Long-Range
MASTER PLAN

September
2022

American Canyon
FIRE PROTECTION DISTRICT
American Canyon, California

AP TRITON
VISION • INNOVATION • SOLUTIONS

Contents

Acknowledgments

AP Triton Consulting wishes to extend its sincere appreciation to each of those individuals from the American Canyon Fire Protection District whose contributions and assistance made this project possible.

Our sincere appreciation is extended to each of you…

American Canyon Board of Directors

Leon Garcia
Board Chair

Mariam Aboudamous
Vice Chair

David Oro
Board Member

Mark Joseph
Board Member

Pierre Washington
Board Member

…and Chief Belyea, Retired Chief Cahill, and each of the firefighters, officers, and support staff who daily serve the citizens and visitors of the City of American Canyon and Southern Napa County.

Introduction

The American Canyon Fire Protection District (ACFPD) contracted AP Triton Consulting to conduct a Long-Range Master Plan inclusive of a Center for Public Safety Excellence, 6th Edition-compliant, Community Risk Assessment: Standards of Cover report.

Triton analyzed the data provided by ACFPD and others to determine the current levels of response performance. From this analysis, Triton also identified factors influencing risk and response performance, and identified opportunities for delivery system improvement, including the extended EMS service area. This study identified response time objectives, standards for measuring the effectiveness of department resources, and the deployment of those resources.

The analysis completed during this study revealed a number of important findings:

- The working relationship between the fire district and other City of American Canyon departments is positive.
- ACFPD's policies and procedures are up to date and available to all personnel in paper form. The district is moving towards an electronic database for all policies and procedures in 2022.
- The district does not provide mid-level management (Battalion Chief) coverage.
- Standard Operating Guidelines (SOGs) are not formally reviewed annually.
- The district does not have a formal program for pre-incident planning of commercial and high-risk occupancies.
- ACFPD has a well-defined special operations program, including hazardous materials response and technical rescue.
- The Fire Executive Assistant (Office Administrator) handling Human Resources and Finance duties is a full-time employee of the City of American Canyon.
- The district's administrative support division lacks the staffing needed due to the number and complexity of duties performed.
- The district has an established reserve support program, with personnel coordinating various programs, including EMS, weed abatement, and CERT coordination.
- The ACFPD has no primary role regarding emergency management with the City of American Canyon.
- ACFPD Firefighter staffing per 1,000 population is 0.992 compared to the national average of 1.54.
- The district exercises fiscal solid management practices.

- Most of the workload for ACFPD is for medical/rescue calls.
- Monthly workload is busiest in October, and Daily workloads are higher during the first part of the week.
- Most of the time, ACFPD responds to one incident with one apparatus, but it is not uncommon for multiple calls and multiple apparatus per call to occur.
- Call processing times exceed NFPA recommendations with an unusual spike at 3 a.m.
- Stations are not regularly inspected for fire and life safety issues. Smoke detectors and carbon monoxide detectors were out of service or missing. Other safety systems, such as eyewash stations and biological waste containers, are missing or out of service.
- Station 211 is undersized for modern firefighting operations. The apparatus bay is unable to fit modern fire apparatus. There is no room for separate sleeping areas for gender separation and no area for proper turnout gear storage or decontamination. Also lacking was adequate classroom or training space.
- There was no evidence of a capital improvement or station replacement plan. Station maintenance appeared to be completed as reported and on a priority system.
- Station 11 appears to be adequate in size and design to meet modern firefighting requirements; however, future expansion would be limited.
- The administration building does not have enough space for current staff and will be unable to accommodate future growth.
- There is not a comprehensive Community Risk Reduction program.
- ACFPD does not have an adequate training facility for effectively developing firefighters.

The analysis conducted during the evaluation phase of this process identified a number of opportunities to improve services The following improvement recommendations are offered for consideration. These recommendations for each are described in more detail at the end of this report.

Recommended Short-Term Strategies

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 three years.

- Establish a facility life safety inspection program.
- Consider hiring three shift Battalion Chiefs.
- Consider adding one administrative support member.
- Establish a formalized safety committee within the fire district.

- Repair or replace the apron and sidewalk in front of Station 211.
- Consider including the City's fiscal and budgetary policies within the district's annually adopted budget.
- Consider enhancing the financial and Board action information available on the district's website.
- Review the existing fee schedule.
- Develop a quality control process for incident reporting.
- Complete a National Fire Incident Reporting system training class.
- Develop an expanded Community Risk Reduction Program.
- Publish the Designated Infection Control Officer's name and contact information on the City website.
- Align fire documentation with EMS documentation utilizing the ESO Fire Records Management System.
- Upgrade the Lucas devices to the same version for consistency and integration.

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.
- Establish a capital improvement and replacement program.
- Recruit additional staff and staff the district's truck company.
- Determine a new site for Station 211 and initiate the process of designing a new fire station facility to maintain a high degree of safety, efficiency, long-term sustainability, and effectiveness.
- Determine administration staff space needs.
- Place greater emphasis upon the quality assurance of time data inputs.
- Consider creating a full-time position for EMS Program Administration.

Recommended Long-Term Strategies

The short and mid-term strategies discussed will move the organization forward substantially. A longer-term, high-level view of future needs is also important to provide a "big picture" view of how the organization may continue with future initiatives. Primarily, long-term strategies are centered around community growth and related workload and how both impact the future deployment of fire stations and personnel.

- Construct a newly relocated Station 211.
- Consider adding a training facility within the district.

Section I:
EVALUATION OF CURRENT CONDITIONS

Overview of American Canyon FPD

This section entails an overview of the American Canyon Fire Protection District (ACFPD).

History of the Fire District

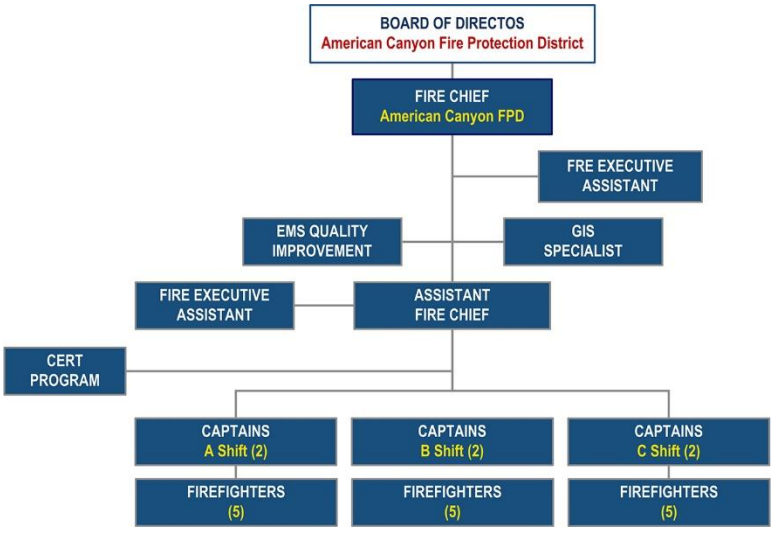
American Canyon FPD has a long history that began in 1955 when the citizens of "Napa Junction" voted to permanently establish the fire protection district. The district was then fully funded, beginning with a Board of Directors with three elected members, two paid personnel, and 30 volunteers.

In 1957, ACFPD was formally recognized by the State of California as a legal entity in accordance with the regulations that enabled the district to exercise all appropriate powers, rights, and privileges. When the City of American Canyon was legally incorporated in 1992, ACFPD remained as a "subsidiary" special district.

Organizational Structure

The following figure is an illustration of the current organizational structure of the American Canyon Fire Protection District. The Board of Directors (BOD) is now comprised of five elected members who oversee the District and Fire Chief.

Figure 1: American Canyon FPD Organization Chart (2022)

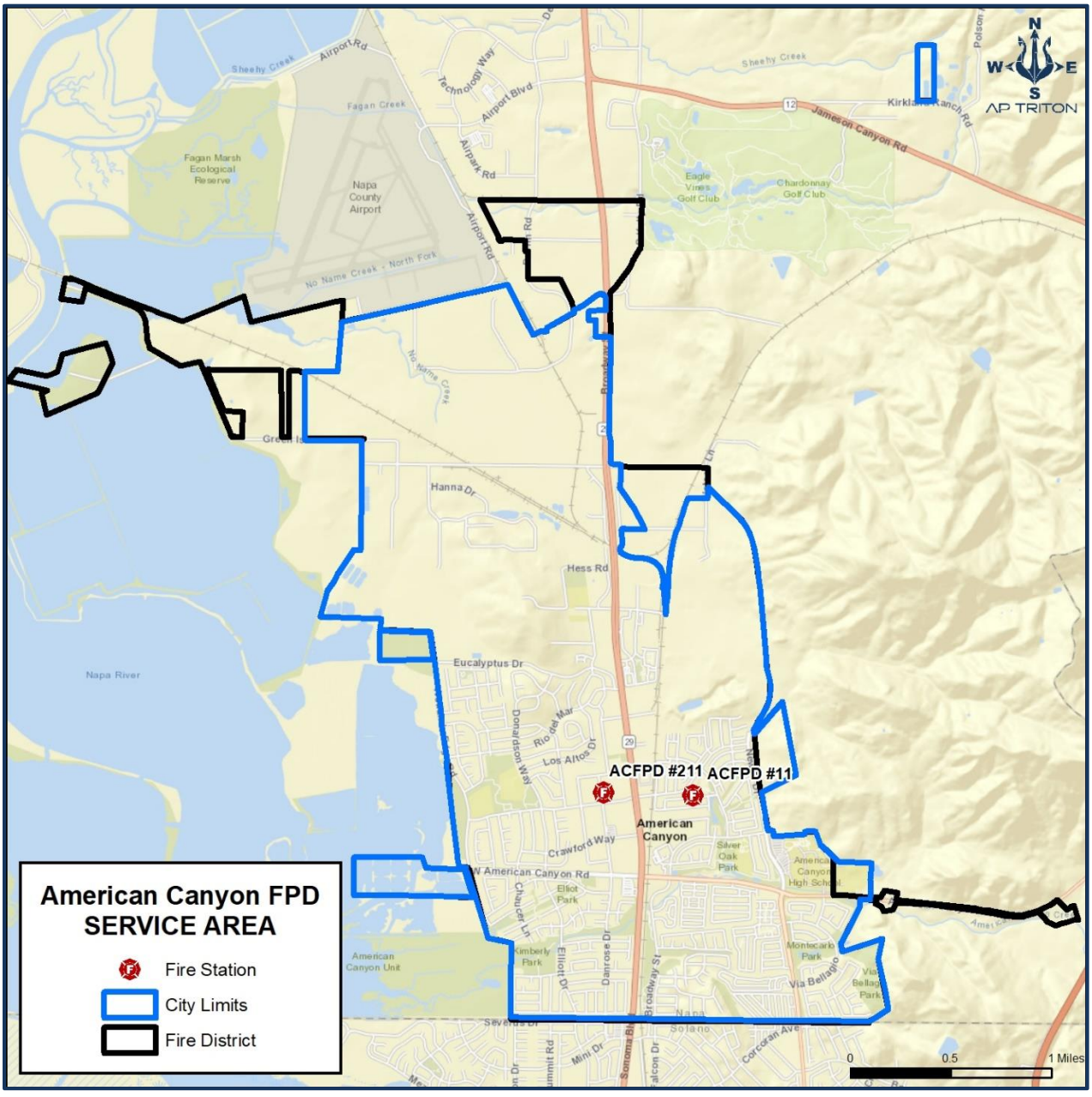


The Fire Chief and Assistant Fire Chief are responsible for the supervision of Fire Executive Assistants, EMS Quality Improvement (QI), and a three-platoon (shifts) system in operations managed by two Captains on each shift. ACFPD maintains a Community Emergency Response (CERT) consisting of approximately 20 members.

American Canyon FPD Service Area

ACFPD has a response area comprised of approximately 7 square miles, which encompasses the City of American Canyon as well as specific unincorporated areas in Southern Napa County. The next figure shows the study area (response area) of ACFPD.

Figure 2: American Canyon FPD Service Area



As of April 1, 2020, the estimated population of the City of American Canyon was 21,837 persons.[1] The U.S. Census Bureau does not maintain population and demographic information on unincorporated areas within fire district boundaries. Nearly 6% of the population in the city was comprised of persons 5 years of age or less, with just over 12% of the population 65 years and older.[2]

Median household income in 2019 dollars was $101,792, with a per capita income of $36,148.[3] Nearly 8% of the population was considered impoverished, nearly 4% under the age of 65 without health insurance, and about 8% under the age of 65 with a disability.[4]

Operations & Deployment

American Canyon FPD deploys its personnel and apparatus from two fire stations (Stations 11 and 211), each staffed with career personnel 24 hours daily. Each station has a minimum of three-person staffing, with one engine company at each. The district maintains an assortment of other apparatus at each fire station, which are cross-staffed when necessary.

ACFPD provides traditional fire suppression, wildland firefighting, first-response non-transport Emergency Medical Services (EMS), Type 1 urban search and rescue, and swiftwater rescue. ACFPD is a member of the Napa County HazMat Team, which is a Type 2.

American Canyon FPD was originally assigned a Public Protection Classification (PPC®) grade of Class of 5 by the Insurance Services Office (ISO). In the most recent rating, ACFPD was given a Class 2/2Y.

Other Services Provided by ACFPD

Fire inspections, code enforcement, and plan reviews are conducted but outsourced to a private company. ACFPD does provide public education and prevention programs. In addition, the district maintains a Community Emergency Response Team (CERT).

Other Local & Regional Resources

Communications & Dispatch

The City of Napa's Napa Central Dispatch (NCD) serves as the primary Public Safety Answering Point (PSAP) for the cities of American Canyon, Napa, Yountville, and the unincorporated area of Napa County. NCD provides state-of-the-art emergency communications and dispatch for fire agencies, EMS, and law enforcement. The staff provides Emergency Medical Dispatch and pre-arrival instructions to callers utilizing full-time dispatchers, call-takers, and supervisors.

Emergency Medical Transport

Ground Emergency Medical Transport

Patient transport is provided at the Advanced Life Support (ALS) level by American Medical Response (AMR). AMR is a private for-profit corporation that is the exclusive 911 ambulance service provider in Napa County in accordance with a contract.

Air Medical Transport

Rotor-wing (helicopter) scene response is available through REACH℠ Air Medical Services, which bases "REACH 3"—a helicopter—at the Napa County Airport. REACH provides high-level advanced care utilizing specially trained Registered Nurses and Paramedics.

Mutual Aid

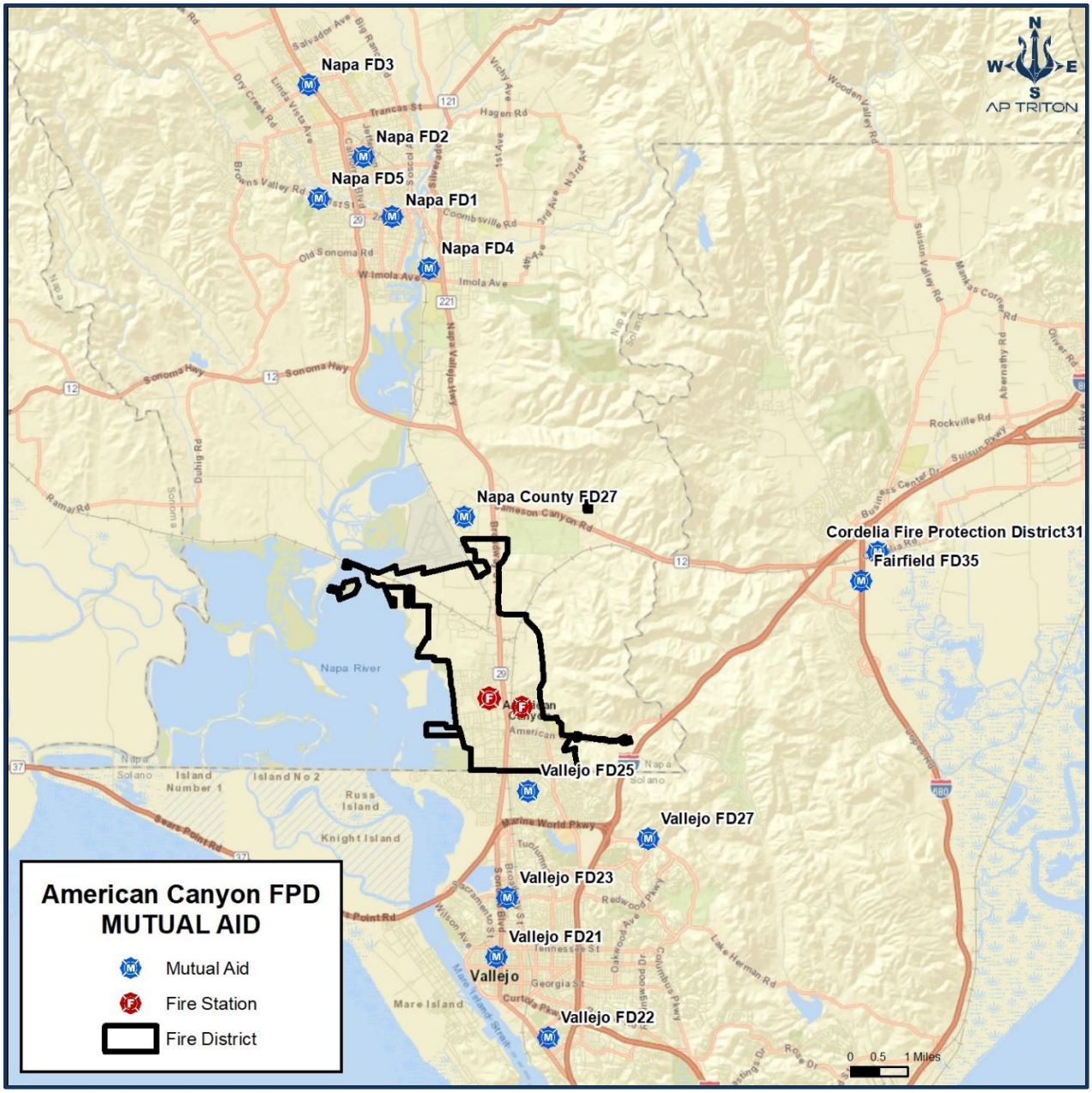
American Canyon FPD has access to a significant number of mutual aid resources. The next figure lists each of the fire agencies and the type of apparatus and number of available staff.

Figure 3: Mutual Aid Resources Available to ACFPD

Agency	Station No.	No. Engines	No. Aerials	Other Units	No. of Staff
Cordelia FPD	#31	1	0	Tender, Brush Unit	3
Fairfield FD	#35	1	0	N/A	3
Napa County FD	#27	1	0	Type 3 seasonal	4
Napa FD	#1	0	1	Battalion Chief, Squad	6
Napa FD	#2	1	0	Type 1 OES Engine	3
Napa FD	#3	1	0	Type 3 Engine	3
Napa FD	#4	1	0	N/A	3
Napa FD	#5	1	0	N/A	3
Vallejo FD	#21	1	1	Battalion Chief	7
Vallejo FD	#22	1	0	N/A	2
Vallejo FD	#23	1	0	Brush Unit	3
Vallejo FD	#25	1	0	Brush Unit	3
Vallejo FD	#27	1 (quint)	0	N/A	3

The next figure displays the locations of the various fire stations from which mutual aid can be obtained by ACFPD.

Figure 4: Mutual Aid Fire Stations in the Region



Financial Overview

Long-term fiscal sustainability is essential to the successful operation of all municipal service providers. As noted earlier in this report, the American Canyon Fire Protection District is a subsidiary special district of the City of American Canyon. However, the district is a separate legal entity. As such, the district is a direct recipient of various revenue sources and is responsible for operating and capital costs. Yet, the city council sitting as the board of directors for the district has full accountability for the district's fiscal affairs. Because of this, the financial activities of the district are blended with those of the City in the Annual Comprehensive Financial Report.

ACFPD utilizes three accounting funds. Those are the General Operations Fund, the Fire Mitigation Fund, and the Fleet, Facilities & Equipment Capital Fund. The Fleet, Facilities & Equipment Capital Fund is self-explanatory. The Fire Mitigation Fund tracks revenue received from a voter-approved new development tax and is restricted to use for district infrastructures such as apparatus and facilities. Finally, the primary fund is the General Operations Fund, which is the focus of this report's section.

Revenue

The primary source of General Operations Fund revenue is property taxes. This is traditional for a fire district.

The second largest revenue is the Fire Assessment/Service Fee. Originally approved in June 1980 as Measure B, this fee is designated solely for the purpose of producing revenue to maintain fire service levels. Therefore, it is not a special revenue and is accounted for in the General Operations Fund. The fee is determined by dividing the total fire flow requirements of all property in the American Canyon Fire Protection District into the total annual budget of the district, less the ad valorem taxes.

In recent years the district has also received significant values for State OES Reimbursements. Additionally, the district collects revenue from a First Responder Fee and a contract with AMR. The First Responder Fee was established by Ordinance 2019-02. The ordinance authorized an initial $500 fee per response to recover costs for providing emergency medical services. After annual cost-of-living adjustments, the fee is currently $508.

The contract with AMR is an outgrowth of AMR's Exclusive Operating Agreement (EOA) with the County of Napa. ACFPD has served as the primary provider of ALS services within the district's jurisdictional boundaries since 2014. The EOA requires AMR to negotiate to provide these services. As of the March 2022 Agreement, the annual negotiated reimbursement to the district is $68,750.

The following figure outlines the General Operations Fund revenues for the most recent four fiscal years and the projections for the upcoming fiscal year.

Figure 5: ACFPD General Operations Revenues

Description	FY 18/19 Actual	FY 19/20 Actual	FY 20/21 Actual	FY 21/22 Budget	FY 22/23 Projected
Property Taxes	$4,432,801	$4,640,738	$4,779,364	$5,038,925	$5,240,482
Fire Assessment Fee	$638,537	$658,922	$669,664	$665,763	$672,421
Interest Earnings	$111,816	$116,548	$12,354	$78,000	$69,253
State OES Reimbursement	$499,260	$131,708	$817,689	-	-
Other[1]	$206,349	$312,365	$418,560	$338,500	$344,770
TOTAL REVENUE:	**$5,888,763**	**$5,860,281**	**$6,697,631**	**$6,121,188**	**$6,326,926**

[1]Includes Fire Protection Fee from City; First Responder Fees; Permit & Inspection Fees; and AMR Contract

Expenditures

As with most service industries, the majority of the district's expenditures are driven by employee salary and benefit costs. A summary of total General Operations Fund expenditures for the most recent four fiscal years and the projections for the next fiscal year are provided in the following figure.

Figure 6: ACFPD General Operations Expenditures

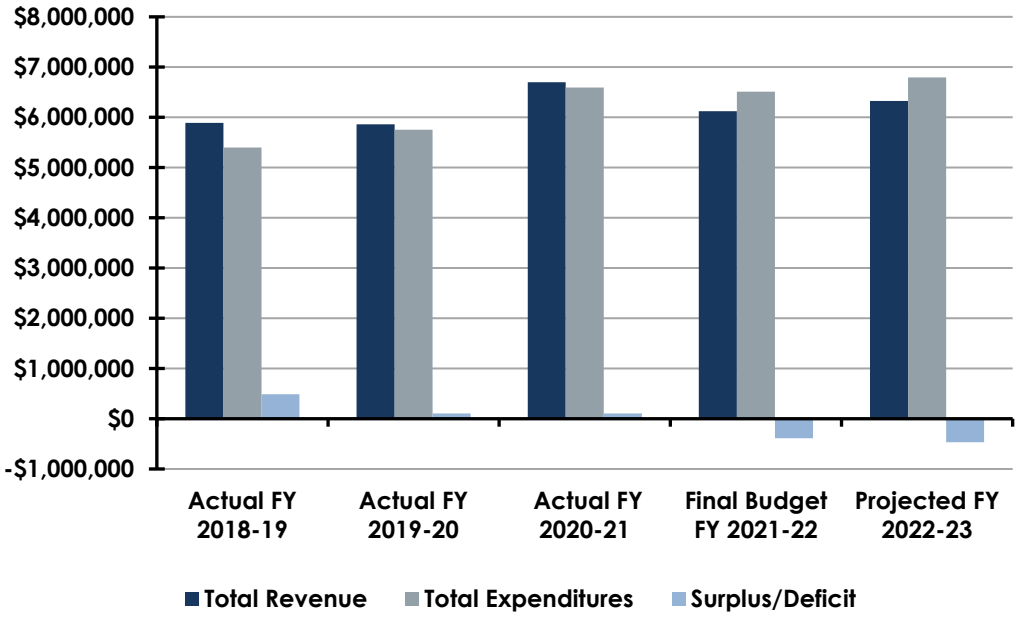
Description	FY 18/19 Actual	FY 19/20 Actual	FY 20/21 Actual	FY 21/22 Budget	FY 22/23 Projected
Personnel	$4,598,920	$4,926,463	$5,598,629	$5,556,688	$5,720,573
Supplies & Services	$642,012	$663,093	$825,895	$779,707	$894,933
Transfers Out/Capital	$159,135	$163,909	$168,826	$173,891	$179,108
TOTAL EXPENSES:	**$5,400,067**	**$5,753,465**	**$6,593,350**	**$6,510,286**	**$6,794,614**
Surplus/Deficit	**$488,696**	**$106,816**	**$104,281**	**$389,098**	**$467,688**

According to Chief Cahill's Message in the 2021 Annual Report, the Board approved hiring an additional four Firefighter positions to guarantee a minimum of two engine companies on duty each day. This accounts for the Personnel expenditure increase seen between FY 19/20 and 20/21.

The Joint Powers Agreement between the City of Napa and ACFPD for Fire Management Services is a unique expenditure. According to Amendment #4, dated July 2020, services provided by the city to the district include duty coverage by a City Battalion Chief, other Fire Administrative Services, and Public Information Education.

The following figure represents the five fiscal years' General Operations Fund revenue to expenditures and the resultant surplus or deficit.

Figure 7: ACFPD General Operations Revenue to Expenditures



As seen in the preceding figure, the district has progressively been moving from a surplus to a deficit position. Meaning in prior fiscal years, the revenues exceed the expenditures. However, the budget projections beginning in FY 21/22 and continuing through FY 25/26 indicate anticipated deficits. That is when the revenues are insufficient to cover the planned expenditures. It should be noted that this does not take into account future planned development.

On a positive note, the district has enough Fund Balance to absorb the expected shortfalls. As of FY 21/22 mid-year, the Fund Balance is indicated as $5.84 million. With the planned deficits, that amount will decrease to $4.12 million by FY 26/27, then gradually begin rebuilding. This Fund Balance is in addition to the district's two reserve accounts, as defined below. Besides the Fund Balance, the district also has an Operating Reserve valued at slightly over $3 million at FY 21/22 mid-year and a Contingency Reserve valued at $1.3 million. Although it is never a good idea to project long-term recurring deficits, the strong fiscal position of the district makes it less concerning in this instance.

Additionally, while long-range financial planning, such as the district's nine-year projections, is a helpful tool, they are simply projections. Given the ever-changing nature of economic conditions, accurately predicting a period beyond three fiscal years is very challenging.

Other Observations

The City Council/Fire District Board annually reviews and approves Fiscal and Budgetary Policies as part of the City's operating budget. These are codified in the City's annual budget. This is another strong fiscal management best practice. Since the district's final budget adoption occurs in September, after the City's budget adoption, the district may also wish to consider codifying these policies in the district budget.

In addition to the general Fiscal and Budgetary policies, the district has established a Fund Balance/Reserve Policy, No. 100-14. It defines two reserves, the Operating Reserve and the Contingency Reserve. The Operating Reserve is committed to covering operational costs from April through December when property tax revenues are received. The Contingency Fund is committed to providing a source of funds to mitigate the impact on the General Fund of a prolonged economic downturn or to fund an unanticipated major expenditure. The policy outlines that the Operating Reserve balance is to be equivalent to fifty percent (50%) of the General Fund operating revenues. The Contingency Reserve balance is to be the equivalent of twenty percent (20%) of the General Fund operating expenditures, excluding capital contributions. As noted previously in this report, the district is currently meeting the Reserve Policy requirements and predicts to continue to do so despite anticipated future budget deficits.

The district participates in CalPERS for both pension and health care benefits. As such, unfunded liabilities exist on both the pension and the retiree medical (Other Post-Employment Benefits – OPEB) sides. According to the Annual Comprehensive Financial Report, for the fiscal year ending June 30, 2021, the district's net pension liability for the safety plan was $8.2 million. The OPEB liability was approximately $2.8 million. These liabilities are not unique to the district. Most public sector agencies in California are grappling with similar long-term expenses.

As an OPEB funding strategy, the district participates in the California Employers' Retiree Benefit Trust (CERBT), which is an irrevocable IRC Section 115 trust fund administered by CalPERS. This is another example of the district being prudent fiscal stewards. At this time, the district has elected not to participate in a trust for pension costs but could decide to do so later.

Management Components

Managing today's fire service can be highly complex. A progressive 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 constrained financial resources.

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

Foundational Elements

Mission, Vision, Values

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

ACFPD Mission Statement

Our mission is to provide reliable and progressive emergency response while seeking opportunities to make a positive difference in the lives of the people and the community we serve.

ACFPD Vision Statement

Our 2020 vision is to be an exceptional organization delivering high-quality services utilizing sustainable best practices. We will continuously improve and grow with the community as a positive, healthy, and cohesive team.

ACFPD Core Values

Mutual Respect—Integrity—Responsibility—Empathy—Kindness—Empowerment Dedication—Adaptable—Transparency—Professionalism

Goals

The ACFPD authored an internal Strategic Plan in 2015, listing several goals and objectives. At the time of this report, it could not be verified if the previously written plan had been implemented or completed. The referenced plan is available on the ACFPD's website. The district plans on developing new, updated goals soon.

Internal Assessment of Critical Issues

Three critical issues were identified from the Fire Chief's perspective: Recruitment and retention of personnel; keeping up with the anticipated growth and the ability to adequately staff the district; and the ability to provide additional chief officers (Battalion Chief).

Internal Assessment of Future Challenges

Several challenges were identified with the stakeholder interview process, with three that stand out for the ACFPD: The ability to maintain a work-life balance for all personnel. Second, ensure adequate staffing is maintained at all levels within the district. Third, maintaining a healthy relationship with the City of American Canyon. Finally, fiscal challenges, including budgeting and rising infrastructure and apparatus replacement costs, are also concerns for the ACFPD.

Communications

Internal Communication

Internal communication within the ACFPD is accomplished in several ways. Daily, the Fire Chief meets with the executive team, including the Assistant Chief and Fire Executive Assistants. In addition, the Assistant Chief meets with the administrative staff and the on-duty crews daily.

Internal district Information-sharing is accomplished through informational bulletins (IB), disseminated through an electronic platform (Target Solutions). ACFPD maintains an open-door policy to discuss issues and concerns. No district all-hands meetings are scheduled at the time of this report.

In addition to internal staff meetings, the Fire Chief regularly meets with the City of American Canyon's executive leadership team.

External Communication

Communicating with the public is accomplished primarily through social media platforms, including Facebook and Instagram, and through an externally distributed newsletter. Content is provided and monitored by ACFPD administrative staff. The Fire Executive Assistant, serving as the Public Information Officer (PIO), oversees the social media and newsletter programs. This position is also responsible for distributing customer satisfaction surveys to those that have used the district's services.

As of June 2022, the district had approximately 2,782 Facebook followers and 230 Instagram followers. There were also 2,212 recipients of the district's monthly newsletter. District news, events, and other information are available on the ACFPD website, as well as in the electronic newsletter that is posted monthly.

Although COVID-19 has prevented ACFPD from participating in various community events, the district still hosts an open house during fire prevention week in October, and participates in the annual National Night Out campaign in conjunction with the City of American Canyon Police Department and the Chamber of Commerce's "Meet in The Streets" events.

Reporting & Recordkeeping

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

ACFPD utilizes a third-party platform (ESO EPCR) as the district's electronic repository for EMS data. An additional electronic platform (ZOLL®) is used for non-EMS data. In addition, ACFPD uses the ZOLL platform to meet the NFIRS reporting requirements as a single reporting platform. District training records are also captured electronically through a third-party provider, Target Solutions®.

Additional records maintained and archived by the ACFPD include self-contained breathing apparatus (SCBA), hose testing, ladder testing, and apparatus pump tests. In addition, vehicle maintenance is performed by outside contractors, with records maintained accordingly. These records are captured manually (on paper) and stored in binders and file cabinets. Personnel records are also collected manually and stored in file cabinets. The district is reviewing a third-party vendor (Vector Solutions) as an electronic repository for the above-referenced records. The proposed platform should be deployed by Fall 2022.

Document Control & Security

ACFPD utilizes computer-based controls and manual recordkeeping platforms for human resources and similar-type documents. Integration into a fully executed electronic records retention platform (ESO) is in progress, with full implementation scheduled for 2023.

Security for the ACFPD 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. ACFPD uses a third-party vendor IT provider (DNI) that maintains all computers and servers for the district.

Facility security is achieved using electronic access controls at external doors and remote transmitters in each vehicle to activate gates and apparatus bay doors. Access to the joint headquarters for the ACFPD and American Canyon Police Department facility is controlled by police personnel assigned to the main lobby.

Information Technology Systems

ACFPD contracts IT services through a third-party provider (DNI) for all district computer, hardware, and software needs and support. In addition, ACFPD has been under contract for phone service through the City of American Canyon; however, at the time of this report, the district is transitioning to a new phone system and stand-alone service provider.

It was noted that hardware, phones, tablets, and peripherals are suitable; however, acquiring up-to-date and specific software relating to fire district needs is an ongoing challenge. For example, incidents are captured electronically; other records are in paper form and stored in binders. As a result, the ACFPD is looking to transition to a new solutions-based platform to provide a more robust records management system district-wide.

Staffing & Personnel

Staffing

Fire 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 an art as much as a science. Consistency, fairness, safety, and personal and professional growth opportunities are critical values for a healthy management culture. This is especially the case in departments evolving and progressing to meet today's emergency response challenges.

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

Fire district 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 provides emergency response personnel with the tools needed to deliver effective services to the community it serves. The second group, Operations, provides the necessary resources to perform emergency and non-emergency services to the community.

Administrative & Support Staffing

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

Planning, organizing, directing, coordinating, and evaluating each of the various programs within a fire district are typical responsibilities of the administration and support personnel. This list is not exhaustive and may include other elements as needed. It is essential to understand that tasks associated with each function often co-occur. This requires the Fire Chief and administrative support staff to focus on many different areas simultaneously.

ACFPD operates with civilian administrative support staff, responsible for critical tasks, providing clerical, financial, records management, budgetary, human resources, and customer service support. In addition to the functions above, administrative support staff regularly assist with other district activities, including, but limited to, serving as the district's public information officer (PIO), providing training records management, serving as the fire prevention liaison, and providing program-specific support functions.

The following figure lists the administrative and support staffing for the ACFPD.

Figure 8: ACFPD Administrative & Support Staffing

Position	FTE
Fire Chief	1
Assistant Chief	1
Fire Executive Assistant—Office Administrator	1
Fire Executive Assistant	1

The Fire Executive Assistant—Office Administrator is a full-time City of American Canyon employee assigned to ACFPD. The district reimburses the City for all costs associated with this position.

Emergency Management

The ACFPD does not provide emergency management functions for the district nor participate in emergency management activations in conjunction with the City of American Canyon.

Should an event become more significant, the County of Napa Office of Emergency Services (OES) can provide multi-jurisdictional and interagency coordination.

Emergency Response Staffing

ACFPD's emergency response staffing level is based on risks associated with the community, the financial ability of the district to fund the organization, and the expectations of those residing within the jurisdiction.

ACFPD uses a three-platoon system (A, B, and C shifts), with each platoon scheduled for 48 hours on duty per shift, achieving a minimum staffing level of six personnel. The following figure lists ACFPD's emergency response staffing.

Figure 9: ACFPD Emergency Response Staffing

Position	FTE
Captain	6
Firefighter/Driver-Operator	10
Firefighter (Probationary)	2
Reserve Support Staff	3

ACFPD is authorized with 22 emergency personnel to provide fire suppression, rescue, and EMS services. The 22 authorized positions include the Fire Chief and Assistant Chief.

In addition to regular, day-to-day operational duties, the six ACFPD Captains manage various projects and programs, including:

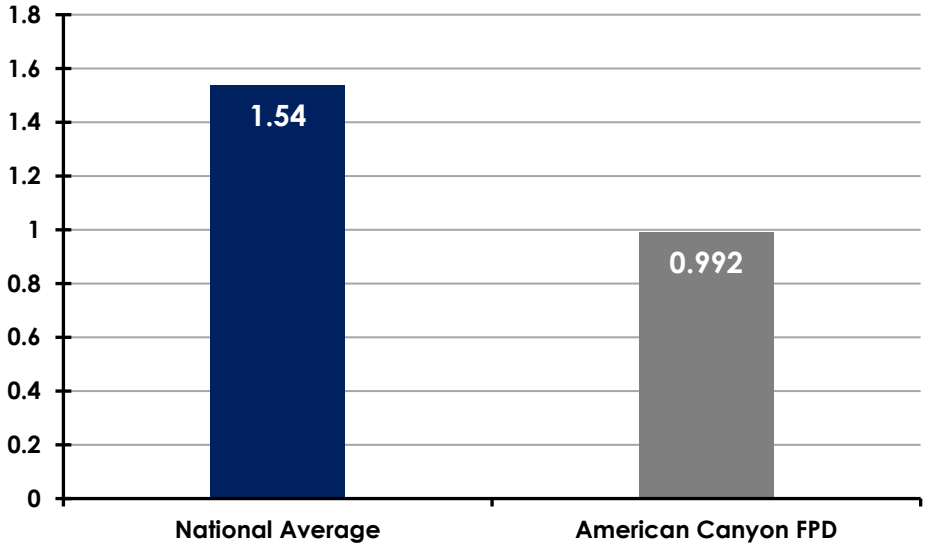
- USAR equipment and team management
- Training (including conducting new-hire academy sessions)
- Radios/communications equipment
- Rescue boat program
- Personal protective equipment (PPE)
- Apparatus maintenance and equipment
- Medical continuous quality improvement (CQI)
- EMS supply ordering and management
- Facilities management

ACFPD has an established Reserve Support Program. The district currently has three reservists participating in the program. Each reserve provides specialized services to the district, including: 1) EMS Coordinator, 2) Weed Abatement and CERT Director, and 3) GIS/RMs manager.

NFPA 1710 is frequently cited as an authoritative document addressing fire department staffing. In addition, the *Center for Public Safety Excellence* publishes benchmarks for the number of personnel recommended on the emergency scene for various levels of risk. [1,2]

In comparing the number of firefighters on staff per 1,000 service area population, the following figure illustrates the current comparison of the ACFPD's staffing compared to national averages within the *2019 United States Fire Department Profile* published by NFPA.[3] The career staffing level for ACFPD is 0.992 per 1,000 population, which is below the recommended national average of 1.54 per 1,000.

Figure 10: ACFPD Firefighters per 1,000 Population (2019)



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

Figure 11: Mutual Aid Resources

Department	Engines	Aerials	Other	Staffing
Cordelia Fire District	1	0	1-WT,1-Type III	3
City of Fairfield Fire Department	1	0		3
City of Napa Fire Department	1	0	1-Squad,1-BC	4
Napa County Fire	1	0	1-Type III,1-BC	4
Vallejo Fire Department	1	1	2-VI,1-BC	8

The Napa County Fire Department and the City of Vallejo Fire Department provide mutual and automatic aid to ACFPD.

Personnel Management

Personnel that deliver emergency services to a community's residents, businesses, and visitors are critical to any fire district. 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. Thus, an essential function of the district's success is managing human resources—providing for its greatest assets.

Policies, Rules & Regulations, & Guidelines

ACFPD currently maintains policies, procedures, and guidelines in paper form, stored in binders. In addition, the district utilizes an internal electronic repository (G-drive) located on district computers. All ACFPD personnel has access to the policies. The district has entered into a contract with a third-party provider (Lexipol®) to provide for greater efficiency of policies and procedures; however, the transition has not occurred due to staffing shortages and current workloads. The district is anticipating Lexipol® to be implemented by the end of 2022. ACFPD conducts policy reviews as needed; however, the district does not have a formal review process.

ACFPD utilizes internal standard operating guidelines (SOG) for fire ground operations, training, rescue, and vehicle/equipment maintenance. In addition, technical rescue standards are contained within the district's policies and procedures, created by contributing allied agencies within Napa County regarding specialty-team deployments.

Job Descriptions

The ACFPD Human Resources division maintains job descriptions for each position. In addition, job descriptions on the American Canyon Fire Protection District website are comparable with those found in fire districts of similar size and organization.

Compensation

An Annual Salary Schedule listing full-time employee salary steps and benefits information for all ACFPD employees is available electronically on the City of American Canyon website, listed under the Human Resources tab. The schedule contains the salary range and position steps: Each class within the ACFPD has four steps available for placement, except for the Assistant Chief position, which lists three steps. The schedule was last updated in July 2021. The Memorandum of Understanding (MOU) for Local 1186 (2021–2023) is also under the employment tab.

Disciplinary Process

Personnel-related decisions are made by the Fire Chief, who has authorization to hire, discharge, and promote. Levels of discipline and associated procedures are listed within district policy (SOG 100.09) and the Memorandum of Understanding between the district and ACFPD, Local 1186 (July 1, 2021–June 30, 2023). In addition, ACFPD provides 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. For example, risk is presented that can result from a hiring mistake, improperly processed disciplinary process, wrongful termination claims, and more. However, access to legal counsel can reduce this liability. Accordingly, as necessary, ACFPD consults with the district's legal counsel on personnel-related matters.

Counseling Services

Firefighters are constantly faced with emotional needs that are quite different and unique to the occupation. Today's firefighters struggle with extremely high levels of career-related stress, and the suicide rate within the profession is climbing yearly, according to the Firefighter Behavioral Health Alliance (FBHA).[4] This report is one of many recognizing the issues within the firefighter profession, manifesting themselves through higher divorce rates and addictions such as alcohol, drugs, or gambling. Several recent studies have also identified Post Traumatic Stress Disorder (PTSD) as another primary concern for emergency responders. Employees need a support system readily accessible from qualified professionals who understand the employee's circumstances.

The ACFPD provides an employee assistance program (EAP) through the Fire Districts Association of California (FDAC)at no cost to the employee or family members experiencing emotional, family, financial, substance abuse, or related problems.

Application & Recruitment Process

The ACFPD advertises on its website for open, full-time firefighter positions. The district utilizes the Firefighter Candidate Testing Center (FCTC) process for all new hires. This initial process includes successfully passing a written examination and a candidate physical ability test (CPAT) before being placed on a statewide eligibility list. Once an opening is announced and a candidate's application is accepted, ACFPD conducts an oral interview and Chief's interview. Upon receiving a conditional offer of employment, a background investigation, polygraph, drug screening, and medical evaluation is conducted.

Performance Reviews, Testing, Measurement, & Promotion Process

The ACFPD Assistant Fire Chief currently conducts annual evaluations for personnel at the captain's level; however, the evaluations are not performance-based.

To ensure job satisfaction requirements have been met, probationary firefighters receive a probation review at the end of 12 months and 18 months, respectively. The first 12 months of probation focus on firefighter skills, and the last six months focus on engineer skills.

Promotional assessments are conducted to fill open positions following district policy and the current Local 1186 bargaining agreement.

Health & Safety

Health

To ensure the health of its personnel, ACFPD utilizes NFPA 1582: Standard on Comprehensive Occupational Medical Program for Fire Departments.[5] Initial medical exams following this standard are required for all full-time personnel before an appointment.

Annual fitness evaluations are offered to all sworn personnel. However, fitness evaluations are not required as a condition of employment.

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.[6] 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. Finally, the committee should analyze the information presented and report their findings to the Fire Chief.

At the time of this report, the ACFPD had not established a formalized safety committee; however, the Assistant Chief meets with two captains, one firefighter-paramedic, and one executive assistant monthly or as needed based on issues or concerns. The district does not participate in the City of American Canyon's safety committee.

Introduction to the Stakeholder Interviews

Triton interviewed a wide variety of the American Canyon Fire District's 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 in this report. Based on the information reviewed, the team identified a series of observations and recommendations, and felt they were significant enough to be included in this report.

Stakeholders were identified within the following groups: Elected Officials, City Management, Department Heads, Chief Officers, Labor Leaders, Rank & File, and Administrative Staff. Identified Business and Community Leaders, Community Members, and Community Volunteers completed an electronic stakeholder survey. Detailed responses are listed in Appendix B.

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 department to carry out its mission. No matter how competent or numerous the firefighters, if appropriate capital equipment is not available for operations personnel, it would be impossible for the American Canyon Fire Protection 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 assessed ACFPD's fire stations, frontline apparatus, and other capital equipment.

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 ACFPD, Triton asked the fire district to rate the condition of its fire stations using the criteria from the next figure. The results will be seen in subsequent figures.

Figure 12: 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 ten years.
Good	The exterior has a good appearance with minor or no defects. Clean lines, good workflow 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 a 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 the apron may exist. The roof has evidence of leaking and 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 major defects are evident. It may not be well-suited to its intended purpose. Age is typically greater than 40 years.

American Canyon Fire Stations

The following figures list the various features of the two ACFPD fire stations.

Figure 13: ACFPD Station 11

Address/Physical Location:	911 Donaldson Way East., American Canyon, CA 94503						
	**General Description:** Station 11 meets most requirements of a modern station. The single-story station has sufficient space to meet the needs of the area and district for several years. The administrative area is undersized and will not support any additional administrative services growth.						
Structure							
Date of Original Construction	2007						
Seismic Protection	Yes						
Auxiliary Power	Yes						
General Condition	Good						
Number of Apparatus Bays	Drive-through Bays	3		Back-in Bays	0		
ADA Compliant	Yes						
Total Square Footage	18,819						
Facilities Available							
Sleeping Quarters	6	Bedrooms	6	Beds	0	Dorm Beds	
Maximum Staffing Capability	6						
Exercise/Workout Facilities	Yes						
Kitchen Facilities	Yes						
Individual Lockers Assigned	Yes						
Bathroom/Shower Facilities	4 bathrooms & showers						
Training/Meeting Rooms	Yes						
Washer/Dryer/Extractor	Washer/dryer/extractor						
Safety & Security							
Station Sprinklered	Yes						
Smoke Detection	Yes						
Decon & Biological Disposal	Yes						
Security System	No						
Apparatus Exhaust System	Yes						

Figure 14: ACFPD Station 211

Address/Physical Location:	225 James Rd, American Canyon, CA 94503

General Description:
Station 211 is an older one-story station with limited bay and living space. The building does not have enough room or proper design to meet modern firefighting requirements. The station is poorly located in relation to Station 11.

Structure						
Date of Original Construction	1980					
Seismic Protection	Yes					
Auxiliary Power	Yes					
General Condition	Fair					
Number of Apparatus Bays	Drive-through Bays	3	Back-in Bays	1		
ADA Compliant	No					
Total Square Footage	5,524					
Facilities Available						
Sleeping Quarters	0	Bedrooms	0	Beds	4	Dorm Beds
Maximum Staffing Capability	4					
Exercise/Workout Facilities	Yes					
Kitchen Facilities	Yes					
Individual Lockers Assigned	Yes					
Bathroom/Shower Facilities	2 bathrooms with showers					
Training/Meeting Rooms	Yes					
Washer/Dryer/Extractor	Washer/dryer					
Safety & Security						
Station Sprinklered	No					
Smoke Detection	Yes					
Decon & Biological Disposal	Yes					
Security System	No					
Apparatus Exhaust System	Yes					

Summary of American Canyon FPD Fire Stations

The main American Canyon fire station was rated to be in "Good" condition. The second fire station was rated as "Fair." The following figure summarizes ACFPD's fire stations and their features.

Figure 15: Summary of ACFPD Fire Station Features

Station	Square Footage	Apparatus Bays	Maximum Staffing	General Condition	Station Age
Station 11	18,819	3	6	Good	15 years
Station 211	5,524	4	4	Fair	42 years
Totals:	**24,343**	**7**	**10**		

The fire stations were evaluated utilizing a checklist based on the National Fire Protection Association's *Standard on Fire Department Occupational Safety, Health, and Wellness Program*. A walkthrough inspection of each facility was completed on June 7, 2022.

The two American Canyon Fire Protection District stations are less than half a mile from each other. Station 11 was built in 2007, and housing the administration meets most functions of a modern fire station. Station 211, being much older, does not meet the requirements of modern firefighting. 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 Station 211 is no exception.

For example, older buildings do not meet the requirements due to the need to decontaminate personnel and equipment after many of the 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. Station 211 does not meet this need.

While all structures require routine maintenance, fire stations require even more maintenance due to the continuous occupancy by several adults. Multiple departures and returns of heavy apparatus also affect these structures. While there is an active maintenance program, there was evidence of ongoing maintenance deferral at Station 211. The differed maintenance appears to be accumulating and will become more urgent.

The stations were generally clean and uncluttered. The crews AP Triton encountered during the station tours demonstrated ownership of their facilities. Each station was provided with auxiliary power that was reported to be periodically inspected. In addition, both stations were supplied with an exhaust removal system that appeared to be in use and operable.

Station 11

Station 11 was built in 2007 as a paid/volunteer combination fire station, fire administration, and police station. The fire station portion of the station meets most modern firefighting needs. Separate space for turnout gear, individual showers, individual rooms, and separate office and living spaces are provided.

The facility has multiple entrances, with the police entrance having a ring down phone to dispatch but the fire entrance having only an intercom that was inoperable at the time of inspection. The station has an SCBA compressor/fill station in the apparatus bay that had proper documentation and records present. There is a back garage area that was a little less organized but in a safe condition. The tool area did have a couple of non-compliant gasoline containers present.

The interior of the station was clean and organized, with no issues noted. The layout is conducive to function with no unnecessary impediments to the apparatus bays or offices.

The administration area is adequate in size for the current administration, but there is no room to accommodate the future growth already identified.

Station 211

Station 211 was built in 1980 and does not meet most modern firefighting health and safety needs or features. The interior has been rearranged several times in an attempt to accommodate changing needs, but the resulting layout is not conducive to function with unnecessary impediments. There is a classroom that can accommodate approximately 20 students, but the teaching aids in the room are outdated. The station has a household washer and dryer but does not have an extractor. The district has a process to bag gear and deliver it to Station 11 with the extractor for cleaning. There is no decontamination room or space available. There is one dorm area with only partial dividers between beds that do not meet gender segregation needs and two small bathrooms with showers.

The front apron near the street was in very poor condition. The apparatus bays are not high enough to accommodate modern fire engines that have increased in height to carry the needed equipment. There is a back garage that is used by the City of American Canyon for fleet repair, and the firefighters do not use or access the building, so it was not inspected as part of this report.

The station was clean and mostly well-kept. The lack of space and storage leaves some tool and work areas in the apparatus bay to appear cluttered and unorganized. Since the construction of Station 11 is so close to Station 211, the plan has been to build a new station better positioned to serve the district, and efforts to attain property in a better location are ongoing. There is no long-term goal of maintaining Station 211 in its current location, but as the station nears being in the "poor" category, the plan to move should be finalized.

Training Center

There is no standalone training center, but there are multiple props and a non-burning tower that appear to be sufficient for many training evolutions behind Station 211. There is also a small classroom available inside Station 211. There is no local prop available for live fire burn training exercises.

Facility Replacement

There is no apparent or identified maintenance schedule or capital improvement plan in place. Ensuring the stations are in good repair requires regular maintenance and scheduled replacement of specialized equipment. Plans for updating and repairing systems such as heating and air conditioning (HVAC), generators, roofs, driveways, parking areas, security gates, painting, carpet replacement, and small appliances can keep costs down and buildings in service longer. In addition, establishing a facility replacement and maintenance plan will enable the district to plan for ongoing service from each station more efficiently.

Capital Apparatus & Equipment

Fire apparatus and other emergency response vehicles must be sufficiently reliable to transport firefighters and equipment rapidly and safely to an incident scene. In addition, such vehicles must be properly equipped and function appropriately to ensure that the delivery of emergency services is not compromised.

As a part of this study, Triton requested that the American Canyon Fire Protection District provide a complete inventory of its fleet (suppression apparatus, command and support vehicles, specialty units, etc.). For each vehicle listed, ACFPD was asked to rate its condition utilizing the criteria described in the next figure, which will be shown in the apparatus inventory figures.

Figure 16: Criteria Used to Determine Apparatus & Vehicle Condition

Components	Points Assignment Criteria
Age:	One point for every year of chronological age, based on the date the unit was originally placed into service.
Miles/Hours:	One point for every 10,000 miles or 1,000 hours
Service:	1, 3, or 5 points are assigned based on service type received (e.g., a pumper would be given a 5 since it is classified as severe duty).
Condition:	This category considers body condition, rust, interior condition, accident history, anticipated repairs, etc. The better the condition, the lower the assignment of points.
Reliability:	Points are assigned as 1, 3, or 5, depending on the frequency a vehicle is in for repair (e.g., a 5 would be assigned to a vehicle in the shop 2 or more times per month on average; while a 1 would be assigned if in the shop on average once every 3 months or less.

Point Ranges	Condition Rating	Condition Description
Under 18 points	Condition I	Excellent
18–22 points	Condition II	Good
23–27 points	Condition III	Fair (consider replacement)
28 points or higher	Condition IV	Poor (immediate replacement)

As will be shown in the next figure, with the exception of Engine 211 (in "Poor" condition), most of the American Canyon Fire Protection District's frontline apparatus are in an "Excellent" condition. Engine 11 is only two years old. The next figure lists the inventory of ACFPD's frontline apparatus.

Figure 17: ACFPD Frontline Apparatus Inventory (2022)

Unit	Type	Manufacturer	Year	Condition
Engine 11	Type 1	Pierce	2020	Excellent
Engine 211	Type 1	Spartan	2013	Poor
Engine 411	Type 3	HME	2018	Excellent
Tender 11	Tender	International	2013	Excellent
Brush 11	Type 6	Hi-Tech	2017	Excellent
Rescue 11	Rescue	Pierce	2018	Excellent

Held in reserve, ACFPD retains a 2004 American LaFrance Type 1 engine in "Poor" condition, and a 2005 American LaFrance quint also in "Poor" condition. The next figure lists the fire district's command and utility vehicles inventory. A 2007 Ford ambulance is also maintained in reserve.

Figure 18: ACFPD Command & Utility Vehicles (2022)

Unit	Type	Manufacturer	Year	Condition	Assigned To/Features
Chief 1100	Command	Ford F-150	2011	Fair	Fire Chief
Chief 1101	Command	Ford F-150	2015	Good	Assistant Fire Chief
Utility 11	Utility	Ford F-150	2007	Poor	
Utility 211	Utility	Ford F-250	2000	Poor	
Staff 11	Staff	Hyundai	2015	Excellent	

Apparatus Maintenance & Replacement Planning

No piece of mechanical equipment or vehicle can be expected to last indefinitely. As apparatus and vehicles age, repairs tend to become more frequent and more complex. Parts may become more difficult to obtain and downtime for repair and maintenance increases. Given that fire protection, EMS, and other emergencies prove critical to a community, downtime is one of the most frequently identified reasons for apparatus replacement.

Because of the expense of fire apparatus and medic units (ambulances), most communities develop replacement plans. To enable such planning, fire departments often turn to the accepted practice of establishing a life cycle for apparatus that results in an anticipated replacement date for each vehicle.

The reality is that it may be best to establish a life cycle for planning purposes, such as the development of replacement funding for various types of apparatus yet apply a different method (such as a maintenance and performance review) for determining the actual replacement date, thereby achieving greater cost-effectiveness when possible.

Economic Theory of Apparatus Replacement

A conceptual model utilized by some fire departments is the *Economic Theory of Vehicle Replacement*. As a vehicle ages, the theory states that the cost of capital diminishes, and its operating costs increase.

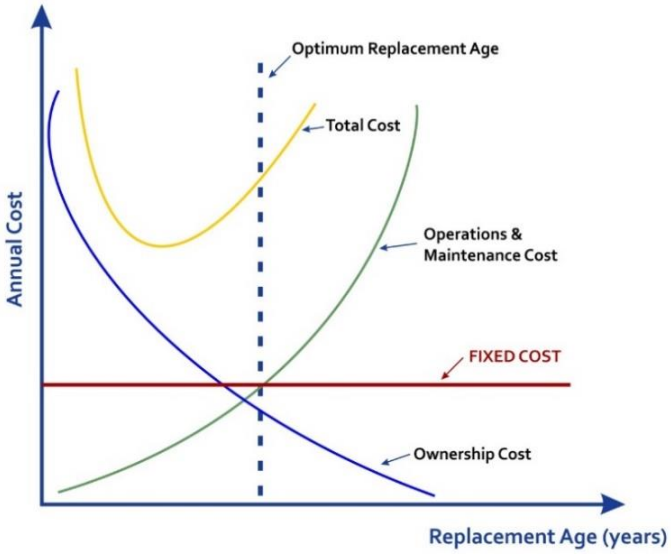
The combination of these two costs produces a total cost curve. The model suggests that the optimal time to replace any apparatus is when the operating costs begin to exceed the capital costs. This optimal time may not be a fixed point but rather a range of time.

Shortening the replacement cycle to this window allows an apparatus to be replaced at optimal savings to the fire district. If an organization does not routinely replace equipment promptly, the overall reduction in replacement spending can quickly increase maintenance and repair expenditures. Fire officials, who assume that deferring replacement purchases is a good tactic for balancing the budget, need to understand two possible outcomes that may occur because of that decision:

- Costs are transferred from the capital budget to the operating budget.
- Such deferral may increase overall fleet costs.

The next figure is a representation of the *Economic Theory of Vehicle Replacement*.

Figure 19: Economic Theory of Vehicle Replacement



Regardless of its net effect on current apparatus and vehicle costs, the deferral of replacement purchases unquestionably increases future replacement spending needs. The deferral may also impact operational capabilities, including the safe and efficient use of apparatus.

Future Apparatus Serviceability

An important consideration for fire departments is the cost associated with the future replacement of major equipment. Apparatus service life can readily be predicted based on factors including vehicle type, call volume, age, and maintenance considerations.

NFPA 1901: Standard for Automotive Fire Apparatus recommends that fire apparatus 15 years of age or older be placed into reserve status, and that apparatus 25 years or older be replaced. This is a general guideline, and the standard recommends using the following objective criteria in evaluating fire apparatus lifespan:

- Vehicle road mileage.
- Engine operating hours.
- Quality of preventative maintenance program and availability of replacement parts.
- Quality of the driver-training program.
- Whether the fire apparatus was used within its design parameters.

- Whether the fire apparatus was manufactured on a custom or commercial chassis.
- Quality of workmanship by the original manufacturer.
- Quality of the components used in the manufacturing process.

It is important to note that age is not the only factor in evaluating serviceability and replacement. Vehicle mileage and pump hours on engines must also be considered. A two-year-old engine with 250,000 miles may need replacement sooner than a 10-year-old one with 2,500 miles.

Other Capital Equipment

The fire district maintains three Physio-Control Lifepak® 15 Cardiac Monitor/Defibrillators manufactured in 2020, and five Lifepak® CR2 Automated External Defibrillators (AED) manufactured in 2020.

ACFPD currently uses two Stryker LUCAS 1 and one LUCAS 3 chest compression systems. These devices automatically deliver high-performance continuous chest compressions in cardiac arrest incidents.

American Canyon FPD utilizes a 2003 Zodiac Mk Futura inflatable watercraft and a 2003 Achilles/Honda "wave runner" watercraft. In addition, the fire district also maintains several trailers, a forklift, and all of the usual capital items such as fire hose, SCBAs, air masks, and a Thermal Imaging Camera (TIC).

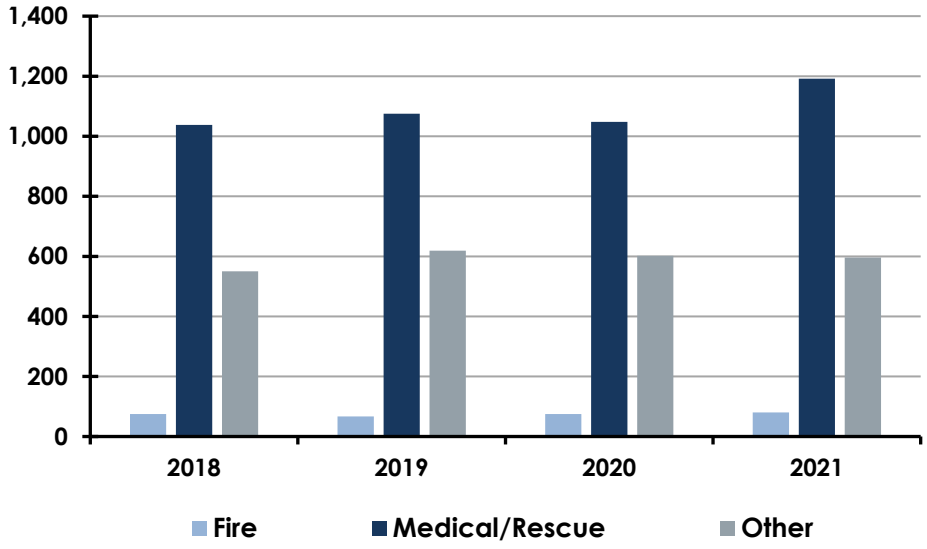
Service Delivery & Performance

In analyzing the service delivery and performance of ACFPD, incident and unit response data were requested by the study team for the full calendar years of 2018–2021. The district provided data from its records management system (RMS) and dispatch center.

Service Demand

The following figure shows the response workload by general type for the last four years. The total response workload has increased by 12.3% over the four full-year periods. Fire call types increased 6.6% over the period. EMS calls are the vast majority of the total volume and increased by 14.8% over the study period. Initially during the COVID-19 pandemic, EMS workload decreased due to the effects of less traffic and personal interactions. All other types of calls had increased by 8.4%.

Figure 20: ACFPD Response Workload History



ACFPD responded to over 7,000 incidents over the four-year period. The following figure shows incidents by type. Emergency medical responses and motor vehicle collisions were the most common incident types, comprising 62% of the total responses.

Figure 21: Responses by Incident Type

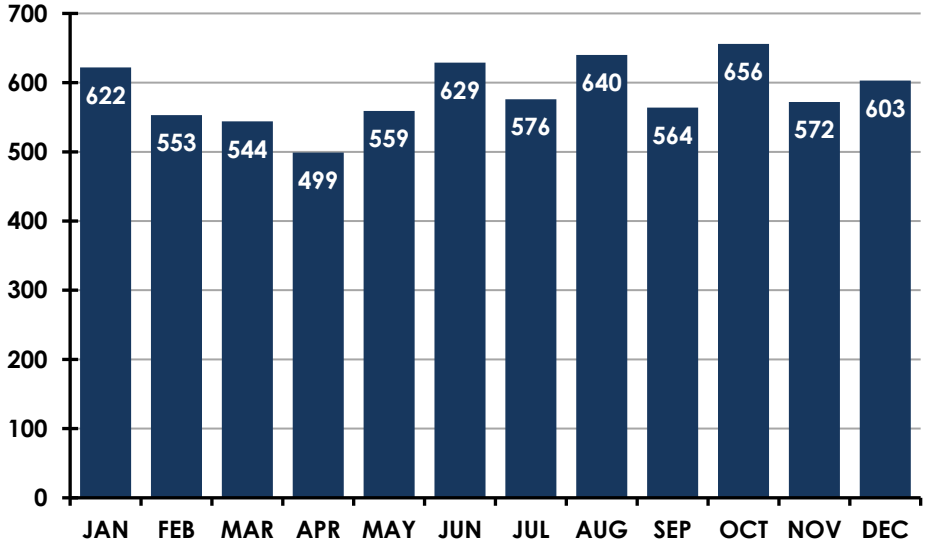
Type Description	Percent of Total*
Medical	62%
Good Intent	17%
Service	8%
Alarm	6%
Fire	4%
Hazmat	2%
Hazard	< 1%
Special	< 1%
Weather	< 1%

*Percentages rounded to the nearest integer.

Temporal Analysis

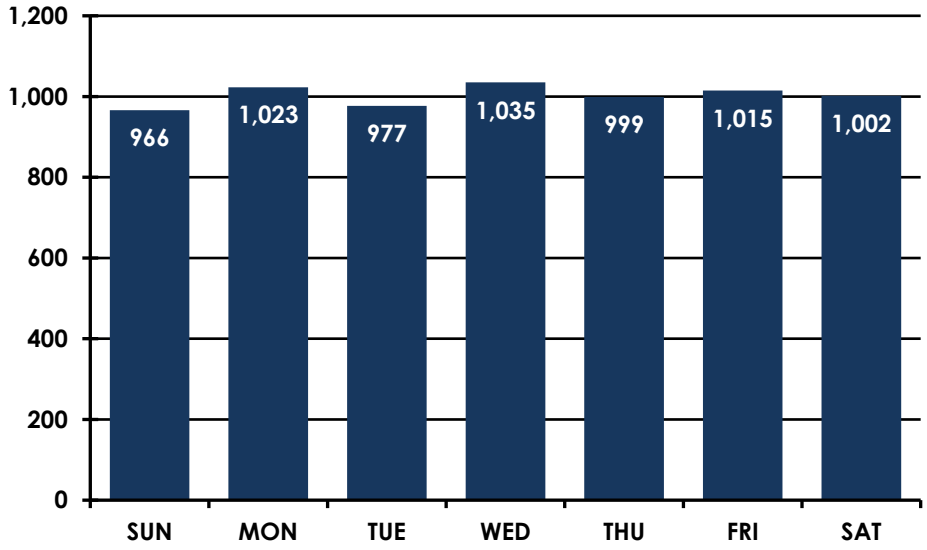
This analysis shows how responses change in volume over various measures of time. For example, the following figure shows the change in volume over the months during the study period, indicating seasonality in the response pattern. The busiest months for ACFPD have been August and October.

Figure 22: Monthly Response Workload (2018–2021)



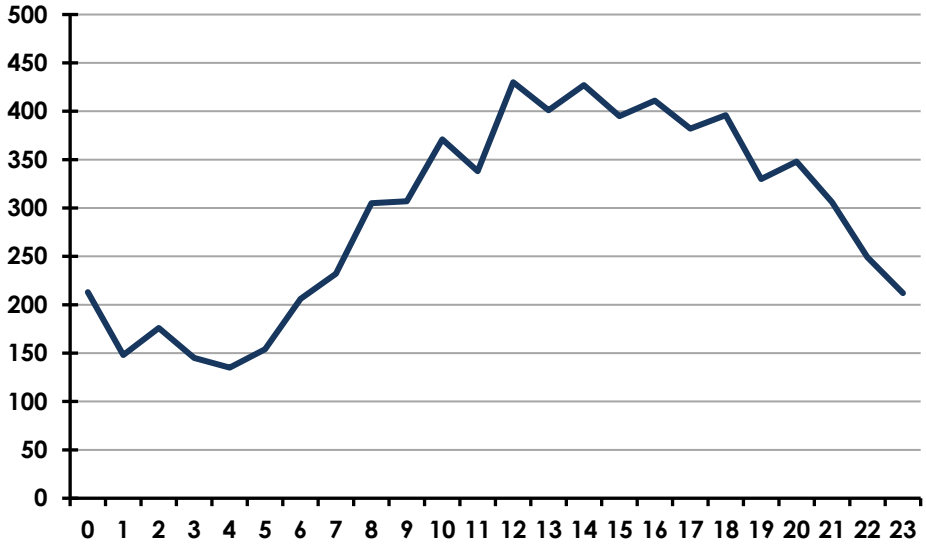
Next, response workload is shown by the day of the week. Mondays and Wednesdays tend to have slightly more responses.

Figure 23: ACFPD Daily Response Workload (2018–2021)



Response workload by the hour typically shows fire district activity higher during daytime hours, as in the case of ACFPD. Response workload correlates with the time of day in which people are most active. In American Canyon, the district's activity begins to increase from 4:00 to 5:00 a.m. until it reaches its first peak at 11a.m. This level is generally maintained until gradually decreases at the 6:00 p.m. hour, when it begins to decrease more rapidly.

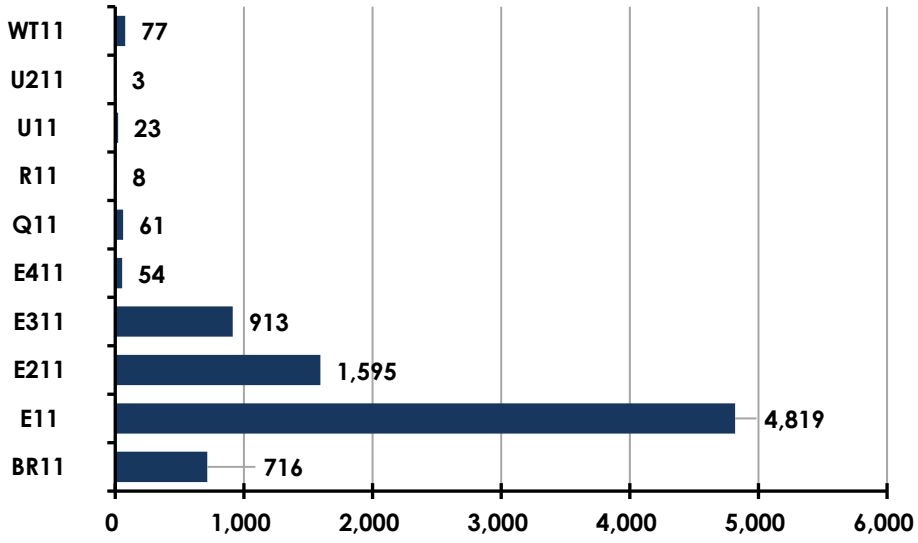
Figure 24: ACFPD Hourly Workload (2018–2021)



Response Unit Workload

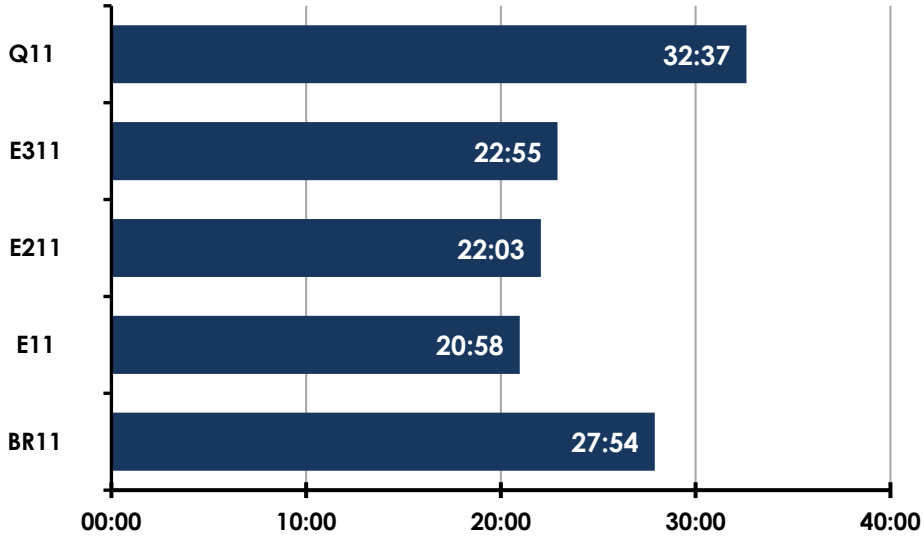
The response workload for each ACFPD apparatus is shown in the following figure. Many incidents like structure fires and severe motor vehicle collisions require more than one unit to respond. Engine 11 is the busiest unit, followed by Engine 211.

Figure 25: ACFPD Unit Workload (2018–2021)



The amount of time spent on the scene can affect firefighters' workload and the availability of resources for the next, or concurrent, incident. The following figure details the average amount of time each unit was committed to a scene. Understandably for fire incidents, the amount of time committed to the scene by a unit is longer than for the other call types. Note: Several Wildfires occupied certain units (WT11, U211, U11, R11, E411) for a significant amount of time; they were removed from the following figure as outliers.

Figure 26: ACFPD Average Unit Time on Scene (2018–2021)

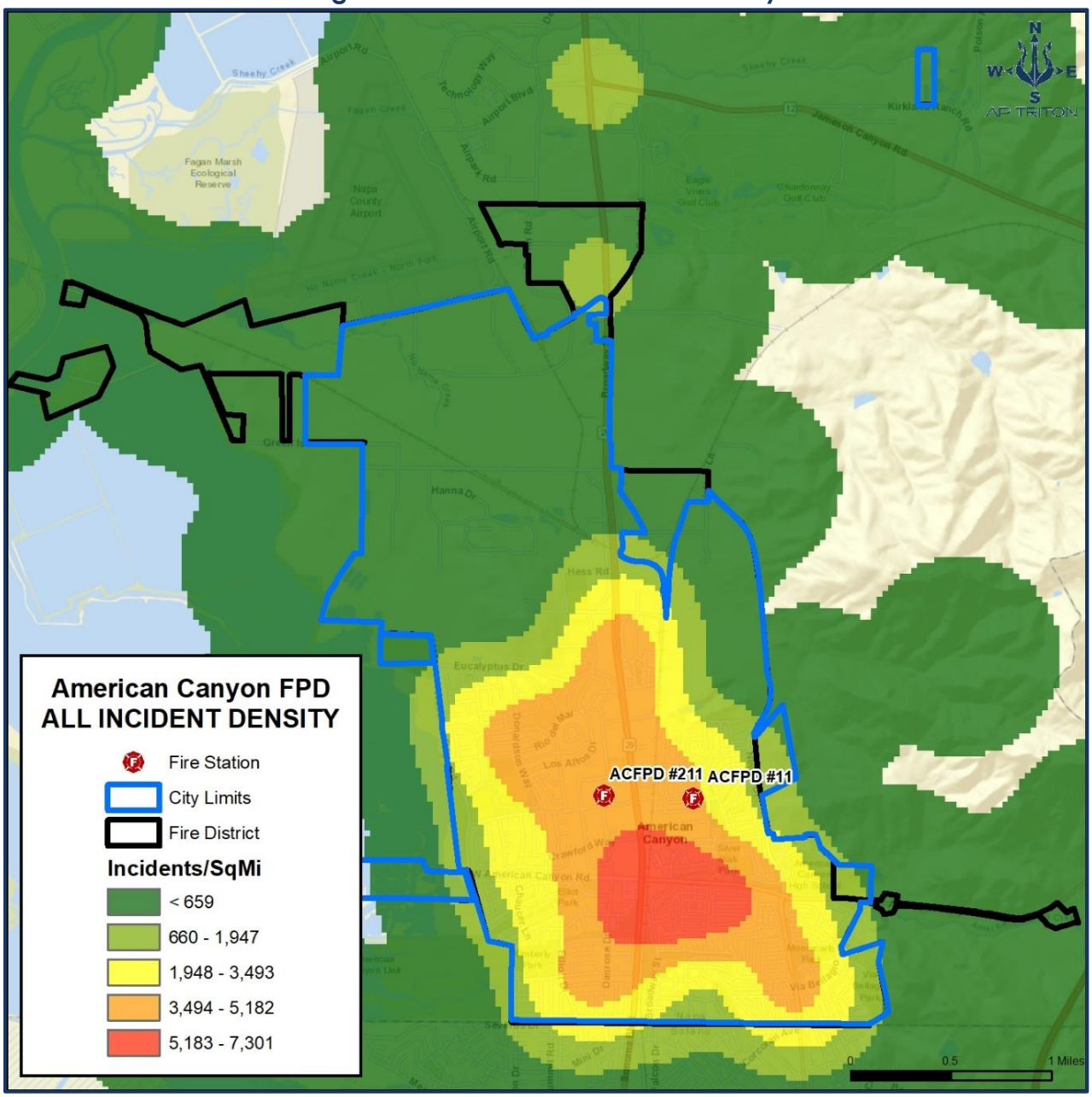


Brush 11 and Quint 11 spend the most time on the scene. The remaining frontline units spend a similar amount of time on the scene.

Spatial Analysis

AP Triton also examined response workload geographically. The distribution of heavier service demand can be evaluated against the location of the fire station. The following figure shows the density of response workload during the study period.

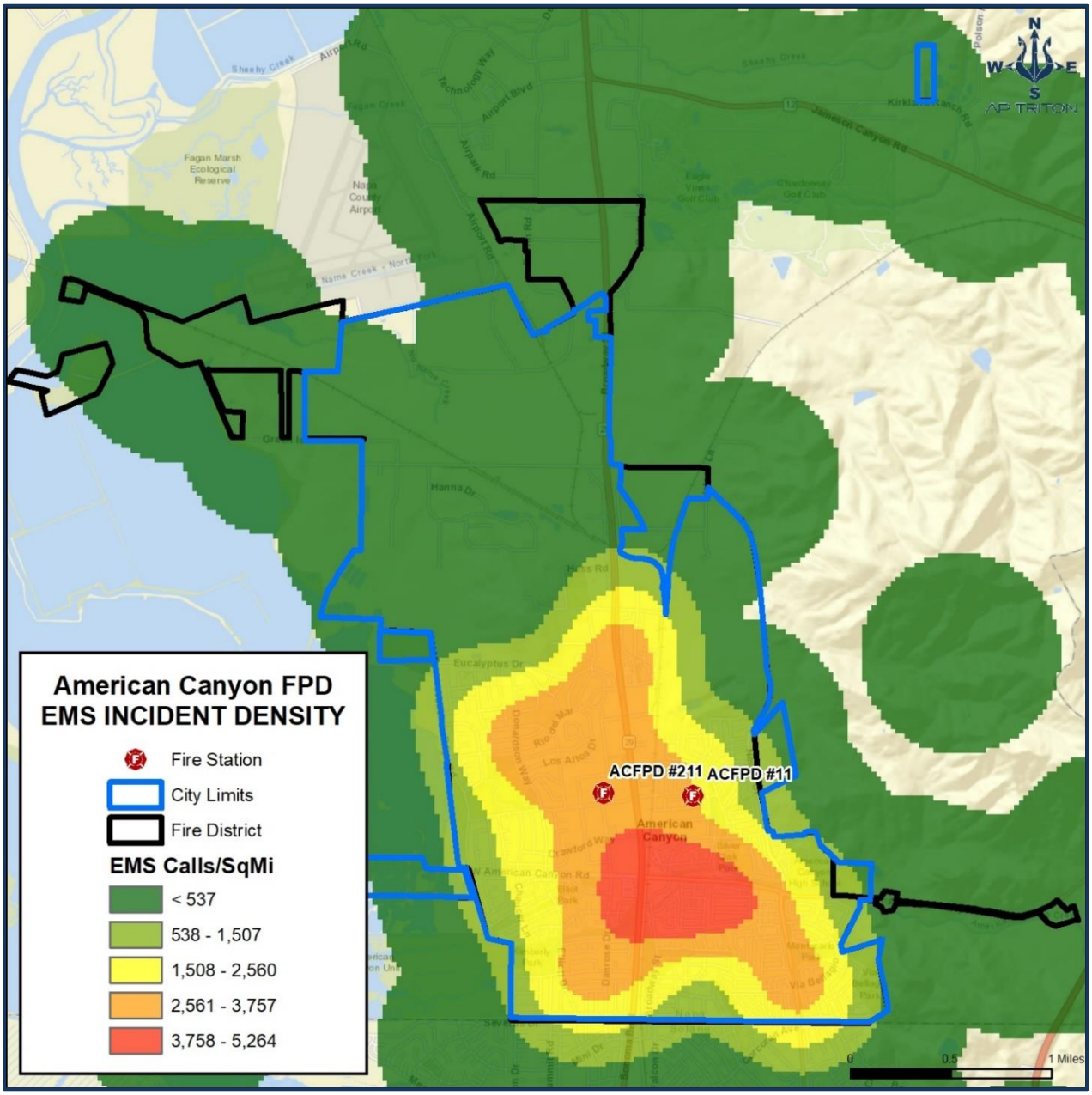
Figure 27: All Incident Demand Density



The previous figure was reflective of the predominance of emergency medical incidents within the dataset. Note that most demand is located near the main crossroads in the city. During the day, the pattern closely mimics the overall demand.

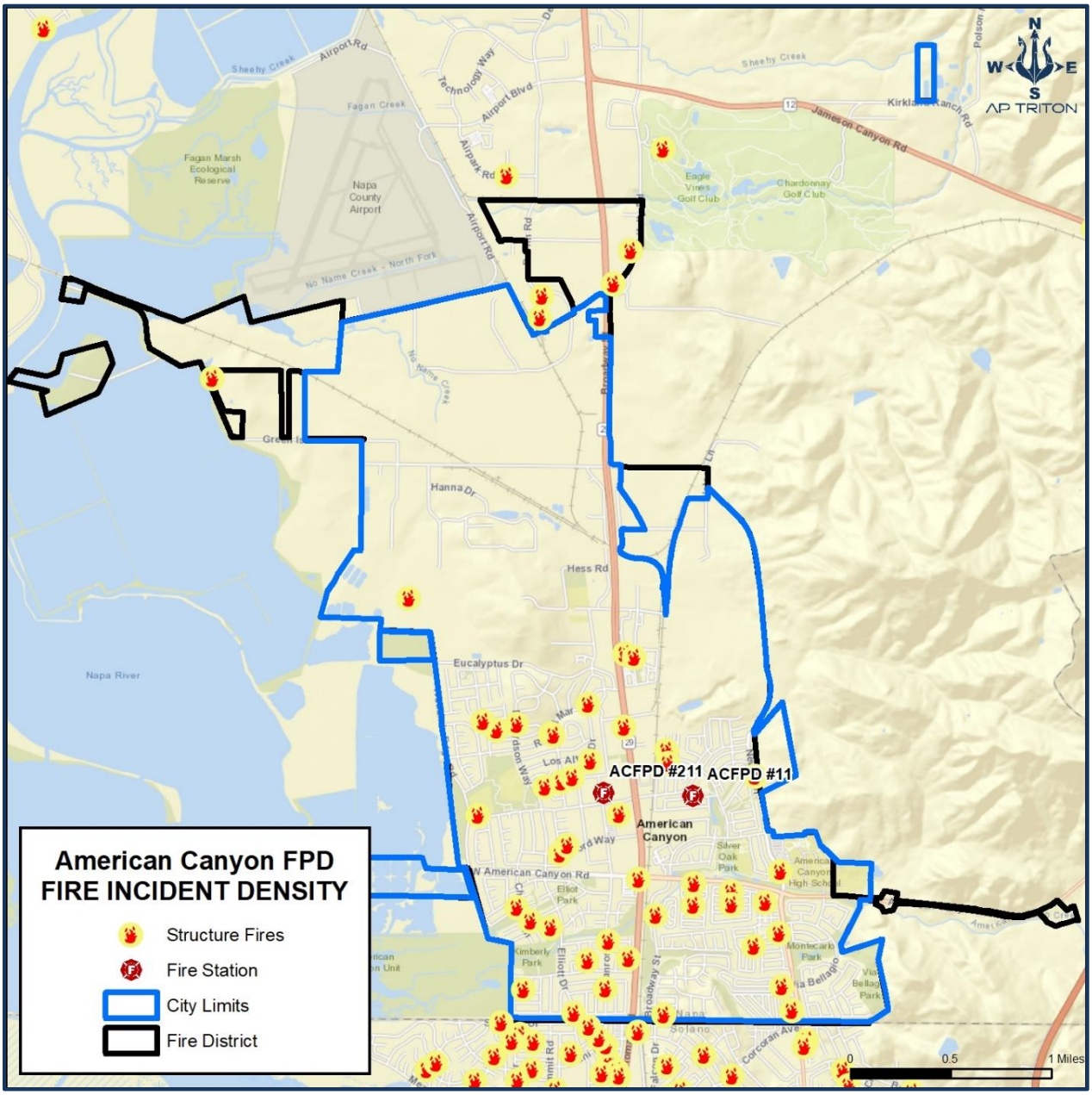
Because of the predominance of EMS-type incidents in the workload data, this map mimics the map of overall demand density.

Figure 28: EMS Incident Demand



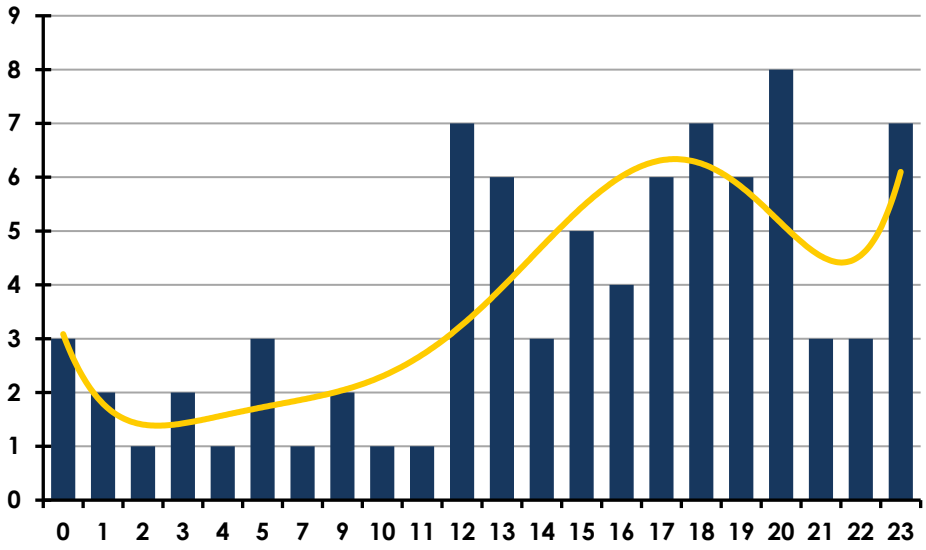
The following figure shows the level of structural fire events within the district.

Figure 29: Structure Fires



The following figure reveals that most structure fires occur during the afternoon and evening hours.

Figure 30: Structure Fires by Hour of Day



The following figure details the addresses to which the district responded to calls most frequently.

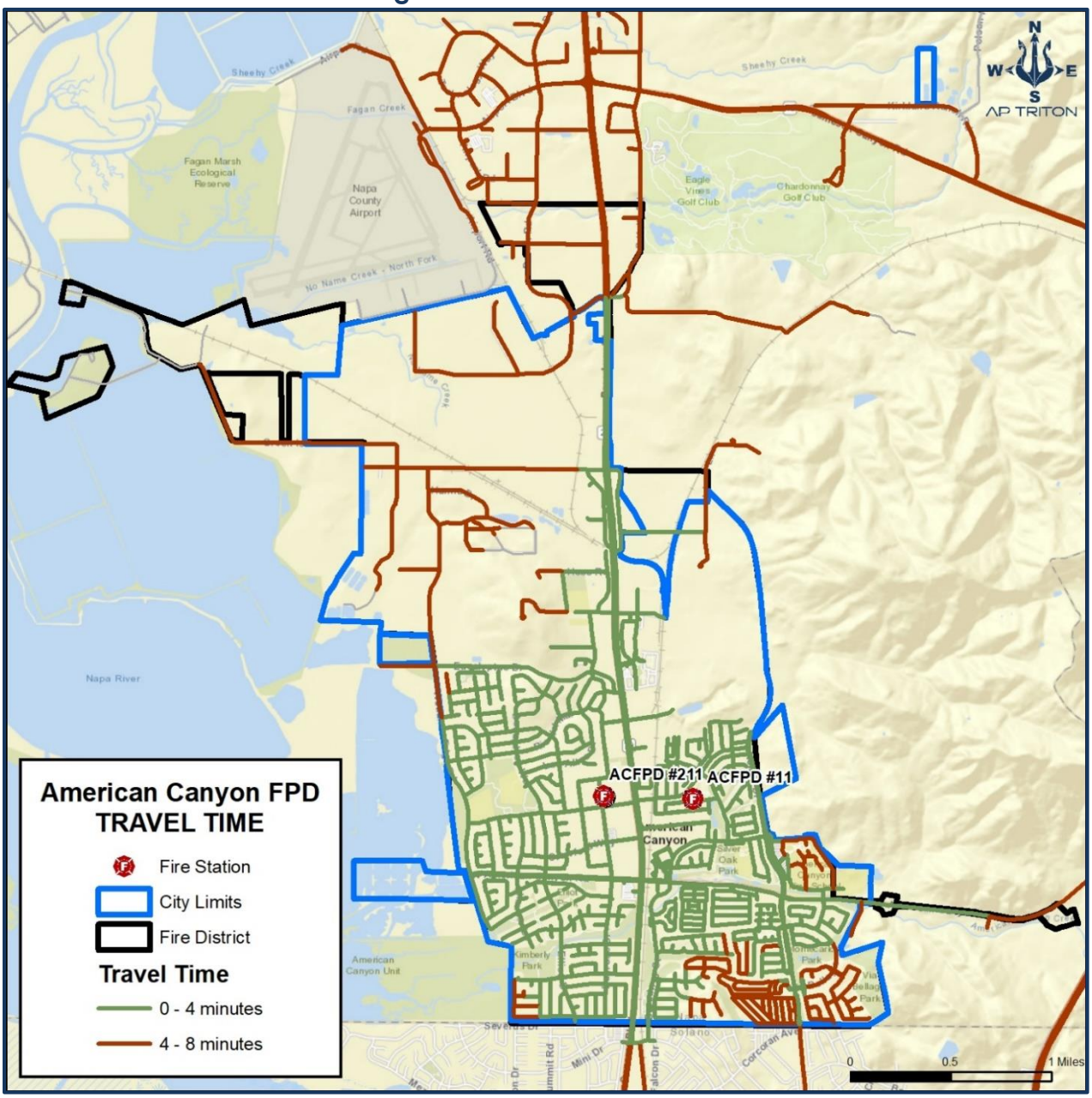
Figure 31: Most Frequent Response Addresses

Location	Facility	No. of Calls
7011 Main	Walmart	126
3000 Newell Drive	Intersection Donaldson Way	81
103 W. American Canyon Road	Safeway	74
2xx American Canyon Road	Private	61
1xx Thayer Way	Private	49
2xx American Canyon Road	Private	47
2xx Tapestry Lane	Private	46
1 Middleton Way	IKEA	38
X Tyler Court	Private	35

Resource Distribution

ACFPD operates out of two fire stations. The following figure illustrates the street sections that can be reached from each station within 4 minutes or less of travel time. The data are based on posted road speeds modified to account for turning, stops, and acceleration. They do not consider congestion, construction, weather, darkness, and other non-controllable factors.

Figure 32: Travel Time Extent



The overall coverage of fire incident demand is 85%, presuming engines are available and responding from their assigned stations. The coverage of EMS incidents was 92%.

Effective Response Force Capability Analysis

Effective Response Force (ERF) is the number of personnel and apparatus required to be present on the scene of an emergency incident to perform the critical tasks in such a manner to effectively mitigate the incident without unnecessary loss of life or property. The ERF is specific to each type of incident and is based on the critical tasks to be performed.

The response time goal for delivering the full ERF to a building fire is within 9 minutes, 20 seconds, 90% of the time. ACFPD has defined the minimum full effective response force for moderate risk building fires as four fire engines, one Ladder Truck, and two Battalion Chiefs for a total of 18 firefighters, including resources from neighboring fire agencies. While several units are dispatched when a fire is reported, once the first unit arrives and the scene is assessed, responding units may be canceled while en route.

Impact of Mutual Aid

ACFPD relies upon mutual aid from adjacent agencies during a structure fire and other incidents when needed. These are very important relationships that enable the district to ensure it has sufficient staff and apparatus to fight the fire. The following list catalogs the adjacent mutual aid agencies.

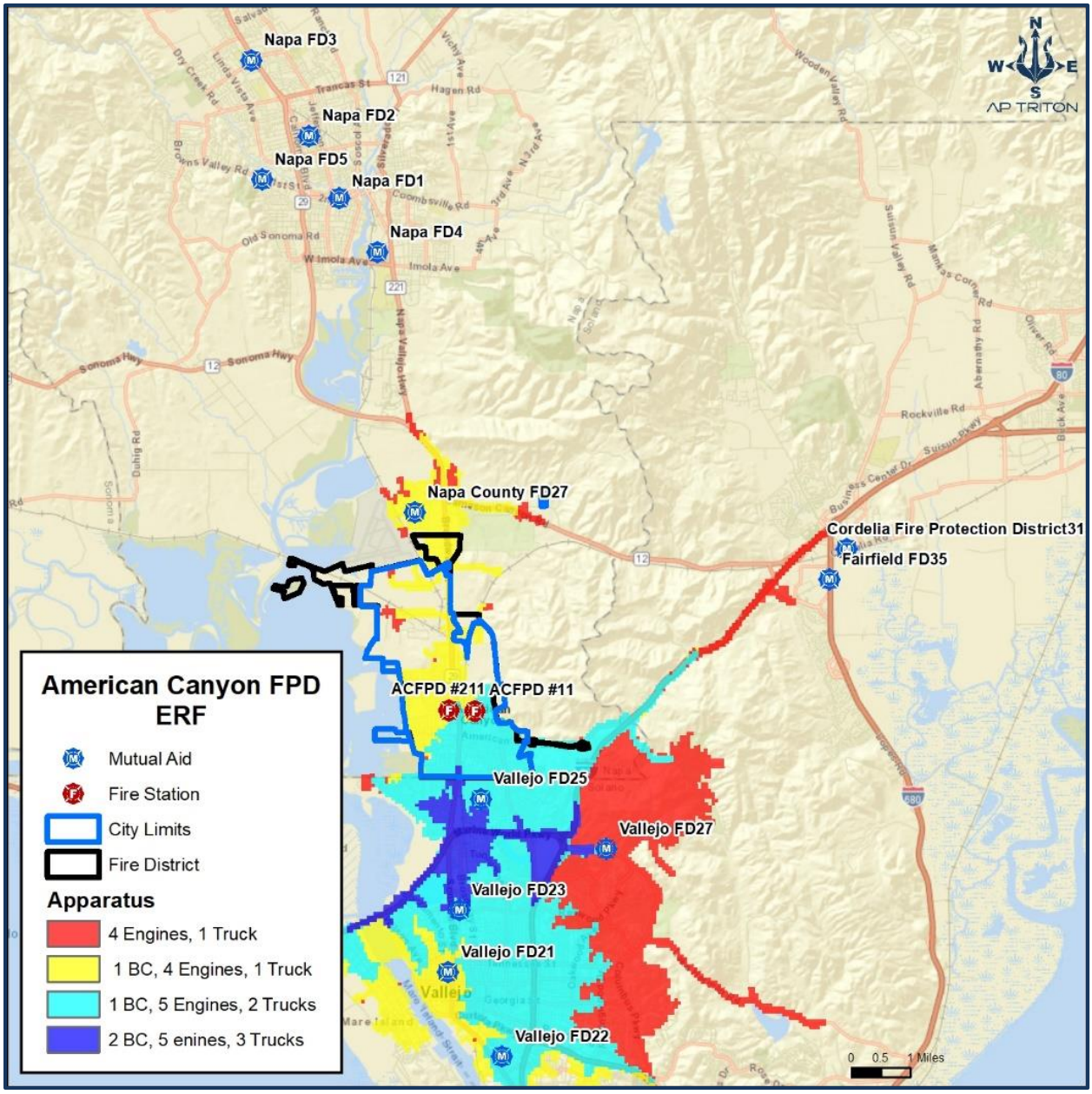
- Napa City
- Vallejo
- Napa County
- Cordelia
- Fairfield

ACFPD reciprocates by providing aid to its adjacent agencies when requested. According to ACFPD data, 10.6% of the incidents were recorded as providing mutual aid. The most mutual aid was given to a Napa unincorporated postal address, with Vallejo the second most.

When a structure fire is reported, the reality may be something else, perhaps less threatening. As a result, an engine often arrives and handles the fire threat, canceling the other units dispatched. According to the RMS data, no structure fire response achieved the effective firefighting force of apparatus and staffing compared to the district's alarm assignment protocol.

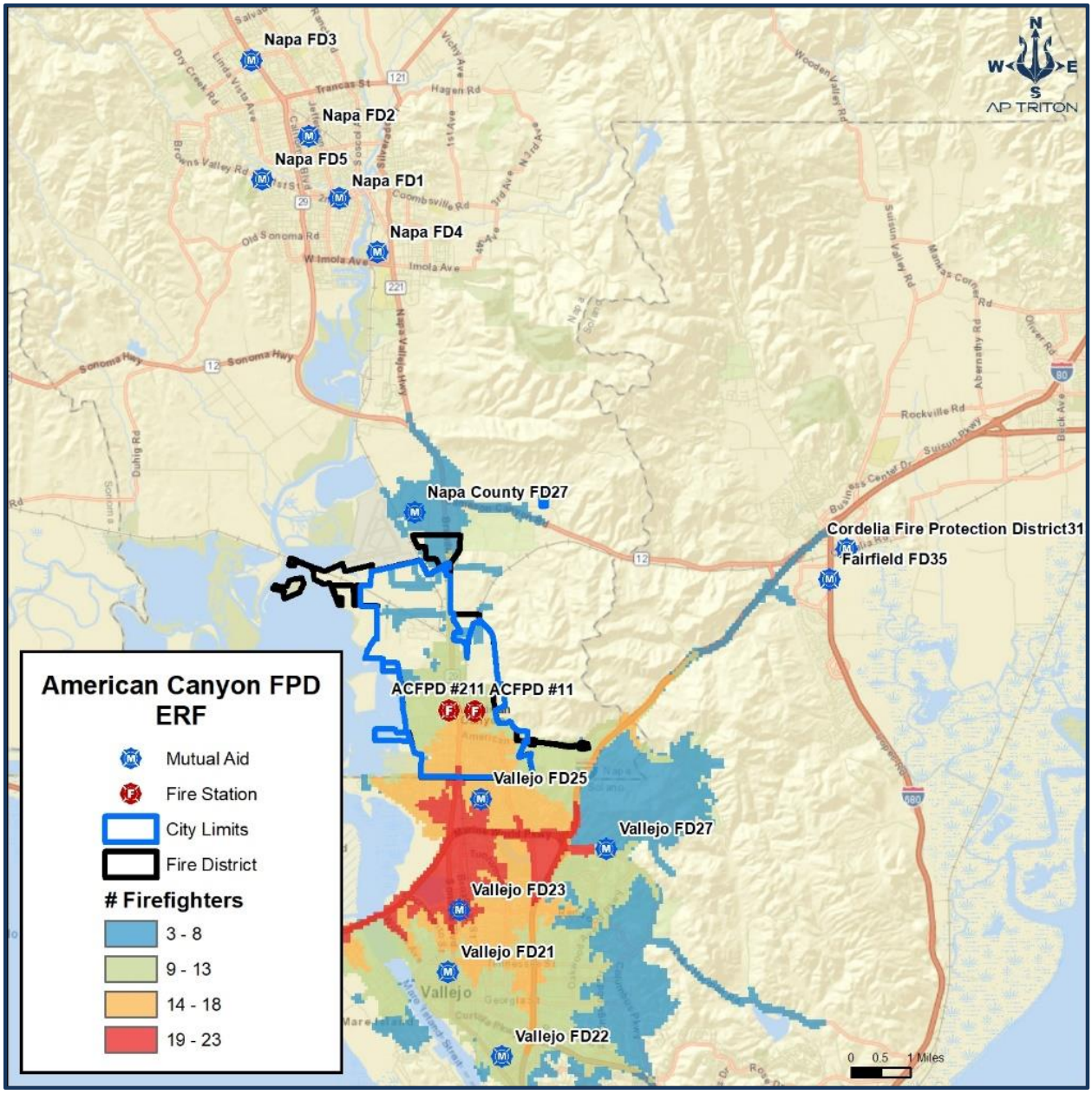
The concentration analysis reviews the physical capability of ACFPD's resources to achieve its target ERF travel time to its service area. The following figure depicts the physical capability of ACFPD to assemble apparatus and firefighters by area within an 8-minute travel time. The modeled analysis assumes that all response units are available. The next figure represents the collective apparatus needed to achieve the ERF.

Figure 33: Effective Firefighting Force—Apparatus



The next figure shows where the number of firefighters from ACFPD and automatic aid agencies can reach within an 8-minute travel time.

Figure 34: Effective Response Force—Firefighters



Resource Reliability

This section analyzes the workload at the unit level rather than at the district-level, as previously shown. However, unit-level workload analysis can reveal further insights into the stress level firefighters and apparatus are experiencing. For instance, units are only effective if available within their station. Therefore, if they are already handling an incident when another incident is reported, a unit from further away must respond, increasing the response times.

Unit Hour Utilization (UHU) calculates the percentage of time a unit is not available for a response because it is committed to an incident during a calendar year. This is important because the higher the percentage, the more time the unit is not available to respond to another incident. This is especially important for agencies like ACFPD that measure their performance at the 90th percentile. For example, a unit with greater than 10% utilization cannot provide on-time performance to a 90% target within its response area. This analysis only measures response incidents and does not include other unmeasured activities in the dataset, such as training time and station duties.

Figure 35: Unit Hour Utilization

Unit	2018	2019	2020	2021
BR11	0.01	0.01	0.01	0.00
E11	0.06	0.06	0.04	0.04
E211	0.01	0.01	0.02	0.03
E311	0.00	0.00	0.01	0.03
E411	0.06	0.01	0.14	0.13
Q11	0.00	0.00	0.00	0.00
R11	0.00	0.00	0.00	0.00
U11	0.00	0.00	0.11	0.09
U211	0.00	0.00	0.00	0.00
WT11	0.00	0.00	0.03	0.01

No units exceeded a 10% utilization rate except E411 and U11, which were assigned to large wildfire operations.

Concurrency

One way to look at resource workload is to examine the number of times multiple incidents occur within the same time frame. Therefore, incidents during the study period were examined to determine the frequency of concurrent incidents. This is important because concurrent incidents can stretch available resources and delay response to other emergencies. Therefore, this factor significantly impacts the jurisdiction's response times to emergencies.

The following figure shows the number of times that one or more incidents occurred concurrently during the study period.

Figure 36: Concurrent Incidents

No. of Incidents	Percent
Single Incident	85%
2 Incidents	13%
3 Incidents	2%
4 Incidents	0%
5 or More Incidents	0%

It is also useful to review the number of times that one or more response units are committed to incidents simultaneously. The following figure shows the number of times one or more ACFPD response units were committed to incidents. As shown, a single incident occurred alone the majority of the time.

Figure 37: ACFPD Unit Concurrency

Units/Incident	Percent
Single Incident	82%
2 Incidents	17%
3 Incidents	1%
4 Incidents	< 1%
5 or More Incidents	< 1%

How reliably a station crew responds within its assigned area is important not only to its ability to handle the incident but also to its response time performance. When busier units are on assignment, other stations must handle incidents outside their response zones. This is especially true during fire events that require multiple units from several stations. The following figure details which station arrived first on scene to incidents. Note that Station 211 was not staffed until later in the study period.

Figure 38: Reliability

Station Area	2018	2019	2020	2021
FS11	100%	100%	99.9%	54.3%
FS211	N/A	N/A	< 1%	45.7%

Operational Performance Standards

Incident data for the period between January 1, 2018, and December 31, 2021, were evaluated in detail to determine ACFPD's current performance.

Only priority incidents occurring within the ACFPD service area are included in the analysis. Non-emergency public assistance requests were excluded. Performance is reported based on the type of incident as reported. Three categories are used to report performance:

- Fire—Responses to a report of a fire
- Emergency medical—All emergency medical incidents
- Other—Any other incident to which the district responded

Each phase of the incident response sequence was evaluated to determine current performance. This allows an analysis of each phase to determine where opportunities might exist for improvement.

The total incident response time continuum consists of several steps, beginning with the initiation of the incident and concluding with its appropriate mitigation. Therefore, the time required for each of the components varies. In addition, the policies and practices of the district directly influence some of the steps.

ACFPD's response performance was compared to the national consensus standard for response performance found in the National Fire Protection Association's Standard 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, 2020 Edition. In addition, the dispatch center's performance was compared to standards found in the National Fire Protection Association's Standard 1221, *Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems*, 2019 Edition.

The following figure summarizes the performance standards used in this section to evaluate performance compared to NFPA 1710's standards and where bolded, locally adopted goals.

Figure 39: Summary of Performance Goals

Incident Interval	Performance Goal
911 call answer time (time from first ring to answer).	Within 15 seconds, 90% of the time
Call process time (time from acceptance at dispatch center until notification of response units).	Within 60 seconds, 90% of the time
Turnout time (time from notification of response personnel until the initiation of movement towards the incident).	**Within 60 seconds, 90% of the time**
First-unit travel time (time from initiation of response until arrival of first unit at incident).	Within 4 minutes, 90% of the time
First unit response time (time from dispatch until the arrival of the first unit at the incident).	**Within 5 minutes, 0 seconds, 90% of the time**
Full effective response force travel time (time from dispatch until all units initially dispatched arrive at the incident. Response resources needed for a moderate risk building fire are used for the evaluation).	Within 8 minutes, 90% of the time

In keeping with NFPA Standards 1710 and 1221 and ACFPD's performance goals, all response time elements are reported at a given percentile. Percentile represents a methodology by which response times are sorted from least to greatest, and a "line" is drawn at a certain percentage of the calls to determine the percentile. The point at which the "line" crosses the 90th percentile, for example, is the percentile time performance. Thus, 90% of the time was at or less than the result; only 10% were longer.

Percentile differs greatly from average. Averaging calculates response times by adding all response times together and dividing the total number of minutes by the total number of responses (mean average). Measuring and reporting average response times is not recommended because it does not identify the number and extent of events with times beyond the stated performance goal.

A detailed description and review of each phase of the response time continuum follows. Finally, all phases will be compared to ACFPD's performance goals.

Detection

The detection of a fire (or medical incident) may occur immediately if someone happens to be present or if an automatic system is functioning. Otherwise, detection may be delayed, sometimes for a considerable period. This phase begins with the inception of the emergency and ends when the emergency is detected. It is largely outside the fire district's control and not a part of the event sequence that is reliably measurable.

Call Processing

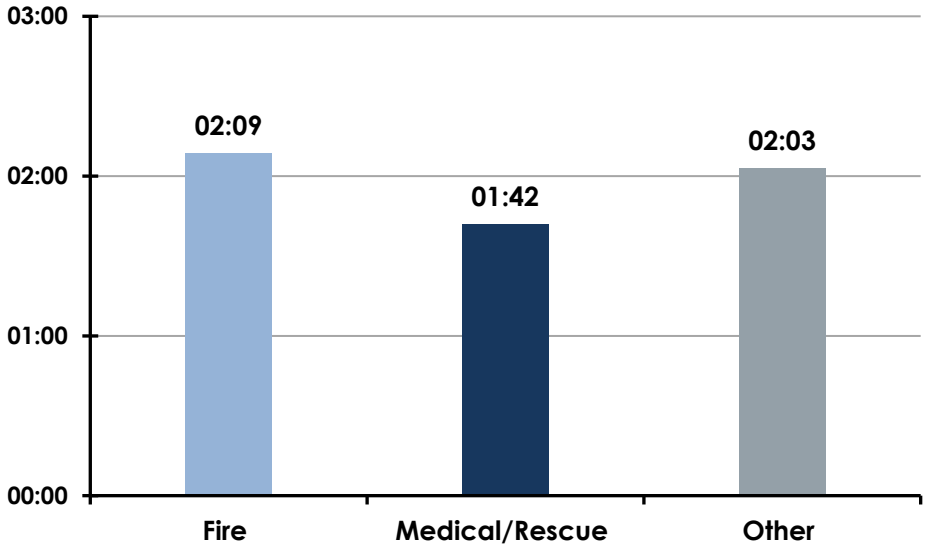
The call processing phase has two parts. First, most emergency incidents are reported by telephone to the 911 center. Call takers must elicit accurate information quickly about the nature and location of the incident from persons who are apt to be excited. Lay people well-trained in emergencies can reduce the time required for this phase. The dispatcher must identify the correct units based on incident type and location, dispatch them to the emergency, and continue to update information about the emergency while the units respond. Step one of this phase, labeled "call processing time," begins when the 911 call is answered at the PSAP and ends when response personnel are notified of the emergency.

NFPA Standard 1221 recommends that 911 calls be answered within 15 seconds, 90% of the time (within 20 seconds, 95% of the time). The data revealed that this was within 1 minute, 27 seconds, 90% of the time.

The second part of the call processing phase, called "dispatch time," begins when the call is received at the dispatch center and ends when response units are notified of the incident. NFPA 1221 standards recommend that this phase occurs within 60 seconds, 90% of the time.

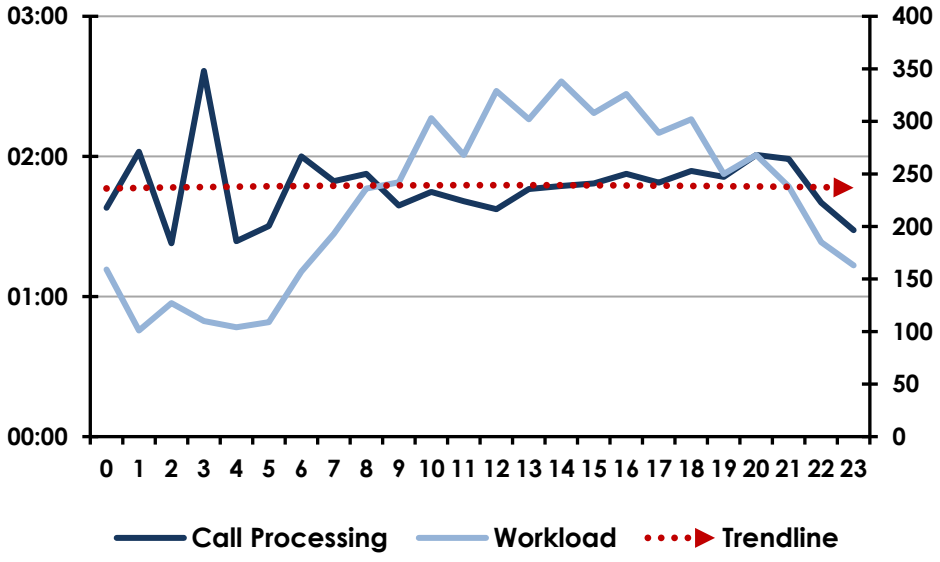
The following figure illustrates the dispatch center's performance from the time it receives the call until it notifies response units. Overall performance during the study period was above the NFPA guideline.

Figure 40: Call Processing by Type of Incident



The workload at the dispatch center can influence call processing performance. The following figure illustrates performance at different times of the day compared to ACFPD's response workload. Call processing time is generally stable except for some longer times in the early morning hours.

Figure 41: Call Processing by Hour of Day

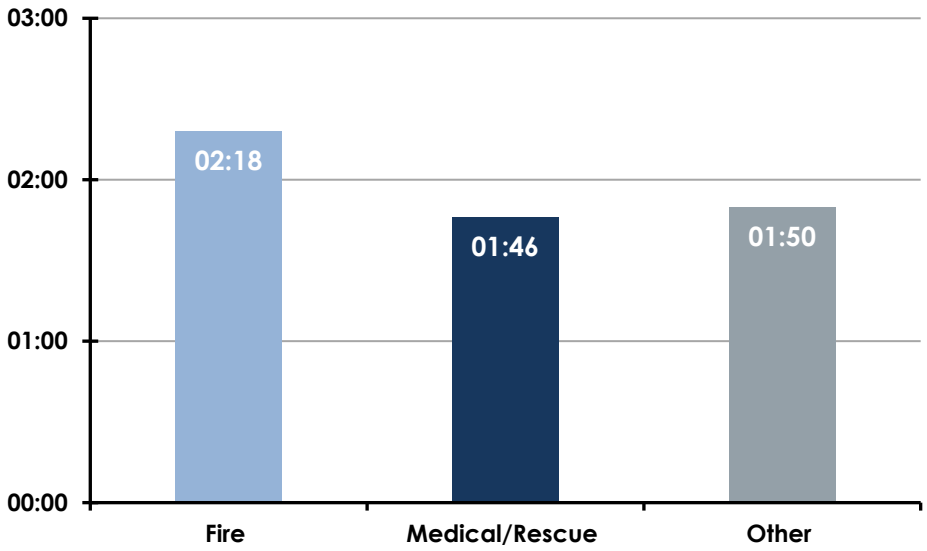


Turnout Time

The turnout time response phase is controllable by ACFPD. This phase begins with the dispatch center's notification of an emergency in progress and ends when personnel and apparatus begin to move toward the incident location. Personnel must don appropriate equipment, assemble on the response vehicle, and begin traveling to the incident. Good training and proper fire station design can minimize the time required for this phase.

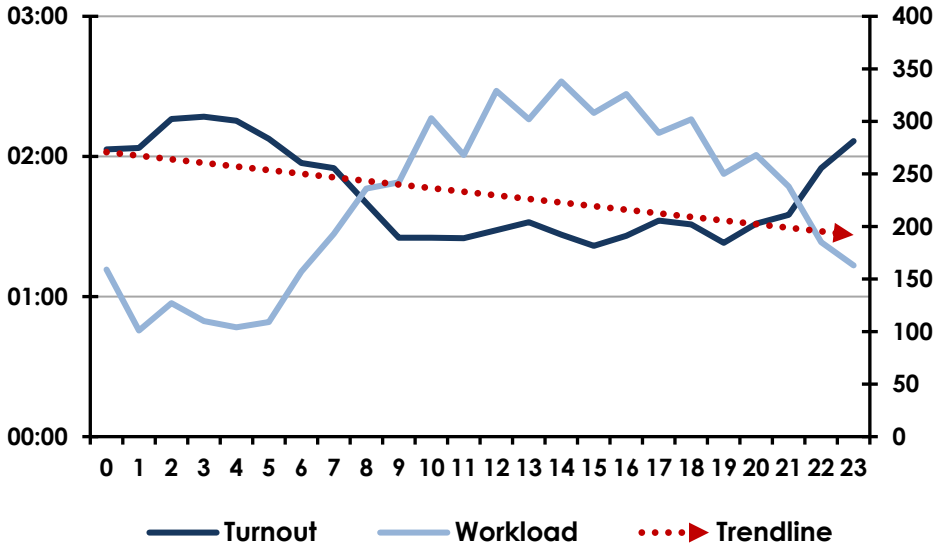
The performance goal for turnout time is within 90 seconds, 90% of the time for priority emergency incidents. The following figure lists turnout time by incident types. Turnout times for all incident types exceed standards. During the study period, turnout time for priority incidents was within 1 minute, 48 seconds, 90% of the time.

Figure 42: Turnout Time Performance by Call Type



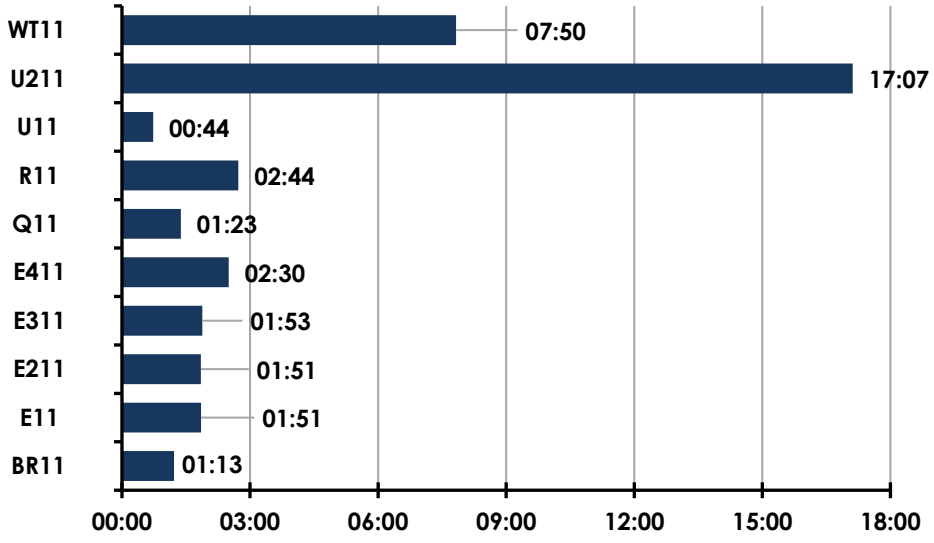
Turnout time can vary by the hour of the day. In this case, turnout time varied by 52 seconds between the early morning hours and daytime hours, as shown in the following figure.

Figure 43: Turnout Time Performance by Hour of Day



The following figure shows turnout time by unit at the 90th percentile performance measure. Reserve and specialty units take longer, as expected, since they are not frontline service vehicles.

Figure 44: Turnout Time by Unit at the 90th Percentile

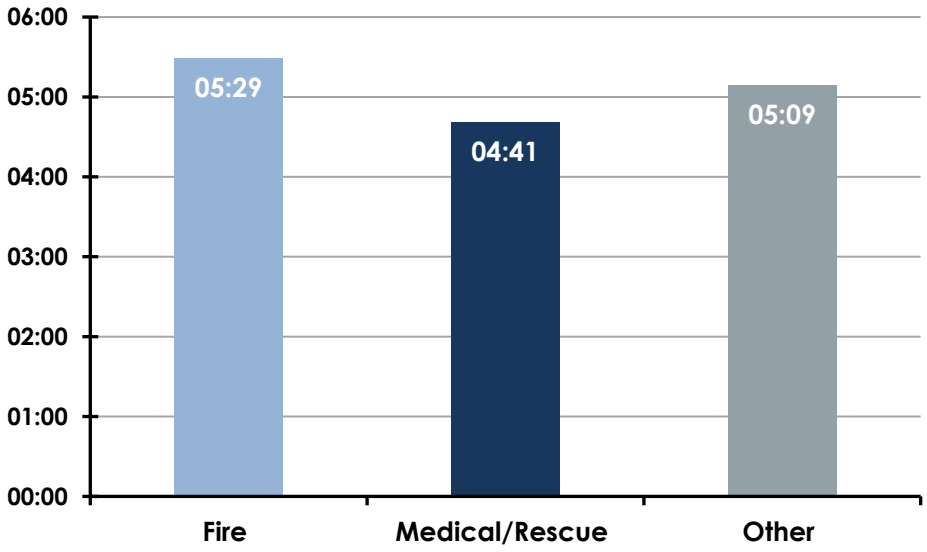


Distribution & Initial Arriving Unit Travel Time

Travel time potentially is the longest of the response phases. The distance between the fire station and the location of the emergency influences response time the most. The quality and connectivity of streets, traffic, driver training, geography, and environmental conditions also are factors. This phase begins with the initial apparatus movement toward the incident location and ends when response personnel and apparatus arrive at the emergency's location. According to NFPA 1710, the performance goal should be four minutes for the first response unit to arrive at an incident.

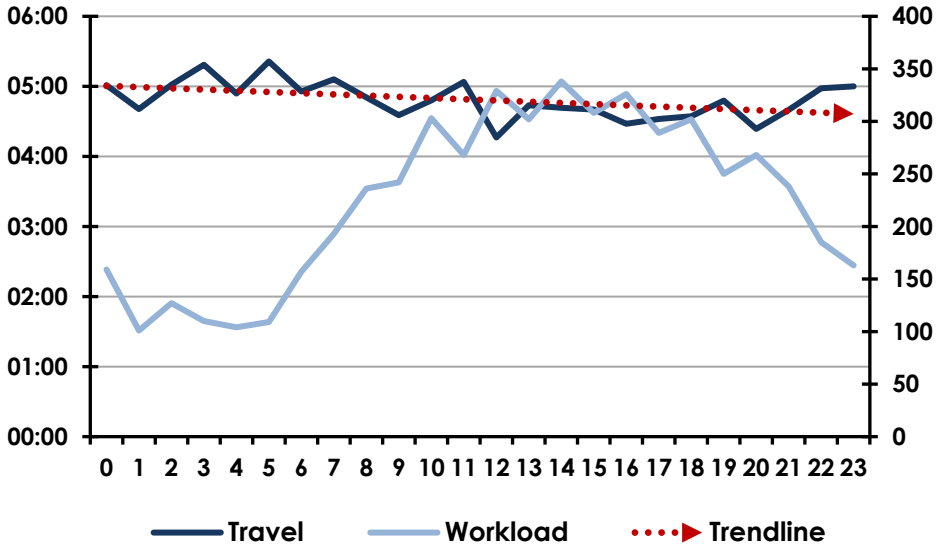
The following figure lists travel times for all priority incidents and incident types. ACFPD's travel times exceeded its goal in all incident types. Travel time for all incident types was within 4 minutes, 48 seconds, 90% of the time.

Figure 45: Travel Time Performance by Call Type



Travel time can vary considerably by the time of day. Heavy traffic during morning and evening rush hours can slow the district's response. Concurrent incidents also can increase travel time since units from more distant stations would need to respond. Darkness has a higher effect on travel time than commute hours. The following figure shows the travel time performance and the hourly workload.

Figure 46: Travel Time Performance by Hour of Day



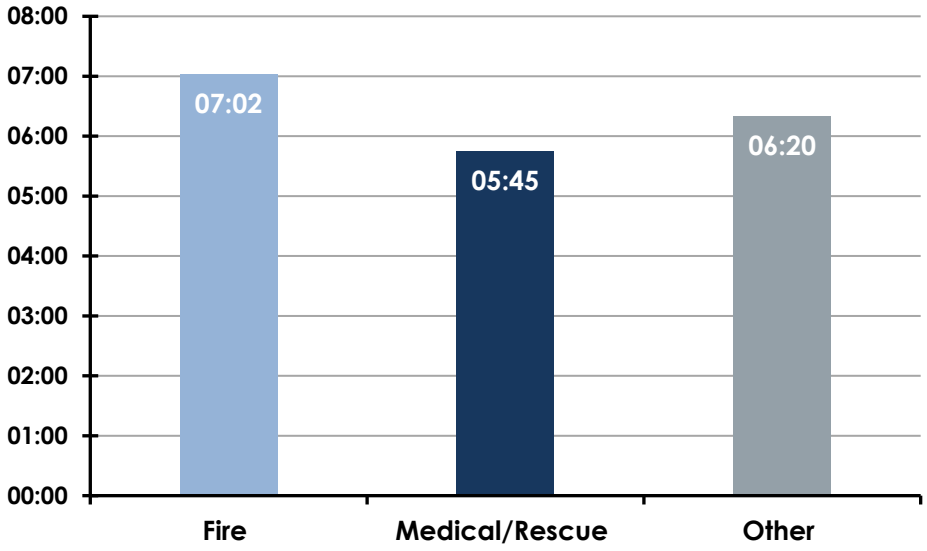
To provide an on-time response, a response unit must be available within four travel minutes of the incident.

First Arriving Unit Response Times

Response time is defined as the period between the notification of response personnel by the dispatch center that an emergency is in progress until the arrival of the first district response unit at the emergency.

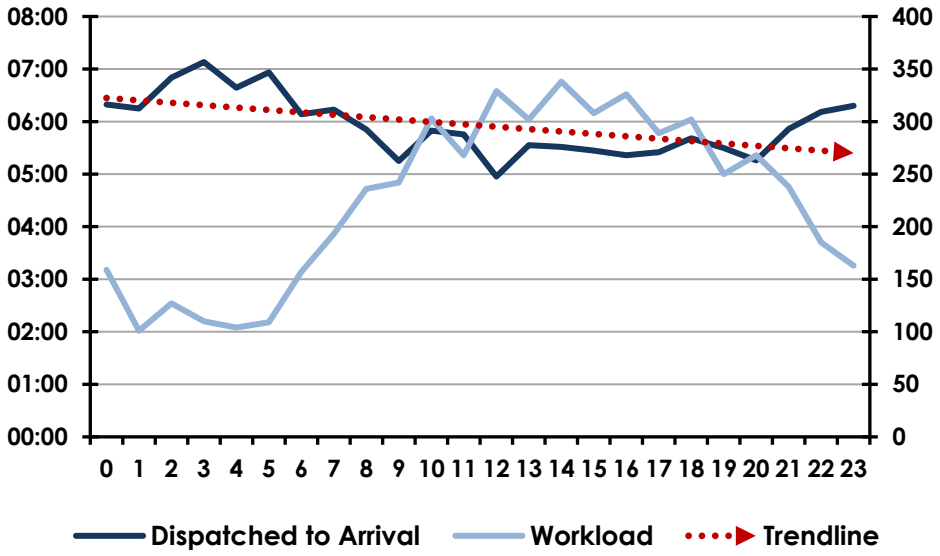
The following figure illustrates the response time for priority incident types. Overall, response time for all priority incidents was within 5 minutes, 53 seconds, 90% of the time.

Figure 47: First Unit Arrival Performance



The next figure shows response times and the number of incidents by the hour of the day for all incidents. Response time is slowest during the nighttime hours and slightly faster during the day.

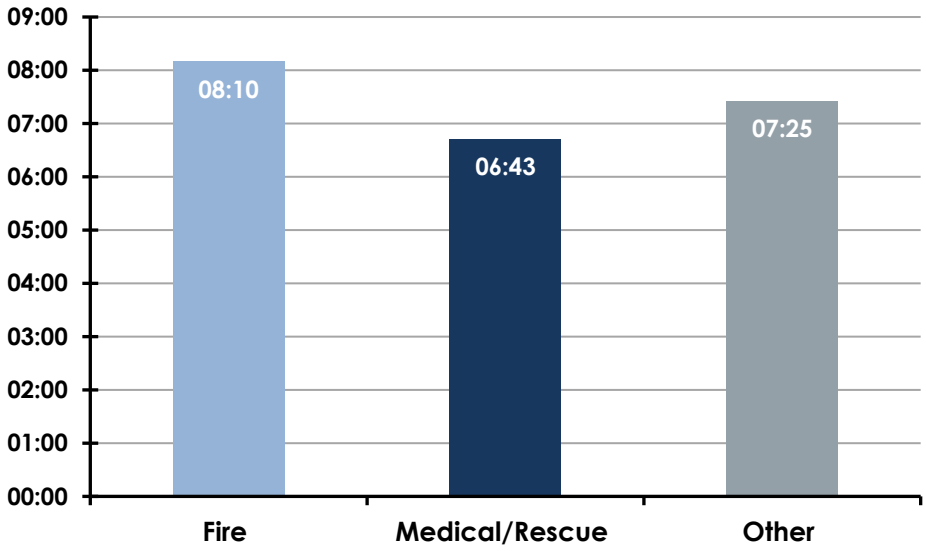
Figure 48: First Unit Arrival Performance by Hour of Day



First Arriving Unit Received to Arrival Time

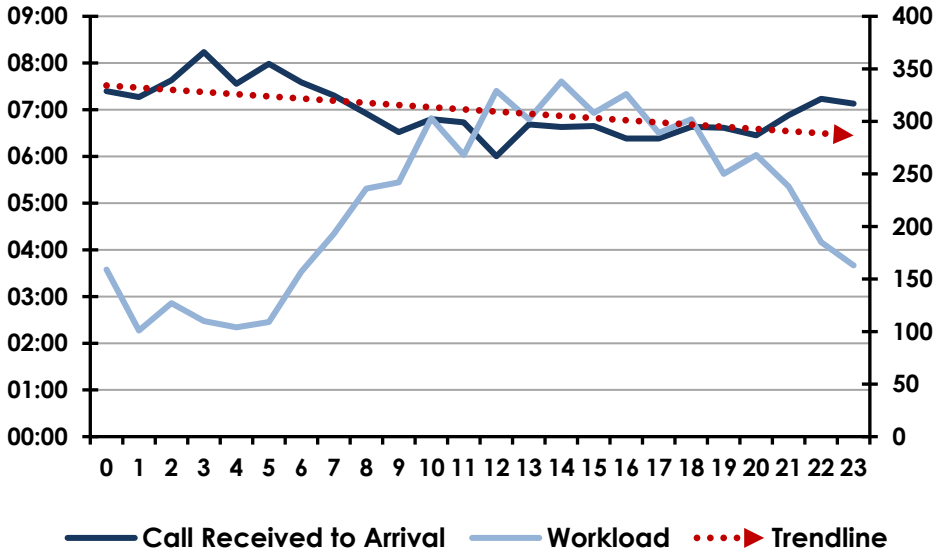
From the customers' standpoint, response time begins when an emergency occurs. Their first contact with emergency services is when they call for help, usually by dialing 911. The received-to-arrival time phase combines the answer/transfer, call processing, turnout, and travel time phases. The following figure shows received-to-arrival performance for priority incidents within the ACFPD service area. Overall, the received-to-arrival time was within 6 minutes, 54 seconds, 90% of the time.

Figure 49: Call Received to Arrival by Call Type



The next figure shows received-to-arrival performance by time of the day compared to incident activity by time of day. Received-to-arrival time is consistent during the day.

Figure 50: Call Received to Arrival by Hour of Day



Development of Response Standards & Targets

ACFPD provides fire protection, EMS, and other emergency services to a response area of approximately 7 square miles. With each type of incident and corresponding risk, specific critical tasks must be accomplished, and certain numbers and types of apparatus should be dispatched.

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, and their location, status, and 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 different types of fires. In the absence of adequate personnel to perform concurrent action, the commanding officer must prioritize the 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 emergencies. Numerous simultaneous tasks must be completed to control an emergency effectively. American Canyon Fire Protection District's ability to quickly muster needed numbers of trained personnel to make a difference is critical to successful incident outcomes.

The following figure illustrates the minimum emergency incident staffing recommendations of the Commission on Fire Accreditation International (CFAI). The following definitions apply to the figure:

- **Low Risk**: Minor incidents involving small fires (fire flow less than 250 gallons per minute), single patient non-life-threatening medical incidents, minor rescues, small fuel spills, and small wildland fires without unusual weather or fire behavior.
- **Moderate Risk**: Moderate-risk incidents involving fires in single-family dwellings and equivalently sized commercial office properties (fire flow between 250 gallons per minute to 1,000 gallons per minute), life-threatening medical emergencies, hazardous materials emergencies requiring specialized skills and equipment, rescues involving specialized skills and equipment, and larger wildland fires.
- **High Risk**: High-risk incidents involving fires in more significant commercial properties with a sustained attack (fire flows more than 1,000 gallons per minute), multiple patient medical incidents, significant releases of hazardous materials, high-risk rescues, and wildland fires with extreme weather or fire behavior.

Figure 51: Staffing Recommendation Based on Risk[5]

Incident Type	High Risk	Moderate Risk	Low Risk
Structure Fire	29	15	6
Emergency Medical Service	12	4	2
Rescue	15	8	3
Hazardous Materials	39	20	3

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

Critical Tasking

ACFPD has developed the following Critical Task Analysis using risk matrices for various incident types. Critical tasks are those activities that must be conducted early on and promptly by firefighters at emergency incidents to control the situation, to stop loss, and to perform necessary tasks required for a medical emergency. ACFPD is responsible for ensuring those responding companies can perform all described tasks promptly, efficiently, and safely. These are the minimum number of personnel needed by incident type. More personnel will be required for incidents of increased complexity or size.

Figure 52: Low-Risk Fire Incidents

Task	Number of Personnel
Command/Safety	1
Pump Operations	1
Attack Line	1
Total:	**3**

Figure 53: Moderate-Risk Fire Incidents

Task	Number of Personnel
Command	1
Safety	1
Pump Operations	2
Attack Line	2
Back-up Line	2
Search and Rescue	3
Ventilation	2
RIT	2
Ambulance/EMS	2
Total:	**17**

Figure 54: High-Risk Fire Incident

Task	Number of Personnel
Command/Support	2
Safety	1
Driver/Engine or Pump Operator	2
Water Supply	2
Standpipe/Sprinkler Control	2
Fire Attack	2
Search & Rescue	3
Ventilation/Utilities	2
Back-up Line	2
Rapid Intervention Team	4
EMS Unit–ALS	2
Total:	**24**

Figure 55: Maximum-Risk Fire Incident

Task	Number of Personnel
Command/Support	2
Safety	1
Driver/Engine or Pump Operator	2
Water Supply	2
Standpipe/Sprinkler Control	2
Fire Attack	6
Search & Rescue	3
Ventilation/Utilities	2
Back-up Line	2
Rapid Intervention Team (Two Teams)	8
EMS Unit–ALS	4
Total:	**34**

Figure 56: Low-Risk EMS

Task	Number of Personnel
Basic Life Support Treatment	1
Advanced Life support Treatment	1
Total:	**2**

Figure 57: Moderate-Risk EMS

Task	Number of Personnel
Command	1
Basic Life Support Treatment	1
Advanced Life Support Treatment	1
Extrication/Hazard Mitigation	3
Total:	**6**

Figure 58: High-Risk EMS

Task	Number of Personnel
Command	1
Safety	1
Triage Group	2
Basic Life Support Treatment	5
Advanced Life Support Treatment	2
Transport Group	1
Total:	**12**

Figure 59: Maximum-Risk EMS

Task	Number of Personnel
Command	2
Safety	1
Operations	2
Triage Group	1
Basic Life Support Treatment	5
Advanced Life Support Treatment	5
Evacuation Group	4
Transport Group	2
Staging	2
Total:	**24**

Figure 60: Low-Risk Wildland

Task	Number of Personnel
Command	1
Driver/Engine or Pump Operator	1
Fire Attack	2
Total:	**4**

Figure 61: Moderate-Risk Wildland

Task	Number of Personnel
Command	1
Safety	1
Recon Group	1
Driver/Engine or Pump Operator	2
Flank Divisions	4
Water Supply	1
Structure Protection	4
Staging	1
Total:	**15**

Figure 62: High-Risk Wildland

Task	Number of Personnel
Command	2
Safety	1
Recon Group	2
Lookout	1
Driver/Engine or Pump Operator	3
Flank Divisions	9
Water Supply	2
Holding	4
Structure Protection	10
Staging	1
Total:	**35**

Figure 63: Low-Risk Technical Rescue

Task	Number of Personnel
Command	1
Basic Life Support Treatment	1
Extrication/Hazard Mitigation	2
Total:	**4**

Figure 64: Moderate-Risk Technical Rescue

Task	Number of Personnel
Command	1
Basic Life Support Treatment	1
Advanced Life Support Treatment	1
Extrication/Hazard Mitigation	3
Total:	**6**

Figure 65: High-Risk Technical Rescue

Task	Number of Personnel
Command/Support	2
Safety	1
Operations	1
Rescue Teams	6
Rescue Support Group	8
Basic Life Support Treatment	2
Advanced Life Support Treatment	1
Total:	**21**

Figure 66: Maximum-Risk Technical Rescue

Task	Number of Personnel
Command/Support	2
Safety	1
Operations	1
Entry team leader and teams	9
Rescue Support Group	12
Basic Life Support Treatment	2
Advanced Life Support Treatment	1
Staging	1
Total:	**29**

Figure 67: Low-Risk Hazmat Incident

Task	Number of Personnel
Command	1
Hazard Mitigation	2
Total:	**3**

Figure 68: Moderate-Risk Hazmat Incident

Task	Number of Personnel
Command	1
Pump Operations/Decon	2
Hazmat Group Supervisor	1
Hazard Mitigation	2
Total:	**6**

Figure 69: High-Risk Hazmat Incident

Task	Number of Personnel
Command/Support	2
Safety	1
Operations	1
Entry Team Officer and Team	3
Back-up Entry Team	2
Hazmat Support Group	6
Decon Group	4
Medical Group	2
Total:	**21**

Figure 70: Maximum-Risk Hazmat Incident

Task	Number of Personnel
Command/Support	2
Safety	1
Operations	1
Entry Team Officer and Team	5
Back-up Entry Team	4
Hazmat Support Group	8
Decon Group	4
Medical Group	4
Staging	1
Total:	**30**

Alarm Assignments

To ensure sufficient personnel and apparatus are dispatched to an emergency event, the following first alarm response assignments have been established to ensure sufficient personnel and apparatus are dispatched to an emergency event. The number of personnel and apparatus required to mitigate an active and complex working incident will require additional resources above and beyond the numbers listed next.

Figure 71: Low-Risk Structure Fire

Unit Type	Number of Units	Total Personnel
Engine/Pumper	2	6
Total Staffing Provided by ACFPD:		**6**
Total Staffing Needed:		**0**
Mutual-Aid Staffing:		
Total Staffing Provided:		**6**

Figure 72: Moderate-Risk Structure Fire

Unit Type	Number of Units	Total Personnel
Engine/Pumper	2	6
Ladder	1	3
Battalion Chief	1	1
EMS	1	2
Total Staffing Provided by ACFPD:		**7**
Total Staffing Needed:		**0**
Mutual-Aid Staffing:		**11**
Total Staffing Provided:		**18**

Figure 73: High-Risk Structure Fire

Unit Type	Number of Units	Total Personnel
Engine/Pumper	2	6
Ladder	2	6
Rescue		
Battalion Chief	2	2
EMS	2	2
Total Staffing Provided by ACFPD:	**6**	**6**
Total Staffing Needed:		**24**
Mutual-Aid Staffing:		**23**
Total Staffing Provided:		**30**

Figure 74: Maximum-Risk Structure Fire

Unit Type	Number of Units	Total Personnel
Engine/Pumper	2	6
Ladder	3	9
Rescue		
Battalion Chief	3	3
EMS	1	2
Total Staffing Provided by ACFPD:		**6**
Total Staffing Needed:		**6**
Mutual-Aid Staffing:		**34**
Total Staffing Provided:		**40**

Figure 75: Low-Risk EMS

Unit Type	Number of Units	Total Personnel
Engine	1	3
Total Staffing Provided by ACFPD:		**3**
Total Staffing Needed:		**2**
Mutual-Aid Staffing:	**1**	**2**
Total Staffing Provided:		**5**

Figure 76: Moderate-Risk EMS

Unit Type	Number of Units	Total Personnel
EMS Unit	1	2
Fire Unit	2	6
Total Staffing Provided by ACFPD:		**6**
Total Staffing Needed:		**2**
Mutual-Aid Staffing:		**2**
Total Staffing Provided:		**8**

Figure 77: High-Risk EMS

Unit Type	Number of Units	Total Personnel
EMS Unit	1	2
Fire Unit	2	6
Total Staffing Provided by ACFPD:		**6**
Total Staffing Needed:		**4**
Mutual-Aid Staffing:		**2**
Total Staffing Provided:		**8**

Figure 78: Maximum-Risk EMS

Unit Type	Number of Units	Total Personnel
EMS Unit	1	2
Fire Unit	2	6
Total Staffing Provided by ACFPD:		**6**
Total Staffing Needed:		**16**
Mutual-Aid Staffing:		
Total Staffing Provided:		**8**

Figure 79: Low-Risk Technical Rescue

Unit Type	Number of Units	Total Personnel
EMS Unit	0	0
Fire Unit		
Total Staffing Provided by ACFPD:		**0**
Total Staffing Needed:		**4**
Mutual-Aid Staffing:		**4**
Total Staffing Provided:		**4**

Figure 80: Moderate-Risk Technical Rescue

Unit Type	Number of Units	Total Personnel
EMS Unit	1	2
Fire Unit	2	6
Total Staffing Provided by ACFPD:		**6**
Total Staffing Needed:		**+2**
Mutual-Aid Staffing:		**6**
Total Staffing Provided:		**8**

Figure 81: High-Risk Technical Rescue

Unit Type	Number of Units	Total Personnel
EMS Unit	1	3
Fire Unit	3	10
Rescue	2	5
Total Staffing Provided by ACFPD:		**6**
Total Staffing Needed:		**-9**
Mutual-Aid Staffing:		**6**
Total Staffing Provided:		**21**

Figure 82: Maximum-Risk Technical Rescue

Unit Type	Number of Units	Total Personnel
Fire Unit	3	10
Rescue	2	5
Total Staffing Provided by ACFPD:		**6**
Total Staffing Needed:		**19**
Mutual-Aid Staffing:		**9**
Total Staffing Provided:		**29**

Figure 83: Low-Risk Hazmat

Unit Type	Number of Units	Total Personnel
Fire Unit	1	3
Total Staffing Provided by ACFPD:		**3**
Total Staffing Needed:		**0**
Mutual-Aid Staffing:		**0**
Total Staffing Provided:		**3**

Figure 84: Moderate-Risk Hazmat

Unit Type	Number of Units	Total Personnel
Fire Unit	2	6
Rescue		
Total Staffing Provided by ACFPD:		**6**
Total Staffing Needed:		**0**
Mutual-Aid Staffing:		**0**
Total Staffing Provided:		**6**

Figure 85: High-Risk Hazmat

Unit Type	Number of Units	Total Personnel
Fire Unit	5	15
Rescue		
Total Staffing Provided by ACFPD:		**6**
Total Staffing Needed:		**4**
Mutual-Aid Staffing:		**11**
Total Staffing Provided:		**17**

Figure 86: Maximum-Risk Hazmat

Unit Type	Number of Units	Total Personnel
Fire Unit	6	18
Rescue		
Total Staffing Provided by ACFPD:		**6**
Total Staffing Needed:		**10**
Mutual-Aid Staffing:		**14**
Total Staffing Provided:		**20**

Response Time Performance Objectives

Once ACFPD has established response time objectives and identified the critical tasks and number of personnel necessary to achieve those critical tasks (in the preceding section), the district can begin the process of defining emergency response time performance objectives.

The process of setting response time performance objectives will include two primary questions:

- What are the expectations of the community and elected officials regarding the initial response times of the fire district to an emergency incident?
  - What is the public's perception of quality emergency services where response time is concerned?
- What response time performance would be reasonable and effective in containing the fire, stopping the loss, and saving lives when considering the common types of incidents and fire risks faced by ACFPD?

With the ACFPD, references to the national consensus standard for career fire districts should be used (NFPA 1710 Standard). Although the NFPA performance recommendations are considered an industry best practice, fire districts working with their governing bodies may wish to implement response performance goals that better suit their communities.

The following two figures—while not specifically consistent with NFPA 1710—are presented as examples of response performance goals based on population and risk response zones. The first example is the "first due" response of a single unit utilizing the industry best practice response time metric, from the time the call is received at 911 until arrival on-scene at the 90th percentile.

Figure 87: Example of a First-Due Single-Unit Response Standard

Density	Description	Response Time Goal
Urban	Greater than 1,000 persons/square mile	9 minutes or less at 90%
Suburban	500–1,000 persons/square mile	12 minutes or less at 90%
Rural	Less than 500 persons/square mile	15 minutes or less at 90%

The following example represents the first-alarm response to a moderate risk structure fire, utilizing the industry best practice response time metric.

Figure 88: Example of a First Alarm Response (3 Engines, 2 Medic Units, & 1 BC)

Density	Description	Response Time Goal
Urban	Greater than 1,000 persons/square mile	11 minutes or less at 90%
Suburban	500–1,000 persons/square mile	16 minutes or less at 90%
Rural	Less than 500 persons/square mile	18 minutes or less at 90%

Fire districts throughout the United States use the practice of establishing risk zones based on risk and population density. The use of risk or "demand" zones provides a more accurate picture of service delivery performance. This may be especially relevant for fire districts such as American Canyon FPD that provide emergency response to diverse areas.

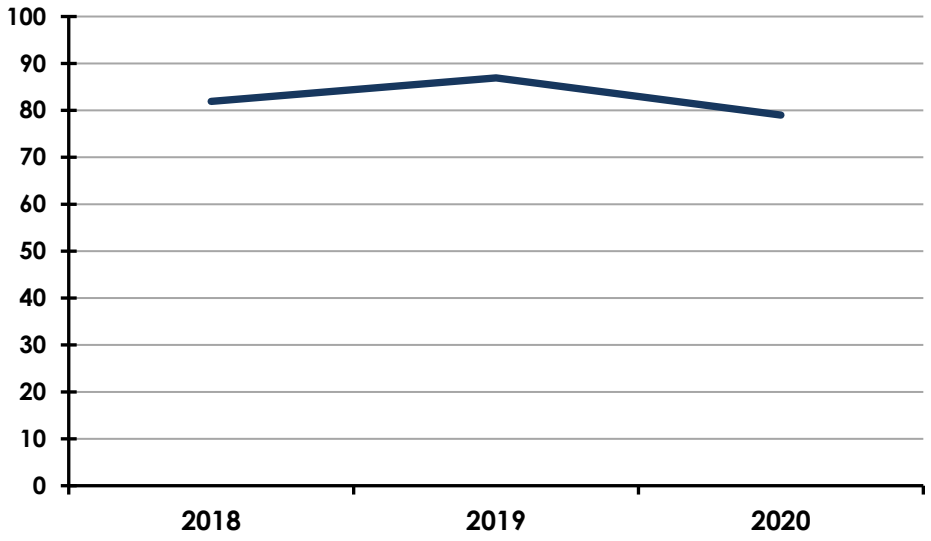
The preceding response standards are presented as examples. The previous discussion provides ACFPD with the information necessary to begin the process of establishing response standards and targets. Establishing response standards and performance goals should be viewed as a strategic planning tool for community loss control. Therefore, ACFPD is encouraged to begin the process as soon as feasible to assist with future planning needs.

Population Growth & Incident Workload Projections

Population Growth

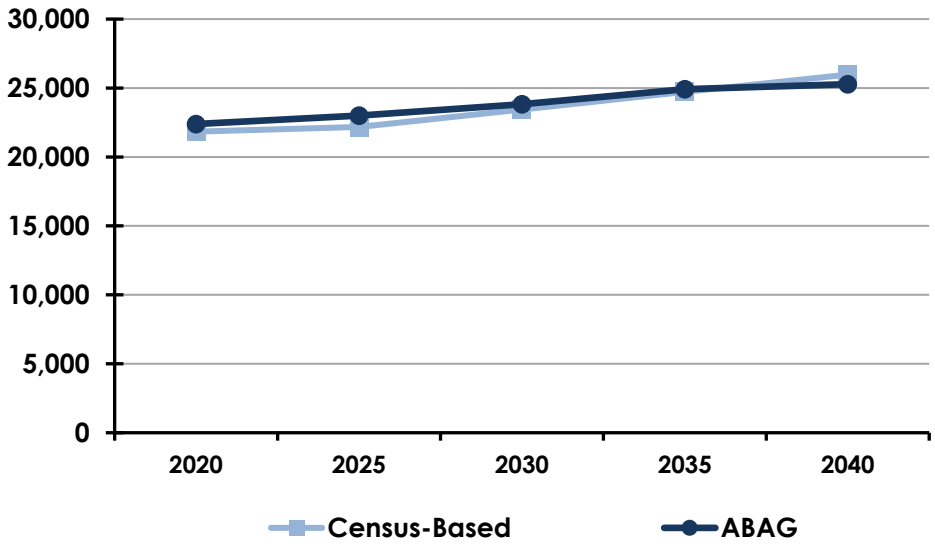
Over the last three years, the utilization rate of the fire district per 1,000 population generally had decreased, as shown in the following figure. The rate during 2019 increased, but in 2020, the rate was lower at 79 incidents per 1,000 population. This was likely due to pandemic concerns and the reduction in traffic and fears of healthcare settings. It is projected that utilization will stabilize at 82.6 per 1,000 population through 2040.

Figure 89: Utilization Rate



Based on the census population, a forecast for future population can be calculated using the lasted growth rate data. This forecast was very close to the population projections provided for American Canyon by the Association of Bay Area Governments (ABAG) report.[6] Census-based forecast calculated a population of 25,972 in 2040, while the ABAG projected 25,280 residents.

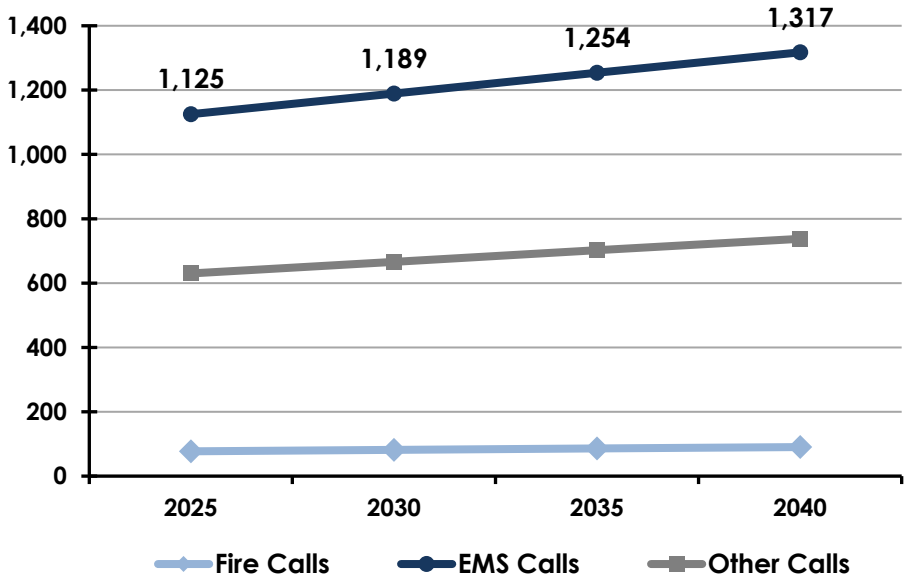
Figure 90: Population Projections



Workload Projections

The following figure shows that using the census-based forecasted population growth will potentially increase ACFPD's workload. However, response workload is expected to remain stable, requests for emergency medical services are expected to increase.

Figure 91: Workload Projections

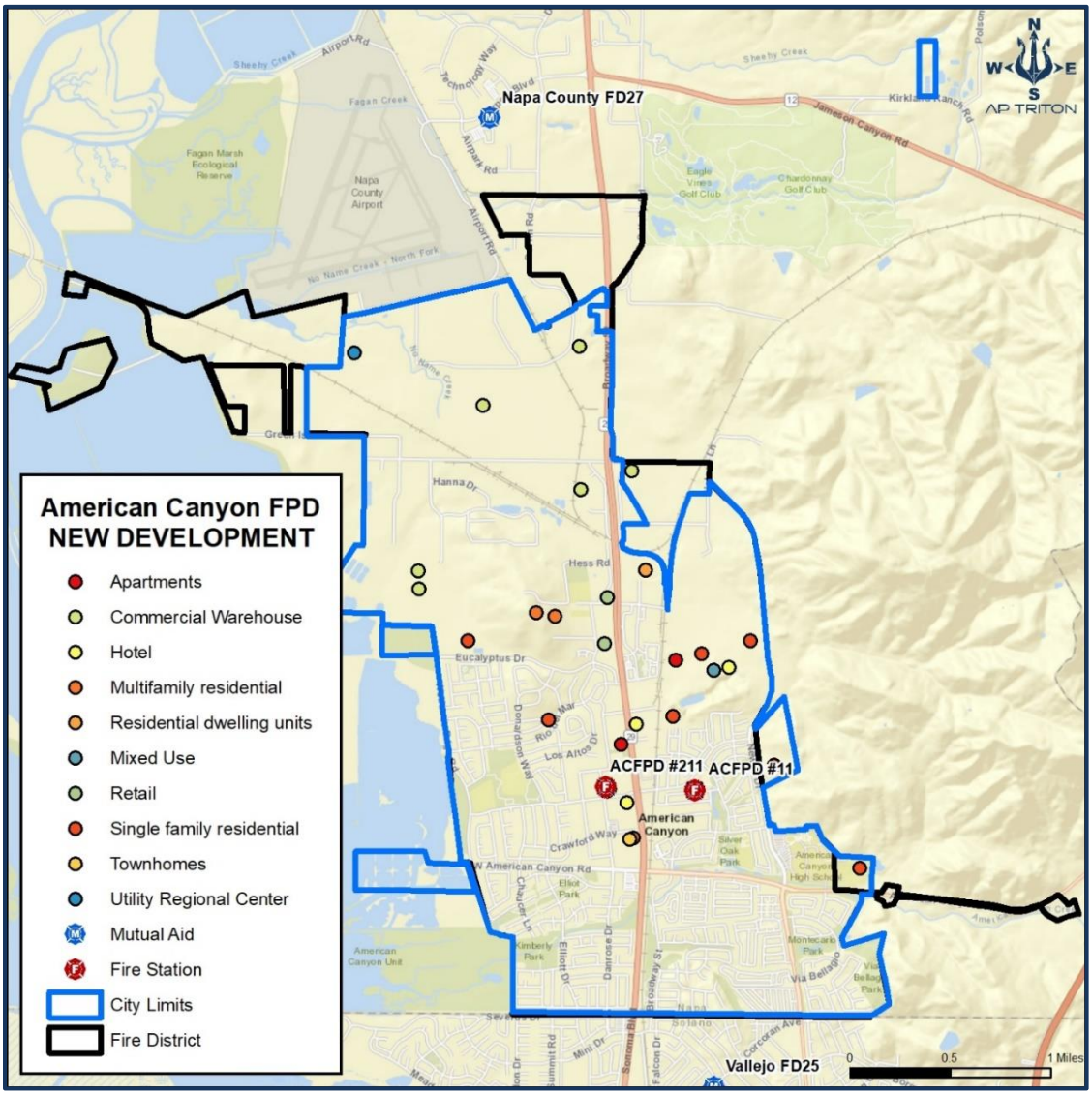


Future Planned Development

As previously noted, ACFPD operates from two stations on either side of the main north/south arterial of Highway 29 (Broadway St). While Station 11 could accommodate the current staffing, there are response advantages of being on both sides of the highway, albeit a half mile apart.

The city and fire district boundaries total approximately 7 square miles. Most of the existing residential development is in the southern half, with some commercial/industrial in the northern half. The planned development is scattered around the city, as seen in the following figure.

Figure 92: New Developments



The following figure summarizes the new developments planned for the city. The estimated population is based on the U.S. Census 2021 estimate of 3.94 persons per household. Hotels were based upon 75% occupancy with 1.5 persons per room. Demand was applied based on historical rates in similar zoning designations and to the population or building square footage.

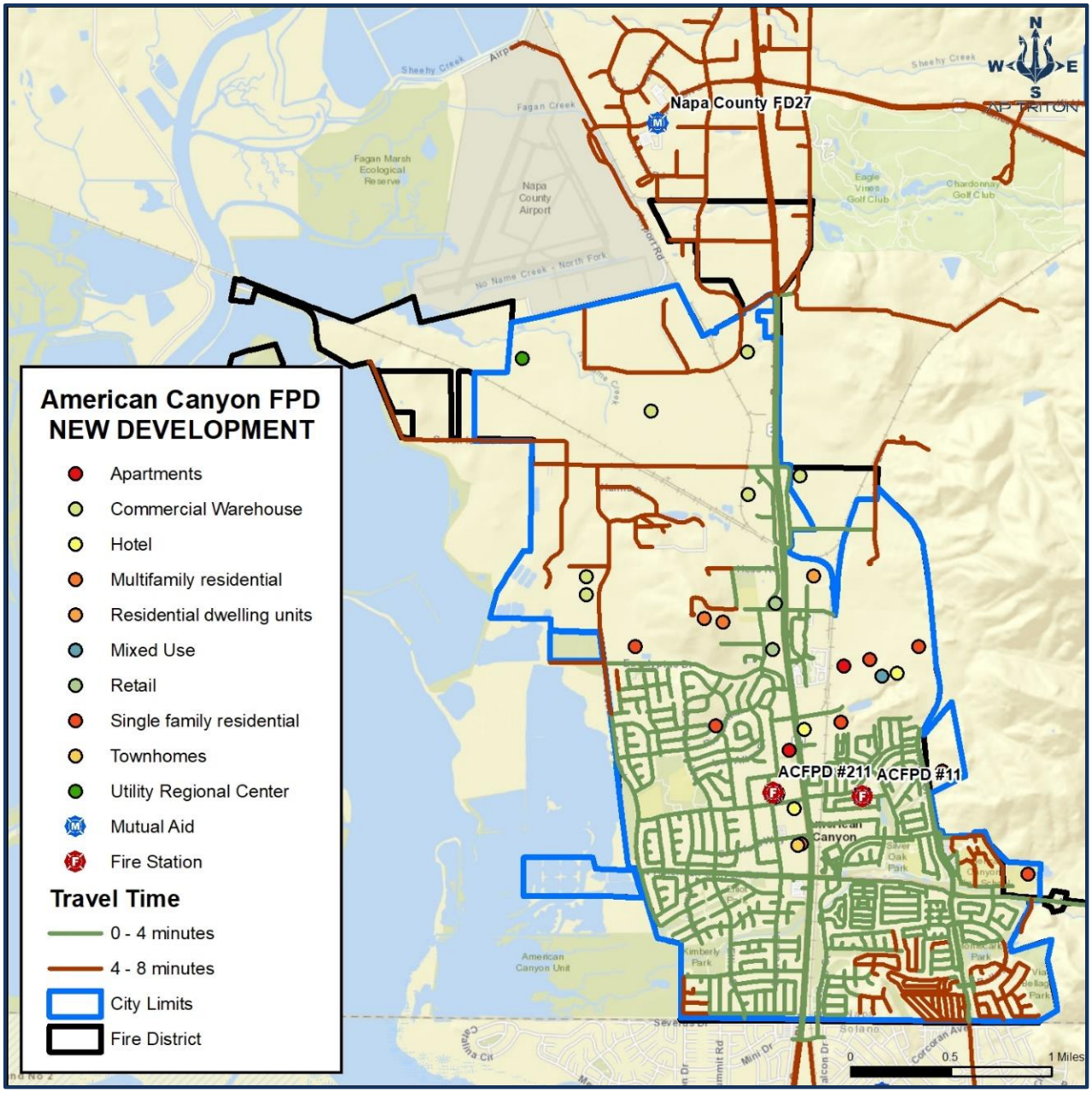
Figure 93: New Developments Summary

Type	Number	Qualifier	Population	Demand
Dwelling Units	3,144	Units	12,387	162
Hotels	414	Rooms	466	6
Retail	90,187	Square Feet	0	1
Industrial/Warehouse	3,583,229	Square Feet	0	7
Utility Regional Center	100,000	Square Feet	0	1

It is not expected that the commercial/industrial areas will drive demand on a routine basis but instead increase the risk profile of the north part of the city. Currently, the ACFPD ladder truck is cross-staffed and located at Station 11. If not initially staffed in response to an incident, a mutual aid ladder truck from Vallejo Station 21 (about 4 miles from the city center) or Napa Station 1 (about 8 miles from the city center) would need to be dispatched.

Given the travel time model coverage, most of the new development is covered by the current stations located in the southern part of the city and along Broadway Street to the north. Although the street infrastructure is not in place, the Watson Ranch Area, and areas close to the current four-minute reach are also expected to be covered. The commercial development toward the airport would be reached within an eight-minute travel time model.

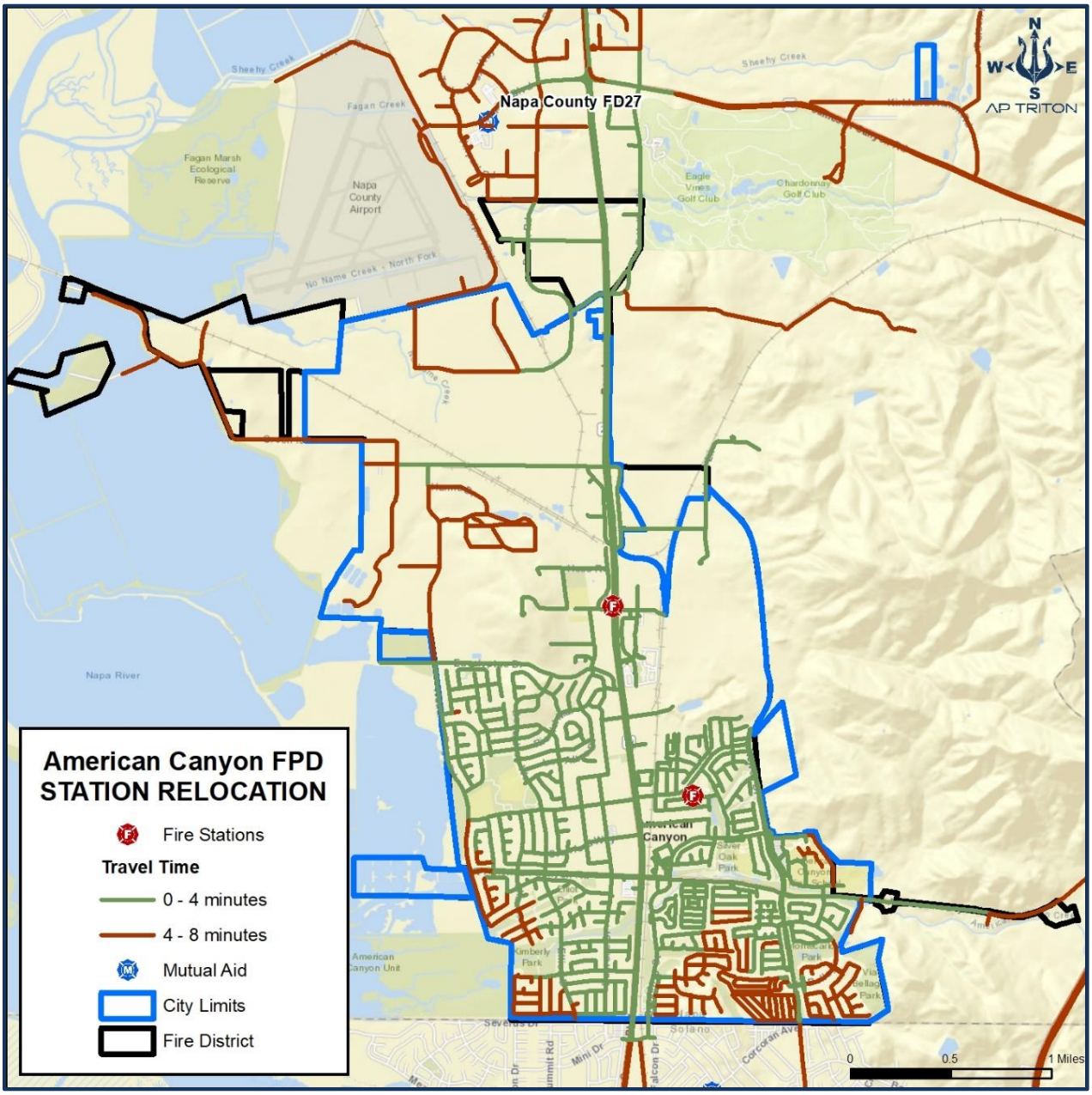
Figure 94: New Developments with Travel Time



Station 11 is relatively new, built in 2007. The station can accommodate the current engine company staffing and full-time staffing of the truck company if that were to occur, given the increased risk of commercial developments planned for the city, especially in the north.

Station 211 was built in 1980 and is reaching its end of service life. Either it should be renovated, or a new location considered that would still be on the west side of Broadway but further north. Utilizing geographic technology to optimize coverage, it was determined that a location in the vicinity of Broadway and Napa Junction Road provides additional coverage reach to the northern part of the city and the southern portion of the city.

Figure 95: Relocated Station 211



Section II:
SUPPORT PROGRAMS

Emergency Medical Services System

General Description of the System

American Canyon Fire Protection District provides advanced life support (ALS) non-transport emergency medical services in its district. In 2021, ACFPD responded to 1,160 EMS calls for service. The district is covered by two ALS engines that are staffed with a minimum of one paramedic and two EMTs. In 2022, over 60% of career operations personnel were advanced-level providers, with eleven paramedics and seven Emergency Medical Technicians. In addition, America Medical Response (AMR) provides emergency and non-emergency transportation per an agreement with Napa County.[7]

Medical helicopter service is available to transport critical patients when ground ambulance response or transport time would be excessive and the patient's condition meets helicopter transport criteria. REACH Medical Holdings, which includes the entities of REACH, CAL-ORE, and CALSTAR, provides helicopter and fixed-wing ambulance services. REACH provides these aircraft resources for critically ill and injured patients throughout Napa and surrounding counties.

ACFPD has a services agreement with American Medical Response for First Response Advanced Life Support Services. This is a two-year agreement that commences in June of 2024. The terms allow for automatic annual renewals until 2027. This agreement allows AMR to have additional time to respond to an emergency call, equal to an extra two minutes in urban areas, three minutes in suburban areas, and five minutes in rural areas. ACFPD agrees to provide an initial patient assessment and begin treatment. In addition, ACFPD must generate an electronic patient care report (ePCR) on all incidents and participate in the EMS Agency quality improvement program. ACFPD receives $68,750 annually from this agreement.[8]

Hospitals & Tertiary Care Facilities

The majority of patients from American Canyon are transported to Vallejo. Kaiser Vallejo is a STEMI Receiving Center and a primary Stroke Center.

Queen of the Valley Medical Center is the closest trauma center and is designated as a Level III Trauma Center, a STEMI Receiving Center, and a primary Stroke Center. QVMC is the designated Base Hospital for Napa County. St. Helena Hospital is licensed as a Standby Emergency Department and designated as a STEMI Receiving Center. UCSF Benioff's Children's Hospital in Oakland is the closest pediatric center.

Napa Central Dispatch is the Primary Public Safety Answering Point (PSAP) for all 911 calls in the district. The Center is currently utilizing a modified priority dispatch system that provides protocol-driven, structured caller interrogation and pre-arrival instructions to callers. The Center dispatches for the Napa Police Department, Napa County Sheriff's Department, the American Canyon Police Department, the Napa Fire Department, the American Canyon Fire Protection District, and AMR.

Napa Central Dispatch Center is in the process of transitioning from an internally developed custom call triage system to the Priority Dispatch product. In addition, they are training staff to implement MPDS. The ProQA-AQUA system was implemented in June 2022 in compliance with the County of Napa's EMS Agency Policy 301.[9]

EMS Administration

Medical Control & Oversight

Per the California code of regulations, Title 22, Division 9, Chapter 4, Section 100170 requires that a fire department receive medical control and oversight. The Medical Director for ACFPD is contracted through a JPA with Napa City Fire Department to provide services. In addition, online medical control is provided through Providence Queen of the Valley Hospital, which serves as ACFPD's base hospital.

Quality Assurance/Quality Improvement

ACFPD's quality assurance program consists of an ePCR review in compliance with Napa County EMS Agency Protocol 603. The district utilizes the ESO for its ePCR. Per the EMS Clinical Coordinator, the fire reporting is done in a separate system, and there is no integration between to two systems. There is no internal quality improvement committee. The district plans to begin peer review utilizing the ESO product in the near future. The department has an internal CQI committee that meets on a bi-monthly basis. ACFPD has an updated QI plan on file with the county. ACFPD currently assigns a shift Captain to the CQI process to reveal potential areas for improvement of the EMS system, identify training opportunities, highlight outstanding clinical performance, or audit compliance with treatment protocols.

Infection Control

Infection Control is handled by a trained Designated Infection Control Officer (DICO). Communicable Disease and Bloodborne Pathogen policies are current in Lexipol. Exposure reporting processes are in place, and annual training is completed.

EMS Training & Skills Evaluation

ACFPD is a state-approved Continuing Education (CE) Provider. The Program Director position at the Napa County EMS Agency is currently vacant, and the Clinical Director is a paid call employee with limited hours. Therefore, ACFPD does not have the staff necessary to coordinate an in-house training program. Continuing education credits are provided through outside agency support and internal staff time. ACFPD currently provides EMT/EMT-P skills testing utilizing administrative support team members. They also currently do Basic Life Support (BLS) CPR in-house; however, Advanced Cardiac Life Support (ACLS) and Pediatric Life Support (PALS) are taught to their personnel by American Medical Response Employees. This limits the district's ability to train for cardiac arrest response as a team.

The need has been identified to bring all coordination centrally in-house and offer more CE opportunities, including coordinating with district fire training to integrate EMS CE opportunities into existing fire training.

Training & Continuing Education

Training Methodologies

Training refers to the specific programs, resources, and capabilities of the personnel within a fire department. A training program should be comprehensive based on the department's needs and is an integral part of day-to-day activities. Proper training is designed to provide safe and effective delivery of emergency services to the community and is extremely important for all fire districts regardless of the size or makeup of the district's staffing levels.

Although the number of incidents varies from jurisdiction to jurisdiction, the types may be the same or similar. Therefore, developing an ongoing fire, EMS, rescue, and hazardous materials training program is critical for ACFPD to be effective and safe during an incident. In addition, a well-designed and comprehensive training program creates team dynamics, cohesiveness, improved incident outcomes, and can lower liabilities for the district.

NFPA has created several standards relating to the training and certification of fire personnel. These standards are designed as minimum recommendations for firefighters, fire officers, prevention staff, fire investigators, public education staff, and other position-specific personnel. ACFPD subscribes to these standards as well as requirements set forth 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 recognized standards outlined within the National Wildfire Coordinating Group (NWCG) curriculum for the district's response to wildland and interface incidents. In addition, ACFPD utilizes specific policies, procedures, and standard operating guidelines (SOGs), which have been developed and adopted by the district.

To deliver a comprehensive training program, fire districts/departments must have access to qualified instructors and resources. These resources are typically found within the organization, externally with regional partners, through contract services, or a combination of all three. ACFPD recognizes the value of these types of resources and has the benefit of utilizing an in-house instructor, certified, qualified, and registered with State Fire Training to deliver various didactic and manipulative courses. In addition, certified instructors outside the organization assist the ACFPD with courses that are unable to be taught in-house.

Training Program Management & Scheduling

ACFPD assigns the Assistant Chief to oversee the district's training division. In addition, a Captain is also assigned to training serving as the district's Training Officer. The duties of this position include the development, delivery, and recordkeeping of fire and EMS-related curricula, including general and mandated courses required by local, state, and federal regulations. The following figure reflects general training competencies for ACFPD.

Figure 96: General Training Competencies

Program Description	ACFPD Source
Incident Command System (ICS)	Cal OES/CSTI/FEMA 100, 200, 300, 700, 800
Personnel Accountability	Tailboard Sessions, ACFPD SOGs
Basic and Advanced Firefighting	SFT
Wildland Firefighting	NWCG S130, S131, S190, S231, S330
Rescue (Basic)	SFT, Local/County Policies, SOGs
Safety Procedures	ACFPD SOG, Policies, Safety Briefings
Emergency Medical Services (EMS)	Local and State Protocols, SOGs, Policies
Hazardous Materials	Cal OES/CSTI FRO
Vehicle Extrication	SFT (In-house)
Defensive Driving	Target Solutions (Annually)
Driver-Operator	SFT
Radio Use, Dispatch Procedures	ACFPD SOGs, Policies
Use, Safety, Care of Power Equipment	Target Solutions
Use, Safety, Care of Small Tools	Target Solutions

In 2021, ACFPD personnel completed approximately 11,454 total hours of training. These hours included 8,590 hours in fire-related subjects, 2,177 hours on EMS-related topics, and 687 hours reviewing administrative policies.

The Training Captain receives assistance from engine-company crews in the delivery of various courses and taking on instructor roles during the ACFPD recruit academy sessions. Newly appointed firefighters are required to have completed an accredited fire academy or possess a valid CSFM Firefighter-1 certificate issued through an accredited testing center. However, they are required to attend the ACFPD four-week in-house academy. In addition, firefighters employed by the ACFPD must possess and maintain a current State of California Emergency Medical Technician (EMT-1) certificate or EMT Paramedic license.

An administrative assistant is assigned part-time to the Training Division. This position provides clerical support and is also responsible for the district's training records. Training records are maintained through hard-copied documentation and electronically captured records (Target Solutions). The training records platform is accessible to all ACFPD personnel to enter information and review as needed. In addition, all industry-related certifications are tracked and maintained by the Training Division.

In conjunction with the Assistant Chief, the Training Captain has responsibility for developing an annual calendar and multi-year training plan. Topics of scheduled training vary but include manipulative, didactic, and computer-based (Target Solutions) subject matter using formal lesson plans produced in-house or through commercial vendors. The following figure reflects the training drill type and frequency for ACFPD.

Figure 97: Drill-Type & Frequency

Drill-Type	Frequency
Manipulative Skills Exercised	Every tour
Inter-Station Drills	Every tour
Multi-Company Drills	Monthly
Night Drills	N/A
Disaster Drills	Bi-annually
Pre-Incident Planning	*
Multi-Agency Drills*	Monthly (Vallejo FD, Napa FD, Cal Fire/Napa County departments)

*Due to the COVID-19 pandemic, pre-incident planning activities have been reduced.

ACFPD has a training budget of $25,500 to pay for in-house training courses, tuition for select outside training opportunities, and other industry-specific training, such as technical rescue and wildland firefighting.

In addition to providing in-house, company-level training at the district's fire stations, the grounds behind Fire Station 211 serves as the district's training facility. The grounds boasts a multi-story training tower used for non-live-fire exercises, hose evolutions, and conducting rescue scenarios. Additionally, various props are located on the grounds, including forcible entry, fire extinguishers, heavy lifting, and various urban search and rescue (USAR) props.

Life Safety Services & Public Education

Community Risk Reduction Program

Each of the following is part of an overall Community Risk Reduction program, defined as "The identification and prioritization of risks followed by the integrated application of resources to improve public safety and reduce increasing call volumes."[10] CRR's primary objective is to examine problems and develop prevention or mitigation strategies to reduce hazards. The goal is to incorporate emergency operations with prevention efforts at the fire station level. The station-level approach is preferred because risks vary from one station to another or even within a station's response area.

Data collected for this master plan and continued analysis in the future creates an opportunity to determine if specific hazards are increasing or decreasing based on incident response. Additionally, risks may shift as new development, or demographic change occurs in American Canyon and the overall service area, impacting ACFPD.

Although ACFPD provides risk reduction, it is not a comprehensive or coordinated effort. Therefore, when developing strategies, they should use the "Five E's."

- Education—Will education help the public: who, where, when?
- Engineering—What engineering or technology is available to help?
- Enforcement—Is additional or more substantial enforcement needed?
- Economic Incentives—Could incentives increase compliance?
- Emergency Response—Would changes in response make a difference?

When developing a CRR plan, ACFPD must determine what strategies have already been implemented in the community to prevent duplication. In addition, outside resources may be available through partnerships with many community organizations such as law enforcement, nonprofits, health departments, EMS, religious, and local businesses. These groups may provide staff with a different perspective and offer additional funding and resources to mitigate limitations within ACFPD.

Preparing a CRR plan should align with the department's mission and strategic plan. Creating a plan at the station level allows personnel to engage the community they serve. It empowers staff to interact, learn more about their community, and take ownership of the program. Station personnel will begin to understand the importance of collecting accurate data to support their plan, developing strategies using partnerships, gaining their input, soliciting feedback from the community, and deciding what risk to prioritize.

The next figure is one basic methodology offered by Vision 20/20 to identify and analyze risks within a community. In addition, Vision 20/20 includes a coalition of national organizations and experts that exemplify how collaboration, communication, and commitment to data-based solutions can save lives and properties.

Figure 98: The Community Risk Assessment Process

Code Enforcement & Permitting

A primary component of any risk reduction program is to provide a comprehensive fire and life safety inspection and permitting process. The goal is to prevent or mitigate a fire or injury before it occurs.

Fire & Life Safety Inspections

ACFPD utilizes the California Fire Code based on the 2019 International Fire Code with amendments adopted by the state and the local jurisdiction. The state has adopted an inspection schedule for occupancies, including residential (multi-family and hotels), educational, institutional, and high-rise. ACFPD hires a contract Fire Marshal and Fire Inspectors to enforce the California Fire Code for the mandated occupancies.

Engine companies conduct lower-risk inspections in the district and recently began these inspections again after stopping because of COVID-19. The contract fire marshal provided a class for operations personnel before reinstituting engine company inspections in May 2022. In addition, a retired captain provided training on ACFPDs records management system.

All inspections not state-mandated are assigned to engine companies at ACFPD. It is imperative that ACFPD ensure that all assigned inspections are completed annually by the engine companies and contracted employees. The following figure provides examples of occupancy types and the associated risk for determining when commercial occupancies should be inspected. It is recommended that the ACFPD develop a schedule to conduct inspections of all occupancies or businesses in the district. The following figure can provide ACFPD with additional guidance when scheduling an inspection.

Figure 99: Occupancy Classifications

Risk	IBC Group	Examples
High	A-1, A-2	Nightclubs, restaurants, theaters, airport/cruise ship terminals
	A-3, A-4, A-5	Arenas, museums, religious
	H-1, H-2, H-3, H-4, H-5	Hazardous materials sites (Tier II)
	B	All government & public buildings, other office buildings over two stories
	E	Schools, daycare centers
	I-1, I-2, I-3, I-4	Hospitals, assisted living, correctional facilities
	M	Strip malls, closed-air shopping malls, big box stores
	R-1, R-3	Hotels, motels, dormitories, apartments, board & care facilities
	Special Risk	Railroads, interstate highways, airports
	(Target hazard)	Any building with life safety risk beyond the reach of preconnected hose lines > 200 feet
Moderate	B	Outpatient clinics, general business, offices <3 stories
	F-1	Fabrication or manufacturing of combustible materials
	M	Mercantile, free-standing
	I-2, R-4	Foster group homes, assisted living homes
	S-1	Storage of combustible materials, car repair facilities, hangars
Low	F-2	Fabrication or manufacturing of non-combustibles
	R-1, R-2	1- and 2-family dwellings, foster homes
	S-2	Storage of combustible materials
	U	Barns, silos, and other unclassified buildings

Permitting & Fees

ACFPD works in conjunction with the engineering and planning departments of American Canyon. ACFPD issues new construction permits for fire alarms, sprinklers, and suppression systems. New developments are not released for permitting until all mitigation or other fees have been paid to the district for the project.

ACFPD has mitigation fees for new development initially adopted in the 1980s and have not been updated in at least ten years. In addition, ACFPD charges fees for all inspections and plan reviews, which are placed into an account that pays the contract fire marshal and inspectors. The fees are also used to assist with purchasing equipment, the fleet, and facilities operated by ACFPD. ACFPD should consider conducting a fee study to determine if the current fees align with other similar agencies.

Building Plan Review

The review process provides information on how the construction may affect the ACFPD's access to the building during an incident, type of construction, or a change of use.

Plan reviews should begin when the initial concept is presented for permitting. The initial review allows the fire department to provide suggestions and enforce existing requirements before permitting. For example, the site plan should include fire apparatus access, fire department connection location if a sprinkler system is present, the size and height of the building, hydrants, or other features that impact emergency responders.

Proper permit applications and processes are necessary to assist the contractor when submitting plans for review and ultimate approval. Reviewing construction plans allows fire service representatives to ensure code compliance for exiting fire sprinkler and alarm systems, emergency lighting, or other processes. In addition, a permitting system allows the organization to require changes to plans if they do not meet code requirements before construction begins.

ACFPD participates in the plan review process for all new development or alterations to existing buildings.

Fire & Life Safety Education Programs

Prevention or mitigation of unintentional injuries or fires is a critical function of a fire department. Educational programs provide the best opportunity to reduce fires and injuries in the community.

A fire and life safety program to reduce risks requires a coordinated approach and should include other partner organizations in the community that may provide the same or similar services. These partnerships allow ACFPD to become a community partner and build relationships to reduce risks. In addition, developing fire and life safety programs requires a continual review of incident data to determine the types and frequency of responses.

ACFPD provides public education in the community through programs such as home escape planning, fire safety, and station tours. These events or visits are scheduled by an executive administrative assistant for operations personnel when requested. In addition, CPR classes are provided to the public and are taught annually at the high school. Public education is also provided through social media. As part of a CRR program, ACFPD should consider expanding its public education program to include injury prevention and developing partnerships with other nonprofits that may provide similar services.

Fire Investigations

Fire causes may include intentional, unintentional, failure of equipment, an act of nature, under investigation, or undetermined. Documenting the types of ignition is required by the National Fire Incident Reporting System (NFIRS) for all fires and is necessary for fire investigations.

Determining the origin and cause of fire allows ACFPD to develop prevention programs that reduce future incidents. Any program designed should use data to review the cause of the fire and show trends of potential problems within the community. Data such as name, age, and gender may identify a specific person or group to target prevention programs such as a Juvenile Firesetter.

A contract fire investigator provides origin and cause fire investigation services when operations personnel request. ACFPD fire investigators work with the police department when there is an investigation and assist them with scene control and evidence collection. This process has worked well for the district.

Special Operations & Rescue

Technical Rescue

ACFPD provides technical rescue response to the City of American Canyon and throughout the district. In addition, ACFPD is a member agency of the Napa Interagency Rescue Team (NIRT), providing technical rescue response capabilities throughout Napa County. All sworn personnel of the ACFPD make up the district's team and are also part of the NIRT. Disciplines include confined space rescue, rope (high angle) rescue, trench rescue, structural collapse, vehicle/machinery rescue, and surface water/swift water rescue.

The ACFPD equips and maintains Rescue-11, a technical rescue apparatus classified as a "Type-1" response vehicle. This "typing" defines the amount of equipment, type of equipment, and capability of the equipment in performing the various technical-rescue responses, as previously noted. In addition to Rescue-11, the district owns and operates two inflatable rescue boats (IRB) staffed as needed for incidents involving swift water/flood rescues.

ACFPD personnel must obtain certification through State Fire Training in Rescue Systems-1, Rescue Systems-2, Confined Space, Low-Angle Rope Rescue, and Trench Rescue for inclusion in the ACFPD and NIRT programs. Approximately 96 hours of training are conducted annually to maintain their technical skills. In addition, ACFPD personnel participates in annual confined space training consistent with the standards set forth by the Occupational Safety Health Administration (OSHA) 29 CFR 1910.146.

ACFPD has several up-to-date policies regarding technical rescue response, including confined space, trench rescue, atmospheric monitoring, rescue rope inspections, and swift water response. A joint-agencies urban search and rescue (USAR) policy has also been developed as a county-wide standard.

The ACFPD allocates $25,500 within the annual budget for training. Within the budget, a separate line-item has been added in the amount of $7,000 for acquiring new or replacing existing rescue equipment.

Hazardous Materials Response

Hazardous chemicals and materials are found in almost every aspect of our lives. Frequently, fire departments are called upon to mitigate a hazardous materials incident resulting from the mishandling or incorrect use of household chemicals, a vehicle accident with leaking fluids, an overturned tanker truck, or even a derailed train car.

Firefighters responding to any situation involving hazardous chemicals or materials must have adequate training and proper personal protective equipment to handle any such incident. All ACFPD personnel are trained at least to the hazardous materials, First Responder Operational (FRO) level. The Code of Federal Regulations requires FRO level certification for all first responders (CFR 1910.120[q]). In addition to FRO certification, ACFPD has three personnel certified at the Hazardous Materials technician and specialist level: two certified at the Haz-Mat Incident Commander level and two certified as Haz-Mat Safety Officers.

Should any hazardous chemical or materials incident exceed the resource capabilities of the ACFPD, a request is made to activate the multi-agency hazardous materials response team. This team comprises personnel from the Napa County Fire Department, the City of Napa Fire Department, and the American Canyon Fire Protection District. The team can be assembled within one hour of activation. The Governor's Office of Emergency Services (Cal OES) has certified the team to a Type-II level.

The Napa County Fire Department owns and maintains the team's response apparatus, which contains the necessary equipment for detection, monitoring, entry (including level A and B suits), decontamination, plume modeling, spot weather forecasts, and equipment for plugging, diking, and spill containment.

Participating agencies train together twice per month, averaging ten hours per month per member.

Section III:
COMMUNITY RISK ASSESSMENT

Overview of the City of American Canyon & Napa County

American Canyon

The City of American Canyon was incorporated in 1992 and was previously known as Napa Junction. It is located at the entrance to the Napa Valley and bounded by the Napa River to the east, the foothills of the Sulfur Springs Mountain Range to the west, the City of Vallejo and Solano County to the south, and the Napa Airport on the north. The City has five elected officials consisting of a mayor and four council members and operates under a council-manager form of government. The City provides municipal services, including police, fire, street maintenance, parks and recreation, and public utilities (water and wastewater). The population was 21,837 for the 2020 Census, and an area of 4.84 square miles. The median household income is $108,884, and the poverty rate is 7%.

Napa County

Napa County is one of the original 27 counties formed when California was granted statehood in 1850 and consists of 789 square miles. The county has a year-round temperate climate that allows the growth of world-class wine grapes and provides a significant economic impact on the community. There are five supervisorial districts in the county based on population, and an elected official represents each. The population in Napa County, according to the 2020 Census, is 138,019. The median household income is $92,219, and 7.5% of the population is considered living in poverty.

All-Hazards Community Risk Assessment

An all-hazards community risk assessment is developed to identify hazards that impact the fire department and the surrounding populations. The risk assessment will review demographics, human-caused and natural disasters, and occupancy types. Understanding the risks allows an organization to prevent, mitigate, or institute operational improvements to make the community safer.

This risk assessment utilizes a combination of the Vision 20/20 Community Risk Assessment guide and the Center for Public Safety Excellence's (CPSE)Community Risk Assessment: Standard of Cover (6th Edition). This risk assessment methodology follows a specific series of steps.

- Identifying the risks through the hazards and threats
- Assessing the risk's probabilities, consequences, and impacts
- Categorizing the risks by the degree of severity
- Classifying the risk by programs

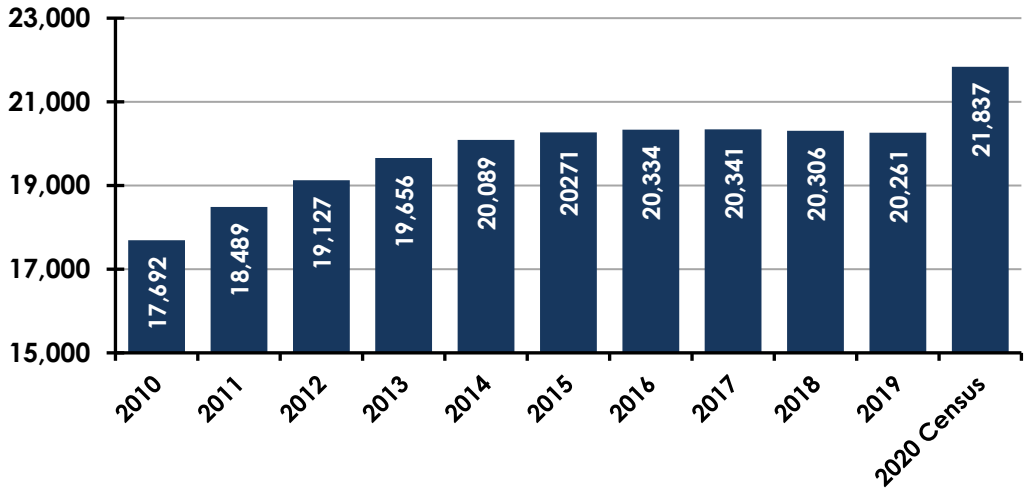
Population & Demographics

The population and demographics can influence the type of services provided in a community. Social conditions such as poverty, the locations of high-risk areas, and housing types can impact the service delivery provided by ACFPD.

Population

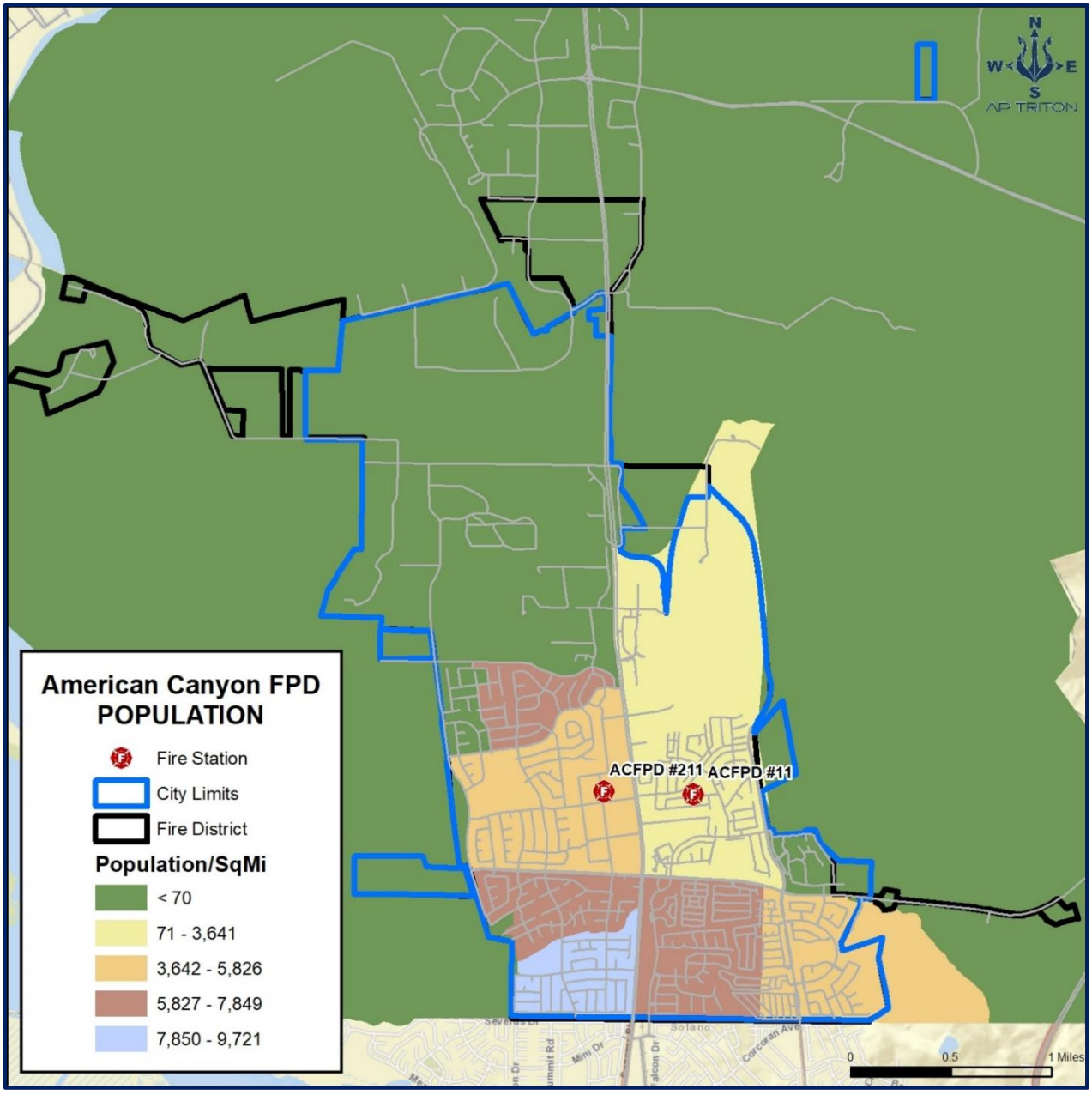
The population of a response area directly affects the number of incidents, and as growth occurs, there is an expectation that an increase in service delivery will occur. The following figure provides the annual population from the American Community Survey (ACS) 5-year estimates and the 2020 U.S. Census for American Canyon. The ACS shows a steady population increase from 2010 to 2016 and then a slight decrease until the 2020 Census when there is a substantial increase in population to 21,837.

Figure 100: Population Growth (2010–2020)



The following figure provides the population density per square mile. The highest densities are in the southern and southwestern areas of the city and reflect the calls for service.

Figure 101: Population Density



Demographics

At-Risk Populations

An area's population has different residents at higher risk of fires and other unintentional injuries. When an incident occurs, it affects service delivery for the district. The ACFPD response area is considered urban but has other areas considered suburban or even rural, ranging from single-family homes, multi-family apartments, and older adult communities. The NFPA has identified groups with an increased risk of injury or death from a fire, as indicated below.[11]

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

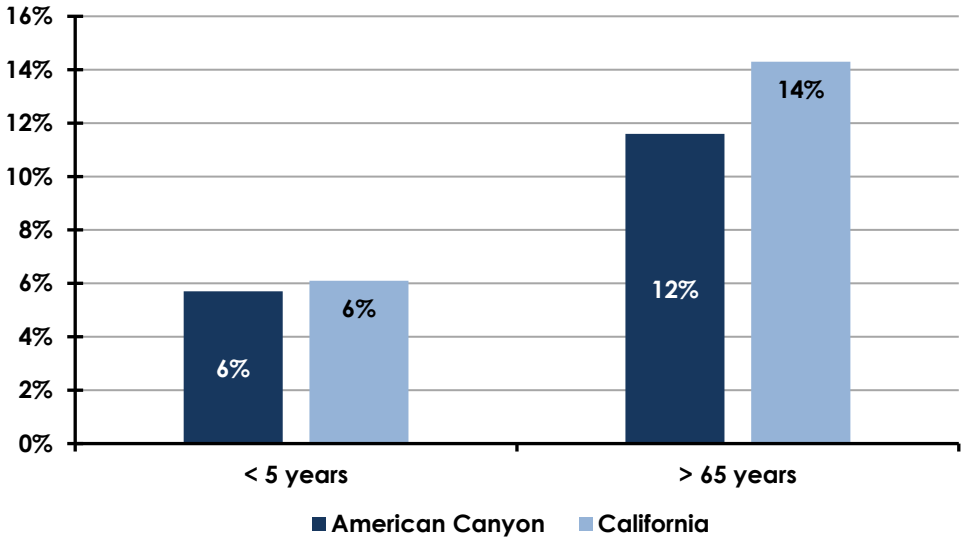
Data from the U.S. Census American Community Survey 5-year estimates identified several groups in these categories that are more likely to need emergency services, specifically EMS, than other populations.[12]

Age

A person's age in a high-risk population directly relates to increased unintentional injuries and death or injury from a fire. Older adults are at 2.6 times higher for dying in a fire than the United States' overall population. These age risks increase service demand, specifically for older adults needing additional medical care.[13]

Children under the age of five are at more risk because of their inability to care for themselves and need additional assistance during an emergency. Recent trend data (2018) from the U.S. Fire Administration indicates that this age group's relative risk of dying in a fire has dropped 30% in the last ten years and is credited to increased fire prevention and education. The percentage of children under five is 5.7%, slightly lower than in the state at 6.1%. Those over 65 years of age are 11.6% in ACFPD, lower than the state at 14%. The median age is 36.9 compared to California at 36.7. The following figure shows the percentage of children less than 5 years of age and those 65 years and older.

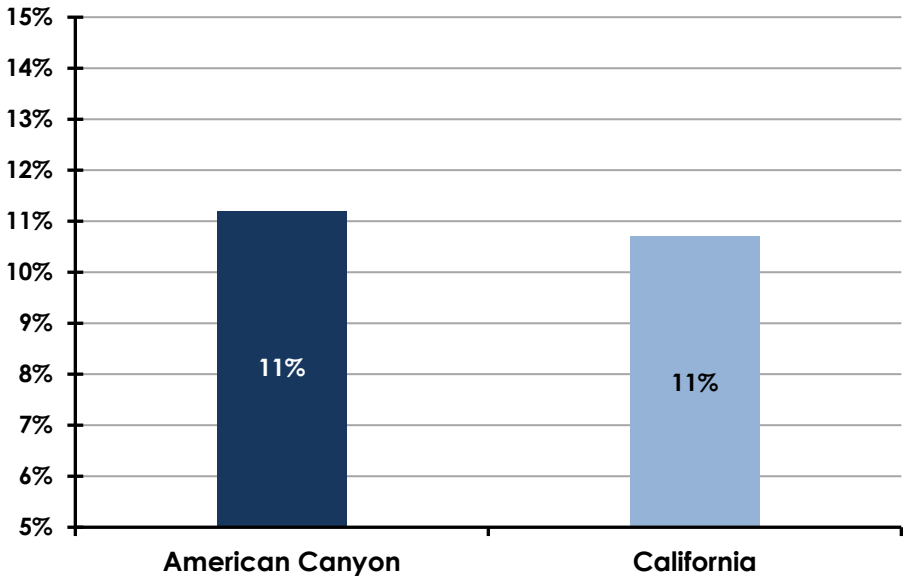
Figure 102: Percentage of Population by Age Risk



Disabilities

The residential population with disabilities is11.2% in American Canyon compared to the state at 10.7%. This population group may be unable to self-evacuate a building during an emergency or need additional medical services because of their disability. This may create additional demand for medical services, specifically as they age. The following figure depicts the percentage of households with a disability.

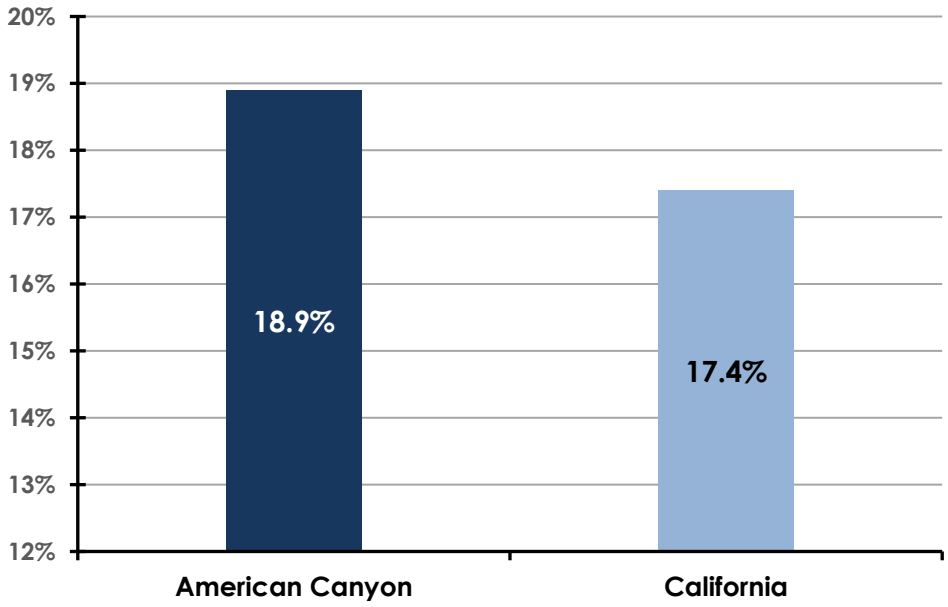
Figure 103: Populations with a Disability



Language Barriers

ACFPD may encounter someone who needs another type of communication and should have a process for speaking with them during an incident. The number of people over five speaking another language than English is approximately 18.9% which is higher than the state at 17.4%. This population may not understand smoke alarm technology designed to provide early warning during a fire which increases the risk of injuries or death in their home. The following shows the number of people over age five that speak English less than very well.

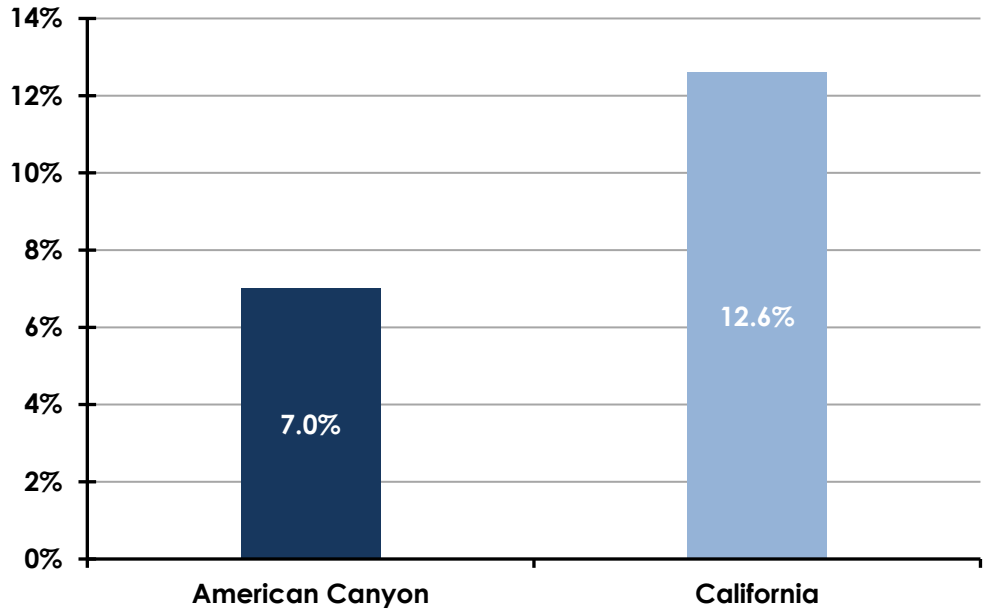
Figure 104: Speak English less than Very Well Over Age 5



Poverty & Income

The lack of high incomes increases the risk of fires and medical illnesses. Factors may include the inability to receive adequate medical services because of no health insurance, thus inability to pay, and the condition of their housing. People living below the poverty level are considered at the highest risks when combined with other factors such as education levels, disabled, or unable to work. The median household income is $108,884 and is substantially higher than the State's at $78,372. The population considered in poverty is 7% which is less than the state at 12.6%. The following figure provides the percentage of people in poverty compared to the state.

Figure 105: Percentage of People in Poverty



The following figure provides the household incomes in percentages for categories less than $10,000 to $200,000 or greater.

Figure 106: Household Incomes

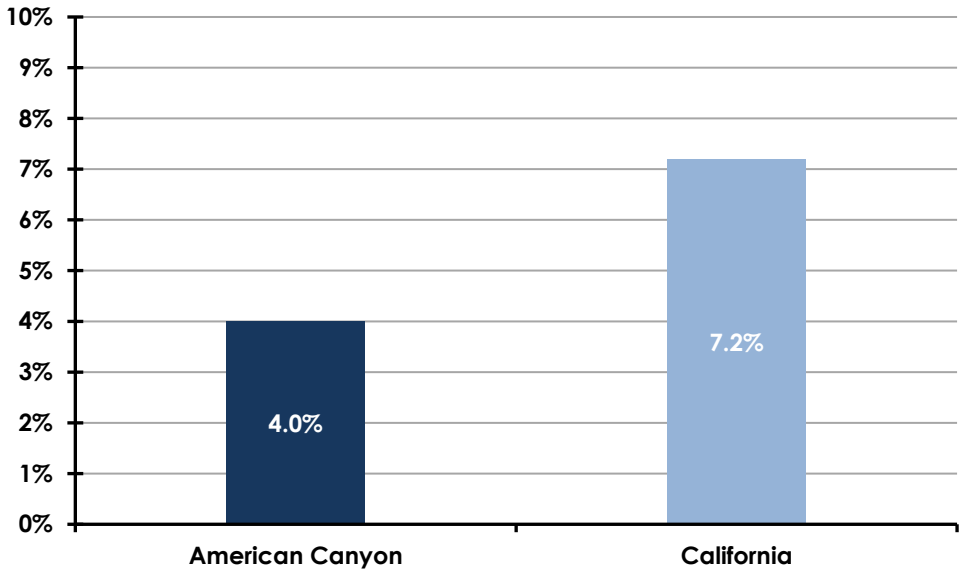
Income Amount	ACFPD	California
< $10,000	3.4%	4.7%
$10,000–$14,999	4.0%	3.9%
$15,000–$24,999	2.9%	6.9%
$25,000–34,999	3.9%	7.1%
$35,000–$49,999	7.0%	10.0%
$50,000–$74,999	12.9%	15.3%
$75,000–$99,999	9.6%	12.3%
$100,000–$149,999	22.2%	17.1%
$150,000–$199,999	17.0%	9.4%
$200,000+	17.1%	13.3%

Additional Demographics

Persons Without Health Insurance

Populations without adequate health care place an additional burden on service delivery and increase the rate of medical incidents. Lack of health insurance may affect lower-income populations at a higher rate since they cannot pay for medical visits. Four percent of the population between ages 0–64 are without health insurance in American Canyon compared to 7.2% in the state. The following figure provides the percentage of people between 0–64 with no health insurance.

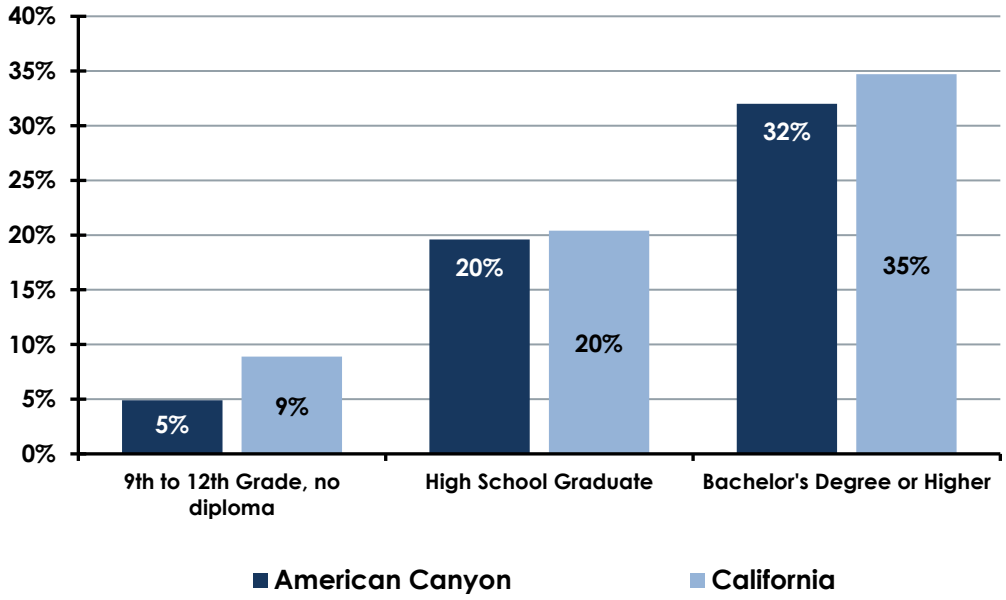
Figure 107: Persons without Health Insurance



Education Levels

Educational attainment is not considered one of the at-risk populations but is recognized as another risk group when developing fire and life safety education programs. In ACFPD, 4.9% of the population does not have a diploma compared to 8.9% for the state, while 19.6% only have at least a high school diploma. Approximately 32% of the population has a bachelor's degree or higher compared to the state at 34.7%. This group may fall into other categories such as lower incomes and no health insurance. The following figure provides information on the levels of education in ACFPD.

Figure 108: Education Levels over Age 25



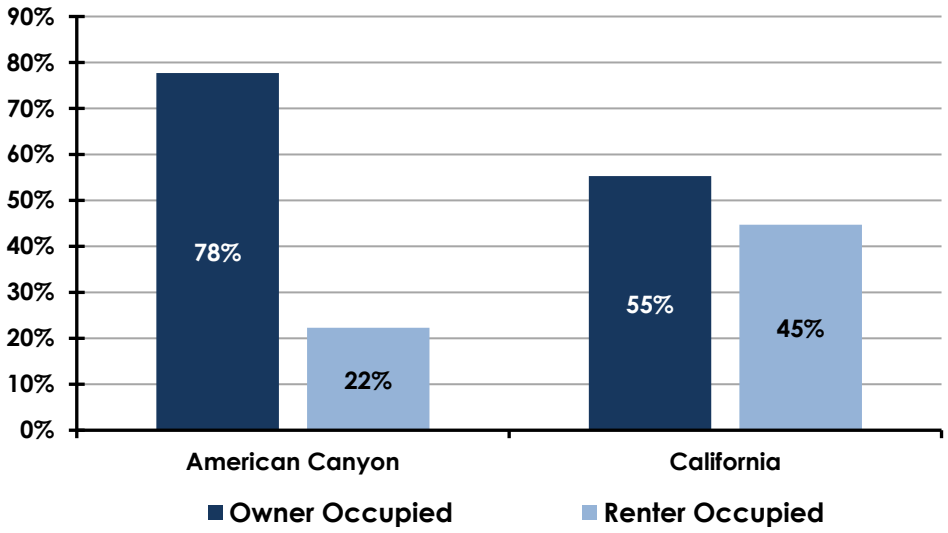
Housing Characteristics

The types of housing vary in a community and can provide insight into ownership, the age of the home, and the number of units in the building. In ACFPD, there are approximately 5,118 housing units, while 205 are vacant. Vacant structures can pose a risk for the fire department 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 department and law enforcement.

Housing Ownership

Homeownership in ACFPD is 77.7% compared to the state at 55.3%. The following figure shows the percentage of owner and rented occupied housing in ACFPD and the state.

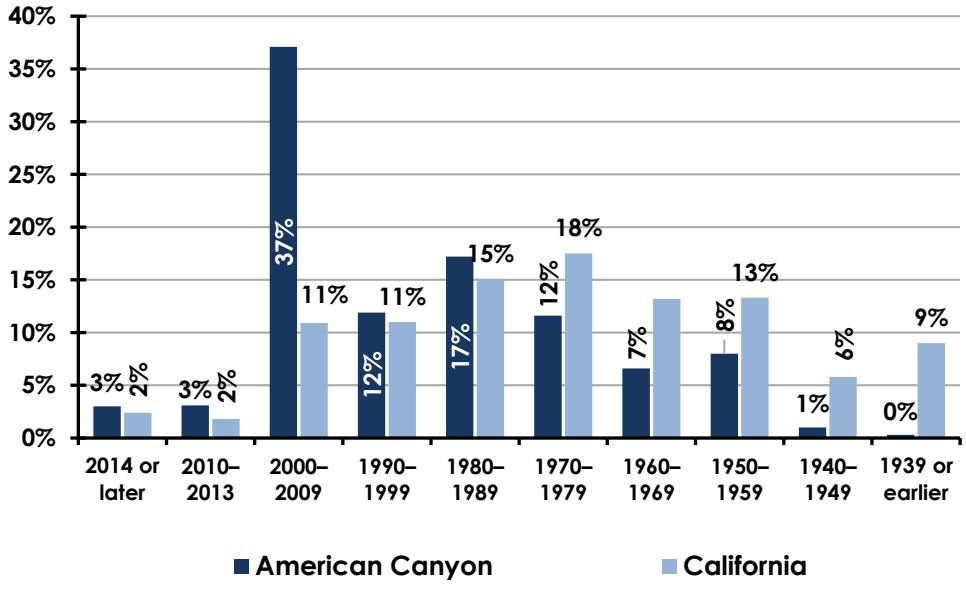
Figure 109: Housing Ownership



Age of Housing

As buildings age, the cost of maintaining the structure increases over time. Homes built before smoke alarm installation requirements create a higher risk if none are present. The highest decade for home construction occurred from 2000 to 2009, when 37% of the residential buildings were built. Although the number of homes built before 1980 is 28%, they still pose a risk if working smoke alarms are not present. The following figure provides the age of housing by decade.

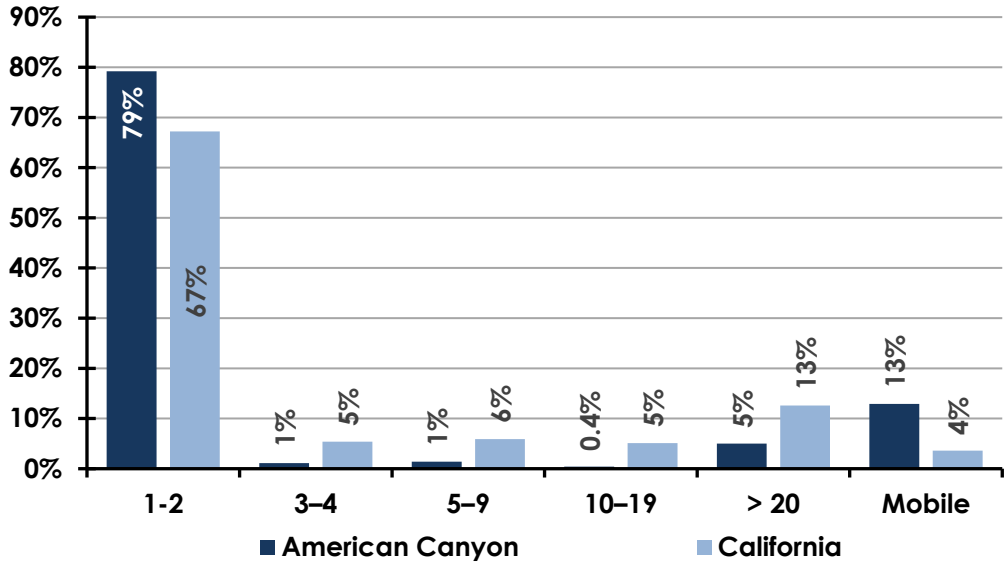
Figure 110: Age of Housing by Decade



Housing Units

The number of people living in one- or two-family dwellings is 79% compared to the state at 67%. This high percentage is reflective of homeownership. The following figure lists the percentage of housing unit types.

Figure 111: Housing Units per Building



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 2–10 in each category.[14] A description of the incident types for each risk is located in Appendix A.

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)

When developing the score, it should be recognized that each of the three scoring components is based on ACFPD incident data. An example of a low-risk fire response scoring is based on the probability of that type of incident occurring. Most low-risk incident types are frequent (multiple times a day), but the consequence to the community and impact to ACFPD is low. For a low-risk incident in ACFPD, the probability is 8 (high), while the consequence and impact is a 2 (low). These numbers are placed into the above formula to create a score of 16.2. The score will increase dramatically for a maximum risk even though the probability is low (2), because the consequence to the community is an 8, and the impact to ACFPD is the highest at 10, which gives a score of 59.4.

These scores are designed to provide information to ACFPD to determine the level of service for the community. The probability of an incident may affect response times if multiple events occur at the same time. Even if the risk is low, it will place a company out of service for the response. The following information provides additional information on probability, consequence, and impact.

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 (which contributes to the level of risk). Many factors include the 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. The following figure defines the score, category, and probability or likelihood of occurrence during an incident.

Figure 112: Probability or Likelihood of Occurrence

Score	Category	Probability or Likelihood
2	Minor	Unlikely: < .02% of total call volume. Expected to occur very rarely.
4	Low	Possible: 0.02%–0.07% of total call volume. Expected to occur rarely.
6	Moderate	Probable: 0.07&–0.3% of total call volume. Expected monthly.
8	High	Likely: 0.3%–2% of total call volume. Expected to occur multiple times per week.
10	Extreme	Frequent: > 2% of total call volume. Expected to occur one or more times per day.

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. The following figure defines the score, category, and consequence of an incident to the community.

Figure 113: Consequence to the Community

Score	Category	Consequence to the Community
2	Minor	1–2 people affected (injuries/deaths). < $10,000 loss
4	Low	< 5 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 (injuries/deaths). $1,000,000–$5,000,000 loss
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, whether 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. The following figure defines the score, category, and impact of operational forces during an incident.

Figure 114: 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

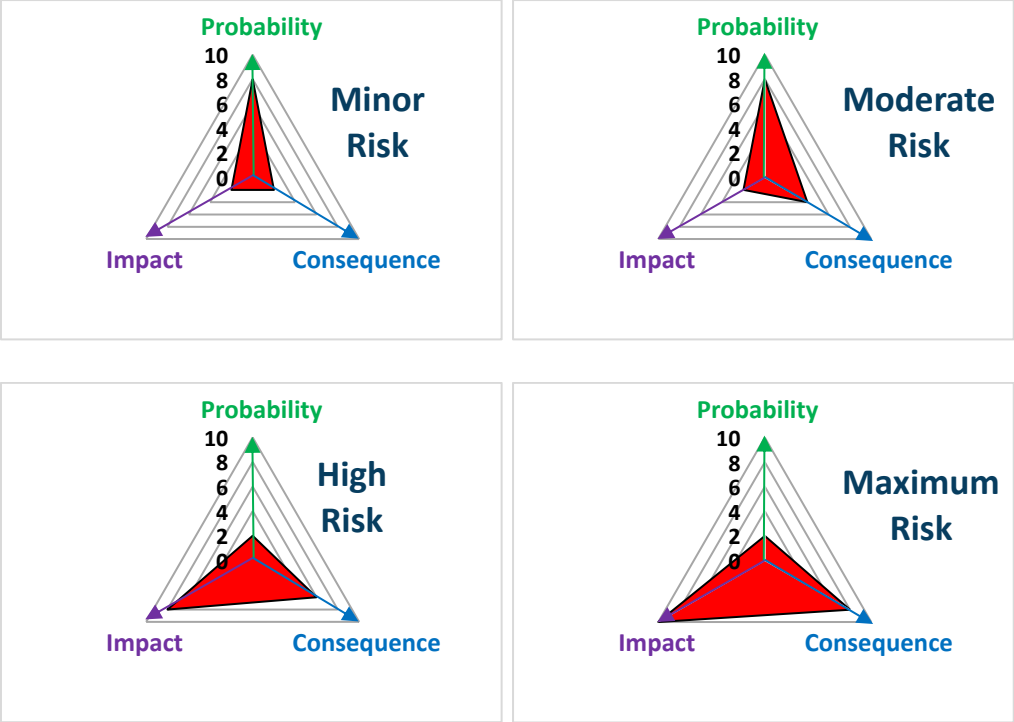
Fire Response

ACFPD is the primary provider of 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 to provide staffing needs to meet critical tasks on the fire ground. The following figures provide the fire response risk assessment scoring and the 3-axis risk classifications.

Figure 115: Fire Response Risk Assessment

Description	Low			Moderate			High			Maximum		
Risk Score	P	C	I	P	C	I	P	C	I	P	C	I
	8	2	2	8	4	2	2	6	8	2	8	10
Score Assigned	16.2			25.9			36.9			59.4		

Figure 116: Fire 3-Axis Risk Classifications



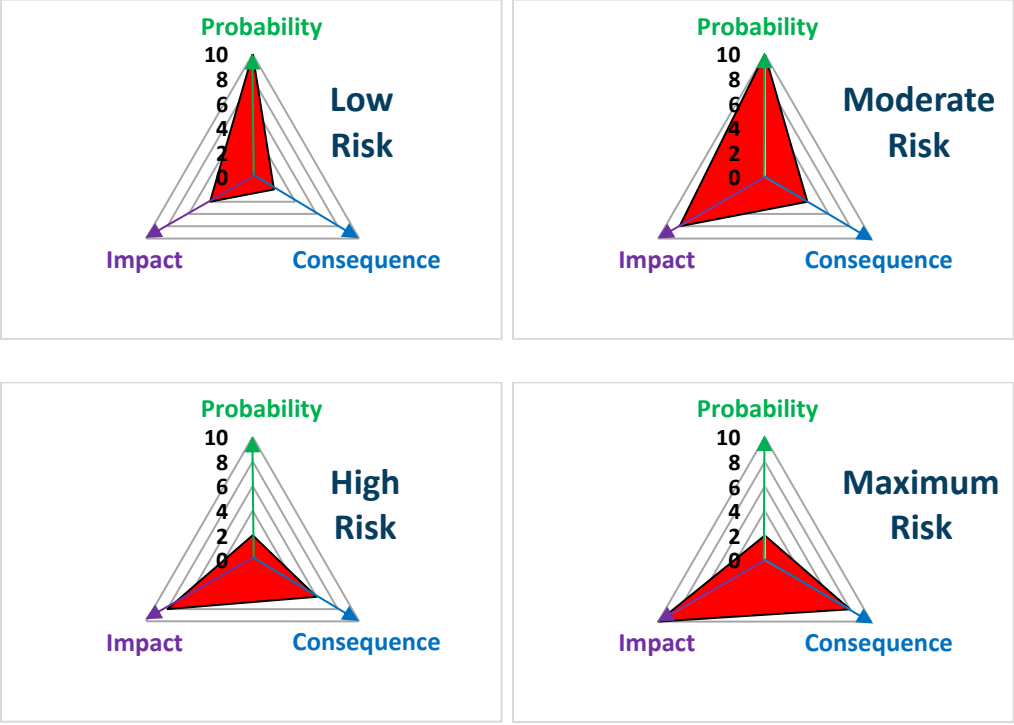
Emergency Medical Services Response

ACFPD provides Advanced Life Support (ALS) emergency medical care in the district; Napa County EMS provides advanced life support and transport services. Low-risk incidents range from medical assistance to a maximum for an active shooter. The following figures provide the risk score and classifications assigned to each type of EMS risk in ACFPD.

Figure 117: 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	10	4	8	2	6	8	2	8	10
Score Assigned	32.1			67.2			36.8			59.4		

Figure 118: EMS 3-Axis Risk Classifications



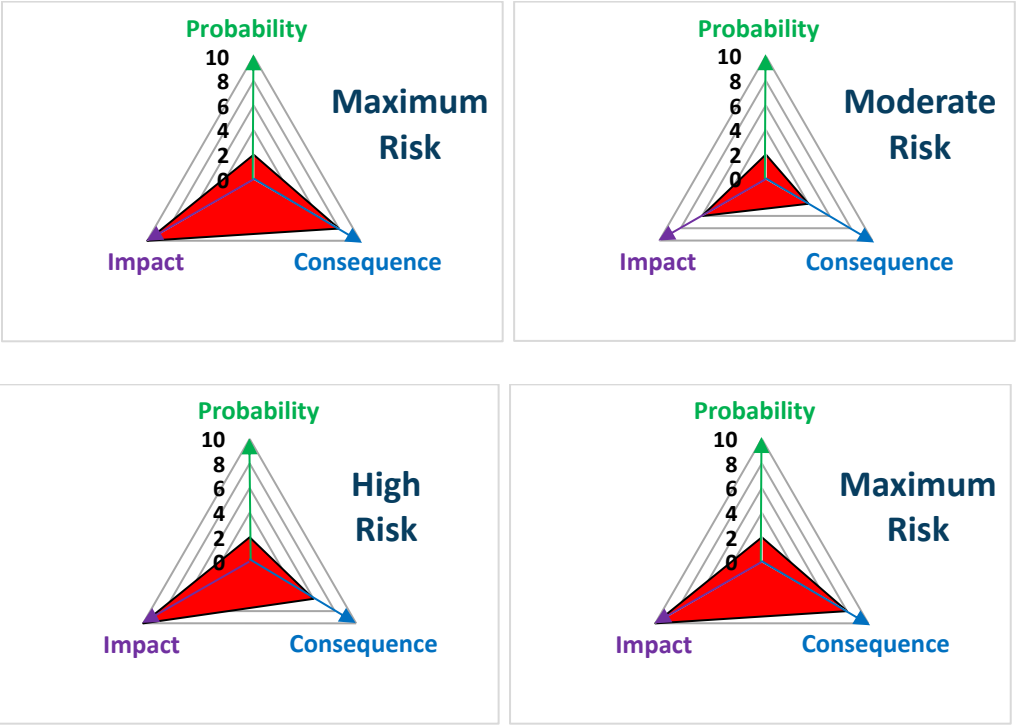
Technical Rescue Response

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 risk) 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 ACFPD.

Figure 119: 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	6	10	2	8	10
Score Assigned	8.5			19.8			45.5			59.4		

Figure 120: Technical Rescue 3-Axis Risk Classification



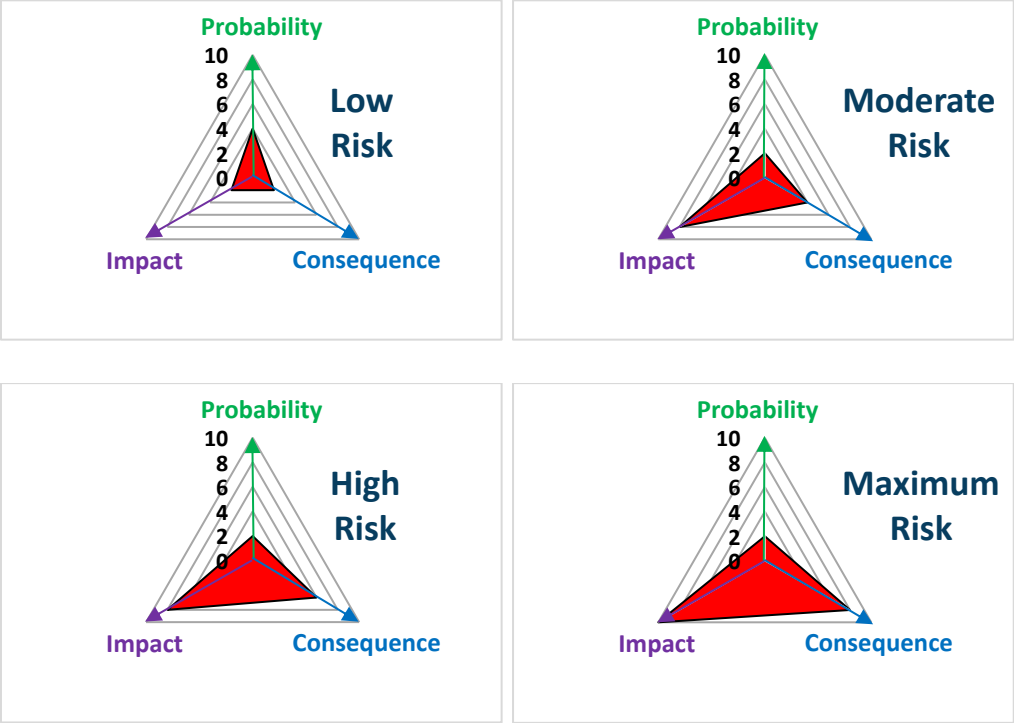
Hazardous Materials Response

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 ACFPD, 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 ACFPD.

Figure 121: Hazardous Materials Response Risk Assessment

Description	Low			Moderate			High			Maximum		
Risk Score	P	C	I	P	C	I	P	C	I	P	C	I
	4	2	2	2	4	8	2	6	8	2	8	10
Score Assigned	8.5			25.9			36.8			59.4		

Figure 122: Hazardous Materials 3-Axis Risk Classifications



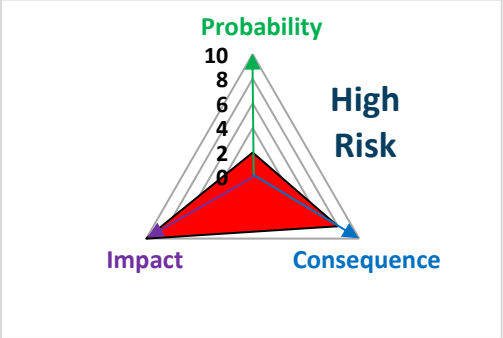
Wildland Fires Response

The types of wildland fire risk 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 ACFPD.

Figure 123: Wildland Fires Response Risk Assessment

Description	Low			Moderate			High		
Risk Score	P	C	I	P	C	I	P	C	I
	2	2	2	2	2	8	2	8	10
Score Assigned	4.9			16.2			59.4		

Figure 124: Wildland Fires 3-Axis Risk Classification



Physical Hazards

A physical hazard is generally described as a natural disaster or weather event that affects the community. The event may last a few hours or extend for a lengthy period, such as a heatwave or drought. The National Weather Service (NWS) issues watches, warnings, or advisories for these hazards when conditions exist or are in the immediate forecast. Since 1964 there have been 35 Federal Emergency Management Agency (FEMA) declarations in Napa County, including major disaster, fire management, and emergency declaration.

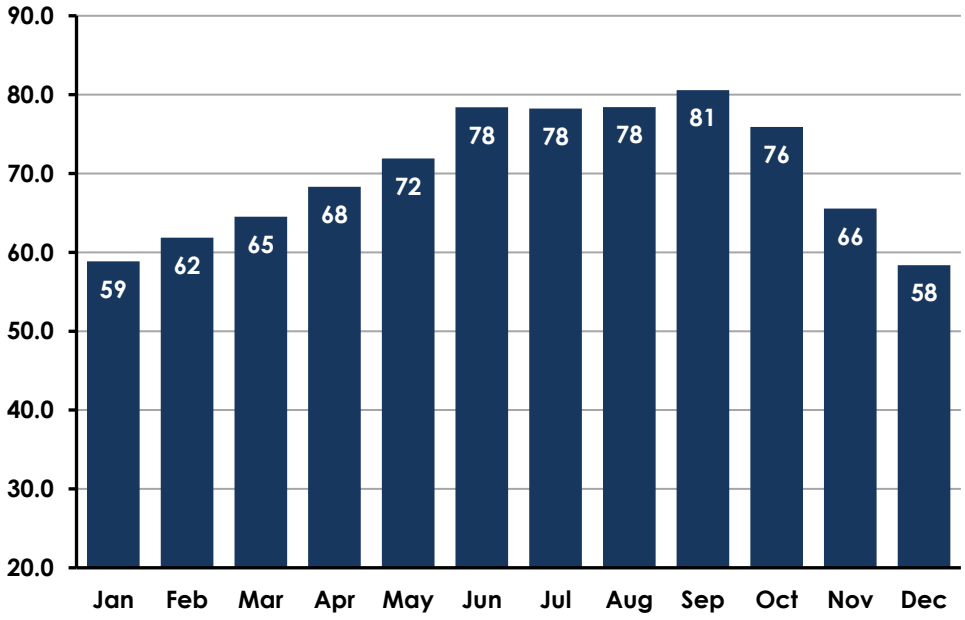
Weather Conditions

The climate can affect ACFPD year-round and may impact emergency response. Whether it is a thunderstorm or other weather event, ACFPD must respond when requested.

Temperature

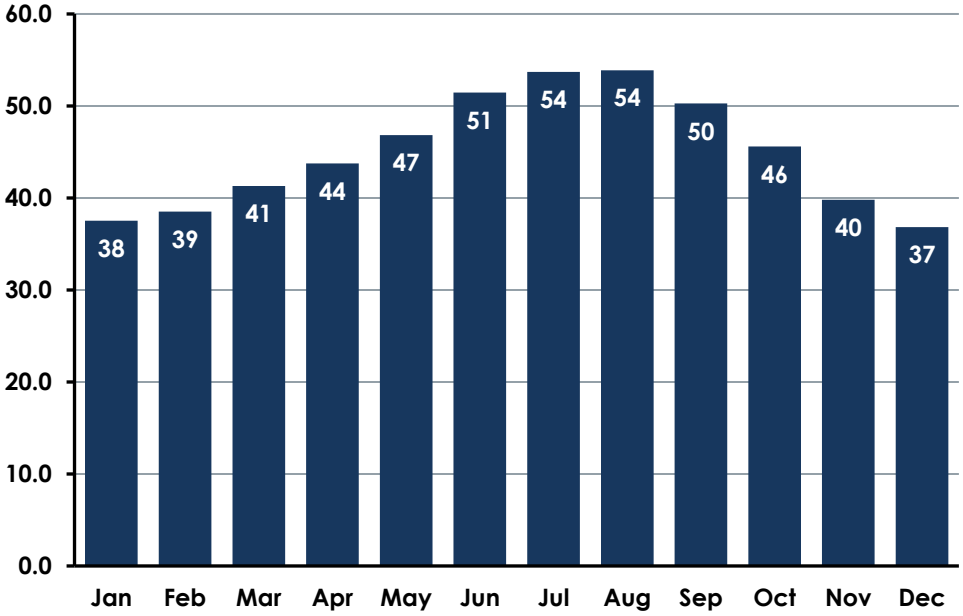
Weather conditions in an area can impact the fire district and the entire community during the year.[15] When temperatures are high, they affect firefighters during extended incident operations and require rehabilitation to prevent heat exhaustion. The average high temperatures range from a low of 58 °F during December to a high of 81 °F in September. The following figure provides the average monthly high temperature.

Figure 125: Average Daily High Temperature (2010–2021)



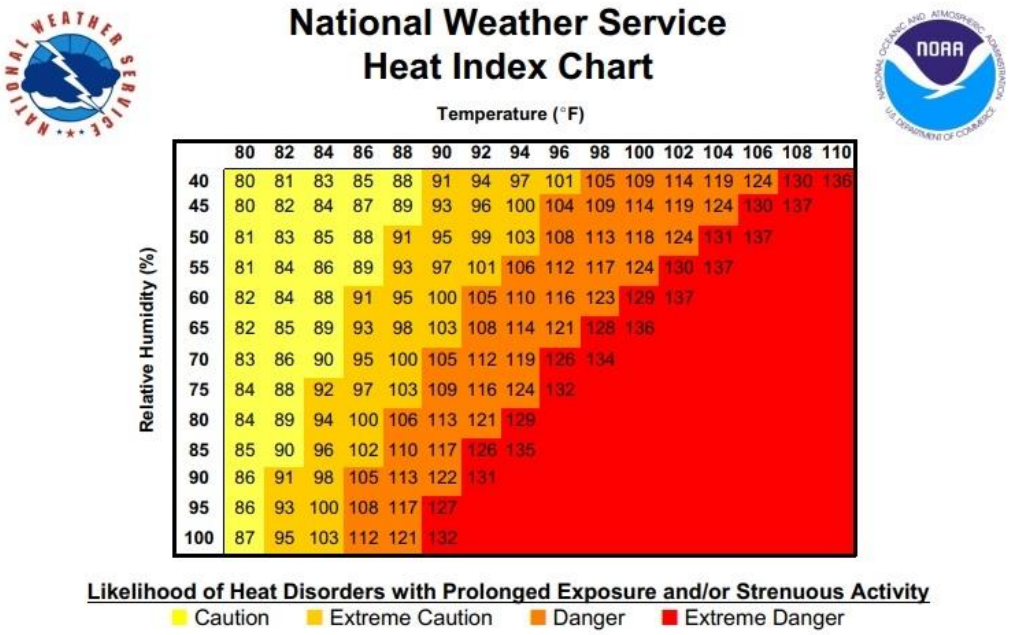
The average daily low temperature occurs in December at 37 °F, and the warmest is during July and August at 54 °F. The following figure shows the average daily low temperatures.

Figure 126: Average Daily Low Temperatures (2010–2021)



The heat index measures how hot it feels when the humidity and air temperature are combined and can quickly impact unprepared residents without air conditioning and emergency responders. Extreme heat affects firefighters during extended incident operations and requires additional rehabilitation resources to prevent heat exhaustion. The following figure is a heat index chart from the NWS.

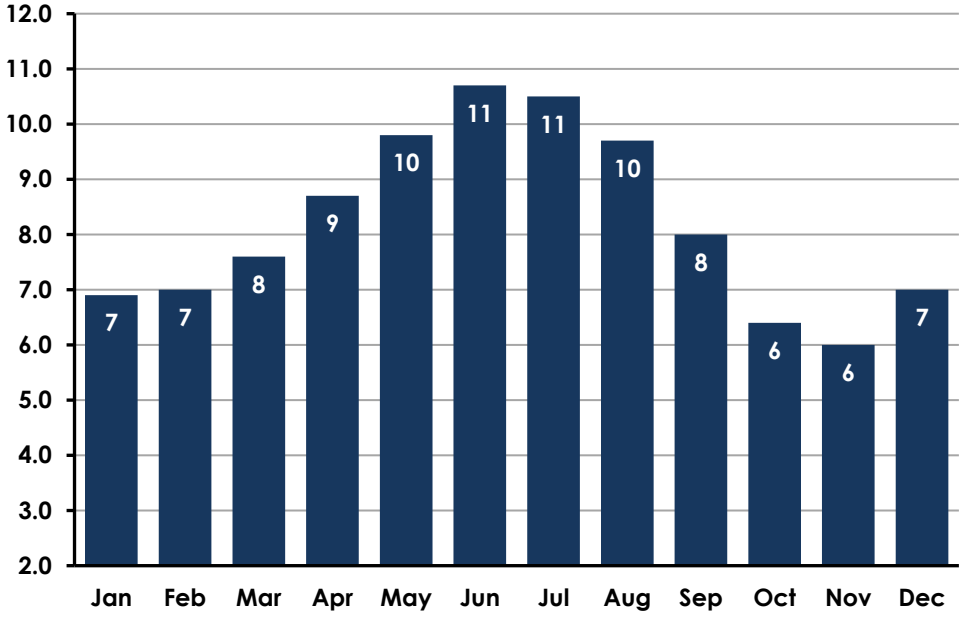
Figure 127: NWS Heat Index Chart



Winds

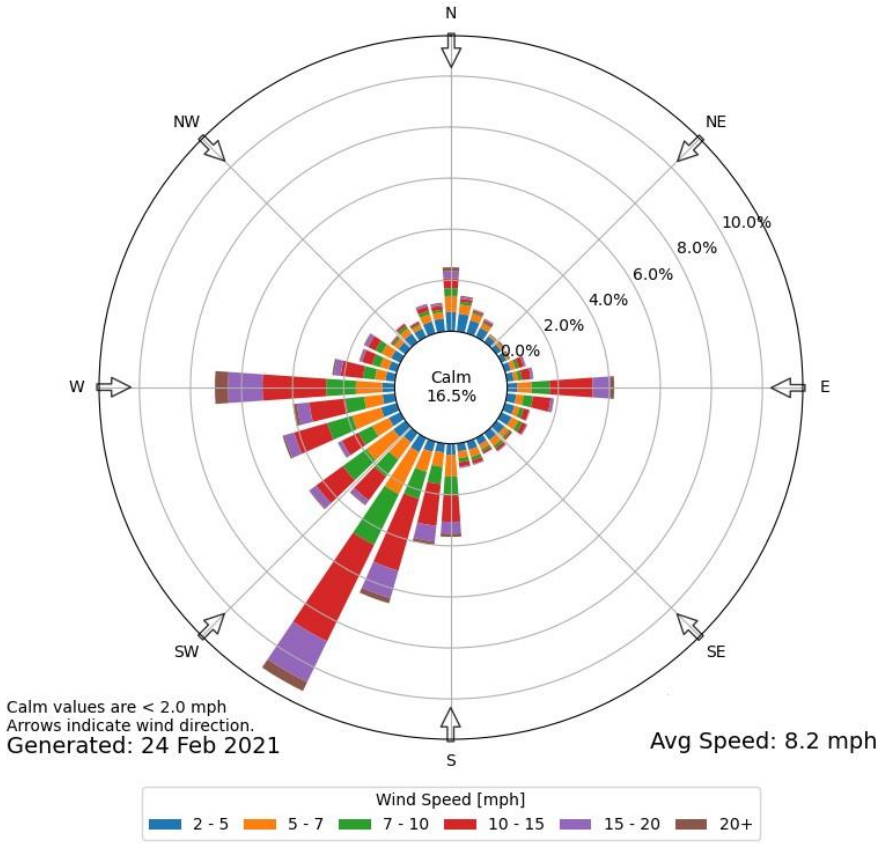
Wind speed and direction influence how ACFPD manages events such as a wildfire or hazardous materials incident. The highest average winds occur between May and August of each year.[16] The following figure shows the average monthly wind speeds.

Figure 128: Average Monthly Wind Speed



Data from Napa County Airport shows that the prevailing winds are from the southwest from May to October and from the east during December and January. The following figure shows the combined wind rose from 1972 to 2021.

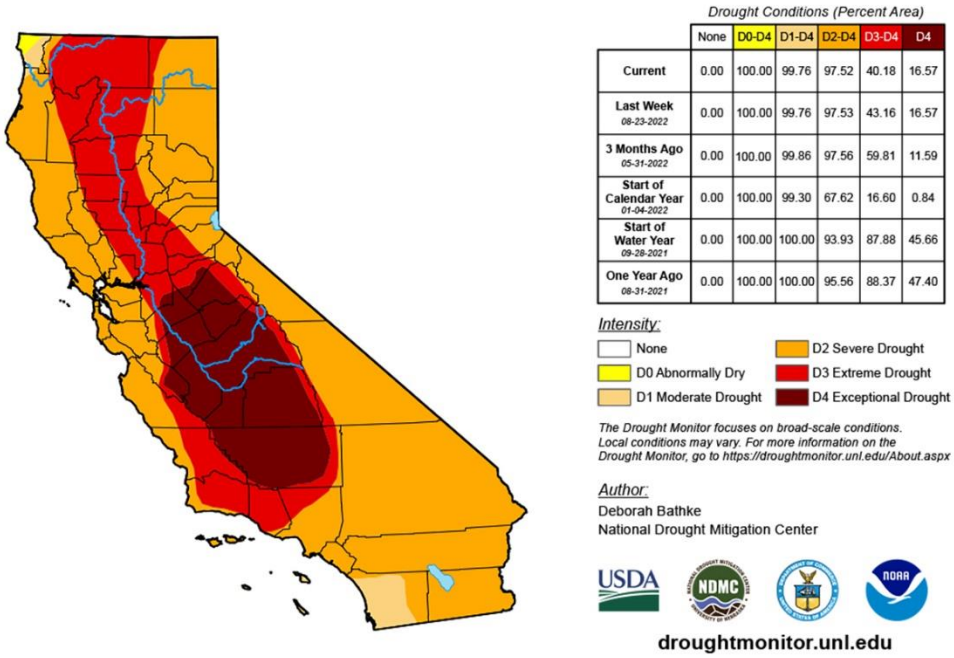
Figure 129: Napa County Airport Wind Rose (1973–2021)



Drought (Precipitation)

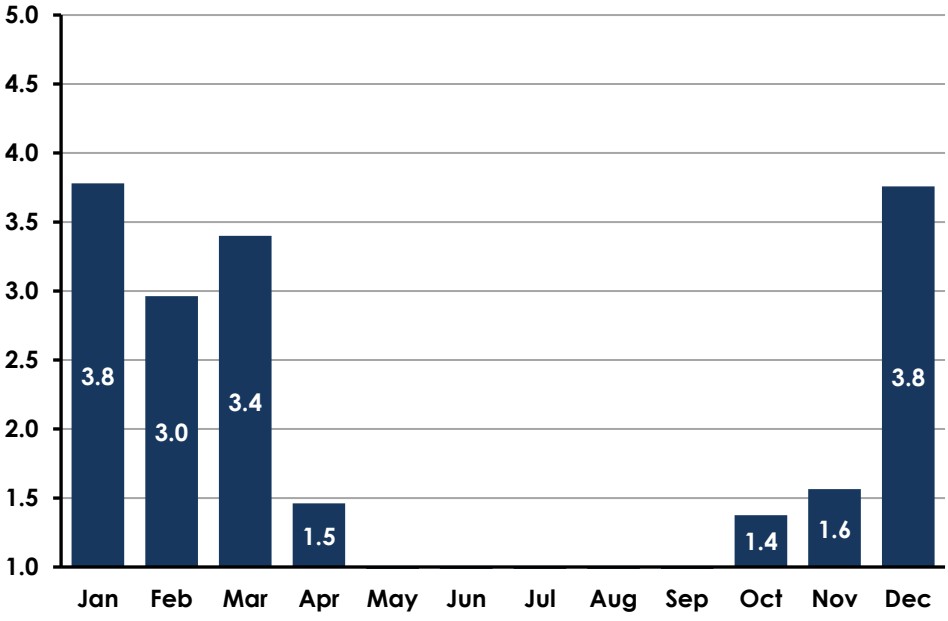
Drought is an extended length of time without rain or other forms of precipitation. Droughts occur over a long period and may become persistent, and it becomes difficult to grow crops or replenish water supplies without sufficient rainfall. The current drought condition is a severe drought, as shown in the following figure.

Figure 130: Drought Conditions



Precipitation can vary from month to month, with most rain falling between December and March. Although rain is negligible from May to September, in June 2011, 2.22" fell during the month. The next figure shows the average monthly rainfall between 2010 and 2021.

Figure 131: Average Monthly Precipitation



Environmental Hazards

Napa County has experienced 35 natural disasters since 1965, and the following figure shows the type and number.[17]

Figure 132: FEMA Designated Disasters

Disaster Type	Number
Biological	2
Coastal Storm	1
Drought	1
Earthquake	2
Fire	13
Flood	5
Freezing	1
Hurricane	1
Severe Storm(s)	9

Wildland Fires

Without proper planning, the wildfire risk in the community increases. Mitigation and prevention efforts can lower the chance of substantial losses during a fire and reduce the community's wildfire threat. In today's current climate and extreme drought conditions, property owners should understand what specific threats can affect their homes or business.

Implementing proactive mitigation efforts can reduce the risk of a fire damaging or destroying a building in an urban interface. Removing fuels such as dead trees, plants, grasses, or weeds is a first step for the property owner. This defensible space surrounding the property focuses on vegetated or landscaped areas and how to harden the home or building from fire. The National Fire Protection Association (NFPA) provides information on developing defensible spaces by breaking the property into three zones.[18]

Immediate zone—This area is between 0'–5' from the furthest extent of the building, which is considered noncombustible.

- Clean the roofs and gutters of leaves and pine needles.
- Replace missing or loose shingles to prevent ember penetration.
- Install metal mesh screens around any exterior vents to reduce embers passing through the opening.
- Remove combustible materials away from the exterior walls or items stored under decks or porches.

Intermediate zone—This area is from 5'–30' away from the furthest exterior portion of the building.

- Clear vegetation around propane tanks and create fuel breaks using driveways, paths, etc.
- Keep grasses cut to no more than 4" in height.
- Prune trees within 6'–10' from the ground.
- Space trees, so the crowns are separated to prevent a spreading fire.
- Keep trees at least 10' away from a building.
- Maintain shrubs and trees in small clusters on the property.

Extended zone—The area is between 30'–100' from the building.

- Remove dense accumulations of dead vegetative material.
- Cut back any small trees growing in developed areas to reduce fuels.
- Remove vegetative material away from storage sheds or other small buildings.

This guidance reduces the impact on a property during a wildfire. Programs have been developed from grant funding to assist homeowners in removing vegetative materials and establishing chipping programs. These programs also reduce risks to firefighters when they respond to a wildfire. Overgrown vegetation can prevent emergency responders from gaining access to the property, thus increasing their risks during the incident.

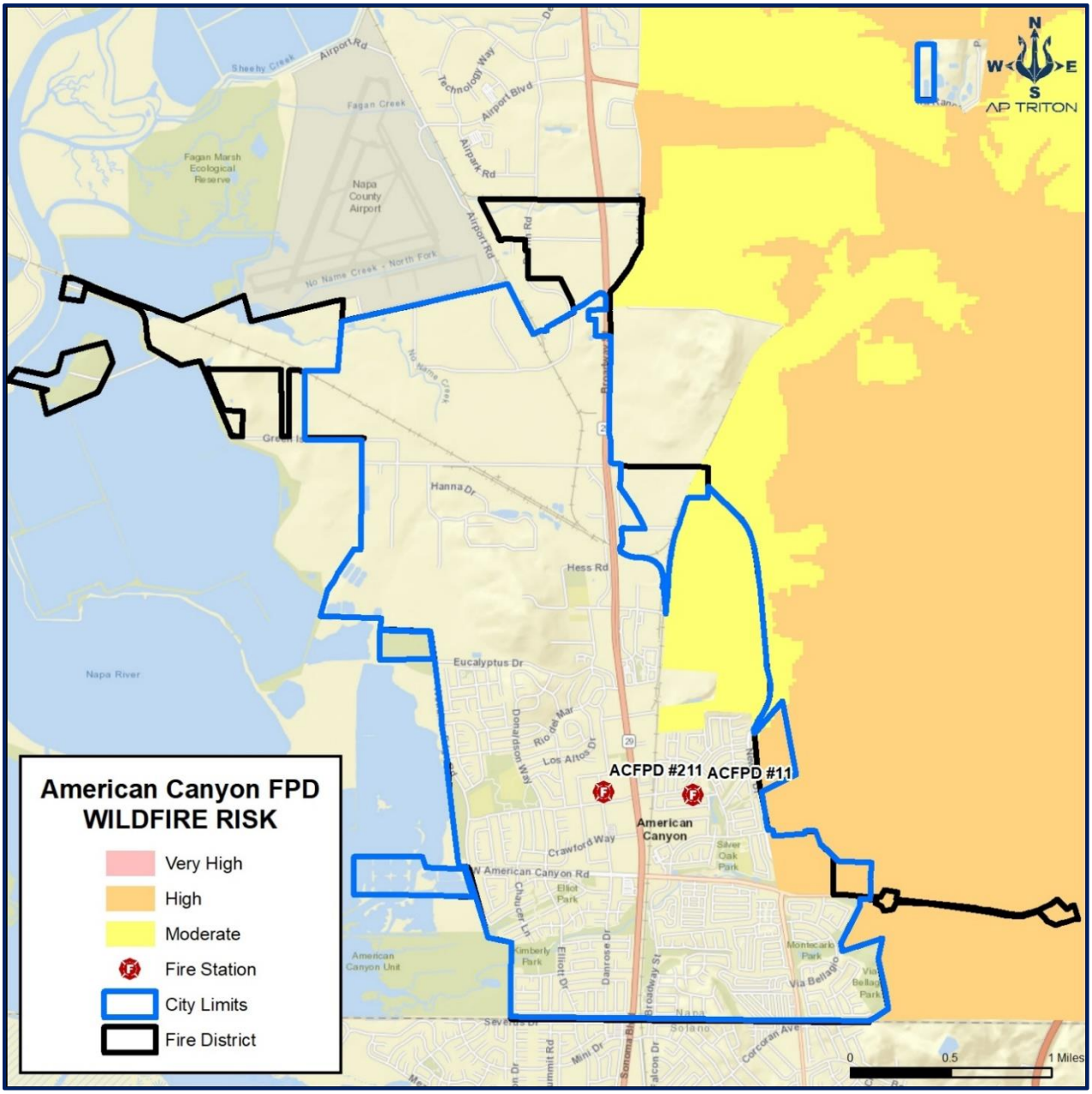
The 2020 Napa County Multi-Jurisdictional Hazard Mitigation Plan (HMP) annex for American Canyon states that approximately 60 people *live in a high wildfire intensity zone and close to 1,400 live in a moderate* zone. The Legacy High School and American Canyon Water Treatment Plant are in high wildfire intensity zones.[19]

Information from the Napa County Community Wildfire Protection Plan assigns risk based on the availability of combustible fuels. Although American Canyon's overall risk is low, the amount of canopy within the city can increase risk during optimal conditions from ember cast. This occurs when embers from an advancing wildfire ignite the building even if the surrounding area has taken steps to reduce vegetation around the structure. Hardening the home offers an additional level of protection during a fire. This defensive hardening process reviews the use of materials for a home during construction or when renovating to reduce the risk of damage during a wildfire.

American Canyon has a weed abatement ordinance developed to remove weeds, thistles, rank grass, brush, berry vines, and dead or dying trees located on private property (including right-of-way and sidewalk adjoining their property), streets, and alleys.[20] The first week in June, ACFPD inspects all properties and posts a non-compliance notice if the property does not meet the ordinance's intent. If the property does not come into compliance, the owner can receive a bill for the cost to remove the vegetation. Napa County is responsible for the areas east of the city and identified locations for future fuel treatments.

The following figure identifies the areas at the highest risk but does not show the areas in the city with a tree canopy.

Figure 133: Wildfire Risks



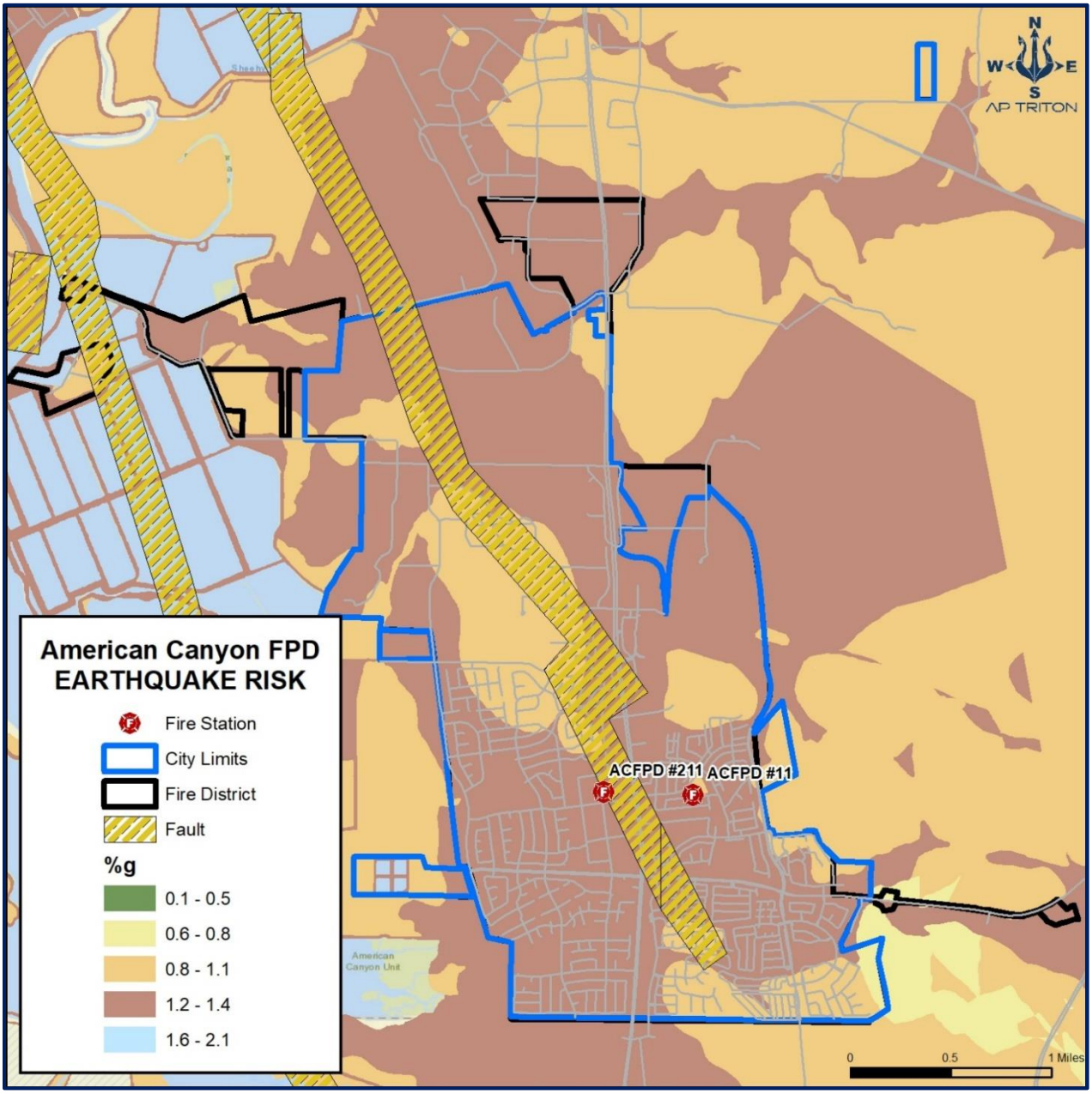
Earthquakes

The most recent severe earthquake occurred on August 24, 2014, along the West Napa Fault. The West Napa Fault travels through American Canyon and is a dextral strike-slip fault that is part of the San Andreas fault system. It passes through the western side of the Napa Valley from Yountville to near Napa Junction. The 6.0 magnitude earthquake's epicenter was between Napa City and American Canyon and caused $362 million to $1 billion in damages. During the event, one person died, and 200 were injured.

Other faults near American Canyon include Northern Hayward/Rodgers Creek, Green Valley, and Hunting Creek-Berryessa. The probability of an earthquake in Napa County is between 10% and 100% annually, and 63% of a significant event within the next 30 years, according to the HMP.

Any large earthquake may cause damage to infrastructures, such as loss of water and sewer, communication systems, broken gas mains, transportation systems, and older homes not built to withstand earthquakes. The HMP states that more than 18,000 people live in a severe earthquake zone with 79 critical infrastructures, including 15 adult residential facilities and 12 family child care homes. The following figure shows the earthquake risks in ACFPD.

Figure 134: Earthquake Risk

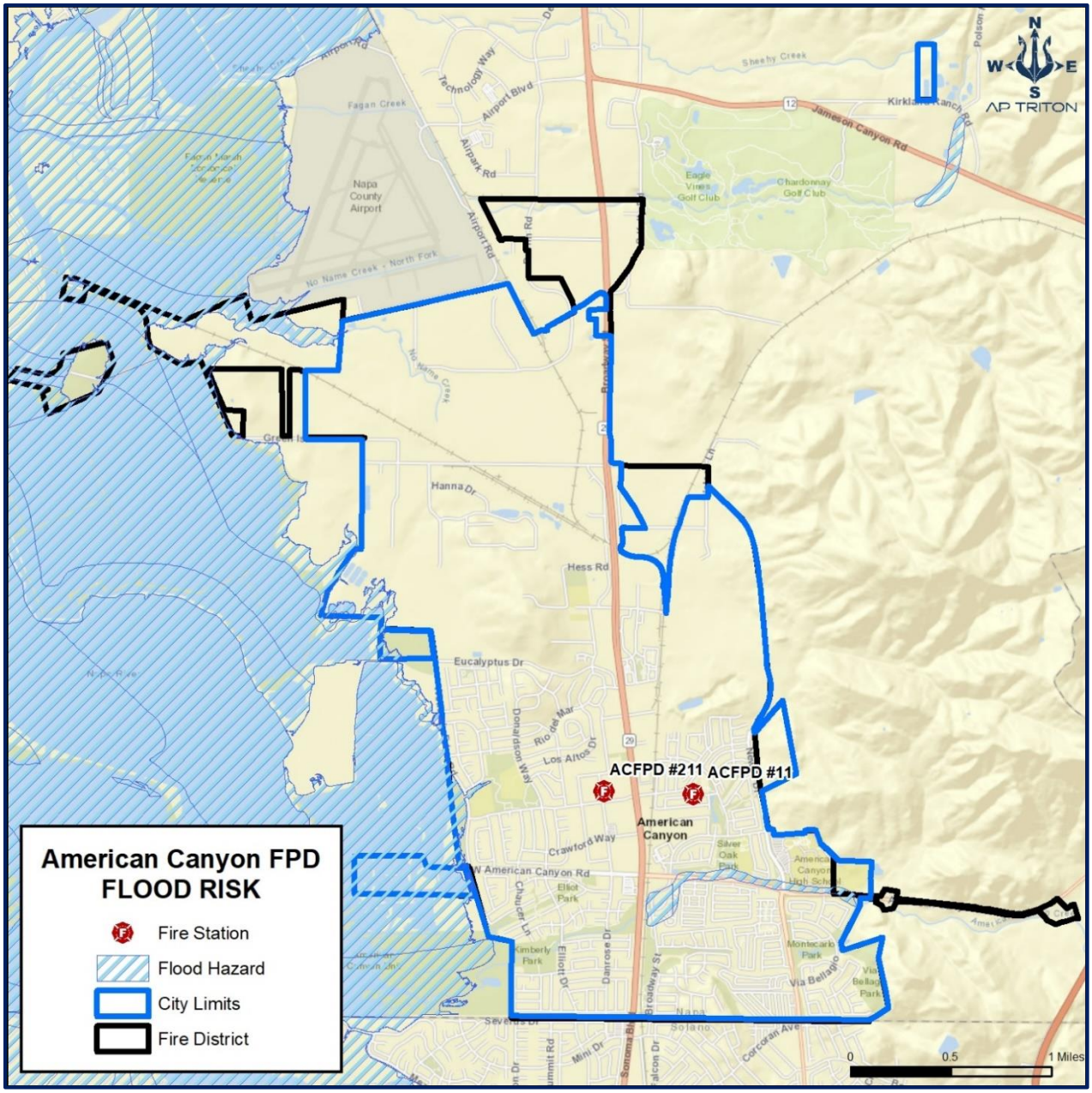


Flooding

Portions of the ACFPD fall within the FEMA-classified flood zones. According to FEMA's website, "AE," regulatory floodways areas are along the western portion of the district and south of Spikerush Circle. The AE designation is considered "*Areas subject to inundation by the 1-percent-annual-chance flood event determined by detailed methods*." and is further defined as a 26% chance of a flood occurring in 30 years. An area classified as an "A" zone is exposed to a 1-percent chance of a flood event but does not have a "…*detailed hydraulic analysis*" and is located along American Canyon Creek.[21] The is a minimal risk of flooding west of Napa Vallejo Highway where American Canyon Creek flows into wetlands associated with the Napa River. The HMP states that approximately 1,000 people and 159 parcels are in the 500-year floodplain and 280 residents and 68 parcels in the 100-year floodplain.

During heavy rains, localized flooding can occur, but it will generally occur during the months when higher rainfall amounts occur. Climate change and higher sea levels could affect critical facilities, including the wastewater treatment facility, public works yard, and pump station along Wetlands Edge Rd. The following figure shows the FEMA flooding risk areas.

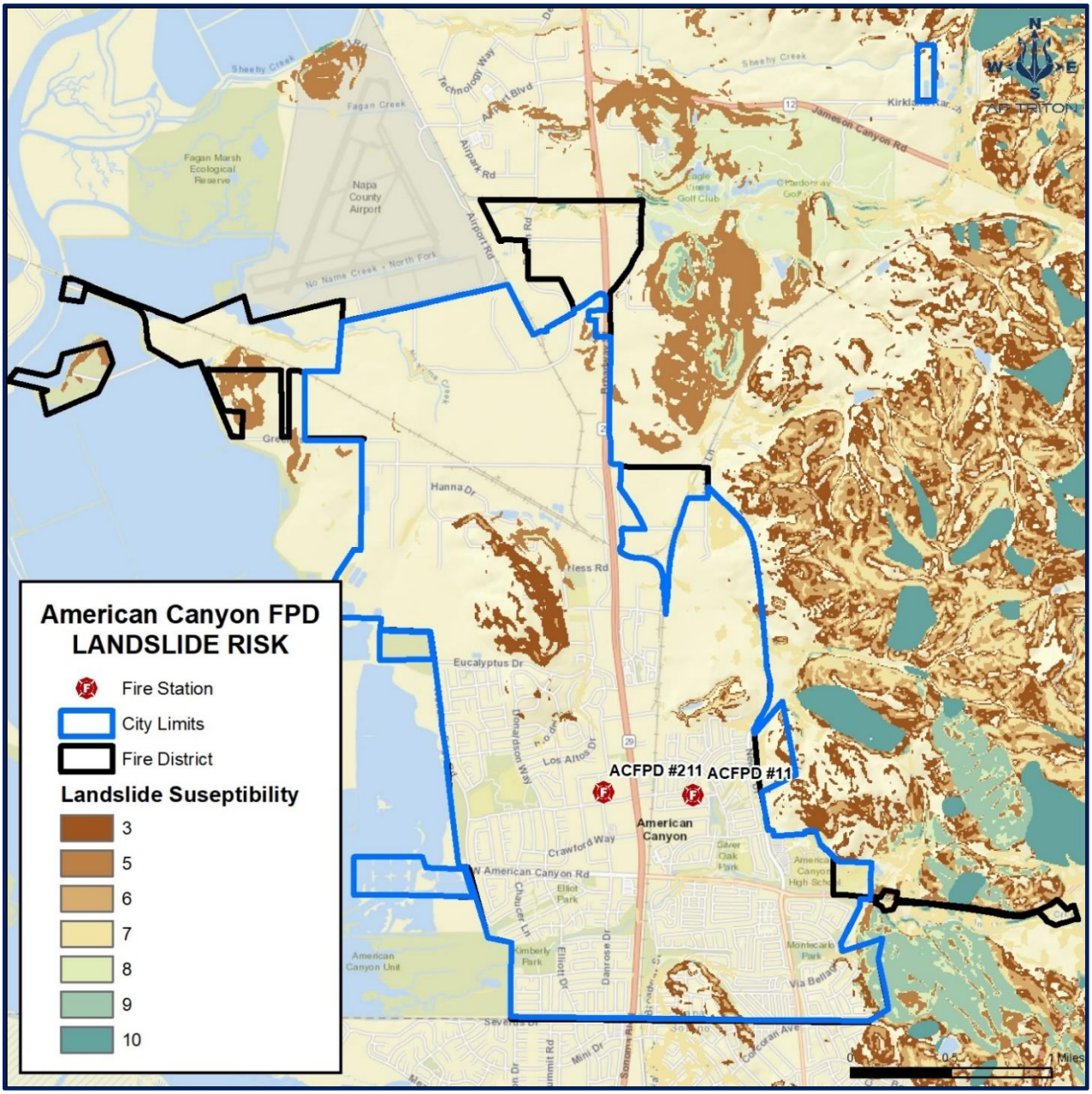
Figure 135: Flooding Risks



Landslides

Landslides or slope failures are minimal risks in ACFPD and are not discussed in the HMP as a problem for the city. Although the risks are low, areas in the district pose a threat, including north of Eucalyptus Dr and the district's southern end. The following figure provides the areas with a landslide risk.

Figure 136: Landslide Risks



Dam

The risk of a dam failure in Napa County is low; the consequences and impact can still affect the community. The HMP identified 956 parcels and more than 1,600 people living in the dam inundation zone. The following figure from the Napa County Operational Area Hazard Mitigation Plan shows the dam inundation areas for American Canyon.

Figure 137: Dam Inundation Areas[22]

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. These plans may consist of 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 department personnel.

If a building or facility has been identified that stores or produces hazardous materials, it may require special personal protective clothing and equipment to control or mitigate the event. Locations that have 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 provide 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:

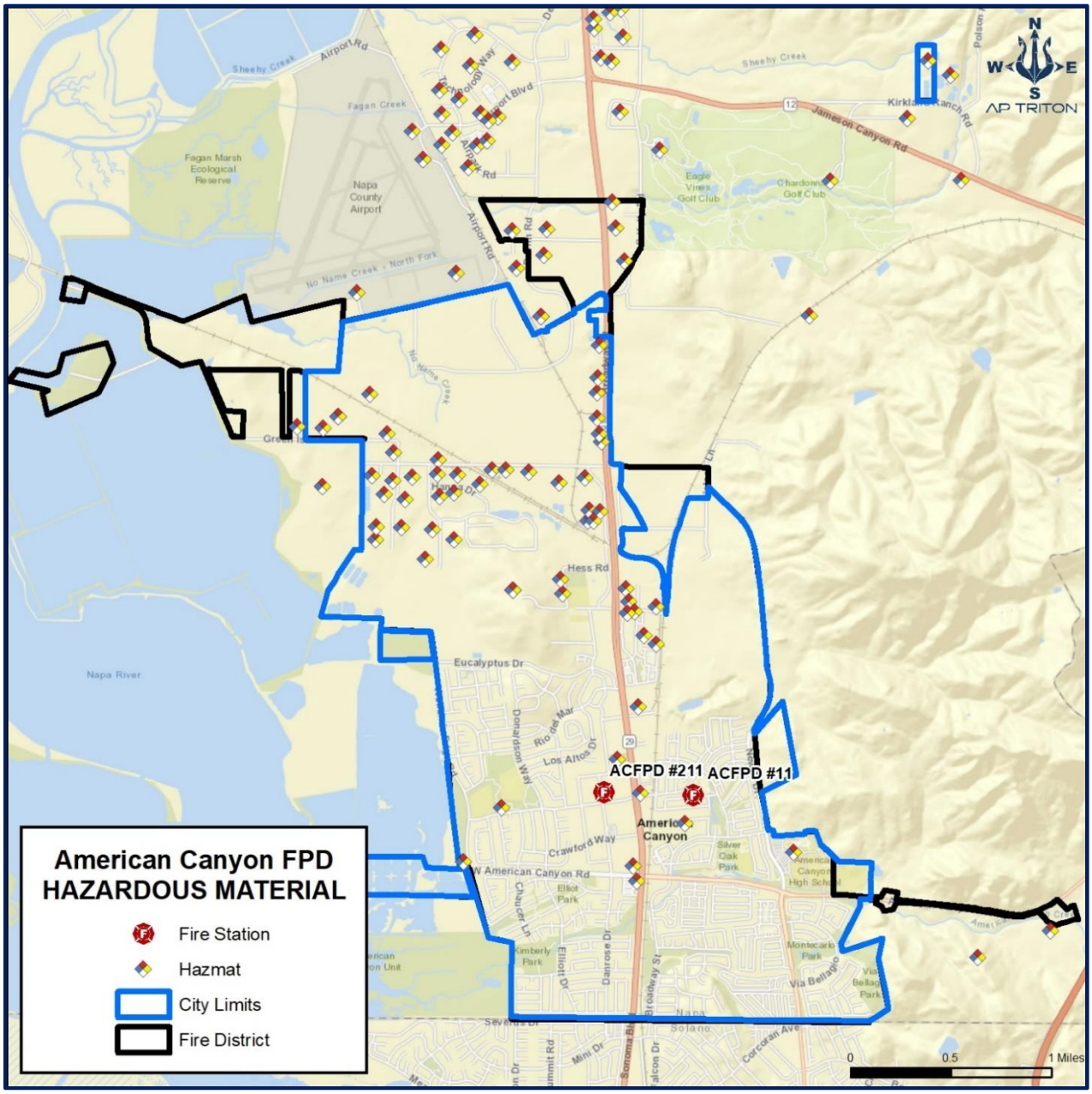
- Ten-thousand pounds for hazardous chemicals
- Lesser than 500 pounds or the threshold planning quantity for extremely hazardous chemicals

California requires additional reporting quantities through a five-tier system that authorizes the treatment and storage of hazardous waste.

ACFPD has received training at the hazardous materials operational level, and three employees are specialists and members of the Napa County hazardous materials team. The Napa County team provides support if the incident requires a higher level of response than ACFPD can deliver. Hazardous materials teams from Solano and Sonoma Counties can provide additional support if needed.

The following figure shows the locations of hazardous materials stored in the district.

Figure 138: Hazardous Materials Storage



Land Use

The concept of land use regulation provides attractive social and environmental outcomes to assist in managing development efficiently. Land use for a community is designed to classify properties within a geographical area generally under governmental control. 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: Higher intensity business districts, mixed-use areas, high-density residential, industrial, storage facilities, and large mercantile centers

American Canyon has developed different zoning districts to maintain the city's identity. Most future growth is expected to occur along the eastern side, specifically in Watson Ranch. According to the 2021 Housing Element Progress Report, City Council approved 317 single-family lots in 2020 and 2021 for Watson Ranch. Other notable projects approved are shown in the following figure.

In May 2022, a new project called The Residences @ Napa Junction was submitted for approval. The development is within the Broadway District Specific Plan and consists of 453 multi-family dwellings and a community center, which will contain a clubhouse, pool house, childcare center, and other outdoor spaces. The buildings will range from one to four stories with a maximum height of 50 feet. The project has requested a density increase since they are providing 15% of the housing for very low-income households. Meeting this requirement allows a 50% increase in units of 453.

Figure 139: Approved Housing Projects[23]

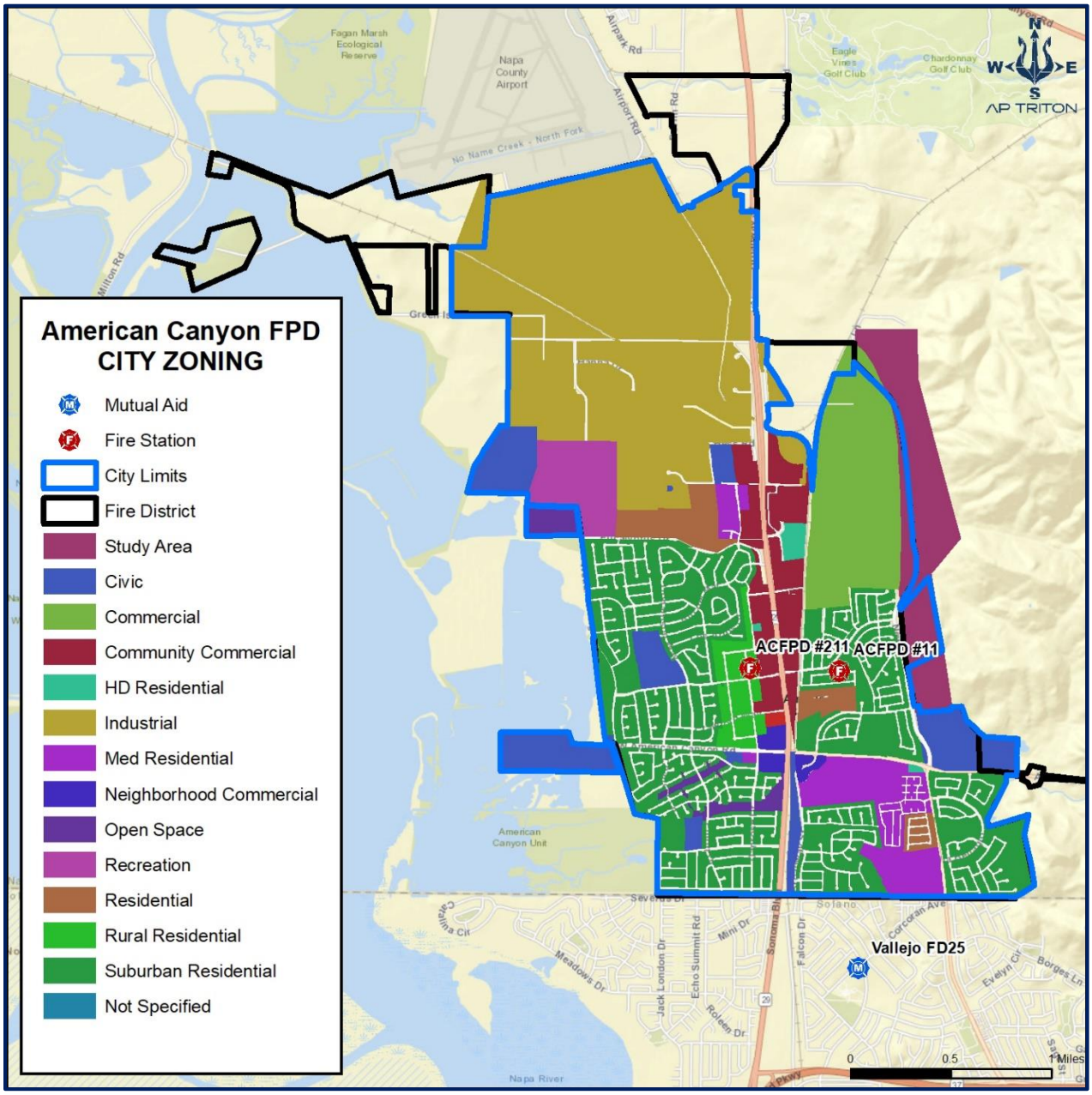
Project	Units or Lots
Lemos Pointe Apartments	186
Napa Cove Apartments	66
Canyon Estates	35
Oat Hill Multifamily	291
The Residences @ Napa Junction	453

The number of additional housing units from all these approved projects totals 895.

In 2021, a large commercial warehouse project was proposed for the area south of the Napa Airport and would contain a 208-acre logistic center. The proposed project would develop 2.4 million square feet of warehouse space on 161 acres. The remaining land would be designated as open space. The first phase would be east of Devlin Rd and consist of 94.7 acres that would support two high cube warehouse buildings totaling 1,069,904 square feet. These buildings would have access to rail service. Phase 2 would be built on 113.1 acres west of Devlin Rd and account for another 1.3 million square feet of high cube warehouse space, and would begin after the completion of Phase 1.

The project is estimated to increase employment by 1,200 during construction and more than 3,600 workers when the facilities become fully operational. The additional workers are expected to increase the number of requests for service by ACFPD. Devlin Road would be extended by 3,000' from Green Island Road to Middleton Way and improve roadway interconnectivity to accommodate this growth. The following figure shows the zoning designations for American Canyon.

Figure 140: American Canyon Zoning Designations



Physical Assets Protected

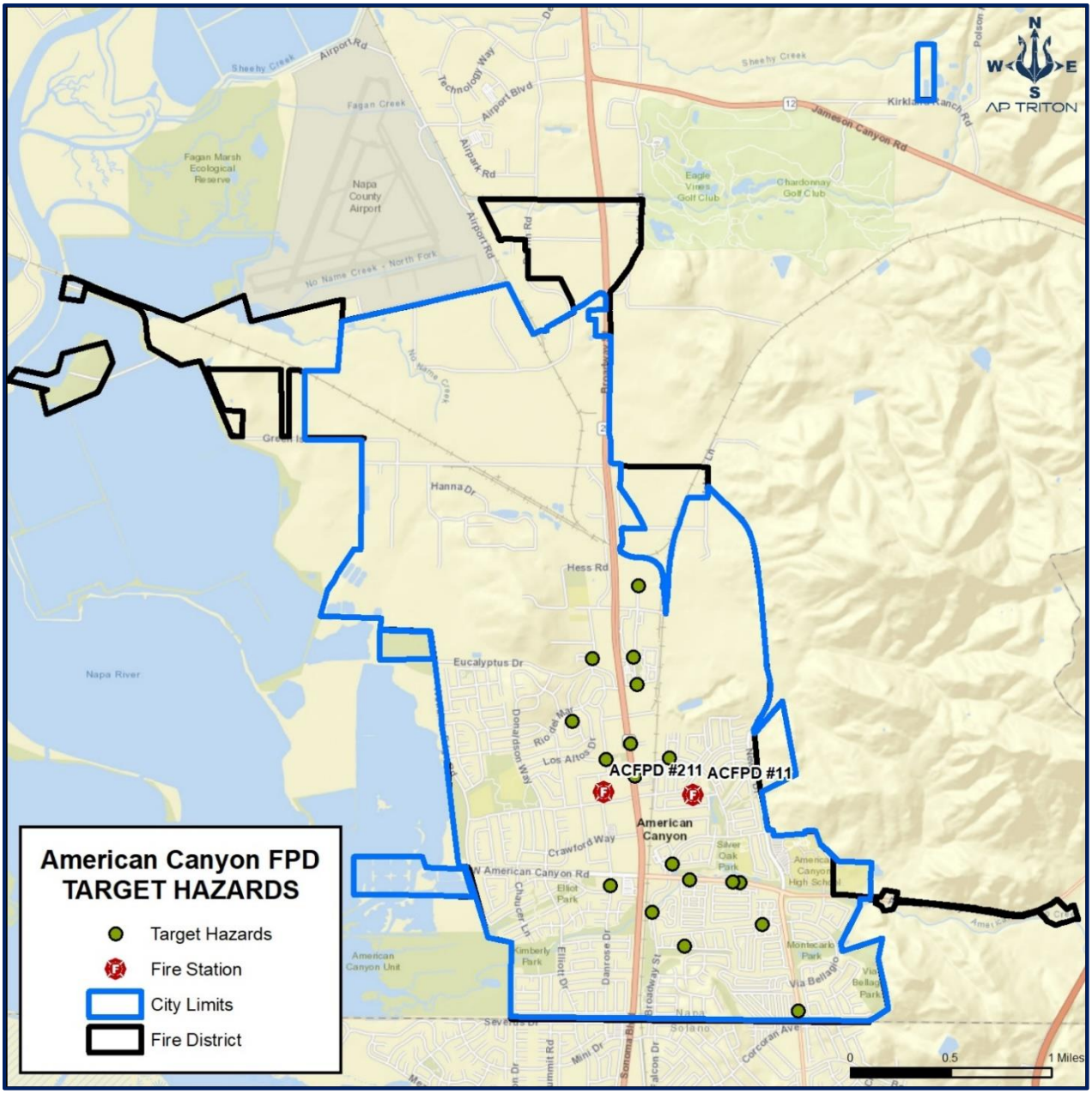
Structural Risks

Fires occurring in buildings can present responding personnel with special or unique problems. Many different types of occupancies may exist in a response area, and ACFPD should have a comprehensive pre-incident planning process to develop strategies and tactics during a fire or other emergency. The pandemic has impacted the current pre-incident planning procedure and has limited its ability to update or create new plans. Hardcopy plans are now kept on response apparatus, but the department is scheduled to transition to a new cloud-based software system that integrates with existing data and is available to personnel on a device with internet access.

Target Hazards

Each of the buildings or facilities considered a target hazard may present unique risks to responders and the occupants and are shown in the following figure. Certain buildings may receive a separate classification as target hazards by ACFPD. These occupancies may be specifically discussed more in depth in the following sections.

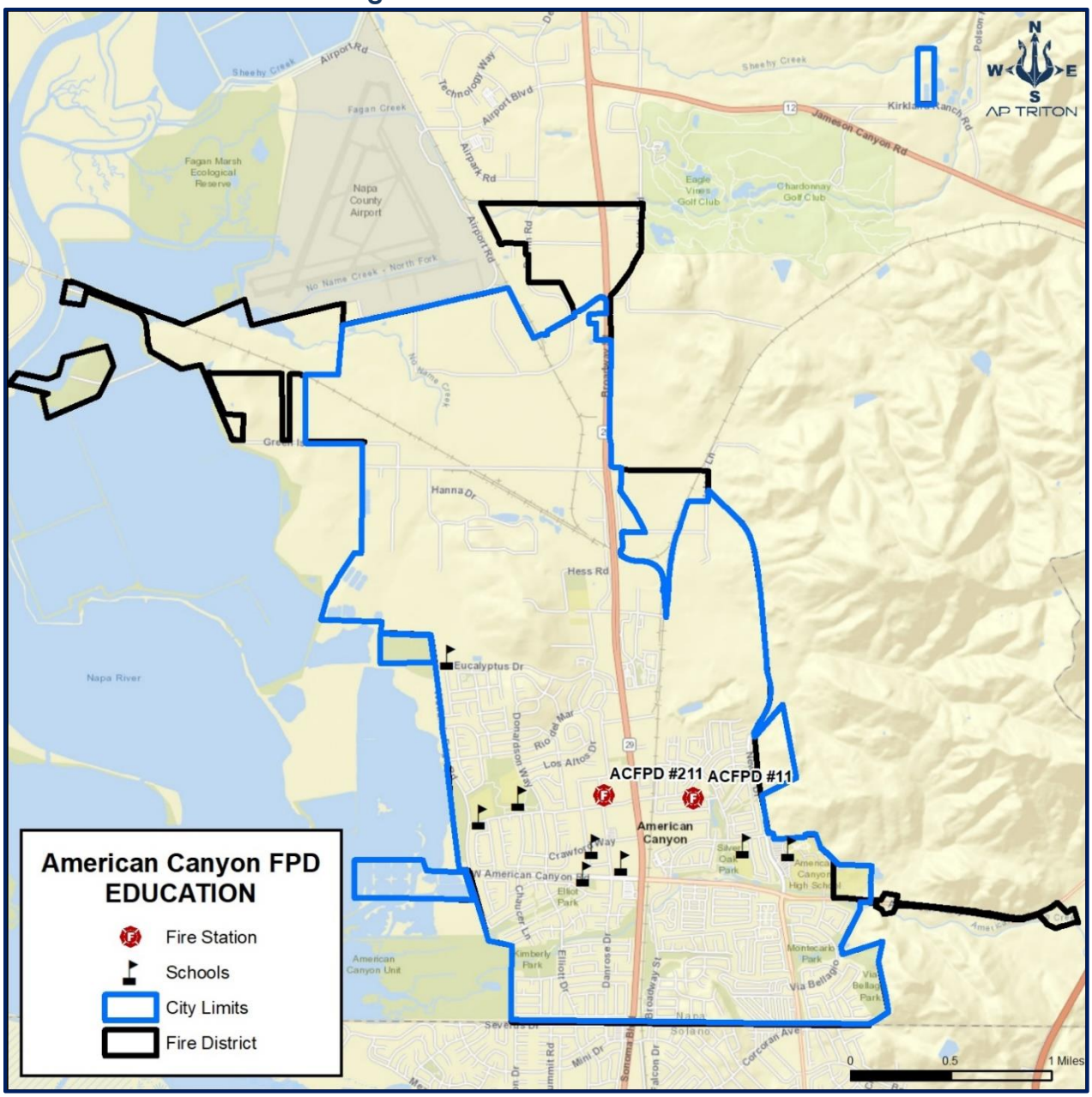
Figure 141: Target Hazards



Educational

Whether public or private, schools pose a threat and should be considered a primary target hazard in the community. The following figure provides the locations of educational facilities. These locations may contain many students and school staff during operating hours in a single building(s). These facilities should be familiar to emergency responders and maintain up-to-date pre-incident plans. The next figure shows the locations.

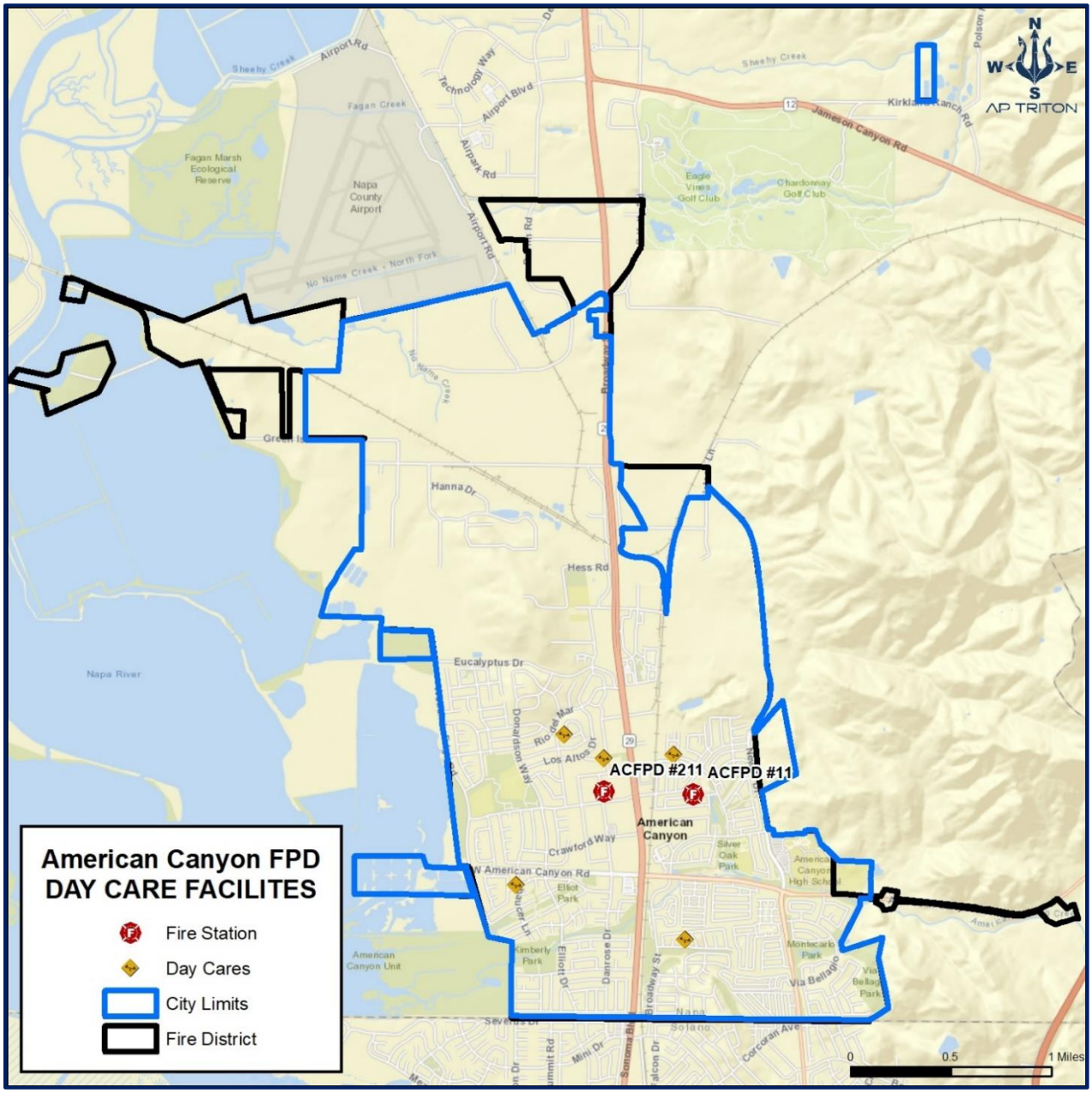
Figure 142: Educational Facilities



Daycare Facilities

Daycare facilities pose a special concern because of the children's young age and, in some cases, the inability to evacuate during an emergency. These facilities require childcare workers to assist small children or physically carry infants when an evacuation is necessary. The following figure shows the location of daycare facilities in ACFPD.

Figure 143: Daycare Facilities



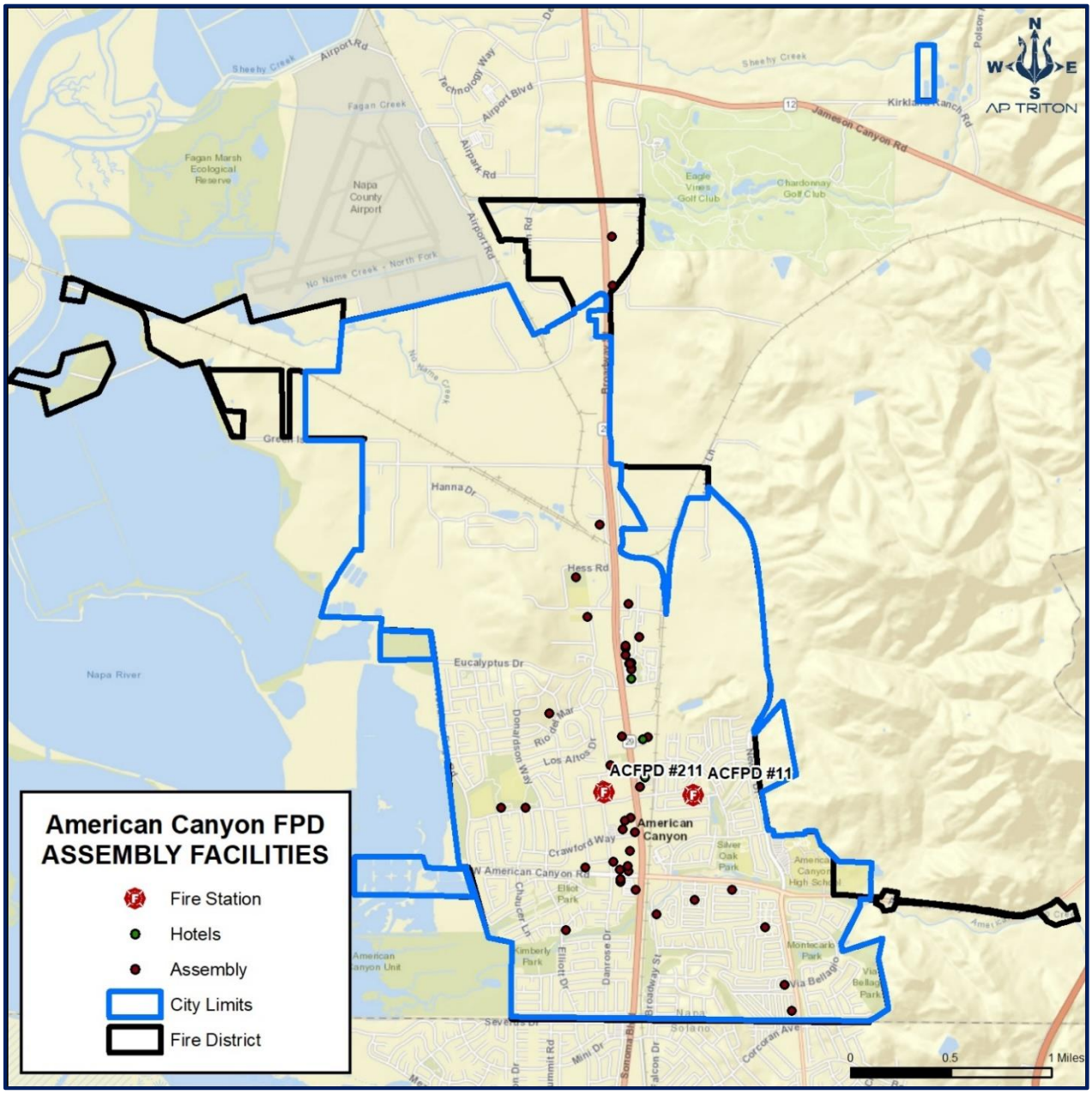
Assembly

Assembly occupancies are at higher risk because of the number of people allowed to gather for worship, entertainment, or special event in a single location. Special events include large sporting venues or outside festivals. Each of these occupancies or locations may require many emergency responders during an incident involving fire or an active shooter.

Significant outdoor events may require submission of a public safety plan to include emergency vehicle access and egress, fire protection, emergency medical services, public assembly areas, directing of vehicular traffic and attendees, vendor, and food concessions, need for law enforcement, fire, or EMS personnel, and weather monitoring. The event organizer should submit a written plan to ACFPD as required by the California Fire Prevention Code.

The following figure shows the location of assembly occupancies.

Figure 144: Assembly Occupancies

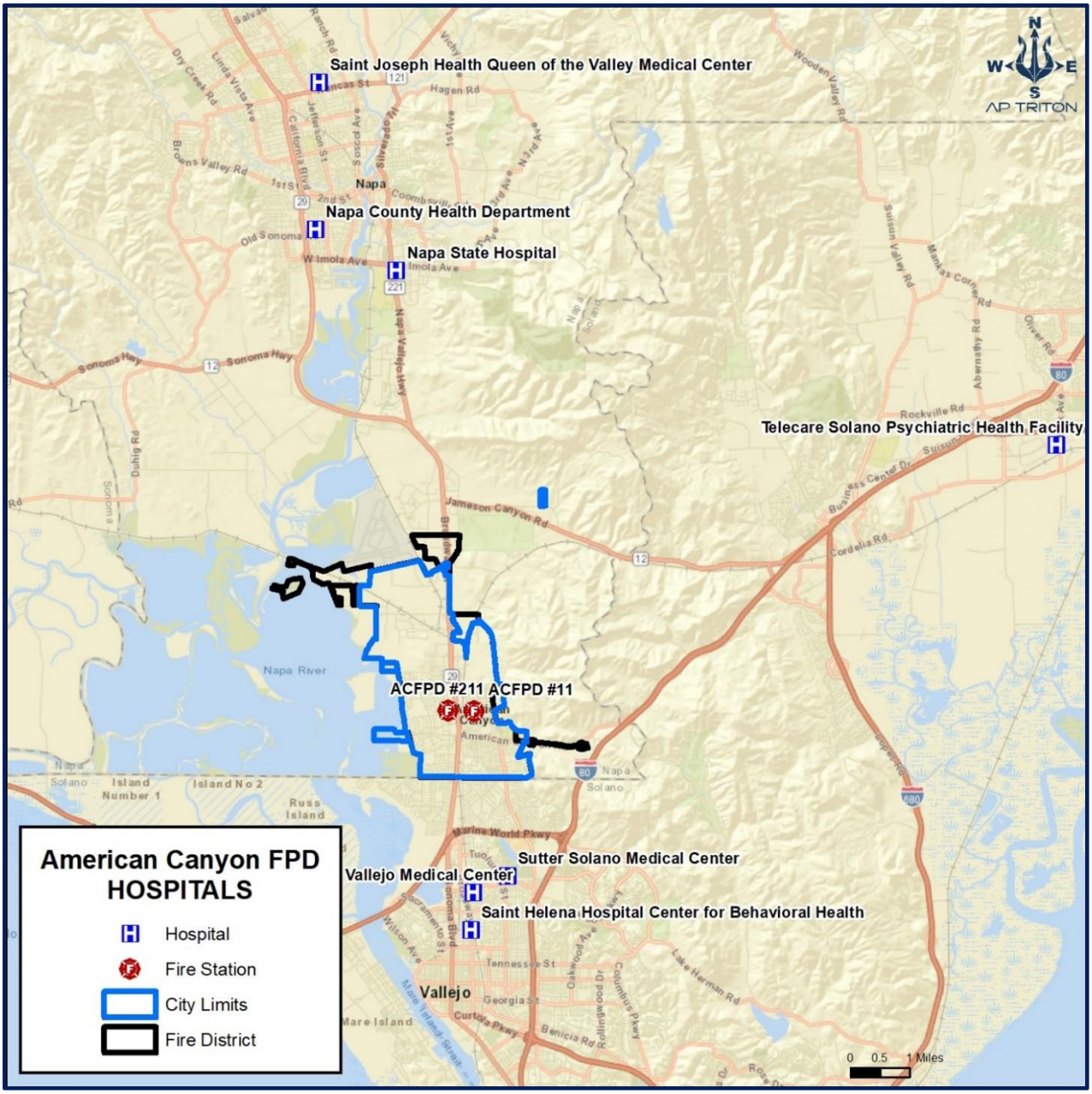


Hospitals & Medical Facilities

A primary service for any community is providing medical care to its citizens. The inability of patients to self-evacuate during an emergency places hospitals and medical facilities at a higher risk. These buildings require additional built-in fire protection features such as a fire alarm or sprinkler systems to protect the occupants.

Medical offices or facilities may not require the same fire protection requirements as a hospital, but the occupants may need similar assistance during an evacuation. Although there is not a hospital in American Canyon, there are medical offices. The following figure shows the location of hospitals near American Canyon.

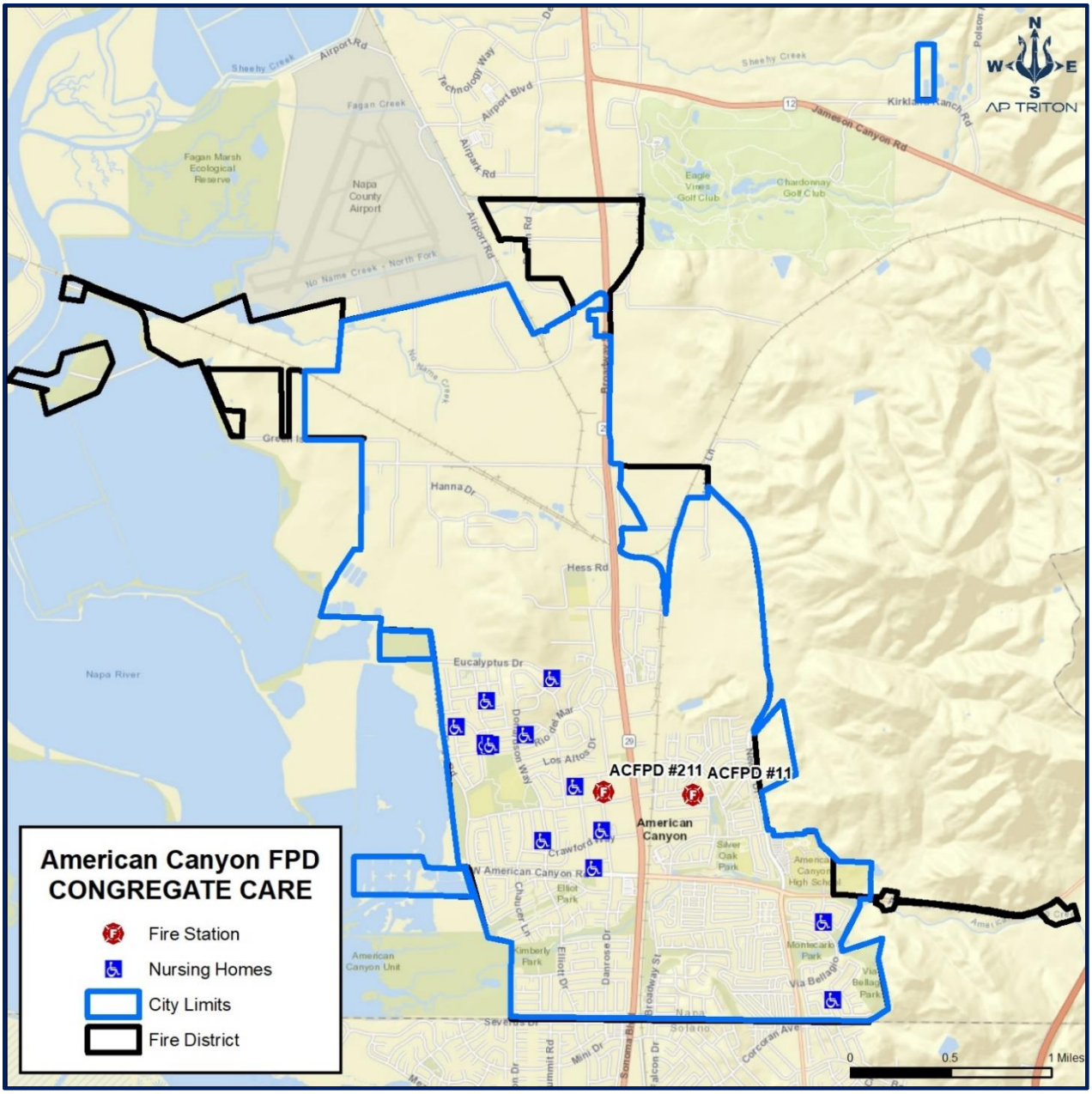
Figure 145: Hospitals



Congregate Care Facilities

A higher level of care may require older adults or those with physical or cognitive conditions to live in a facility to care for their needs. Their level of care may involve staff assisting in an emergency where an evacuation is necessary; thus, proper planning by staff and ACFPD is essential. 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 require additional fire protection systems to protect the occupants like a hospital. The following figure provides the location of congregate care facilities.

Figure 146: Congregate Care Facilities

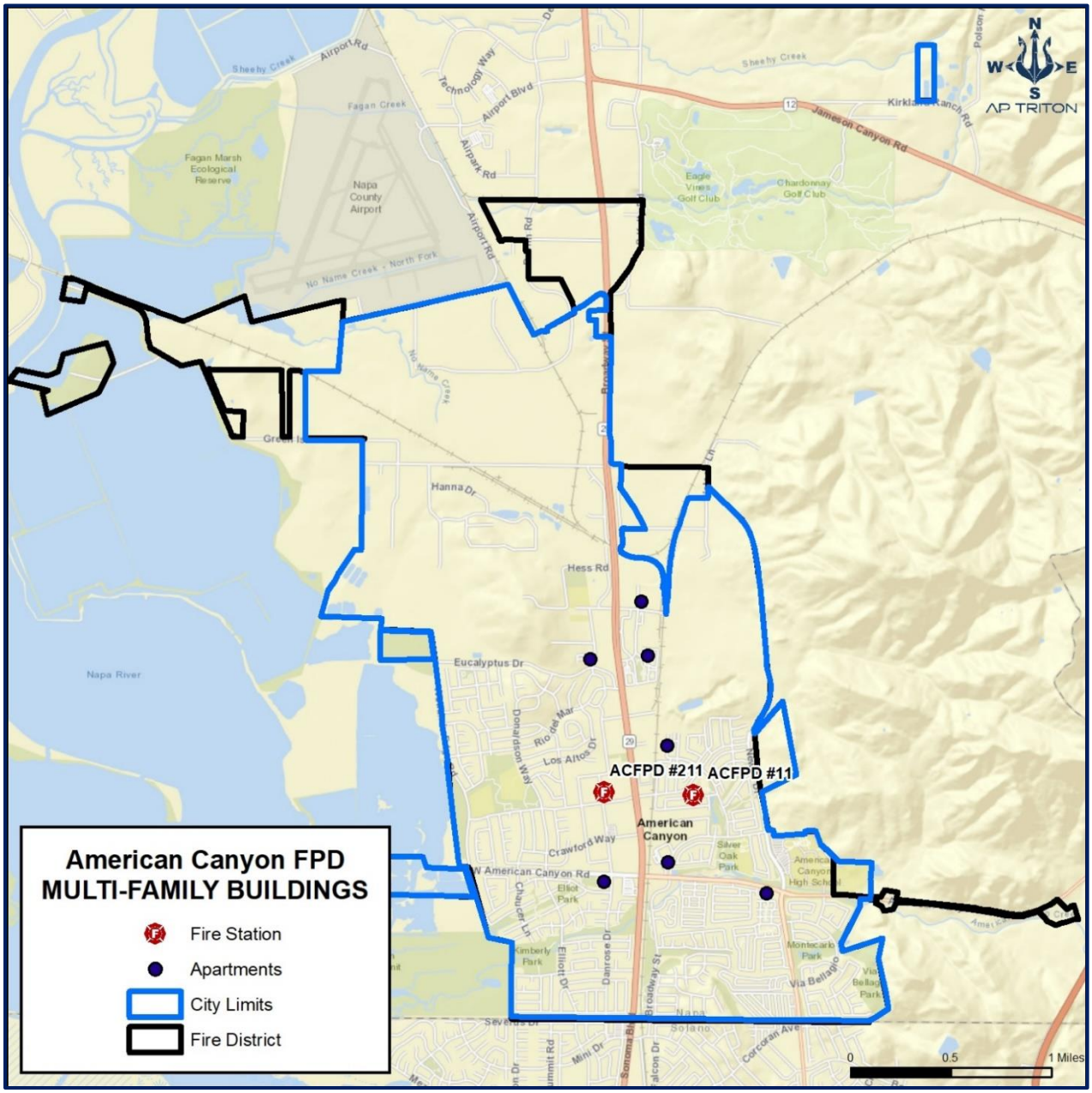


Multifamily Occupancies

Multifamily housing has fewer fires than one-and two-family dwellings, but the number of cooking-related fires is more than twice the rate for other buildings.[24] Current building and fire codes require these buildings to install a residential fire sprinkler system and interconnected smoke alarms in all bedrooms, hallways, and each floor.

These fire protection systems are designed to provide sufficient time for the occupants to evacuate the building. The attics in many residential fire sprinkler installations are unprotected and can create problems when a fire reaches this location. Fires can spread from exterior areas, such as when landscaping materials ignite and travel to the roof or attic if combustible siding is present. The following figure shows the locations of multifamily occupancies.

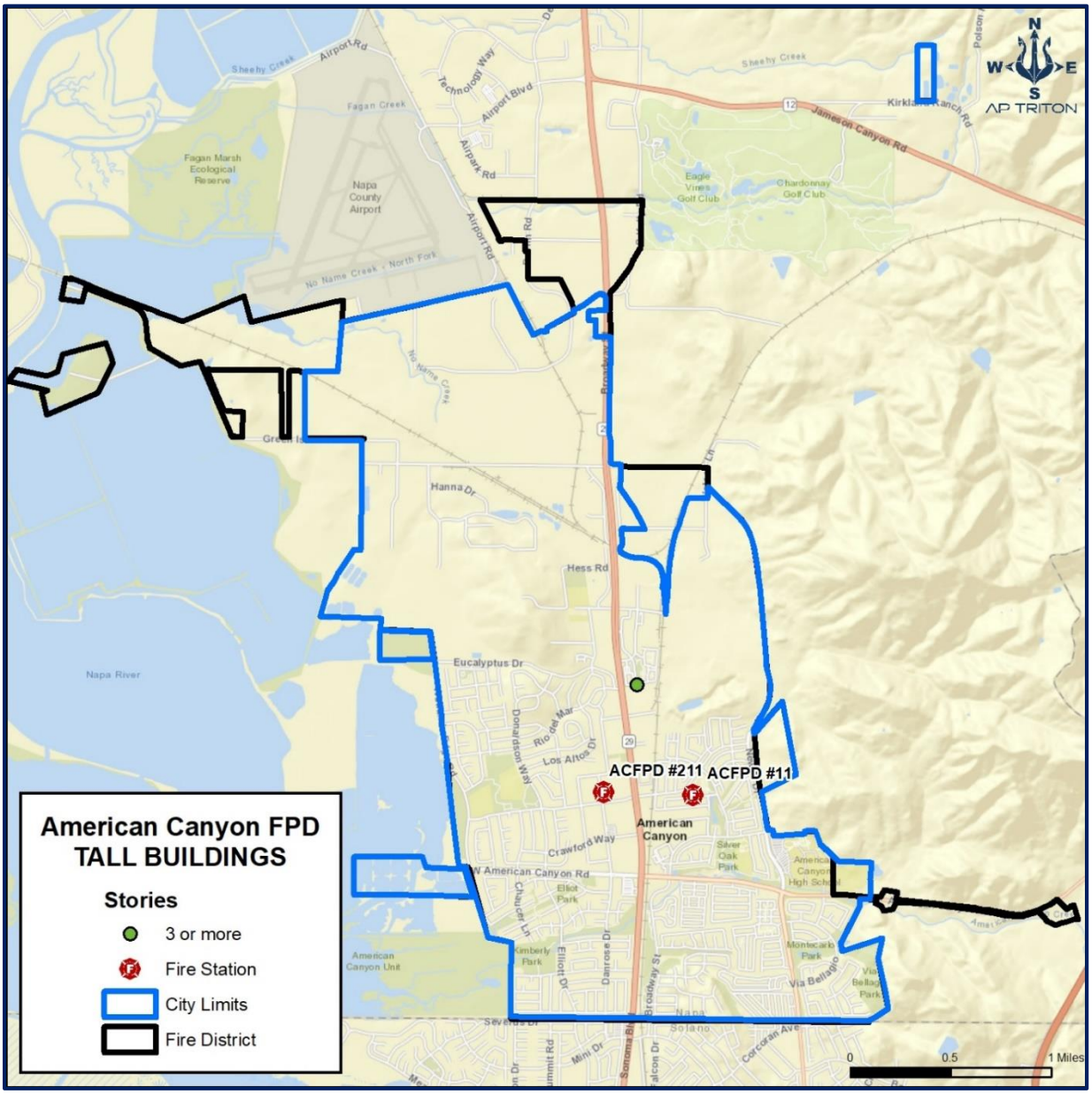
Figure 147: Multifamily Occupancies



Building Three or More Stories in Height

Structures that are three or more stories in height typically require an aerial apparatus with an elevated master stream. The Insurance Service Office (ISO) reviews the coverage area for all buildings within 2.5 miles of a ladder truck. A ladder truck may be necessary to access these higher buildings' upper floors or roofs since most ground ladders cannot reach these heights. The following figure shows the location of buildings three or more stories in height.

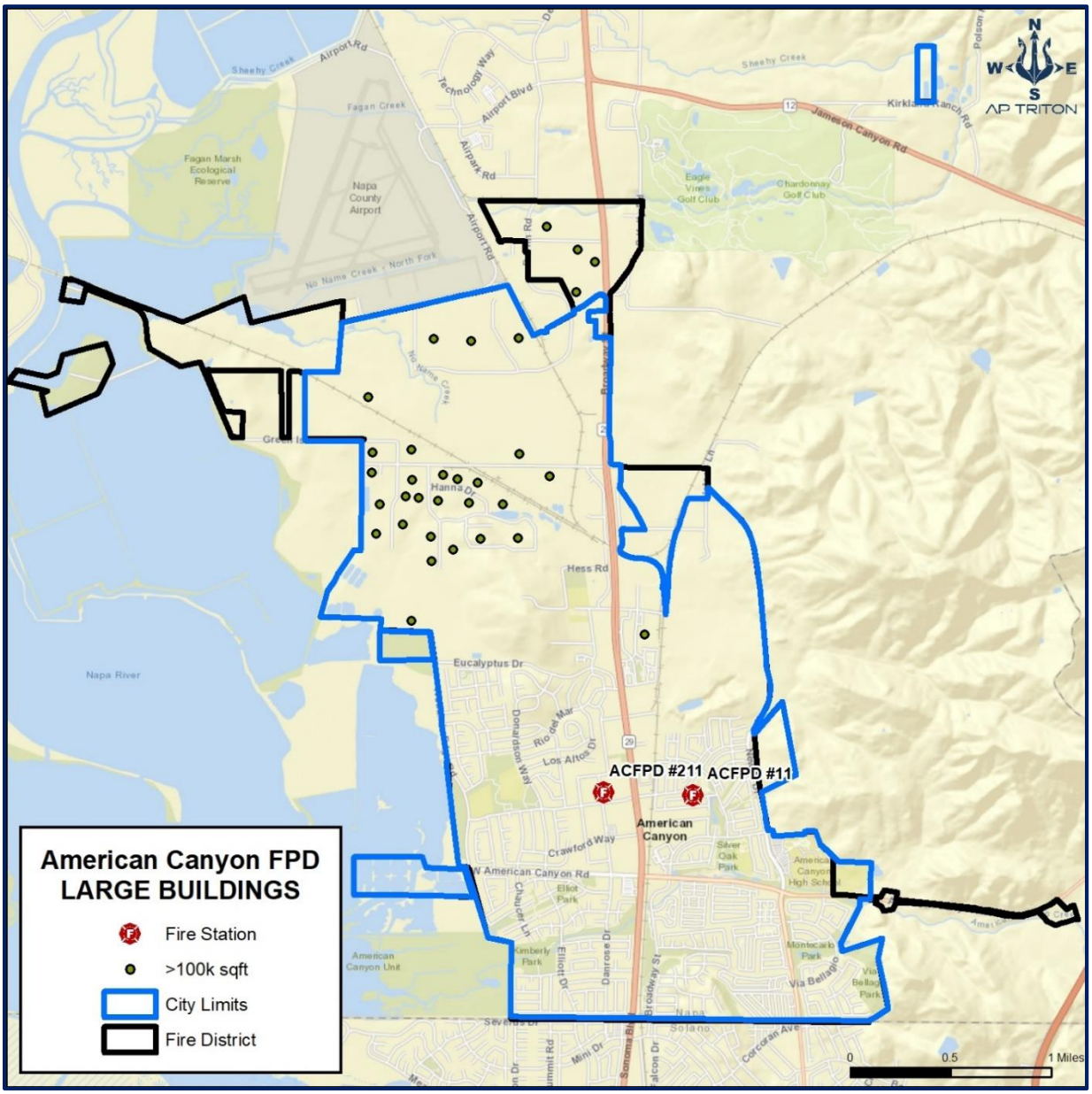
Figure 148: Buildings Three or More Stories in Height



Large Square Footage Buildings

Large buildings, such as warehouses, strip malls, and large mercantile occupancies require higher fire flow needs and more firefighters to advance hose lines long distances into the building during fireground operations. Fire flows may be greater for smaller buildings because of construction type, distance to exposures, and lack of built-in fire protection systems such as fire sprinklers. The following figure provides the location for buildings greater than 100,000 square feet.

Figure 149: Large Buildings Greater than 100,000 Square Feet[2]

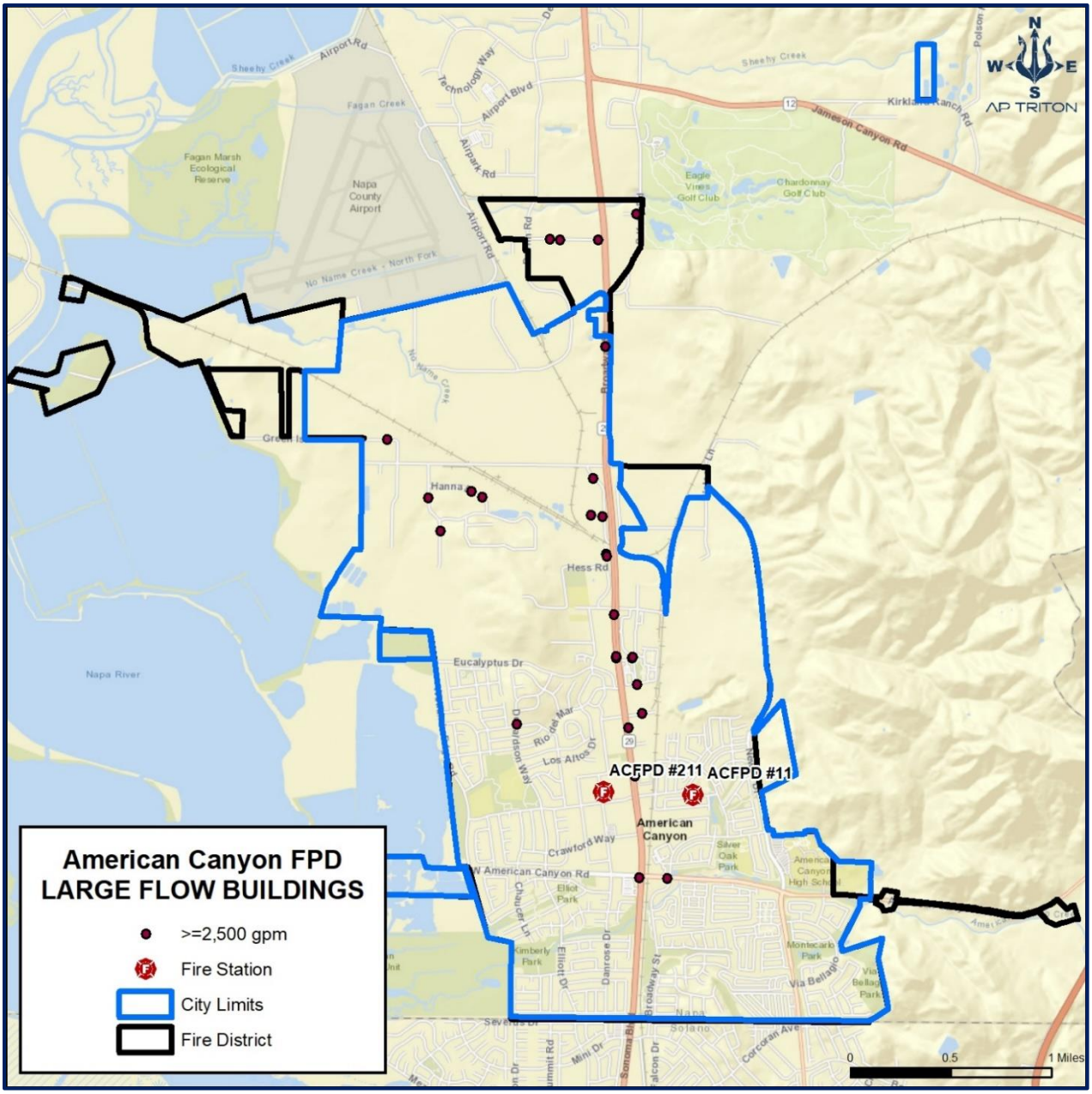


Large Fire-Flow Occupancies

Occupancies are 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 to control or extinguish the fire.

Many buildings with high fire flow requirements are identified by the Insurance Service Office (ISO) and provide a needed fire flow for select buildings in ACFPD. The following figure lists occupancies with a fire flow greater than 2,500 gallons per minute.

Figure 150: Fire Flows Greater than 2,500 Gallon Per Minute



Critical Infrastructure

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):[25]

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

All these sectors may not be in the district; each community must determine locations of critical infrastructure and develop pre-incident plans for responding personnel.

Other buildings to consider as target hazards could 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 a significant number of ACFPD resources and automatic aid during an incident.

Transportation Network

Emergency personnel needs a transportation network to respond efficiently to an incident. Without a system of interconnected roads and streets, a delayed response can occur. Interconnectivity provides multiple access points to a location if another approach is unavailable. Many local streets in American Canyon are on a grid system but interspersed with cul-de-sacs that only provide one access route, thus preventing quick response if the street is blocked and inaccessible.

State Hwy 29 travels north-south through the city and is a major thoroughfare. Hwy 29 is scheduled to receive roadway improvements, including a pedestrian undercrossing, enhanced transit stops, where feasible, and include undergrounding of the overhead utility lines.[26] The average annual daily traffic count at American Canyon Rd in 2020 was 40,000 vehicles.[27] Other collector streets that allow local streets to enter the traffic grid include W American Canyon, Wetlands Edge Rd, Donaldson Way, Rio Del Mar, Eucalyptus Dr., Elliot Dr., Newell Dr., and Flosden Rd.

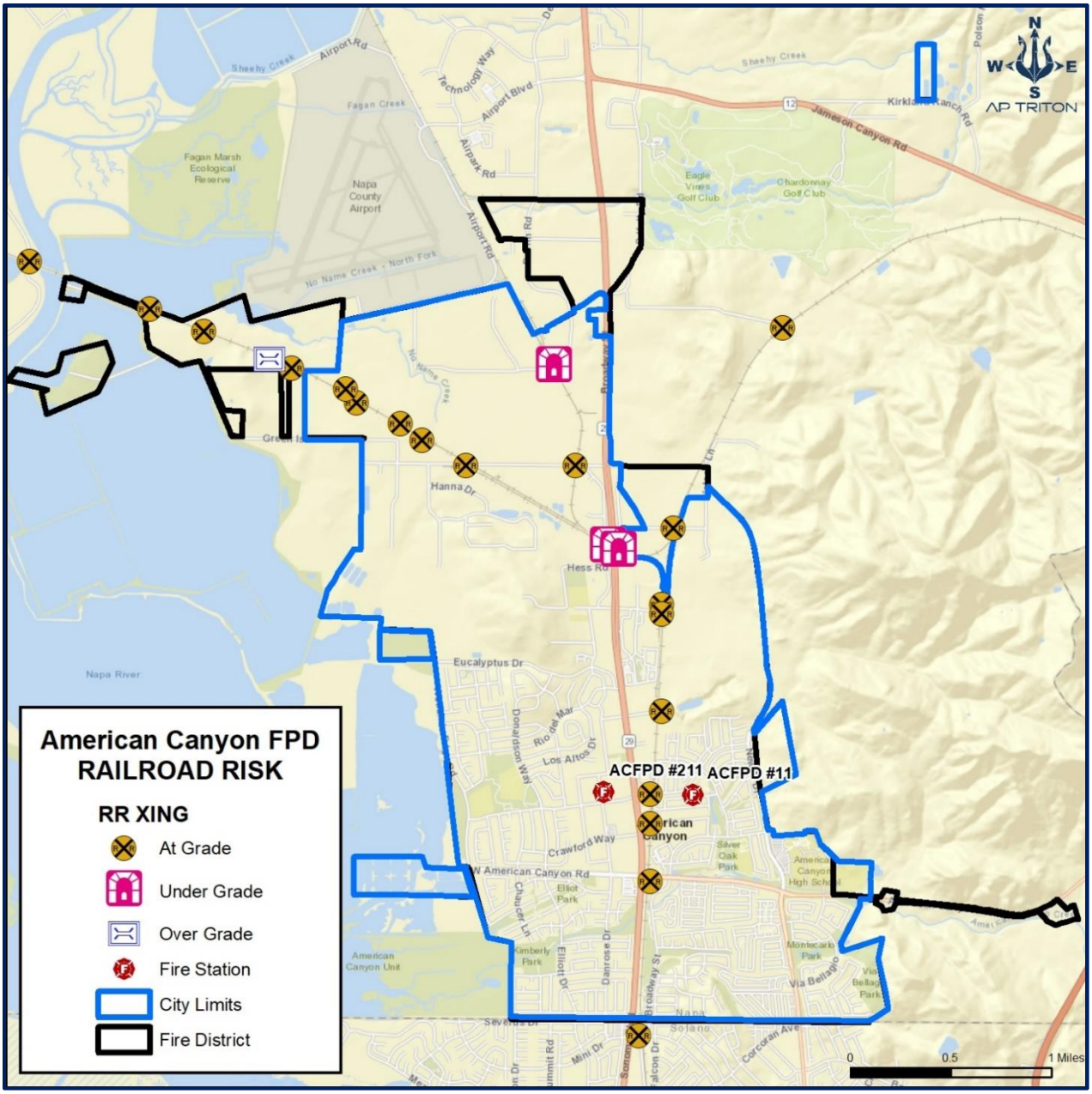
American Canyon has a traffic signal preemption system in the city to assist responding emergency apparatus travel through intersections without stopping, thus reducing response times to an incident and increasing safety with other vehicles.

Rail

The California Northern Railroad operates rail service into and out of American Canyon. The services connect with Northwestern Pacific Railroad Network at Brazos Junction northwest of American Canyon and Union Pacific at Suisun-Fairfield.[28] Data from the Federal Railway Administration only indicated two accidents at rail crossings since 1981. Both occurred at American Canyon and Green Island Rd. and only resulted in one injury when the rail crossing was not correctly flagged as out of service.[29]

Rail traffic in American Canyon is minimal, and at times cars are stored along the lines until needed by the rail company. The following figure shows the location of all crossings in the district.

Figure 151: Rail Crossings



Energy

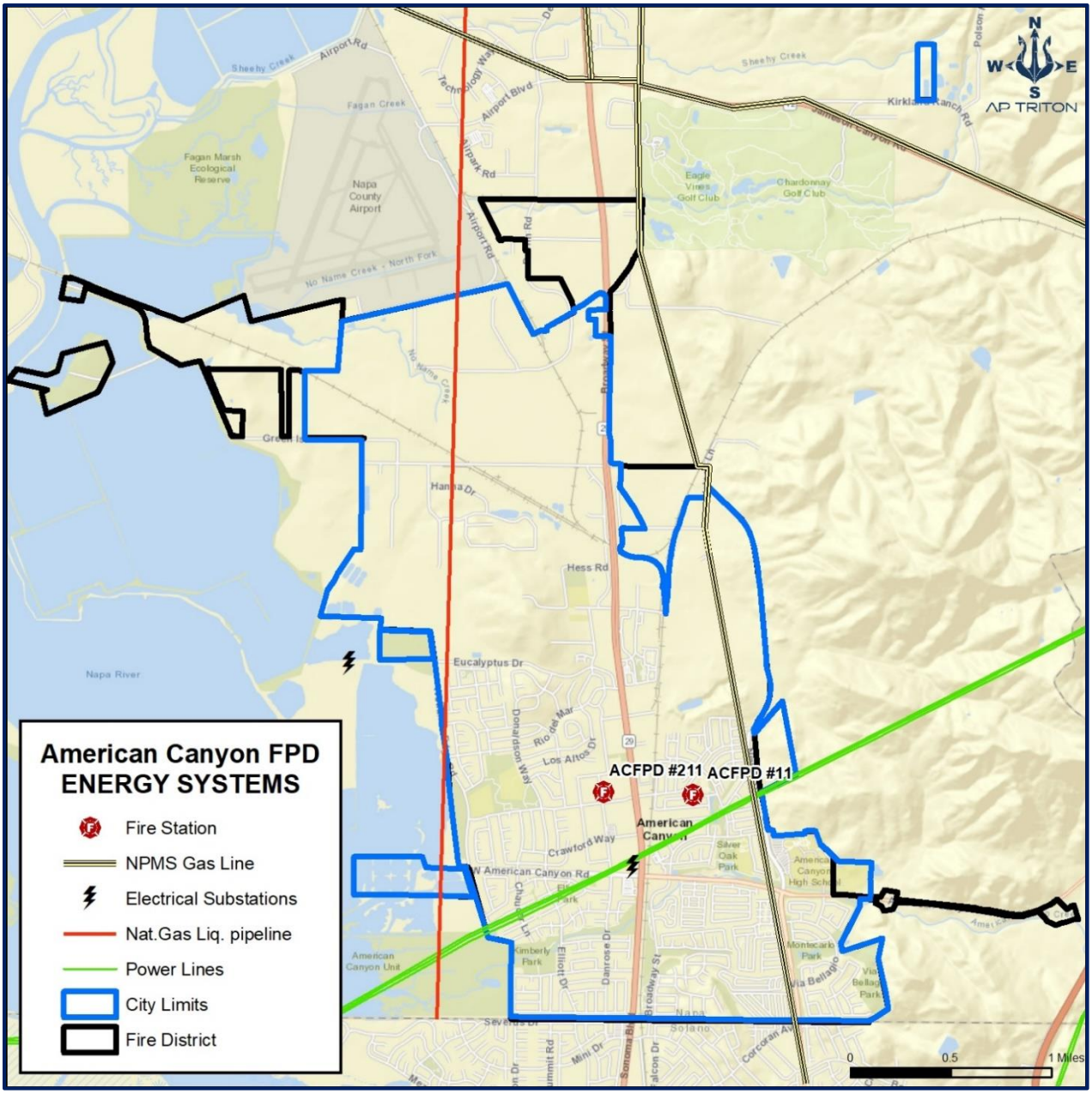
The ability to provide energy is a necessary component of a thriving community. Whether it is electricity generation and transmission systems, fuel distribution and storage tanks, or natural gas pipelines and regulator stations, the community depends on energy sources. Pacific Gas and Electric (PGE) electrical provide power and natural gas for the district. The need for power includes communications to traffic signals to normal operations, which requires energy use.

Electricity

High voltage electrical transmission lines travel through the ACFPD. 230-kilovolt and 155-kilovolt electrical lines travel through the southern portion of the district in a northwest-southeast direction. There is an electrical substation located at W. American Canyon Rd. and Hwy 29. Where they terminate, an electrical sub-station steps down the voltage in the distribution system. Any incident involving an electrical sub-station requires assistance from PGE, and ACFPD personnel should not enter the site until advised.

PGE may implement Public Safety Power Shutoffs during red flag warnings. These warnings occur when high winds (> 25 mph or gusts above 45 mph), low humidity, or when PGE observes an issue to prevent a fire from igniting because of powerlines causing a spark even in locations not considered at risk. These shutoffs usually are temporary. PGE alerts customers before power is shut off, but the customer must sign up for text, phone messages, or email notifications.[30]

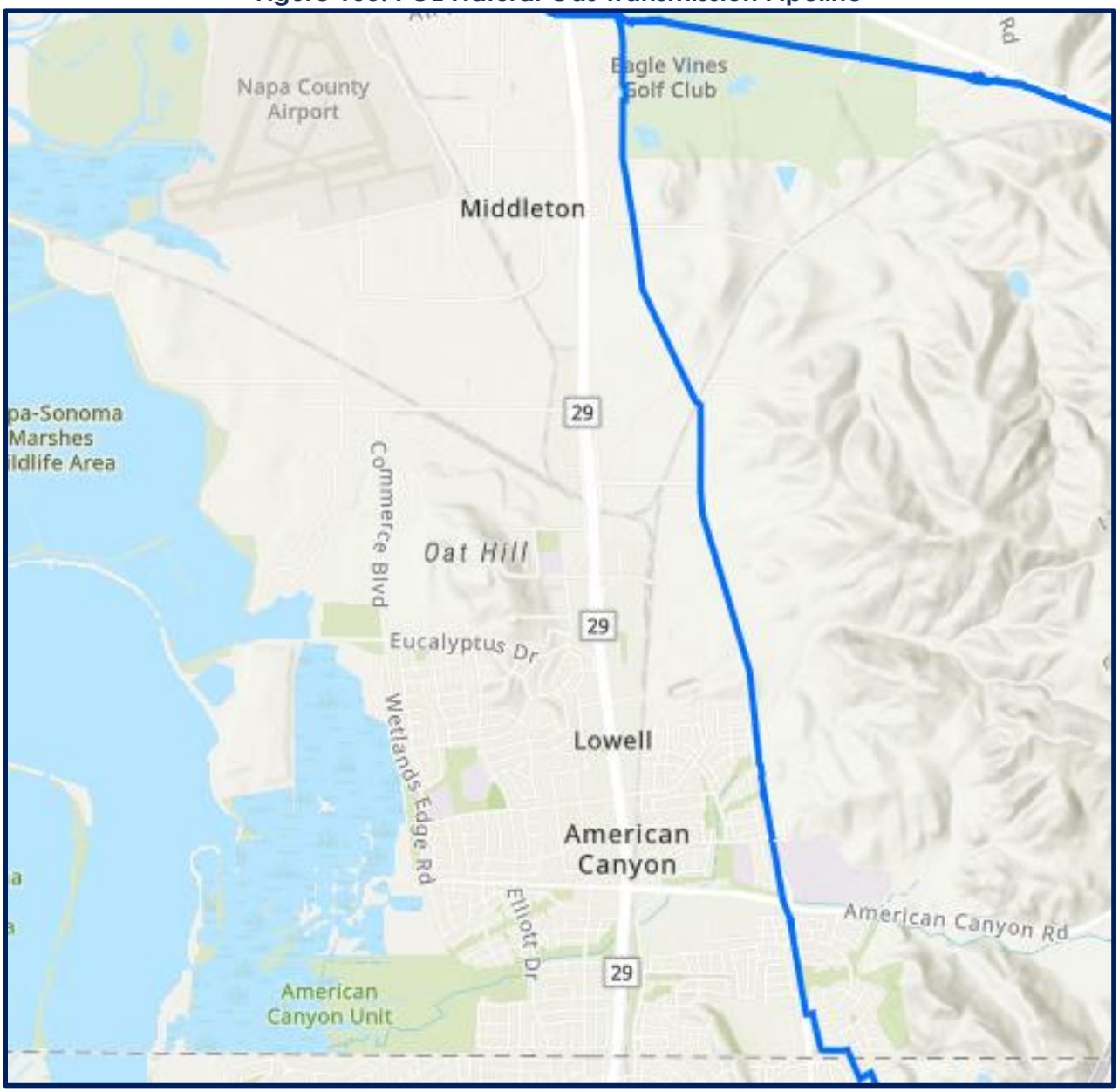
Figure 152: Electrical High-Voltage Lines



Natural Gas

PGE provides natural gas in the district through transmission and high-pressure distribution lines that supply service lines for commercial and residential use. PGE has a natural gas transmission pipeline that travels north-south along the district's western edge. Incidents involving natural gas are often caused by contractors who cut or damage lines when excavating during construction. The following figure from PGE shows the natural gas transmission pipeline location.

Figure 153: PGE Natural Gas Transmission Pipeline

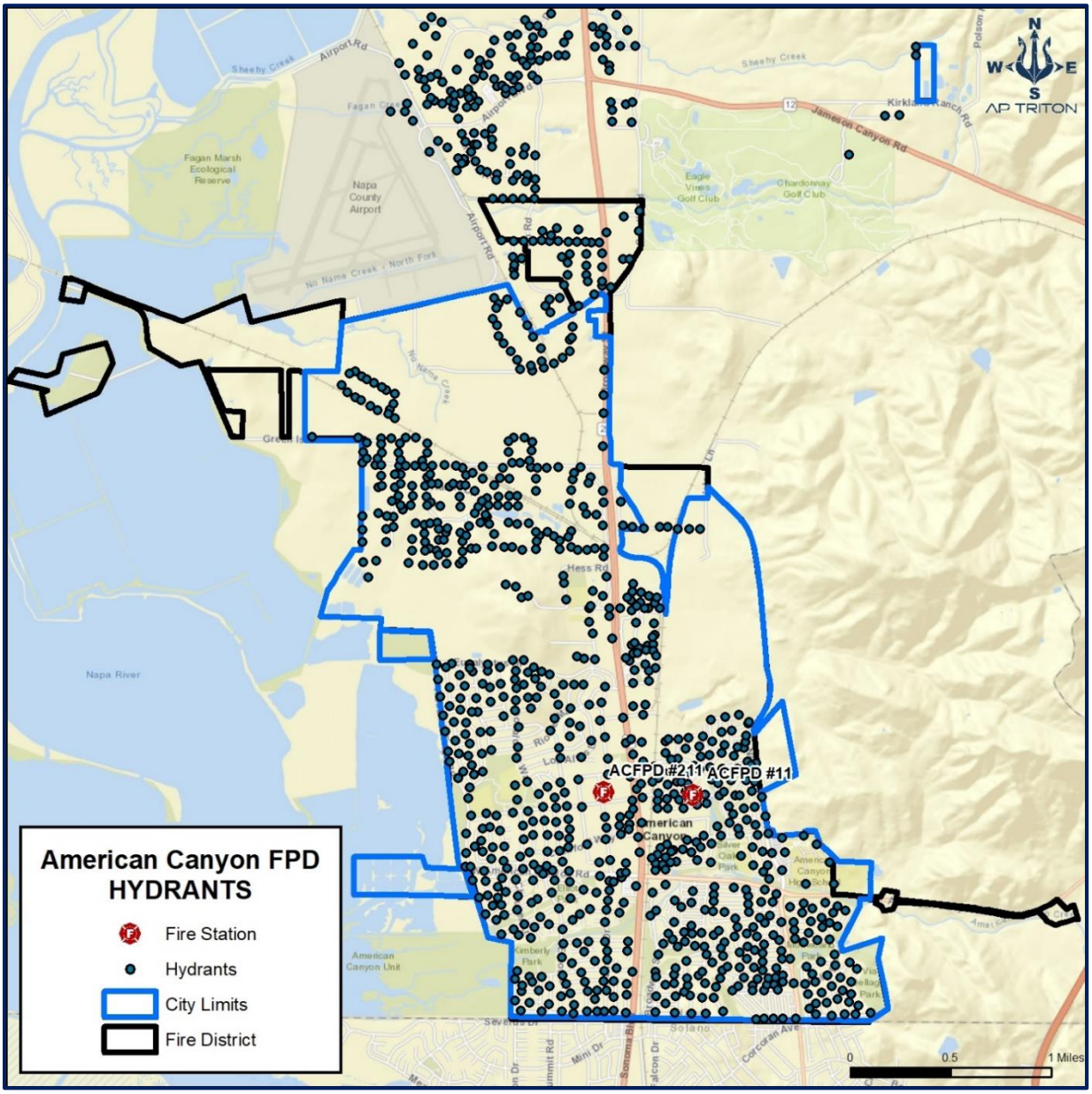


Water

Controlling a fire becomes challenging without an adequate water supply and distribution system consisting of water storage, mains, and a fire hydrant system. A system of well-distributed hydrants and appropriately sized water mains are necessary to provide the required water for fireground use.

American Canyon provides water services for the community from the Napa/Solano County line to Soscol Creek. The water treatment plant can produce up to 5.5 million gallons per day. The city is a partner in the Sites Reservoir Project, which is designed to store excess stormwater from the Sacramento River and release it when conditions are dry. The project creates an additional 1.5 million acre-foot of off-stream storage and will begin construction in 2022. The following figure provides the locations of fire hydrants in the ACFPD.

Figure 154: Hydrant Locations



Communications

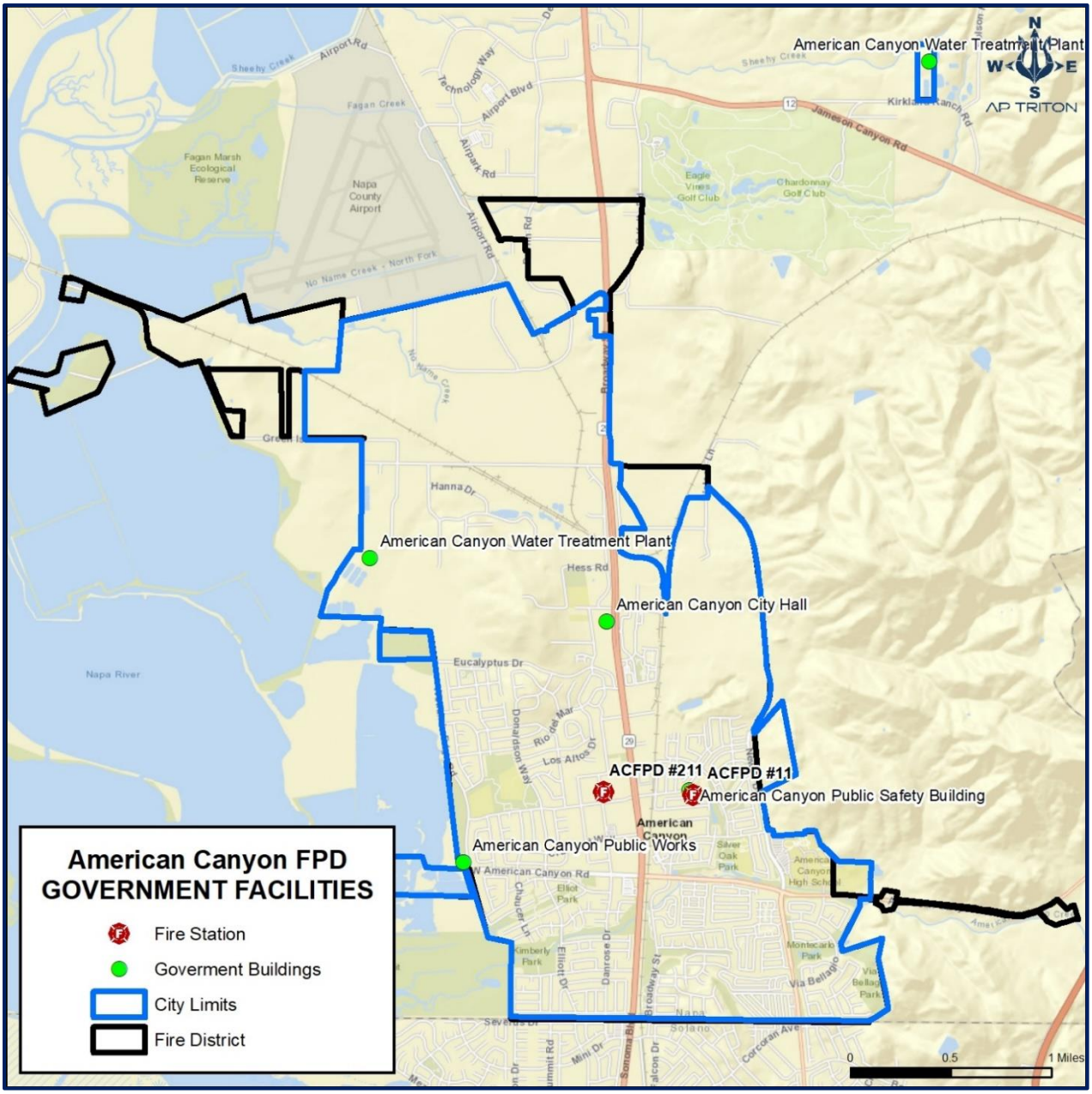
When an incident occurs, essential facilities to receive and transmit alarm information require a communication center to communicate with emergency responders properly. Other communications are critical to the community, such as cellular phones, Voice over Internet Protocol (VoIP) telephone systems, or transmission lines from the local telephone company. These systems allow the public to notify emergency services of an incident. Internet services are considered essential for the public, commercial establishments, and emergency services to conduct business daily. Whether the internet services are through cellular access or an internet service provider, the failure of these communication systems can significantly impact emergency services and the public.

ACFPD is notified of an incident by Napa Central Dispatch operated by the Napa Police Department. The 911 center is the Public Safety Answering Point (PSAP) for the City of Napa, City of American Canyon, Town of Yountville, and unincorporated areas of Napa County. They provide dispatching services for ACFPD and other emergency services in Napa County. The center provides full-time staffing and processes 115,000 calls annually. The telecommunicators use computer-aided dispatch software to manage incidents to dispatch the appropriate agency and equipment based on the incident type.

Governmental Buildings

Buildings that provide services for the public from local or other governmental units are considered essential facilities and should receive special attention. These facilities are for the public to receive community services, and fire department personnel should be familiar with the properties during an emergency. Pre-incident plans should be completed and updated annually, including their facilities. The following figure provides the location of government buildings.

Figure 155: Government Buildings



Comparison of Fire Risks in Other Communities

Fire Loss

In 2018, fire departments responded to more than 1.3 million incidents in the United States that caused 3,655 civilian fire fatalities and over 15,200 civilian fire injuries. The property damage was estimated at more than $25.6 billion. The NFPA reported that 65% of the fire deaths occurred in one-or two-family dwellings. The report stated that $12 billion of property fire losses from wildland urban interface incidents occurred in California.[31]

The following figure shows the 2018 fires per 1,000 population and property loss per capita for ACFPD. Incomplete fire loss data did not allow for analysis for 2019 or 2020.

Figure 156: ACFPD 2018 Fire Loss and Property Damage

Community	Fires per 1,000 Population	Property Loss per Capita
ACFPD	2.6	$19.70
The U.S.	3.7	$79.28

Intentionally Set Fires

Intentionally set fires, or in many cases considered as arson, is defined as "any willful or malicious burning or attempt to burn, with or without intent to defraud, a dwelling house, public building, motor vehicle or aircraft, personal property of another.[32] ACFPD contracts with a fire investigator, and all training is in conjunction with the California State Fire Marshal's Office. If a fire involves a juvenile, the case may be sent to the Napa FD's Junior Fire Setter Referral Program. The following figure lists the number of intentionally set fires over the preceding four years.

Figure 157: Intentionally Set Fires 2018–2021

Year	Quantity
2018	5
2019	1
2020	0
2021	1

Insurance Services Office

The Insurance Services Office, Inc. (ISO©) is an independent organization that collects and analyzes data from fire departments 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." Commercial property insurance rates are expected to be less 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 maximum possible total of 105.5 points. ISO then assigns a grade using a scale of 1 to 10. Class 1 represents the highest degree of fire protection, and Class 10 designates a fire suppression program that does not meet ISO's minimum criteria.

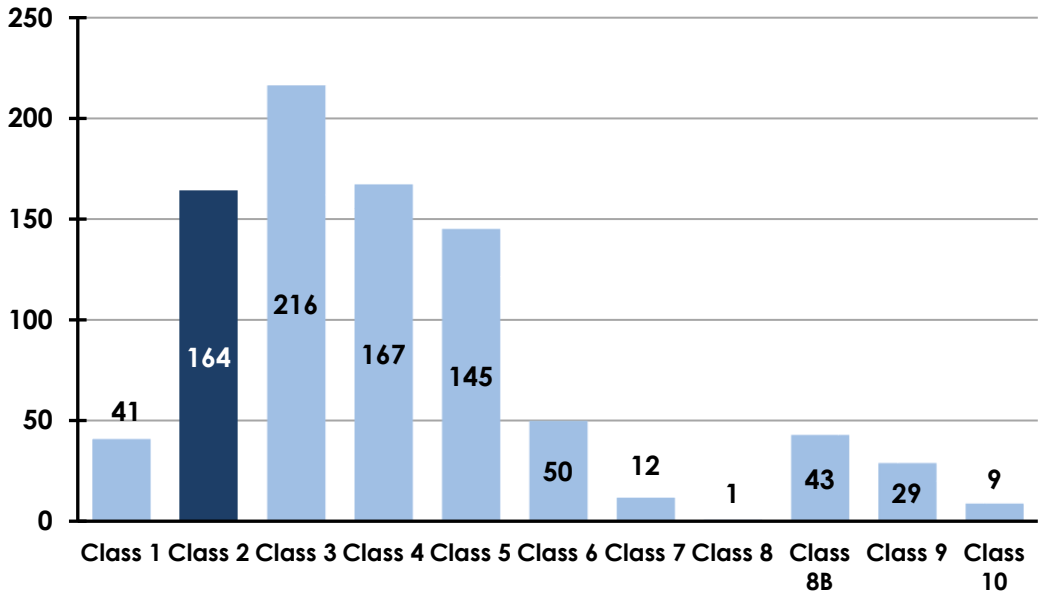
The most recent ISO inspection was in 2014, and ACFPD received a Class 2/2Y rating. The earned credits totaled 83.38 out of 105.5. Primary areas for improvement are in the Fire Department Feature for Deployment Analysis, where 6.64 credits were received out of 10, Company Personnel received 10.24 out of 15, and 6.34 out of 9 for Training. The following figure provides the ISO Earned and Available Credits for ACFPD from its most recent inspection.

Figure 158: ISO Earned & Available Credits for ACFPD

ISO Feature	Earned Credit	Available Credit
Emergency Communications	8.07	10
Fire Department	36.32	50
Water Supply	38.59	40
Divergence	-4.77	0
Community Risk Reduction	5.17	5.5
Totals:	**83.38**	**105.5**

ACFPD is one of 164 communities out of 877 surveyed across the state to achieve the rating, as shown in the following figure.

Figure 159: Comparison of ISO Class Ratings (California)



Section IV:
CONCLUSIONS & RECOMMENDATIONS

Key Findings

This section of the report contains various findings and recommendations with the specific intent of providing the American Canyon Fire Protection District with a Long-Range Master Plan that identifies short-, mid-, and long-term recommendations that can deliver the desired levels of service at the most efficient cost. Triton has taken into consideration population growth projections, along with historical and forecast activity rates. The key findings are as follows:

- The working relationship between the fire district and other City of American Canyon departments is positive.
- ACFPD's policies and procedures are up to date and available to all personnel in paper form. The district is moving towards an electronic database for all policies and procedures in 2022.
- The district does not provide mid-level management (Battalion Chief) coverage.
- Standard Operating Guidelines (SOGs) are not formally reviewed annually.
- The district does not have a formal program for pre-incident planning of commercial and high-risk occupancies.
- ACFPD has a well-defined special operations program, including hazardous materials response and technical rescue.
- The Fire Executive Assistant (Office Administrator) handling Human Resources and Finance duties is a full-time employee of the City of American Canyon.
- The district's administrative support division lacks the staffing needed due to the number and complexity of duties performed.
- The district has an established reserve support program, with personnel coordinating various programs, including EMS, weed abatement, and CERT coordination.
- ACFPD has no primary role regarding emergency management with the City of American Canyon.
- ACFPD Firefighter staffing per 1,000 population is 0.992 compared to the national average of 1.54.
- The district exercises fiscal solid management practices.
- Most of the workload for ACFPD is for medical/rescue calls.
- Monthly workload is busiest in October, and Daily workloads are higher during the first part of the week.
- Most of the time, ACFPD responds to one incident with one apparatus, but it is not uncommon for multiple calls and multiple apparatus per call to occur.

- Call processing times exceed NFPA recommendations with an unusual spike at 3 a.m.
- Stations are not regularly inspected for fire and life safety issues. Smoke detectors and carbon monoxide detectors were out of service or missing. Other safety systems, such as eyewash stations and biological waste containers, are missing or out of service.
- Station 211 is undersized for modern firefighting operations. The apparatus bay is unable to fit modern fire apparatus. There is no room for separate sleeping areas for gender separation and no area for proper turnout gear storage or decontamination. Also lacking was adequate classroom or training space.
- There was no evidence of a capital improvement or station replacement plan. Station maintenance appeared to be completed as reported and on a priority system.
- Station 11 appears to be adequate in size and design to meet modern firefighting requirements; however, future expansion would be limited.
- The administration building does not have enough space for current staff and will be unable to accommodate future growth.
- Incident reporting is not accurate.
- There is not a comprehensive Community Risk Reduction program.
- ACFPD does not have an adequate training facility for effectively developing firefighters.

Introduction to Recommendations

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 ACFPD 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 ACFPD's ability to provide effective service to the community.

Recommended Short-Term Strategies

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 three years.

Recommendation A-1: Establish a facility life safety inspection program.

Description: ACFPD 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.

Outcomes: Systematically evaluate, repair, and potentially improve the emergency and life safety systems at each ACFPD 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-2: Consider hiring three shift Battalion Chiefs.

Description: ACFPD does not provide mid-management (Battalion Chief) support on a 24-hour basis providing a higher level of supervision. With the current staffing levels, the need for increased staffing, the delegation of key responsibilities, documented current and projected future risk, and projected growth of the district, a greater emphasis is being placed on day-to-day operations due to increased call volume, resource management, training requirements, and mutual/automatic-aid activities.

Outcomes: Shift Battalion Chiefs would allow for consistent emergency response coordination, personnel management, enhanced safety and operational experience at incidents, and the ability to take on operational projects/tasks currently assigned to the administrative support staff.

Estimated Cost: The estimated cost for three shift Battalion Chiefs is approximately $650,000 annually.

Recommendation A-3: Consider adding one administrative support member.

Description: ACFPD administrative staff perform various tasks in support of management and operations. Each administrative staff is capable of multi-tasking. However, they are frequently stretched thin due to the complexity and range of assigned tasks. As the administrative staff increases, the district may wish to consider a formal compensation and classification study.

Outcomes: Adding a minimum of one administrative staff member will allow for the delegation of tasks and provide increased support for critical areas of the district, such as human resources and finance.

Estimated Cost: The estimated cost for adding one Executive Assistant is approximately $103,000 annually.

Recommendation A-4: Establish a formalized safety committee within the fire district.

Description: ACFPD should establish an internal safety committee as recommended within NFPA 1500: *Fire Department Occupational Safety and Health Program* to help make health and safety activities an integral part of the district's operational plan.

Outcomes: Establishing a formalized safety committee will help build a cohesive relationship between ACFPD management and labor, focusing on the safety of all district personnel, apparatus, equipment, and facilities.

Estimated Cost*: Staff time.*

Recommendation A-5: Repair or replace the apron and sidewalk in front of Station 211.

Description*:* The area in front of Station 211 is in immediate need of replacement. For the safety of the crews and the public, the district and City should work to replace the apron and sidewalk in front of the station.

Outcomes: Create a safe walkway and driving surface free of hazards.

Estimated Cost: The estimated cost of replacing the apron is estimated at $50,000.

Recommendation A-6: Consider including the City's fiscal and budgetary policies within the district's annually adopted budget.

Description: The fiscal and budgetary policies of the City also apply to the district. Since the City Council, which also serves as the district's governing Board, annually reviews and approves the fiscal and budgetary policies as part of the City's operating budget, it is recommended that the district incorporate the policies into its budget adoption as well. Considering the district budget is approved after the City's, there is an opportunity to include the policies.

Outcomes: This action will make it clear that these policies are adopted and followed by the district Board and staff.

Estimated Cost: None.

Recommendation A-7: Consider enhancing the financial and Board action information available on the district's website.

Description: Much of this report's fiscal and Board action information could not be obtained from the district's website. Specifically, the salary schedule, fee schedule, and Board meeting agenda packets would benefit the public. Access to the Board actions, such as approved resolutions, would also be desirable.

As a CalPERS agency, the district must have a publicly available pay schedule. Publicly available is defined as "posted at the office of the employer or immediately accessible and available for public review from the employer during normal business hours or on the employer's website."

Outcomes: This action will make important district information accessible to the public and comply with CalPERS requirements. Having such information on the website may also reduce inquiries of staff.

Estimated Cost: None.

Recommendation A-8: Develop a quality control process for incident reporting.

Description: The process of reviewing completed incident reports provides ACFPD with a method to ensure data entry is correct for future analysis. A review of incident data found incorrect coding for Automatic Aid Given and Mutual Aid Given. Automatic Aid and Mutual Aid should only be coded when ACFPD arrives on the scene and another fire department has arrived. Fire loss data was not entered for 2019–2021. Fire loss data was not accurate because

Outcomes: ACFPD will collect accurate data and provide the correct information when submitting their incident data to state and national databases.

***Estimated Cost*:** Minimal cost is expected and will include staff time to develop a review process and possible training on the National Fire Incident Reporting System.

Recommendation A-9: Complete a National Fire Incident Reporting system training class.

***Description*:** During data review, incorrect coding and lack of data entry were discovered. The lack of accurate data does not allow for good decision-making if incident reporting is not completed with the correct information.

***Outcomes*:** Understanding how reporting assists an organization when accurate data is collected allows the department to make decisions using correct information.

***Estimated Cost*:** Costs will include sending staff to training such as the National Fire Academy.

Recommendation A-10: Develop an expanded Community Risk Reduction Program.

***Description*:** Implementation of a district-wide CRR program can enhance community involvement and develop programs to reduce or mitigate risks.

***Outcomes*:** The review of incident data to help determine the highest risks or high-frequency responses can provide a basis for developing risk reduction programs. The creation of outcome measures can help ACFPD determine if the program(s) are working to reduce the risks identified.

***Estimated Cost*:** Costs may include hiring a part-time employee to assist the Executive Administrative Assistant with scheduling and ultimately developing programs for the community with integration from operations. Triton estimates approximately $37,156.

Recommendations A-11: Publish the Designated Infection Control Officer's name and contact information on the city website.

Description: ACFPD does not display any DICO information on the fire department website.

Outcomes: Section 1797.188 of the California Health & Safety Code requires employers of prehospital emergency medical care personnel to provide the title, name, and phone number of the Designated Infection Control Officer to be posted on the agency website.

Estimated Cost: None.

Recommendation A-12: Align fire documentation with EMS documentation utilizing the ESO Fire Records Management System.

Description: ACFPD currently documents EMS incidents in the ESO electronic health record system, and fire data is collected in a different format. These practices require that fire department personnel enter date twice for all emergency medical services incidents.

Outcomes: Utilizing the same software for fire and EMS documentation saves time and money and improves documentation by minimizing the potential for errors. ESO software allows for single data entry and NFIRS compliance.

Estimated Cost: Approximately $6,000–$7,000.

Recommendation A-13: Upgrade the Lucas devices to the same version for consistency and integration.

Description: ACFPD currently deploys one Lucas 3 device and two Lucas 1 devices. These are used to perform mechanical compressions during a cardiac arrest. This high-stress scenario requires fast, precise skills to ensure chest compressions are done correctly. Different types of equipment could potentially lead to less efficient practices and errors.

Outcomes: Deploying the same type of equipment in these high-stress situations is critical to the performance of the employees. Operating the same equipment provides consistency in training, improved care, and minimizes errors. The Lucas 3 devices allow for the integration of the data from the device to the electronic patient care report and post-event review software.

Estimated Cost: $32,000.

Recommendation A-14: Review Existing Fee Schedule

***Description*:** ACFPD currently has a mitigation fee schedule for new construction, plan reviews, operational permits, and inspections that needs reviewing.

***Outcomes*:** A review of the existing fee schedule can determine if the current rates align with other similar-size jurisdictions. A cost-of-living increase could be an avenue to prevent the fees from having to be reviewed regularly.

***Estimated Cost*:** Approximately $15,000 to retain a qualified consultant.

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: Establish a capital improvement and replacement program.

Description: ACFPD should work to develop, adopt, and fund a facilities capital improvement and replacement program. Each capital system should be identified and put on a repair and replacement schedule. Each building should continue to be evaluated for its ability to meet the agency's needs, and a replacement schedule should be negotiated years in advance.

Outcomes: Systematically evaluate, repair, and potentially improve the facilities required for ongoing operations.

Estimated Cost: Initial costs will include staff time to audit facilities, negotiate with the city, finalize, and adopt a plan. Ongoing costs will consist of maintenance requirements such as system repair and replacement of consumable goods.

Recommendation B-2: Recruit additional staff and staff the district's truck company.

***Description*:** The district's risk and level of development are beginning to exceed the expectations of cross-staffing the truck company. Additional personnel should be recruited that will facilitate staffing the truck company 24/7.

***Outcomes*:** Enhanced coverage**,** improved effective response force, and compliance with ISO criteria.

***Estimated Cost*:** The estimated annual salary and benefit costs for three Captains and six Firefighters are estimated to be approximately $1.5 million.

Recommendation B-3: Determine a new site for Station 211 and initiate the process of designing a new fire station facility to maintain a high degree of safety, efficiency, long-term sustainability, and effectiveness.

Description: The current location of the Station is less than half a mile from Station 11. The station also does not meet the community's or modern fire station's needs. ACFPD should identify a site for a new station and start planning for purchase and construction.

Outcomes: Meet the community's needs by having Station 211 properly placed to improve response times within the district. Have a modern station that meets the needs of fire district personnel.

Estimated Cost: Determining a new suitable site and purchasing the land costs approximately $4 million. The cost of retaining an architect, including engineering, costs approximately $ 1.5 million.

Recommendation B-4: Determine administration staff space needs.

Description*:* The current Headquarters does not have enough space for existing staff. ACFPD should identify future administration staff size and space needs and work to incorporate administration needs into the future Station 211 plan.

Outcomes: Meet the current and future needs of the district by having sufficient administration space to function efficiently.

Estimated Cost: With multiple options available, we are unable to estimate the cost or savings.

Recommendation B-5: Place greater emphasis upon the quality assurance of time data inputs.

***Description*:** Documentation of events for the fire department is critical that it be correct, especially for those requesting them, such as attorneys, insurance companies, and property owners. In addition, reliable and accurate performance analysis cannot occur without quality control. It is recommended that the officers in charge review and verify the information is complete and correct. If not, return it to the author to correct. In addition, it is recommended that ACFPD meet with the dispatch center to find ways to improve the data entry reflected in the fire records management system. Tracking unit performance is critical to a defensible report of actions in the case of litigation. Additionally, the response time objectives need to be designated as average or industry standard percentiles.

***Outcomes*:** The risk of litigation for poorly written records will be reduced. An accurate and defensible analysis of performance can be completed regularly.

***Estimated Cost*:** Staff time to review individual documentation for errors and omissions. Staff time to meet with the dispatch center to resolve data errors and improve call processing time.

Recommendation B-6: Consider creating a full-time position for EMS Program Administration.

Description: ACFPD lacks staff that is dedicated to the oversight of Emergency Medical Services programs.

Enhanced management of the EMS programs will allow for improvement to the process of EMS Continuous Quality Improvement (CQI) and the identified necessary continuing education. CQI 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 make system improvements.

Outcomes: A dedicated EMS Administrator to manage EMS training and projects would provide consistent oversight and organization of these programs and ensures compliance with state and county policies. This would allow for continuing education that is currently being offered by other agencies to be brought in-house, including Advanced Cardiac Life Support (ACLS) and Pediatric Advanced Life Support (PALS). It would allow for better planning and integration of EMS education with current fire department training. The position will allow for improvements in the current quality improvement program, including oversight of peer reviews, chart audits, and district-desired quality improvement projects. This position would allow for future growth in EMS systems, including community paramedicine and mobile integrated healthcare.

Estimated Cost: Total salary and benefits is approximately $154,100 annually.

Recommended Long-Term Strategies

The short and mid-term strategies discussed will move the organization forward substantially. A longer-term, high-level view of future needs is also important to provide a "big picture" view of how the organization may continue with future initiatives. Primarily, long-term strategies are centered around community growth and related workload and how both impact the future deployment of fire stations and personnel.

Recommendation C-1: Construct a newly relocated Station 211.

***Description*:** AP Triton identified the need and a potential location for the relocation of Station 211.

***Outcomes*:** A relocated station in the vicinity of Broadway and Napa Junction Road provides additional coverage reach to the northern part of the city and the southern portion of the city.

***Estimated Cost*:** About $1,250 per square foot for construction costs, $250 per square foot for soft costs, $200 per square foot for contingency. These are approximate costs based on 2022 projections.

Recommendation C-2: Consider adding a training facility within the district.

Description: ACFPD should consider the addition of a fire training facility during the construction of a new or relocated fire station, in accordance with NFPA 1402, Guide to Building Fire Service Training Centers.

Outcomes: Constructing a state-of-the-art training facility will allow the ACFPD to provide firefighters with realistic, effective, efficient, and safe training opportunities while remaining within the district.

Estimated Costs: Approximately $3 million. The cost could be reduced if built at the same location and time as New Fire Station 211.

Section V:
APPENDICES

Appendix A: Risk Classifications

The following are the risk classifications determined by incident type.

Fire

Low Risk

These incidents are considered low in risk and are minor in scope and intensity. It requires a single fire apparatus and crew to manage fires involving passenger vehicles, fences, trash or dumpster, downed power lines, residential or commercial alarm investigations, or an odor investigation.

Moderate Risk

These incidents are the first alarm response needed to manage a moderate fire risk incident. These incidents include smoke in a building, small outside building fires, commercial vehicle fire, a single-family residence, lightning strike to a building, automatic fire alarm at a high-risk occupancy, or a hazardous materials pipeline fire.

High Risk

These incidents are a second alarm response needed to manage a high fire risk incident. These incidents include smoke in a high-life hazard property (school, skilled nursing, etc), single-family residence with injured or trapped victims, multi-family residential building, or a moderate-sized commercial/industrial occupancy.

Maximum Risk

A third alarm response is needed to manage a maximum fire risk incident. These incidents include a hospital, assisted living facility, fire in an apartment building, high-rise building fire, a large commercial or industrial occupancy, hazardous materials railcar or storage occupancy. Incident assignments will include additional command staff, recalling off-duty personnel, mutual aid assistance for other critical tasking needs.

EMS Risks

Low Risk

A single EMS unit can manage a low-risk EMS incident involving an assessment of a single patient with a critical injury or illness, no-life threatening medical call, lift assist, or standby.

Moderate Risk

A two-unit response is required to control or mitigate a moderate risk EMS incident. It involves assessing and treating one or two patients with critical injuries or illnesses or a motor vehicle crash with 1–2 patients.

High Risk

A multiple-unit response is required to control or mitigate a high risk EMS incident. It involves 3-8 patients with injuries ranging from minor to critical. Patient care will involve triage, BLS, ALS treatment, and a coordinated transport of patients.

Maximum Risk

A multiple unit response is required to control or mitigate a maximum risk EMS incident. It involves more than nine patients with injuries ranging from minor to critical. Patient care will involve triage, BLS, ALS treatment, and a coordinated transport of patients. If this is an active shooter incident, the response may require a casualty collection area unit to treat patients, not in the hot zone.

Technical Rescue

Low Risk

A single fire unit can manage a low-risk technical rescue incident involving rescues that are minor in nature, such as a child locked in a vehicle, elevator entrapment, or minor mechanical entrapment.

Moderate Risk

A two-unit response is required to control or mitigate a moderate technical rescue risk incident. Support is not usually required from a technical rescue team. This type of incident involves a motor vehicle crash that requires patient extrication, removal of a patient entangled in machinery or other equipment, or a person trapped by downed power lines.

High Risk

A multiple-unit response is required to control or mitigate a high risk technical rescue incident. This type of incident may involve full-scale technical rescue operations ranging from structural collapse to swift water rescues. It may involve multiple motor vehicles that require extrication, commercial passenger carriers, or a vehicle impacting a building. Support is usually needed to be required from a technical rescue team. This incident may require multiple alarms.

Maximum Risk

A multiple-unit response is required to control or mitigate a maximum risk technical rescue incident. Support is required from a specialized technical rescue team and may have multiple operations locations. This type of incident will involve full-scale technical rescue operations such as victims endangered or trapped by structural collapse, swift water, or earth cave-ins. This incident will require multiple alarms and may expand beyond the identified critical tasking. Recall of off-duty personnel or assistance from auto or mutual aid may occur during a disaster or when additional alarms and command staff are needed.

Hazardous Materials

Low Risk

A single fire unit can manage a low-risk hazardous materials incident involving carbon monoxide alarms and other unknown hazmat investigations without symptomatic victims, less than 20 gallons of fuel, natural gas meter incident, downed power lines, equipment or electrical problems, or attempted burning. Automatic alarms that may originate from a hazardous material.

Moderate Risk

A two-unit response is required to control or mitigate a moderate risk hazardous materials incident. Direct support is not usually required from a hazardous materials team. This type of incident involves a carbon monoxide alarm with symptomatic patients, a fuel spill 20–55 gallons, or a gas or petroleum products pipeline break not threatening any exposures.

High Risk

A multiple-unit response with a hazmat team is required to control or mitigate a high risk hazardous materials incident. Support is needed for a Level 2 hazmat incident that involves establishing operational zones (hot/warm/cold) and assigning multiple support divisions and groups. This response includes a release with 3–8 victims, gas leaks in a structure, hazmat alarm releases with victims, flammable gas or liquid pipeline breaks with exposures, fuel spills greater than 55 gallons, fuel spills in underground drainage or sewer systems, transportation or industrial chemical releases, or radiological incidents. Additional assistance may be required to expand operations past the identified critical tasks.

Maximum Risk

A multiple-unit response is required to control or mitigate a maximum risk hazardous materials incident. Support is required from an on-duty hazmat team and their specialized equipment. This type of incident involves establishing operational zones (hot/warm/cold) and assigning multiple support divisions and groups. Examples include nine or more contaminated or exposed victims, a large storage tank failure, hazmat railcar failure, or a weapon of mass destruction incident. This incident will require multiple alarms and may expand beyond the identified critical tasking. Recall of off-duty personnel or assistance from auto or mutual aid may occur during a disaster or when additional alarms and command staff are needed.

Wildland Urban Interface

Low Risk

A single fire unit can manage a low-risk wildland firefighting incident involving a fire minor in scope, structures not threatened, and Red Flag conditions do not exist. These include low risk wildland or grass fires, including an outside smoke investigation, illegal or controlled burns, or small vegetation fires.

Moderate Risk

Multiple units are needed to manage a moderate risk wildland firefighting incident involving a significant fire in brush, brush pile at a chipping site, grass, or cultivated vegetation. Red Flag conditions do not exist, and structures may or may not be threatened.

High Risk

Multiple units or alarms are needed to manage a high risk wildland firefighting incident. The level is associated with Red Flag warnings with structures that may or may not be threatened. This fire involves a significant wildfire in brush, grasses, or cultivated vegetation. And woodland areas. Additional alarm assignment, command staff, recall of off-duty personnel, and mutual aid assistance may require the operations to extend beyond the identified critical tasks.

Appendix B: Strategic Partners—Stakeholder Interviews

Introduction to the Stakeholder Interviews

Triton interviewed a wide variety of the American Canyon Fire District's 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 in this report. Based on the information reviewed, the team identified a series of observations and recommendations, and felt they were significant enough to be included in this report.

Stakeholders were identified within the following groups: Elected Officials, City Management, Department Heads, Chief Officers, Labor Leaders, Rank & File, and Administrative Staff. Identified Business and Community Leaders, Community Members, and Community Volunteers completed an electronic stakeholder survey.

Elected Officials, City Management, Department Heads

What strengths contribute to the success of the fire district?

- Good, solid property tax base
- Good Communication—providing road closures, recycled water for fire suppression, having a coordinated effort
- Very community-oriented
- Accessible and approachable
- Small but manageable
- More leeway than a city–able to act as a business
- Good facilities and equipment
- The size of the district
- Leadership at Chief Level and recruitment of Assistant Chief

- Passionate about serving the community with high standards of care
- Strong connection between Chief and Board,
- Stable budget
- Strong employee relationships
- Goodwill with community
- Broad array of services
- Being a district presents opportunities for growth and budget stability
- Being small allows change to happen easier
- Response times—a collaboration with Police Department
- Communication with weekly Land Use Development meetings

What does the district do well?

- Memorializing processes, i.e., hydrant program
- Responds well from an operational standpoint
- Collaborative with mutual aid efforts
- Strength in community engagement
- Collaboration with city departments is phenomenal
- Working as team players
- Transparent—mutual respect
- Prioritize the safety of the community
- Very engaged in the community—very visible
- Good response times
- Community engagement and outreach
- Balanced budget
- High level of care to the community
- Good training programs
- Public education and outreach—good operationally

What are some areas in which you think the district could make improvements?

- Reputation with surrounding agencies—lacking in certain training
- Identity crisis—only fire district in the county and not recognized as such

- District lacks diversity
- Need to be treated as two separate entities with correct governance and oversight
- Stability in leadership
- Mid-management staffing
- Need additional and/or replace facilities
- Improve hierarchy and leadership in the stations
- Make new hires feel welcome
- Improve station oversite
- Succession planning (Firefighter to Chief)
- Improve political relationship with the County
- Improve the relationship between City Building Department and Fire District Prevention staff
- Continue to improve relationships with neighbor departments
- Add Battalion Chief positions
- Train more with PD on Active Shooter/Natural Disasters
- Participation between City and FD in disaster planning
- Update training programs
- Find out why we are losing probationary firefighters

What opportunities, in your view, are available to improve the service and capabilities of the district?

- Improve reputation with surrounding agencies by training more
- To market the district as a district
- Capitalizing on funding mechanisms—constantly reevaluate options
- Provide succession planning at all ranks
- Utilize reserve firefighters to augment staffing
- Evaluate adequate resources to sustain growth
- Maximize revenue potential with increased development
- Investing in our people, equipment, and facilities
- Expand knowledge base in medical care and better continuing education (medical)

- Provide ambulance service
- Having the budget to support needed staffing
- Having the culture to move forward
- Getting County Chiefs group meeting again and working together on issues like possible County Wide collaborations and ambulance service
- Improve chain of command (Battalion Chiefs)
- Better understanding of roles and responsibilities and limitations of Sheriff, PD, City, and fire district
- Annex new development areas into fire district
- Participate in the review process of new development
- Look for possible consolidations

Please share your thoughts with us regarding staffing utilizing 12-hour shifts and peak-hour units.

- Need to fully staff the district prior to considering
- Yes, if it is a priority for the public
- Worthwhile to explore

What do you see as the top critical issues faced by the fire district today?

- Staffing, training, administration
- Fleet maintenance—formalizing agreements between the city and district
- Internal confidence—chief v. labor
- Future revenue and spending
- The ability to enhance ALS delivery
- Growth of the district
- Ensuring adequate staffing
- Ambulance contract
- Benchmarking—being compatible with other departments—mutual aid
- Defining the ALS platform/program
- Leadership—from the captain and above
- New facilities
- Internal discord (station level)

- Leadership development
- Filling vacant positions
- The need for Battalion Chief positions
- Prepare for changes in EMS
- Stability in leadership and creating a succession plan
- Being prepared for coming growth
- Ensuring proper planning and fees are in place on developments
- Maintain good response times
- Hiring of personnel
- Maintain high training level
- Keeping current positions filled
- Provide quality ambulance service
- Long-term budget stability

If you could change one thing in the fire district, what would it be?

- Improving lines of communication
- Standalone Board of Directors
- One government structure
- Building trust between labor and management
- Better connection with diverse demographics of the community
- Ensure the new Chief can continue to move the district forward
- Improve middle management
- Board having a better understanding of sentiment of employees

How would you describe the level of services provided by the fire district?

- Training and hands-on fire experience need improvement
- Response times seem to be good
- Good interaction with others
- Five—top-notch
- Need to improve training, i.e., water rescue, hazardous materials response
- Excellent service!

- Very Responsive staff—always available
- Awesome! "the city" looks at our district as doing a very good job.
- 9.5—haven't heard too many complaints regarding the department
- Very Good
- Very well connected to the community
- Excellent, they have a high level of training
- Good
- Great
- Eight or 9 on 1–10 scale—good job

What, in your opinion are some opportunities to improve service and or coordination within the county?

- Using County Chiefs to improve relationships
- Unify training
- Improve auto and mutual aid agreements
- Better communication regarding AARs
- Enhance the district's identity
- Boundary drops
- Realignment of the district with potential annexes
- Reduce the bureaucracy
- Communication between the entities—better marketing of the current model
- Increased EMS services
- Partnering in infrastructure (dispatch)
- EOC opportunities/EM involvement

Chief Officers, Labor Leaders, Rank & File, Administrative Staff

What strengths contribute to the success of the American Canyon Fire District? What do you do well?

- The people are engaged in the community
- Want to provide the best service they can
- Equipment is modern and in good shape
- ALS service is beneficial

- The family atmosphere—a tight-knit organization
- The community embracing the district—the history
- Growth of the district, between the chiefs and the board; board and community
- Agility and engagement with the community
- Great EMS platform—engaged clinicians
- Strong community involvement
- Stable budget
- Strong employee relationships because of the small agency
- It's a tight-knit community and the firefighters really try to be part of it
- Community involvement
- Our People—supportive Board
- They hire the right people

What are some areas in which you think the district could make improvements?

- Finding a way to aspire acting captains to promote (succession planning)
- Increase staffing levels
- Better communication with Finance Department
- Generational development
- Dispatching services
- Hire Battalion Chief's
- Additional support personnel
- Hire in-house fire prevention staff
- Succession planning
- Need actual job descriptions
- Need internal communication with goals and vision
- Staff mid-management positions
- Budget for Medical Director
- Keep quality up as growth happens

What challenges do you see in making the improvements?

- Motivating personnel to take the initiative to be in a leadership role
- Budgetary constraints
- Recruiting qualified people
- The time needed to change—succession planning
- Political will
- Retention of probationary firefighters
- Scars from the past causing a lack of trust
- Not having policies or constantly following them
- The culture of floor personnel not being welcoming to new hires
- Hiring Paramedics during a national shortage

What opportunities, in your view, are available to improve the service and capabilities to the district?

- Provide more personnel to the county-wide HazMat team
- Engaging personnel with enhanced training (fire, EMS, rescue)
- Expansion of funding opportunities
- Budget to add personnel for future growth
- Changing Chief Officers
- Update fee schedule to reflect costs
- Establish Fire Safe Council
- Increase ambulance service
- Improve training
- Budget growth with new construction
- Letting support staff attend training like PIO, PERS, etc.
- Community engagement—highlight EMS presence

What do you see as the top critical issues faced by the fire district today?

- increased workload
- work-life balance
- Staying up with growth
- Lack of staffing—line and administrative

- Communication
- Lack of facility space
- Leadership—succession planning
- Identifying funding mechanisms for anticipated growth
- Culture—having a common vision for moving forward
- Expanding ALS service outside the district
- Operations staffing—add battalion chief positions
- Vacant positions impact the ability to train or perform other functions
- Not performing annual permit inspections
- Need to perform Community Risk Reduction analysis
- Develop an Arson Investigation program
- Filling vacant and for future growth
- Equipment replacement
- Moral and leadership of floor personnel
- Lack of standardization
- Stability of leadership
- Recruitment of Paramedics—competitive pay
- Planning for the rapid growth coming soon

Please share your thoughts/ideas regarding alternative staffing models and dynamic deployment.

- Depending on where the growth of the district is going
- Need appropriate staffing—look at call demand
- Need to increase current staffing before embarking on other programs
- Fire service needs to move past 24-hour shifts to provide top-level service
- Open to talking about it
- We should use reserves for peak staffing
- Could be an opportunity for recruitment

If you could change one thing in the district, what would it be?

- Add more staff
- Hire a Public Educator

- Add mid-management staffing and support
- Add administrative staff
- Evaluate staffing structure (chief officers)
- Engaging Captains to do more
- Develop an In-house fire prevention program
- Have a clear Vision and Mission
- Reclass personnel to match their job duties
- Chief Officer succession plan

How would you describe the level of service provided by the fire district?

- Top of the line compared to our size
- Excellent—great response time and great bed-side manner
- Excellent, responsive, professional
- EMS service is fantastic
- Very good—we do a lot for a small organization
- Prevention provides good service
- Above average for EMS and below average on fires
- Would rather be hurt here than anywhere else
- Very good

What, in your opinion, are some opportunities to improve service and or coordination within the county?

- None that I can think of
- Need to formalize contracts for various services
- Improved EMS delivery system
- Looking at neighboring agencies for coverage
- ALS County-wide—but not into consolidation
- County Fire Marshals need to meet to work together
- Regional training
- Providing ambulance service
- County-wide PIO program

Business and Community Leaders, Community Members, & Community Volunteers

Have you had any recent official contact with your fire district? If so, can you tell us about it?

- No, we have not had any recent contact.
- No (4)
- I work closely with the American Canyon Fire protection district. The district is small but is a vital part of the fire department system in Napa County.
- Yes. Permitting a building at Napa Junction

Describe your expectations of the fire district?

- To arrive asap and come prepared for any type of emergency.
- Quality training and modern equipment
- My expectation is that they will be well prepared to respond to emergencies within and around American Canyon.
- To provide professional and skilled fire personnel
- Not much
- They would respond quickly if a fire is reported
- Accessible with quick response times

Which of these expectations is not being met to your satisfaction?

- They have met all our expectations.
- N/A
- None—every encounter I have had with our fire department has been positive.
- Staffing levels in the city could be improved
- More preventative care for the wildfire prevention, cutting of trees, bushes, overgrown areas.
- None (2)

What do you think the fire district is doing particularly well?

- Keeping our community safe by responding quickly
- Staffing and response times

- Members of our fire district are community oriented, seem well-prepared, and are responsive. They are visible in our community and participate in events such as The Reindeer Run, Meet Me in the Street, and the high school Citizens' Academy. Personally, I think they are terrific!
- Provide a full service fire department
- Keeping community safe
- Everything. They are consistently training their firefighters, very visible, and friendly.
- Yes

Are there services that you think the district should be providing that they are not now?

- No (3)
- I would love for them to provide CPR training to our teens. However, I don't know if that falls under their job description.
- They can re-engage in the rescue team element.
- More outreach and community engagement.
- Not that I can think of.

Are there services the district is providing that you think should be discontinued or done differently?

- No (4)
- Nope!
- Not that I am aware of.

When you dial 911 to report an emergency, how long should it take for help to arrive?

- They should arrive within 5 mins
- under 10 min
- That is a relative question. Of course, everyone wants them to arrive immediately!
- 3–5 minutes for residential areas and 7–14 minutes for the outlying areas
- Within 5 mins
- 3 minutes
- 4–5 minutes

Does that expectation change depending on where in the community you are located?

- Yes, if you live further away from the fire department, they should arrive as soon as possible if cannot be there within 5 mins.
- No.
- Of course not!
- Should not but if further out in the community, yes.
- Yes, obviously if you live further from the fire station, I would expect it may take a little longer and depending on time of day.
- Don't know.

Do you believe the first arriving response units should be staffed and equipped to take appropriate actions given the emergency?

- Yes (5)
- Absolutely. Why would they be there if they couldn't? Appropriate action may be to calm people down until other arrive... I would think every situation calls for something different.
- Yes, at a minimum they should be staffed with 3-0 on two units in the district

Additional Comments:

- American Canyon Fire Department is doing an awesome job!
- I am always happy to confirm the great job our fire department does for this community.
- I think our fire district is doing a wonderful job. As I said earlier, they are consistently training their personnel and I like the Meet the Crew on Monday.

Appendix C: Table of Figures

Appendix D: References

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