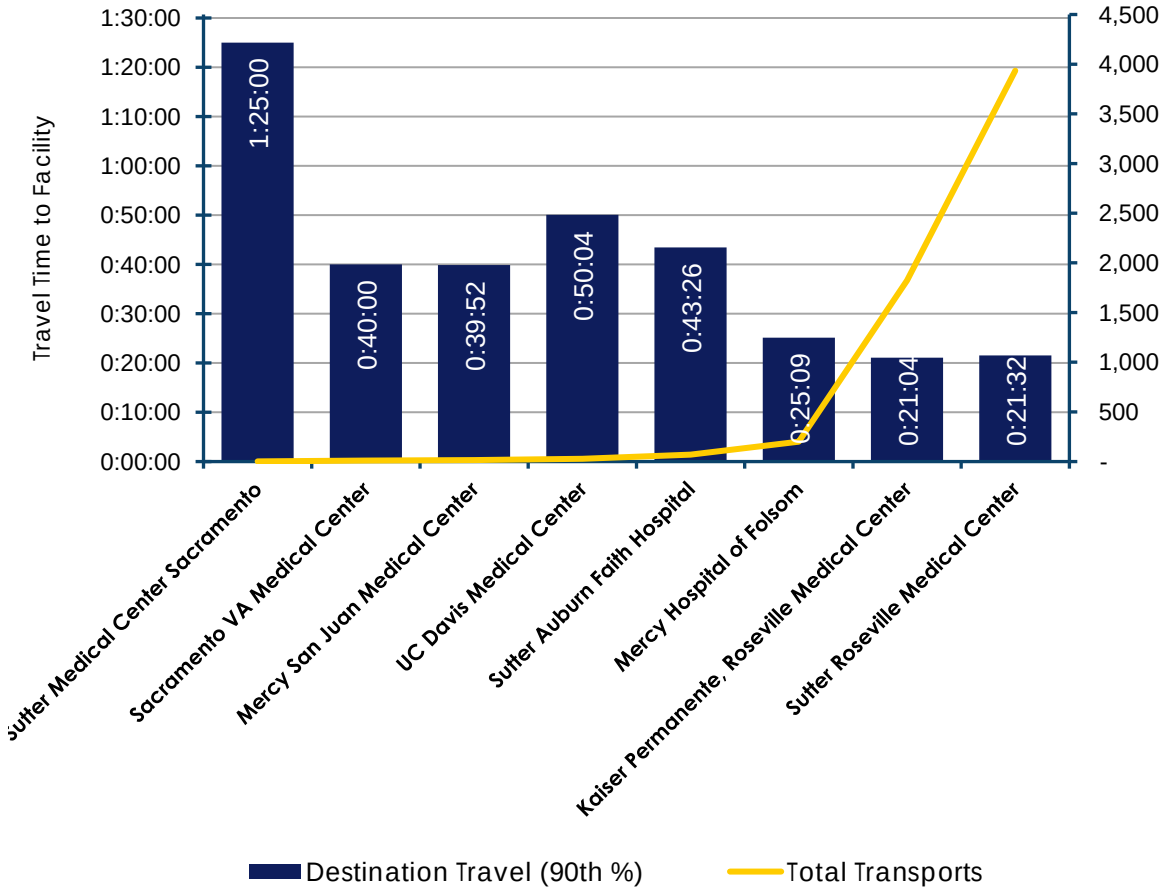
Figure 72: Percent of Time Crews Committed to EMS Incidents (2019–2022)



The two most frequented hospitals are centrally located and on the edge of the district boundaries. The 90th percentile travel time across all receiving facilities is 20 minutes, 20 seconds, and only slightly lower at 19 minutes, 32 seconds, for the two main receiving facilities.

The following figure shows the 90th percentile travel time to each receiving facility with a reference line denoting the total number of transports to that facility.

Figure 73: Travel Time to All Facilities (2019–2022)

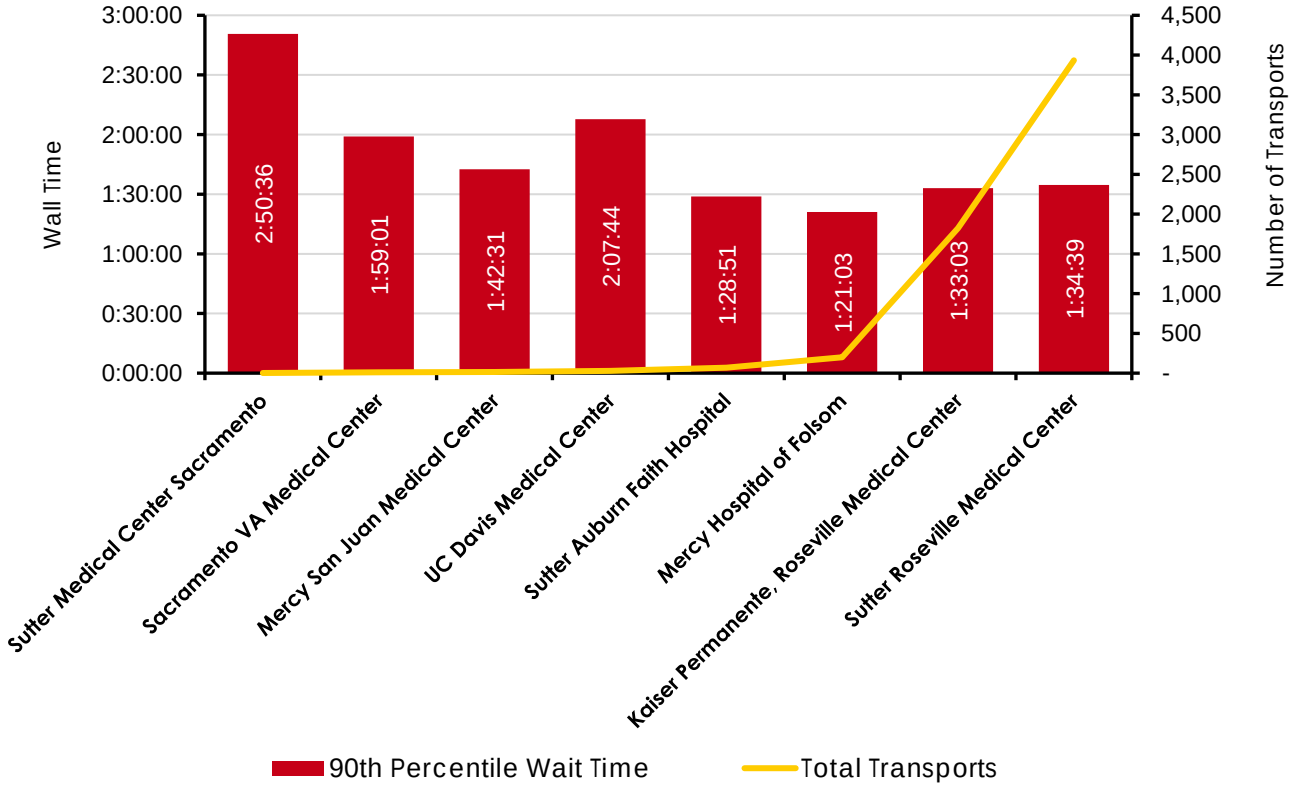


This time is captured within the unit hour utilization component. However, it can be assumed that it takes some time for the unit to return to the district When evaluating overall ambulance unit hour utilization, this number may not be as applicable when traveling back to the home station, as the primary hospitals border the district and are theoretically available for the system as soon as they leave the hospital.

Another component of the total unit utilization is how long an apparatus is stuck at the hospital before the receiving facility takes possession of the patient. This time is commonly called patient offload or wall time. SPFD does not capture actual patient offload times in their data. This is calculated by their arrival time at the hospital against the unit's available time. However, SPFD faces a significant facility wait time with a 1 hour, 35-minute 90th percentile and 1 hour, 2-minute average.

The following figure shows the 90th percentile time a unit waits at a hospital, presumably for the staff to receive the patient and for the ambulance to return to service.

Figure 74: 90th Percentile Hospital Wait Times (2019–2022)



These times are excessive by any measure. The S-SV EMS agency Policy 307 sets the goal for the patient offload time at 20 minutes target.[8] The 90th percentile for SPFD is 1 hour, 35 minutes, far exceeding this S-SV EMS goal.

Population Growth & Service Demand Projections

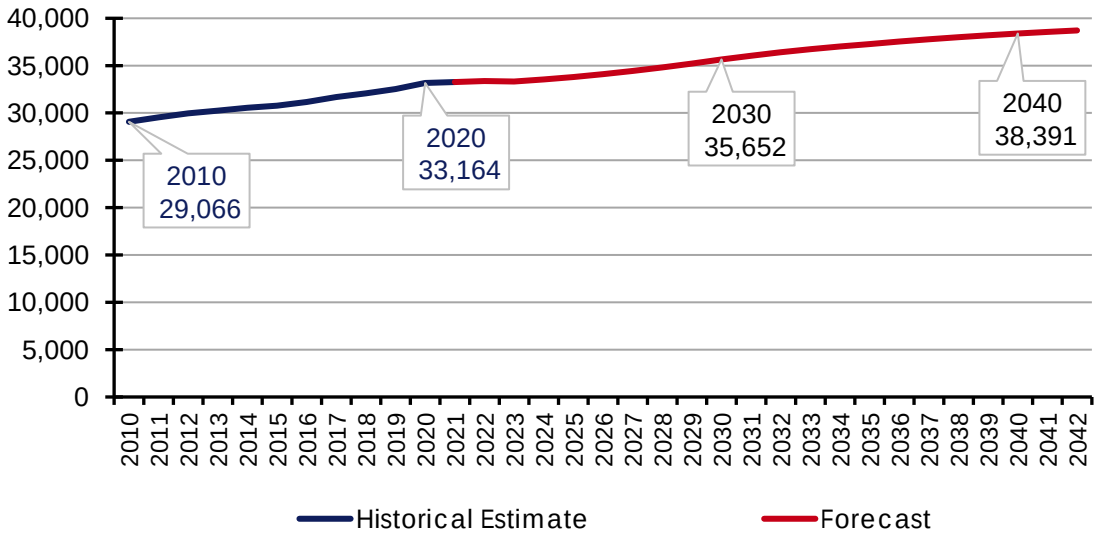
Service demand in emergency services is closely linked to population dynamics. Essentially, the need for emergency services is minimal in the absence of a significant population. However, the interplay between overall population size, population density, the rate of population growth, and the demographic distribution is complex and often poorly understood. This analysis aims to shed light on these relationships, providing essential information to guide leadership in making informed decisions about resource allocation and distribution.

Population Growth

The population in the SPFD response area includes the Town of Loomis and the surrounding unincorporated county area known as Granite Bay. The data used for this study was the historical information and population projections provided by the State of California Department of Finance (CDOF).

The CDOF publishes population information by year for each county based on data from the U.S. Census Bureau and state records.[9] Unincorporated portions of Placer County account for approximately 29.6% of the population. South Placer Fire District comprises the Town of Loomis and other unincorporated areas and encompasses 42.05 square miles. SPFD population is at 34,765.

Figure 75: 20-Year Population Forecast with 95% Confidence Bands



In addition to the yearly historical estimates, the CDoF also publishes an annual population projection through 2060. While this projection is for the county, each city and fire protection district's population growth can be inferred as a percentage of overall county growth.

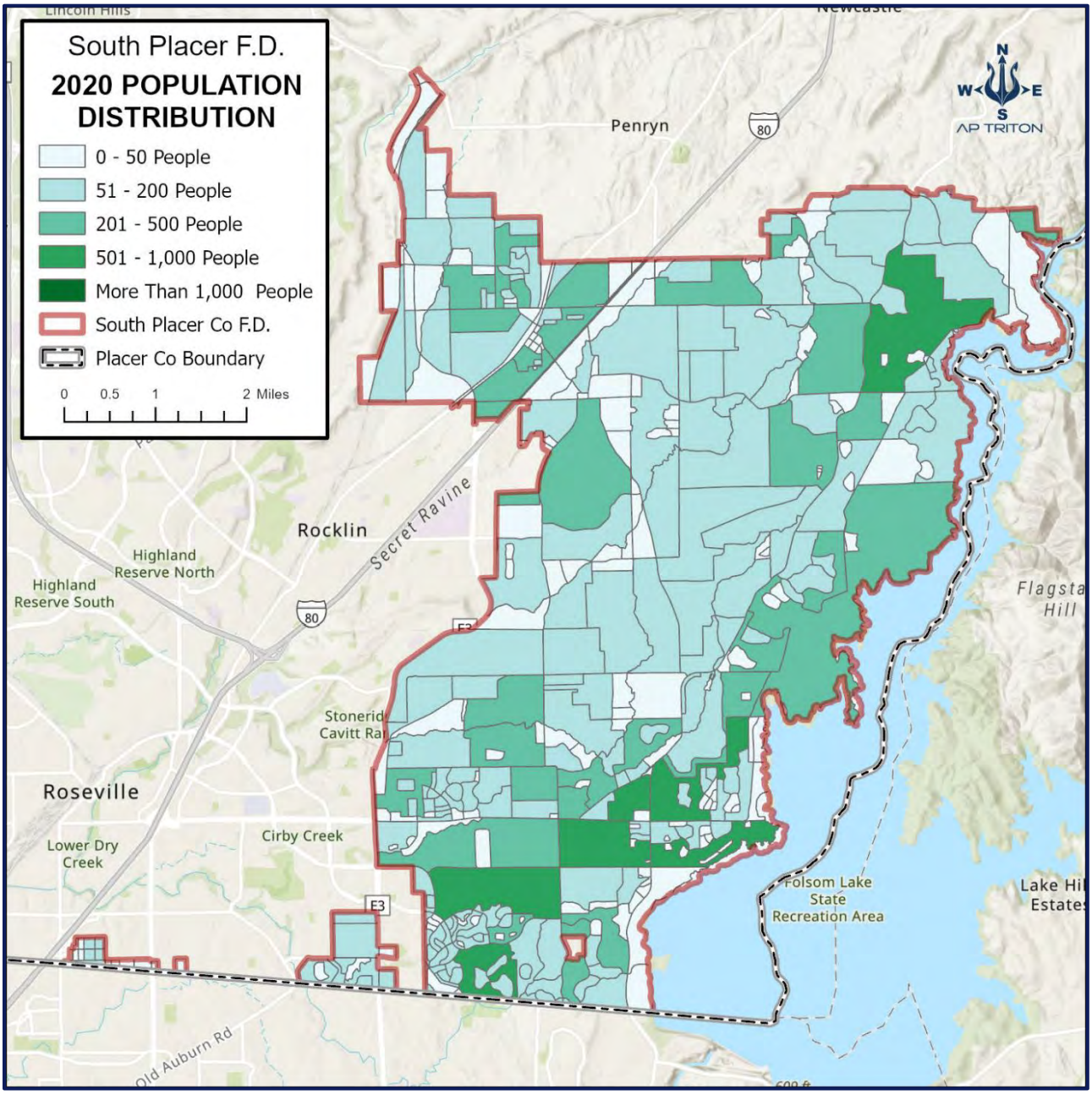
Average annual countywide growth from 2010 through 2023 was 1.28%, and the Town of Loomis consistently accounted for 1.7% of the county population, while the rest of SPL maintained a consistent 6.5% of the county population. CDoF estimated the average annual growth rate from 2023 through 2060 to be 0.55%. These estimates and percentages show that the district population will be approximately 41,000 by 2060.

Population Distribution

SPFD population is spread out along the lakefront, focused on the southern portion of the district nearer the dam, the Town of Loomis, and Interstate 80. The center section of the district is less densely populated and can be considered rural or suburban.

The following figure shows the population density distribution for the study area.

Figure 76: 2020 Population Distribution

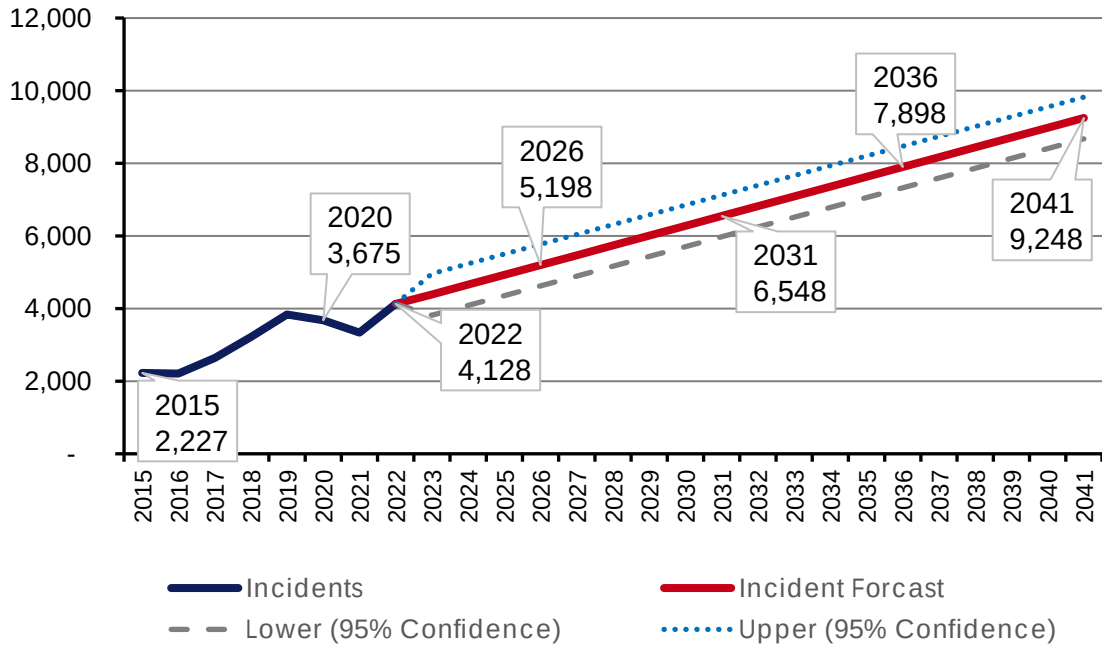


Service Demand

Standard linear and polynomial projection models were applied to SPFD's 8 years of data. Each model was evaluated using the R^2 methodology for the best data fit. The model that consistently showed the best fit was a straight linear regression analysis. The R^2 value measures how well the model fits the historical data. The closer to 1 the value, the better the fit with the historical data. In this case, the linear regression model returned an R^2 of 0.81. After the model was created, it indicated the incident volume would likely double by 2041 to over 9,200 incidents in 2041.

The following figure shows the historic incident responses rose from 2,227 in 2015 to 4,128 in 2022 and can reasonably be expected to reach between 8,600 and 9,800 by 2042 with a 95% confidence level.

Figure 77: Service Demand Projection to 2041



Response Standards & Targets

The South Placer Fire District provides fire, rescue, and emergency medical services (EMS). Programs include fire suppression, wildland/urban interface fire suppression (WUI), EMS, hazardous materials response (HazMat), and technical rescue. Each service requires training, equipment, and personnel during an incident response. Therefore, managing the level of response and resources is essential in maintaining readiness.

Tasks that must be performed at a fire can be broken down into two key components: life safety and fire flow. Life safety tasks are based on the number of building occupants, their location, status, and their ability to take self-preservation action. Life safety-related tasks involve the search, rescue, and evacuation of victims. The fire-flow component involves delivering sufficient water to extinguish the fire and create an environment within the building that allows entry by firefighters.

The number and types of tasks needing simultaneous action will dictate the minimum number of firefighters required to combat the various types of fires. Without adequate personnel to perform concurrent action, the Incident Commander must prioritize tasks and complete some in chronological order rather than concurrently. These tasks include the following:

- Command
- Scene Safety
- Search and Rescue
- Fire Attack
- Water Supply
- Pump Operation
- Ventilation
- Backup/Rapid Intervention

Critical task analyses also apply to non-fire-type emergencies, including medical, technical rescue and hazardous materials. Numerous simultaneous tasks must be completed to control an emergency effectively. South Placer Fire District's ability to quickly muster the necessary numbers of trained personnel is critical to successful incident outcomes.

Throughout this document, risk levels for each type of response have been identified. Generally, they are broken into low, moderate, high, and maximum risks. These apply across the five department programs of fire response, EMS, technical rescue, and hazardous materials response.

SPFD completed a critical tasking overview as part of this study. Each hazard type was identified, and the number of personnel was determined based on critical tasking and SPFD's operational procedures.

The following summarizes the total personnel required by incident type and risk category.

Figure 78: Staffing Recommendation Based on Risk

Incident Type	Low Risk	Moderate Risk	High Risk	Maximum Risk
Fire	3	17	25	45
Emergency Medical	2	7	13	30
Wildland/WUI	3	20	40	
Technical Rescue	3	6	15	32
Hazardous Materials	3	9	27	49

Establishing resource levels needed for various emergencies is a uniquely local decision. Factors influencing local decisions for incident staffing include the type of equipment, training levels of responders, operating procedures, geography, traffic, and the nature of buildings and other risks protected.

Critical Tasking

The following Critical Task Analysis for the SPFD used risk matrices for various incident types. Critical tasks are those activities that must be done promptly by firefighters early in emergency incidents. These interventions are essential to control the situation, stop loss, and perform the necessary tasks required for an emergency. SPFD is responsible for ensuring those responding companies can perform all described tasks promptly, efficiently, and safely.

The following figure is SPFD's minimum number of personnel needed by incident type and risk severity by function.

Figure 79: Fire Response Critical Tasking

Function	Low Risk	Moderate Risk	High Risk	Maximum Risk
Command/Support	1	1	2	3
Safety		1	1	1
Size up (360°)	*	*	*	*
Driver/Engine or Pump Operator	1	1	2	3
Water Supply	*	*	*	*
Standpipe/Sprinkler Control			*	*
Fire Attack	1	2	6	9
Search & Rescue		2	3	6
Ventilation/Utilities		3	3	6
Backup Line		2	3	3
Rapid Intervention Team		3	3	6
EMS Unit – ALS		2	2	2
Rehab				6
Total Effective Response Force:	3	17	25	45

*Temporary Assignment

Figure 80: Emergency Medical Services Critical Tasking

Function	Low Risk	Moderate Risk	High Risk	Maximum Risk
Command	1	1	1	1
Safety	*	*	*	1
Documentation	*	*	*	
Family/Bystander Liaison	*	*		
Operations				1
Triage Group			*	3
Basic Life Support Treatment	*	1	4	10
Advanced Life Support Treatment	1	2	4	6
Extrication/Hazard Mitigation		3	3	
Evacuation Group				6
Transport Group			1	2
Staging				3
Total Effective Response Force:	2	7	13	33

* Temporary Assignment

Figure 81: Wildland/WUI Fire Critical Tasking

Function	Low Risk	Moderate Risk	High Risk
Command	1	1	4
Safety	*	1	1
Size up (360°)	*		
Driver/Engine or Pump Operator	1	4	6
Fire Attack	1		
Recon Group		*	*
Lookout			1
Flank Divisions		4	12
Water Supply		1	1
Structure Protection		6	9
Staging		3	6
Total Effective Response Force:	3	20	40

* Temporary Assignment

Figure 82: Technical Rescue Critical Tasking

Function	Low Risk	Moderate Risk	High Risk	Maximum Risk
Command/Support	1	1	1	2
Safety	*	*	1	1
Size Up (360°)	*	*	*	*
Extrication/Hazard Mitigation	1	3		
Operations				1
Rescue teams			3	9
Rescue Support Group			6	12
Basic Life Support Treatment	1	1	2	2
Advanced Life Support Treatment		1	2	2
Staging				3
Total Effective Response Force:	3	6	15	32

* Temporary Assignment

Figure 83: Hazmat Critical Tasking

Function	Low Risk	Moderate Risk	High Risk	Maximum Risk
Command/Support	1	1	1	3
Safety	*	*	1	2
Size Up (360°)	*	*	*	*
Pump Operation/Decon		2		
Hazmat Group Supervisor			1	
Hazard Mitigation	2	6		1
Operations			1	1
Entry Team Officer and Team			3	7
Backup Entry Team			4	3
Hazmat Support Group			6	6
Decon Group			6	6
Medical Group/Patient Care			4	10
Staging/Rehab				10
Total Effective Response Force	3	9	27	49

* Temporary Assignment

Alarm Assignments

To ensure sufficient personnel and apparatus are dispatched to an emergency event, the following alarm assignments have been established. The following figure shows the SPFD apparatus and its minimum staffing level.

Figure 84: SPFD Operational Staffing

Station	Apparatus	Staffing
Company 15	N/A	0
Company 16	Engine 16	2
	Medic 16	2
Company 17	Engine 17	3
	Truck	0
	Battalion Chief	1
Company 18	Engine 18	3
Company 19	N/A	0
Company 20	Engine 20	2
	Medic 20	2
	Total:	15

The number of personnel and apparatus required to mitigate an active and complex working incident will require additional resources above and beyond those available from the SPFD. To meet the staffing and equipment demands of large and complex incidents in accordance with its Critical Tasking Analysis, the SPFD must rely on mutual and auto-aid with other departments.

The intent is to build a scalable dispatch and deployment model that fulfills the tasking requirement for the various levels of risk, through a mixture of personnel and equipment from the SPFD and augmenting with resources from neighboring jurisdictions when necessary.

The following figures list what the SPFD reports as their dispatch complement of apparatus and personnel versus their identified staffing requirements for risk levels.

Figure 85: Fire Alarm Assignments by Risk

Dispatched Apparatus	SPFD Units	SPFD Staff	Aid Units	Aid Staff	Staffing
Low Risk (ERF staffing = 3)					
Engine	1	3			3
Totals: Over/(Under) ERF	1	3	0	0	3
Moderate Risk (ERF staffing = 17)					
Engine	4	12			12
Ladder Truck			1	3	3
Battalion Chief	1	1	1	1	2
EMS	1	2	1	2	4
Totals: Over/(Under) ERF	6	15	3	6	21(+4)
High Risk (ERF staffing = 25)					
Engine	4	12			12
Ladder Truck			2	6	6
Battalion Chief	1	1	2	2	3
EMS	1	2	1	2	4
Totals: Over/(Under) ERF	6	15	5	10	25
Maximum Risk (ERF staffing = 45)					
Engine	4	12	8	9	21
Ladder Truck			4	12	12
Battalion Chief	1	1	3	3	4
EMS	1	2	1	2	4
Totals: Over/(Under) ERF	7	15	16	27	41(-4)

Figure 86: Emergency Medical Assignments by Risk

Dispatched Apparatus	SPFD Units	SPFD Staff	Aid Units	Aid Staff	Staffing
Low Risk (ERF staffing = 2)					
Fire/EMS Unit	1	2			2
Totals: Over/(Under) ERF	1	2	0	0	2
Moderate Risk (ERF staffing = 7)					
Fire Units	2	6			6
EMS Units	1	2			2
Totals: Over/(Under) ERF	3	8	0	0	8 (+1)
High Risk (ERF staffing = 13)					
Fire Units	5	11			11
EMS Units	2	4			4
Totals: Over/(Under) ERF	7	15	0	0	15 (+2)
Maximum Risk (ERF staffing = 33)					
Fire Units	5	11	3	7	18
EMS Units	2	4	4	8	12
Totals: Over/(Under) ERF	7	15	7	15	30 (-3)

Figure 87: Wildland/WUI Assignments by Risk

Dispatched Apparatus	SPFD Units	SPFD Staff	Aid Units	Aid Staff	Staffing
Low Risk (ERF staffing = 3)					
Fire Units	1	3			3
Totals: Over/(Under) ERF	1	3	0	0	3
Moderate Risk (ERF staffing = 20)					
Fire Units	5	13	5	13	26
EMS Units	1	2			2
Totals: Over/(Under) ERF	6	15	5	13	28 (+8)
High Risk (ERF staffing = 40)					
Fire Units	5	13	11	25	38
EMS Units	1	2			2
Totals: Over/(Under) ERF	6	15	11	25	40

Figure 88: Technical Rescue Assignments by Risk

Dispatched Apparatus	SPFD Units	SPFD Staff	Aid Units	Aid Staff	Staffing
Low Risk (ERF staffing = 3)					
Fire Units	1	3			3
EMS Units	1	2			2
Totals: Over/(Under) ERF	2	5	0	0	5 (+2)
Moderate Risk (ERF staffing = 6)					
Fire Units	2	4			4
EMS Units	1	2			2
Totals: Over/(Under) ERF	3	6	0	0	6
High Risk (ERF staffing = 15)					
Fire Units	5	11			11
Rescue Units			2	4	4
EMS Units	2	4	1	2	6
Totals: Over/(Under) ERF	7	15	3	6	21 (+6)
Maximum Risk (ERF staffing = 32)					
Fire Units	5	11	3	7	18
Rescue Units	3	8			8
EMS Units	2	4	1	2	6
Totals: Over/(Under) ERF	10	22	4	9	32

Figure 89: Hazardous Materials Assignments by Risk

Dispatched Apparatus	SPFD Units	SPFD Staff	Aid Units	Aid Staff	Staffing
Low Risk (ERF staffing = 3)					
Fire Units	1	3			3
Volunteers					
Totals: Over/(Under) ERF	1	3			3
Moderate Risk (ERF staffing = 9)					
Fire Units	3	7			7
EMS Units	1	2			2
Totals: Over/(Under) ERF	4	9	0	0	9
High Risk (ERF staffing = 27)					
Fire Units	5	13	1	3	16
EMS Units	1	2			2
Rescue Units			3	8	8
Totals: Over/(Under) ERF	6	15	4	11	26 (-1)
Maximum Risk (ERF staffing = 49)					
Fire Units	5	13	2	6	19
EMS Units	1	2	5	10	12
Rescue Units			6	17	17
Totals: Over/(Under) ERF	6	15	13	33	48 (-1)

Performance Objectives

Response Time Performance Objectives

Establishing an effective response force based on critical tasking hinges on two primary goals. The first goal is to align incident needs with available resources, ensuring an efficient approach to incident response. The second goal is to evaluate whether the deployment methodology is adequately meeting the specific requirements of various incident types.

The analysis of deployment based on an effective response force encompasses two essential components: the definition of the effective response force and the establishment of performance objectives. The most prevalent method for a fire department to assess its performance is through time analysis. It is critical to analyze both the arrival time of the first due unit and the effective response force (ERF) from the perspective of the customer. This total time calculation commences with the customer's request for service and concludes upon meeting the arrival benchmarks for both the first due and the ERF.

After the South Placer Fire District has set its response time objectives and identified the critical tasks and necessary personnel to accomplish these tasks (as outlined in the preceding section), the district can proceed to define emergency response time performance objectives.

The process of establishing response time performance objectives revolves around two central questions:

- What are the community's and elected officials' expectations regarding SPFD's initial response times to emergency incidents, and how do they perceive the quality of emergency services, particularly in terms of response time?
- What response time performance would be considered reasonable and effective for controlling fires, mitigating losses, and saving lives, especially given the typical incident types and fire risks SPFD encounters?

As a combination fire department, SPFD can reference two national consensus standards: NFPA 1720: Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments, 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.

Although NFPA performance recommendations are recognized as industry best practices, fire departments, in collaboration with their governing bodies, have the flexibility to establish response performance goals tailored to the unique needs of their individual communities. While SPFD monitors turnout time and response time and makes this data accessible to all personnel through the district's intranet, currently, these metrics are not linked to any formally adopted standard or performance measure.

Response Time Components

Total Response Time

Total response time encompasses the interval from the receipt of the alarm at the primary Public Safety Answering Point (PSAP) to the point when the first emergency response unit begins action or intervention to control the incident, as defined by NFPA 1710 3.3.53.6. Consequently, total response time measures the combined performance of the communications center and the SPFD emergency response personnel.

Monitoring total response time is crucial as it provides a metric for the duration between the placement of a 911 call and the arrival of crews at the emergency scene to initiate action. This performance measure enables the fire district to assess various factors including the strategic location and distribution of stations, resource allocation, street network design, system drawdown, key station coverage, and district familiarization training.

Call Processing Time

Call processing time consists of three components and is a measure of the communications center's performance.

Alarm Transfer Time

Alarm transfer time is the period from the receipt of an emergency alarm at the PSAP until it is first received at the fire department communication center (NFPA 1710, 3.3.53.4). In cases where the alarm is received at a PSAP and transferred to a secondary answering point or communications center, the agency responsible for the PSAP should aim for an alarm transfer time not exceeding 30 seconds for at least 95% of all alarms processed, in accordance with NFPA 1221 (NFPA 1710, 4.1.2.3.2).

Alarm Answering Time

Alarm answering time is the interval starting when the alarm is received at the fire communication center and ending when the alarm is acknowledged there (NFPA 1710, 3.3.53.1). The fire department should set a performance goal of having an alarm answering time of no more than 15 seconds for at least 95% of the alarms received and no more than 40 seconds for at least 99% of the alarms, as specified by NFPA 1221 (NFPA 1710, 4.1.2.3.1).

Alarm Processing Time

Alarm Processing Time is the time from when the alarm is acknowledged at the fire communication center until response information begins to be transmitted via voice or electronic means to emergency-response facilities (ERFs or fire stations) and emergency response units (ERUs or fire apparatus) (NFPA 1710, 3.3.53.3). The fire department should establish a performance objective of having an alarm processing time of not more than 64 seconds for at least 90% of the alarms, and not more than 106 seconds for at least 95% of the alarms, as indicated by NFPA 1221 (NFPA 1710, 4.1.2.3.3).

Turnout Time

Turnout time is defined as the period that starts when the notification process for emergency response facilities (ERFs) and emergency response units (ERUs) begins—typically through an audible alarm, visual annunciation, or both—and ends at the commencement of travel time (NFPA 1710, 3.3.53.8).

Travel Time

Travel time is the interval commencing when a unit is en route to the emergency incident and concluding upon the unit's arrival at the scene (NFPA 1710, 3.3.53.7). The 2016 edition of NFPA 1710 specifies that units responding to a first alarm should arrive within 4 minutes of travel time, and all units must arrive within 8 minutes of travel time.

Tiered Response Performance Objectives

AP Triton recommends developing tiered response performance objectives based on population density and the specific risks present. This approach effectively segments the service area into response zones reflecting community expectations and the fire department's capabilities within these areas.

Many fire departments across the United States establish zones based on risk and population density. The creation of risk or "demand" zones offers a more accurate assessment of service delivery performance. This is particularly relevant for organizations like SPFD, which provide fire and emergency medical response across diverse areas within its 42.05-square-mile fire district.

Strategic Planning and Response Standards

This information is intended to aid SPFD in establishing response standards and targets. Setting these standards and performance goals is a strategic planning tool for community loss control. The SPFD is encouraged to initiate this process promptly to support future planning efforts.

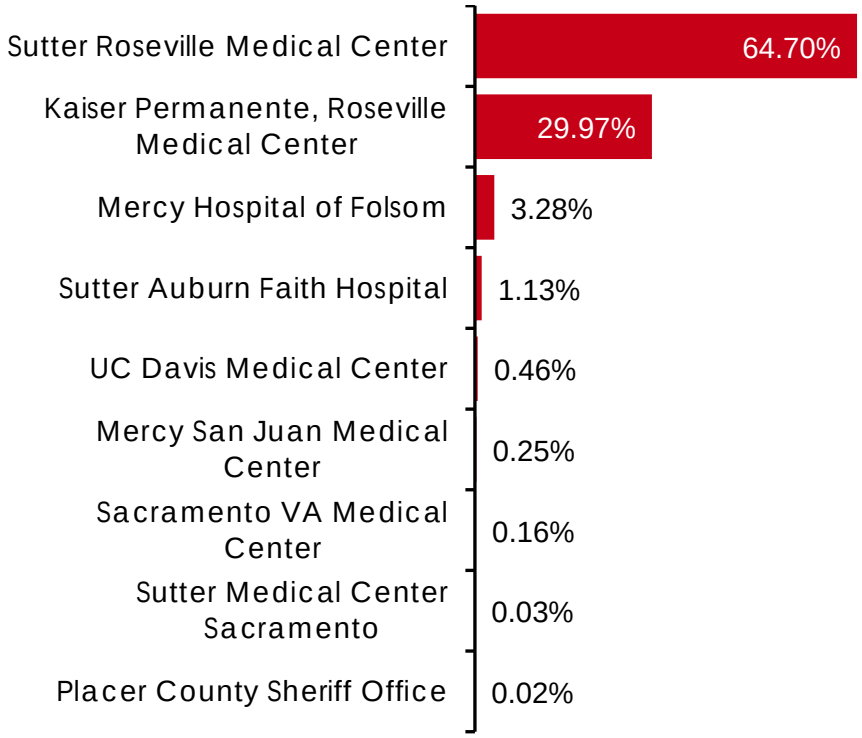
Section II:
SUPPORT PROGRAMS

Emergency Medical Services & Transport

South Placer Fire Protection District is an all-hazard fire and rescue agency providing services to multiple communities. EMS calls comprise approximately 70% of the responses. The department staffs four fire stations using a combination of Firefighter/Emergency Medical Technicians (EMT) and Firefighter/Paramedics. SPFD provides its community with Basic Life Support (BLS) and Advanced Life Support (ALS). SPFD provides at least one state-licensed and locally accredited Paramedic and one state-licensed EMT on every apparatus, including fire engines and ambulances. SPFD and American Medical Response (AMR) provide ground emergency medical transport.

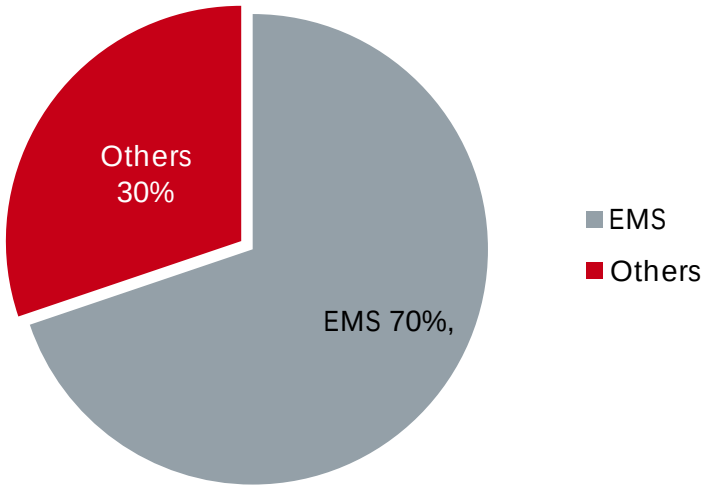
Air ambulance service is provided by REACH Air Medical Services, the California Highway Patrol (CHP), and CALSTAR Air Medical Services. Patients are taken to one of the following hospitals: Sutter Roseville (Level II Trauma Center), Kaiser Roseville, UC Davis Medical Center (Level I Trauma Center), Sutter Auburn Faith, and Mercy Folsom. The following figure shows how often patients are transported to each hospital from 2019 through 2022.

Figure 90: Hospital Destination Percentages (2019–2022)



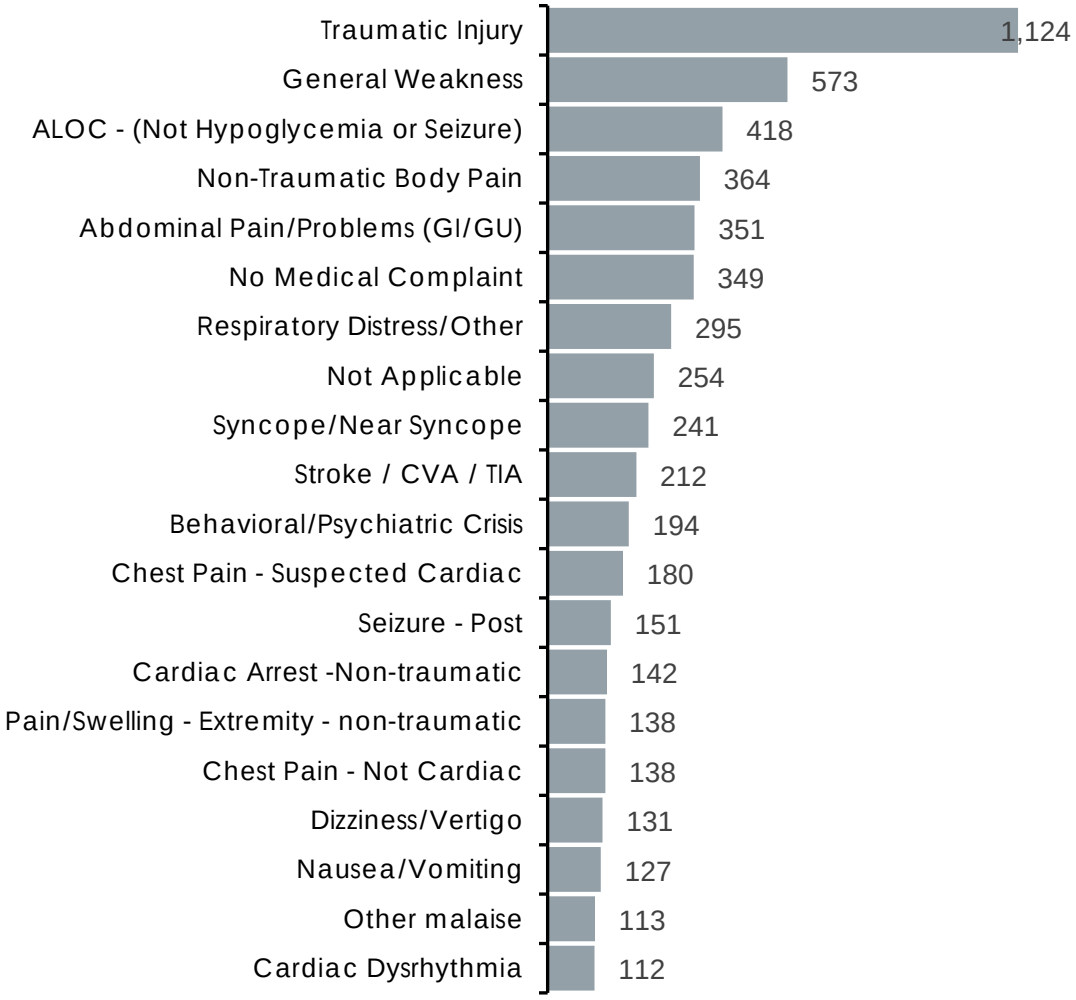
According to CAD data provided, SPFD responded to 4,127 emergency calls in 2022, a 13% increase from 2021's total of 3606 calls. Of the 4,127 responses, 2,834 were medical aid responses. The following figure shows the 2019–2022 breakdown of EMS calls versus those in the "Other" category (e.g., fires, good intent, investigations, etc.). Included in the 70% of EMS calls are canceled EMS calls, which equals about 2%.

Figure 91: EMS & Other Call Percentages (2019–2022)



The following figure shows a granular breakdown of EMS calls in South Placer. "Traumatic Injury" calls are the number one call type, and "General Weakness" comes in second. These two call types account for 1,697 EMS calls where emergency response crews are dispatched.

Figure 92: Breakdown of Call Types in South Placer



Despite funding challenges, SPFD is a progressive organization. Major accomplishments in 2022, relative to EMS, include, but are not limited to receiving a $368,000 grant to replace their EKG monitors, establishing the Chief of EMS/Safety position, adding LUCAS devices (mechanical chest compression device) on all SPFD apparatus and adoption of the Handtevy Pediatric treatment program.

SPFD has provided EMS ambulance transportation services since 1962 and retains its Health and Safety Code—HSC § 1797.201 rights in Granite Bay. However, SPFD does not retain those rights in the Town of Loomis, where AMR provides ambulance transportation.

Logistical Support Services

Logistics is the process of planning, implementing, and controlling the movement of goods, products, or services from the point of origin to the end of consumption to meet the customer's needs and requirements. It involves coordinating all aspects of transportation, warehousing, and inventory management. Logistics aims to minimize costs and maximize efficiency in the supply chain.

Whether fire departments are dealing with an emergency incident or day-to-day operations, logistics is critical to the success of an organization. A person or group managing logistics aids in successful operations by providing support and services. Specific to EMS, logistical support and services are often responsible for ensuring that the field personnel have all the proper tools and equipment to do the job they are tasked with, including repair, maintenance, and equipment replacement.

SPFD EMS section is overseen by a Division Chief assigned to administration and works a 40-hour week. As an Administrative Chief, with areas of responsibility including, but not limited to, meeting attendance and participation, conferences, workshops, and training sessions, EMS supply ordering and inventory management, procurement of emergency medical equipment; e.g., medications, EMS consumables, medical delivery devices, cardiac monitors (i.e., Electrocardiogram monitors), and other items specific to EMS treatment, and ensuring that the organization and its members follow national, state and local regulations and statutes. The EMS Division Chief is also responsible for working with allied agencies to ensure standardized operations. The EMS Division Chief also provides oversight and quality assurance regarding automatic aid agreements and interoperability.

The EMS Division Chief is supported by a fire engineer assigned to suppression and works a traditional 56-hour week. Additionally, SPFD has an EMS committee that assists with researching and developing the latest equipment and technology. The cost to benefit in using electronic software to stay service-ready is clear, as fire and rescue agencies have contracted with software vendors to enhance inventory control measures. According to the SPFD Annual Report 2022, the EMS & Safety Division Chief introduced an electronic narcotic tracking system.

Medical Control & Oversight

The California Code of Regulations, Title 22, Division 9, Chapter 4, Section 100170 requires that a fire department be provided medical control and oversight.

SPFD coordinates local EMS system oversight and regulation with the department's Medical Director. Medications and controlled substances are ordered and tracked under the medical director's medical license. In addition, the department's medical director provides QI/QA, followed by specialized training. Sierra-Sacramento Valley Emergency Medical Services Agency (S-SVEMSA or LEMSA) provides regional management and regulation, and the California Emergency Medical Services Agency (EMSA) provides state oversight and regulation. In addition to providing oversight and regulation to SPFD, S-SVEMSA provides services to Butte, Colusa, Glenn, Nevada, Placer, Siskiyou, Sutter, Tehama, and Yuba Counties.

Sutter Roseville Medical Center and UC Davis Medical Center are the base station hospitals providing online medical control for the paramedics per county protocol and as needed. Sutter Roseville Medical Center is a Level II Trauma Center, and UC Davis Medical Center is a Level I Trauma Center, providing 24-hour emergency care for all illnesses and injuries.

Compliant with California Health and Safety Code, Section §1797.109, SPFD EMTs recertify through the Local Emergency Services Agency (LEMSA). This means they achieve their required CME hours and work with the LEMSA to recertify bi-annually. Another common strategy is to be a Certifying Entity, meaning all EMT recertifications are in-house. The initial work to become a certifying entity can be daunting; however, once established, it is easily maintained and provides greater oversight and control within their local system, thus reducing the time it takes to recertify EMTs. Either recertification method can be justified; it is a matter of agency preference.

System Integrity Regarding Required Credentialing

As a minimum job requirement, SPFD requires that a candidate possess a current valid California Driver's License, high school diploma, Emergency Medical Technician (EMT), and CPR certification. Regardless of rank, all operational personnel possess at least an EMT license issued by California State EMSA. Of the 52 sworn operations personnel employed, 30 are licensed Paramedics.

At a minimum, within the two-year licensure cycle, EMTs must earn 24 hours of Continuing Medical Education (CME) specific to their skill set and established scope of practice, including the expanded scope of practice allowable in each county.

SPFD achieves this by offering in-house training; scheduled, facilitated, or delivered by subject matter experts within the organization. State regulations require paramedics to earn 48 hours of CME during their two-year licensure cycle. Again, this is achieved parallel to the EMT's CME hours. In-house training includes all on-duty personnel and is a value-added service to the EMT members, as the subject matter is often taught at the ALS level, thereby raising the level and competency of BLS medical care throughout the organization.

SPFD manages and tracks their required training hours using Vector Solutions, an online Learning Management System (LMS). Vector Solutions is a robust LMS where an agency can set up a "credentialing" system to track and manage required training hours. Paramedic licensure is completed through the California EMSA. Tracking required hours and training for EMTs and Paramedics is done through Vector Solutions and managed by the Division Chief of EMS.

Many non-required advanced-level training opportunities exist for EMTs and paramedics, such as Prehospital Trauma Life Support (PHTLS), Advanced Cardiac Life Support (ACLS), and Pediatric Advanced Life Support (PALS), which are not required as a condition of employment, but enhance the emergency medical services to the community. In this case, SPFD paramedics are Handtevy certified. The Handtevy system uses age and overall body length to help paramedics rapidly and accurately calculate pediatric drug dosages.[10]

First Responder ALS System

SPFD provides ALS services to the communities of Granite Bay and Loomis. In addition, SPFD provides ALS ambulance transport to the communities of Penryn and Newcastle as part of a negotiated automatic aid agreement with AMR Ambulance. The automatic aid agreement was negotiated to ensure all areas would be well-served and desired response times met. The agency provides, at a minimum, one paramedic and one EMT on each apparatus. In Granite Bay and the unincorporated areas, SPFD has been transporting patients in its district-owned and operated ambulances since 1962, and the district retains its right in those areas provide EMS as defined by California Health and Safety Code—HSC § 1797.201 rights.

Even though SPFD provides ALS-staffed engine response in the Town of Loomis, AMR has been awarded "grandfather" status and is the ALS and BLS transporting ambulance service.

As noted, SPFD administers its EMS delivery system within the district, including Granite Bay, Loomis, Penryn, and Newcastle. However, it is a fragmented system with potential gaps in communication and coordination between the entities. While SPFD has the means and ability to provide ALS/BLS transportation for the sick and injured throughout their entire district, they are not authorized by the Sierra-Sacramento Valley Emergency Medical Services Agency to do so within certain parts of their fire district. In Loomis, AMR staffs one ambulance with one paramedic and one EMT.

AMR uses "System Status Management" (SSM), which refers to the operational status or availability of ambulance services within a particular area or jurisdiction. It is an important aspect of EMS management and helps ensure that ambulance resources are allocated efficiently to respond to emergencies. However, at times, "system status" can take an ambulance from one area to another, thus rendering them unavailable for response in their primary area, the Town of Loomis.

Although the relationship between SPFD and AMR is healthy and collaborative, each agency's management practices can be polarizing where AMR is a private organization, and SPFD is a public safety organization. To bridge the gap, SPFD and AMR have agreed to an "Automatic Aid" agreement where when AMR is busy or lacks the depth of ambulances to meet required response times, SPFD has agreed to respond to their area and provide an ALS ambulance. These agreements are generally well managed and reviewed periodically to identify gaps in coverage or, in the case of SPFD and AMR, identify when one agency's support of the other is unbalanced.

Automatic aid agreements, such as the one with SPFD and AMR, aim to provide like-for-like services (e.g., paramedic ambulance or rescue in exchange for the same type of service). Additionally, automatic aid agreements and discussions focus on reducing or avoiding disparities in service. Key personnel generally meet periodically to discuss disparities, which provides data to change delivery models to cover the gap identified in the data. According to the CAD data, in 2022, SPFD provided ambulance aid in the Town of Loomis 473 times compared to AMR, which provided aid to SPFD 36 times.

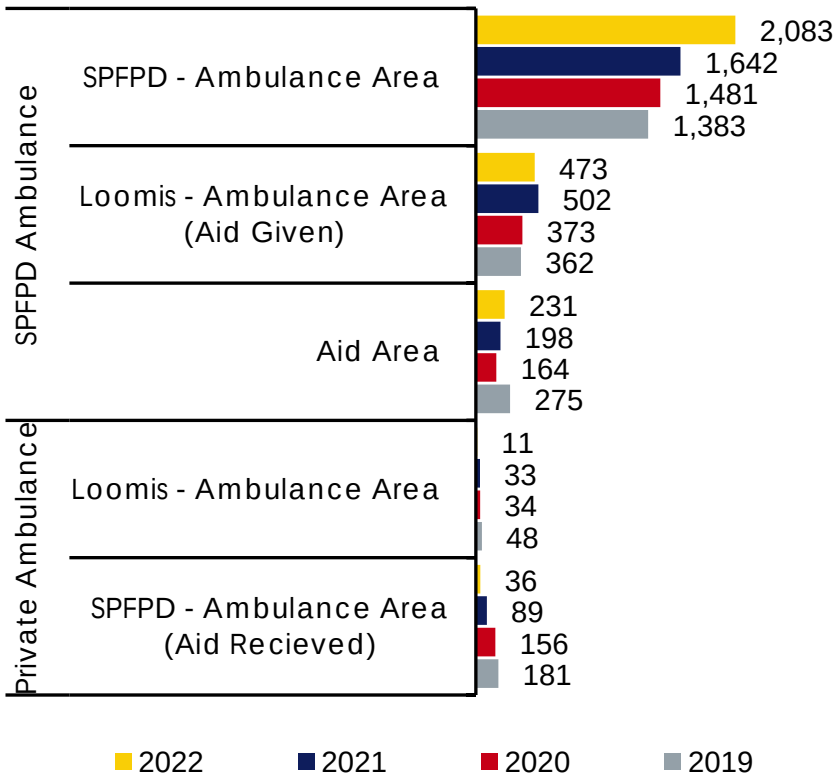
Using CAD data provided by SPFD, the following figure shows how often SPFD requests aid from a private ambulance versus how many times a private ambulance requests aid from SPFD during 2019 through 2022. In 2022, the private ambulance provided aid to SPFD's ambulance area 36 times, and SPFD provided aid to Loomis 473 times. Additionally, SPFD provided aid 231 times in surrounding jurisdictions. The data indicates that SPFD provides aid to the City of Loomis and other areas far more times than they receive aid.

Figure 93: SPFD Ambulance/Private Ambulance Aid (2019–2022)

Description	2019	2020	2021	2022	Totals
Private Ambulance Aid Totals	229	190	122	47	588
SPFD–Ambulance Area	181	156	89	36	462
Loomis–Ambulance Area	48	34	33	11	126
SPFD Ambulance	2,020	2,018	2,342	2,787	9,167
Aid Area	275	164	198	231	868
Loomis–Ambulance Area (Aid Given)	362	373	502	473	1,710
SPFD–Ambulance Area (EOA)	1,383	1,481	1,642	2083	6,589
Grand Totals:	2,249	2,208	2,464	2,834	9,755

The following figure contains the same information as the preceding figure but using a graphical format.

Figure 94: SPFD Ambulance/Private Ambulance Aid (2019–2022)



Sum of CALC-District Incidents	Column Labels				
Row Labels	2019	2020	2021	2022	Grand Total
Private Ambulance	229	190	122	47	588
SPFPD - Ambulance Area (Aid Received)	181	156	89	36	462
Loomis - Ambulance Area	48	34	33	11	126
SPFPD Ambulance	2,020	2,018	2,342	2,787	9,167
Aid Area	275	164	198	231	868
Loomis - Ambulance Area (Aid Given)	362	373	502	473	1,710
SPFPD - Ambulance Area	1,383	1,481	1,642	2,083	6,589
Grand Total	2,249	2,208	2,464	2,834	9,755

By consolidating ambulance transports under the SPFD's authority, the community can expect several improvements in emergency medical services:

- Faster Response Times: With a centralized system, dispatchers can efficiently allocate the closest available ambulance to an emergency, reducing response times crucial for life-threatening situations.
- Improved Coordination: A unified approach ensures seamless coordination between paramedics, firefighters, and EMTs, resulting in more effective and well-coordinated patient care.
- Enhanced Training and Standardization: SPFD can enforce uniform training standards and protocols for all personnel involved in ambulance transport, ensuring that patients receive consistent, high-quality care.
- Cost Efficiency: Streamlining services can save costs, as redundancies and inefficiencies are reduced or eliminated.

Benefits to the Community

The transition of ambulance transport to SPFD control offers several benefits to the residents of South Placer County:

- Increased Reliability: The community can trust a reliable and consistent emergency medical response system, knowing that SPFD is responsible for ambulance services.
- Improved Patient Outcomes: Faster response times and better coordination among emergency responders can improve patient outcomes, particularly in critical situations.

- Community Involvement: The community now has a direct stake in managing and overseeing ambulance services through their elected representatives in the SPFD board, fostering a sense of ownership and accountability.
- Accountability and Transparency: The SPFD can provide regular reports and updates on ambulance services, ensuring transparency and accountability in allocating taxpayer funds.

Mobile Integrated Healthcare

Mobile Integrated Healthcare (MIH) is an alternative approach to handling low-acuity calls. It is on the leading edge of fire-based EMS and should be considered the future of Emergency Medical Services (EMS). The need for alternative treatment modalities and transport options is apparent with rising call volumes.

Fire departments across the U.S. have grown to lead public safety efforts during the COVID-19 pandemic and in the years since to address those needs. In an open letter to the California State Medical Director, the Ambulance Association of California listed six items (Ambulance Patient Off-Load Time (APOT), ambulance age requirements, tiered response, telehealth, expanded licensing, and approval of more training programs) that are causing poor performance in some of their contracted areas. Three of them could see a significant relief with an MIH model. California is seeing a rise in the need for alternative, better, and innovative ways to respond to and treat low-acuity patients.

AP Triton will discuss three alternative models with viable solutions for integrating mobile integrative healthcare (MIH) into a system in California, specifically SPFD. Fire departments nationwide are experiencing a drastic increase in response to patients experiencing homelessness, psychiatric (behavioral) emergencies, and patients 65 and over. Although these call types are not explicitly considered MIH, there are potential options that can assist in addressing this growing problem.

Although several variations of provider-led responses exist, the following three programs in California and surrounding states are successful deployments: Community Paramedicine (CP), Advanced Practice Provider (APP) Care Units, and Responder-led Telemedicine. Each of these programs has unique qualities that can serve the residents and visitors to SPFD in different ways while maintaining excellent patient care, flexibility, and sustainability. The following briefly describes each model and an example of successful programs.

Community Paramedicine

A Community Paramedicine (CP) program would free up emergency response units to be available for higher acuity calls while addressing the community's needs. CP programs are considered the next step in delivering patient-centered care cost-effectively and efficiently.

The concept is straightforward: utilize current paramedics working in the field, train them on the safe treatment and care of patients with low-acuity illnesses or injuries, and develop strategies to get them to the most appropriate receiving center for proper treatment (e.g., Urgent Care Facility, Behavioral Health evaluation facility, sobering center, etc.).

> *"The Affordable Care Act (ACA) was designed to reform the health care system with expanded eligibility for coverage, reduced out-of-pocket costs for health plan consumers with lower incomes, and coverage with essential benefits that include no- or low-cost preventive care. A key principle of the ACA is the so-called "triple aim" framework developed by the Institute for Healthcare Improvement, which determined that healthcare managers should:*
>
> 1. *Improve overall patient care, quality, and satisfaction.*
> 2. *Enhance the health of populations.*
> 3. *Reduce per capita health care costs.*
>
> *Recognizing that the spiraling cost of health care was not translating to better patient outcomes and that a well-trained workforce was available to provide more effective care in the community, the California EMS Authority launched the California Paramedicine Pilot Project in 2014. The objective was to evaluate the feasibility of paramedics expanding their roles beyond emergency response. In all, 53 California cities received various nontraditional services from community paramedics, including hospice support, post-discharge care, direct observation of daily tuberculosis treatment, and transportation to alternative non-emergency sites such as sobering centers, urgent care centers, and psychiatric facilities.*
>
> *The Healthforce Center at UCSF analyzed the project. It concluded that community paramedics collaborated effectively with numerous healthcare partners, provided services safely and efficiently, reduced medically unnecessary transports to hospital emergency departments, and saved more than $3 million during a short time span."*[11]

Community Paramedicine Toolkit

As discussed, Community Paramedicine (CP) is a critical EMS model in managing low-acuity medical aid calls, emergency response, transporting patients to an appropriate facility, and reducing the burden on local hospital emergency departments. California EMSA, in collaboration with the EMS Administrators' Association of California (EMSAAC), the EMS Medical Directors Association of California (EMDAC), the California Fire Chiefs Association (Cal Chiefs), the California Ambulance Association (CAA), the California Professional Firefighters (CPF), and the CARESTAR Foundation has embraced CP programs and created a Toolkit for implementing a CP program.

The purpose of the toolkit is threefold:[12]

1. *Reduce the burden on individual partners to create programs from scratch.*
2. *Decrease duplication of effort across the state.*
3. *Enhance CP program participation and approval efficiency.*

This toolkit is designed to serve as an optional resource to be used with Chapter 5 of the California Code of Regulations—Community Paramedicine and Triage to Alternate Destination Regulations. It does not replace the regulations. Use of this toolkit is optional.

This toolkit produced a starting point for new programs in CP and existing programs to align with the new regulations found in Assembly Bill (AB) 1544.

The toolkit is broken down into eight steps to bring the provider and the LEMSA in alignment in the development of a program:

Step 1—The Planning Process

Step 2—Identification of the Community need and Recommended Solutions

Step 3—Program Medical Protocols and Policies

Step 4—Service Provider Approval

Step 5—Collaboration with Public Health or Community Resource Entities

Step 6—Curriculum for Program-Focused Training

Step 7—Program Review & Approval Process

Step 8—How to Evaluate the Program

The toolkit is thorough and should be reviewed before any implementation as it contains critical information relative to the planning process, identifying community needs and recommended solutions, medical protocols and policies, service provider approval requirements, collaborative efforts with public health and community entities, program training curriculum, program review and approval process, and how to evaluate the program.

In essence, the passage of AB1544 governs the implementation of community paramedicine or triage to alternate destination programs by local EMS agencies in California. Notably, the bill provides that public safety has first right of refusal for community paramedicine programs and requires that all ALS providers have an opportunity to participate in triage to alternate destination programs.

Advanced Practice Provider Care Unit

Advanced Practice Provider (APP) Care Units have shown to be a viable and successful alternative in several California fire departments, including, but not limited to, Anaheim Fire and Rescue, Beverly Hills Fire Department, and Los Angeles City Fire Department. These programs combine Advanced Practice providers (i.e., Nurse Practitioners or Physician Assistants) with first responders to low acuity medical calls with the ability to "treat and release" or "treat and refer" patients.

A significant difference between an Advanced Care provider unit and a Community Paramedic unit is the ability to make physician-level decisions in the field, including but not limited to writing prescriptions, referral to other physicians, referral to alternate destinations, and scheduling follow-up visits when necessary. An APP can respond to a low-acuity injury, suture the patient, prescribe antibiotics, provide the patient with care instructions, and make a follow-up appointment to remove the sutures in five days.

For this example, in a system without an APP Care Unit, the patient would be transported to the ED for assessment and treatment; however, with an APP Care Unit, the patient would receive an evaluation and all appropriate treatment and follow-up care from the comfort of their home.

These programs have successfully treated various low-acuity medical aids without transporting the patient to the hospital. Beverly Hills Fire Department, for example, is one of several departments leveraging the APP model and taking patient care to the next level[13].

> *The City of Beverly Hills Fire Department (BHFD) is proud to announce the launch of its Nurse Practitioner Program. The program is a unique and innovative Emergency Medical Service (EMS) model designed to deliver advanced, efficient, and effective healthcare in the prehospital setting.*
>
> *BHFD's vehicle, 'Nurse Practitioner 1' (NP1), will respond to calls for service in the field. Staffed with a Nurse Practitioner and Firefighter Paramedic with oversight from a board-certified Emergency Medicine physician, NP1 is equipped with various medications, select laboratory diagnostics and technical medical equipment.*
>
> *Whether responding to 911 calls or following up on 'in-home' patient referrals, NP1 will provide mobile urgent care and collaborate with primary care providers to optimize more excellent long-term health and wellness within our community.*
>
> *With a focus on improving patient outcomes and connecting healthcare resources to patients' specific needs, the program defines the future of Mobile Integrated Health.*

Using Beverly Hills FD as an example, at the time of dispatch, calls are screened by a trained Emergency Medical Dispatcher (EMD) to identify non-emergency patients who meet the classification of an "Alpha" or "Bravo" (low acuity) level call. Clinically appropriate, legally compliant, and pre-determined dispatch protocols are created in collaboration with the department's Medical Director and would be followed.

If applicable, the APP Unit would then be dispatched to the patient location to provide on-site evaluation, treatment and coordination of care and referral. A paramedic-level response can be determined when the APP unit crew evaluates the patient and identifies that ambulance transportation to the emergency department is appropriate.

Conversely, as an option, the APP crew could be called by an emergency fire department unit on the scene if, after a paramedic assessment, the paramedic determines that the patient is a good candidate for treatment by the APP unit.

An Advanced Practice Provider response dramatically benefits the community and offers a practical, appropriate alternative in addressing low-acuity calls for service. This unique response model aims to reduce total costs to the overall healthcare system and deliver relevant and timely healthcare service on the scene, thereby preventing costly transport to the emergency department.

With an unlimited supply of funding, programs like an APP program could provide added value service to the department, yet rarely is funding unlimited or un-measured. An APP response model uniquely utilizes Nurse Practitioners or Physician Assistants, who can bill for their services, regardless of transportation. There is also a partnership possibility with local hospitals to share personnel.

First Responder Telemedicine

Of the three models discussed, First Responder-led Telemedicine is the newest option that emerged as a popular option with several agencies during the COVID-19 pandemic. Under specific guidelines, after the initial medical assessment, the patient could be provided a Telemedicine (virtual) consultation with a Nurse Practitioner (NP) or Medical Doctor (MD) in an emergency 911 dispatch center or contracted as an on-call service. As the Nation adapted to virtual meetings (e.g., Zoom, Teams, and other video conferencing mediums), talking to a medical professional on an iPad or mobile device is more widely accepted than pre-COVID-19.

In this model, the patient's evaluation begins in the emergency dispatch center as an initial impression is achieved to determine the patient's status. A patient is triaged using EMD protocols, and the closest and most appropriate resources are dispatched immediately. As units are dispatched and are en route, pre-arrival medical instructions are delivered by a trained dispatcher certified in Emergency Medical Dispatching (EMD) until first responders arrive on the scene and take over patient care.

Upon arrival, Firefighter/EMTs and Firefighter/Paramedics can begin immediate treatment and expedite transport to the nearest, most appropriate receiving center after determining the patient's status. However, as is often the case, a patient's status does not require immediate treatment or transportation to a local area Emergency Department. Once determined by first responders, if the patient does not warrant transport to an ED, Telemedicine is initiated as the most appropriate treatment.

Telemedicine positively impacts the entire medical health system by providing first responders without delay who can evaluate the patient to determine the proper care plan, in this case, care provided by a telemedicine professional. The paramedics or EMTs remain on the scene to relay pertinent medical information and findings to the Physician/NP/PA. The Telemedicine Physician/NP/PA will then interview the patient to determine the best treatment plan and follow up to ensure the best patient outcome.

After a thorough telemedicine interview and patient assessment, the medical professional and patient will determine the next steps as one of the following: the patient is transported to the hospital via ambulance, referred to a clinic or urgent care center for treatment, advised to contact their physician, or the patient may determine on their own after a consultation that they will remain at home and monitor themselves.

In addition to the final resolution, the telemedicine physician can order prescriptions at the patient's pharmacy, provide medical records to the physician, or reassure the patient and provide a care plan. These calls are typically triggered in the emergency dispatch center at the "Alpha" or "Omega" dispatch level (low acuity).

The Contra Costa County (California) Fire-EMS Alliance with American Medical Response contracted with a new Tele911 company in November of 2021, to deliver a unique and innovative solution to the growing needs in the field.

> *"CCCFPD is working with Tele911 to help make the system more efficient and increase readiness for emergency calls. Tele911 integrates telemedicine and patient navigation into the EMS system to better serve Contra Costa County patients and place much-needed resources back into the system to accomplish this goal."*[14]

Although Telemedicine typically uses existing ALS resources and equipment to administer the program, so costs are low, the impact to the overall system could be impacted. Delays exist when organizations keep an ALS unit on the scene while a Physician group is contacted and a thorough medical exam is performed. This, along with other factors, requires further research to determine the impacts on SPFD if a Telemedicine program were to be initiated.

Medical Priority Dispatch System (MPDS)

The primary Public Safety Answering Point (PSAP) is a call center where emergency (911) and non-emergency calls are routed. Placer County Sheriff's Office (PCSO) is the PSAP and handles all calls for service (emergency/non-emergency) for SPFD. Additionally, PCSO dispatchers are trained and certified in emergency medical dispatching (EMD) by the International Academics of Emergency Dispatch (IAED).

EMD and MPDS play a crucial role in the prehospital care of patients. They involve the coordination of resources and the appropriate allocation of emergency medical services (EMS) to patients in need. EMD is the initial point of contact between patients needing emergency medical assistance and the EMS system.

PCSO uses ProQA software for the EMD process while receiving emergency calls, assessing the nature and severity, and dispatching the appropriate resources to the scene; while emergency units are en route, pre-arrival instructions are provided to the caller to begin treating the patient. The speed and accuracy of EMD can significantly impact the outcome of a medical emergency, making it a critical component of the EMS system.

MPDS, on the other hand, takes the call to the next level in assessing the caller's complaint and disposition. Once enough information is gathered (promptly), the appropriate resources are dispatched. MPDS uses determinant codes as outlined in the next figure.

Figure 95: Response Determinant Levels

Response Level	Capability	Clinically Indicated Response Resource(s) and Priorities		Rationale
		First Responder	Ambulance	
ECHO	ALS	Red Lights & Siren	Red Lights & Siren	• Information exists that death is eminent • Closest any First Response and ALS Ambulance • Immediate lights and siren response needed • Multiple resources necessary • Rapid ALS transport almost certain
DELTA	ALS	Red Lights & Siren	Red Lights & Siren	• Closest First Response and ALS Ambulance • Immediate lights and siren response needed • Multiple resources necessary • ALS transport likely
CHARLIE Urban	ALS	Optional Response- No Red Lights & Siren	Red Lights and Siren	• ALS Ambulance / First response for extended ETA • Multiple resources not necessary • ALS or BLS transport likely
CHARLIE Rural	ALS	Red Lights and Siren	Red Lights and Siren	
BRAVO Urban	BLS or ALS	Optional Response- No Red Lights & Siren	Red Lights and Siren	• BLS or ALS Ambulance / First Response for extended ETA • Rapid BLS evaluation indicated
BRAVO Rural	BLS or ALS	Red Lights & Siren	No Red Lights & Siren	
ALPHA	Closest BLS or ALS	Optional Response- No Red Lights & Siren	No Red Lights & Siren	• BLS or ALS Ambulance / First Response not needed • Multiple resources not necessary • Transport less likely
OMEGA	Referral or BLS	Not indicated	No Red Lights & Siren	• Ambulance transport not indicated and referral to specialty service appropriate

PCSO does not currently utilize MPDS. In this case, dispatchers do not make a response type determination; they do not differentiate between response level, capability, clinically indicated response resource, priorities, or rationale. Moving forward, PCSO plans to use a limited version where they would determine a Code 2 versus Code 3 call but has yet to make plans to do a full MPDS implementation.

Communications & Dispatch

The Placer County Sheriff Dispatch & Communications (Placer County Dispatch) is located inside the Placer County Sheriff's Office headquarters at 2929 Richardson Drive in Auburn.

Services Provided

Placer County Dispatch is responsible for handling law enforcement duties in county buildings and unincorporated areas of the county. Additionally, they manage fire and medical calls for five agencies, as identified below.

Services to Other Agencies

Placer County has established agreements to provide dispatch services for the following fire agencies:

- South Placer
- Penryn
- Newcastle
- Placer Hills
- Foresthill

Contracts for Services

Apart from the five agencies mentioned above, Placer County Dispatch does not hold any other service contracts.

Governance, Administration, & Accountability

Placer County Dispatch operates under the jurisdiction of the County of Placer and the Placer County Sheriff's Office (PCSO). The management hierarchy is structured such that the Dispatch Services Manager reports to the Support Services Captain, who then reports to the Assistant Sheriff. Dispatch operations are incorporated within the PCSO budget. The budget is formulated by the Dispatch Services Manager with assistance from the Finance Department. Approval of the budget follows a chain of command within PCSO, eventually reaching the Board of Supervisors for final ratification. All Capital Improvement projects are strategically planned one or more years in advance.

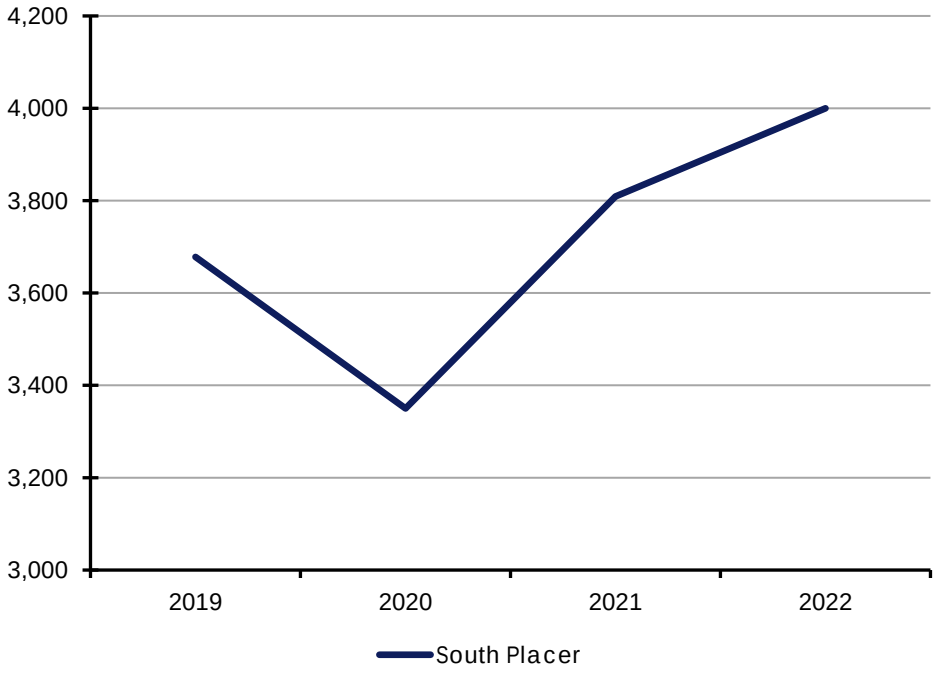
Workload & Call Volumes

Analysis of call volumes for fire agencies dispatched by Placer County Dispatch reveals SPFD as the agency with the highest demand. The data for dispatched events in 2020 indicate a significant impact from the COVID-19 pandemic. Excluding this anomaly, there has been a consistent trend of increasing volumes in dispatched events.

Figure 96: South Placer Dispatched Events (2019–2021)

Agency	2019	2020	2021	2022	Totals
South Placer	3,678	3,350	3,809	4,000	14,837

Figure 97: South Placer Dispatched Events (2019–2022)



The volume of incoming telephone calls handled by the Placer County Sheriff's Dispatch Center encompasses all agencies under its purview. Due to this inclusive approach, it is not feasible to specifically discern which calls are intended for South Placer. These call volumes also illustrate the shift from traditional wireline to wireless phone services. Additionally, it is noteworthy that there has been a significant decrease in administrative calls over the past three years.

Figure 98: Placer County Sheriff Call Volumes (2019–2022)

Line Group		2019	2020	2021	2022
911	Inbound	36,789	41,273	41,899	38,775
	Abandoned	7,319	7,413	7,982	6,356
	Total:	44,108	48,686	49,881	45,131
10-Digit Emergency	Inbound	27,842	24,578	23,662	21,796
	Abandoned	655	576	585	457
	Totals:	28,497	25,154	24,247	22,253
	Outbound	60	66	72	45
Administrative	Inbound	87,762	85,446	78,123	75,811
	Abandoned	3,144	3,008	2,609	2,319
	Totals:	90,906	88,454	80,732	78,130
Outbound		48,807	44,760	50,834	50,105

When analyzing the call volumes on a monthly basis, the data shows a consistent pattern throughout the year, with the exception of expected spikes during the summer months.

Figure 99: Placer County Sheriff Incoming 911 Calls

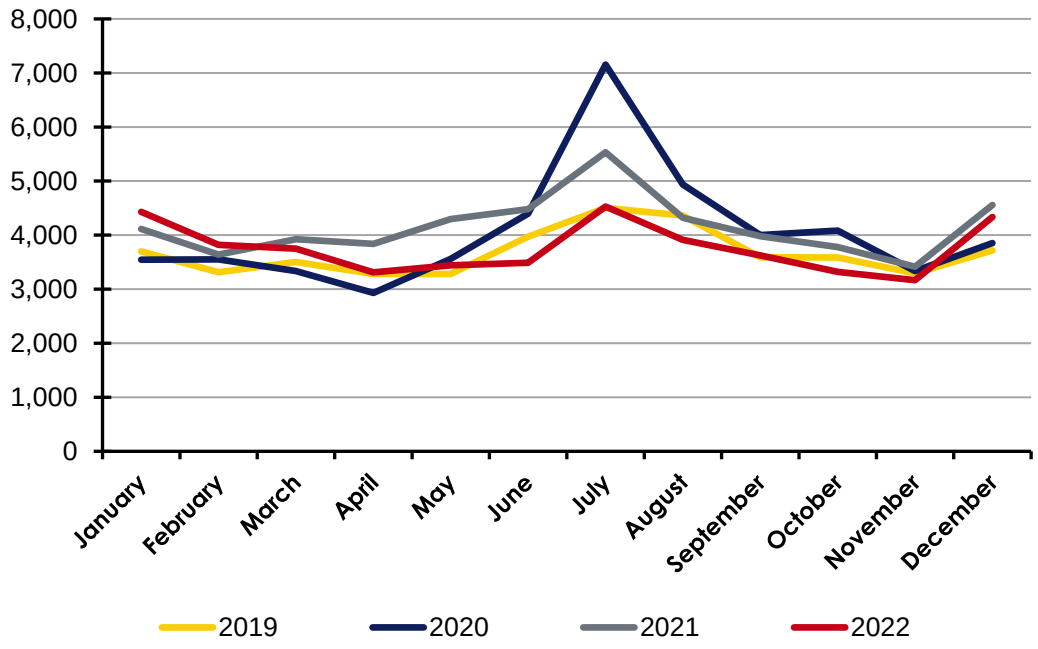


Figure 100: Placer County Sheriff Incoming 10-Digit Emergency Calls

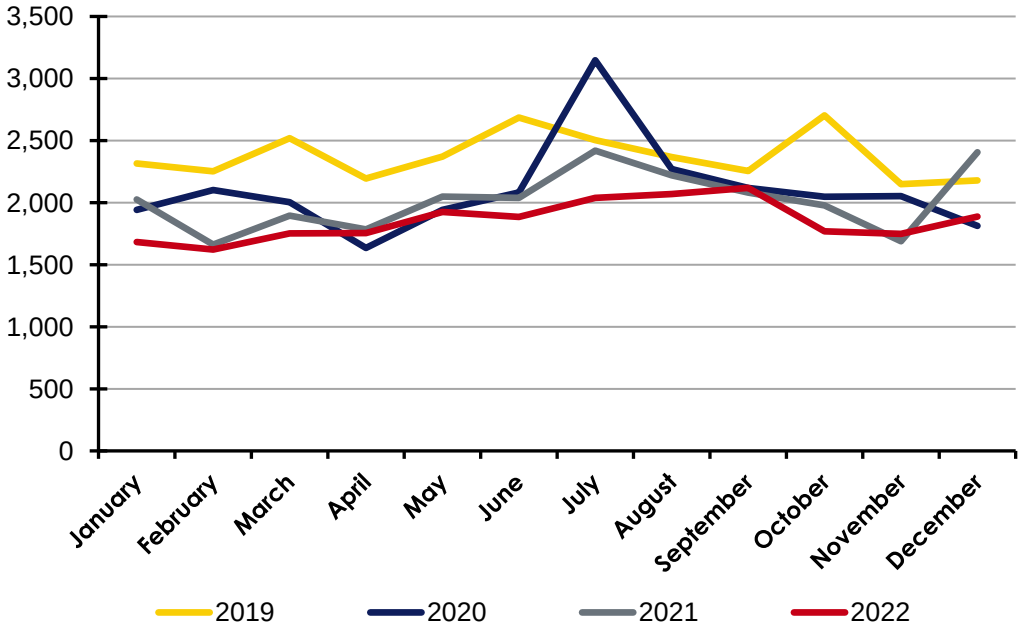
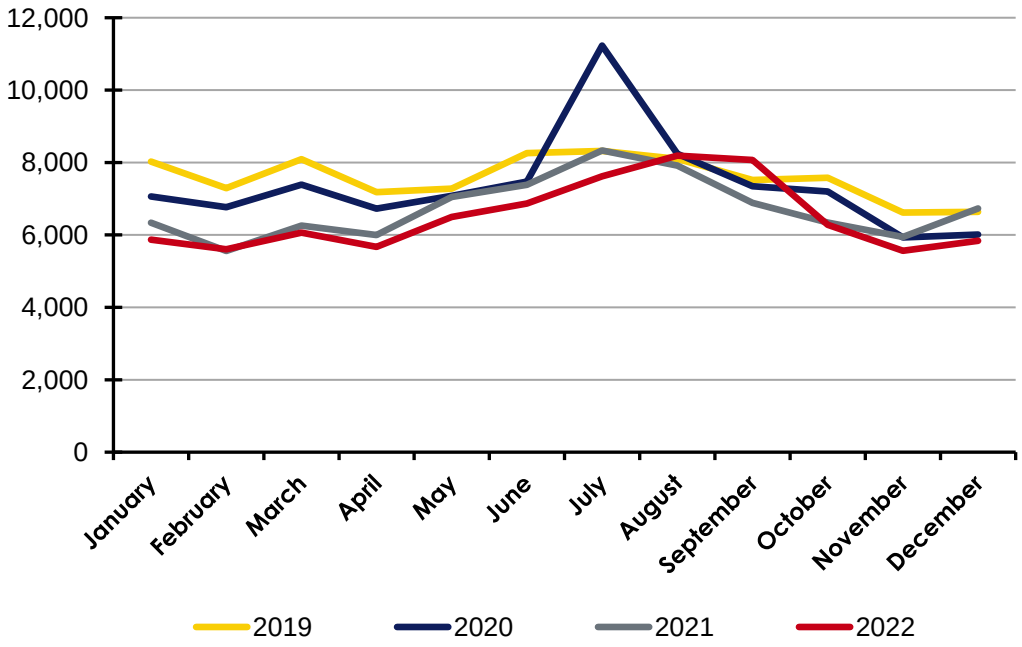


Figure 101: Placer County Sheriff Incoming Administrative Calls



When a 911 call is received, a dispatcher answers and gathers information from the caller, which is then entered into the Computer-Aided Dispatch (CAD) system. Following this, a radio dispatch position takes over the event, and it is broadcast accordingly. There are three designated radio positions: Tahoe Law, West Slope Law, and Fire. In situations where only three dispatchers are available, calls are taken in the following order: Fire, Tahoe, and West Slope.

For dispatching and command operations, there is a single channel in use. An additional command channel is accessible for large-scale incidents or special events but requires a special request for activation. Tactical channels are automatically assigned upon dispatch, but dispatchers are not mandated to monitor these channels.

Emergency Medical Dispatch (EMD)

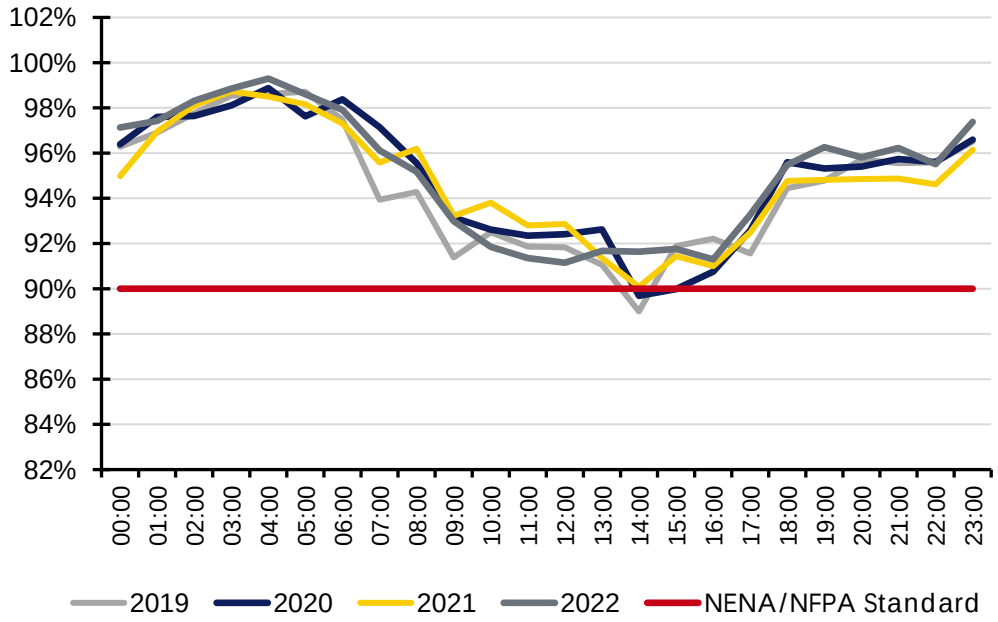
Placer County Dispatch utilizes Priority Dispatch's EMD software, focusing exclusively on medical emergencies without implementing specific fire or police dispatch protocols. Quality Assurance (QA) audits are conducted by trained QA dispatchers on 15% of calls, equating to approximately 10 calls per week or 520 calls annually. Dispatchers are provided with copies of the completed audits. Currently, Placer County Dispatch has not pursued EMD accreditation.

Performance Standards

Call-Answer Time Standard

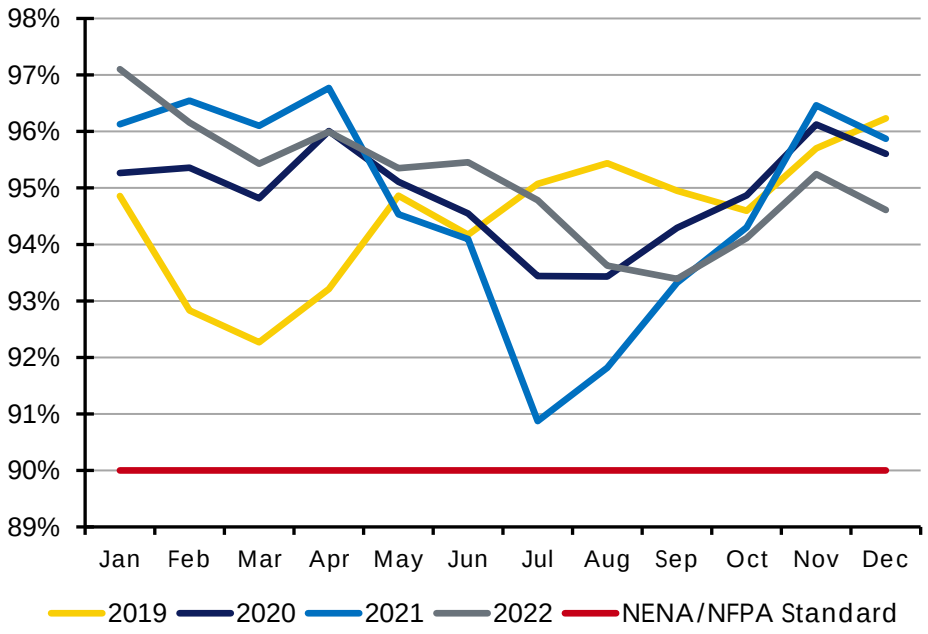
Placer County Dispatch adheres to the NENA/NFPA 1221 (1225) standard, aiming to answer 90% of calls within 15 seconds or less for call-answer times.

Figure 102: Placer County SO 911 Call-Answer Compliance



During the hours of 1400 (2 PM) and 1500 (3 PM), there is a slight dip in compliance with the call-answer time standard, falling marginally below the 90% threshold. However, when evaluating the performance on a monthly average basis, compliance remains well above the 90% mark. This suggests that while there may be brief periods of reduced efficiency within this specific hour, overall performance throughout the month consistently meets or exceeds the established standard.

Figure 103: Placer County SO 911 Call Compliance by Month



Event Processing Time Standard

Placer County Dispatch has set a standard for event processing time, which includes a requirement of 50 seconds to interrogate the caller and input the information into the Computer-Aided Dispatch (CAD) system. Additionally, the standard allocates 10 seconds for determining the appropriate response and dispatching the event. While this elapsed time data is captured in the CAD system, Placer County Dispatch does not routinely report on adherence to this standard.

Quality Assurance

To ensure the quality of service, trained dispatchers at Placer County Dispatch conduct Quality Assurance (QA) audits specifically on medical calls. These audits are performed on 15% of all medical calls, equating to about 10 calls per week or 520 calls annually. Dispatchers are provided with copies of the completed audits, allowing them to review and potentially improve their call handling and dispatch procedures. This practice plays a crucial role in maintaining high service standards and ensuring effective emergency response.

Staffing

Placer County Dispatch has been authorized the following staffing positions:

- 1 Dispatch Services Manager
- 2 Dispatch Services Supervisors
- 5 Public Safety Dispatch Supervisors
- 18 combined Call-Taker/Dispatchers
- 2 part-time Dispatchers

The actual staffing at Placer County Dispatch during Triton's site visit was:

- 1 Dispatch Services Manager
- 4 Public Safety Dispatch Supervisors (one fewer than authorized)
- 11 combined Call-Taker/Dispatchers (seven fewer than authorized)
- 2 part-time Dispatchers

Work Schedule and Minimum Staffing Policy

Call-Taker/Dispatchers at Placer County Dispatch work 12-hour shifts, totaling a 48-hour workweek on a four-on-four off schedule. The policy for minimum daily staffing is set at four staff members between 0800–0000 and three staff members between 0000–0800. On average, each employee works about eight hours of overtime per week. The staff are represented by the Placer Public Employees Organization.

Changes in Staffing Levels Based on Full Staffing

When at full staffing, the minimum number of Call Taker/Dispatchers changes to four to five people from 0800 to 0000 and four people from 0000 to 0800. One Dispatcher is specifically assigned to the fire radio and also serves as the First Radio Dispatcher to handle overflow 911 calls when Call-Takers are busy.

Training

PCSO, being a POST (Peace Officer Standards and Training) agency, mandates that all Call-taker/Dispatchers complete the Basic Telecommunicator Course within 12 months of starting their employment. Due to operational constraints, such as having only one person performing call-taking duties during the day shift, training more than one individual simultaneously is challenging. All dispatchers receive cross-training in 911, law enforcement, and fire dispatching. The average duration for training entry-level dispatchers is about nine months, while lateral trainees typically complete their training in four to six months. The probation period is set at twelve months, extendable to eighteen months if necessary. Continuing education is conducted as per the availability of time during shifts. Additionally, all supervisors and three dispatchers are qualified as communications training officers (CTO).

Operational Policies

The operational policies, including Standard Operating Guideline and Standard Operating Procedures, for Placer County Dispatch are comprehensive, but they lack specific topics related to fire dispatch.

Facilities

The dispatch building, constructed in 2005 and remodeled in 2019, is a Type II – N Fully sprinklered facility. Owned by Placer County, it was built in accordance with California Essential Services and NFPA 1221 (1225) standards. The dispatch floor is ADA-compliant and equipped with ten ergonomic dispatch workstations from Mercury Pro, installed in 2019.

Physical Security

The security measures in place include three locked doors separating the dispatch area from all public spaces. Dispatchers use secured parking with card access. However, the windows and exterior walls in the dispatch area are not blast/impact resistant. Closed-circuit security cameras are installed throughout the building's exterior and lobby areas (entrance gate and public lobby), with the dispatch team monitoring these cameras.

Power

Emergency power is supplied by a 1.5 MW diesel generator with a 2,820-gallon fuel tank, providing an estimated 85-hour runtime at a rate of about 33 gallons per hour. This generator undergoes monthly testing and an annual load test. It is strategically located away from public access areas. Additionally, a 50KVA Uninterruptible Power System (UPS) is installed, offering around 2,000–2,200 minutes of backup power.

Heating, Ventilation, & Air Conditioning (HVAC)

Placer County Dispatch's facility is equipped with a large HVAC system that serves the entire building, including a secondary system for the communications center and other facility areas. Additionally, there is a separate HVAC system for the equipment/computer room, which functions as a backup. The secondary system activates only if the primary fails. The HVAC system includes economizers that can shut off outside air and recirculate inside air, but this requires intervention by building maintenance personnel. The backup system exclusively recirculates indoor air and is not accessible from public areas.

Workstations

Placer County Dispatch features ten ergonomic workstations by Mercury Pro installed in 2019.

Backup Dispatch Center

Placer County Dispatch does not have a centralized backup dispatch center. Instead, the county is divided into West Slope and Tahoe Basin, with 911 alternate routing directed to Roseville and Burton Creek (near Tahoe City). In emergencies, the Sheriff's mobile command vehicle supplements the facility in Tahoe. While Roseville can access the Placer County repeaters for fire dispatch, its use is limited. The City of Auburn Police Department utilizes Placer County Dispatch as its backup center.

Technology

Placer County IT staff work on systems to support all departments, including the dispatch center.

Computer-Aided Dispatch

The CAD system, provided by Central Square and running Tiburon Command CAD, was installed in 2018. The system operates on V/M Ware servers running V2.9. Despite Central Square's acquisition of Tiburon in 2019, Placer County Dispatch has not yet transitioned to Central Square's Enterprise CAD system. Central Square does patches, but significant upgrades or improvements, and troubleshooting problems or issues is slow.

Interfaces

Currently, the Placer County Dispatch's Computer-Aided Dispatch (CAD) system does not interface with any external systems. Among the five dispatch centers in the region, there are four distinct CAD systems, with only Lincoln and Rocklin sharing the same system. This lack of interoperability means that, except for the Lincoln-Rocklin shared system, the CAD systems of these dispatch centers cannot communicate with each other.

Modern CAD systems generally have capabilities to share information with other CAD systems. There are several products available, such as CentralSquare's Unify™ system, which enable dispatch centers to establish a virtual network connecting different CAD systems. This network facilitates more efficient operations by reducing the need for phone calls to request assistance or transmit critical information.

Through such systems, agencies can effectively share resources. This allows for the deployment of the nearest and most appropriate resources to incidents, based on predetermined data-sharing parameters agreed upon by the participating agencies. Additionally, bi-directional communication capabilities through mobile and handheld devices can ensure that all emergency responders have access to the most current and accurate information.

Given these capabilities, AP Triton advises SPFD to collaborate with Placer County Dispatch in exploring the feasibility of implementing a technological solution like this. Such an advancement could significantly enhance operational efficiency and response effectiveness.

Mapping

The mapping system employed by Placer County Dispatch operates on an ESRI platform. County GIS is responsible for maintaining the street layer, which is then integrated into the mapping system and loaded into the Computer-Aided Dispatch (CAD) system. These maps are updated on a monthly basis to ensure accuracy and reliability in navigation and planning.

Fire Station Alerting

Fire station alerting is provided by a combination of ComTech and homegrown systems in SPFD's stations. Other fire districts within the area utilize custom alerting boards developed by Placer County Telecommunications.

Paging

Station alerting across the network is activated through tones transmitted over the radio system. To ensure constant connectivity and responsiveness, off-duty personnel and volunteers are provided access to Active Alert application for alerting via cell phone technology.

Mobile Data Computers (MDC)

In Placer County, currently, only SPFD is using Tiburon's Mobile Data software. However, there are plans to transition to Tablet Command, and a quote for this change has already been received. Regardless of the software system in use, a T-Mobile cellular connection with Netmotion on a Virtual Private Network (VPN) is utilized. This setup allows mobile units to update their status and access CAD data.

Automatic Vehicle Location/Closest Unit

As of this report, no agency within the network has implemented Automatic Vehicle Location (AVL) systems in their vehicles. Therefore, dispatch recommendations are made based on the station response order, rather than the real-time location of vehicles. This current approach relies on predefined response plans and does not utilize the potential benefits of AVL technology for dynamic, location-based dispatching.

911

Placer County Dispatch collaborates with the Cities of Roseville, Lincoln, and Rocklin in a hosted solution for their 911 system. The Customer Premise Equipment (CPE) used for this system is the Intrado Viper, a widely recognized platform in emergency communications. The maintenance and upkeep of this system are handled by AT&T. The last major upgrade to the system was completed in 2020, ensuring that the technology stays current and effective for emergency response needs.

In line with advancements in emergency communication technology, the State of California's 911 Branch is actively working on deploying the Next Generation 9-1-1 (NG9-1-1) system. This initiative represents a significant overhaul of the current 911 infrastructure, transitioning to a more advanced, Internet Protocol (IP)-based system. All Public Safety Answering Points (PSAPs) in the state, including those managed by Placer County Dispatch, are in the process of being equipped and configured in preparation for this transition. The completion of the NG9-1-1 system implementation is targeted for the end of 2023. This upgrade will significantly enhance the capabilities of emergency response communications, allowing for more efficient and effective handling of emergency calls.

Records Management System (RMS)

All the agencies within the network utilize ImageTrend for their Records Management System (RMS), except for Foresthill, which employs Emergency Reporting. The Tiburon CAD system is integrated with a data warehouse, enabling the automatic transfer of event details to these RMS providers.

Radio

The fire services within the area use a conventional VHF radio system, equipped with three high-site repeaters specifically for coverage in the West Basin. In addition to this, Placer County operates a P25 VHF Trunked system (PIRCS) for local government and law enforcement communications. Unlike the P25 system, the conventional fire radio system does not have encryption capabilities. For fireground operations, shared XPL TAC channels are utilized. These channels, including VFire 21, 22, and 23, are accessible by the Dispatch center.

The radio infrastructure includes a tower situated directly across the street from the Dispatch Center. The transmitters for this system are also located across the street and are managed via on-premises networking. To ensure security and prevent unauthorized access or vandalism, the area around the tower is secured with gated access and surveillance cameras. Additionally, the cables running up the tower and extending from the radio tower to the building are fortified against projectile impact, enhancing the system's resilience and reliability.

Interoperability

For mutual and automatic aid responses, the agencies predominantly use VHF mutual aid channels.

Life Safety Services & Public Education

The provision of life safety services and public education programs should be central to all prevention activities offered by a fire district. These vital programs play a crucial role in preventing fires, reducing injuries, safeguarding lives of civilians and firefighters, minimizing environmental damage, and protecting property. Furthermore, proactive engagement by the fire district in delivering these programs often yields a substantial return on investment, optimizing the allocation of funds.

To establish effective life safety services and public education programs, the following seven key components should be incorporated:

- Code Enforcement Activities: Implementing and enforcing fire safety codes and regulations to ensure compliance and prevent fire-related incidents.
- General Inspection Program: Regular inspections of buildings and facilities to identify and mitigate potential fire hazards.
- New Construction Inspection and Involvement: Involvement in the planning and inspection of new constructions to ensure compliance with fire safety standards from the outset.
- Fire and Life-Safety Public Education Programs: Educating the public about fire safety, prevention techniques, and appropriate responses to fire emergencies.
- Fire Investigation Programs: Conducting thorough investigations of fire incidents to determine causes and develop preventive strategies.
- Pre-Incident Planning: Developing detailed plans for responding to potential fire incidents, including mapping out strategies for various scenarios.
- Statistical Collection and Analysis: Gathering and analyzing fire-related data to identify trends, assess program effectiveness, and guide future prevention and safety efforts.

Life Safety Program

Code Enforcement & General Inspection Program

The most efficient and effective way to combat fires is to prevent them from occurring. A comprehensive life safety program, tailored to local risks and aligned with relevant codes and ordinances, is crucial in reducing the loss of life, property, and the widespread disruption that often follows catastrophic fire events.

SPFD has implemented various national, state, and local codes and ordinances as part of its code enforcement and general inspection program. This includes the 2021 International Fire Code (IFC) edition, supplemented with California state and local amendments.

The Fire Marshal of the district oversees the SPFD General Inspection Program. SPFD consistently completes 100% of the state-mandated inspections annually. Inspections for all other occupancies are conducted biennially, with 50% completed in one year and the remaining 50% the following year.

The more complex inspections are carried out by the fire prevention staff, while the operations crews handle other occupancy inspections. Initial inspections and the first follow-up inspections are conducted without any associated fees. All inspection records are digitally stored and managed using the Image Trend software system.

Additionally, SPFD has a Vegetation Management Enforcement program, which is primarily activated upon receiving citizen complaints. It is also incorporated into the plan review process for new residences and subdivisions, playing a critical role in managing wildland fire risks. The district's topography and climate—including extreme heat, drought, water shortages, high winds, and tornadoes—along with its vegetation, significantly contribute to wildfire spread. The area is characterized by extensive grasslands and oak woodlands on rolling terrain. Invasive species, which tend to proliferate during droughts and can act as ladder fuels in wildfires, are a particular concern, often displacing native flora. Managing these invasive species is integral to the district's wildfire risk mitigation efforts.

New Construction Inspection & Involvement

SPFD is involved and plays a proactive role in the initial phases of new construction projects within the district. The New Construction Inspection Program is designed to comprehensively review site, building, and fire protection plans. This program aims to ensure that essential fire safety features are integrated into the design of both buildings and construction sites.

Key elements under review include fire access roads, fire hydrant placement, fire sprinkler systems, smoke alarms, fire alarm systems, egress systems, and various other special extinguishing systems. Some aspects of commercial plan reviews, particularly those concerning fire suppression and fire alarm systems, are outsourced to a third-party contractor. The costs for these reviews are borne by the applicant. All other plan reviews are conducted in-house by the Prevention staff, which includes the Fire Marshal and an Administrative Assistant/Fire Inspector.

Furthermore, SPFD has implemented the KNOX® Rapid Access System for commercial buildings, enhancing the accessibility and security of these structures for emergency response purposes. Detailed information for business owners and occupants about the new construction inspection program—including aspects related to plan reviews, planning, permits, and acceptance tests—is readily available on the district's website. This accessibility to information plays a crucial role in maintaining transparency and facilitating compliance with fire safety standards in new constructions.

Public Education Program

Fire and life safety public education programs are pivotal in reducing the frequency of emergencies by equipping community members with the knowledge and skills to respond appropriately in the event of an incident. A well-rounded fire and life safety public education program is instrumental in mitigating the impacts of fires, injuries, and illnesses on the community.

Moreover, public education plays a vital role in enhancing the overall safety of firefighters within an organization. South Placer Fire District employs a collaborative approach for its public education and information initiatives, involving the Fire Marshal, the Prevention Administrative Assistant, and duty crews.

The 2019 NFPA Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations specifically highlights the importance of public education programs. Each program developed by SPFD is tailored based on the agency's community risk assessment. These programs are targeted towards specific age groups and are designed to provide comprehensive information not only to the direct participants but also to their caregivers or adult supervisors.

Figure 104: NFPA Recommended Programs

Program	SPFD Delivers
Pre-K–6th grade School Education	Yes
Middle School & High School Education	No
Independent Senior Adult Education	No
Adult & Community-Wide Education	No
Workplace Education	No
Youth Fire Setter Education	No
Home Safety Education	No
Wildfire Safety Education	Yes

Additionally, SPFD offers various community programs, including:

- Elementary School Program
- Fire Safety Education
- Fire Extinguisher Training
- Fire Station Tours

The COVID-19 pandemic has significantly impacted the delivery of public education programs, necessitating adjustments in community engagement strategies. For instance, SPFD had to suspend its school-based public education programs over the past two years. However, in 2022, the district is resuming these programs, focusing on providing basic fire safety and injury prevention education to students in grades K–5. This restart marks a crucial step in re-establishing vital safety education for young students in the community.

Fire Investigation Program

According to NFPA 921: Guide for Fire & Explosion Investigations, there are four potential determinations when investigating a fire's cause: accidental, natural, incendiary, and undetermined. Additionally, the National Fire Incident Reporting System mandates the documentation of ignition types for all fires, an essential component of fire investigations.

Determining the cause of fires accurately is crucial for preventing future incidents. For instance, identifying and prosecuting those responsible for intentionally set fires (incendiary) can help prevent subsequent fires. Similarly, understanding the origins of natural or accidental fires is extremely valuable. This vital information informs fire prevention and public education strategies aimed at reducing or preventing similar future occurrences.

The SPFD Fire Marshal heads the fire investigations program, supported by four additional investigators. The investigation team comprises the Fire Marshal, the Deputy Chief of Operations, one Captain, and two apprentice Captains. The personnel are certified in the PC 832 Arrest and Firearms Course (PC 832 Course), meeting the minimum training standard for California Peace Officers as outlined in Commission Regulation 1005. They also hold State Certified Investigator certifications from the State Fire Marshal's office. Investigations are conducted in coordination with local law enforcement agencies, as appropriate. Law enforcement is responsible for evidence collection and scene photography, ensuring a thorough and collaborative investigative process.

Pre-Incident Planning

Pre-incident planning is a critical tool that equips firefighters with vital information about specific structures and processes. It allows for strategic and tactical tabletop discussions to take place before an incident occurs. A thorough pre-incident planning process includes evaluating protection systems, building construction, contents, and operating procedures that may impact emergency operations.

Having access to up-to-date pre-incident plans during an operation is essential. This information assists on-scene firefighters in making informed decisions during an incident. Strategies and tactics can be formulated based on potential challenges identified during the pre-incident planning process. Other important considerations may include the locations of the nearest water sources and mutual aid resources.

South Placer Fire District operations personnel have developed pre-incident plans for target hazards throughout the district. However, these plans are currently being actively completed or updated. The information gathered includes key building features, access points, fire protection systems, and special hazards. It is stored in an electronic database, ensuring quick retrieval through mobile data computers on each apparatus. This accessibility is crucial for effective and timely decision-making during emergency responses.

Program Review

For a community risk reduction plan to be effective, it must encompass specific goals and objectives across various domains, including education, enforcement, engineering, economic incentives, and emergency response. Periodic reviews are vital in assessing the performance of these programs and their alignment with the community's risk profile. The review process should consist of three fundamental components: data collection, definition of outcomes, and program analysis. Without current and effective reviews, even the most well-intentioned plan can become less relevant over time. Currently, SPFD does not engage in regular reviews of its programs, which is a crucial aspect of maintaining the efficacy and relevance of their community risk reduction plan.

Statistical Collection & Analysis

A records management system (RMS) is crucial for any fire and EMS organization. The U.S. Fire Administration emphasizes the legal obligation of these organizations to document Fire and EMS incidents comprehensively. This documentation is often required by various entities, including insurance companies, victims, regulatory agencies, and others, to understand the specifics of an incident.

As mentioned, SPFD employs ImageTrend for recording its NFIRS-compliant reports. The data collected in these reports include fire incidents categorized by cause and location, times of the day and days of the week of the incidents, alarm methods used, and both dispatch and arrival times.

Outcomes

Assessing the outcomes of risk prevention tasks, such as educational and enforcement efforts, can be a complex endeavor. Often, it involves deducing the impact of a program by examining the reduction in the number and severity of incidents, essentially focusing on incidents that were prevented. Despite these challenges, defining expected outcomes is crucial for accurately evaluating a program's effectiveness. Identifying at-risk populations and comparing the number of incidents responded to within these populations before and after implementing the program, especially after meeting specific benchmarks, is key to guiding program analysis.

The Community Risk Reduction Planning Guide offers valuable insights into identified risks and outlines strategies to address these risks effectively. However, there is a noted gap in the establishment of clear outcomes within the current framework.

Analysis

Once outcomes are identified and data is collected, the next crucial step is to conduct periodic analyses to assess program effectiveness. This typically involves comparing historical data on losses or injuries against current trends for each program. A reduction in losses may suggest the program's positive impact, whereas unchanged or increased trends might necessitate further investigation to uncover the root causes of the apparent lack of progress.

For instance, if an agency identifies a recurring issue with smoker-initiated fires, it might implement a targeted program to address this specific problem. The effectiveness of this program can be analyzed by first compiling a list of smoker-initiated fires before the program's initiation and then comparing it with a similar list post-program implementation. This comparison of pre-program and post-program data provides a clear indication of the program's impact.

The Community Risk Reduction Planning Guide includes various examples of programs and their potential outcomes, serving as a reference point. Similarly, the 2019 NFPA 1730 Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations, provides an exemplary framework for program outcome evaluations, including annual summaries of efforts.

Another approach could be to report the annual dollar value saved by SPFD, instead of focusing solely on annual losses. This shift in perspective could provide a more comprehensive understanding of the district's impact. However, it is noted that SPFD currently does not conduct such performance analyses, indicating a potential area for development in their evaluation processes.

Training & Continuing Medical Education

Training and Continuing Medical Education programs are fundamental to the success of the fire and rescue profession. Annually, approximately 100 firefighters suffer line-of-duty deaths (LODD). According to the U.S. Fire Administration, there were 96 firefighter fatalities in 2022 and 141 in 2021. The causes of firefighter LODDs are varied and include sudden cardiac death, cancer, trauma, and a notable increase in suicides linked to the job's demands. While some LODDs are unforeseeable, many could be mitigated through a comprehensive training and education program.

The National Institute for Occupational Safety and Health (NIOSH) conducts investigations into each LODD and has identified five recurrent themes in these fatalities: a) improper risk assessment, b) lack of incident command, c) inadequate accountability, d) insufficient communications, and e) failure to adhere to standard operating procedures/guidelines.

An effective and organized training plan can address each of these themes, thereby potentially reducing the incidence of predictable deaths in fireground operations. This underscores the critical importance of ongoing training and education in safeguarding the lives of firefighters.

General Training Competencies

General training competencies are crucial in reducing, and ideally eliminating, firefighter LODDs. Firefighters are often described as "Jack of all trades, masters of none," reflecting their diverse skill set. Over the years, firefighter training competencies have continuously expanded with each decade introducing new professional skills to their repertoire. For instance, Paramedics were integrated into the field in the 1970s, Wildland Fire Response & Hazardous Materials in the 1980s, Urban Search & Rescue/Technical Rescue (US&R) in the 1990s, Weapons of Mass Destruction (WMD) response in the 2000s, and responses to hostile events like active shooter incidents in the 2010s. The fire service has evolved into an All Risk/All Hazard response profession.

The COVID-19 pandemic is a prime example of this evolution, with fire departments nationwide being pivotal in emergency management, including vaccine administration and response.

SPFD is a full-service fire and rescue agency, providing fire, emergency medical service (EMS), limited hazardous materials (HazMat) response, wildland-urban interface (WUI) firefighting, and technical rescue services. Training requirements for SPFD personnel vary based on their certification levels, and the necessary training to maintain service proficiency is diverse. It can be categorized into five primary areas: development, policy, safety, fire-based, and EMS.

The National Fire Protection Association (NFPA) has established several standards for training and certifying fire personnel. These standards provide minimum recommendations for Firefighters, Fire Officers, Prevention Staff, Fire Investigators, Public Education staff, and other specific positions.

SPFD not only adheres to these NFPA standards but also meets requirements set by State Fire Training (SFT), a division of the California State Fire Marshal's Office, the California Occupational Health & Safety Administration (Cal OSHA), the California Department of Motor Vehicles (DMV), and standards within the National Wildfire Coordinating Group (NWCG) curriculum. This adherence is critical for the district's response to wildland and interface incidents.

Furthermore, SPFD implements policies and procedures, (standard operating guidelines (SOGs) are under development) that have been developed and adopted by the district, ensuring a comprehensive and well-rounded approach to training and operations.

Figure 105: General Training Competencies by SPFD

Training Competencies	SPFD
Incident Command System	FIRESCOPE California
Accountability Procedures	NIMS
Training SOPs	Internal
Recruit Academy	Internal
Special Rescue Training	Internal
HazMat Certifications	HazMat FRO
Vehicle Extrication Training	Internal
Driving Program	Revising/EVOC
Wildland Certifications	FF1, FF2, Red Cards (all ops), annual RT130
Communications & Dispatch	Placer County SO
EMS Operations	Internal

Training Administration, Schedules, & Facilities

SPFD has identified its training facilities, which include a portable building with a single classroom. This facility, however, requires improvements in both condition and functionality. Currently, there is no dedicated office space at the training center. The training tower is a three-story standalone masonry structure. It is equipped for simulated smoke exercises but does not support live fire training. Additional training props include a forcible entry door, a commercial roll-up door, and a commercial ventilation prop.

Figure 106: Training Facilities & Resources

Facilities & Resources	SPFD
Adequate training ground space	Yes
Adequate office space	One classroom in a portable building
Training building/tower	Three-story masonry construction
Burn room at the training building	No burn room
Live fire props	Smoke simulation only
SCBA obstacle course	Not listed
Computers & simulations	Yes
EMS equipment assigned to training	Yes

Interoperability training at SPFD is constrained due to the limited size of the classroom and the range of available props. Regional training opportunities have been infrequent. Despite these limitations, SPFD has hosted regional training events in collaboration with Pacific Gas & Electric (PG&E), Kinder Morgan (natural gas), and for Active Shooter drills. Ideally, agencies should engage in quarterly training with other local Fire and Rescue services and external stakeholders like PG&E to enhance operational efficiency and strengthen interagency relationships, contributing to safer fireground operations.

The responsibility of developing an annual calendar and a multi-year training plan falls to the Deputy Chief of Operations/Training Chief. The training curriculum is varied, encompassing manipulative, didactic, and computer-based (Vector Solutions) elements. Formal lesson plans are either produced in-house or sourced from commercial vendors. The upcoming figure provides details on the type and frequency of training drills conducted by SPFD.

Figure 107: Company Level Drill-Type & Frequency

Drill-Type	Hours	Frequency
Single Company Drills	16	Monthly
Battalion-level multi-company drills	4 (one required to be night drill)	Annually
Driver's Training	12	Annually
Ladders and Extrication	6	Annually
Hazardous Materials Refresher	6	Annually

The following figure represents SPFD District Level Training.

Figure 108: District Level Training

Drill-Type	Hours	Frequency
Officer Training applicable to NFPA 1021	12	Annually
EMS Training	Not listed	Quarterly
Department Wide Training	18	Annually

Company officers at SPFD are required to record all training hours using Vector Solutions. This electronic log should include the category (either CalJac or Other), the subject matter, and the number of hours logged. A minimum of 12 hours of training per month is mandated by the CalJac contract. SPFD's annual training budget is set at $35,000, which covers both supplies and professional development costs.

Training Program Goals & Objectives

SPFD's training plan is developed and maintained by the Training Cadre under the direction of the Deputy Chief of Operations. The Cadres responsibilities include maintaining, reviewing, and annually updating the training plan, ensuring that all mandated training requirements are met. To effectively achieve its training goals and objectives, SPFD has established goal steward teams. These teams aid in identifying specific training goals and objectives.

An annual training calendar is maintained by SPFD, outlining and scheduling training topics throughout the year. Each training session or hands-on training is led by a subject matter expert (SME) selected by the department.

SPFD mandates that its crews participate in a minimum of two hours of company-level training per shift. Consequently, if each firefighter engages in two hours of training per shift, they will accumulate approximately 240 hours of training annually. This approach ensures consistent and comprehensive skill development and knowledge retention among firefighters.

Training Administrative Support & Maintenance of Training Records

The training division of South Placer Fire District (SPFD) is managed by the Deputy Chief, with support from a Battalion Chief assigned to suppression duties on B Shift. Each member of SPFD has a training file, which consists of hard copy files containing professional certificates. In addition to maintaining these hard copies, SPFD utilizes Vector Solutions, a Learning Management System (LMS) and online training program, to facilitate company-level training delivery.

Vector Solutions also serves to maintain and track the training hours for each member, with records being digitally stored. Training files are retained for at least seven years post-separation from the agency, in accordance with the district's records retention policy.

Continuing Medical Education

The Continuing Medical Education (CME) at SPFD is overseen by a Division Chief who manages the Emergency Medical Services Division and also serves as the SPFD's Safety Officer.

All sworn members of SPFD are either emergency medical technicians (EMT) or licensed Paramedics in the State of California. SPFD mandates that EMTs complete 24 hours of continuing education, and Paramedics complete 48 hours annually. In addition to training available through Vector Solutions, SPFD staff provide in-house continuing education.

SPFD personnel are also encouraged to attend lectures and presentations by local physicians in the medical community. EMTs and Paramedics can gain additional experience by participating in training sessions at local hospital emergency rooms. SPFD has allocated an annual budget of $35,000 for personnel involved with the district's emergency medical committee to attend EMS conferences and additional training sessions as requested.

Hazardous Materials Services Support & Response

Hazardous chemicals and materials are prevalent in many aspects of daily life. Fire departments are often called upon to manage hazardous materials incidents, which can arise from various situations such as mishandling of household chemicals, vehicle accidents with leaking fluids, overturned tanker trucks, or derailed train cars.

Firefighters who respond to incidents involving hazardous chemicals or materials must be adequately trained and equipped with the appropriate personal protective equipment. All SPFD personnel are trained to at least the Hazardous Materials, First Responder Operational (FRO) level.

As per the Code of Federal Regulations, FRO level certification is required for all first responders (CFR 1910.120[q]). While SPFD has six personnel certified at the Hazardous Materials Technician level, these individuals have not renewed their certifications to maintain technician status. Additionally, SPFD has seven chief officers certified at the Haz-Mat Incident Commander level and one member certified (but not qualified) as a Haz-Mat Safety Officer.

SPFD has developed specific policies for hazardous materials training and response, namely the Hazardous Materials Training Policy (Policy 604) and the Hazardous Materials Response Policy (Policy 320). However, as of this study, the district is not equipped to handle hazardous materials incidents beyond the FRO level.

In the event of a hazardous materials incident that exceeds SPFD's initial resource capabilities, mutual aid is requested from the Placer County, Folsom, Roseville, or Sacramento Metro Fire Department hazardous materials response teams. These teams are classified as Type-I teams through the Governor's Office of Emergency Services (Cal OES). SPFD personnel can support mutual-aid resources in hazardous materials incidents by providing decontamination equipment, absorbent materials, and gas monitoring devices.

Specialized Technical Rescue Services Support & Response

Technical rescue is a specialized area of response that has traditionally been part of fire service responsibilities, evolving from rescuing people during fires to extracting victims from various hazardous situations. This evolution necessitated specialized equipment and training, collectively known as technical rescue.

The Office of the State Fire Marshal of California does not include technical rescue among its standardized and recognized certifications, leaving the determination of hazard level and certification to the discretion of the responding agency. NFPA 1006: Technical Rescue Personnel Professional Qualifications outlines 20 rescue specialties, each divided into awareness, operations, and technician levels. The next figure details the hazards and technical rescue certification levels as per NFPA guidelines.

Figure 109: NFPA Technical Rescue Certifications

Rescue Type	Certifications
High & Low Angle	• NFPA Tower Rescue • NFPA Rope Rescue • NFPA Helicopter Rescue
Collapse, Confined Space, Trench, & Below Grade	• NFPA Structural Collapse Rescue • NFPA Confined Space Rescue • NFPA Trench Rescue • NFPA Cave Rescue • NFPA Mine and Tunnel Rescue
Vehicle & Machinery	• NFPA Common Passenger Vehicle Rescue • NFPA Heavy Vehicle Rescue • NFPA Machinery Rescue
Wilderness & Animal	• NFPA Animal Technical Rescue • NFPA Wilderness Search and Rescue
Moving & Standing Water	• NFPA Surface Water Rescue • NFPA Swiftwater Rescue • NFPA Dive Rescue • NFPA Ice Rescue • NFPA Surf Rescue • NFPA Watercraft Rescue • NFPA Floodwater Rescue

SPFD provides limited (basic level) technical rescue response within the district as related to the various categories listed in Figure 109.

Two policies regarding technical rescue response have been developed by the district. Policy 304, Urban Search and Rescue (USAR), lists various FEMA resources but lacks specific criteria for operational readiness and response within the district. Similarly, Policy 313, Swiftwater Rescue and Flood Search and Rescue Responses, aligns with the Placer County Fire Chiefs Standard Operating Guidelines (November 2021) for Swiftwater/Medical Rescue but does not provide clear procedures for training, equipping, or responding to swiftwater incidents.

In the event of a technical rescue incident, SPFD's first-arriving unit will assess the situation and, if it exceeds the capabilities of the engine company and available equipment, will request mutual aid from neighboring agencies certified and equipped to handle the incident. The first-in mutual aid resources typically respond from the City of Roseville Fire Department and/or the Folsom Fire Department.

Review of the 2023 SPFD Training Calendar revealed no scheduled classes, whether didactic (through Vector Solutions), manipulative training, or drills, related to technical rescue disciplines for the current year.

Section III:
COMMUNITY RISK ASSESSMENT

Description of the Communities Served

The South Placer Fire District serves a diverse area in the western part of Placer County, California. The district's boundary area consists of four non-contiguous parts. The City of Roseville surrounds three smaller areas from three sides; in the south, they are bordered by Sacramento County. The most considerable non-contiguous South Placer FPD portion to the east surrounds a small island of the City of Roseville. It is bordered by the cities of Roseville and Rocklin in the west, Loomis, Penryn, and Newcastle FPDs in the north, and Folsom Lake in the east. The district encompasses a mix of suburban and rural communities, including the unincorporated areas of Granite Bay, Loomis, Penryn, and Newcastle, as well as portions of Rocklin and Roseville.

Granite Bay is a predominantly affluent community on the Western shore of Folsom Lake. It is known for its large estate homes, spacious lots, and wooded surroundings. The Granite Bay area is a mixture of residential and commercial areas, including retail centers, schools, and medical facilities.

Loomis is a small town with a rural feel, known for its agricultural heritage and historic downtown area. The Loomis area is a mixture of residential and commercial areas, including farms, ranches, and small businesses.

Penryn is a rural community located in the foothills of the Sierra Nevada Mountain range. It is known for its small-town charm, with a mix of historic homes, ranches, and farms. The Penryn area is a mixture of residential and agricultural areas, including orchards, vineyards, and pastures.

Newcastle is a small, unincorporated community situated on the western edge of Placer County. It is known for its rural character, with a mix of small businesses, farms, and residential areas. The Newcastle area is a mixture of residential and commercial areas, including retail centers, schools, and medical facilities.

The SPFD serves a diverse area of urban and rural communities. Its coverage area includes a range of residential, commercial, and agricultural regions, each with unique needs and challenges. The district is committed to providing high-quality fire protection, emergency medical services, and disaster response to the residents and businesses it serves.

Community Characteristics

Risk factors influence the types of services a community provides. Identification of hazards is the process of recognizing the natural or human-caused events that threaten a community. Every community must prepare for and respond to events, including natural disasters like earthquakes, pandemics, or wildfires. In addition, the degree to which a community exhibits certain social conditions, including poverty levels, vehicle access, or the number of individuals in a household, may affect the community's ability to prevent suffering and financial loss in the event of a disaster. These factors describe community risk.

A community's risk assessment is based on numerous factors, including socioeconomic status, household composition, minority status and language, population density and housing types, local land use and development, and the geography and natural hazards present throughout the community. These factors affect the number and type of resources—personnel and apparatus—necessary to control or mitigate an emergency. The community's risk assessment provides relevant information to help public officials and agencies better prepare their communities to respond to emergency events and help them recover faster.

- Population density is a risk factor, and demographics present another unique risk. For example, over 31.4% of the population is 65 years of age, and around 25.4% do not have medical insurance.
- The physical characteristics of the area and the resultant natural hazards are risk factors. For example, SPFD is located near the foothills of the Sierra Nevada Mountain range and the Lower Lake Clementine Dam, and they are at risk of entirely different hazards like wildland fires and earthquakes.
- Land use and zoning risk can be characterized as low (e.g., agricultural or low-density housing), moderate (e.g., small commercial and office), or high (e.g., large commercial, industrial, wildland exposures, and high-density residential).

Population & Demographics

The SPFD has seen an increase in population based on the U.S. Census data from the America Community Survey, except for the last few years.[15] As a result, the fire and EMS response area population has increased from 29,066 in 2011 to 34,768 in 2022. The highest density is in the southern portion of the district, the Town of Loomis, and along I-80. This population density is evident based on the number of fire and EMS incidents in the service area.

The following figure illustrates the population growth in the South Placer Fire District's service area between 2011 and 2021.

Figure 110: SPFD Population History

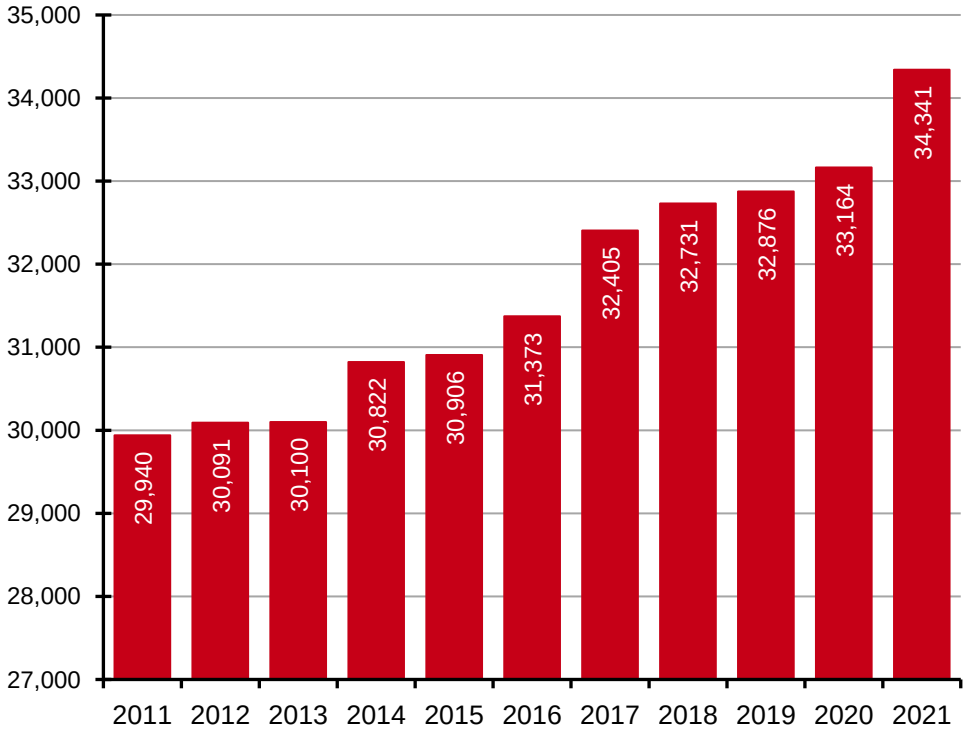
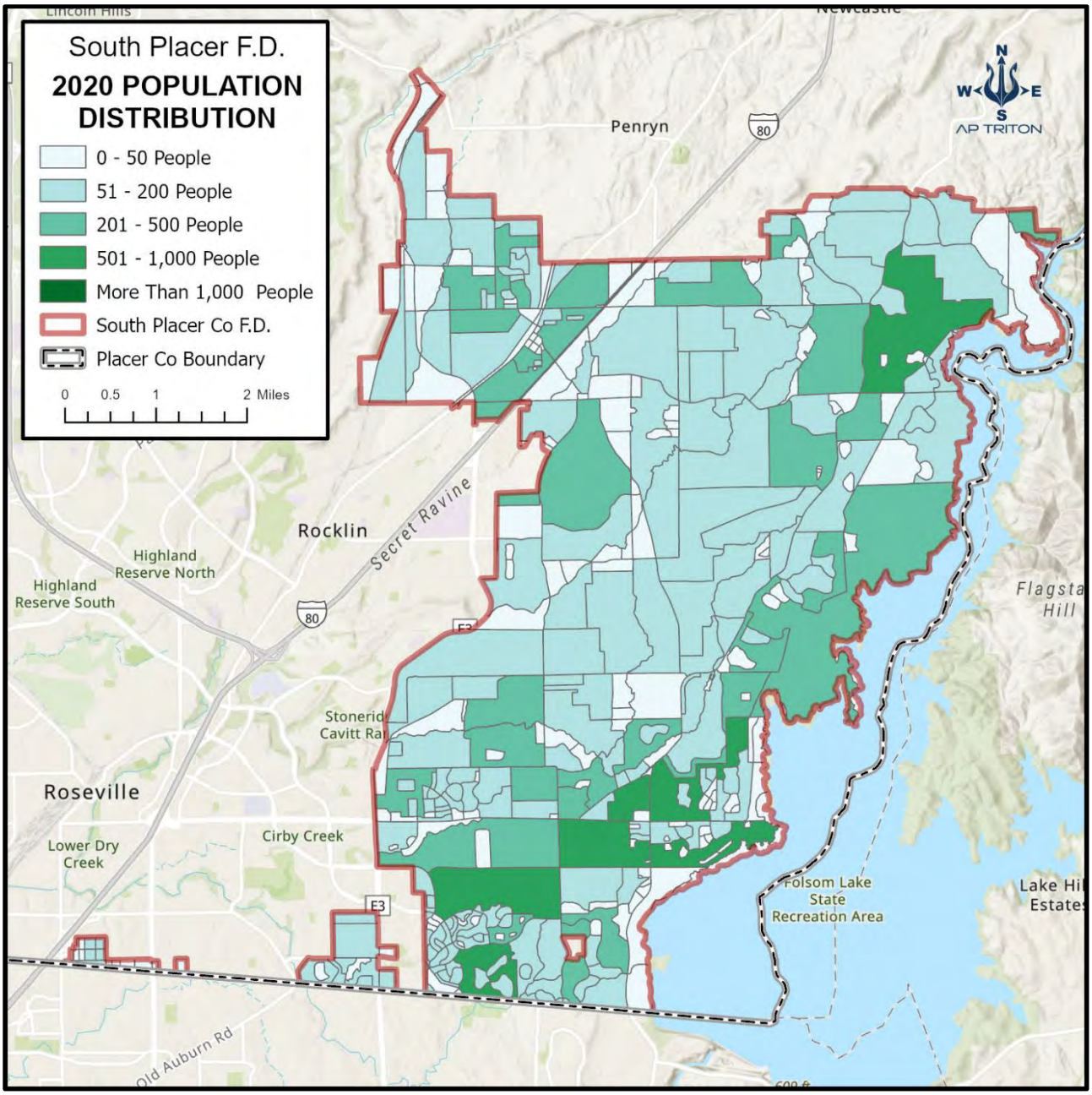


Figure 111: SPFD 2020 Population Distribution



At-Risk Populations

Specific populations are at higher risk of fires and other unintentional injuries, and these incidents directly affect service delivery. Several factors place groups of people in higher-risk categories in urban and suburban areas. NFPA reports identified groups with a higher risk of injury or death in a fire as follows:

- Children under 5 years of age
- Older adults over 65 years of age
- People with disabilities
- Language barrier
- People in low-income communities

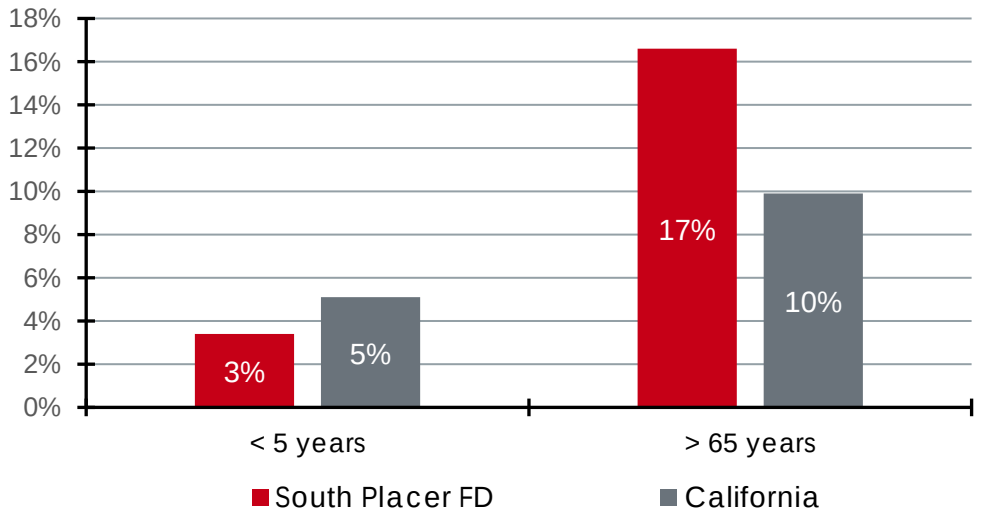
Information from the U.S. Census data estimates identified several groups that fall into these categories.[16] These groups are more likely to need additional emergency services, specifically EMS, than other population groups.

Age

The age of young children and older adults may directly relate to increased medical responses. For example, young children under five may need additional assistance when evacuating a building during a fire or other event, which poses a higher risk to this age group. In SPFD's response area, the percentage of the population under five years of age is at 4.4% compared to the state at 5.1%.

As people age, their mobility decreases, placing them at a higher risk during a fire, and they are more likely to fall and need assistance from SPFD. The percentage of adults older than 65 is 18.3%, which means the SPFD response area is higher than the state average of 9.9%.

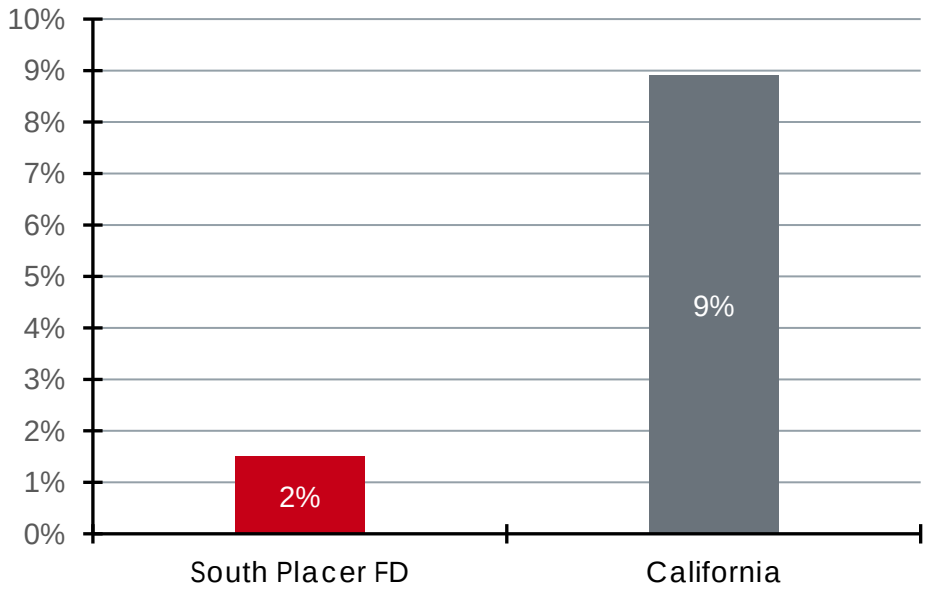
Figure 112: SPFD Vulnerable Population by Age



Persons without Health Insurance

This group is likely to require additional emergency medical assistance because they did not seek treatment for chronic illnesses. The lack of health insurance affects lower-income populations since they cannot pay or have difficulty paying for medical visits because of the lack of insurance. The percentage of people without health insurance under the age of 65 for the SPFD response area is 1.3%. This is well under the state average of 8.9% of the population, as shown in the figure below.

Figure 113: SPFD Percentage of Population without Health Insurance



Low-Income Persons

Low incomes increase the risk of fires and medical responses in the community. Living in a properly maintained residence or receiving adequate medical care becomes more accessible with higher incomes. People living below the poverty level are considered at the highest risk when combined with other factors such as education levels, disabilities, or an inability to work. The SPFD response area has a lower percentage of the population in poverty than California, at 11.8%.

The median household income in South Placer in 2021 was $152,326, which was 13.3% greater than the median annual income of $80,440 across California. Compared to the median income of $98,762 in 2000, this represents an increase of 35.2%. In addition, the per capita income in 2019 was $61,790, which means an increase of 40.7% compared to 2000, when it was $36,640.

Figure 114: SPFD Percent of Population Below the Poverty Level

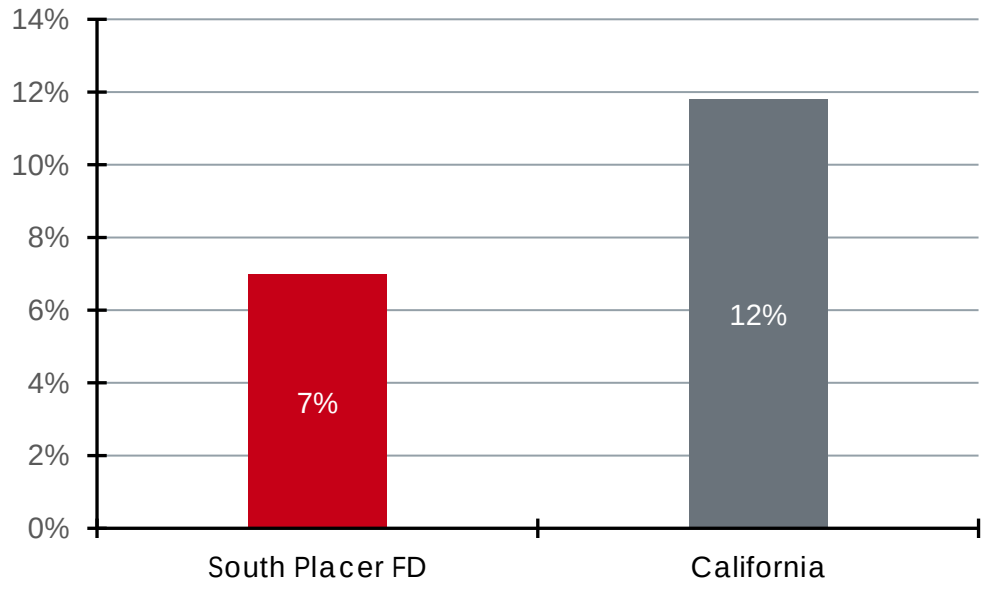
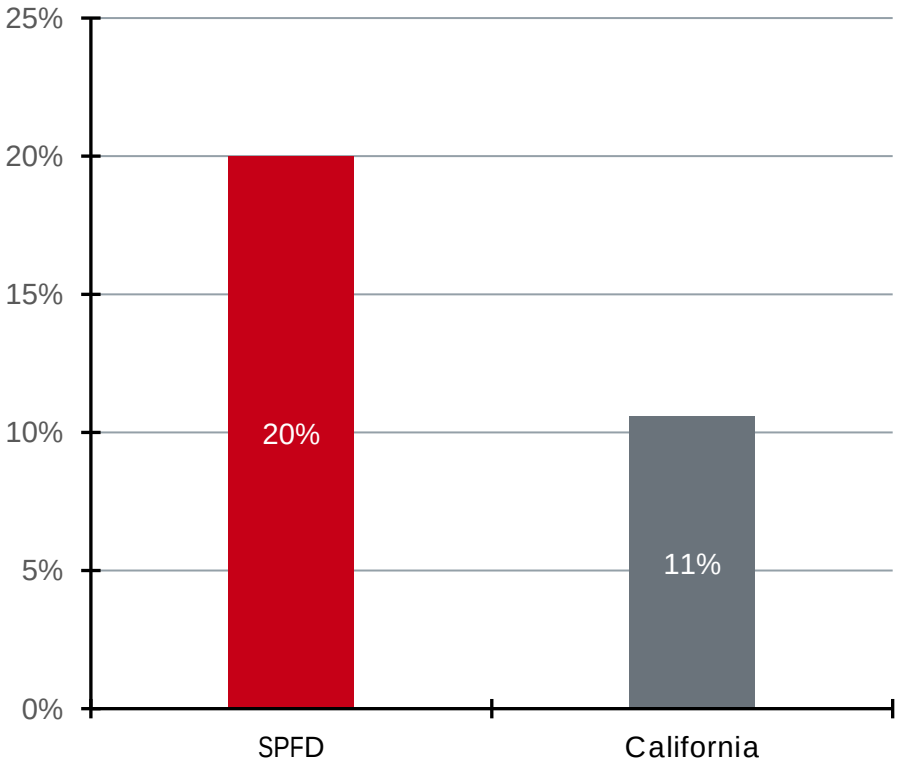


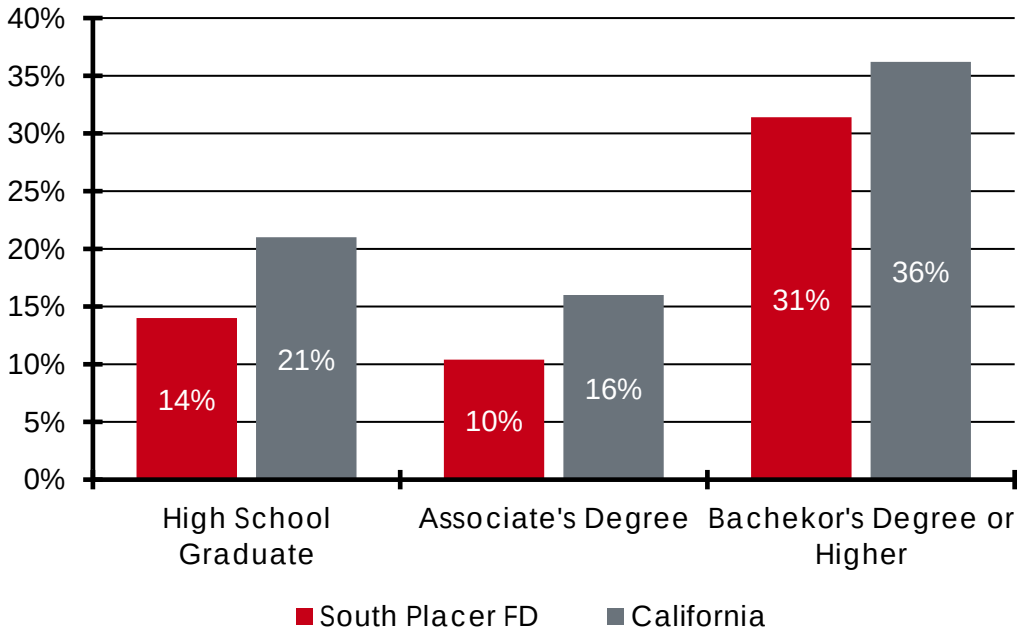
Figure 115: SPFD People with Disabilities



Education Levels

According to the U.S. Bureau of Labor Statistics, higher educational levels directly correlate to higher wages. In 2021, earnings and unemployment rates by educational attainment, using data from the U.S. Bureau of Labor Statistics (BLS) Current Population Survey (CPS). Workers aged 25 and over with less than a high school diploma had the lowest median weekly earnings ($626) and the highest unemployment rate (8.3%) among all education levels.[17] The following figure indicates the education level by percentage for each community served by SPFD.

Figure 116: SPFD Educational Levels 25 Years & Older

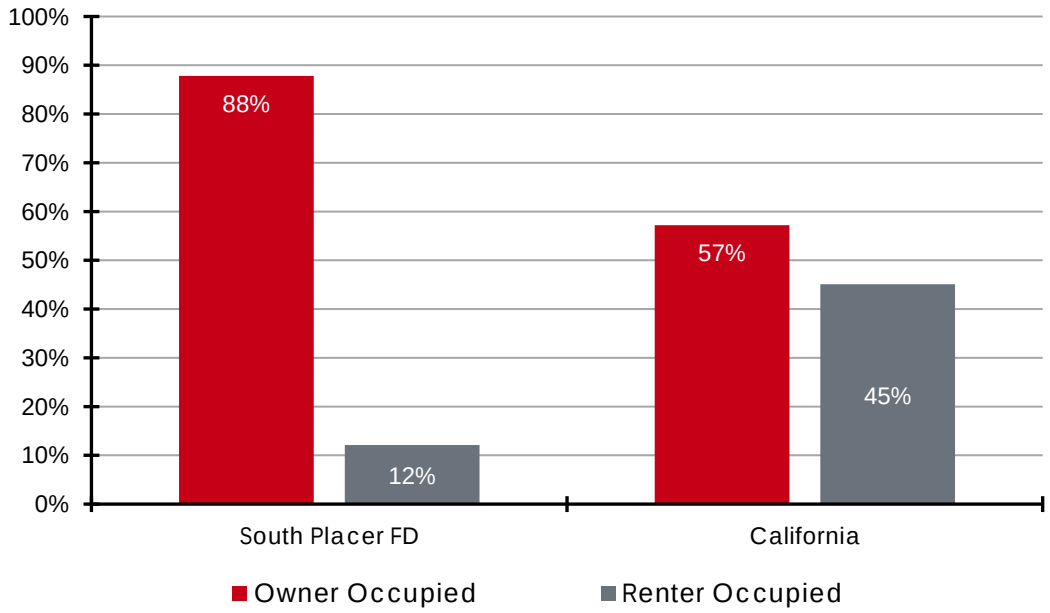


Housing

Although housing is not considered a significant risk compared to income or age, it can provide information for selected housing types, such as older multifamily apartments built before fire sprinkler requirements or vacant homes. The housing types vary in a community and can provide insight into ownership, the age of the house, and the number of units in the building. SPFD's response area has approximately 14,331 (13,840 occupied: 12,473 owner-occupied, 1,796 renter-occupied).

Vacant structures can pose a risk to the fire district and community if the building is not secured to prevent entry. If the building is not maintained, the structural integrity can degrade and present problems during a fire. Vandalism may create additional problems for the fire district and law enforcement. In SPFD, the median year a house or apartment was built is 1995; the percentage of owner-occupied housing is 87.8%, compared to California at 57.2%. Rentals in the South Placer Fire District are 12.1% of the properties compared to California at 45.1%.

Figure 117: Owner & Renter-Occupied Housing



Age of Housing

Understanding the age of housing is essential based on the requirements for smoke alarms in residential occupancies and when building and fire codes were adopted. In addition, older homes eventually need repairs as the building ages, leading to more fires, especially from electrical systems. In SPFD, 20% of the housing was built after the 1970s, higher than the state at 17%. The highest percentage of housing was built in the 1990s, was at 26.1%.

Figure 118: SPFD Percentage of Homes Built by Year

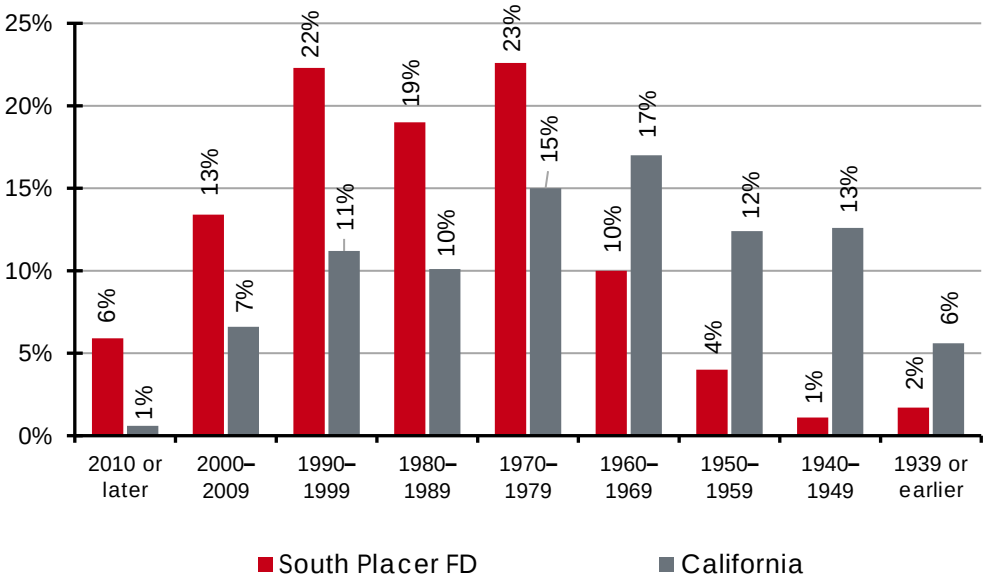
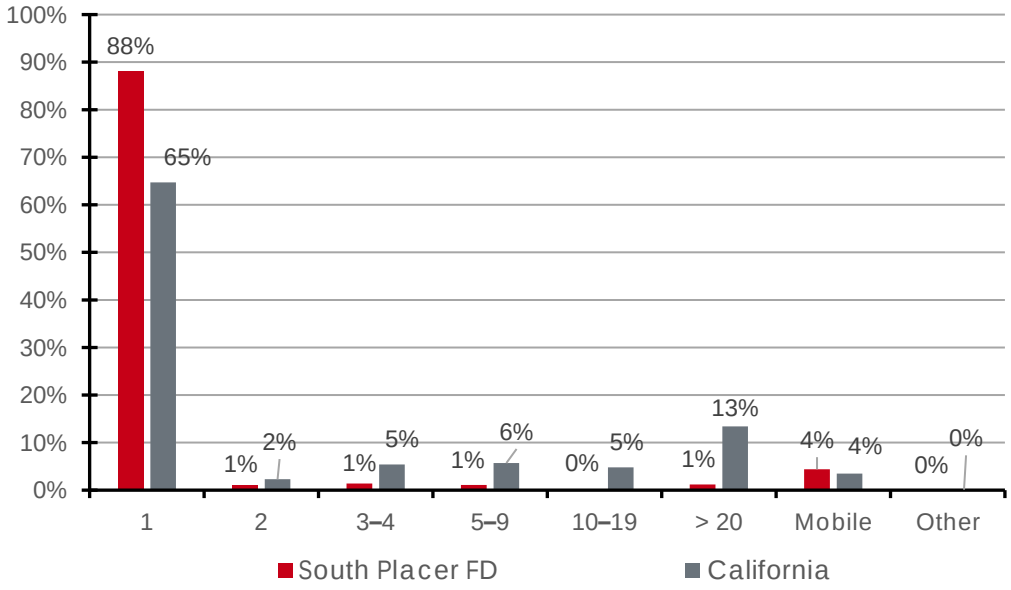


Figure 119: Housing Units per Building



Environmental & Physical Hazards

A physical hazard is a natural or human-caused event that has the potential to impact people, buildings, infrastructure, agriculture, environmental assets, and communities. Every community faces the risk of being struck by a physical hazard of one type or another, including natural disasters such as floods, hurricanes, ice storms, wildfires, earthquakes, or technological disasters such as chemical spills or explosions. When disaster strikes, it can wreak havoc on a community—destroying homes and businesses and leaving people homeless and out of work. Nationwide, property damage from disasters has been increasing steadily, partly because of more significant disaster events and because more and more people live in hazard-prone areas. For example, high wind events damages alone have cost the nation billions of dollars.

We need knowledge of the past to predict what might happen in the future. Historical catalogs are used to understand the frequency of hazardous events. They help us develop synthetic event sets that represent, for example, up to 10,000 years of events. This allows us to understand what might be possible in the future and prepare for events we have not seen in our lifetime. For rarer hazards such as earthquakes, seismological investigations play a critical role in identifying and characterizing individual pre-historic events that make up the active tectonics record.

Reducing risk can only be achieved by decreasing the contribution from one or more of these three components. Examples of risk reduction or managing the risk in these components are:

- Hazard: building a flood levee to alter the course of flood events
- Exposure: land-use planning decisions to ensure that new development is not exposed to hazardous events or to influence the type of development
- Vulnerability: retrofitting older buildings built to lower building standards or before building codes were enforced.

The number of natural disasters in Placer County (17) exceeds the U.S. average (15).[18] Major Disasters (Presidential) Declared: 7. In the history of the SPFD response area, emergencies declared have been the following: Floods: 10, Storms: 6, Fires: 4, Landslides: 4, Mudslides: 3, Winter Storms: 3, Drought: 1, Heavy Rain: 1, Hurricane: 1, Tornado: 1, Other: 1.[19]

Weather

Temperature

The weather conditions in an area can impact the fire district and the entire community. High or low temperatures affect firefighters during extended incident operations and require rehabilitation to prevent exhaustion. For example, although the average temperature in SPFD is a high of 75˚ Fahrenheit (F) and an average low of 50˚ F, the temperature can decrease during December and January when the average minimum temperature is 39˚ F.

Figure 120: Average Daily High Temperatures

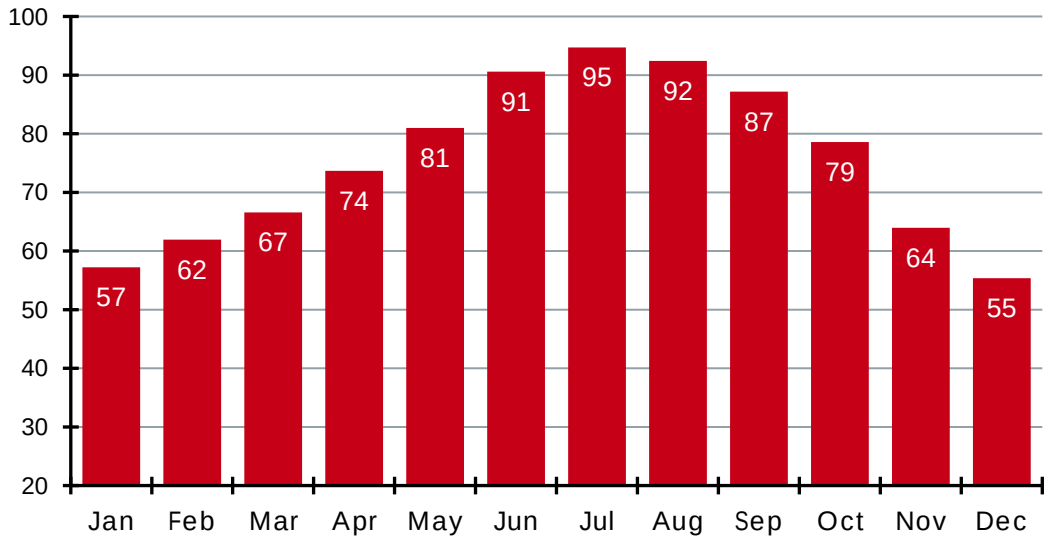
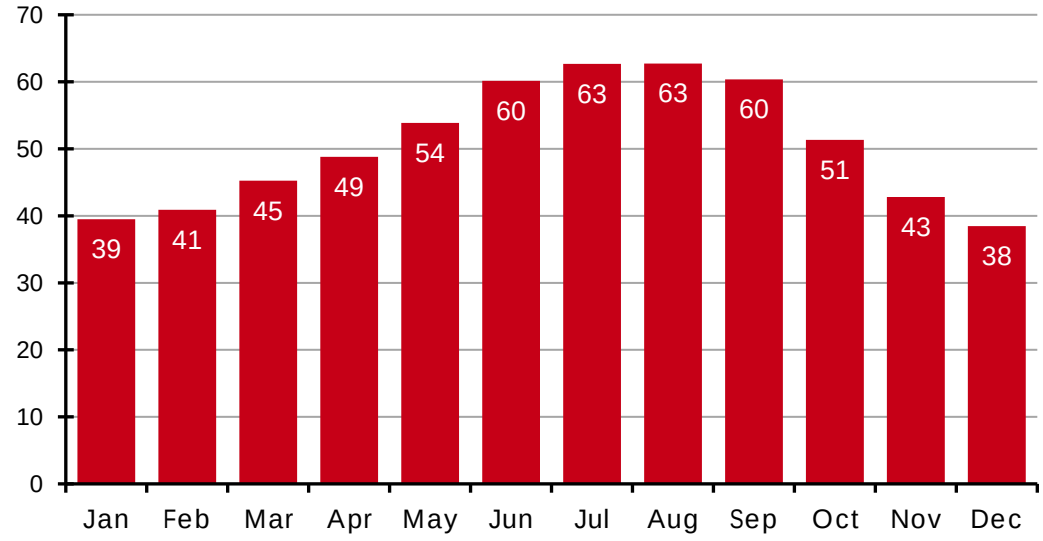


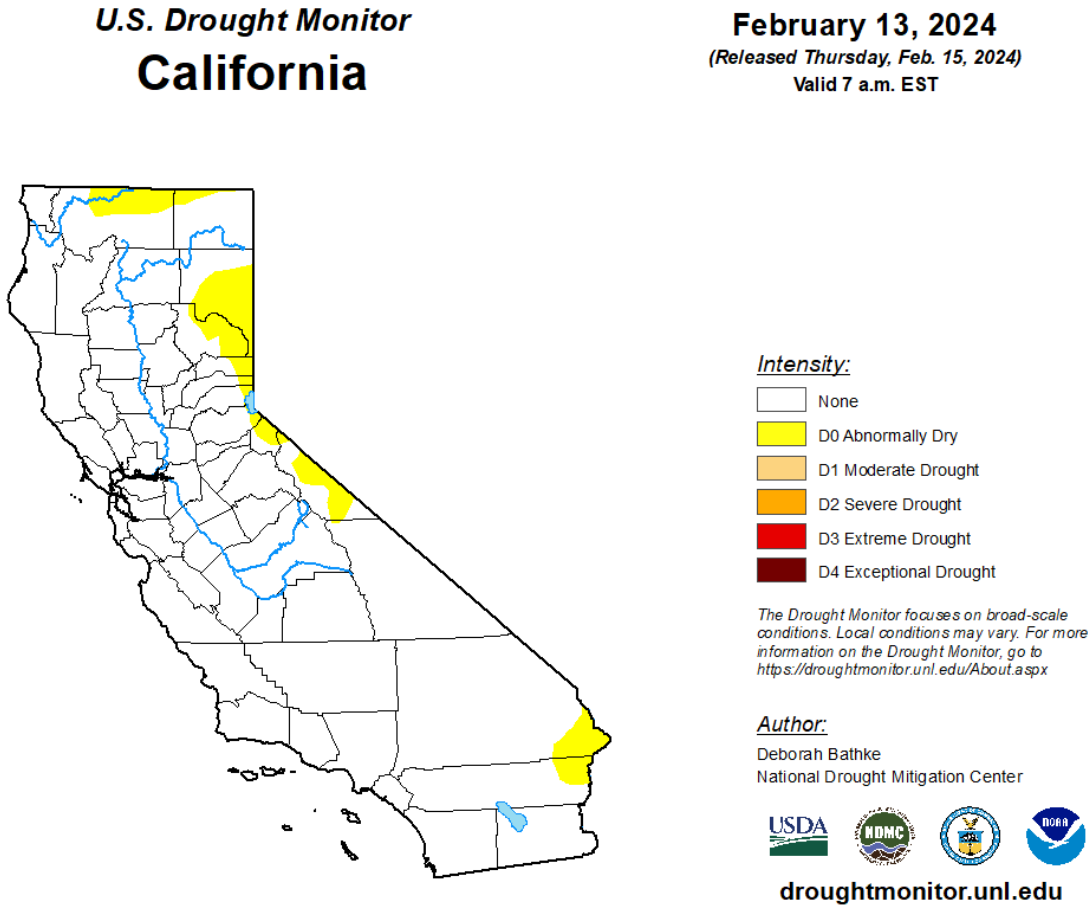
Figure 121: Average Daily Low Temperatures



Drought

A drought may impact the community, such as the lack of rainfall to replenish groundwater or aquifer when wells are used for drinking water. In addition, droughts may last for an extended period and create secondary problems during peak wildfire conditions as the vegetation becomes dry and highly combustible. As of February 2024, the drought condition currently for Placer County is none, as shown in the following figure.

Figure 122: California Drought Conditions (February 2024)



Winds

The direction and speed of winds directly influence how SPFD plans for daily operations, specifically during wildland fire danger. Other factors affecting the day-to-day operations of SPFD regarding the weather could be the snowfall from November through April and the visibility that can be limited by fog. All of these can increase risk to the community and firefighters.

Figure 123: SPFD Average Wind Speeds

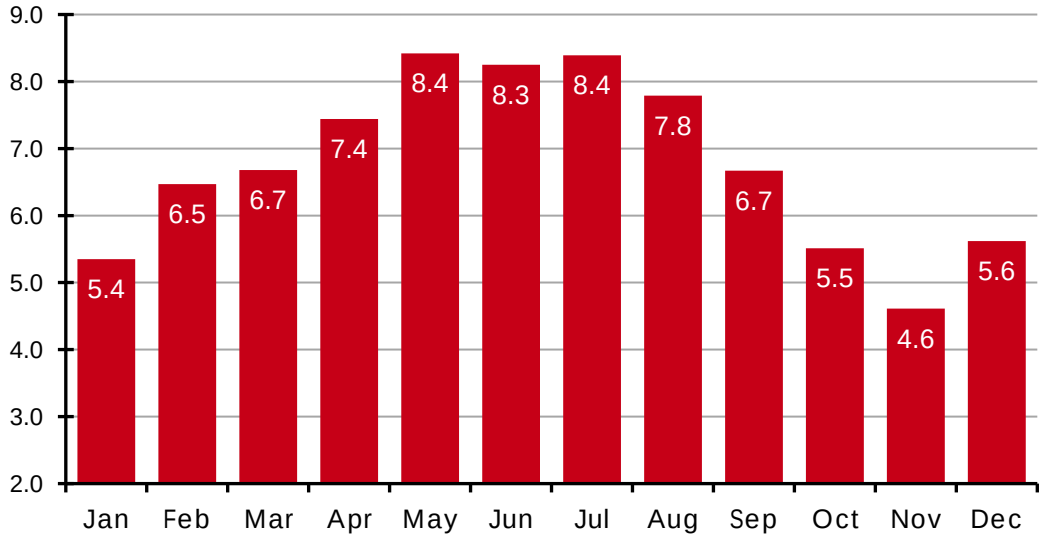
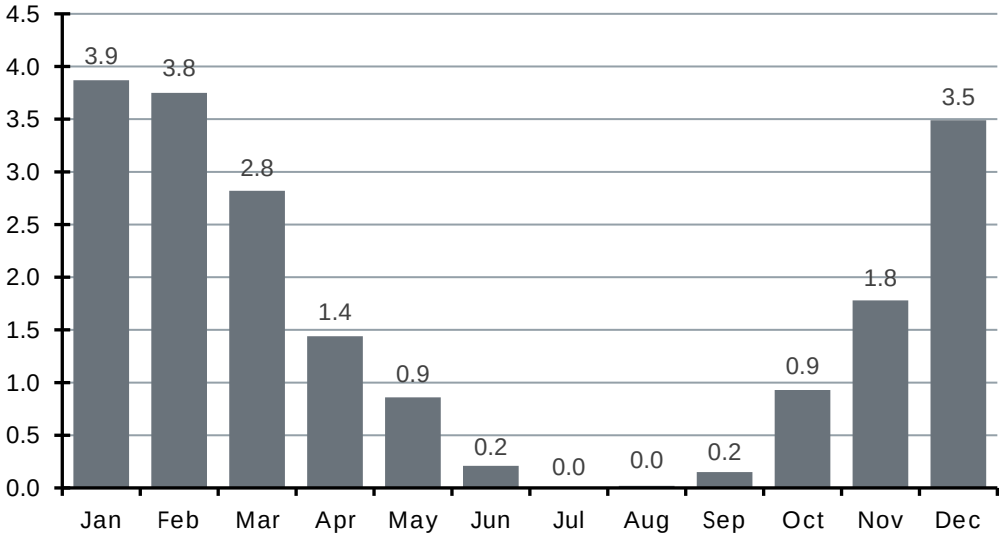


Figure 124: SPFD Average Precipitation



Environmental Hazards

Earthquakes

SPFD is in a seismic area, and the United States Geological Society has identified several faults. The Foothills fault system runs near the SPFD response area in Placer County.

Data suggests a 25.7% probability of a 5.0 magnitude earthquake within the next 50 years. The South Placer FD response area has a moderate earthquake risk, totaling 16 earthquakes since 1931. The largest earthquake within 5.4 miles of Granite Bay was a 2.9 magnitude in 2002.[20] An area of concern is the possibility of soil liquefaction. There are locations where high-severity groundwater and liquefaction may present problems during a major earthquake.

Figure 125: Earthquake Probability in South Placer FD

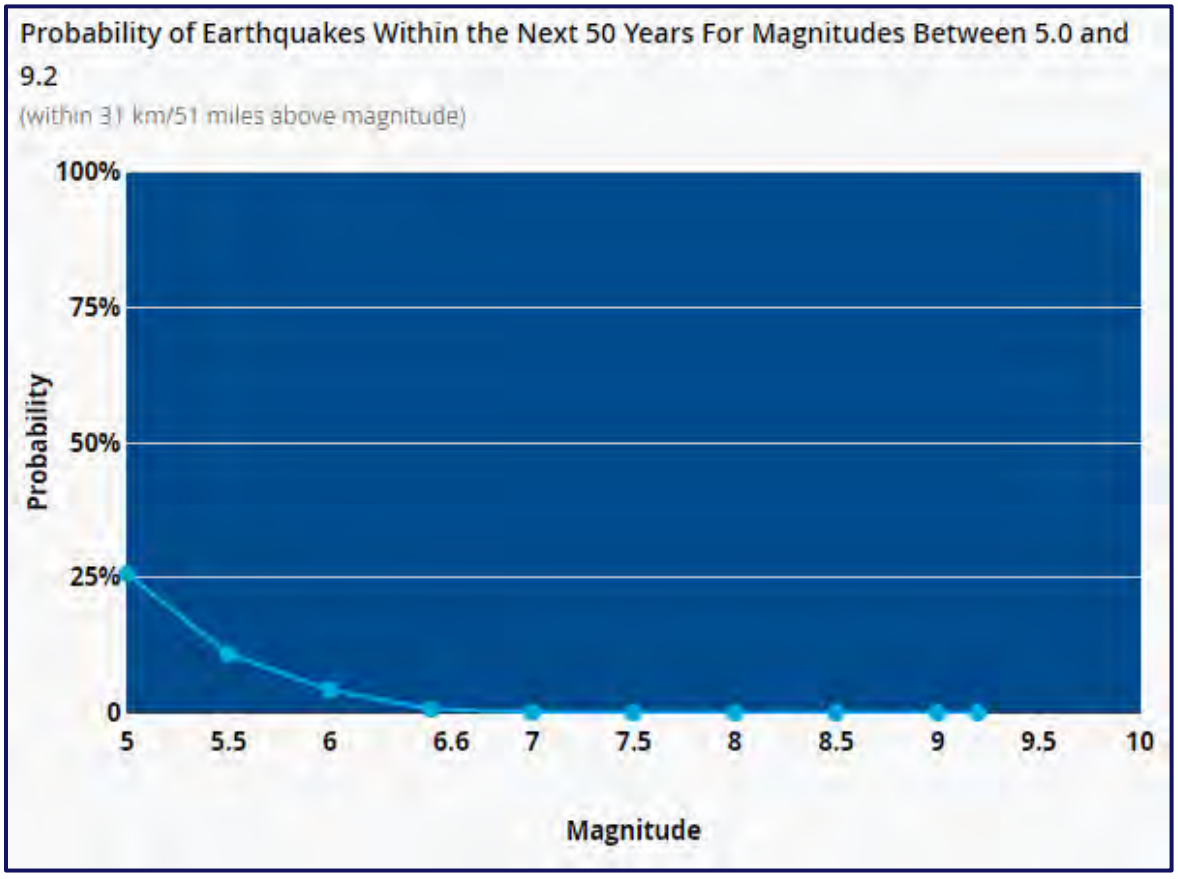
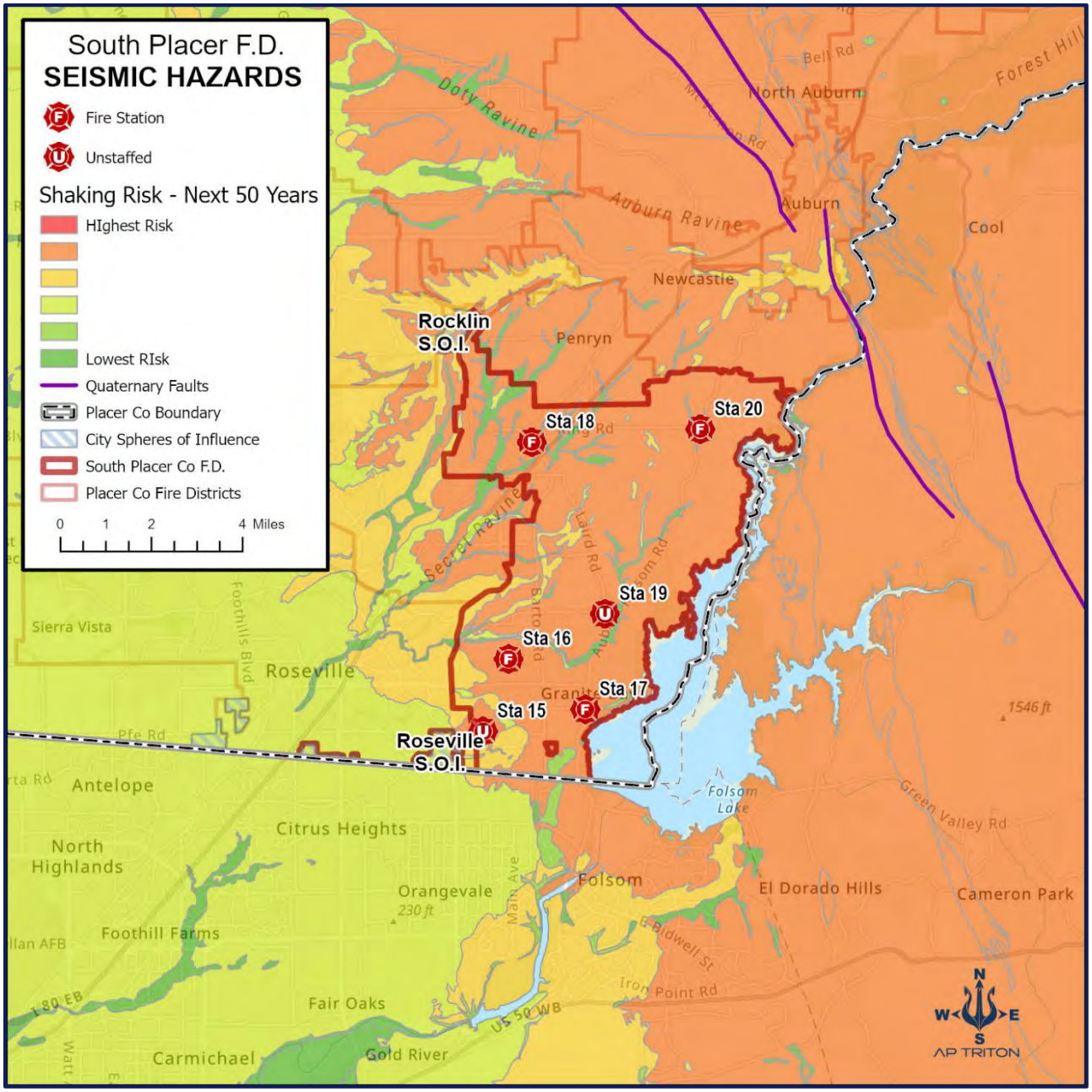


Figure 126: SPFD Seismic/Fault Hazards



Wildland Fires

Much of the SPFD area has been designated as moderate risk, with 45% of the area exposed to indirect wildfire sources, such as embers or home-to-home ignition.

There have been 17 wildfires recorded within Placer County from 1984 to 2021. Two of the most recent fires, the River Fire, started in August 2021 and the Mosquito Fire, started in September 2022.[21] In the River Fire Ninety-nine properties were located within the burn perimeter. Based on historical records, the fire covered 11 sq. mi. The Mosquito Fire was a large wildfire that burned in California's Placer and El Dorado counties as the state's largest wildfire of 2022. The fire began on September 6, above Oxbow Reservoir in the Middle Fork American River drainage on the western slope of the Sierra Nevada. The Mosquito Fire went on to burn 76,788 acres (31,075 hectares), destroying 78 structures in the small, rural communities of Michigan Bluff, Foresthill, and Volcanoville.

Therefore, the ability to protect the community and those living in the area is a primary goal. Limited access to areas due to narrow and steep roads like those in specific subdivisions, reduced right-of-way from overgrown vegetation, properties without proper addressing, and dead-end roads with limited abilities to turn around fire apparatus or vehicles are all wildland-urban interface (WUI) issues.

Placer County has a major risk of being impacted by wildfires over the next 30 years. In addition to damage to residential properties, wildfires can cut off access to utilities and emergency services and impact evacuation routes. They may impact the overall economic well-being of an area.

National statistics show that the true cost of wildfires costs are born within the affected community, including homeowners, businesses and government agencies. Many of these costs are due to long-term damage to community and environmental services, such as landscape rehabilitation, lost business and tax revenues, and property and infrastructure repairs. By comparison, our analysis suggests suppression costs comprise around 9% of total wildfire costs.

The remaining costs include short-term expenses, or those occurring within the first six months—and long-term damages accruing during many months and years following a wildfire. Communities at risk of wildfires can reduce wildfire impacts and associated costs through land-use planning and fire prevention measures.

Figure 127: SPFD Wildfire Risk Map

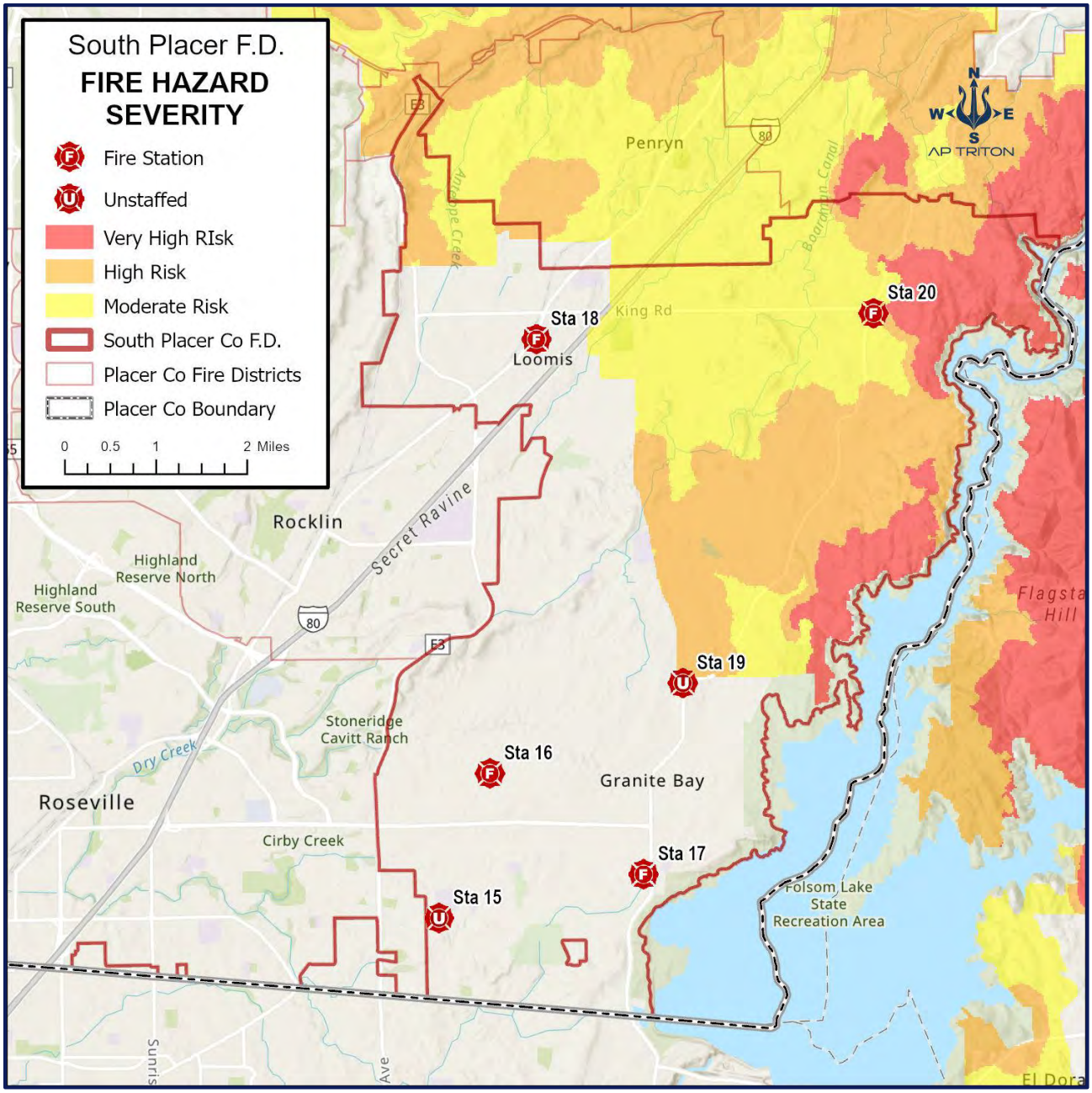
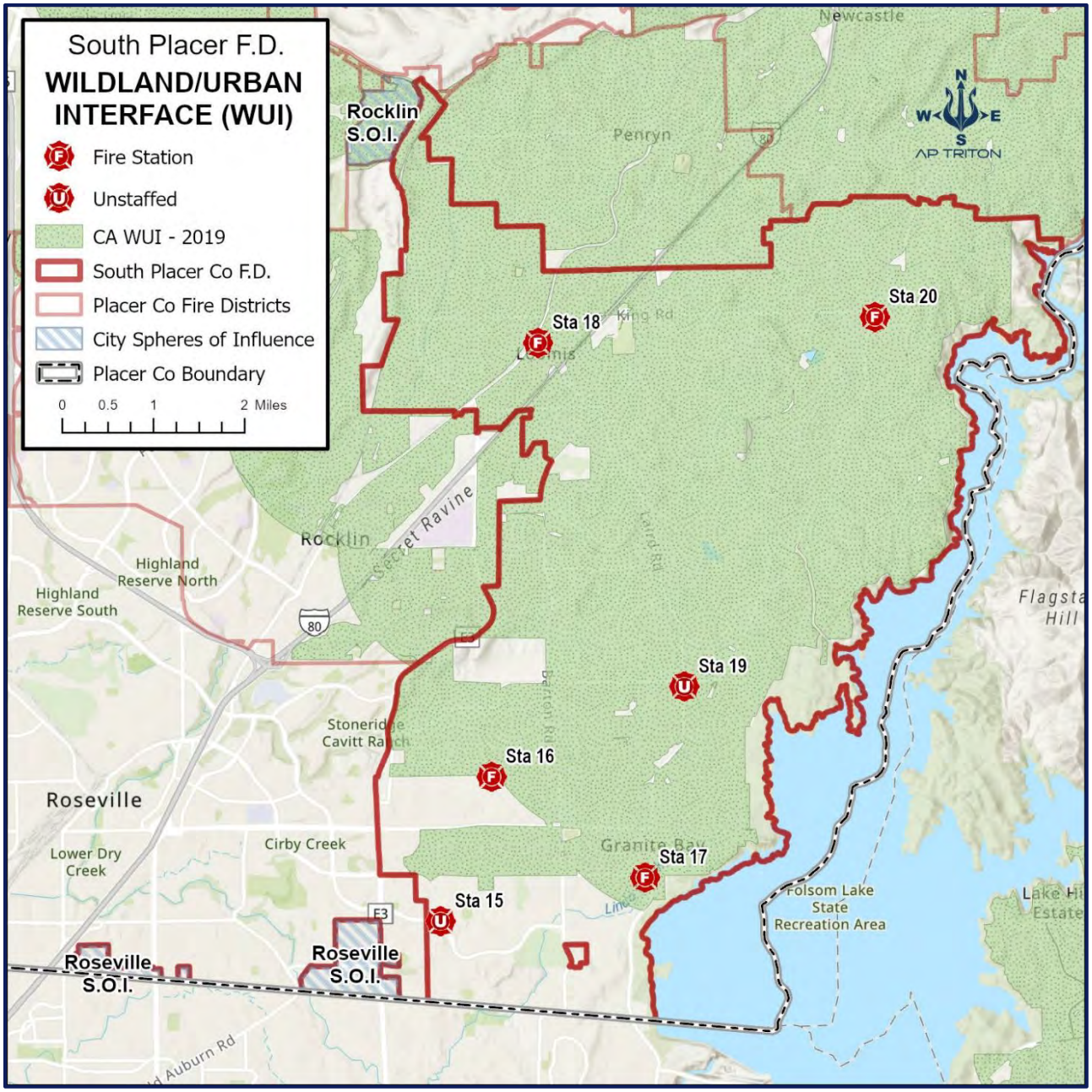


Figure 128: SPFD Wildland Urban Interface Area



Floods

SPFD is at risk of flooding along the rivers and creeks flowing into Folsom Lake and the dams in the area. Flooding typically occurs with the highest rainfall. These seasonable variations can cause localized flooding along the creek channels during high-intensity rainfall events. Like offshore storms, deeper floods from significant events are less likely to occur but cause greater damage than shallower flood events, like heavy rains. As a result, 13,031 properties in Placer County have a more than 26% chance of being severely affected by flooding over the next 30 years. This represents 10% of all properties in the county.[22]

In addition to the damage to properties, flooding can cut off access to utilities, emergency services, and transportation and may impact the overall economic well-being of an area. Placer County has a moderate risk of flooding over the next 30 years, so flooding will likely impact the community's daily life.

A changing environment means higher seas, new weather patterns, and stronger storms. In addition, as the atmosphere warms, more evaporation and water are available when it rains. As a result, additional problems occur with flash flooding in the district's urban areas, but they are usually short-lived.

The following figure shows the SPFD area at risk of flooding and potential water dams from the lake, which could be a potential issue.

Figure 129: SPFD Area Dams

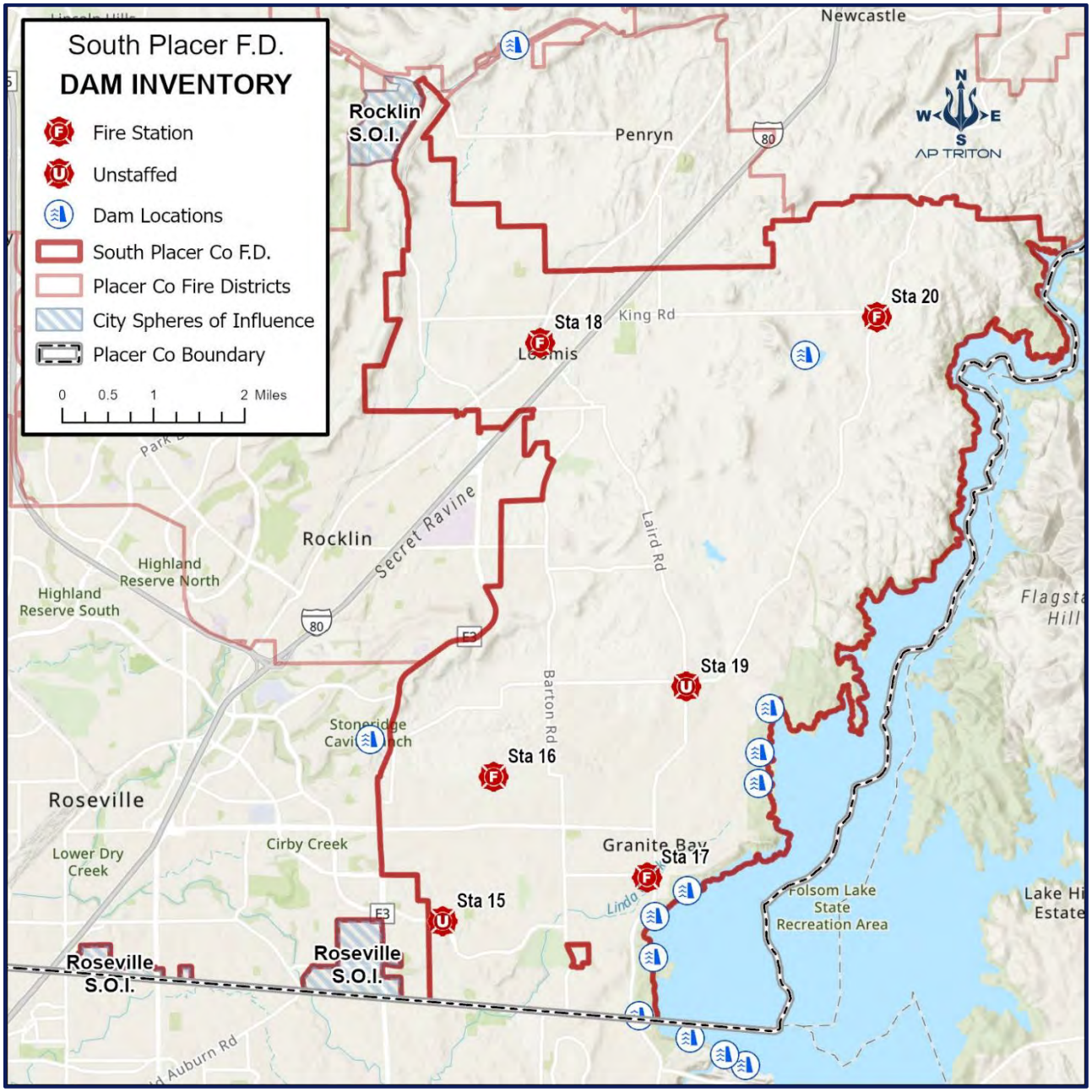
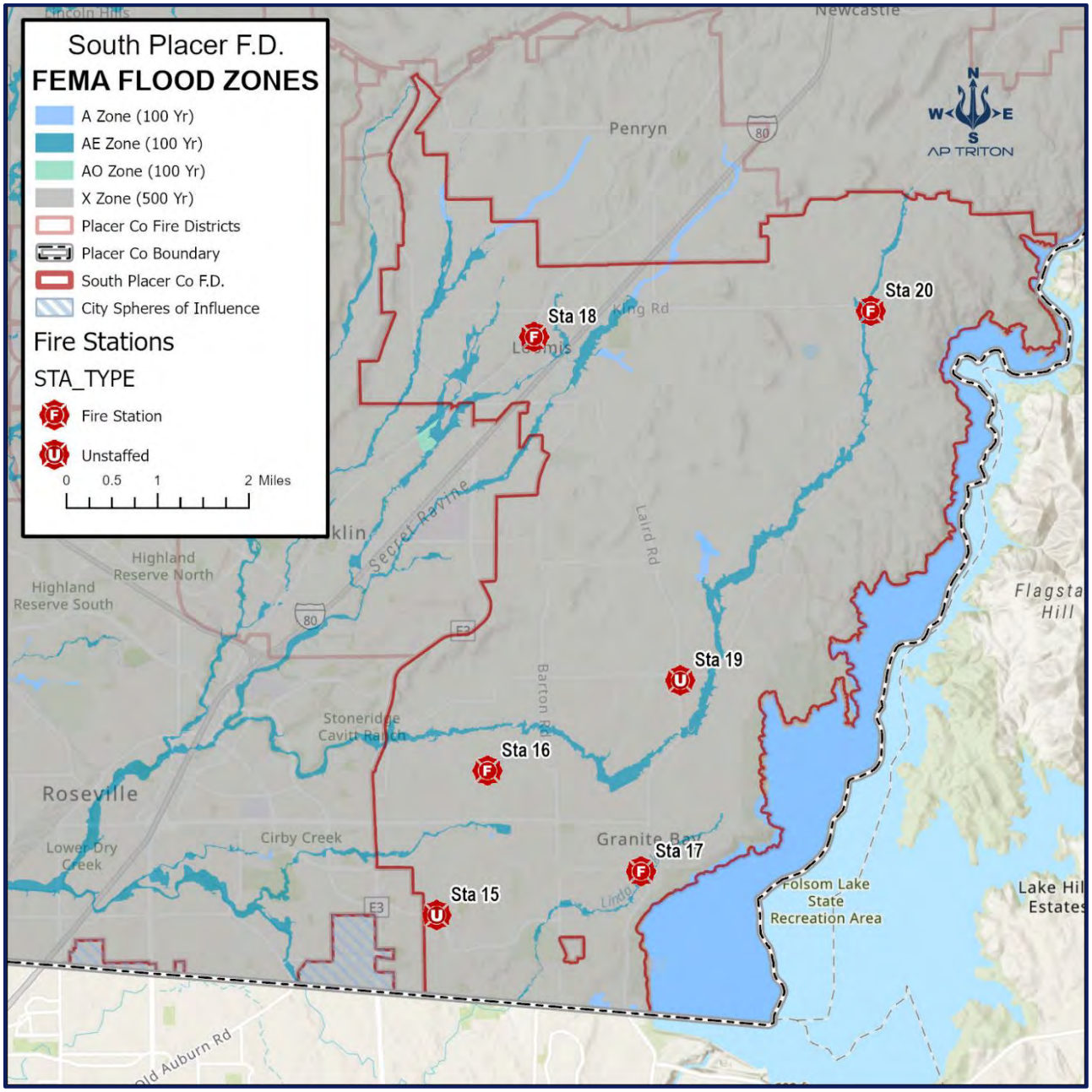


Figure 130: SPFD FEMA Flood Zones



Technological (Human-Caused) Hazards

Events that occur without warning or that are unknown and suddenly appear are considered technological hazards. Examples include industrial accidents or hazardous chemical releases. Each community should create contingency plans for the specific risks in their jurisdiction. This may include permitting, periodic fire and life safety inspections, and pre-incident planning. These activities are designed to reduce risks and provide on-site visits for fire district personnel.

If a building or facility that stores or produces hazardous materials has been identified, it may require unique personal protective clothing and equipment to control or mitigate the event. Locations with hazardous materials on-site during the year exceeding the limits established by the Environmental Protection Agency are required to file Tier II reports. These reports are provided to local jurisdictions, local emergency planning committees, and the state's Emergency Response Commission as required by the Emergency Planning and Community Right-to-Know Act of 1986, also known as SARA Title III. These thresholds require submission:

- Ten thousand pounds for hazardous chemicals
- Lesser than 500 pounds or the threshold planning quantity for highly hazardous chemicals

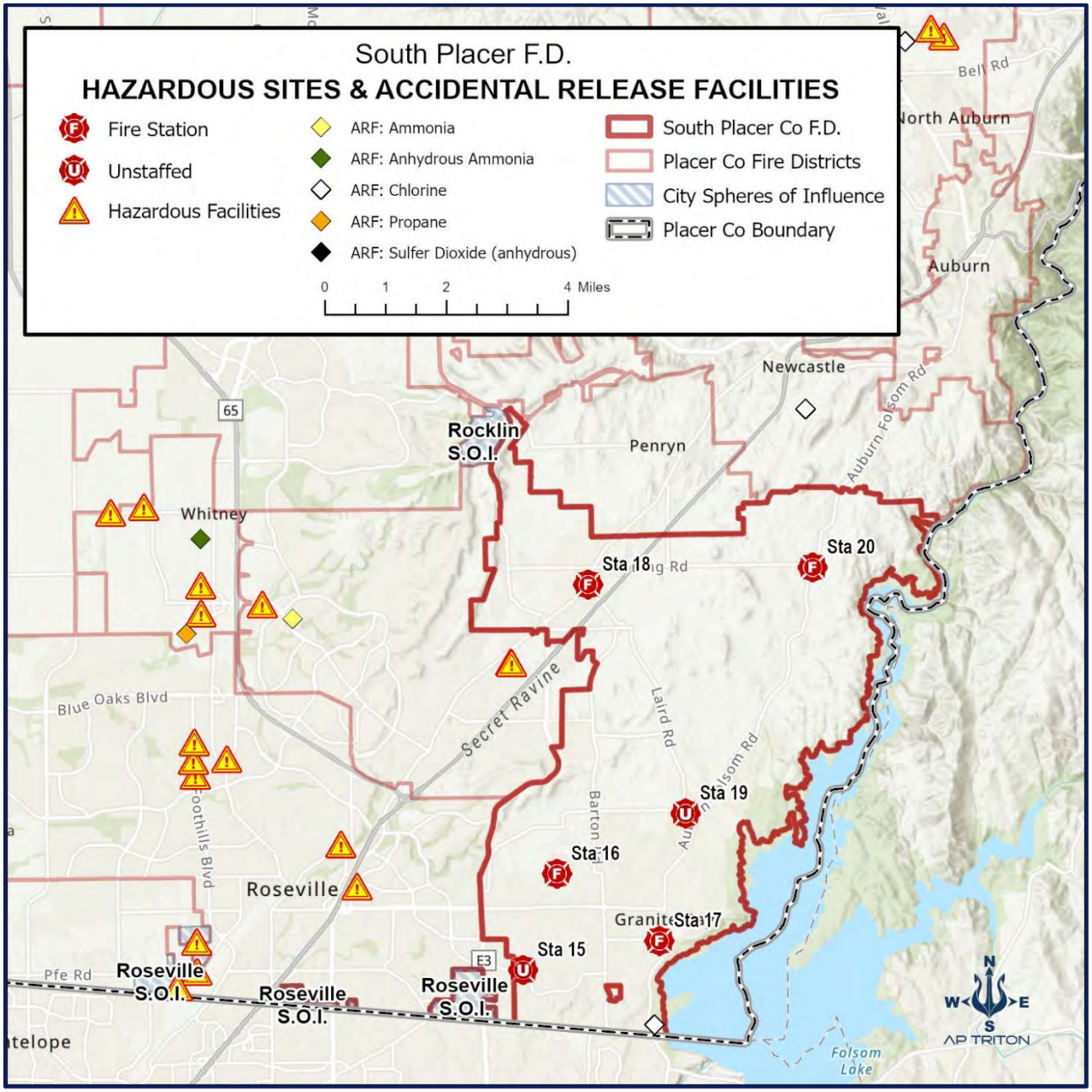
Some areas require additional reporting quantities through a five-tier system that authorizes the treatment and storage of hazardous waste.

Hazardous Materials

Some facilities outside SPFD's jurisdiction store hazardous materials, but no locations produce or store any highly hazardous substances. Interstate 80 is the primary transportation corridor passing through the district. This presents the possibility of a hazardous materials incident involving motor vehicles and trucks.

The following figure shows the SPFD hazardous materials facilities or what would be considered H occupancies.

Figure 131: Hazardous Materials Sites



Land Use & Occupancies

Land use for a community is designed to classify properties within a geographical area generally under governmental control. The concept of land use regulation is to provide attractive social and environmental outcomes to assist in the management of development efficiently. Zoning areas may vary from one portion of the service area with a mixture of low-, moderate-, and high-risk properties.

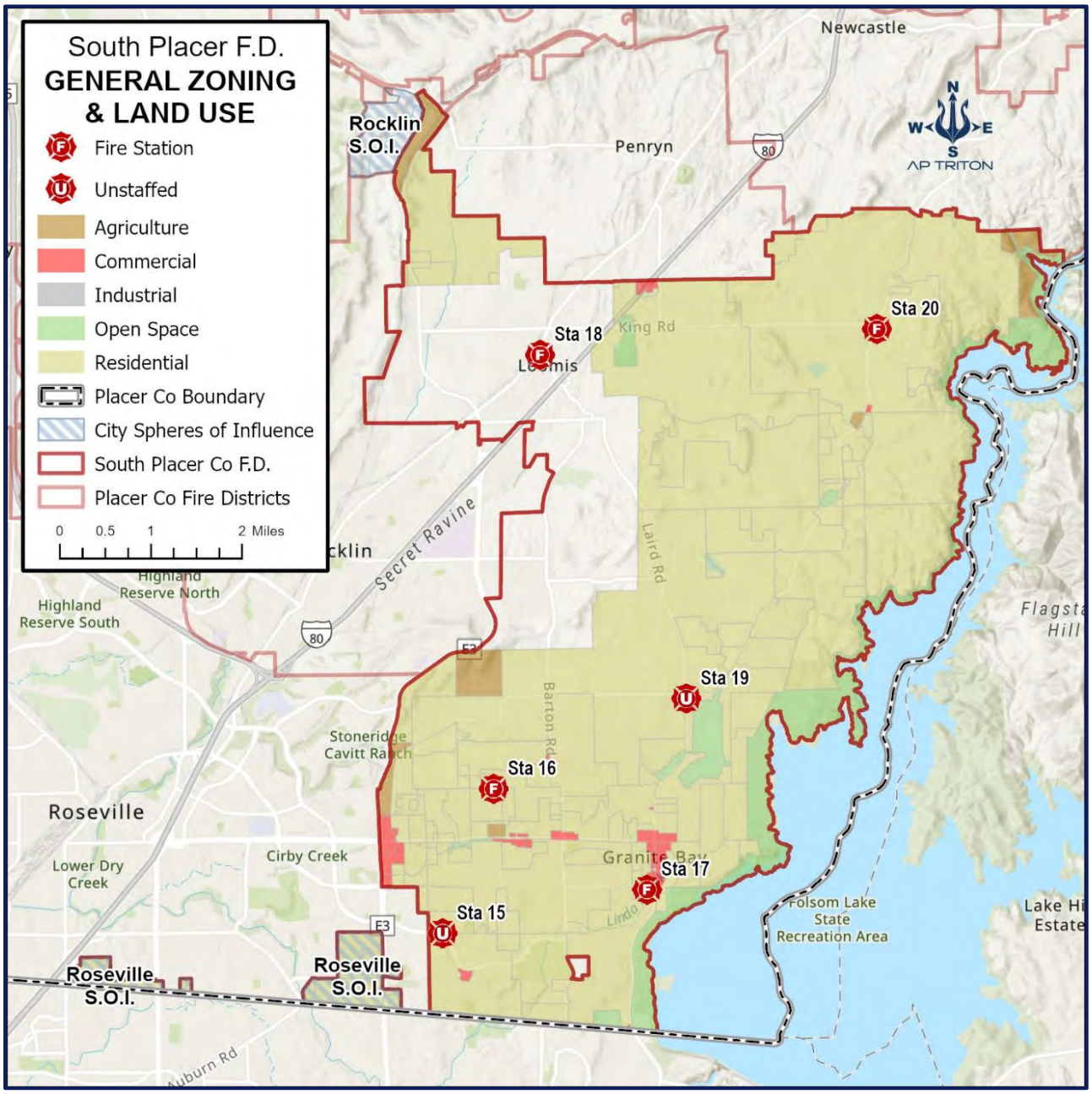
- Low Risk: Areas zoned for agricultural purposes, open spaces, low-density residential, and other low-intensity use.
- Moderate Risk: Areas zoned for medium-density, single-family properties, small commercial and office uses, low-intensity retail sales, and similarly sized business activities.
- High Risk: High-intensity business districts, mixed-use areas, high-density residential, industrial, storage facilities, and large mercantile centers.

The Town of Loomis (2001) has adopted current General Plans for future development.[23] However, the Town Council may use the plans as guides when approving new developments. The plans create guidelines for both residential and commercial growth to:

- Retaining the small-town aspects of its character.
- Encourage appropriate management of density developments.
- The design and development of both commercial and residential parcels reinforce the small-town character.
- Revitalization of the downtown core with a consistent design theme and reuse of historical structures.
- Require improved site planning and architecture, increasing landscaping and building attractiveness.
- Encourage commercial uses to be developed on a village scale by constructing historical facades, minimizing signage, and planting street trees and landscaping.
- The development of a transportation center at a renovated train station and plaza at the Horseshoe Bar and Taylor Road downtown.
- The maintenance of primarily large lots, and rural residential areas, but also providing some smaller parcels for young families and seniors.

SPFD should be aware of future developments and meet with city staff and the Building Officials on proposed or existing building projects to ensure compliance with the fire code.

Figure 132: SPFD Land Use



Physical Assets Protected

Commercial occupancies or properties are considered target hazards in every community because of the special or unique risks to emergency responders and occupants during an incident or event. Therefore, each of these occupancies should have up-to-date pre-incident surveys completed annually. The surveys allow responders to become familiar with the building, property, and special hazards.

These occupancies and facilities should have a pre-incident plan available for SPFD operations personnel during an incident. The pre-incident program provides emergency responders with information about potential hazards and can help them develop strategies and tactics during an incident.

Schools

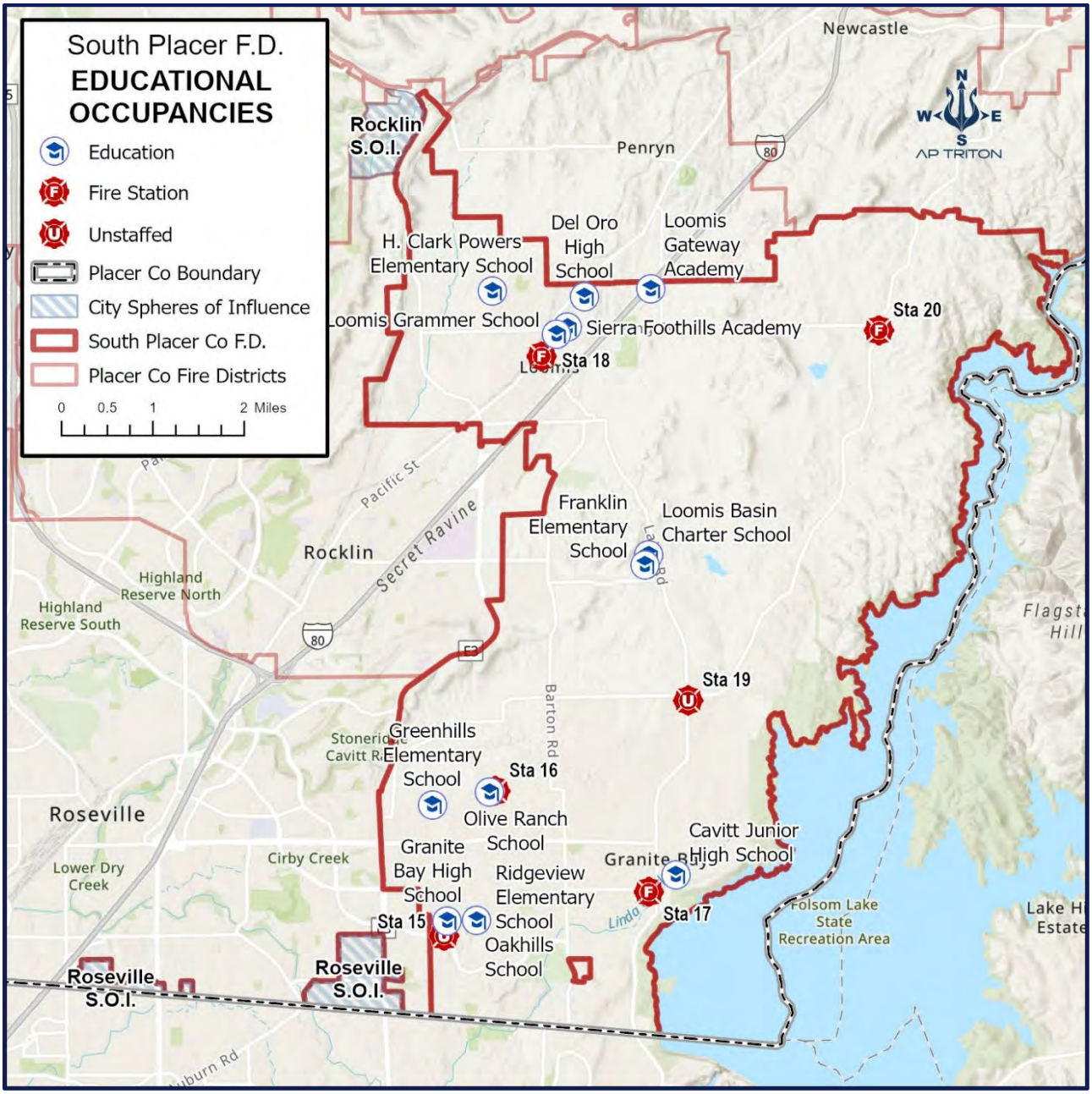
The Eureka Union School District, Loomis Union School District, Placer Union High School, and Roseville Joint Union School District all serve schools within the SPFD response area, and they serve approximately 8,234 students from 10 schools with grades kindergarten through high school. Therefore, these locations should be considered target hazards because of the large number of students and teachers in a single location.

Figure 133: Education

School	Number of Students
High Schools	
Granite Bay High School	2,073
Del Oro High School	1,690
Middle Schools	
William Cavitt Junior High School	399
Elementary Schools	
Ridgeview Elementary School	606
Loomis Grammar Elementary School	498
Greenhills Elementary School	477
H. Clarke Powers Elementary School	505
Franklin Elementary	498
Placer Elementary School	515
Private Schools	
Sierra Foothills Academy	43
GRAND TOTAL	8,234

Childcare facilities for infants, preschool, or afterschool care for children create specific concerns because of their age. Very young children will need additional assistance from childcare workers to evacuate a building during an emergency. An evacuation may require the employees to carry the infants.

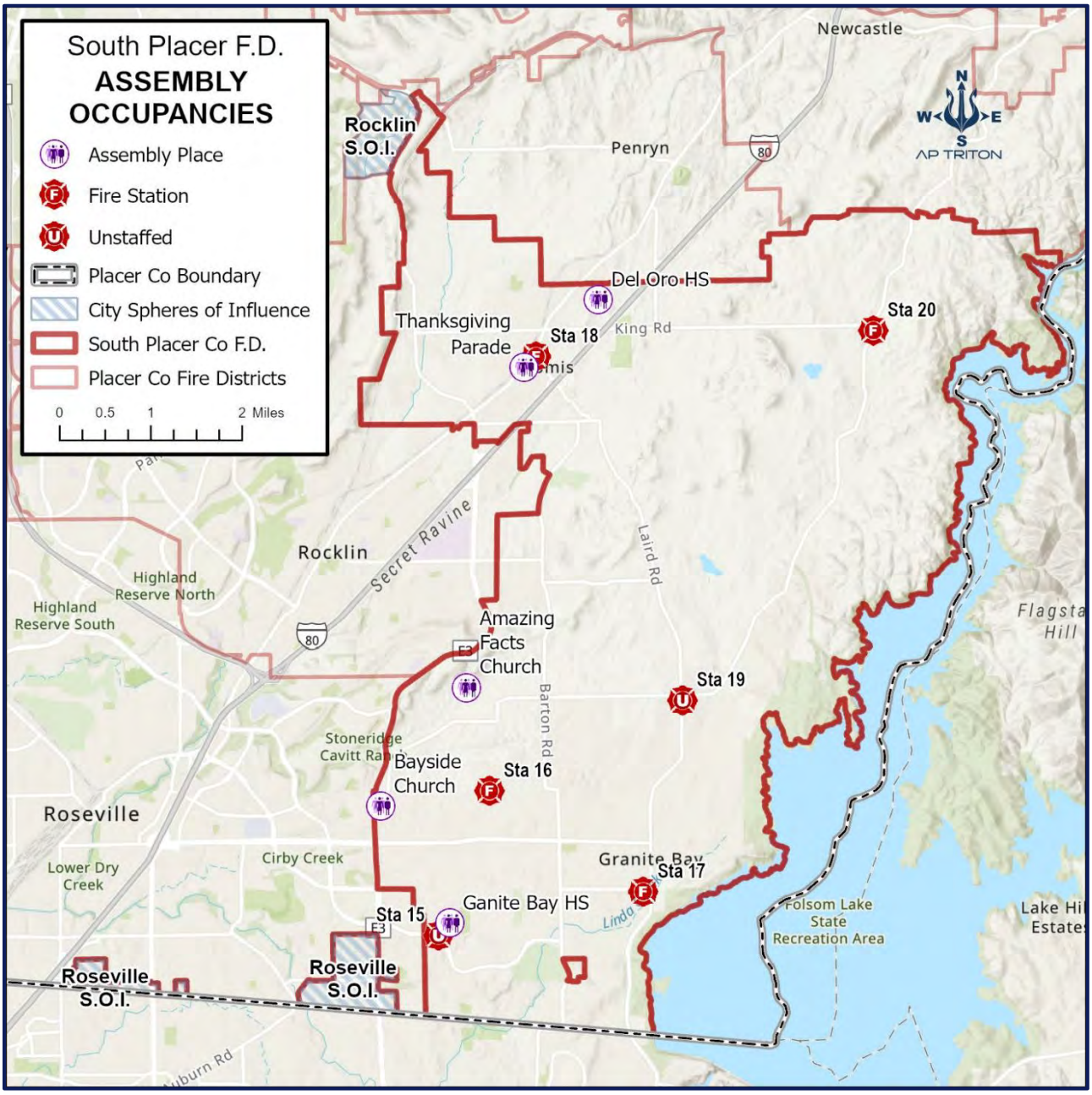
Figure 134: Educational Occupancies



Assembly

Assembly occupancies create unique risks because of the large number of people in a single location. These occupancies include restaurants, theaters, nightclubs, sporting events, or large outside festivals, all locations where people gather. In addition, these occupancies may require many emergency response personnel during an event, such as a fire or active shooter. Therefore, these locations should have completed pre-incident plans.

Figure 135: Assembly Occupancies



Large Fire-Flow Occupancies

Occupancies can be classified according to their risk level. Risk factors that classify occupancies as low, medium, or high include the size of the building(s), construction type, the presence or absence of fire suppression features, such as sprinklers and standpipes, the needed fire flow, the risk to life, the presence of chemicals or hazardous processes and the amount of water available concerning the required fire flow. Examples include Del Oro High School, Loomis Industry Park, the Lausman Lumber and the Granite Bay Business Park.

Figure 136: Large Buildings

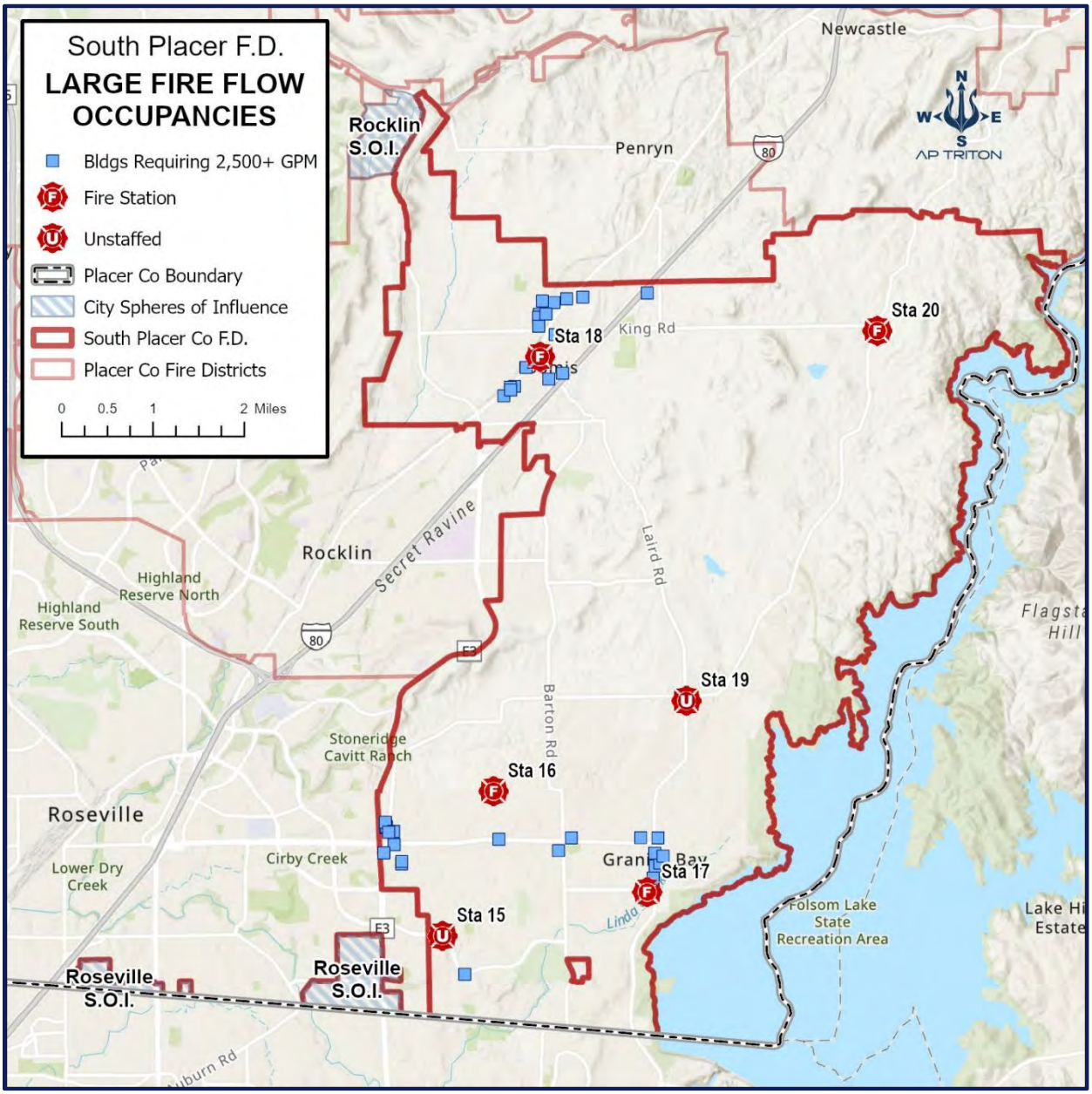
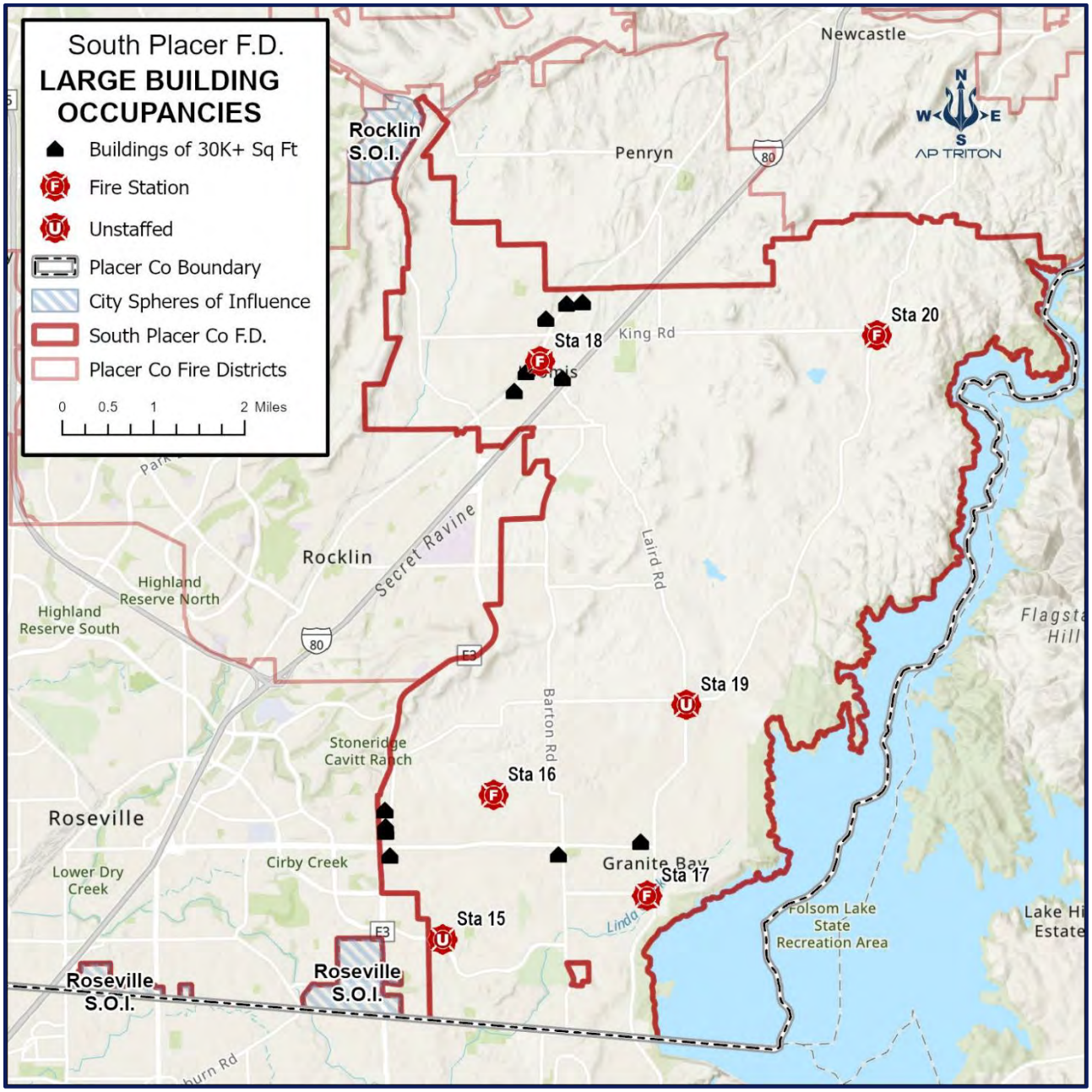


Figure 137: Large Occupancies over 30,000 Sq Ft



Hospital, Medical, & Congregate Care Occupancies

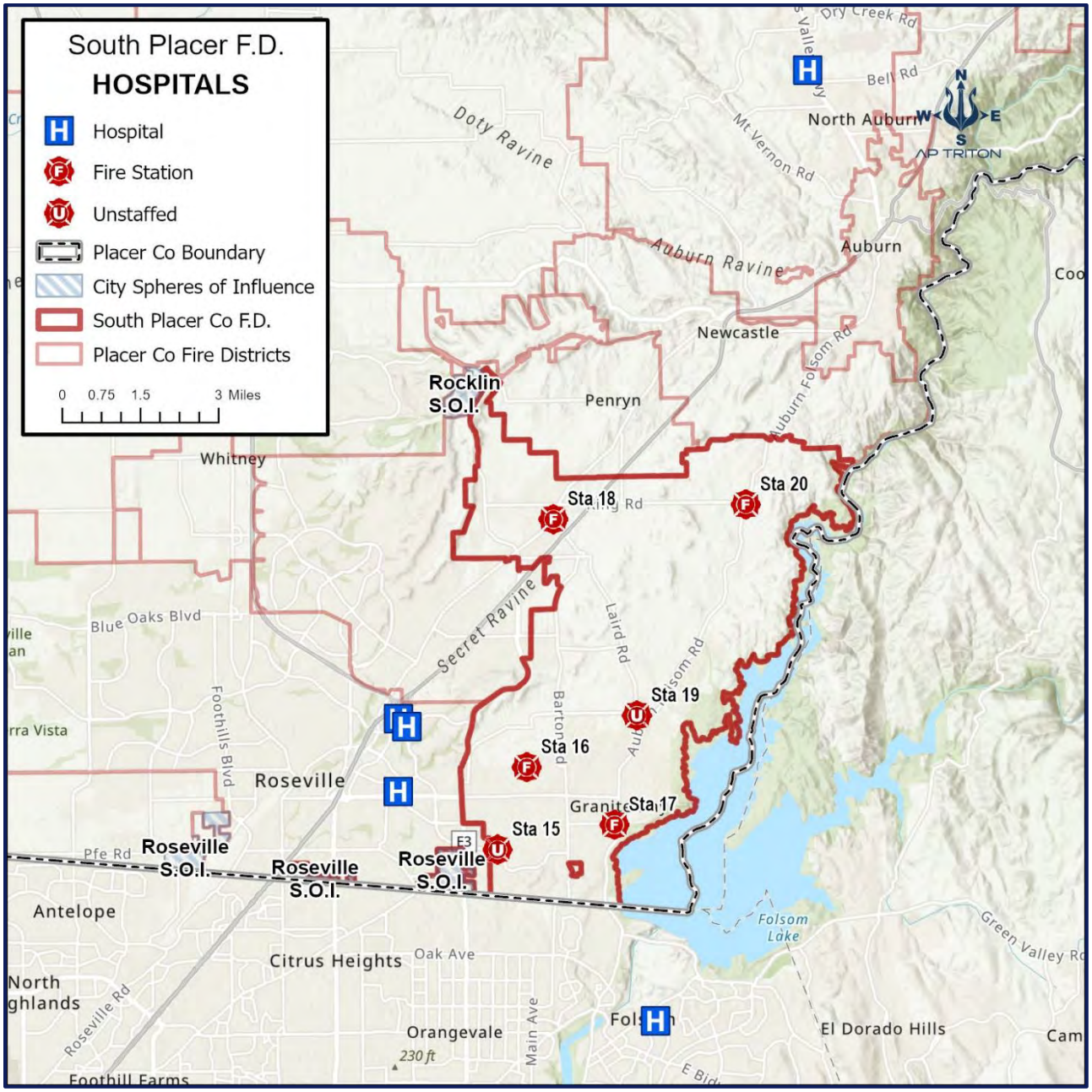
These facilities provide medical care in the community to assist people seeking medical attention. Hospitals are at a higher risk because of the inability of some patients to self-evacuate from the facility. These locations require more fire and life safety requirements than medical clinics to enhance the occupants' protection.

Other protection includes a fire alarm to notify the occupants of an emergency or a fire sprinkler system to control or extinguish a fire.

Congregate care facilities provide daily services to aging populations or those with declining health or cognition issues. In addition, depending on their mobility or mental conditions, they may need assistance evacuating the building. Special locking arrangements for areas where patients with dementia or Alzheimer's are living are allowed to prevent them from leaving the facility. These locations also require additional fire protection systems.

Staff should have developed plans for moving the occupants or patients during an emergency to meet fire requirements, and this should be confirmed during the annual inspection.

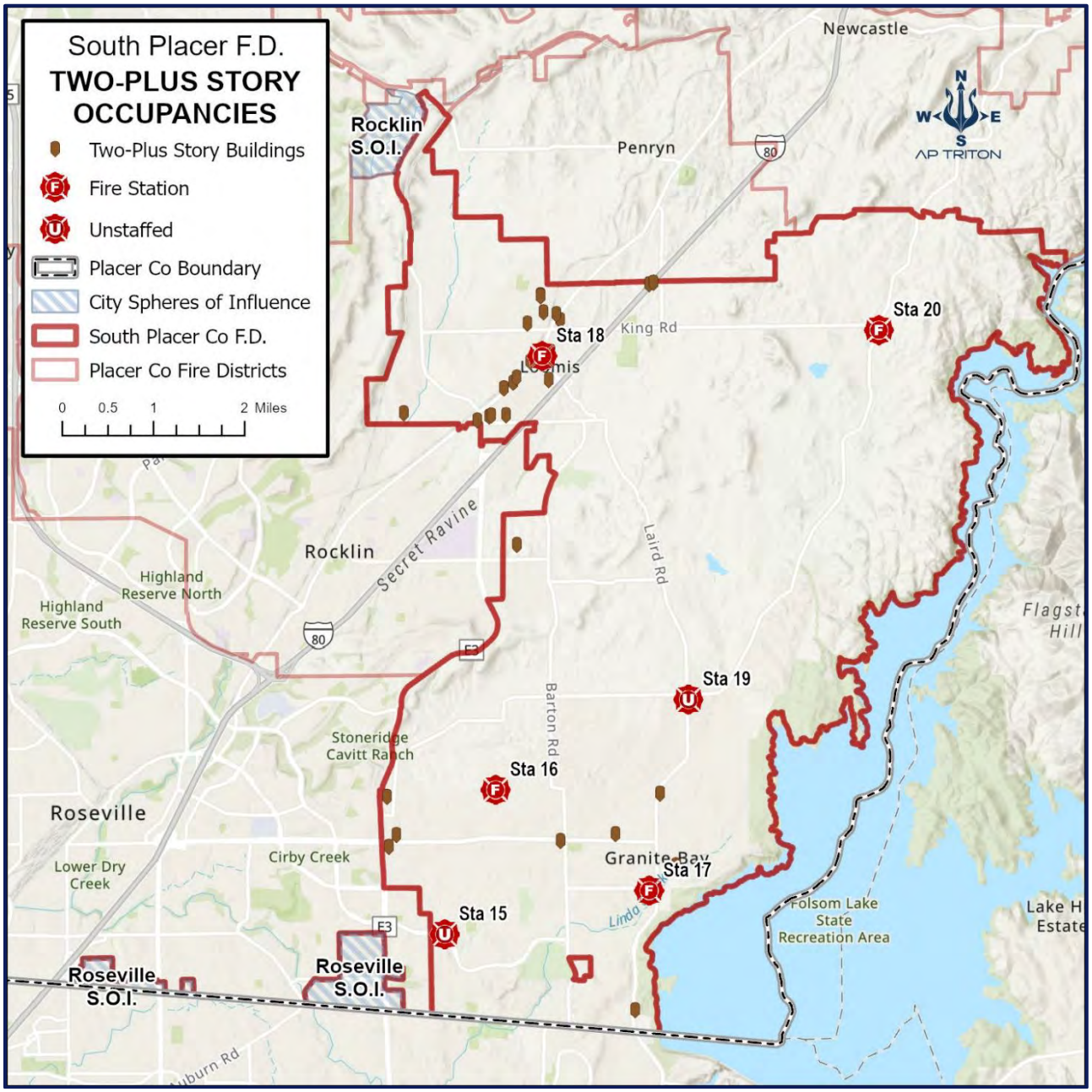
Figure 138: Medical & Congregate Care Occupancies



Buildings Two or More Stories in Height

Structures two or more stories in height may require the use of ladders and an aerial apparatus with an elevated master stream. A ladder truck may be necessary to access these higher buildings' upper floors or roofs, since most ground ladders cannot reach these heights. The Insurance Services Office reviews the coverage area for a ladder truck for all buildings within 2.5 miles. The following figure provides the locations of buildings within SPFD's service area more than two stories in height.

Figure 139: SPFD Buildings Two Stories or More



Residential Multifamily Occupancies

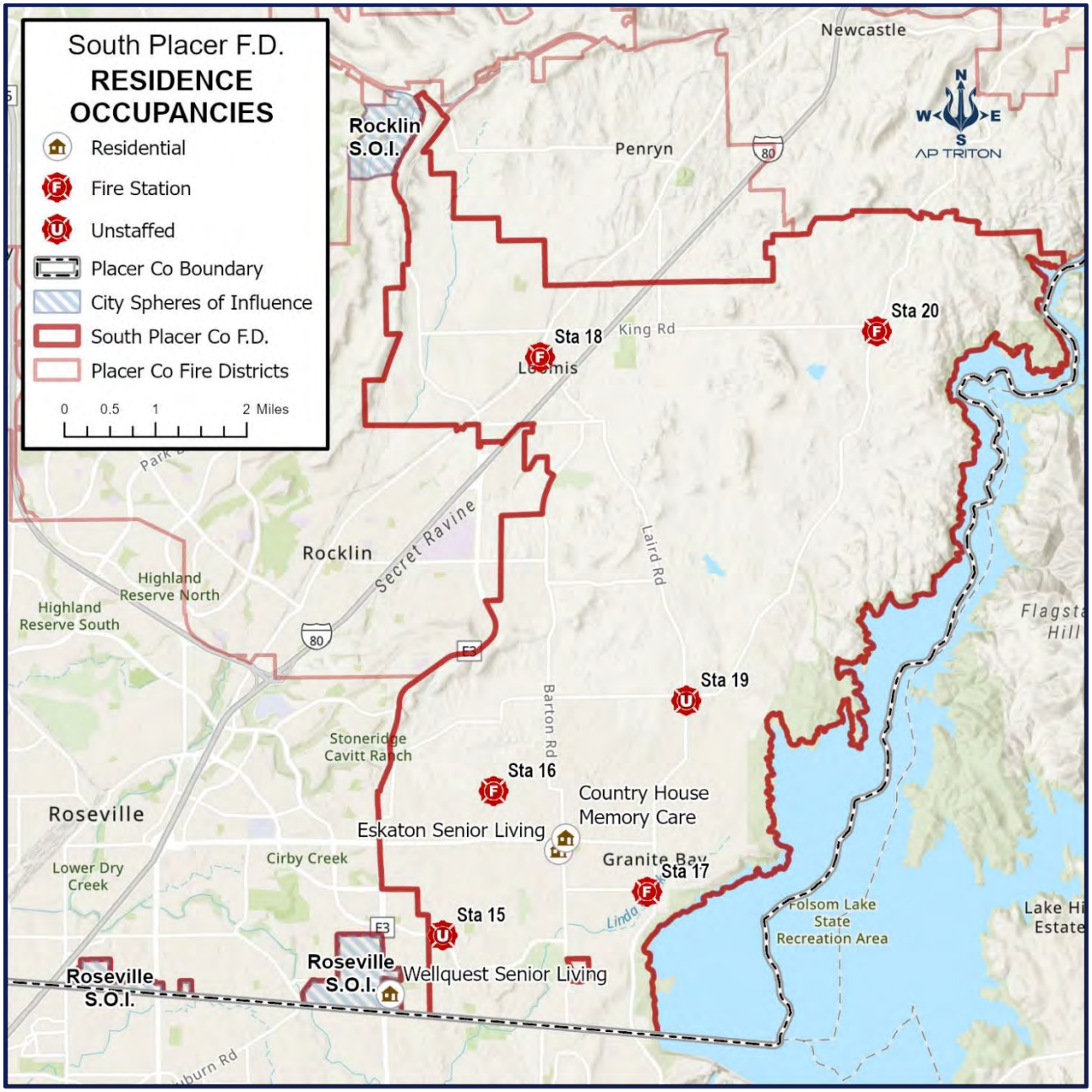
Residential properties create a higher risk for occupants than most commercial buildings. Most fire fatalities occur in these locations and represent numerous risks, such as occupants with accessibility issues or structures built without fire sprinkler protection. These common areas must be inspected annually to ensure fire code compliance.

Although multifamily housing has fewer fires caused by electrical or heating malfunctions, the risk of cooking fires is twice the rate of other building fires. Updated building and fire codes now require these buildings to have a residential fire sprinkler system installed and interconnected smoke alarms in all bedrooms, hallways, and floors. These fire protection systems are designed to provide enough time for the occupants to evacuate the building.

The attics in many residential fire sprinkler installations are unprotected, creating problems when a fire reaches this location. In addition, fires can spread from exterior areas, such as when landscaping materials ignite and travel to the roof or attic. It should be noted that several multi-family residential projects are being proposed for development. This is important as it will increase the density and population in South Placer over the next several years.

As is known, with growth, the call volume will increase. Therefore, it will be essential for SPFD to monitor the development and the potential increase in call volume over the next several years. The best way to monitor this is to compare the current volume per 1,000 population. This will allow the department to ensure the call volume isn't increasing faster than the population. The following figure shows the current location for residential occupancies and senior care facilities.

Figure 140: Multifamily Occupancies



Critical Infrastructure Protected

Critical infrastructure and key resources (CIKR) explain what is crucial for a community to function in a modern economy. Critical infrastructure is defined as a sector "whose assets, systems and networks, whether physical or virtual, are considered so vital to the United States that their incapacitation or destruction would have a debilitating effect on security, national economic security, national public health or safety, or any combination thereof." There are sixteen defined Critical Infrastructure Sectors (CIS):

- Chemical Sector
- Financial Services Sector
- Commercial Facilities Sector
- Food & Agriculture Sector
- Communications Sector
- Government Facilities Sector
- Critical Manufacturing Sector
- Information Technology Sector
- Dams Sector
- Nuclear Reactors, Materials & Waste Sector
- Defense Industrial Base Sector
- Transportation Systems Sector
- Emergency Services Sector
- Healthcare and Public Health Sector
- Water & Wastewater Systems Sector
- Energy Sector

Only some of these sectors are represented in the SPFD service area. However, each community must determine critical infrastructure locations and develop pre-incident plans for responding personnel.

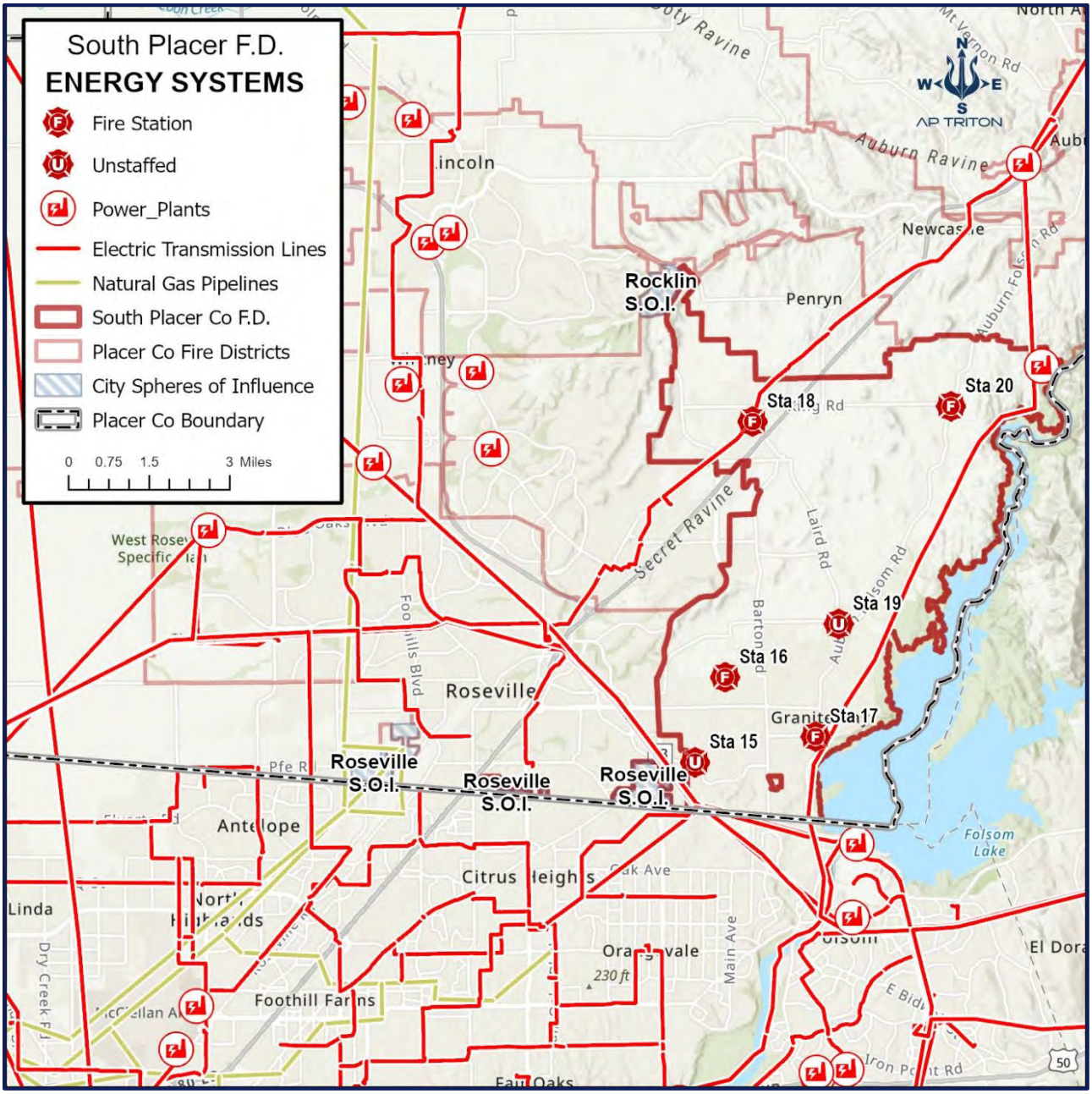
Other buildings to consider as target hazards include occupancies with a potential for a significant loss of life, such as places of public assembly, schools and childcare centers, medical and residential care facilities, and multifamily dwellings. Other considerations include buildings with substantial value to the community—economic loss, replacement cost, or historical significance—that, if damaged or destroyed, would have a significant negative impact. Responses to target hazards may require numerous SPFD resources and mutual aid during an incident.

Energy

The use of electrical power is required for many day-to-day activities. The need for electricity requires lines throughout the district and can be broken down into a distribution network. Within the district's response area, multiple high voltage supply lines transverse SPFD and mainly run along Folsom Lake with a maximum of 115 kV. There is another high-voltage line between Folsom Dam and Roseville and Rocklin, close to the northern part of the SPFD response area.

Western Electricity Coordinating Council runs this line and is a maximum of 230 kV. No significant natural gas transmission lines pass through the district. Pacific Gas & Electric Company operates the high voltage line for electrical services and is the natural gas service for the SPFD response area.

Figure 141: Electrical Transmission Lines



Transportation Network

Most of the transportation network consists of collector streets fed by residential roads throughout SPFD. These roads provide interconnectivity for emergency responders, but many cul-de-sacs could impact response if the roads are impassable during an evacuation. In addition, these roads may be narrow in some areas and should be identified to prevent a slow response.

It is unknown how many of these are trucks or trucks transporting hazardous materials. The most severe traffic accidents in the area have been on St Route 65 and Interstate 80.

Figure 142: Traffic Areas

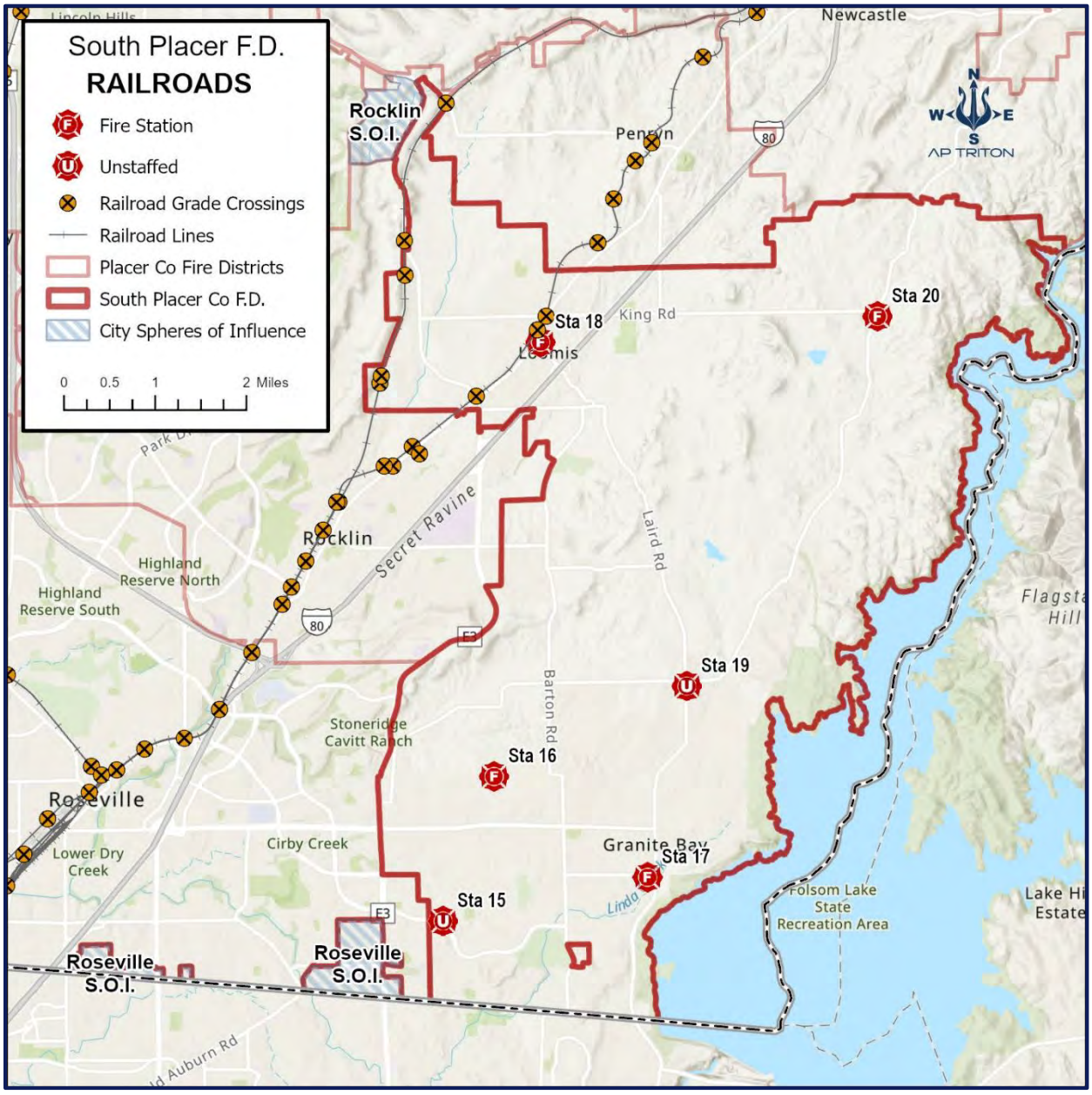
Location	Average Annual Daily Traffic–Vehicles	Average Annual Daily Traffic–Trucks
Junction Route 65 and Interstate 80	14,2000	8,776
Atlantic Street and Interstate 80	11,4000	6,566
Riverside Drive and Interstate 80	198,000	9,148
Sierra College Blvd. and Interstate 80	87,000	6,943

Rail

The Union Pacific Railroad operates the mainline that travels through SPFD's response area. There are numerous crossings within the service area. The response area has approximately 15–20 trains passing through daily. There is also an Amtrack line close to the SPFD response area and uses the UP line during certain times. The trains travel from Sacramento to Reno each week, carrying everything from cargo to passengers.

The following figure shows the various rail lines running through the SPFD service area.

Figure 143: SPFD Railroads

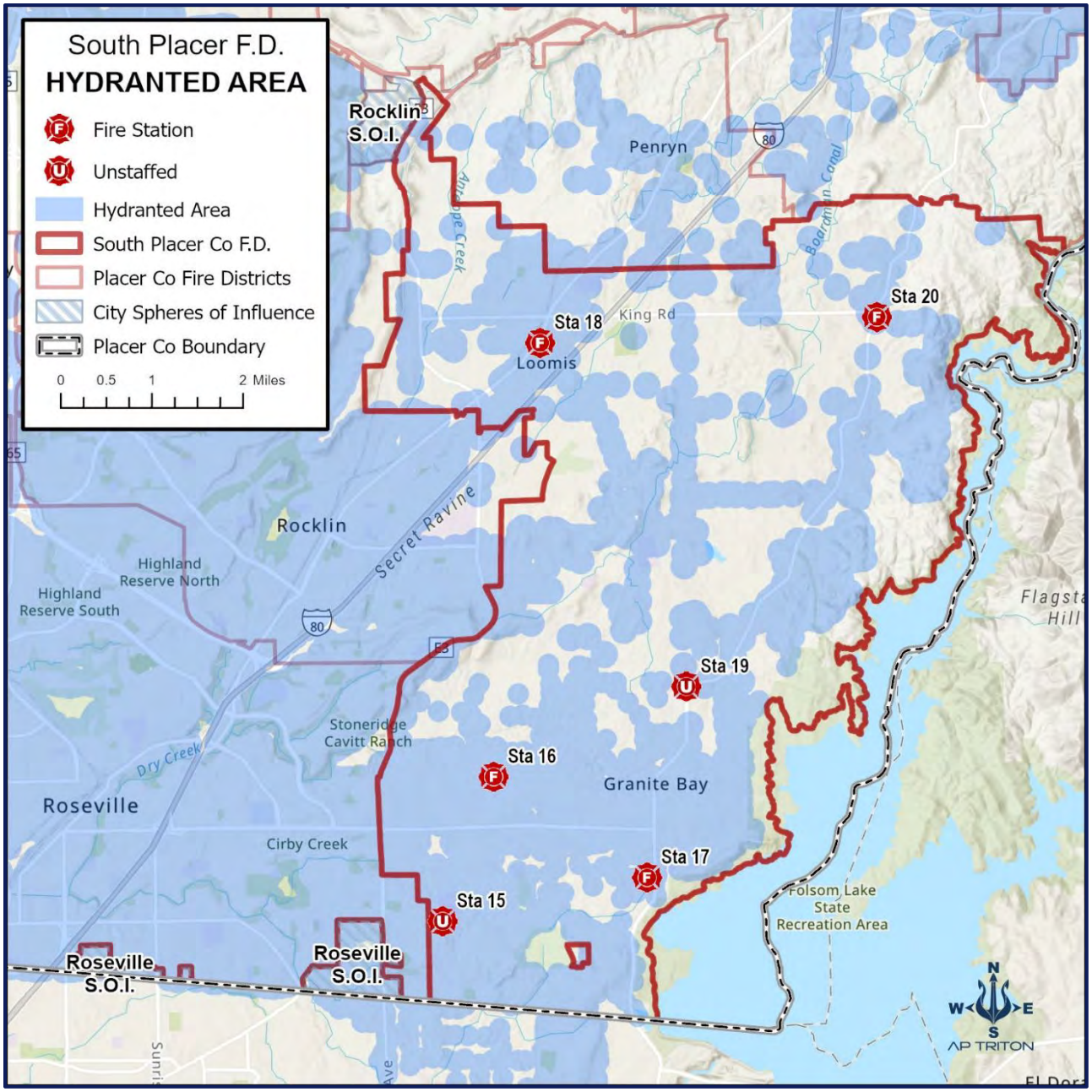


Water Supply

Without an adequate water distribution and storage system consisting of water storage, it will be challenging, at best, to control and extinguish fires. To alleviate this problem, a system of well-distributed hydrants and properly sized water mains are necessary to provide sufficient water for fire ground use.

Two water companies provide water for fire protection services for SPFD. The San Juan Water District provides water for the Granite Bay area boundaries, and the Town of Loomis and other areas are supplied with water from the Placer County Water Agency. Each water company repairs hydrants on its water systems.

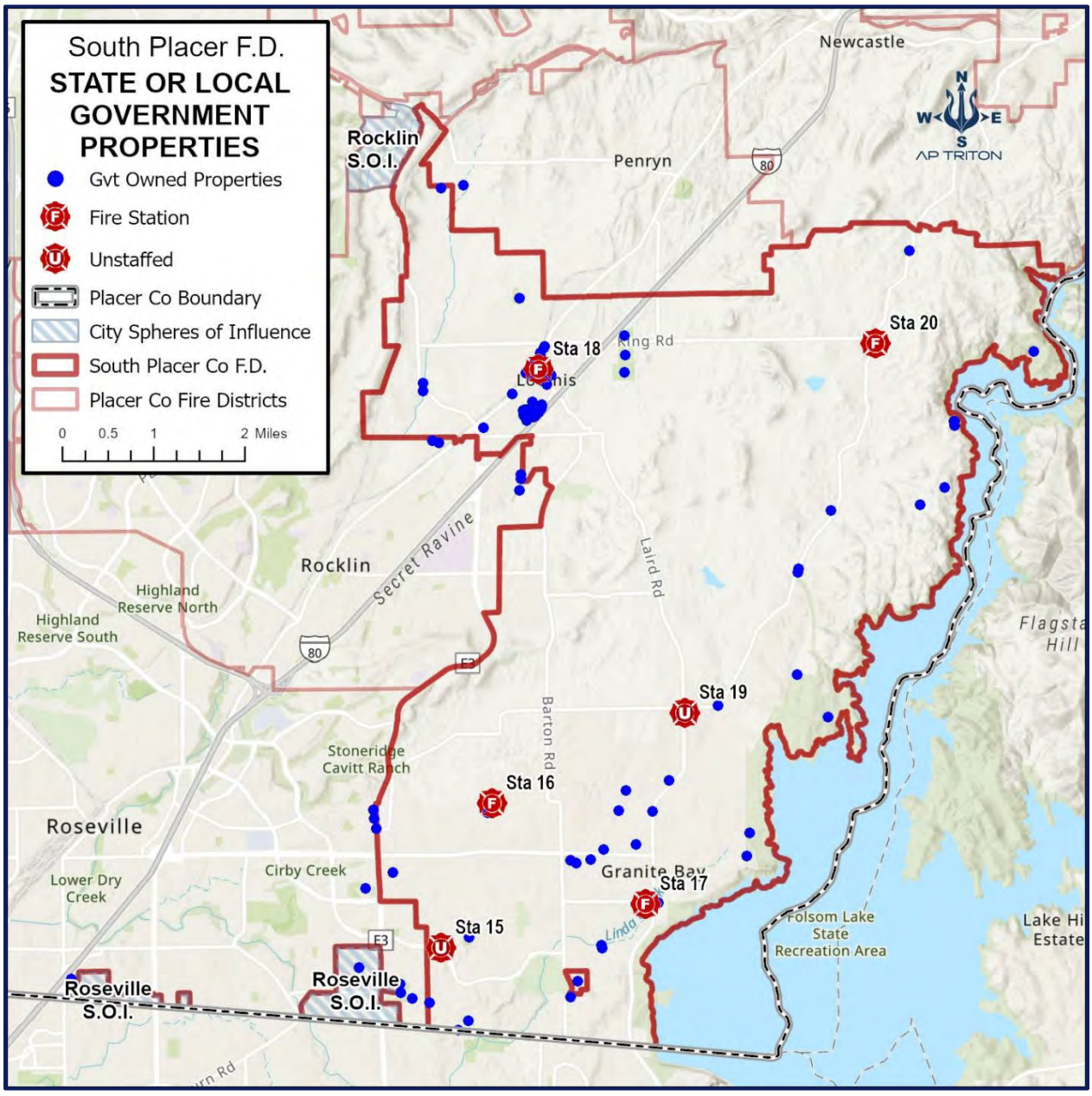
Figure 144: Hydrant Map



Governmental Facilities

Governmental buildings and parcels are typically located close to their community to provide access and properly manage public services. The buildings are considered a part of the critical infrastructure necessary to provide services by local, state, or Federal agencies. These facilities are necessary for essential public services to be delivered effectively and efficiently. These locations may also be seen as a target of opportunity for an act of terrorism. The next figure provides the locations of government-owned parcels in SPFD's service area.

Figure 145: Government-Owned Parcels



Risk Classification

Risk Assessment Methodology

Developing a risk score to determine risks in a community is necessary to provide an organization with a method for creating response protocols for an incident. The Three-Axis Heron model establishes a score by reviewing probability, consequence, and impact factors and assigning a score between 2–8 in each category.[24] A description of the incident types for each risk is located in an appendix of this report.

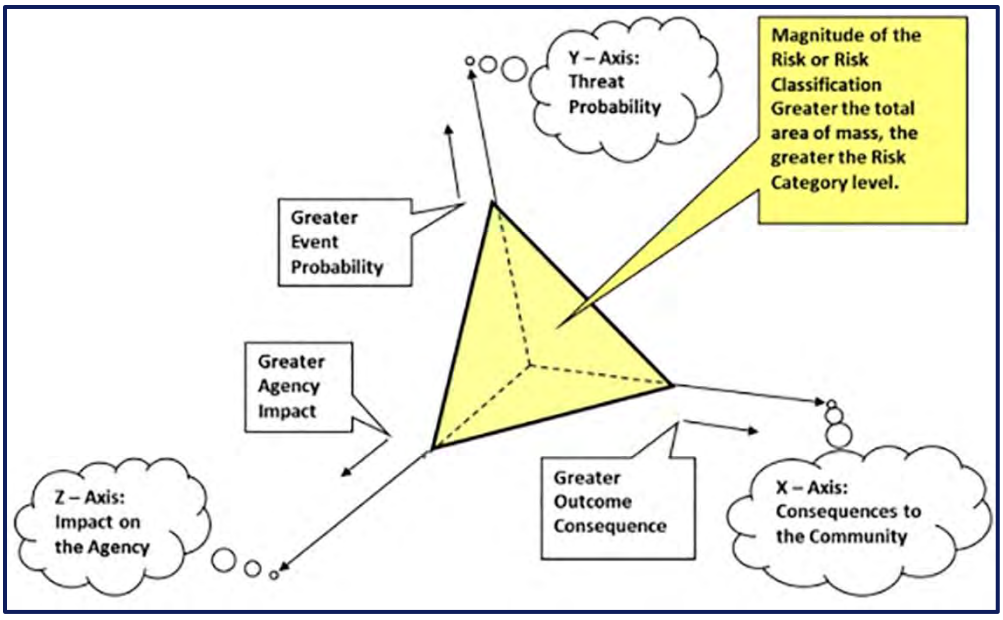
Use of the Three-Axis Heron Formula includes the following equation:

$$\text{Risk} = \sqrt{\frac{(P * C)^2}{2} + \frac{(C * I)^2}{2} + \frac{(I * P)^2}{2}}$$

The risk is graphically illustrated through a three-axis model as follows:

- P = Probability (Y-Axis)
- C = Consequences (X-Axis)
- I = Impact (Z-Axis)

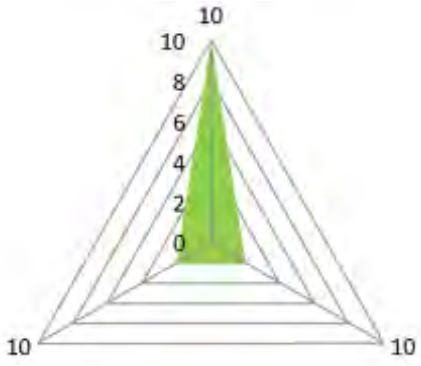
Figure 146: Three-Axis Risk Classification Process



For example, a 31-B call (BLS response low) can be used. The likelihood (probability) of this occurring would be high (it occurs multiple times every day), a factor of 10. The consequence would be minor (affects one person) by a factor of 2. The impact on the district's ability to respond would be minor (one crew) by a factor of 2. Using the calculator, here is what it looks like: Heron's formula value is 20.2. This equates to a "Low Risk" incident.

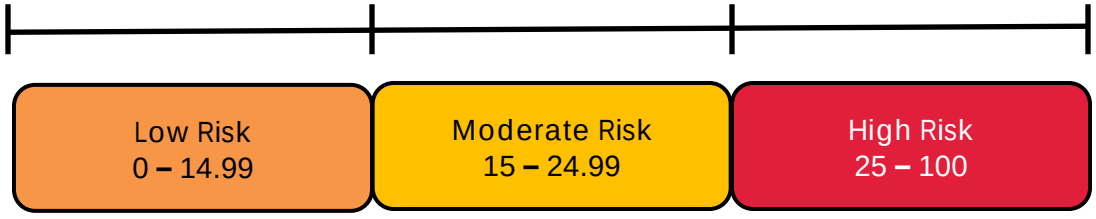
Figure 147: Risk Score

Probability = 10 Consequence = 2 Impact on District = 2



Different criteria were evaluated to create a numeric value for each axis. The three-axis scoring methodology uses the square root of each risk element to determine the "surface area." The Magnitude of the Risk or Risk Classification is based on the greater the total surface area of mass, the greater the surface area of the Risk Category level. The scores from this method indicate the risk level associated with certain incident response types. The scores are sorted into three risk classifications: Low, Moderate, and High. The following figure demonstrates the score range for each type.

Figure 148: Three-Axis Scoring Ranges



Probability

Probability is the likelihood of an incident occurring in the community over time. This axis reflects the probability of a particular type of incident occurring (contributing to the risk level). Many factors are considered, such as time of day, location, hazard present, the season of the year, building construction and maintenance, demographic factors and more. It can range from a rare event to one that occurs often.

Figure 149: Probability or Likelihood Occurrence

Score	Category	Probability or Likelihood
2	Minor	Unlikely: < 0.02% of total call volume. Expected to occur rarely
4	Low	Possible: 0.02%–0.07% of total call volume. Occurs rarely
6	Moderate	Probable: 0.07&–0.3% of total call volume. Occurs monthly
8	High	Likely: 0.3%–2% of total call volume. Expected to occur multiple times weekly
10	Extreme	Frequent: > 2% of total call volume. Expected to occur one or more times daily

Consequence

The consequence of an incident can vary from minor casualties to severe impacts that may destroy historical or major facilities in the community and create a large loss of employment or life.

Figure 150: Consequence to the Community

Score	Category	Consequence to the Community
2	Minor	1–2 people affected (injuries/deaths). < $10,000 loss
4	Low	3–4 people affected (injuries/deaths). < $500,000 loss
6	Moderate	5–50 people affected (injuries/deaths). $500,000-$1,000,000 loss
8	High	51–100 people affected (injuries/deaths). $1,000,000–$5,000,000
10	Extreme	> 100 people affected (injuries/deaths). > $5,000,000 loss

Impact

The third factor in determining the risk is the fire district's impact and the critical tasking needed to control or mitigate an incident. This includes the number of emergency responders and apparatus available internally or from external agencies. It measures the district's ability to respond to a given risk or incident, while providing service to the remaining parts of the district.

Figure 151: Impact on Operational Forces

Score	Category	Impact on Operational Forces
2	Minor	≥ 90% Remaining Apparatus/Crews
4	Low	≥ 75% Remaining Apparatus/Crews
6	Moderate	≥ 50% Remaining Apparatus/Crews
8	High	≥ 25% Remaining Apparatus/Crews
10	Extreme	< 25% Remaining Apparatus/Crews

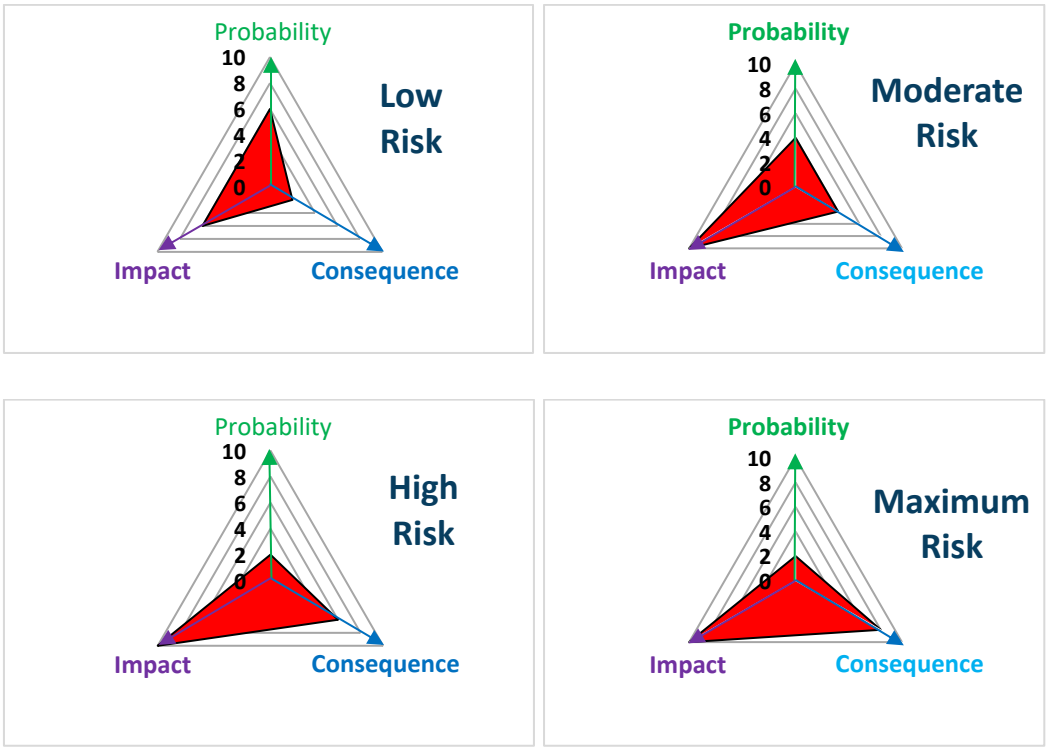
Fire Response

SPFD is the primary provider of prevention or mitigation of fire-related incidents. These range from low-risk incidents such as a vehicle fire, to a maximum risk for a fire involving a school. Fire risks for a vehicle fire are considered low compared to a maximum risk for a school that houses students. This scoring is applied to four different categories of fire incidents in SPFD's district to provide staffing needs to meet critical tasks on the fire ground. The following figures provide the risk score and classifications assigned to each type of fire risk in SPFD.

Figure 152: Fire Response Risk Assessment

Description	Low			Moderate			High			Maximum		
Risk Score	P	C	I	P	C	I	P	C	I	P	C	I
	6	2	6	4	4	10	2	6	10	2	8	10
Score Assigned:	28.14			41.57			44.09			59.40		

Figure 153: Fire Risk Classifications



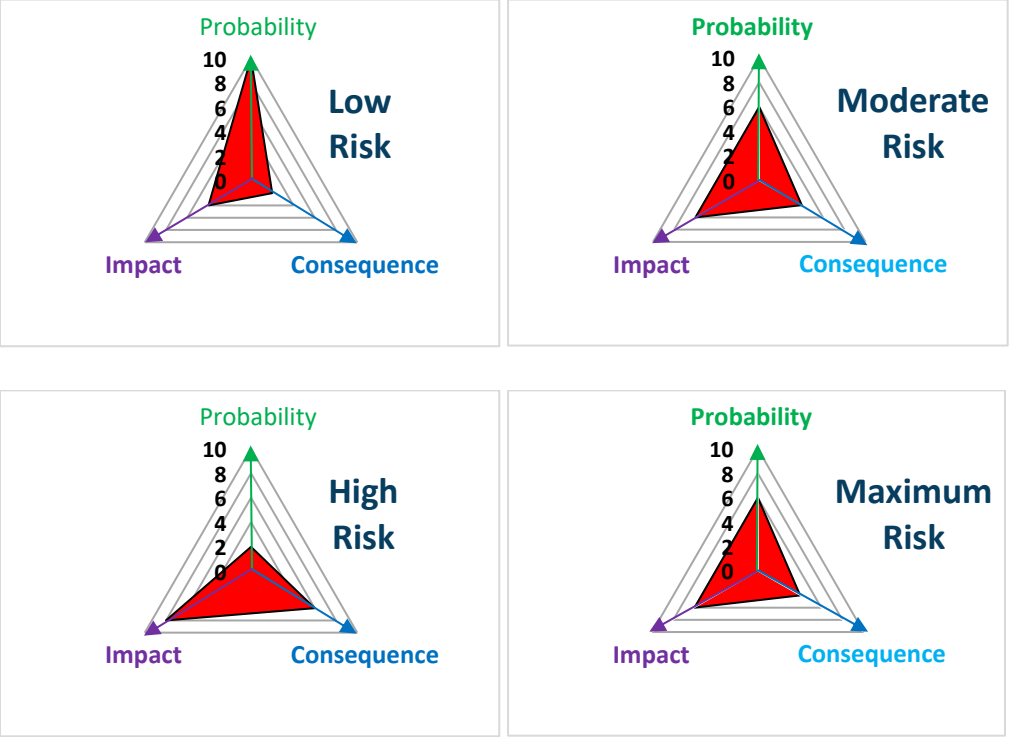
Emergency Medical Services

SPFD provides advanced life support emergency medical care in its service area, but does not offer transport services. Low-risk incidents range from a medical assist to a maximum for an active shooter. The following figures provide the risk score and classifications assigned to each type of EMS risk in SPFD.

Figure 154: EMS Response Risk Assessment

Description	Low			Moderate			High			Maximum		
Risk Score	P	C	I	P	C	I	P	C	I	P	C	I
	10	2	4	6	4	6	2	6	8	2	8	10
Score Assigned:	32.12			34.99			36.80			59.40		

Figure 155: EMS Risk Classifications



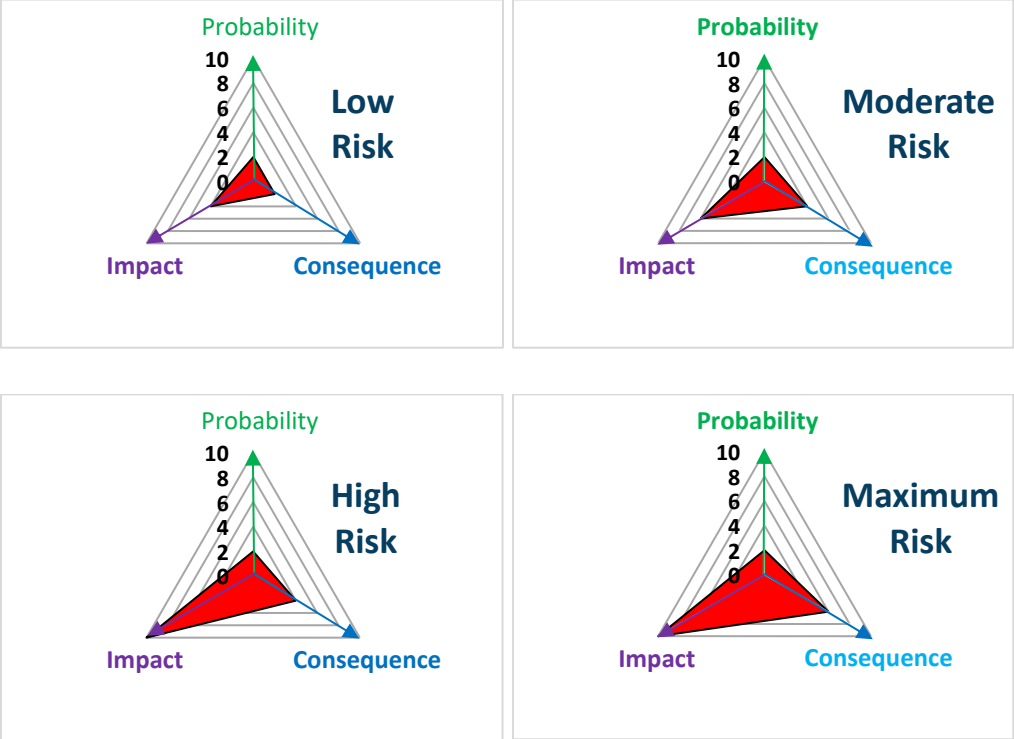
Technical Rescue

Rescue services can vary from a low-risk incident, such as accessing a locked vehicle with a child inside, to a confined space incident (maximum) that potentially requires many personnel to mitigate the incident. The following figures provide the risk score and classifications assigned to each type of technical rescue risk in SPFD.

Figure 156: Technical Rescue Response Risk Assessment

Description	Low			Moderate			High			Maximum		
Risk Score	P	C	I	P	C	I	P	C	I	P	C	I
	2	2	4	2	4	6	2	4	10	2	6	10
Score Assigned:	8.49			19.80			32.10			45.52		

Figure 157: Technical Rescue Risk Classification



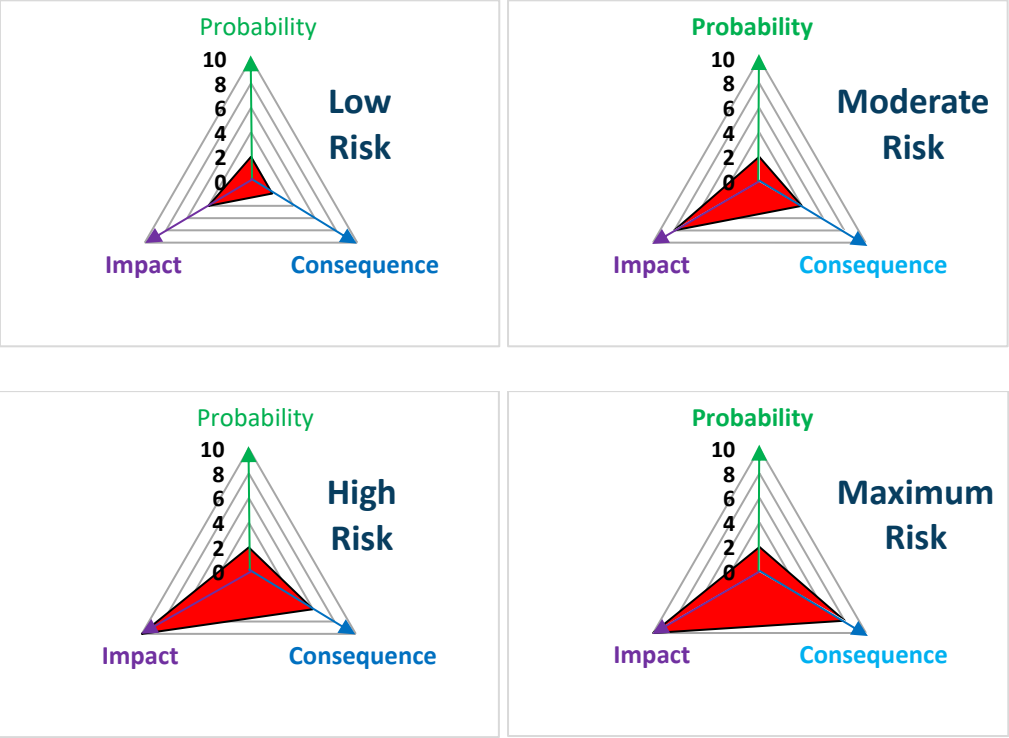
Hazardous Materials

Hazardous materials responses can vary from low-risk odor investigations to the maximum risk for a fuel tanker fire in higher-population areas. Most of these incidents can be managed by SPFD, but higher risks may need assistance from outside resources. The following figures provide the risk score and classifications assigned to each type of hazardous materials risk in SPFD.

Figure 158: Hazardous Materials Response Risk Assessment

Description	Low			Moderate			High			Maximum		
Risk Score	P	C	I	P	C	I	P	C	I	P	C	I
	2	2	4	2	4	6	2	4	10	2	6	10
Score Assigned:	8.49			19.80			32.10			45.52		

Figure 159: Hazardous Materials Risk Classifications



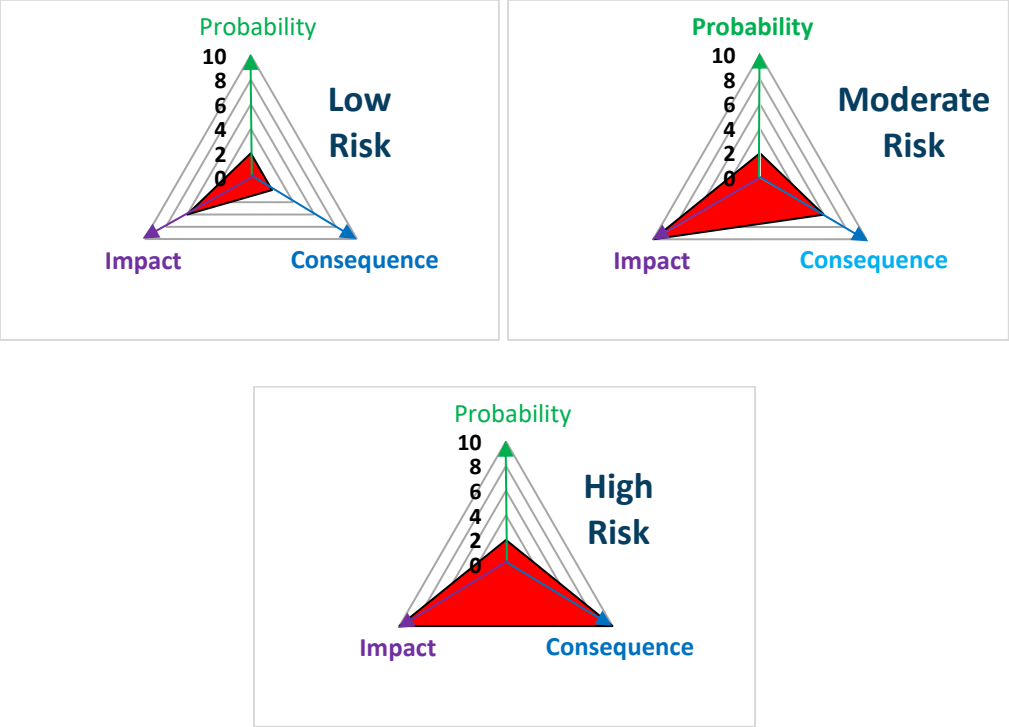
Wildland Fires

The types of wildland fire risks vary from small grass fires to large forest fires requiring many internal and external resources. The following figures provide the risk score and classifications assigned to each type of wildland fire risk in SPFD.

Figure 160: Wildland Fire Response Risk Assessment

Description	Low			Moderate			Maximum		
Risk Score	P	C	I	P	C	I	P	C	I
	2	2	6	2	6	10	2	10	10
Score Assigned:	12.33			45.52			73.48		

Figure 161: Wildland Response Risk Classification



Comparison of Fire Risk in Other Communities

Fire Loss

In 2020, fire districts responded to more than 1.4 million incidents in the United States that caused 3,500 civilian fire fatalities and over 15,200 civilian fire injuries. Property damage was estimated at more than $21.9 billion. NFPA reported that 64% of the fire deaths occurred in one or two-family dwellings. In addition, the report stated that $4.2 billion of property fire losses occurred in California from wildland-urban interface incidents.

Figure 162: SPFD Fires per 1,000 Population

Year	SPFD Fires per 1,000 Population	U.S. Fires per 1,000 Population[25]
2018	—	4.1
2019	1.4	4.0
2020	1.4	4.3
2021	1.4	N/A*

*Data not available

Insurance Services Office

The Insurance Services Office, Inc. (ISO©) is an independent organization that collects and analyzes data from fire districts in communities throughout the United States to determine rates for fire insurance. According to their report, the ISO's Public Protection Classification program, or PPC, "is a proven and reliable predictor of future fire losses." Therefore, commercial property insurance rates are expected to be lower in areas with a lower (better) ISO PPC Class rating.

The ISO Fire Suppression Rating Schedule (FSRS) measures four primary elements of a community's fire protection system: *Emergency Communications* (max 10 points), *Fire Department* (max 50 points), *Water Supply* (max 40 points), and *Community Risk Reduction* (max 5.5 points), for a possible maximum of 105.5 points. ISO then assigns a grade using a scale of 1 to 10, with Class 1 representing the highest degree of fire protection and Class 10 designating a fire suppression program that does not meet ISO's minimum criteria.

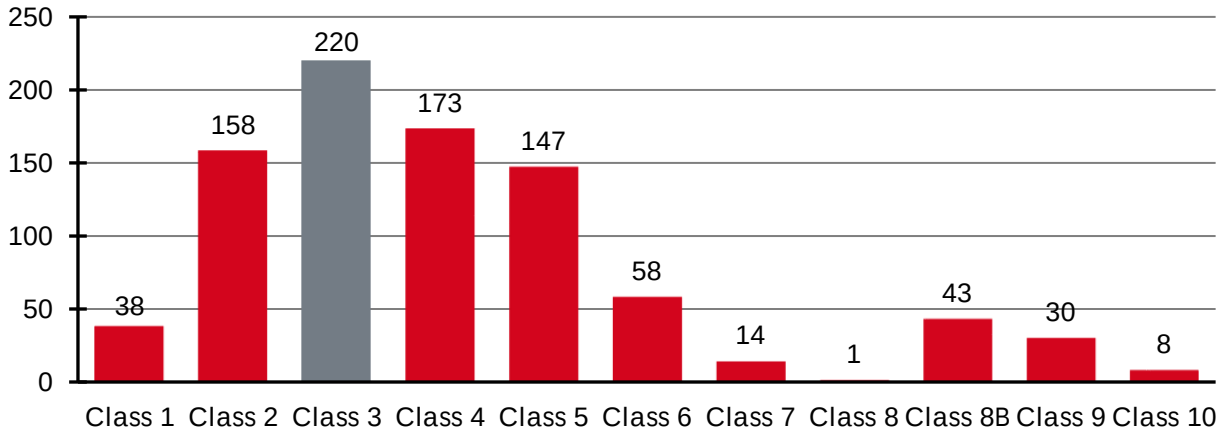
In 2018, the SPFD received a Class 3/3Y rating from ISO, one of 220 in California. However, as noted in the current Public Protection Classification Summary Report, several areas for improvement exist.

Credit for Ladder service only received 1.58 credits out of 4 under the Fire Department and a 3.98 for deployment analysis out of 10. Company personnel received 5.13 out of 15. Under the water supply, the credit for inspection and testing was 3.16 out of 7. Each area should continue to receive attention to increase the credits available to improve the current classification. The following figure shows the credits earned and available for SPFD in the most recent inspection.

Figure 163: ISO Earned & Available Credits

ISO Feature	Earned Credit	Available Credit
Community Risk Reduction	3.78	5
Emergency Communications	8.79	10
Fire Department	33.51	50
Water Supply	30.05	40
Divergence	-1.62	—
Total:	74.51	105.5

Figure 164: California ISO Classification



Section IV:
FINDINGS & RECOMMENDATIONS

Findings

Management Components

- The Fire Chief and administrative staff provide numerous opportunities for internal communication and open dialogue.
- The SPFD does not conduct community surveys, or regular customer satisfaction surveys.
- The SPFD does not currently produce a community newsletter.
- The district is in the process of developing a formalized policy and procedure manual, however, Standard Operating Guidelines (SOGs) have not been completed.

Planning for Fire & EMS

- The SPFD does not have a documented succession plan.

Emergency Medical Services

- A Division Chief provides oversight of EMS logistics and is supported by a staff engineer who uses Microsoft Excel for inventory control measures.
- In 2022, SPFD introduced an electronic narcotic inventory control and tracking system.
- SPFD paramedics are trained in the "Handtevy" method in calculating pediatric drug dosages.
- PCSO does not currently utilize MPDS. In this case, dispatchers do not make a response type determination; they do not differentiate between response level, capability, clinically indicated response resource, priorities, or rationale.
- In a fragmented system, AMR provides ALS response and transportation services to the Town of Loomis, and SPFD provides ALS response and transportation services to Granite Bay.
- A significant disparity was discovered with the execution of the Automatic Aid agreement. In 2022, SPFD provided aid in the Town of Loomis 473 times compared to AMR provided aid 36 times.
- SPFD experienced a 9% increase in call volume in 2021 from 2022.

Training & CME

- The combined annual education and training budget is $35,000.
- Office space and equipment at the training facility are inadequate—limited to one classroom and a portable building.
- With the assistance of a goal steward team, SPFD identifies annual training goals and objectives.
  - SPFD training facilities lack adequate office and classroom space.
  - SPFD training tower is a three-story, standalone masonry construction but lacks the ability for live fire training.
  - SPFD lacks adequate, up-to-date EMS supplies and equipment dedicated to the training center.
  - SPFD achieves a wide variety of training competencies internally. The members of SPFD are appropriately CICCS (California Incident Command Certification System) qualified.
  - SPFD training officer works closely with internal subject matter experts to achieve a minimum of 240 training hours annually for each member.
  - An annual Training Plan will be available to all personnel through the district's Intranet site.
  - The district does not have a well-defined special operations program, including hazardous materials response and technical rescue.
  - The district has not established a mentoring program or a succession plan.

Service Delivery & Performance

- SPFD Operates a staffing pattern of two, three, or four personnel per company per staffed fire station.
- Though SPFD monitors turnout time and response time, neither is tied to an adopted standard or performance objectives.
- Service demand and system analysis for 2020 and 2021 may be driven by the COVID-19 pandemic and associated societal measures taken to prevent its spread. The research indicated a moderate change in the utilization of emergency services. It is supposed that many people were reluctant to call for medical aid, leave their homes, or travel during the pandemic. As a result, incident volumes for these years may not be what agencies might expect in less restrictive times. For this reason, further evaluation is warranted as non-pandemic data becomes available.

- The incident volume indicated a minor dip during 2020, with a rebound in 2021 to levels above the pre-COVID-19 pandemic years. However, the number of responses may change significantly as the community continues to recover.
- SPFD appears to have a slight seasonality with incident volume with the more active months during the summer.
  - Approximately 70% of all incidents happen between the hours of 8:00 AM and 8:00 PM. This appears to be consistent each day.
  - The center of the district is underserved and it will be difficult for SPFD personnel to arrive within an actionable amount of time during a true emergency.
  - Due to several changes in deployment model during the study period, unit incident volumes are difficult to determine.
  - The incident volume is within manageable ranges for the units in service.
  - Call processing is completed within 1 minute, 33 seconds or faster 90% of the time.
  - Turnout time is completed in 2 minutes, 6 seconds or faster 90% of the time.
  - First due apparatus travel time is 6 minutes, 59 seconds or faster 90% of the time.
  - First due total response time is 9 minutes, 16 seconds or faster 90% of the time.
  - The travel time to the hospital is 20 minutes, 20 seconds or faster 90% of the time.
  - The wait time at hospitals for ambulance crews is 1 hour, 35 minutes or faster 90% of the time.
  - With the data available, the SPFD ambulance responds into the Town of Loomis and surrounding private ambulance service area for almost one-third of the medical incidents in the town.
  - EMS transports dropped in 2020 and have returned to pre-2020 levels in 2022.

Life Safety

- The district's current weed abatement program is only initiated upon receiving a citizen complaint.
- The district previously had a pre-fire incident program; however, it is currently being updated or maintained.
- Since 2021, new construction projects in the district have seen a significant increase, exceeding 500%.
- The district's Community Wildfire Protection Plan (CWPP) was last completed in 2011 by the County, and it did not cover all areas within the SPFD response area.

- The district lacks a community risk reduction plan and does not have defined program outcome goals in place.
- The district's prevention staffing consists of the Fire Marshal and an administrative assistant/inspector, who serves both the EMS Division and the Prevention Division.

Dispatch/Communications

- Placer County Dispatch is operated by the County of Placer and the Placer County Sheriff's Office (PCSO). South Placer FPD has limited input and operational control of dispatch procedures.
- Call volumes for the fire agencies dispatched by Placer Dispatch show South Placer as the largest fire agency. Except for 2020, there has been a steady increase in dispatched event volume.
- Placer County Dispatch uses Priority Dispatch's EMD software. QA audits are completed on 15% of the calls.
- Between 1400 and 1500 hours, the call answer compliance drops below 90%. The monthly average shows compliance well above the 90% mark.
- Placer County Dispatch was down ten positions as of the 2nd quarter of 2023. There is a staffing crisis in dispatch centers throughout California and the United States.
- The dispatch center's operational policies and training manual do not have specific topics related to fire dispatch.
- The HVAC system has economizers that can be closed to shut off outside air and recirculate inside air, but it must be done by building maintenance personnel.
  - Dispatch does not have a centralized backup dispatch center. They can dispatch from two locations, one on the west slope and one in the Tahoe Basin.
  - There are five different CAD systems in the dispatch centers in Placer County, and they need a shared database or connectivity.
  - No agency has implemented Automatic Vehicle Location (AVL) systems on their vehicles. Dispatch recommendations are based on station response order.

Finance

- The South Placer Fire District is funded by property taxes, a $70 per parcel special tax applied to Division 2 parcels and a special benefit assessment averaging $384 per parcel applied to Division 1.
- The Division 2 special tax was enacted in 1981 but did not include a provision allowing for the growth of the parcel tax as inflation increased costs to provide services.
- A 2022 effort to provide such a provision was defeated by the voters resulting in the closure of Stations 19 and 15, reduction of 6 FTE positions, and the removal of the truck company from service.
- Annual payments on the CAL PERS unfunded actuarial liability are forecast at $930,000 annually or approximately 6.25% of the total revenue of the district.
- A formal capital replacement plan for the district could not be located.

Recommended Short-Term Strategies

Based on the analysis and considering community expectations, recommendations are offered to assist the district with long-range planning and improve the delivery of fire and emergency services to the community. Triton does not expect that SPFD will implement all recommendations in the short term. Some may wait until economic conditions allow their implementation. However, all the recommendations offered chart a course to improved capability and service. The recommendations are described as goals and should be implemented as funding allows. Each will improve SPFD's ability to provide effective service to the community.

The short-term strategies listed in this report are a compilation of the recommendations aimed at improving the current conditions and levels of protection over the next one to two years.

Recommendation A-1: Complete a 3–5-Year Strategic Plan.

Description: SPFD does not have a 3–5-year strategic plan. This guiding document will help identify immediate and longer-term strategies and related costs to address any challenges faced by the department. This document can also help maintain the consistency of improvement during staffing changes.

Outcomes: An adopted, published, and managed strategic plan.

Estimated Cost: Costs will vary depending on the approach adopted. If a consultant is used the cost could be upwards of $25,000.

Recommendation A-2: Develop and Distribute a Community Newsletter.

Description: The SPFD should develop and distribute a regularly recurring newsletter to the community. A newsletter keeps the community informed of the things going on in the organization like new hires, promotions, district programs, and specialized equipment. A newsletter can provide the times and dates of important upcoming events, as well as timely, and topical public information related to fire safety, extreme weather preparedness, fall prevention, and any number of other relevant topics.

Outcome: Greater public engagement, and a deeper understanding of the SPFD and the role it plays in the community.

Estimated Cost: Costs will vary depending on the frequency and method of newsletter distribution. At a minimum, staff time will be required. Additional costs may be incurred for any outside or third-party services.

Recommendation A-3: Develop a Customer Satisfaction Survey Process.

Description: The SPFD should develop and process and method to periodically survey a sample of customers about their experience and satisfaction with the service provided by the SPFD.

Outcome: Customer satisfaction surveys are an excellent tool and would give the SPFD and its governing body a deeper understanding of the community, and the effectiveness of the organization in meeting their needs. Satisfaction surveys can help build a rapport with the community and provide the organization with insight into what is working, where corrective action may be necessary, and even help discover fresh new ideas to better meet the customer's needs.

Estimated Cost: Costs will vary depending on the frequency and method of survey distribution. At a minimum, staff time will be required. Additional costs may be incurred for any outside or third-party services.

Recommendation A-4: Review Incident Data Annually.

Description: The potentially distorted data during the COVID-19 pandemic years, trends, and predicted demand may be flawed. It is essential to understand the full effect of the pandemic on service delivery, and that will only be possible with continued analysis. Evaluating demand, service types, and other information annually until the pandemic-specific effects are fully accounted for and understood is critical. Until that effect is fully understood, the analytics created using the pandemic-era data have the potential to be misleading.

Outcomes: Creating an understanding of the pandemic era effect on, and creating appropriate adjustments to, service delivery and performance analytics.

Estimated Cost: Costs will vary depending on the approach adopted. At a minimum, staff time will be required. Additional costs may include training, increased staff levels, compensation, equipment, or fees paid to outside vendors.

Recommendation A-5: Consider purchasing software to aid in the logistical support of EMS supplies.

Description: Currently, a Fire Engineer uses Microsoft Excel to track equipment, medication, and various EMS supplies and equipment.

Outcome: Technological advances have come a long way, and utilizing logistical tracking software will provide a streamlined and accurate system for tracking and ordering, and efficiency of operations.

Estimated Cost: Staff time to research the various options. Once a product is chosen, the initiation cost and annual fees must be considered.

Recommendation A-6: **Petition the EMS agency to expand the district's ALS ambulance coverage to the Town of Loomis.**

Description: SPFD provides ALS response (like Granite Bay) and ambulance transportation to the Town of Loomis; however, AMR has been grandfathered to provide ALS and BLS response and transportation services to the Town of Loomis. This is a fragmented system that could be managed entirely by the district.

Outcome: Since the Town of Loomis and Granite Bay are neighboring jurisdictions and within the district boundaries of SPFD, the expansion would result in a seamless operation with greater interoperability if SPFD provided ALS/BLS response and transport capabilities to each community. If SPFD provided full service to both jurisdictions, boundary drops and sending the closest available unit could be enacted, thereby improving response times and interoperability.

By consolidating ambulance transports under the SPFD authority, the community can expect several improvements in emergency medical services:

1. Faster Response Times: With a centralized system, dispatchers can efficiently allocate the closest available ambulance to an emergency, reducing response times crucial for life-threatening situations.

2. Improved Coordination: A unified approach ensures seamless coordination between paramedics, firefighters, and EMTs, resulting in more effective and well-coordinated patient care.

3. Enhanced Training and Standardization: SPFD can enforce uniform training standards and protocols for all personnel involved in ambulance transport, ensuring that patients receive consistent, high-quality care.

4. Cost Efficiency: Streamlining services can save costs, as redundancies and inefficiencies are reduced or eliminated.

Benefits to the Community

The transition of ambulance transport to SPFD control offers several benefits to the residents of South Placer Fire District:

1. Increased Reliability: The community can trust a reliable and consistent emergency medical response system, knowing that SPFD is responsible for ambulance services.

2. Improved Patient Outcomes: Faster response times and better coordination among emergency responders can improve patient outcomes, particularly in critical situations.

3. Community Involvement: The community now has a direct stake in managing and overseeing ambulance services through their elected representatives in the SPFD board, fostering a sense of ownership and accountability.

4. Accountability and Transparency: The SPFD can provide regular reports and updates on ambulance services, ensuring transparency and accountability in allocating taxpayer funds.

Estimated Cost: The average cost of a fully ALS-outfitted ambulance can be in excess of ~$300,000 (this includes an automatic battery-operated gurney, drug box, cardiac monitor, and many other critical inventory items). If staffing with two Firefighter/Paramedics, the cost would be based on their annual salary and benefits listed at $110,370. If staffing with a Firefighter/Paramedic and an apprentice, the annual salary and benefits for an apprentice is listed at $54,476. Two Firefighter/Paramedics would cost ~$220,739 per shift. Staffing with one Firefighter/Paramedic and one apprentice would cost ~$164,846 per shift.

Figure 165: Costs to Expand the District's ALS Ambulance Coverage to the Town of Loomis

Expenditures	2 FF/PMs	1 FF/PM 1 Apprentice
FF/PM Salary	144,042	72,021
Apprentice Salary	—	43,680
Total Salaries	144,042	115,701
Worker's Comp	14,090	11,378
Medicare Tax @1.45%	2,089	1,678
Pension	20,722	15,493
Insurance Costs	38,400	19,200
Deferred Comp	1,200	1,200
Other	196	196
Total Costs Per Shift	220,739	164,846
Number of Shifts	3	3
Costs to Staff a Medic Unit Full Time:	$662,217	S494,538

Recommendation A-7: Increase EMS training to mirror the National Registry requirements.

Description: The National Registry of Paramedics (NRP) Paramedic National Continued Competency Program (NCCP) requires 60 hours of continuing education to recertify.

This training is broken down into three components: (1) a national component, (2) a local/state component, and (3) an individual component. SFD can increase the number of EMS training hours required to mirror this National Standard with minimal cost by utilizing the built-in features of Vector Solutions, formerly Target Solutions.

Outcomes: The National Registry of Paramedics is a framework that can be implemented. The additional CME hours only strengthen field personnel's educational base. Lastly, the additional hours are a cushion for the required 48 hours and meet minimum standards for paramedics to recertify their national registry.

Estimated Cost: Staff time to schedule and provide additional CME hours. Generated classes can be updated bi-annually with minimal changes necessary once complete.

Recommendation A-8: Hire an additional Inspector in the Prevention Division.

Description: The district needs to hire an additional Inspector for the Prevention Division. The workload justifies the need for additional staffing. Also, the current staffing does not meet the minimum based on NFPA 1730.

Outcomes: This will allow SPFD to focus on the new construction demand while also allowing the district to increase its capability to work on a much-needed risk of the weed abatement program. If or should new construction slow down, the staff will have more than enough to do with public education and possibly work on a CWPP.

Estimated Financial Cost: The financial impact will be the salary and benefits of one Inspector.

Figure 166: Costs Related to Hiring a New Inspector

Description	Cost
Fire Inspector I	75,051
Benefits	36,440
Total Personnel Costs:	$111,491

Recommendation A-9: Revive and update the pre-fire incident program to address current needs and conditions.

Description: Modernize the pre-fire incident program with updated training, equipment, and resources to better prepare for and respond to potential fire incidents, thus mitigating fire-related damage.

Outcomes: Improved readiness, faster response times, and minimized fire-related losses.

Estimated Cost: Initial investments in program revival will be justified by reduced damage and loss in the event of a fire.

Recommendation A-10: Work with the dispatch center on comprehensive fire dispatch operational policies and training modules and ensure they are updated annually.

Description: While fire dispatching is only 5 to 20% of the work, fire dispatching is fundamentally different from law dispatching. Fire dispatching is normally more time-sensitive and requires seldom-used procedures that must be trained regularly.

Outcomes: Dispatchers will have a better understanding of fireground terminology and resources.

Estimated Cost: Staff time to understand both sides of the training—from the dispatch and field perspectives—and develop training modules.

Recommendation A-11: Seek voter approval to increase the rate of the benefit assessment for Division 2 parcels and to provide an automatic cost of living adjustment (COLA) for future years.

Description: Educate the community on the issues of not or the benefits of providing additional funding by approving an increase in the Division 2 benefit assessment.

Outcomes: Provide funding to reopen Station 19 and enhance operational staffing.

Estimated Cost: Staff time to develop the compelling argument for the public education program necessary for a successful outcome of an election and legal staff and administrative costs to hold the election.

Recommendation A-12: Increase staffing levels by two additional firefighters per shift (six total personnel).

Description: SPFD currently staffs two personnel on two engine companies and three on two others. This level of staffing negatively impacts safety, assembly of an effective response force, and crew productivity.

Outcomes: Increasing company staffing to three per engine will improve overall safety, the initial attack capability, and crew effectiveness.

Estimated Cost:
The following figure displays the estimated costs associated with increasing staffing levels.

Figure 167: Cost Estimates to Increase Staffing

Description	First Year Costs
Firefighter/Paramedic Average Pay	75,051
Workers' Compensation	7,045
Medicare	1,030
Pension	10,361
Deferred Compensation	600
Medical Insurance	10,297
Dental Insurance	7,200
Vision Insurance	1,703
Employee Assistance Program	98
Benefits	38,334
Compensation & Benefits	113,385
Pre-Employment Testing/Background	500
Uniforms	500
Structural Turnout Gear	3,000
Wildland Gear	300
Training Costs	250
Certifications	250
Other Employee Costs	4,800
Total First Year Costs per Employee:	$118,185
Number of Employees:	6
Total Cost to Increase Staffing:	$709,110

Recommendation A-13: Establish a Facility Life Safety Inspection Program.

Description: SPFD should develop a periodic Facility Life Safety Inspection Program for its facilities. Systems designed to improve employees' safety and health are essential for reducing the number and severity of injuries and health concerns. These systems, such as smoke and carbon monoxide detectors, need ongoing maintenance and evaluation.

Outcome: Systematically evaluate, repair, and potentially improve the emergency and life safety systems at each SPFD facility.

Estimated Cost: Initial costs will include staff time developing, adopting, and completing a custom or currently available inspection system. Ongoing costs will consist of maintenance requirements, such as system repair and replacement of consumable goods.

Recommendation A-14: Develop an annual report for the Training Division.

Description: SPFD's Training Chief is responsible for training new firefighters and conducting in-service training for each department member. Each training activity is driven by the needs of SPFD and by the regulatory requirements of external agencies. SPFD should develop an annual training report, which breaks down each area of training conducted by category and showcases the accomplishments of the training division.

Outcome: The ability to provide detailed information on the type of training provided, the total hours instructed by category, and associated costs incurred. This information could help provide an in-depth analysis for budgeting purposes, grant opportunities, and public support for various training programs.

Estimated Cost: Staff time.

Recommendation A-15: Develop a physical performance program for all SPFD personnel engaged in emergency operations.

Description: All emergency response personnel should be medically evaluated and qualified for duty by a designated physician, meeting medical requirements specified in accordance with NFPA 1582: Standard on Comprehensive Occupational Medical Program for Fire Departments (2022). SFPD should review NFPA 1582 with the medical provider to ensure that the Firefighters are receiving the recommended screening tests per the schedule in the standard.

In addition, SPFD should establish and provide a health and fitness program that meets the requirements of NFPA 1583: Standard on Health-Related Fitness Programs for Fire Department Members (2022) to enable personnel to develop and maintain a level of fitness that allows them to safely perform their assigned functions.

Outcomes: Today's firefighters are considered tactical athletes and are at an increased risk for job-related illnesses, such as cancer, mental health concerns, and cardiovascular events.

By establishing a formal physical performance program, SPFD can maintain a healthy workforce by providing the most effective health screening available, and potentially reduce costs associated with on-the-job injuries or illness.

Estimated cost: Costs for pre-employment and annual comprehensive medical examinations vary depending on the provider and testing protocols. Costs to develop a health and fitness program would be related to staff time to conduct research of available programs and services, and cost to purchase equipment if needed.

Recommended Mid-Term Strategies

The mid-term strategies are progressive enhancements of the current conditions. Many will likely require three-to-five years to accomplish.

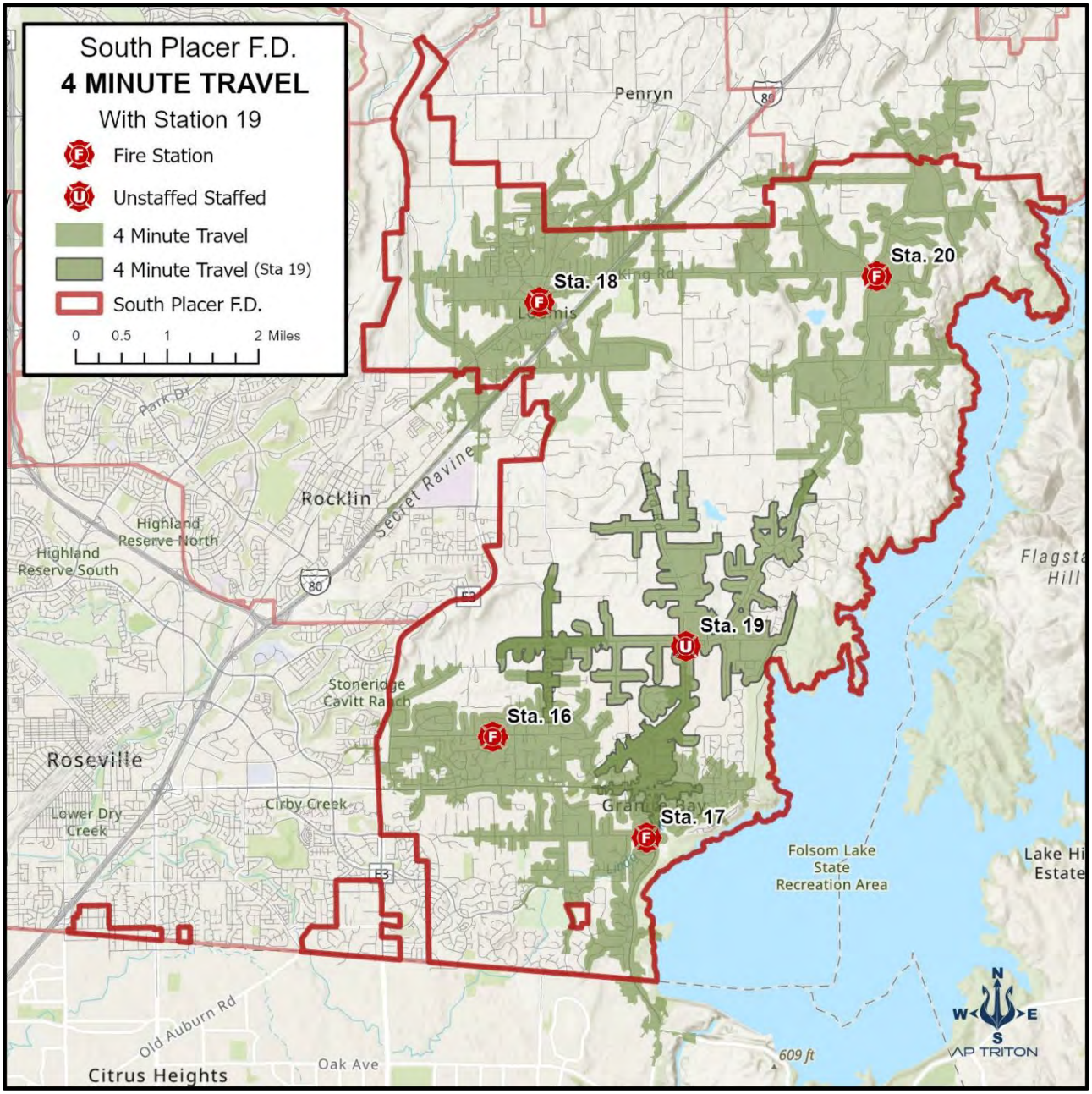
Recommendation B-1: Re-Open and Staff Station 19.

Description: The center of the district appears underserved. This is apparent in the driving time and distance from response modeling. Opening and staffing Station 19 would improve SPFD's performance in these underserved areas.

Outcomes: Improving response times and coverage within the center of the district.

The following figure demonstrates the improved 4-minute response coverage with Station 19 staffed.

Figure 168: 4-Minute Travel Time Distances with Station 19 Open



Estimated Cost:

The following figure displays the estimated costs associated with re-opening Station 19.

Figure 169: Costs Associated with Re-Opening Station 19

Description	Cost
Compensation	
Captains	95,198
Engineers/Operators	82,231
Firefighter/Paramedics	71,021
Total Compensation:	$248,450
Benefits	
Workers' Compensation	24,646
Medicare @ 1.45%	3,603
Pension	44,981
Deferred Compensation	1,800
Medical Insurance	30,891
Dental Insurance	21,600
Vision Insurance	5,109
Employee Assistance Program	294
Total Benefits:	$132,924
Total Salary and Benefits per Shift	381,374
Number of Shifts	3
TOTAL STAFFING COSTS:	$1,144,121
Station Operating Costs	
Utilities	46,188
Equipment Maintenance	7,587
Repairs	23,500
TOTAL STATION OPERATING COSTS:	$77,275
Other Personnel Costs	
Uniforms	3,500
Turnout Clothing Maintenance	1,250
TOTAL OTHER PERSONNEL COSTS:	$4,750
Apparatus Costs	
Fuel	22,500
Apparatus maintenance	20,000
TOTAL APPARATUS COSTS:	$42,500
TOTAL COST TO RE-OPEN STATION 19:	$1,268,646

Recommendation B-2: Implement an Automatic Vehicle Location (AVL) system on all vehicles.

Description: AVL, when interfaced with the CAD system, allows the dispatchers and the CAD system to determine the exact location of all resources. CAD can then select the closest, most appropriate unit to send to an event based on parameters established by the agencies. Dispatch recommendations are currently based on station response orders.

Outcomes: The closest, most appropriate resource can be sent to all events, reducing response times.

Estimated Cost: Cost of the AVL hardware, software, and the mechanisms to connect wirelessly with the CAD system.

Recommendation B-3: Adopt Performance Objectives.

Description: Without adopted performance objectives, evaluating the effectiveness of the service provided is difficult. Performance objectives should include the total response time as the goal, as that is the customer's perception of performance. However, smaller time segment performance metrics also help management understand how each action affects the overall performance objectives.

Outcome: Transparency in service provision and reportable performance inputs. Complete understanding of the service provided by SPFD.

Estimated Cost: The systems appear in place for some of the analysis. However, additional costs may be incurred if the current data analytic tools available to the agency are not sufficient for the task.

Recommendation B-4: Develop and Adopt a Succession Management Plan.

Description: The SPFD should develop and adopt a comprehensive workforce development and succession management plan for all administrative, management, and leadership positions.

Outcome: A comprehensive workforce development and succession management plan will help ensure the organization prioritizes employee development and proactively nurtures a pipeline to attract the best possible candidates and retain and prepare those individuals best suited to lead.

Estimated cost: Costs will vary depending on the approach adopted. At a minimum, staff time will be required. If a consultant is used, the cost could be upward of $45,000.

Recommendation B-5: Develop a Capital Replacement Program.

Description: High-cost apparatus, equipment and turnout gear have finite useful lives and must be replaced periodically.

Outcome: Planning for the financial impact of these replacements is vital to ensure the district is able to acquire the assets according to the schedule.

Estimated cost: Staff time necessary to itemize assets to be included on the replacement schedule and to estimate the costs necessary to replace the assets.

Recommendation B-6: Add a Registered Nurse/Nurse Educator to oversee a Continuous Quality Improvement Program.

Description: Continuous Quality Improvement (programs take time and dedicated staff to review patient care, network with hospitals for patient follow-up information, collect system data and provide an educational program to improve the system). SPFD utilizes a a Deputy Chief of EMS as the primary Department's Designated Infection Control Officer. As a back-up to the primary DICO, the Fire Chief and a Battalion Chief (tertiary) will assist as needed. As seen during the COVID-19 pandemic, the Cal/OSHA requirements can change quickly and significantly impact operations. Having someone dedicated to keeping up with these standards is critical.

Outcomes: Employing a registered nurse as part of the fire department team is valuable and provides stability to the EMS Division. They build relationships with the hospital staff, the public health department, the Medical Director, and the LEMSA. Their advanced medical training allows them to provide high-quality continuing education and function as the Designated Infection Control Officer, providing immunizations, such as annual influenza vaccines, TB testing, and other health and wellness care.

Estimated Cost: Contract employees can range in price and be paid on an hourly use model. Costs could range from $30,000 to $40,000 annually based on a $50.00/hour employee and 16–20 hours per week. However, seeking a full-time contract nurse could cost as much as $244,943.76.

Recommendation B-7: Update the Community Wildfire Protection Plan (CWPP) to include all areas within the SPFD response area.

Description: Currently, the district's CWPP is more than ten years old, and the previous plan did not include all areas of the district. Collaborate with the County to revise the CWPP, ensuring that it comprehensively covers the entire SPFD response area and addresses current wildfire risks.

Outcomes: This will allow SPFD to focus on this specific risk to its community and will address how the district can prevent and reduce a significant wildland event from occurring in the district. Enhanced fire protection, better-informed decision-making, and minimized wildfire damage.

Estimated Cost: Staff time and moderate initial costs may be incurred for the update, but the long-term benefits will outweigh these costs through improved protection and response. We would encourage SPFD to apply for the FEMA fire prevention grant and other grants for the CWPP.

Recommendation B-8: Develop a Community Risk Reduction Plan and establish clear program outcome goals.

Description: Create a comprehensive plan to identify, assess, and mitigate community risks, while also defining program outcome goals to measure effectiveness.

Outcomes: Improved community outreach and safety, measurable progress, and more efficient resource allocation.

Estimated Cost: The initial investment in developing these plans will lead to better resource allocation and potentially reduced emergency response costs.

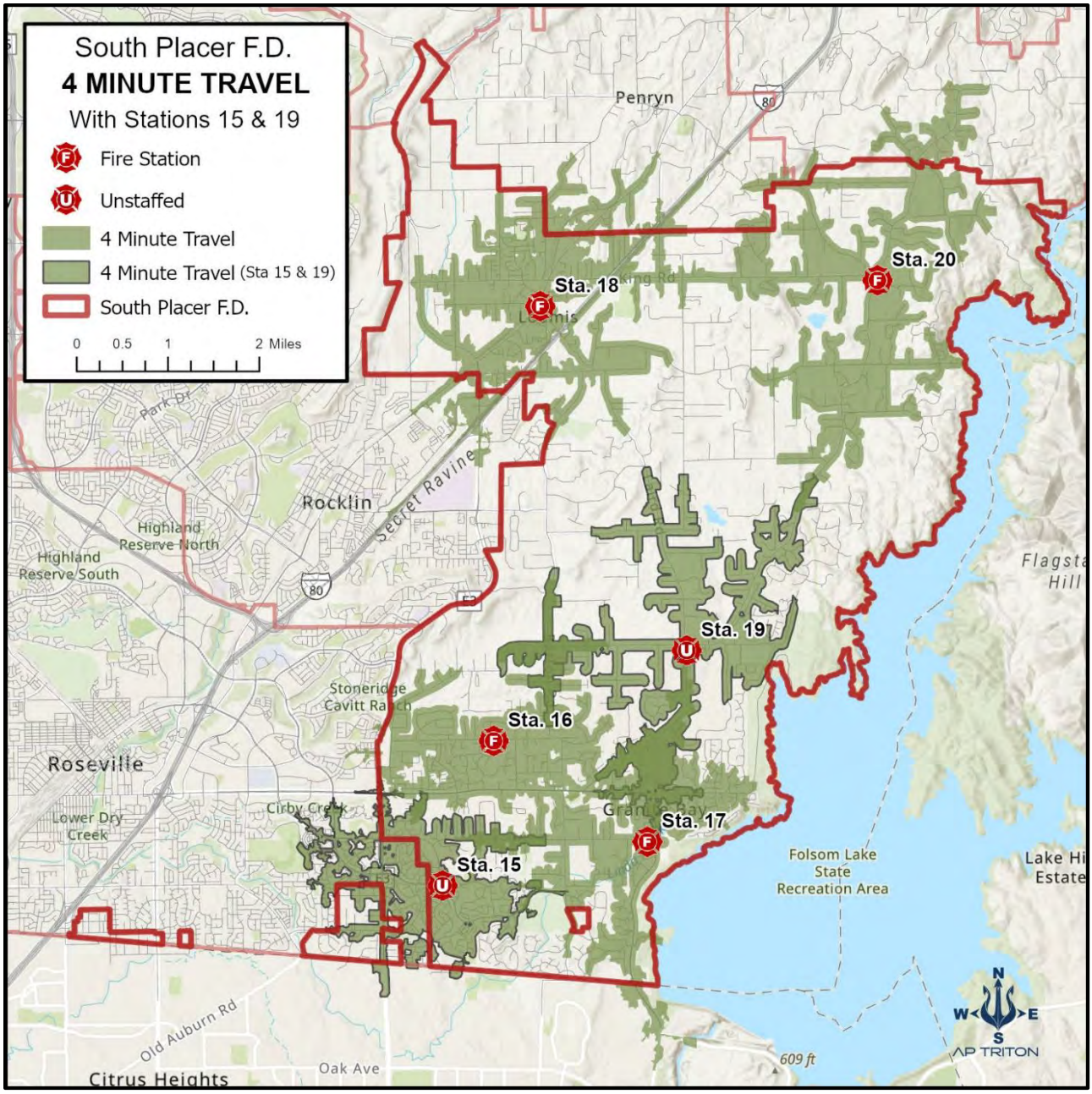
Recommendation B-9: Re-open and staff Station 15.

Description: The southwest portion of the district appears underserved. This is apparent in the driving time and distance from response modeling. Opening and staffing Station 19 would improve SPFD's performance in these underserved areas.

Outcomes: Improving response times, coverage, and effective response force within the district.

The following figure demonstrates the improved 4-minute response coverage with Stations 15 and 19 staffed.

Figure 170: 4-Minute Travel Distances with Stations 15 & 19



Estimated Cost:

The following figure displays the estimated costs associated with re-opening Station 15.

Figure 171: Costs Associated with Re-opening Station 15

Description	Cost
Compensation	
Captains	95,198
Engineers/Operators	82,231
Firefighter/Paramedics	71,021
Total compensation	248,450
Benefits	
Workers' compensation	24,646
Medicare @ 1.45%	3,603
Pension	44,981
Deferred compensation	1,800
Medical insurance	30,891
Dental insurance	21,600
Vision insurance	5,109
Employee assistance program	294
Total Benefits:	$132,924
Total salary and benefits per shift	381,374
Number of shifts	3
Total Staffing Costs:	$1,144,121
Station Operating Costs	
Utilities	46,188
Equipment maintenance	7,587
Repairs	23,500
Total Station Operating Costs:	$77,275
Other personnel costs	
Uniforms	3,500
Turnout clothing maintenance	1,250
Total Other Personnel Costs:	$4,750
Apparatus costs	
Fuel	22,500
Apparatus maintenance	20,000
Total Apparatus Costs:	$42,500
Total Costs to Re-Open Station 15:	$1,268,646

Recommendation B-10:Consider developing a mentor/coaching & succession planning program.

Description: By implementing a mentor/coaching & succession planning program, the SFPD could provide formalized peer-to-peer leadership development for personnel at each rank. The benefits of such a program include building positive relationships, promoting organizational values, improving the flow of information, and contributing to position mobility and career advancement.

Outcomes: Measured increase in enthusiasm, camaraderie, and professionalism of district personnel.

Estimated Cost: Staff time.

Recommendation B-11: Establish a formalized special operations program to coincide with SPFD policies and procedures.

Description: SPFD does not currently deliver technical rescue services or hazardous materials response above the first-responder operational level. This deficiency reduces SPFDs ability to mitigate certain calls for service that may occur throughout the district.

Outcome: Establishing a formalized program for technical rescue and hazardous materials response allows the district to be self-sufficient on initial responses that could be mitigated without the need for mutual aid from neighboring jurisdictions, while enhancing the knowledge, skills, and abilities of district personnel.

In addition, NFPA has established guidelines for responding to technical rescue and hazardous materials incidents. These standards help ensure the safety of responders and the public during such emergencies.

Developing a program based on recommended standards, i.e., NFPA 1670: Standard on Operations and Training for Technical Search and Rescue Incidents; NFPA 1006: Standard for Technical Recue Personnel Professional Qualifications; NFPA 471: Recommended Practice for Responding to Hazardous Materials Incidents, will allow the district to develop its personnel, tack certification of responders, and adhere to policies and procedures currently being developed.

Estimated cost: Costs would include dedicated staff time to initiate the program, the acquisition of needed equipment (based upon each discipline), and the time needed to train personnel in its use.

Recommended Long-Term Strategies

Long-Term recommendations are focused on introducing concepts and building strong foundational elements to support growth and sustainability of the organization.

Recommendation C-1: Consider developing an RFP to remodel and upgrade the training center to include an adequately sized classroom (including networking capabilities, monitors, and additional IT-related hardware for presentations), office space, and training facility.

Description: Training is the cornerstone of success in the fire service. Since SPFD is an all-hazard, all-risk agency, firefighters are challenged with responding to an EMS incident one minute to a building fire the next. Then, there is the possibility of responding to a complex hazardous materials incident or specialized rescue incident. Each response requires a different skill set to be taught and trained routinely. In addition, by upgrading the training center/grounds/tower, SPFD could host training for neighboring jurisdictions and partners throughout the region, including utility companies and various private companies.

Outcomes: It is proven that training reduces the risk of injury and/or death to firefighters. Without adequate training facilities, firefighters are forced to use local businesses, which is limited to non-operational hours, to perform realistic training. By providing a robust training facility, SPFD could utilize their subject matter experts (SMEs) to provide training in several disciplines, thus improving and strengthening incident safety in their personnel. Additionally, SPFD could use the training facility as a funding source by hosting training classes routinely.

Estimated Cost: Cost estimates could vary greatly. This long-term project would require staff hours as committees are formed to research and develop the scope of work, along with what is desired in a classroom and training tower. In the realm of training towers, there are several options ranging from prefabricated metal structures to customizable concrete training towers. A prefabricated metal training tower can range from $1.8 million to $2.8 million.

Recommendation C-2: Assess the need for additional prevention staffing to enhance community safety.

Description: Evaluate the current prevention staffing levels and consider the potential benefit of adding more personnel dedicated to prevention and public education efforts. Long-term, the addition of two Fire Inspectors/Investigators and a Public Education Specialist. It would align the district with the minimum staffing requirement per NFPA 1730.

Outcomes: Improved fire prevention, increased community safety, and minimized fire-related costs. This would also allow the district to eliminate engine company inspection and reassign the engine companies to do pre-fire incident planning. A public education specialist would also increase the district's community exposure and improve its community programs, which are currently only being done by crew in the field.

Estimated Cost: The initial cost of hiring additional personnel may be offset by reduced fire response and recovery costs, as well as improved prevention and public education efforts. While increasing the district's exposure to the community.

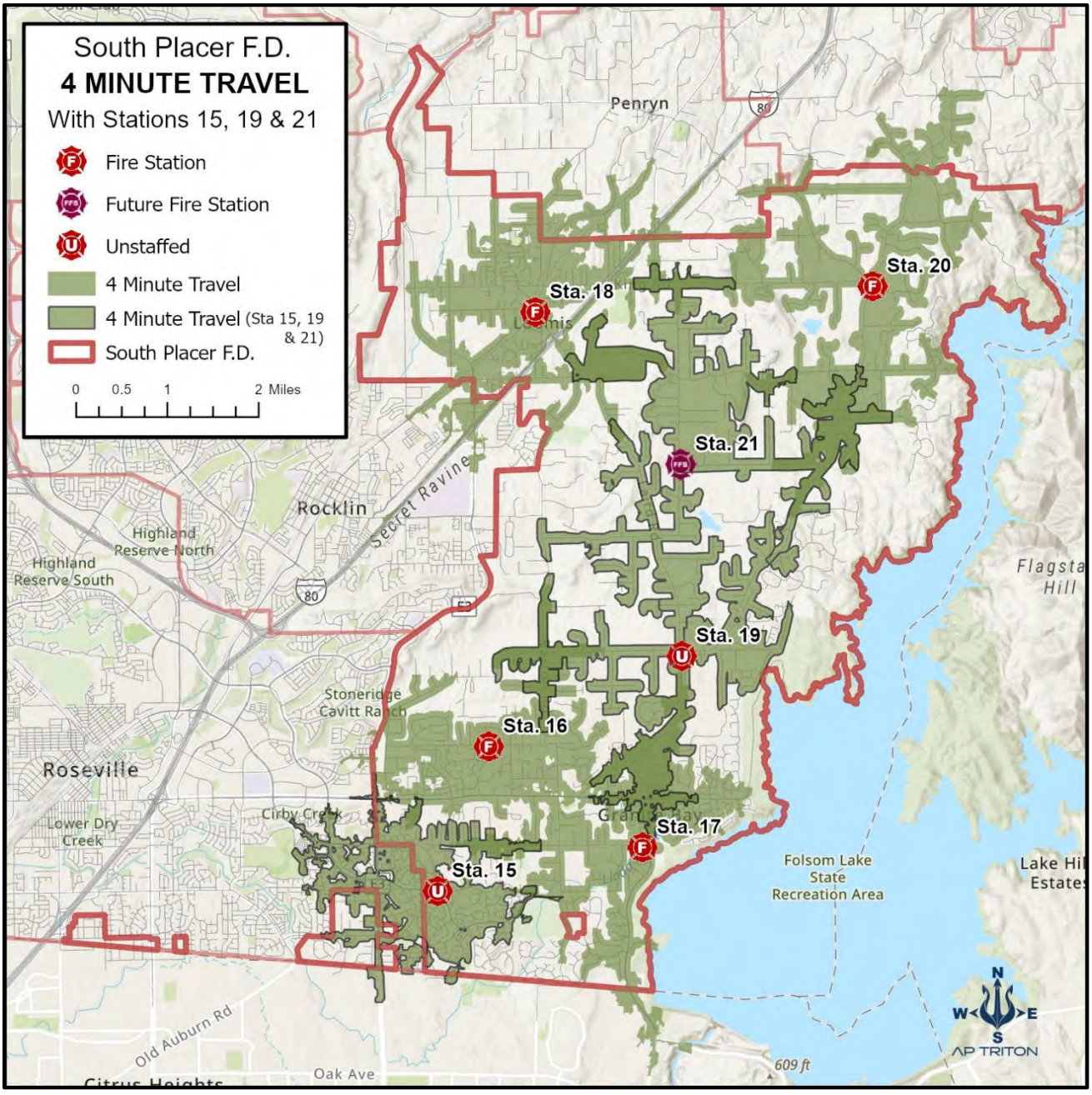
Recommendation C-3: Site, construct, and staff Station 21.

Description: AP Triton has modeled a potential location for a new station that would result in a positive response impact.

Outcomes: An additional station in this vicinity would improve response coverage to the new developments in the northeast part of the district It will also add needed apparatus and staff resources to help alleviate the concerns with distant mutual aid for effective firefighting force assembly within a reasonable response time.

The following figure demonstrates the improved 4-minute response coverages with Station 15 and 19 staffed and the construction and staffing of Station 21.

Figure 172: 4-Minute Travel Distances with Stations 15, 19, & 21



Estimated Cost: Estimated the cost to be $12.8 million.

Recommendation C-4: Initiate a study to evaluate existing fire stations and training facilities, addressing current and future safety and health, staffing, and apparatus needs.

Description: A comprehensive Facilities Master Plan should be initiated to evaluate SPFD fire stations and the training facility. Station activities and practices should be examined to ensure that each facility is adequate in size and function. Examples of functions may include:

- Kitchen facilities, appliances, and storage.
- Residential living space and sleeping quarters for on-duty personnel (all genders).
- Bathrooms and showers (all genders).
- Training, classroom, and library areas.
- Firefighter fitness areas.
- The housing and cleaning of apparatus and equipment; including decontamination and disposal of biohazards.
- Administrative and management offices, computer stations, and office facilities.
- Public meeting space.

The study should address stations/facilities requiring minor upgrades, stations/facilities requiring significant improvements, and stations/facilities requiring replacement.

Outcome: Conducting a fire station/facilities study will assist the SPFD in developing a plan to address recognized issues and deficiencies within each of the stations and create a mid-to-long-range funding strategy.

Estimated Cost: Costs related to initiating a study include staff time to develop a request for proposal (RFP) and subsequent review of submitted packages. Additional costs for renovation or replacement will be determined by the findings and recommendations of the study. The estimated cost of the study is $50,000.

Section V:
APPENDICES

Appendix A: Strategic Partners—Stakeholder Interviews

Introduction to the Stakeholder Interviews

Triton interviewed a wide variety of the South Placer Fire District (SPFD) internal and external stakeholders. The purpose of these interviews was to gain a better understanding of issues, concerns, and options regarding the emergency service delivery system, opportunities for shared services, and expectations from community members.

It is important to note that the information solicited and provided during this process was in the form of "people inputs" (stakeholders individually responding to our questions), some of which are perceptions reported by stakeholders. All information was accepted at face value without an in-depth investigation of its origination or reliability. The project team reviewed the information for consistency and frequency of comment to identify specific patterns and/or trends. Multiple sources confirmed the observations, and the information provided was significant enough to be included within this report. Based on the information reviewed, the team identified a series of observations, recommendations, and felt they were significant enough to be included within this report

Stakeholders were identified within the following groups: Elected Officials, County/Town Management and Department Heads; Business and Community Leaders, Community Members, Community Volunteers and Strategic Partners (AP Triton defines Strategic Partners as stakeholders representing local entities/agencies who share a common interest with the South Placer Fire District): Chief Officers, Labor Leaders, Rank & File, Volunteer Firefighter Representatives, and Administrative Staff—including SPFD Fire Prevention personnel.

Elected Officials, County/Town Management, and Department Heads.

Please describe your expectations of the South Placer Fire District.

- Have a professionally trained fire department, able to respond to anything.
- Open and transparent Board of Directors—needs to communicate with the community.
- Serve the community with well-trained, well-paid personnel.
- Provide a level of service that meets the town's needs and District standards.
- Keeping an open line of communication between the District and the Town.
- Deliver high-quality service throughout the district.
- Recruit and retain people who want to be a part of the community.

- To provide excellent service to the community when they're needed.
- To provide a high level of service in a timely fashion.
- Provide quality services to the community.

Are your expectations being met?

- Professionally, we are doing our best. However, not having a ladder truck reduces our capabilities.
- Yes. Transparency is good through the use of various communication methods.
- Yes, however, there are struggles between the administration and the firefighters.
- I think we need to evaluate our response times and the currently closed fire stations.
- No, not completely. Recruitment and retention is an ongoing issue, and staffing equipment with two people is not safe.
- Yes, but we need to keep the lines of communication open.
- In some ways, yes. However, we need to work on our customer service and continuity between management and labor.

Are there Services that you think the Fire District should be providing, that they are not now?

- Other than the ladder truck, none that I can think of.
- Yes. A well-run public education program providing wildland defense, first aid, CPR, and CERT training.
- I believe they provide a holistic service.
- It's an operational issue regarding providing service—need a fully staffed truck company.
- I don't think so, however, I would like to see South Placer provide ambulance service to Loomis.
- We need to evaluate the current response model, especially relating to the ladder truck.

In your opinion, what are the advantages/positives/strengths of the existing emergency services delivery system?

- Strengths are our mutual/automatic aid system—being able to ask and receive.
- When the public calls 9-1-1, they are going to get people who care about providing a service to the best of their ability.
- We have our own ambulances.

- The fact that South Placer is an independent fire district is beneficial.
- Our members are the strength of the district.

What are the disadvantages/negatives/weaknesses of the existing system?

- Redundancies throughout the County, i.e., several communication centers. This demonstrates a lack of efficiency and consistency.
- I think we have an opportunity to improve the service level, and we need to reopen fire stations.
- Staffing levels are not adequate.
- Our ability to provide open and transparent communication.
- Minimal resources, including personnel, and apparatus.
- The current dispatching platform—auto-aid and mutual-aid seems to take a long time.
- Establishing an effective response force at the scene takes way too long.
- The current gaps we have regarding staffing and closure of the two fire stations.
- We need to evaluate the location of our stations.

Does the existing system provide the residents and community with acceptable protection?

- Yes, with the caveat that a semi-rural community takes longer to get resources on scene.
- Not in my mind. We currently don't provide the level and type of service we should be providing to a community like ours.
- From what I see, yes it does.
- I believe so—I haven't heard otherwise.
- I do. We're not that big, but we have the flexibility to provide great service to our community.
- It does not. We currently do not meet national standards for a full response to a residential structure fire in a timely fashion.
- The current dispatching system needs to be evaluated to ensure the proper—and closest—resources are being deployed.

What opportunities do you believe exist that would enhance service to the region?

- One common communications picture.

- Evaluate how consolidation looks like for the agencies within the county.
- Conduct a large-scale merger, using cost-saving measures to enhance services.
- We need to look at consolidating with other local departments.
- Consolidation of the districts within the existing boundaries would be great.
- The elimination of duplicated services, at every level.
- We owe our community members a level of service and demonstrate fiscal responsibility, but there are opportunities to work with other neighboring districts to increase efficiency.
- Consolidating dispatch centers.
- Implementing boundary-drops for closet unit response.

Chief Officers, Labor Leaders, Rank and File, Administration, and Volunteer Firefighter Representatives.

What strengths contribute to the success of the South Placer Fire District? What do you do well?

- EMS service delivery.
- We go above and beyond regarding EMS—positive feedback from community and hospital staff.
- There is a high level of integrity and professionalism.
- We are fiscally responsible.
- We work well together—good team environment,
- We communicate well with the public, providing good information.
- The district does a good job, but we can be more efficient in delivering our services.
- Customer Service—Our paramedic skills rank the best in the surrounding area.
- Our personnel can adapt to a variety of calls with minimal resources.
- The line staff's unity and the desire to give high-quality service.
- Our line personnel are committed to moving our organization forward.
- Our personnel's experience and their ability to pass on their respective knowledge, skills, and abilities to newer personnel, as well as to the public.
- Overall, our customer service is great.
- Providing advanced life support has been the mainstay of our department—top-notch service.

- We work well with our local hospital, which benefits the members of our community.
- We are getting better with our community engagement.
- We have a good working relationship with other entities.
- Many of our personnel are from our community.
- We have a good core of personnel that care about the organization.
- We have high standards.
- Teamwork amongst the crews.
- Administration works well with the community.
- We have a good relationship with the community.
- The Prevention Division is engaged with the community, contractors, and developers.
- How our people do their job—very passionate.
- We are more fiscally responsible today than in the past.
- Even though our funding is not where it needs to be, the Fire Chief continues to look for alternative, sustainable funding mechanisms.
- The district's ability to identify wasteful spending and adjust accordingly.

What are some areas in which you think the District could make improvements?

- Be more engaging with line personnel regarding outside training opportunities, as well as in-district training programs.
- Better communication between administration and line personnel.
- Don't seem to have the support from administration.
- Staff the truck full-time.
- Engaging with our neighboring departments.
- Reopen the two stations and staff accordingly.
- Personnel development—implementing a mentorship program.
- Overall leadership getting out of the weeds and focusing on what's going on within the district—need to collaborate with the line personnel.
- Developing a Community Risk Reduction (CRR) program.
- Lack of leader's intent—we're painting with too broad of a brush.
- Engage with community outreach and public education programs.
- Identify and implement new technology, organizational-wide.

- Develop a formalized multi-company training platform.
- The number of responses to care homes needs to be evaluated.
- We need to provide education to the community regarding our financial resources.
- The biggest improvement we need is to determine the vision of our department.
- Leadership needs to focus on critical issues currently facing the district—recruitment and retention have to be at the top of our list.
- We need to have consistent messaging from the top down, specifically relating to operations and at the Battalion Chief's levels
- We need to be more involved with the community
- The district needs to collaborate with our neighboring agencies
- We need to address our mission, vision and core values statement—and evaluate our brand

What do you see as the top critical issues facing the Fire District today?

- Recruitment and retention
- Lack of training opportunities (internal & external)
- Lack of revenue—need to address Prop-172 funding
- Keeping up with the workload with limited staffing
- Sustained funding mechanisms
- We need to look at consolidating with other departments to create efficiencies
- Lack of social media usage and marketing the district
- Professionalism seems to be a challenge.
- Long-term financial stability.
- Identifying alternative funding mechanisms.
- Two-person engine companies are not sustainable—or safe.
- Branding—educating the public about who we are.
- Cannot recruit quality personnel—we are a stepping-stone department.
- Collaboration is needed from top to bottom on what our future looks like.
- Communication amongst the Board of Directors.
- The command staff's ability to work with labor and the line personnel.

- Developing a vision for what the district will look like in the future—staffing, station placement, etc.
- The location and status of the district's fire stations.
- Relationships between management and labor.
- We need to market ourselves better for recruitment purposes.

What opportunities, in your view, are available to improve the service and capabilities in the region?

- Collaboration with other agencies, i.e., training opportunities and standardized equipment configurations.
- A single, regional communications center.
- Developing a standardized, regional approach, i.e., operations, prevention, and administration.
- Consolidation needs to be considered.
- Improvements in technology—upgraded, standardized platforms.
- Reduce duplication of operational efforts.
- We need to look at merging, consolidating, or annexation(s) with neighboring agencies, as long as it makes fiscal sense.
- Develop a regional fire-based transport system.
- Regional approach for administrative and prevention services.
- Educate the public on improving the fire service throughout the entire county.
- A potential advantage to the region is that we are one of the few agencies that transport.

What challenges do you see to enacting those opportunities?

- Politics and funding.
- Lack of tax base from other agencies.
- Public perception—loss of identity.
- The current political climate—at all levels.
- Having everyone understand what is needed to succeed.
- Everyone needs to be on the same page and share the same message.
- Buy-in from labor.

Business and Community Leaders, Strategic Partners, and Community Volunteers.

Describe your expectations of the South Placer Fire District.

- I expect them to help our community when needed.
- To provide both medical and fire service—a high priority for the wildland-urban interface areas.
- Compensate personnel a competitive wage so firefighters can live in the community.
- To have a good mutual-aid agreement with our neighbors.
- For all stations to remain open.
- The department needs to support the community and vice versa.
- The department needs to have multiple roles in the community.
- To have a department that has a strong medical component.
- To be very helpful—to go above and beyond.
- To be professional, knowledgeable, and have a good response time.
- To have a resource I can rely on.
- To be the best they can be—highly trained, staffed, and able to respond.
- That the district operates within its budget.
- Provide the best service available with the quickest response time.

Which of these expectations are not being met to your satisfaction?

- Timely, consistent response.
- We need to evaluate our facilities and look at which stations are closed, and why.
- Labor is close to 90% of the budget, which leaves no money left for the maintenance of facilities and upkeep and/or replacement of equipment.
- If we were seriously looking to save money, shutting down stations without reducing staff does not make fiscal sense.

What do you think the South Placer Fire District is doing particularly well?

- Community engagement.
- The administrative staff and Fire Chief are doing a really good job.
- Providing a good service to our community.
- Strong community outreach—attending many events.
- Customer service--always friendly and helpful.

- They are very well equipped and good at their job.
- The department has good response times.
- The firefighters are always professional.
- Great job at reaching out to the community.

Are there services that you think the District should be providing that they are not providing now?

- I'm not aware of any, although we all need to be on the same systems, including the ambulance service.
- Reopening the closed fire stations, and staff accordingly.
- The district needs to promote the various programs they're engaged in.
- It would be nice to have the South Placer Board meet in Loomis.
- Business inspections are not as consistent as they used to be.

Are there services the Fire District is providing that you think should be discontinued or done differently?

- None that I can think of.
- No.
- None that I'm aware of.
- Not that I can think of.
- I don't see the fire district conducting weed abatements anymore.
- I can't think of anything.
- The district needs to evaluate responding to calls for lift-assists at various facilities.
- Quit responding to State Park incidents, without receiving reimbursement.

When you dial 911 to report an emergency, how long should it take for help to arrive?

- Seven minutes.
- As soon as they can get there.
- A good response time would be three minutes.
- It depends on what the standard is.
- Less than five minutes.
- Three minutes or less.
- Within five minutes or less.

Does that expectation change depending on where in the community you are located?

- The further out you are, the longer it takes to get there.
- Response times should be relatively uniform.
- The expectation should be similar no matter where you live.
- Should be close, however, if you live on the border, there should be coordination with the closest fire station, even if it's not South Placer's fire engine.
- It depends on the traffic and how far out you live.
- No, it should be the same.
- Absolutely. The rural areas, private drives, reduced access, weather, and road conditions all play into response times.

Appendix B: Table of Figures

Appendix C: References

[1] South Placer Fire Protection District Audit Report, June 30, 2021.

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