Strategic Plan and Standard of Cover

NORTH COUNTY FIRE PROTECTION DISTRICT
FALLBROOK, CA

FINAL REPORT

June 30, 2022

matrix consulting group

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Introduction and Executive Summary

North County Fire Protection District retained the Matrix Consulting Group to facilitate a master and strategic plan. This document includes the project team's research and analysis of the fire district and community that includes risk assessment, staffing, response capabilities, and deployment analysis.

Scope of Work

The scope of this study included the assessment of the current fire protection system operations, response capabilities, staffing, and other resources necessary for the delivery of services to the district. A review of services and the delivery of those services should be performed periodically to ensure needs are being met. This project focused on the emergency services system delivery that included:

- Response capabilities.
- Response time analysis.
- Resource locations.
- Available resources to serve the district.
- Staffing and manpower.

The approaches used in this study were comprehensive as described below.

Approaches Utilized in the Study

To understand and evaluate service level issues facing the North County Fire Protection District, the project team undertook an assessment of the district. The principal approaches utilized by the project team in this study included, but were not limited to, the following:

- Internal Interviews – members of the project team individually interviewed numerous executives, management, and supervisory staff of the fire district.
- Internal interviews were supplemented with an anonymous online employee survey.
- Data Collection – the project team collected a wide variety of external and internal data documenting the structure, operations and organization, including:
  - Fire District staffing and scheduling.
  - Documentation reflecting operations management.

  - Numerous output data points reflecting services provided.
  - Various other performance information and indicators.
- This data was summarized in a 'descriptive profile' of the fire district, which was reviewed and modified by district staff to ensure we had a factual foundation for the study. This approach ensured that the project team had an appropriate understanding of the Fire District.

Data was collected over the past several months and presented in interim deliverables. Throughout this process, the project team reviewed facts, findings, and conclusions through these interim deliverables with the Fire District.

Executive Summary

The North County Fire Protection District provides emergency services to an area in the northwest corner of San Diego County and covers an area of approximately 90 square miles and an estimated 52,000 residents. The services include, but are not limited to fire suppression, fire prevention, public education, fire investigation, and emergency medical services.

Based on the Housing Needs Assessment produced by San Diego County, population growth is expected to be in a range of 27% in Fallbrook to 38% in Bonsall through 2050. New development in the district is expected along the I-15 corridor providing easy access to the transportation corridor. The district is described as a semi-rural area with a series of hills, valleys, and drainage areas. Currently new residential type construction is more of adding structures to the same lot or parcel and not subdividing the lots or parcels. Potentially this will increase the population density in certain areas of the district. The public roadway network is also limiting some of the new growth and creating issues for public safety access as the semi-rural area becomes more densely populated. The roadway network is a typical rural design largely with two-lane roadways that are also narrow and somewhat curvy.

Challenges ahead for the North County Fire Protection District begin with the physical resources of the district. An effective and efficient facility maintenance program has been lacking over the past several years due in large part to funding. This has led to several facilities needing extensive repairs and renovations. However, Station 2 is currently undergoing a major renovation to the interior living quarters and Station 3 has been approved for renovation. Station 4 remains as a temporary facility that has outlived its useful life and will need to be replaced. As well, there may be opportunities for Station 1 as that parcel is larger and may become a source of funding for a new facility. Once the facilities are addressed, the maintenance and replacement of building components will also require funding.

A second challenge for the district is the replacement of apparatus and vehicles and the funding for those replacements. As is noted in this report there are several mechanisms that can be used to provide the funding for these endeavors. Many organizations find it advantageous to use the lease-purchase option taking advantage of the lower interest rates. Others will develop and fund replacement accounts to provide the necessary funding for the replacements. In either case, it is essential the Board establishes the mechanism for the funding for the facilities and the apparatus replacement for the future of the organization.

In addition to the challenges of physical resources, the anticipated growth of the district presents another challenge. The growth in both population and buildings and structures will be largely predicated on the economic conditions. However, since the pandemic, may companies have learned to operate remotely with many employees working from home and not necessarily needing a physical office space. This allows the employee to live virtually anywhere including further away from the urban cores and larger cities. The fire district will need to begin preparations now for an influx of new residents and housing. This should include establishing performance objectives to direct the need for additional resources such as facilities, personnel, and apparatus. Using the performance objectives to trigger when these new resources will be needed the fire district can begin to plan ahead. As well, realizing these additional resources will be needed, establishing a funding mechanism should also be considered.

Strategic Improvement Opportunities

The following table provides a summary of goals established in this report. The report itself should be reviewed to understand the factual basis behind each goal as well as the analysis leading to each goal and the related objectives.

SUMMARY OF GOALS

ADMINISTRATIVE AND ORGANIZATIONAL	
Goal 1	Improve the revision process for policies and procedures of the Board of Directors, administrative, and operational personnel to reduce organizational risk.
Goal 2	Continue to monitor and sustain the succession plan for the management and leadership of the North County Fire Protection District.
Goal 3	Monitor and sustain the existing mentoring program to provide support to new officers and in support of the succession plan.
Goal 4	Reassess the vision statement, mission statement, and core values using an internal group of stakeholders of the fire district.
EMERGENCY OPERATIONS	
Goal 5	Revise and improve the current emergency services organizational statement to better inform the public and provide guidance to the fire district for emergency service delivery.
Goal 6	Continue to support the North Regional Zone and enhance the collaboration between agencies in various areas to includes training, prevention, risk reduction, and outreach.
Goal 7	Improve the turnout time performance of the response time continuum.
Goal 8	Improve the travel times in the central sections of the fire district.
Goal 9	Improve the concentration of resources to create an effective response force for the various types of calls for service in the fire district.
Goal 10	Evaluate the ambulance delivery system in the Fire Protection District.
ESSENTIAL FUNCTIONS	
Goal 11	Improve the delivery of training programs to the personnel in the North County Fire Protection District.
Goal 12	Increase fire prevention inspection and public education efforts in the North County Fire Protection District.
PHYSICAL RESOURCES	
Goal 13	Continue to improve the facilities of the North County Fire Protection District.
Goal 14	Continue to fund a reserve fund for the replacement of apparatus and vehicles used by the North County Fire Protection District.

Goal 15	Establish a specific reserve fund for the maintenance and replacement of facility components.
Goal 16	Address the necessity for long-term funding for infrastructure needs of the Fire Protection District to include facilities and apparatus.

Organization and Overview

This chapter provides an overview of the general characteristics of the North County Fire Protection District and the service area.

Background and Overview

Located in the northwest section of San Diego County along I-15, North County Fire Protection District borders Camp Pendleton to the west and Riverside County to the north. Fallbrook, Rainbow, and Bonsall are the three communities within the fire protection district that are approximately 15 miles east the Pacific coastline

North County Fire Protection operates from five (5) fire stations providing service to approximately 90 square miles. In addition, emergency medical services are provided to approximately 40 square miles outside the primary service area. The primary service area has an estimated population of 52,000 residents making the overall population density approximately 577 persons per square mile.

Governance of the fire protection district is provided by a Board of Directors with members elected to serve four-year staggered terms. Until 2020, members were elected at-large in the fire protection district. Beginning with the 2020 elections there five (5) election districts with election districts 1, 4, and 5 to be elected in 2020 and election districts 2 and 3 to be elected in 2022. These changes were made to help strengthen the representation of the communities served by the North County Fire Protection District.

Demographic Profile

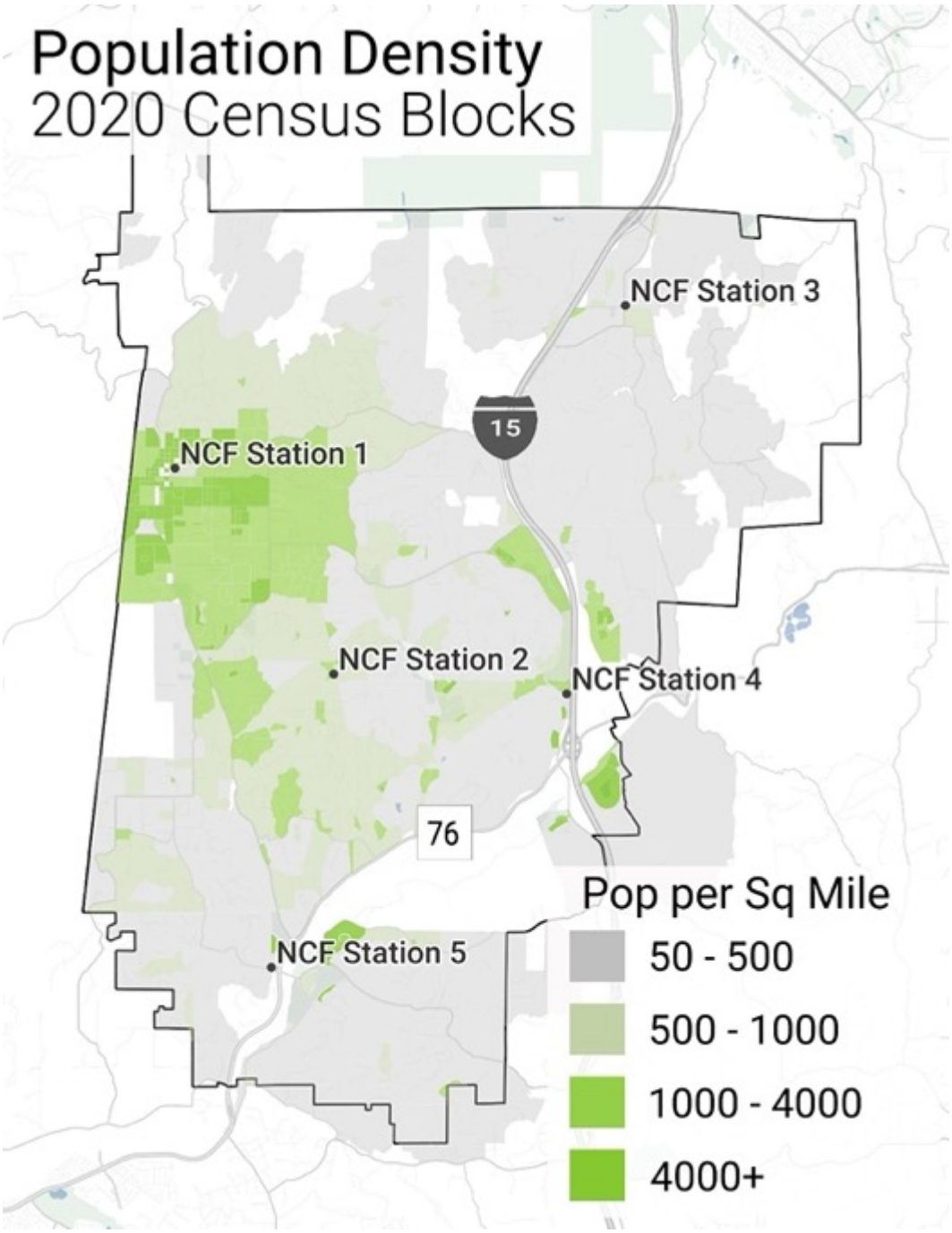
The following table illustrates the demographic profile of the North County Fire District areas and changes that have occurred since the 2010 Census.

North County Fire Protection District Demographic Profile

US Census Bureau	2010	2015	2020
Estimated Population	47,697	48,673	52,487
Median Age	40.4	42.7	42.5
Children Under Age 5	6.0%	6.3%	6.5%
Children Ages 5 to 19 years	20.0%	16.3%	16.7%
Persons Age 20 to 59 years	50.7%	51.0%	48.3%
Persons Age 60 and Over	23.3%	26.4%	28.5%
Employment Sectors:			
Education, Health Care, Soc. Svc.	15.9%	17.9%	21.2%
Retail Trade	9.8%	13.0%	8.8%
Professional, Scientific, Mgmt.	12.5%	12.5%	12.9%
Finance, Insurance, Real Estate	6.8%	5.5%	6.1%
Entertainment, Recreation, Food	8.8%	8.5%	8.8%
Construction	11.6%	7.7%	9.0%
Manufacturing	8.9%	9.6%	7.9%
Transportation, Warehousing, Util.	4.3%	3.4%	3.2%
Public Administration	4.6%	4.7%	5.0%
Other Services	5.1%	5.3%	6.8%
Wholesale	4.3%	3.5%	2.0%
Information	1.6%	1.7%	1.3%
Agriculture, Forestry, Fishing	5.7%	6.8%	6.9%

Since 2010, the population of the district has increased approximately 10% adding an estimated 4,790 residents. The median age has remained consistent at approximately 42 years old with small fluctuations in the various age groups.

The following map provides a view of population density by block groups.



Fire District Organization

Firefighting operations in the Fallbrook area date back to the late 1800's with a bucket brigade. Through the early 1900's various organizations provided fire suppression services including the California Division of Forestry and the Fallbrook Volunteer Fire

District. Donations from the citizens and civic organizations provided financial support to continue operations and equipment. Interestingly, in 1948 the Fallbrook Volunteer Fire District was one of the first fire agencies to use short wave radios between units, units to station, and from units to aircraft.

In 1949, a group of citizens formed a committee to establish a local fire district and in 1953 the Fallbrook Local Fire District was formed. Following changes in the state law, the Fallbrook Local Fire District was reorganized as the Fallbrook Fire Protection District. A new station was eventually constructed on East Ivy Street with another station on Winterwarm Drive. In 1987 the Fallbrook Fire Protection District reorganized again with the Rainbow Volunteer Fire District (CSA-7) to form the North County Fire Protection District.

Vision Statement:

It is our shared vision to be a trusted and respected public safety leader, committed to ensuring the safest community possible through service, collaboration and innovation.

Mission Statement:

The Mission of North County Fire Protection District is to meet our community's expectations through excellence in public safety and service. It is our shared vision to be a trusted and respected public safety leader, committed to ensuring the safest community possible through service, collaboration and innovation. We are dedicated to saving lives and protecting property.

Values of the North County Fire Protection District:

DUTY:

- We believe safety is of the utmost importance.
- We are committed to being financially stable, sound and responsible; effectively applying resources to achieve the Mission.
- We are progressively minded, constantly monitoring the environment, identifying and applying new concepts.

INTEGRITY:

- We are committed to a culture of individual and organizational continuous improvement.
- We cultivate professionalism of the highest quality within our workforce.

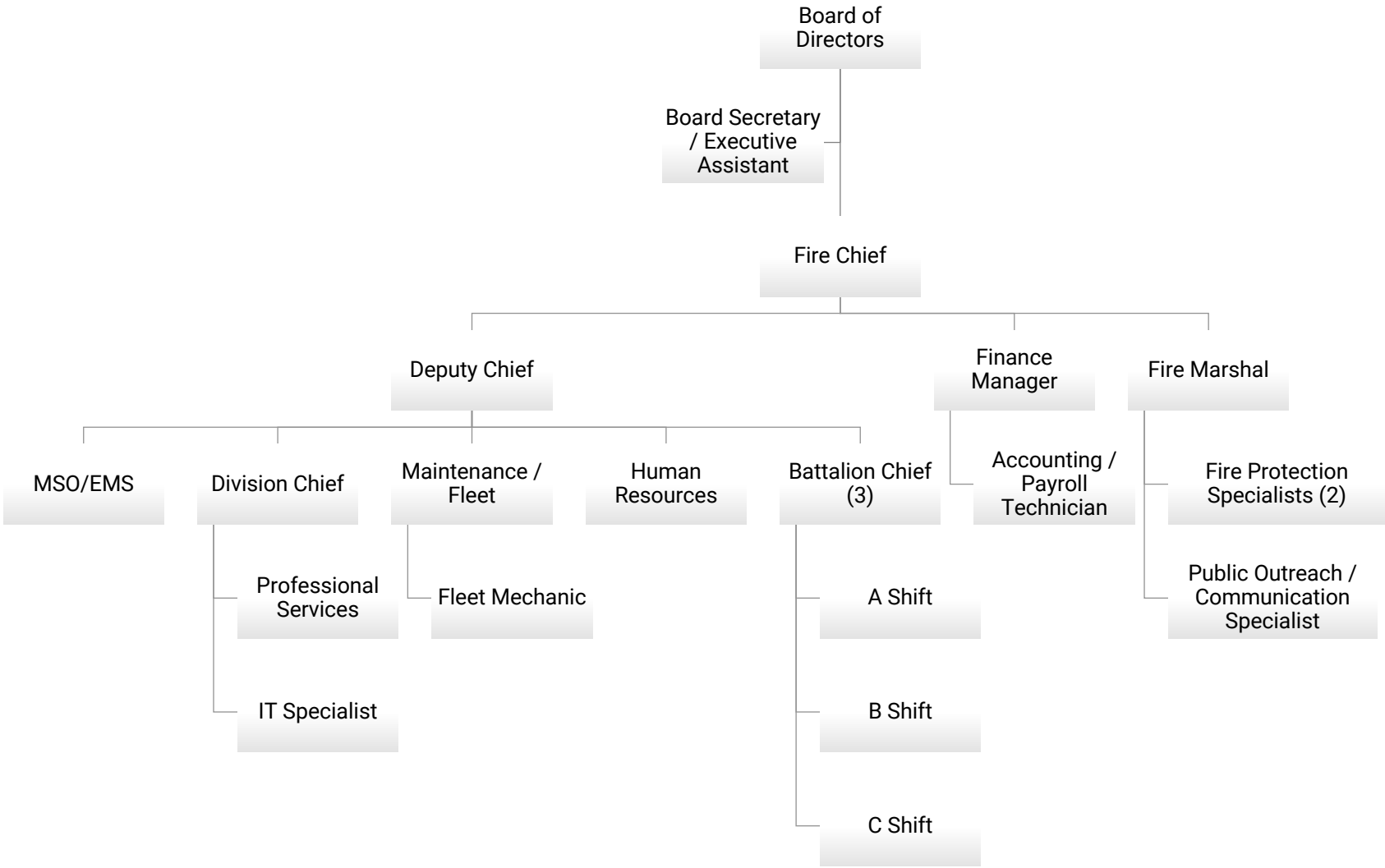
- We believe that diversity in our workforce is important to the success of our organization.

RESPECT:

- We value and respect our customers, both internal and external.
- Empowerment, collaboration, trust and teamwork are at the foundation of how we accomplish our Mission.
- We value an enjoyable and rewarding workplace.
- Open, effective and complete communication is the foundation on which all our values are built upon.

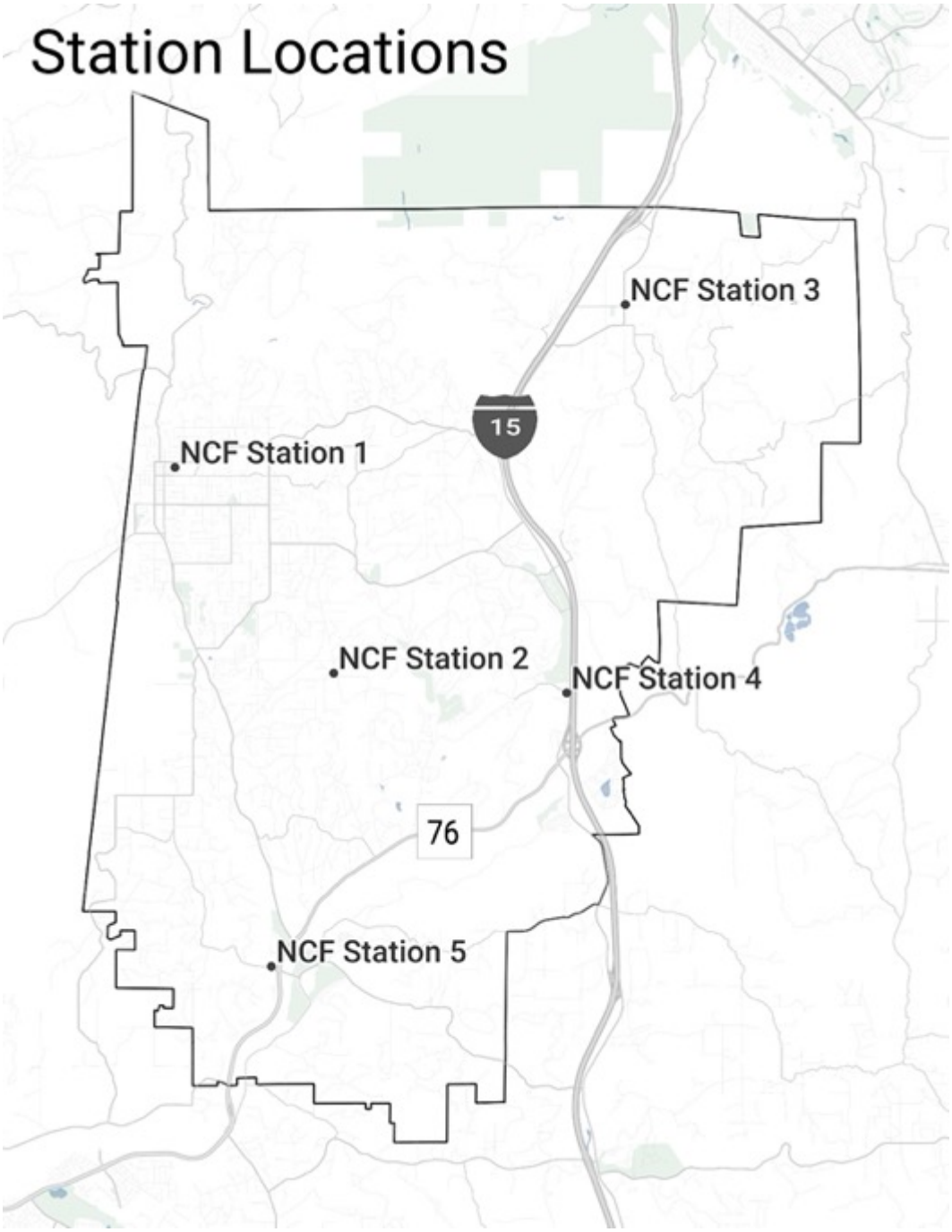
The organizational chart that follows illustrates the current Fire District organization.

North County Fire Protection District Organizational Chart



Physical Resources

Service to the fire district is provided from five fire stations located throughout the district. The following map illustrates the location of the fire stations.



North County Fire Protection District operates on a three (3) platoon system, working 48 hours on and 96 hours off. Staffing for each shift is twenty-two (22) personnel (including

a Battalion Chief). The tables that follow illustrate the apparatus and staffing for each of the five stations, administrative, and reserve apparatus.

Fire Station 1 - Fallbrook

315 East Ivy Street

Description of Use	Serves as the Headquarters Fire Station and fleet maintenance facility. This station provides service to the downtown Fallbrook community in the northwest corner of the district.				
Apparatus Space	Three bay drive through				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	Battalion111	2017	Ford F250	Command	1
	Engine 111	2019	Pierce Arrow XT	Type I Engine	3
	Medic 111	2020	Ford E450/Lifeline	ALS Ambulance	2

Fire Station 2 - Fallbrook

2180 Winterwarm Drive

Description of Use	Located in the central section of the Fallbrook community providing service to Winterwarm area.				
Apparatus Space	Two Bay drive through				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	Engine 112	2012	Pierce Saber	Type I Engine	3
	Brush 112	2002	Pierce/International	Type 3 Engine	

Fire Station 3 - Rainbow

2309 Rainbow Valley Blvd.

Description of Use	This facility is located in the northeast section of the district in the Rainbow community providing service to Rainbow and areas south of the Rainbow community.				
Apparatus Space	Three Bay drive through				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	Engine 113	2008	Pierce Arrow XT	Type I Engine	3
	Brush 113	2002	Pierce/International	Type 3 Engine	

Fire Station 4 - Pala Mesa

4375 Pala Mesa Drive

Description of Use	Providing service to the Pala Mesa area of the district, this station is located near the I-15 corridor in the southeast section of the district.				
Apparatus Space	Three Bay				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	Engine 114	2012	Pierce Arrow XT	Type I Engine	3
	Medic 114	2018	Ford E450/Lifeline	ALS Ambulance	2
	Brush 114	2018	BME/International	Type 3 Engine	

Fire Station 5 - Bonsall

5906 Olive Hill Road

Description of Use	This facility is located in the southwest section of the district providing service to the Bonsall community.				
Apparatus Space	Three Bay drive through				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	Engine 115	2019	Pierce Arrow XT	Type I Engine	3
	Medic 115	2018	Ford E450/Lifeline	ALS Ambulance	2
	OES 306	2019	HME/Ahrens Fix	Type I Engine	

Administrative and Reserve Apparatus

315 East Ivy Street

Assigned Apparatus	Year	Description	Type
	2020	Ford Escape	Support
	2021	Ford Explorer	Command
	2017	Ford Explorer	Command
	2008	Ford Expedition	Command
	2008	Ford Expedition	Fire Prevention
	2005	Ford Explorer	Fire Prevention
	2018	Ford Explorer	Fire Prevention
	2000	Ford F450	Fleet Maintenance
	2003	Ford F150	Fleet Maintenance
	2008	Ford Expedition	Reserve
	2005	Ford Expedition	Reserve
	2017	Ford E450/Lifeline	Reserve Ambulance
	2009	Chevrolet G4500/Lifeline	Reserve Ambulance
	2007	Chevrolet 2500	Reserve Battalion
	2006	Pierce Dash	Reserve Engine
	2003	Pierce Dash	Reserve Engine
	2001	Ford F150	Utility
	2002	Ford F150	Utility
	2008	Ford Expedition	Utility

Historical Workload

The Fire District responds to emergency and non-emergency calls for service. The following table illustrates the activities of the district grouped by the type of call or detail in the North County Fire Protection District.

Calls for Service by Type

	2018	2019	2020	Total	Pct.
Auto Accidents	512	496	462	1,470	8.9%
Medical Calls	3,652	3,807	4,010	11,469	69.4%
Total Medical and Auto Accidents	4,164	4,303	4,472	12,939	78.3%
Fire Alarm - Residential	86	71	79	236	1.4%
Fire Alarm - Multi-Family	2	6	17	25	0.2%
Fire Alarm - Commercial	85	80	77	242	1.5%
Mutual Aid/Move Up Calls	34	45	42	121	0.7%
Other Type Fire	33	24	37	94	0.6%
Smoke Scare	124	78	108	310	1.9%
Structure Fire - Residential	29	39	40	108	0.7%
Structure Fire - Multi-Family	8	2	5	15	0.1%
Structure Fire - Commercial	8	7	9	24	0.1%
Vegetation/Brush/Debris Fires	120	81	106	307	1.9%
Vehicle Fire	68	64	70	202	1.2%
All Fire Calls	597	497	590	1,684	10.2%
Rescue Calls - Extrication	39	61	61	161	1.0%
Rescue Calls - Other	2	4	5	11	0.1%
Rescue Calls - Technical	3	0	0	3	0.0%
Rescue Calls - Water	0	1	1	2	0.0%
All Rescue Calls	44	66	67	177	1.1%
Aircraft Emergency	0	0	1	1	0.0%
Auto Aid - EMS	4	0	0	4	0.0%
Auto Aid - Hazardous Condition	4	0	0	4	0.0%
Auto Aid - Structure Fires	2	0	0	2	0.0%
Hazardous Conditions	127	126	130	383	2.3%
Service Calls	427	475	431	1,333	8.1%
Other Type of Calls	564	601	562	1,727	10.4%
Total Calls for Service	**5,369**	**5,467**	**5,691**	**16,527**	

Overall, medical calls account for approximately 69% of the call volume with auto accidents adding another 9% to that call volume. Hazardous conditions and service calls represent approximately 10% of the total call volume.

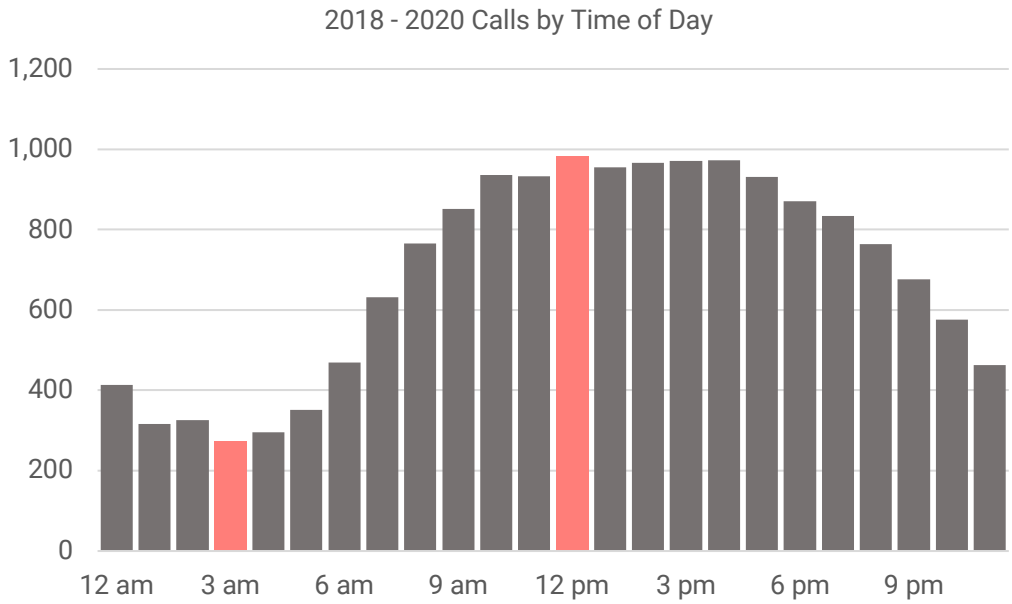
The following table displays the total number of calls for service handled by the North County Fire Protection District by each hour and day of the week for the past three years. Both emergency and non-emergency calls were included to provide an overall view of the call demand on the fire protection system.

Calls for Service by Hour and Weekday

	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Total
12 am	74	57	47	55	51	55	75	414
1 am	63	40	40	35	49	46	43	316
2 am	61	49	31	47	43	43	52	326
3 am	54	43	38	37	27	35	38	272
4 am	43	44	48	28	54	37	42	296
5 am	43	46	46	55	56	56	50	352
6 am	44	67	75	91	63	67	63	470
7 am	75	73	97	92	101	101	92	631
8 am	98	115	106	114	104	118	111	766
9 am	102	134	115	132	133	124	112	852
10 am	145	150	137	104	132	114	154	936
11 am	128	126	135	138	122	136	148	933
12 pm	120	147	124	141	153	148	150	983
1 pm	130	124	129	133	143	149	147	955
2 pm	119	145	118	139	153	158	134	966
3 pm	118	128	144	125	171	151	134	971
4 pm	121	145	156	151	133	136	131	973
5 pm	112	134	132	148	137	133	135	931
6 pm	109	132	129	105	130	136	130	871
7 pm	123	107	123	108	129	113	131	834
8 pm	116	97	106	96	101	131	117	764
9 pm	90	83	94	103	95	107	104	676
10 pm	75	83	83	64	81	104	86	576
11 pm	51	46	74	71	77	68	76	463
Total	**2,214**	**2,315**	**2,327**	**2,312**	**2,438**	**2,466**	**2,455**	**16,527**

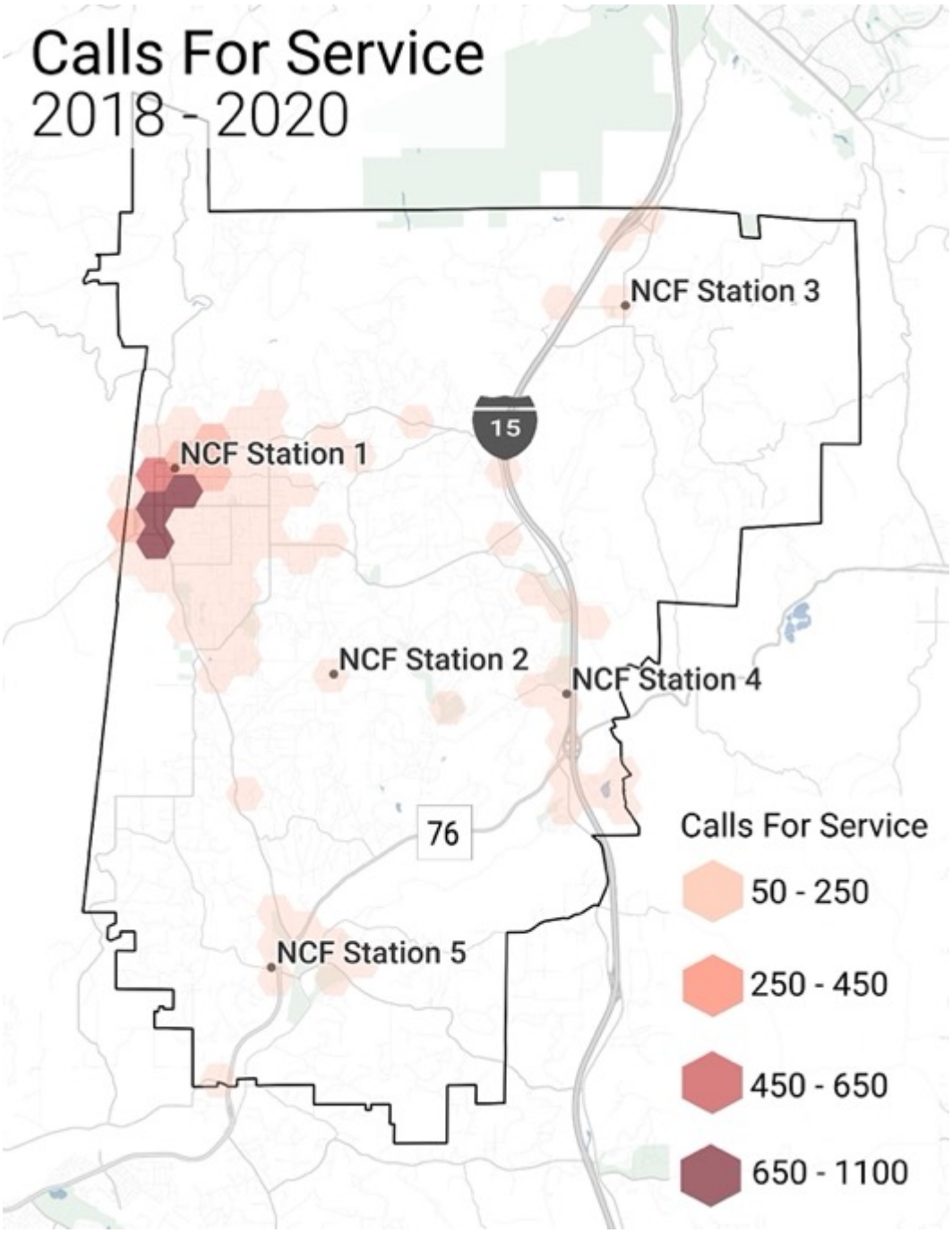
The call volume is heaviest during the middle part of the day from mid-morning into the early evening hours with every day of the week relatively even in terms of the number of calls. The calls for service varied by time of day and day of the week. The busiest hour of the day is 12 pm with the slowest hour being 3 am.

The following chart further illustrates the calls for service by hour of the day.



As illustrated, calls increase sharply at the 7 am hour peaking at 12 pm and remain steady throughout the day. The calls begin to decline at the 7 pm hour and sharply decline at the 10 pm hour with 3 am being the slowest hour of the day.

The following map illustrates the call demand using GIS technology to outline where the majority of the calls are occurring.



As illustrated, the higher volume of calls is in the Fallbrook area. There are clusters of calls in Bonsall, Rainbow, and along the I-15 corridor.

Financial Resources

North County Fire Protection District (NCFPD) is an organization formed in accordance with California state laws and regulations operating on a fiscal year ending on June 30 of each year. Budget preparation is the responsibility of the Finance Department with assistance from program managers/Chiefs. The Board of Directors adopt the budget in September of each fiscal year.

Revenue

Property tax revenue covers 91% of the District's personnel costs and 23% of operations and maintenance. NCFPD receives additional revenue from a variety of sources including ambulance fees, fire prevention fees, cost recovery, grants, etc. As illustrated general fund revenues have increased approximately 3.3% in FY19/20 and 9.5% in FY20/21.

Revenues	FY18/19	FY19/20	FY20/21
Property Taxes	$15,204,571	$15,983,497	$16,444,426
Property Taxes - RNBW	$276,551	$298,523	$332,608
Ambulance Fees	$1,865,242	$2,248,748	$2,952,915
Prevention Fees	$237,030	$210,271	$186,448
Other Revenue	$91,860	$84,053	$43,294
Reimbursements	$774,515	$266,649	$1,183,781
Restricted Funds	$587,046	$565,733	$375,478
Total General Fund Revenues	**$19,036,816**	**$19,657,474**	**$21,518,950**
Transfer from Reserves	$0	$1,852,000	$468,000
Total Revenue	**$19,036,816**	**$21,509,474**	**$21,986,950**

Expenditures

The following table illustrates the budgeted expenditures for the past three years. Note the personnel expenditures represent approximately 86% of the total expenditures.

Expenditures	FY18/19	FY19/20	FY20/21
Salaries	$6,923,594	$7,018,027	$6,630,029
Overtime	$1,561,992	$1,434,195	$2,354,200
Other pay	$972,020	$1,037,287	$923,637
Benefits	$3,885,827	$4,374,621	$4,924,763
Work Comp	$522,268	$775,517	$689,242
Personnel Expenditures	**$13,865,701**	**$14,639,647**	**$15,521,871**
Board Administration	$272,550	$445,011	$432,850
Administration	$949,251	$1,025,418	$516,792
Community Risk Reduction	$50,173	$37,475	$54,436
Operations	$267,315	$382,280	$357,495
Emergency Medical	$190,961	$218,124	$402,933
Explorers/Volunteers	$42,948	$45,250	$ -
Communications	$671,978	$623,607	$578,189
Fleet Maintenance	$296,981	$311,699	$279,216
Training	$69,299	$87,825	$55,041
Operating Expenditures	**$2,811,456**	**$3,176,689**	**$2,676,952**
Contingency Funds	$0	$0	$0
Reserve Funds	$0	$0	$1,297,716
Facilities	$0	$0	$0
CIP	$0	$0	$0
Other Funds	$0	$0	$1,297,716
Total Expenditures	**$16,677,157**	**$17,816,336**	**$19,496,539**

Personnel and operational expenditures increased approximately 5.8% between FY2019 and FY2021.

Community Contributions

The project team utilized an online survey in North County Fire District as a part of the Fire and Emergency Services Study. The anonymous survey was designed to measure resident and business views of services provided, the value of those services, and the quality of the services.

While the following sections provide a detailed analysis of the survey results, the overall themes of responses to the survey include:

- Respondents are satisfied with the response times of their service provider but at the same time have concerns about maintaining that level of service.
- Similarly, respondents are satisfied staffing and response capabilities but are concerned about maintaining those levels of service.
- Wildland threats are a concern for the residents and the need for multilingual alerts and notifications.

In addition to the online survey, a virtual town hall style meeting was held on January 26, 2022. Participation was very low with a total of 34 participants. A majority of the comments from the participants related to public outreach and that they were very satisfied with current fire services. These comments are also included in this review.

Community Identifiers

Distribution of the survey was accomplished through the North County Fire Protection District website and various social media. As well, civic organizations such as the Chamber of Commerce, assisted with the distribution using their email lists. The online survey was opened to the public on January 4, 2022 and remained available through January 28, 2022. A total of 101 responses were received and all responses were anonymous. It should be noted that in this summary, the actual number of responses may be different than the total number of surveys as not all respondents answered all the questions.

The project team asked respondents to identify whether they were a resident of the Fire District, non-resident, business owner, business manager, or business employee. The following table summarize responses to each of those questions.

Response	Count	Pct
Resident	85	86.7%
Non-Resident	3	3.1%
Business Owner	6	6.1%
Business Manager	2	2.0%
Business Employee	2	2.0%
Total	98	

Respondents were also asked to provide the area of the Fire District they resided or worked.

Area of the Fire District	Count	Pct
Bonsall	6	6.2%
Fallbrook	86	88.7%
Pala Mesa	3	3.1%
Rainbow	1	1.0%
Winterwarm	1	1.0%
Total	97	

Residents of Fallbrook contributed the highest percentage at 89% of the responses with Bonsall contributing 6% and Pala Mesa at 3% of the responses.

Respondent Views on Services Provided

Respondents were asked to priority rank each of the services provided by their Fire District on a scale of 1 through 8 with 1 being the most important and 8 being the least important. Of the 101 respondents, 88 (87%) provided a ranking of these services. Respondents #1 choice was given the number of 8 and their second choice was given the number 7 and so on through the rest of their choices.

In the following table each of the statements are ranked according to a weighted average

Services	1	2	3	4	5	6	7	8	Weighted Average
Fire Suppression	48.8%	26.3%	17.5%	1.3%	2.5%	0.0%	2.5%	1.3%	7.01
Emergency Medical Services	39.8%	32.5%	18.1%	3.6%	1.2%	1.2%	1.2%	2.4%	6.86
Rescue - Basic and Technical	3.6%	32.5%	44.6%	12.0%	2.4%	4.8%	0.0%	0.0%	6.08
Hazardous Materials Response	2.4%	1.2%	9.6%	45.8%	26.5%	6.0%	8.4%	0.0%	4.55
Fire Investigation	5.7%	2.3%	4.6%	14.9%	26.4%	13.8%	10.3%	21.8%	3.54
Public Fire/EMS Education	3.6%	3.6%	1.2%	7.1%	19.0%	32.1%	15.5%	17.9%	3.18
Home Fire Safety Inspections	2.3%	1.2%	5.8%	7.0%	8.1%	26.7%	32.6%	16.3%	2.91
Business Inspections	1.2%	2.4%	0.0%	8.4%	14.5%	12.0%	25.3%	36.1%	2.49

Respondents' opinions on the issue of prioritized services include:

- **Fire suppression is the top service:** Fire call responses are shown at 7.01 weighted average, the highest average.
- **Emergency medical call response is the second most important service:** Emergency medical call response is close behind the fire call response at 6.86 weighted average. Rescues were immediately behind EMS services.
- **Other services** were not ranked nearly as high as fire suppression and EMS.

Respondents were provided a forum in the online survey to express their views on other services the Fire District should be providing. Some of those responses follow:

- Provide monthly statistics on the type of responses.
- Coordinate a neighborhood watch.
- Youth programs and senior services.
- Hazardous brush removal, fining people who don't control overgrowth of weeds and brush that can worsen the effects of fires.
- Car seat installation checks.

Service Expectations and Satisfaction

Respondents were asked to identify their top three service expectations as it relates to the Fire District. They were provided nine expectations.

Service Expectations

Respondents were asked to select their top three expectations for the fire district. There were 81 (80%) respondents that answered the question with 20 respondents skipping the question.

Service Expectations

	1	2	3	4	5	6	7	8	9	Weighted Average
Rapid Response	73.3%	12.0%	8.0%	6.7%	0.0%	0.0%	0.0%	0.0%	0.0%	8.52
Well Trained	21.1%	53.9%	17.1%	6.6%	1.3%	0.0%	0.0%	0.0%	0.0%	7.87
Appropriately Staffed	3.6%	21.8%	45.5%	20.0%	7.3%	1.8%	0.0%	0.0%	0.0%	6.89
Good Equipment	0.0%	10.7%	35.7%	26.8%	19.6%	5.4%	1.8%	0.0%	0.0%	6.21
Adequate Facilities	2.1%	6.3%	10.4%	6.3%	39.6%	22.9%	8.3%	2.1%	2.1%	5.00
Accessible to the Community	4.1%	2.0%	4.1%	6.1%	4.1%	22.4%	42.9%	12.2%	2.0%	3.84
Fiscally Responsible	4.1%	6.1%	4.1%	6.1%	10.2%	16.3%	12.2%	28.6%	12.2%	3.73
Community Focused	5.9%	3.9%	5.9%	2.0%	2.0%	3.9%	9.8%	27.5%	39.2%	2.86
Professional Appearance	0.0%	0.0%	2.2%	2.2%	6.7%	20.0%	17.8%	15.6%	35.6%	2.62

A rapid response to a call for service ranked first as the highest expectation of the respondents based on a weighted average. This response is closely followed by well trained personnel and being appropriately staffed.

Service Concerns

The following table outlines the responses about the concerns or worries regarding the Fire District. There were 76 (75%) respondents that answered the question with 25 respondents skipping the question. The statement, "Please select the top three concerns or worries you may have about the Fire District" was open to all respondents whether or not a service was used.

Service Concerns

	1	2	3	4	5	6	7	8	9	Weighted Average
Response Times	57.1%	23.8%	9.5%	4.8%	3.2%	1.6%	0.0%	0.0%	0.0%	8.22
Staffing levels	23.6%	12.7%	25.5%	20.0%	10.9%	7.3%	0.0%	0.0%	0.0%	6.96
Training Levels	8.7%	26.1%	28.3%	17.4%	10.9%	4.3%	2.2%	0.0%	2.2%	6.70
Wildland Fire Response	15.7%	27.5%	23.5%	3.9%	0.0%	2.0%	2.0%	5.9%	19.6%	5.94
Equipment	2.1%	6.4%	25.5%	14.9%	29.8%	8.5%	10.6%	2.1%	0.0%	5.57
Facilities	10.9%	15.2%	13.0%	4.3%	13.0%	10.9%	17.4%	6.5%	8.7%	5.20
Expanding Service to Meet Growth	8.5%	19.1%	8.5%	6.4%	4.3%	17.0%	10.6%	19.1%	6.4%	4.94
Fiscal Responsibility	9.1%	4.5%	13.6%	2.3%	0.0%	18.2%	29.5%	11.4%	11.4%	4.23
Community Focused	2.4%	9.8%	2.4%	2.4%	2.4%	7.3%	7.3%	36.6%	29.3%	2.98

The weighted average provides an overall view of the opinions of the respondents. While the highest of expectations, response times represent the highest of concerns of respondents, staffing and training levels are also high on the list of concerns.

Supporting the high ratings for response times and staffing levels, service level concerns in the comments included an expression of ambulances being out of the district for long transports and that resources in the district are spread thin. Comments also indicated the need to add resources to reduce response times.

Service Satisfaction

Respondents were asked about their satisfaction with the services provided by their Fire District. There were 68 (67%) respondents that answered the question with 33 respondents skipping the question. The following table illustrates the responses for the statement "For each of the service areas listed below, please select a response indicating how satisfied you are with the service in your community."

Statement	Very Satisfied	Somewhat Satisfied	Neither Satisfied or Dissatisfied	Somewhat Dissatisfied	Very Dissatisfied	No Opinion
Response time to emergency calls	57.4%	30.9%	7.4%	1.5%	0.0%	2.9%
Capabilities to handle the situation	61.8%	29.4%	5.9%	0.0%	0.0%	2.9%
Hazardous materials response to chemical spills	25.4%	7.5%	43.3%	0.0%	0.0%	23.9%
Attending Public and Community events.	42.6%	17.6%	26.5%	1.5%	0.0%	11.8%
Home Fire Safety Inspections	11.8%	7.4%	47.1%	1.5%	0.0%	32.4%
Business Fire Safety Inspections	22.1%	7.4%	36.8%	2.9%	0.0%	30.9%
Public Education Programs	20.6%	20.6%	33.8%	2.9%	0.0%	22.1%

- In terms of response time and capabilities of handling calls for service, most respondents are satisfied with their Fire District. A majority of respondents are very satisfied (57%) with the response time to emergency calls for service with a combined 88% of respondents satisfied with the response time.
- Most (43%) of the respondents are neither satisfied nor dissatisfied with the response to hazardous materials spills while 32% were satisfied, 24% did not express an opinion indicating a lack of experience with that type of response
- Respondents (68%) did not express a clear opinion related to business inspections with 29% indicating their satisfaction. The same holds true with home inspections with 32% having no opinion and 47% neither satisfied nor dissatisfied.

- Approximately 41% of the respondents are satisfied with public education programs with 22% not expressing an opinion. Approximately 34% were neither satisfied nor dissatisfied.

As noted previously, respondents expect a rapid response and are satisfied with the response time. However, they also expressed concerns about this issue. Similarly, 91% of the respondents are satisfied with the capabilities to handle the situation, but expressed concerns related to staffing and training levels.

Value of Services

The community was asked about the value of services from their service providers. There were 70 (69%) respondents that answered the question with 31 respondents skipping the question. Four statements were used, and the respondents were provided five responses from excellent to no opinion. The following table illustrates the results.

	Excellent	Good	Fair	Poor	No Opinion
Rate how effectively money is being used for fire services	21.4%	31.4%	8.6%	0.0%	38.6%
The value of the fire services for the funding provided.	40.0%	35.7%	4.3%	0.0%	20.0%
The overall direction of the Fire District is taking to provide services.	39.1%	30.4%	5.8%	0.0%	24.6%
The openness of the Fire District to community input.	46.4%	20.3%	11.6%	0.0%	21.7%

Responses mostly fell into the ‘excellent’ and ‘good’ categories.

- Approximately 52% of the respondents felt that funds are used effectively.
- 86% of respondents felt that the value was excellent or good.
- Respondents are satisfied with the direction of the Fire District with 69% of the respondents indicating an excellent or good rating.
- Approximately 66% of the respondents felt the Fire District is open to community.

Wildland Fire Threat

Threats of wildland fires have been critical in California and San Diego County specifically. During the past several years, wildland fires have increased in number and intensity bringing the wildland urban interface to the forefront. Respondents were asked several questions related the wildland fire threat.

Wildland Fire Plans

Respondents were asked if they were aware of any plans for the prevention of or response to wildland fires in their community.

Response	Overall
Yes	45.8%
No	54.2%

As illustrated, the overall survey is fairly even between the two answers.

Personal Mitigation Efforts

Mitigation is a two-pronged approach between personal and community efforts. Respondents were asked to identify mitigation strategies they have completed around their residences and businesses.

Statement	Overall
Created a 30-foot buffer zone around your home or business	67.1%
The house siding is fire resistant	60.0%
The roof is made of non-combustible materials	82.9%
Vents are covered with a wire mesh	64.3%
Created a secondary buffer of 100 feet around the home or business	24.3%
Have an evacuation plan	75.7%
Thinned out and maintain vegetation around the home or business	82.9%

Respondents indicated they have implemented a large part of the mitigation efforts around their home or business. The lowest number of responses involved creating a secondary buffer.

There are concerns related to the buffer areas as expressed in the comments of the online survey. Those concerns related to the enforcement of overgrowth and not being enforced as well as comments related to the need for more hands-on abatement of this issue.

Community Mitigation

Respondents were provided a series of statements regarding the community mitigation efforts.

	Very Satisfied	Somewhat Satisfied	Neither Satisfied or Dissatisfied	Somewhat Dissatisfied	Very Dissatisfied
Alerting and warning systems for wildland fires or other emergencies.	42.0%	34.8%	17.4%	5.8%	0.0%
Capacity of evacuation routes to handle a large volume of evacuees.	8.7%	23.2%	24.6%	24.6%	18.8%
Mitigation efforts in the wildland areas around your community.	22.0%	29.4%	39.7%	7.4%	1.5%
Capability of the fire district to handle a small wildland fire near your home or business.	70.0%	22.9%	7.1%	0.0%	0.0%
Education Programs offered to residents and business owners	15.7%	17.1%	61.4%	4.3%	1.4%
Water supply for wildland firefighting efforts.	25.0%	38.2%	32.4%	4.4%	0.0%

- Approximately 93% of the respondents believe the fire district is capable of handling a small wildland fire.
- Respondents (77%) are satisfied with the warning and alerting systems for wildland fire notifications.
- Less than 32% of the respondents are satisfied with the capacity of the evacuations routes.

During the open forum conducted on January 26, 2022 there were numerous comments regarding wildland fire issues. While 93% of the respondents in the survey were satisfied with the alerting system, participants in the communty forum epxressed concerns about the spanish speaking community. It was noted the alerts are predominately in english adding confusion to those who speak spanish. A second concern was expressed about the senior population and the evacaution plans for these individuals. Further, this group is also affgecte dby power outages, especially those that are home bound.

These concerns were addressed by the Fire District during the community forum. For the Spanish speaking community, the Fire District is to begin testing a Spanish version for twitter in February 2022. They are already using other social media programs to put notifications and information in Spanish. For the senior groups, the Fire District has been and will continue to meet with the senior groups related to emergency evacuations and other issues related to the home bound residents.

Service Level Interaction

Respondents were asked if they had utilized the emergency services or public education services provided by the fire district. As shown, of the 69 respondents that answered this question, approximately 38% had used the services.

Yes	37.7%
No	62.3%

For those 26 online respondents that used the service, they were asked to provide their opinions about their interactions.

	Excellent	Good	Fair	Poor
Response time to your call for assistance.	80.8%	15.4%	3.8%	0.0%
Knowledge of the personnel.	80.8%	15.4%	3.8%	0.0%
Responsiveness of the personnel.	84.6%	11.5%	3.8%	0.0%
Courtesy of the personnel	84.6%	11.5%	3.8%	0.0%
Your overall impression of the personnel.	84.6%	11.5%	3.8%	0.0%

Most of the respondents are satisfied with the service they received. This supports the previous section for service satisfaction where respondents indicated they were satisfied with the response time and capabilities of their service provider. In fact, when asked about their overall quality of services, 96% of the respondents opined it was excellent or good as shown in the following table.

	Excellent	Good	Fair	Poor
Overall Quality	76.0%	20.0%	4.0%	0.0%

Of those surveyed, the residents are satisfied with the service they receive.

Employee Contributions

As part of the Matrix Consulting Group's study for the North County Fire Protection District, the project team distributed an anonymous survey to District employees in order to gauge their opinions on a variety of topics relevant to the study. This survey generally asked three types of questions:

- **General questions:** At the beginning of the survey, respondents were asked to provide some information about their assignment with the North County Fire District. These responses are used in this analysis to explore differences in responses between groups of respondents.
- **Multiple Choice Statements:** Respondents were presented with a number of multiple-choice statements, where they indicated their level of agreement or disagreement with statements on a variety of topics related to the Fire District. Response options were "strongly agree" (SA), "agree" (A), "disagree" (D), and "strongly disagree" (SD). Respondents could also opt out of responding to the statement, in which case they were not counted among the responses received for that statement.
- **Open-ended response questions:** After each section, respondents were given the opportunity to provide additional comments. At the end of the survey, staff were given space to provide opinions about the district's strengths and weaknesses in their own words.

The survey was distributed electronically to all 78 Fire District employees in January 2022. A total of 68 responses were received, in varying degrees of completion, for an overall response rate of 87.2%.

In addition, meetings with each shift and each station were conducted by the project team. These forums allowed the employees an opportunity to express their opinions and thoughts on a variety of topics related to the operations of the Fire District. Each forum used an open participant driven format allowing the participants to discuss their topics.

Summary of Findings

A complete analysis can be found in the following chapters, the following sections summarize key findings of the responses received in this survey.

Respondent Demographics

While the survey was anonymous, the project team asked respondents to indicate their current rank, assignment, and years of service within the organization. The following tables and charts summarize demographic data collected from these questions.

Rank of Respondents

Rank	Number of Respondents	Percentage
Captain and Above	21	33%
Engineer	15	23%
Firefighter/Paramedic	15	23%
Firefighter	2	3%
Civilian	11	17%
Total	**64**	**100%**

Approximately 82% of the Fire District employees responded to the question, of which the ranks of Captain and Above had the highest participation rate at 33% of those in the rank. The following table summarizes the station assignments in the Fire District.

Response	Number of Respondents	Percentage
Fallbrook	31	47%
Administration	13	20%
Pala Mesa	8	12%
Bonsall	7	11%
Rainbow	7	11%
TOTAL	**66**	**100%**

The Fallbrook stations represent the largest number of respondents with 47% while the Administration make up 20% of the respondents. The remaining station are equal in their responses.

Seniority of the respondents is illustrated in the following table.

Respondent Seniority

Time	Number of Respondents	Percentage
Less than 5 years	17	25%
5 – 10 years	14	21%
Over 10 years	36	54%
Total	**67**	**100%**

As shown, approximately 54% of the respondents have at least 10 years of service with the Fire District. Approximately 25% are under five years. This provides a good opportunity for the Fire District to mentor the less senior employees creating a stronger workforce.

Strengths of the Fire District

The following bullet points summarize the strengths of the Fire District as noted in the responses to this survey:

- Respondents believe that they provide a high level of service to the community and enjoy a healthy, positive relationship with the community.
- Staff believe that supervision is sufficient and performance expectation are made clear.
- Overall, the training programs are well received and believed to be providing appropriate training and education.
- Respondents felt the equipment and apparatus is good and is appropriate for the work to be performed.

Fire District Improvement Opportunities

The following bullet points summarize the opportunities to improve the Fire District as noted in the responses to this survey:

- Respondents believe that the condition of the facilities need to be improved.
- Approximately 53% of the comments from the respondents identified the need for additional staffing or a change in the staffing model moving away from the single-role paramedic positions
- There is a need for a dedicated training facility within the Fire District.

Service to the Community

This section provided eight statements related to the service provided to the community by the Fire District. The respondents were asked to provide their opinion based on these statements. The response options were “strongly agree” (SA), “agree” (A), “disagree” (D), and “strongly disagree” (SD). Respondents could also choose “neither agree or disagree” to indicate neutral feelings or opinions. Respondents could also opt out of responding to the statement at all, in which case they were not counted among the respondents for that statement.

Community Relationships

Respondents were asked to indicate their level of agreement with four statements regarding their perception of the district’s relationship with the community. In general, the respondents believe they provide a high level of service to the district and enjoy a positive relationship with those they serve.

Community Relationships

Statement	SA	A	Neither Agree or Disagree	D	SD
Our District provides a high level of service for the community.	78%	18%	1%	3%	0%
Residents view our District as a high priority.	27%	52%	16%	4%	0%
Our District has positive relationships with our residents.	45%	51%	4%	0%	0%
Our approach to providing services improves the quality of life in the North County Fire Protection District.	60%	31%	6%	3%	0%

As shown, most of the respondents opined they provide a high level of service and are respected by the community. As well, they feel the approach to providing service improves the quality of life and they have a positive relationship with the residents. This is confirmed based on the community participation indicating the residents are satisfied with their services.

Supporting these responses, approximately 46% of the respondents listed customer service as a strength of the Fire District in the open response section of the survey. The forums also provided similar comments with some opining the Fire District has high standards related to customer service initiatives and practices.

External Agency Relationships

In this sub-section the respondents provided their opinions on the relationships with other emergency service providers in the region. Mutual aid received and provided were asked separately. About 94% of the respondents felt the district provides effective mutual aid and 91% felt the mutual aid received is effective. Note the difference between the Strongly Agree and Agree between the two statements. The percentage of respondents are higher with the strongly agree response for providing mutual aid.

Partnerships

Statement	SA	A	Neither Agree or Disagree	D	SD
Our department has positive relationships with our response partners.	49%	48%	3%	0%	0%
We provide effective mutual aid to neighboring fire departments.	59%	35%	3%	3%	0%
We receive effective mutual aid from our neighboring fire departments.	34%	57%	9%	0%	0%
There are opportunities to improve shared services with neighboring agencies.	40%	41%	20%	0%	0%

Respondents believe there are opportunities to improving shared services with an 81% positive response.

Management and Administration

This section provided sixteen statements related to management and administration of the Fire District. The respondents were asked to provide their opinion based on these statements. The response options were “strongly agree” (SA), “agree” (A), “disagree” (D), and “strongly disagree” (SD). Respondents could also choose “neither agree or disagree” to indicate neutral feelings or opinions. Respondents could also opt out of responding to the statement at all, in which case they were not counted among the respondents for that statement.

Fire District Vision and Direction

Respondents provided their opinions related to the future direction of the Fire District. Individual performance expectations received a 95% positive response but 23% had no opinion related to a lack of an effective plan to communicate with the residents. The expression of no opinion could be related to a lack of knowledge or understanding creating an opportunity for improvement in the communications with the public and the employees of the district.

Statement	SA	A	Neither Agree or Disagree	D	SD
Our District has a clear vision / direction for the future.	28%	52%	18%	2%	0%
I am kept informed of important District information.	29%	55%	9%	6%	0%
My performance expectations are made clear.	43%	52%	5%	0%	0%
We have an effective communication plan to engage the community.	20%	51%	23%	6%	0%
The Fire District operates efficiently.	22%	63%	11%	5%	0%

Approximately 18% of the respondents did not provide an opinion related to a clear vision or direction for the Fire District. This may be an added opportunity for improvement in terms of communicating the vision to the employees of the Fire District.

Fire District Policies

Respondents were asked to indicate their level of agreement with four statements regarding their perception of the district's policies and procedures.

Statement	SA	A	Neither Agree or Disagree	D	SD
District policies are current.	14%	52%	20%	13%	2%
Policies related to operations are adequate and clearly defined.	28%	47%	16%	8%	2%
District policies are routinely reviewed.	19%	48%	25%	8%	0%
District policies are consistently updated to improve our operations.	16%	48%	25%	9%	2%

A majority of the respondents agree the policies and procedures for the Fire District are current, proper, and consistently updated. However, 34% of the respondents either did not express an opinion or disagreed with the policies being current. Additionally, 36% of the respondents did not express an opinion or disagreed with the policies are not consistently updated.

Comments from the survey and open forums support the need for revising the policies and procedures within the Fire District. Comments were related to some of the policies being outdated and not a clear process to revise and update those same policies. There

is an improvement opportunity to review and update the policies and procedures in the Fire District.

Organizational Structure

Respondents were asked to indicate their level of agreement with three statements regarding their perception of the Fire District's organizational structure.

Statement	SA	A	Neither Agree or Disagree	D	SD
The current organizational structure is appropriate for our District.	16%	60%	11%	13%	0%
The supervision at emergency scenes is sufficient.	53%	40%	6%	0%	0%
Spans of control in the Fire District are appropriate.	40%	52%	8%	0%	0%

While most respondents agree the current organizational structure and supervision is appropriate and sufficient, 24% of the respondents indicate the organizational structure needs to be reviewed.

Comments in the open forum related to the need for additional administrative staff for various processes such as fire prevention and operations.

Finance and Budget

These statements are directed at the budget and the use of overtime. Respondents were mostly favorable in terms of overtime and the policies to ensure equal opportunities with 83% agreeing or strongly agreeing. In terms of working excessive amounts of overtime, 67% did not feel there was excessive use of overtime although 27% did not express an opinion.

Statement	SA	A	Neither Agree or Disagree	D	SD
Budgeted funds allow our Fire District to operate effectively.	17%	64%	14%	5%	0%
The Fire District is effective at capital planning.	20%	53%	20%	6%	0%
Overtime assignment policies ensure equal opportunities for overtime.	39%	44%	14%	3%	0%
I am not required to work excessive amounts of overtime.	27%	40%	27%	6%	0%

Overall, the respondents felt the Fire District is effective at capital planning and operating effectively with budgeted funding. However, there were 34% of the respondents that did not express an opinion.

Staffing and Operations

This section provided sixteen statements related to management and administration of the Fire District. The respondents were asked to provide their opinion based on these statements. The response options were “strongly agree” (SA), “agree” (A), “disagree” (D), and “strongly disagree” (SD). Respondents could also choose “neither agree or disagree” to indicate neutral feelings or opinions. Respondents could also opt out of responding to the statement at all, in which case they were not counted among the respondents for that statement.

Staffing Resources

In this first sub-section staffing of the Fire District is addressed. The respondents feel they work well with each other on calls for service with 98% in agreement.

Statement	SA	A	Neither Agree or Disagree	D	SD
Staff resources are adequate to meet the current Fire District needs.	5%	44%	17%	34%	0%
Our District is adequately staffed to meet demands for services.	9%	31%	22%	34%	3%
Current apparatus staffing allows us to effectively perform our duties on emergency scenes.	18%	40%	19%	21%	2%
Our personnel work well with each other on calls for service to which they respond.	58%	40%	2%	0%	0%
The current shift staffing model works well.	41%	35%	8%	16%	0%
The Fire District does a good job in recruiting local residents for positions in the district.	18%	35%	43%	3%	0%
Our District places a high value on Health and Wellness programs.	45%	45%	6%	3%	0%

Approximately 49% of the respondents opine there is adequate staff to meet the needs of the district and 40% opine the staffing is adequate to meet the demands for services. In both instances 34% opine there is inadequate staffing with a considerable number that have no opinion. The table that follows provides a closer examination of the responses for the staffing issue. The responses in the following table are those that were marked as disagree and strongly disagree.

Disagree and Strongly Disagree Responses

Statement	Captain and Above	Engineers	Firefighter/ Paramedic
Staff resources are adequate to meet the current Fire District needs.	42%	36%	35%
Our District is adequately staffed to meet demands for services.	53%	29%	35%
Current apparatus staffing allows us to effectively perform our duties on emergency scenes.	37%	36%	6%

The Firefighter/Paramedic category contains those that identified as firefighters and firefighter/paramedics. The Captains and Above group passionately believe the staffing

is not adequate to meet the demands while the Engineers and Captains and Above have similar opinions regarding apparatus staffing.

In the open response section of the survey there were 52 responses for the improvement opportunity question. In those responses, staffing was mentioned in 38% of the responses and most of those comments were related to the need for additional staffing. Throughout the open forum sessions, staffing was discussed in all sessions, however, much of the discussion was related to the single-role positions used to staff the emergency medical services.

Communications

About 94% of the respondents agree the current dispatch system works well for the Fire District.

Communications

Statement	SA	A	Neither Agree or Disagree	D	SD
The 911 Dispatch system works well for Fire/Rescue calls.	50%	44%	6%	0%	0%
Dispatch information provided to us on incidents is accurate.	26%	51%	21%	2%	0%
Dispatch information provided to us on incidents is received in a timely fashion.	34%	56%	10%	0%	0%

Approximately 77% of the respondents opined the information is accurate while 21% of those respondents did not have an opinion.

Training and Education

Respondents were asked to indicate their level of agreement with three statements regarding their perception of the district's training needs.

Statement	SA	A	Neither Agree or Disagree	D	SD
We receive the practical training we need to keep all of our skills high.	27%	60%	10%	3%	0%
Our District places a high value on ensuring proper training for field personnel.	41%	49%	10%	0%	0%
Training facilities are adequate for practical training evolutions and activities.	15%	23%	20%	33%	10%

The response here supports the training programs as being adequate and appropriate. Related to training facilities, approximately 43% of the respondents feel the facilities as inadequate while 38% opine they are adequate. Approximately 34% of the comments in the improvement opportunities open response questions indicated the need for an appropriate training facility. These comments also mirrored those made in the open forums.

Physical Resources

This section provided sixteen statements related to management and administration of the Fire District. The respondents were asked to provide their opinion based on these statements. The response options were “strongly agree” (SA), “agree” (A), “disagree” (D), and “strongly disagree” (SD). Respondents could also choose “neither agree or disagree” to indicate neutral feelings or opinions. Respondents could also opt out of responding to the statement at all, in which case they were not counted among the respondents for that statement.

Apparatus and Equipment

Respondents were asked to indicate their level of agreement with four statements regarding their perception of the district’s apparatus and equipment.

Statement	SA	A	Neither Agree or Disagree	D	SD
We have the appropriate apparatus to provide high levels of service.	30%	62%	3%	4%	0%
Our apparatus has the appropriate equipment to provide effective service.	48%	46%	3%	3%	0%
Our fire apparatus is well maintained.	74%	26%	0%	0%	0%
Our fire equipment is well maintained.	64%	36%	0%	0%	0%

Respondents were overwhelmingly agreeable to the apparatus and equipment not only being appropriate but also well maintained.

Facilities

Respondents were asked to indicate their level of agreement with four statements regarding their perception of the district's facilities.

Statement	SA	A	Neither Agree or Disagree	D	SD
The locations of our fire stations are effective in meeting the needs of the Fire District.	20%	28%	28%	25%	0%
Our fire stations provide a safe workplace.	33%	26%	25%	11%	5%
Our fire stations are well maintained.	12%	23%	33%	27%	5%
Our fire stations meet the needs of the Fire District.	8%	28%	33%	25%	5%

Facilities used by the Fire District is one of the largest issues. Most respondents either had not opinion or disagreed with the statements regarding the fire stations. In fact, of the 52 comments made regarding improvement opportunities in the open responses, approximately 87% mentioned stations or facilities as an issue. During the open forums the condition of the stations and the need for newer facilities were discussed and was typically the first or second discussion point with every group.

Open Ended Responses

This section of the survey provided three open-ended statements to allow the respondents the opportunity to explain or expound upon their responses to the above

noted sections. It also provided a mechanism for the respondents to express their thoughts on strengths and opportunities for improvement within the Fire District.

Strengths of the Fire District

Of the 68 respondents, 52 provided comments addressing their views of the strengths of the Fire District.

Dedication and commitment of personnel was cited in almost every comment. Another attribute used in the comments related to personnel is teamwork. The table below provides a detailed review of the comments as enumerated in the responses.

Theme	Pct.
Dedicated Staff	28.9%
Customer Service	25.0%
Training	25.0%

Improvement Opportunities

The survey had 68 respondents with 52 providing comments related to opportunities to improvement the District or the level of service. The table below illustrates the top four responses for improvement opportunities.

Themes	Pct.
Stations/Facilities	86.5%
Staffing/Single Role	53.8%
Training	32.7%

Based on the comments the staffing issue is related to the single-role positions and the staffing of ambulances. Over 53% of the comments addressed either the need for additional staffing, the single-role positions, ambulance staffing model, or the staffing model in general terms.

Additional Comments

This last section is an area that was established to allow the respondent to address issues they felt they needed to address based on the previous statements.

Comments in this section continued to address the staffing and facilities issues. As well, training facilities continued to be echoed as in the previous comments. There were general comments made related to the new leadership of the Fire District with improved communication and the overall direction.

Goals and Strategic Initiatives

This section of the report provides the goals and strategic initiatives developed for the fire district through the analysis conducted during this study. The following tables illustrate the goals and strategic initiatives (objectives) for each goal to allow progress to be tracked. Suggested objectives are included with each goal and can be adjusted, added to, or eliminated as needed. The timelines shown are defined as follows:

- Short-term: less than eighteen months.
- Intermediate: longer than eighteen months but less than five years.
- Long-term: longer than five years.

Timelines are shown to provide guidance related to the anticipated completion of the goal.

Administrative and Organizational

Goal 1	**Improve the revision process for policies and procedures of the Board of Directors, administrative, and operational personnel to reduce organizational risk.**
Timeline:	**Short-Term**
Objective 1	**Review current procedures for revisions and updates to policies and procedures.**
Assigned To:	Fire Chief/Administrative Staff
Funding Required:	None
Critical Tasks:	• Assign this task to a specific position for oversight
Objective 2	**Establish criteria for revising policies and procedures**
Assigned To:	Fire Chief/Administrative Staff
Funding Required:	None
Critical Tasks:	• Examine any laws or regulations that may affect any revisions
Objective 3	**Formally approve and adopt the revision policy.**
Assigned To:	Fire Chief/Administrative Staff
Funding Required:	None
Critical Tasks:	• Evaluate the results of the program • Determine changes needed
Objective 4	**Assign the review process to a staff position to ensure the revisions are completed and provide accountability for those revisions**
Assigned To:	Fire Chief/Administrative Staff
Funding Required:	None
Critical Tasks:	• Establish accountability for the process.
Objective 5	**Program Evaluation**
Assigned To:	Fire Chief/Administrative Staff
Funding Required:	None
Critical Tasks:	• Evaluate the results of the program • Determine changes needed

Goal 2	**Continue to monitor and sustain the succession plan for the management and leadership of the North County Fire Protection District.**
Timeline:	**Intermediate**
Objective 1	**As funding allows, add a fourth Battalion Chief position in an administrative role.**
Assigned To:	Fire Chief
Funding Required:	To be determined
Critical Tasks:	• None
Objective 2	**Establish a rotation schedule for all Battalion Chiefs to be exposed to all facets of the fire district operations**
Assigned To:	Fire Chief
Funding Required:	To be determined
Critical Tasks:	• None
Objective 3	**Program Evaluation**
Assigned To:	Fire Chief
Funding Required:	Unknown
Critical Tasks:	• Evaluate the results of the program • Determine changes needed

Goal 3	**Monitor and sustain the existing mentoring program to provide support to new officers and in support of the succession plan.**
Timeline:	**Intermediate**
Objective 1	**Establish requirements for personnel to become a mentor**
Assigned To:	Fire Chief/Shift Officers
Funding Required:	None
Critical Tasks:	• Education Requirements • Time in rank requirements
Objective 2	**Provide training to those selected to be mentors**
Assigned To:	Fire Chief/Shift Officers
Funding Required:	Unknown
Critical Tasks:	• Determine the training and education requirements • Provide the training and education prior to starting the program
Objective 3	**Program Evaluation**
Assigned To:	Fire Chief/Shift Officers
Funding Required:	Unknown
Critical Tasks:	• Evaluate the results of the program • Determine changes needed

Goal 4	**Reassess the vision statement, mission statement, and core values using an internal group of stakeholders of the fire district.**
Timeline:	**Intermediate**
Objective 1	**Establish an internal working group to develop a vision statement, mission statement, and cores values.**
Assigned To:	Fire Chief/Shift Officers
Funding Required:	None
Critical Tasks:	• Determine the makeup of the working group to include all ranks and positions. • Provide guidance to the group for the work to be completed.
Objective 2	**Formally adopt the vision statement, mission statement, and core values upon completion of the work by the established group.**
Assigned To:	Fire Chief/Shift Officers
Funding Required:	None
Critical Tasks:	• Present the findings to the Board of Directors
Objective 3	**Continuously evaluate the vision statement, mission statement, and core values for any changes in the organization or its overall**
Assigned To:	Fire Chief/Shift Officers
Funding Required:	None
Critical Tasks:	• Continuously monitor

Emergency Operations

Goal 5	**Revise and improve the current emergency services organizational statement to better inform the public and provide guidance to the fire district for emergency service delivery.**
Timeline:	**Intermediate**
Objective 1	**Create a working group of select members of the organization and the general public.**
Assigned To:	Fire Chief
Funding Required:	None
Critical Tasks:	• Provide guidance to the group to provide focus on the issues.
Objective 2	**Identify the components for the organizational statement.**
Assigned To:	Working Group
Funding Required:	None
Critical Tasks:	• Include the various response time components. • Identify the response capabilities • Include the staffing levels
Objective 3	**Once developed, formally adopt the organizational statement related to the expectations of the emergency services system.**
Assigned To:	Fire Chief/Board of Directors
Funding Required:	None
Critical Tasks:	• None
Objective 4	**Continue to monitor the components of the statement for clarity and meeting the expectations of the community.**
Assigned To:	Working Group
Funding Required:	None
Critical Tasks:	• None

Goal 6	**Continue to support the North Regional Zone and enhance the collaboration between agencies in various areas to includes training, prevention, risk reduction, and outreach.**
Timeline:	**Intermediate**
Objective 1	**Collaborate with the partners in the North Regional Zone to determine the needs of other agencies outside the emergency response needs.**
Assigned To:	Fire Chief
Funding Required:	None
Critical Tasks:	• Maximize the resources for various functions of the fire services. • Continue to seek mechanisms and functions to improve services.

Goal 7	**Improve the turnout time performance of the response time continuum.**
Timeline:	**Short-Term**
Objective 1	**Work with the North County Dispatch Joint Powers Authority to ensure procedures and processes are adequate for capturing the time stamps**
Assigned To:	Fire Chief/Administrative Staff
Funding Required:	None
Critical Tasks:	• Train and educate communications staff on the importance of capturing accurate times.
Objective 2	**Monitor and evaluate turnout time related to the performance objectives previously established.**
Assigned To:	Fire Chief/Shift Officers
Funding Required:	Unknown
Critical Tasks:	• Post turnout time performance monthly by station and by shift at each station to allow crews to see their performance. • Create a reporting mechanism for excessive turnout times to allow for evaluation on the cause in turnout time delays.

Goal 8	**Improve the travel times in the central sections of the fire district.**
Timeline:	**Long-Term**
Objective 1	**Move Station 2 to the area of South Mission Road and South Stage Coach Lane.**
Assigned To:	Fire Chief/Board of Directors
Funding Required:	Unknown
Critical Tasks:	• Locate the appropriate property and negotiate the price. • Consider using the services of an architect to aid in acquiring the right size of property
Objective 2	**Add a new fire station in the area of Reche Road and Gird Road.**
Assigned To:	Fire Chief/Board of Directors
Funding Required:	Unknown
Critical Tasks:	• Locate the appropriate property and negotiate the price. • Consider using the services of an architect to aid in acquiring the right size of property
Objective 3	**Establish a scope of services for the project**
Assigned To:	Fire Chief/Board of Directors
Funding Required:	Unknown
Critical Tasks:	• RFSQ/RFP preparation and selection of design build team • Pre-Construction: Construction management services during design • Project oversight during construction
Objective 4	**Increase the operational staffing of the fire district to accommodate additional staffing with the opening of a new fire station(s) in the central sections of the fire district.**
Assigned To:	Fire Chief/Board of Directors
Funding Required:	Unknown
Critical Tasks:	• None

Goal 9	**Improve the concentration of resources to create an effective response force for the various types of calls for service in the fire district.**
Timeline:	**Intermediate**
Objective 1	**Define and establish an effective response force performance objective based on nationally accepted best practice for the risks identified in the district.**
Assigned To:	Fire Chief/Administrative Staff
Funding Required:	None
Critical Tasks:	• None

Goal 10	**Evaluate the ambulance delivery system in the Fire Protection District**
Timeline:	**Intermediate**
Objective 1	**Establish a working group to evaluate the ambulance delivery system including the use of various staffing models and apparatus.**
Assigned To:	Fire Chief/Board of Directors
Funding Required:	Unknown
Critical Tasks:	• Determine the makeup of the working group to include all ranks and positions. • Provide guidance to the group for the work to be completed.
Objective 2	**Determine the benefits/detriments of various staff classifications (safety and non-safety).**
Assigned To:	Fire Chief/Board of Directors
Funding Required:	Unknown
Critical Tasks:	• Cost savings from year to year • Determine the benefit of a pipeline for future employees • High turnover rates • Impacts to crew integrity. • Mentoring and training of new recruits
Objective 3	**Evaluate the need for and the advantages/disadvantages of a basic life support ambulance.**
Assigned To:	Fire Chief/Board of Directors
Funding Required:	Unknown
Critical Tasks:	• Basic vs advanced life support call types • Cost savings • Workforce availability
Objective 4	**Evaluate to need/use of a peak time Medic Unit and as funding becomes available, add a peak time Medic Unit to provide additional resources during high call volume time frames.**

Assigned To:	Fire Chief/Board of Directors
Funding Required:	Unknown
Critical Tasks:	• Consider high call volume time frames from 7 am to 7 pm. • Monitor unit utilizations rates for the Medic Units

Objective 5	**Evaluate the need/use of extending the operation of a fourth Medic Unit to a 24 hour shift and as funding becomes available change the peak time unit to a 24 hour unit.**
Assigned To:	Fire Chief/Board of Directors
Funding Required:	Unknown
Critical Tasks:	• Monitor calls for service rates • Monitor unit utilizations rates for the Medic Units

Essential Functions

Goal 11	**Improve the delivery of training programs to the personnel in the North County Fire Protection District.**
Timeline:	**Long-Term**
Objective 1	**As funding allows, a dedicated Administrative Battalion Chief should be added to the Fire District staff to ensure training is effective and delivered in a timely manner.**
Assigned To:	Fire Chief/Board of Directors
Funding Required:	Unknown
Critical Tasks:	• Establish job description • Determine position qualifications

Objective 2	**As the Fire District continues to grow and expand, a formal training facility should be built to enhance the training and education of the Fire District staff.**
Assigned To:	Fire Chief/Board of Directors
Funding Required:	Unknown
Critical Tasks:	• Determine the most appropriate location for a training facility • Determine a funding mechanism

Goal 12	**Increase fire prevention inspection and public education efforts in the North County Fire Protection District.**
Timeline:	**Intermediate**
Objective 1	**As funding allows, add to the staffing of fire prevention to improve the inspections and public education efforts of the Fire District.**
Assigned To:	Fire Chief/Board of Directors
Funding Required:	Unknown
Critical Tasks:	• Establish job description • Determine position qualifications
Objective 2	**Continue to work with the Hispanic community and provide announcements and information in both English and Spanish.**
Assigned To:	Fire Chief/Administrative Staff
Funding Required:	None
Critical Tasks:	• Continue to look for ways to effectively communicate with the Hispanic Community.
Objective 3	**Program Evaluation**
Assigned To:	Fire Chief/Shift Officers
Funding Required:	Unknown
Critical Tasks:	• Continue to evaluate fire inspection activity • Continue to monitor methods of communication

Physical Resources

Goal 13	**Continue to improve the facilities of the North County Fire Protection District**
Timeline:	**Long-Term**

Objective 1	**Evaluate the need for and the acquisition of a building site for Station 4.**
Assigned To:	Fire Chief/Board of Directors
Funding Required:	Unknown
Critical Tasks:	• Assess potential partners in the development of a combined public safety center.

Objective 2	**As funding allows, replace the existing Station 4 with a new facility designed to provide the appropriate space for apparatus, living quarters, and the needs of the region.**
Assigned To:	Fire Chief/Board of Directors
Funding Required:	Unknown
Critical Tasks:	• Acquire the services of an architect and or engineer to develop the site. • Acquire the services of a general contractor for the construction.

Objective 3	**Explore the potential sale of all or part of the property at Station 1 to fund infrastructure needs of the Fire Protection District.**
Assigned To:	Fire Chief/Board of Directors
Funding Required:	Unknown
Critical Tasks:	• Sale of all of the property will require another location to be purchased for the station. • Partial sale of the property will likely require reconfiguration of the site.

Goal 14	Continue to fund a reserve fund for the replacement of apparatus and vehicles used by the North County Fire Protection District.
Timeline:	**Intermediate**
Objective 1	**Review and formally establish a replacement policy for apparatus and vehicles based on a performance objective.**
Assigned To:	Fire Chief/Board of Director
Funding Required:	None
Critical Tasks:	• Determine the best method to define the time frame for replacement
Objective 2	**Establish a preferred method to fund the replacement allowing for changes based on the current economic and financial conditions at the time of replacement.**
Assigned To:	Fire Chief/Shift Officers
Funding Required:	Unknown
Critical Tasks:	• Review and determine if funds should be set aside for major repairs to apparatus or other vehicles.

Goal 15	Establish a specific reserve fund for the maintenance and replacement of facility components.
Timeline:	**Intermediate**
Objective 1	**Update the facilities report to identify any remaining deferred maintenance items in the existing facilities.**
Assigned To:	Fire Chief/Board of Directors
Funding Required:	Unknown
Critical Tasks:	• Review for major maintenance issues following the ongoing renovation projects.
Objective 2	**Commission a reserve study to determine the funding required to maintain facilities into the future.**
Assigned To:	Fire Chief/Board of Directors
Funding Required:	Unknown
Critical Tasks:	• Use the study to establish annual contributions to a reserve fund.

Goal 16	**Address the necessity for long-term funding for infrastructure needs of the Fire Protection District to include facilities and apparatus.**
Timeline:	**Intermediate**
Objective 1	**Examine to use of a specific revenue measure to provide funding for infrastructure needs.**
Assigned To:	Fire Chief/Board of Directors
Funding Required:	Unknown
Critical Tasks:	• Use the reserve study for future facility maintenance needs. • Further examine the needs for additional stations and replacement of existing facilities.

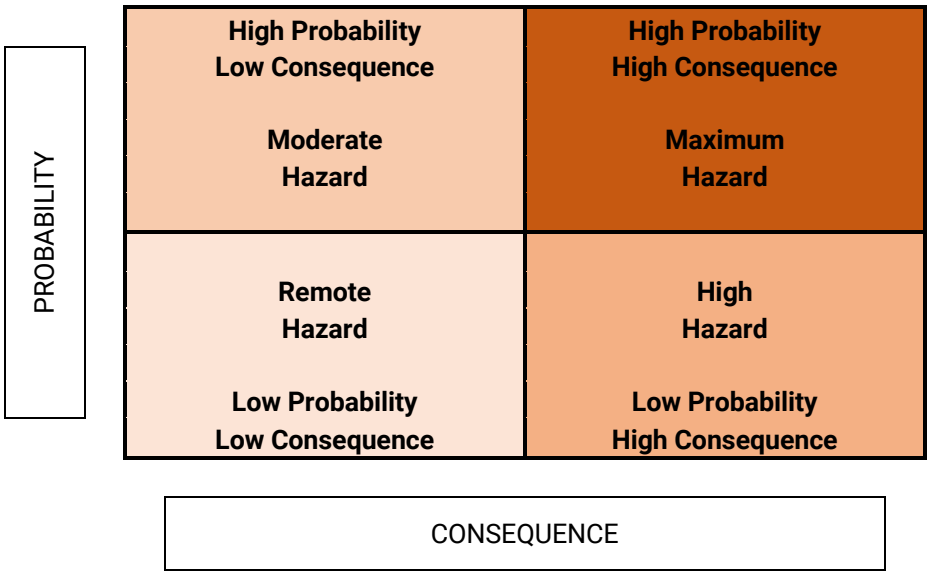
Community Risk Assessment

Risk is defined as the possibility of loss or injury or other unwelcome adverse circumstance or event. As a community we try to reduce the effects of the unwanted events through mitigation efforts prior to an emergency and using services such as police departments, public works and fire departments.

Risk Factors and Categories

Determining the fire and non-fire risks in a community provides the foundation to develop resource deployment strategies to reduce the effects of the unwanted events or circumstances. There are three primary components used in the risk assessment.

- Identification – what are the hazards faced by the community.
- Probability – the likelihood that an unwanted event will occur within a given period of time. Events that occur daily is highly probable while those that occur annually are less likely.
- Consequence – the measure of disparate outcome that can be defined by loss of life, loss of property and loss of historic values.
- Occupancy Risk – an assessment of the built upon area and the types of structures in the area, their occupancies, and any special risks that may be present.



The previous graph illustrates the correlation between the probability of occurrence and consequences of that occurrence. The result of this graph then allows for the identification of the hazard class. The four hazard classes are defined as follows:

Maximum Risk

An area classified as maximum risk should be of substantial size and contain properties presenting a high risk of life loss, loss of economic value to the community, or large loss damage to property if destroyed. Such areas would ordinarily be the highest fire flow areas and have a high probability of events. The structures within them may lack built in fire protection features and may contain occupants not capable of self-preservation. Maximum risk areas include the following:

- Major shopping and business centers, large department stores, shopping malls, multi-story hotels, and office properties.
- Concentrations of high risk industrial and commercial properties including hazardous materials facilities.
- Concentrations of theaters, cinemas, clubs, bars and other areas with potential for large life loss.
- Occupancies with occupants that may require assistance such as non-ambulatory or restrained persons (i.e., nursing homes and hospitals).
- Any occupancy over 10,000 square feet without built-in fire protection.
- Emergency medical, rescue, special operations incidents requiring multiple alarms.

Maximum risks frequently impact a fire agency's needs for multiple alarm capability and an adequate assessment of its ability to concentrate resources. Failure to identify these risks often results in the inability to effectively control these incidents. In the sections that follow, many of these risks are identified as places of assembly, hazardous materials storage, and high fire-flow buildings.

In addition to the buildings and structures included in the maximum risk areas, special events pose a large risk in terms of the number of attendees and the large areas involved in some of those events. Threats in these situations include terrorism, mass casualty incidents, and severe weather events are all part of this risk.

High Risk

A high-risk area is defined as one that contains properties or hazards presenting a substantial risk of life loss, a severe financial impact on the community, or unusual potential damage to property if there is a fire and has a low probability of events. Examples of such areas include the following:

- Strip shopping centers and business centers not exceeding two stories.
- Concentrated areas of revenue generating properties or high job loss to the community if business is lost.
- Infrastructure facilities such as schools, city, county, state, and federal facilities.
- Properties deemed to be of historical value to the community.
- Any building with life safety and fire load beyond the reach of pre-connected hose lines (200 feet).
- Concentrated areas of single- or two-story multi-family dwellings.
- Any occupancy over 10,000 square feet with built-in fire protection not classified as a maximum risk.
- Emergency medical, rescue, special operations incidents requiring a first alarm.

Moderate/Typical Risk

An area is classified as a moderate fire risk when it contains built up areas of average size and the risk of life loss or damage to property if there is a fire in a single occupancy is usually limited to the occupants. In certain areas such as small apartment complexes, the risk of death or injury may be relatively high. Concentrations of property may vary, but generally will be of limited extent. Probability of fire events are high along with frequent, routine non-fire risks resulting in a service demand other than fire. Examples of moderate risk areas include the following:

- Developments of generally detached single family housing.
- Apartments with pre-connected hose line access (200 feet).
- Industrial or commercial buildings under 5,000 square feet without built in fire protection.
- General business offices under 5,000 square feet.
- Emergency medical, rescue, special operations incidents requiring three units or less.

These risks are often the greatest factor in the distribution of fire stations to ensure fair and equitable access to initial attack capability. As with the maximum risk above, there are a number of moderate risk buildings and structures identified in the following sections.

Remote Isolated Rural Risks

Areas may be classified as remote rural risks if they are isolated from any centers of population and contain few buildings. There is a low probability of events and low consequences. Examples include the following:

- Rural land with minimal occupied structures.
- Recreational areas.

Natural Hazard Assessment

Areas in the North County Fire Protection District are included in the San Diego County Multi-Jurisdictional Hazard Mitigation Plan last updated in 2018. This plan is a good source of natural hazard identification, probability, and vulnerability of the various hazards that may impact the residents and businesses of the North County Fire Protection District.

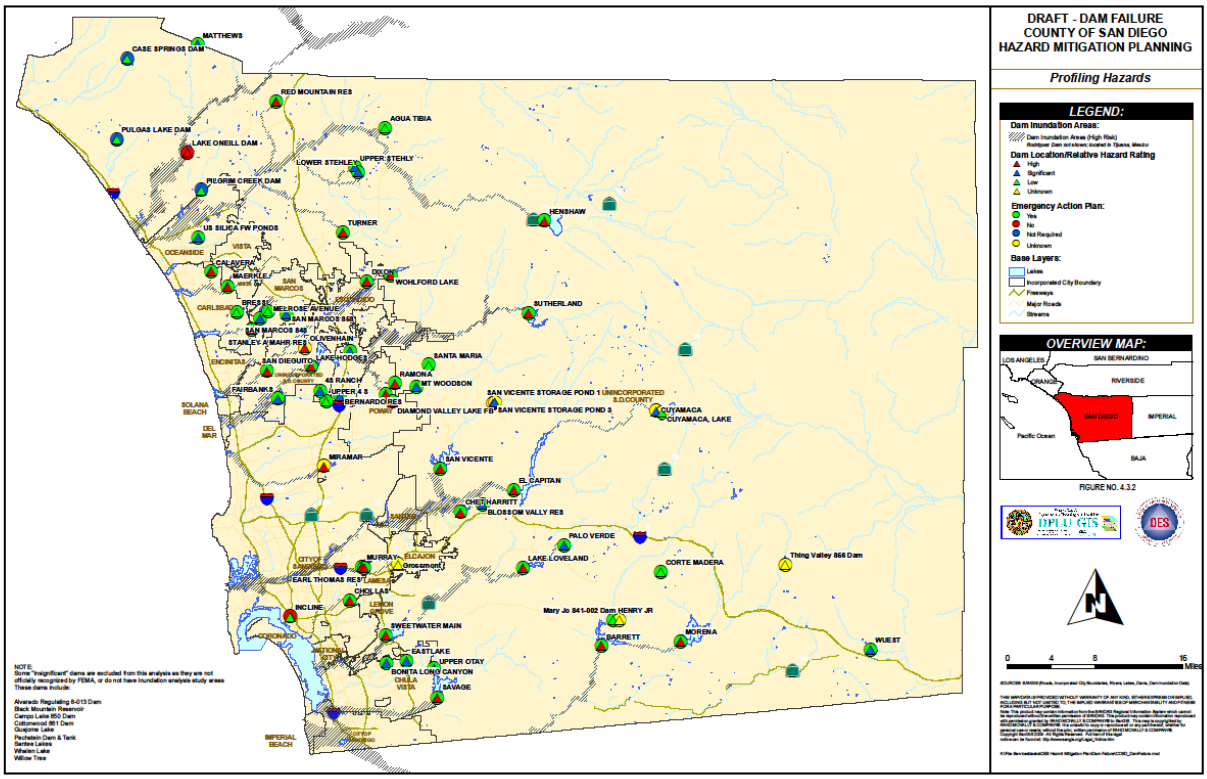
- Coastal Storms, Erosion, and Tsunami
- Dam Failure
- Drought
- Earthquake
- Floods
- Hazardous Materials Release
- Landslide
- Liquefaction
- Nuclear Materials Release
- Terrorism
- Wildfire/Structure Fire

Some of the events shown in the previous table may not have a direct impact on the North County area but will have an indirect impact. The impact from coastal storms, tsunami, and erosion will more likely be sheltering evacuees from the coastal areas of the county.

Dam Failure

The Red Mountain Reservoir is located to the north of the current CAL FIRE Red Mountain Station on East Mission Road. Based on the hazard mitigation plan the dam is considered a high hazard and has an emergency action plan in place. According to the plan, a dam is characterized as high hazard if it stores more than 1,000 acre-feet of water, is higher than 150 feet tall, has potential for downstream property damage, and potential for downstream evacuation. Ratings are set by FEMA and confirmed with site visits by engineers.

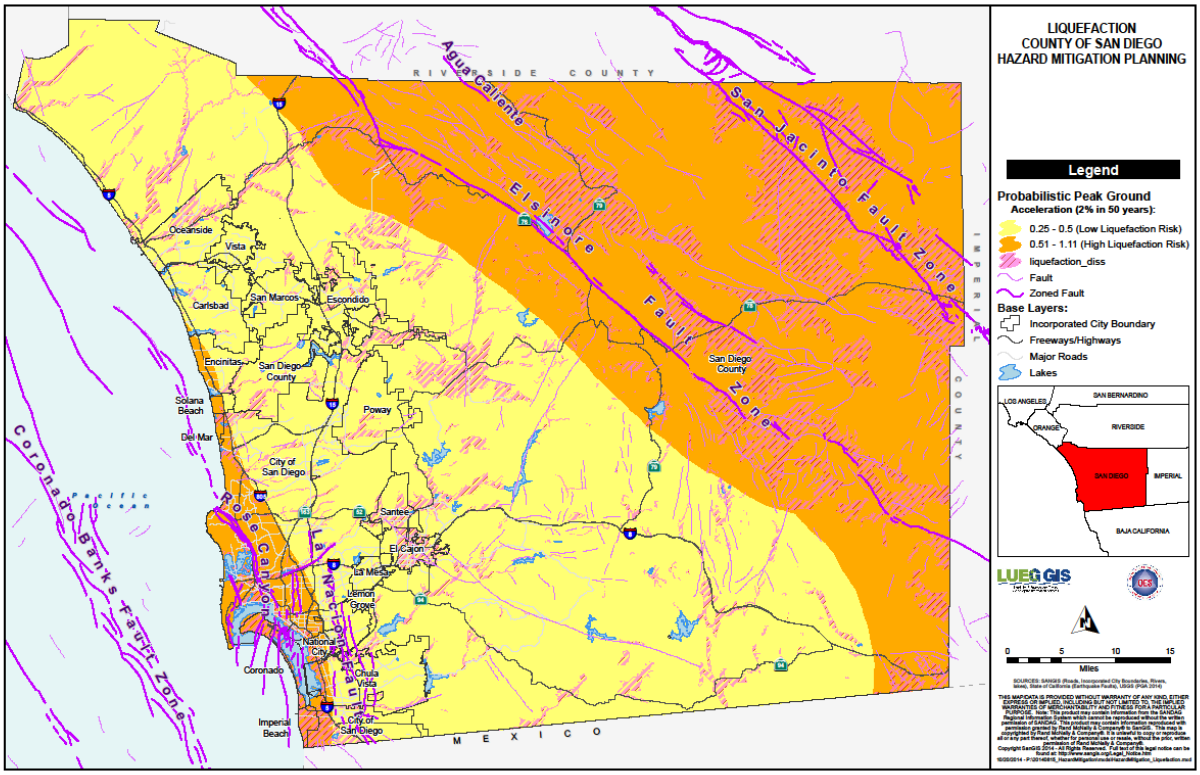
Dam Locations from the San Diego County Multi-Jurisdictional Hazard Mitigation Plan



Liquefaction

Liquefaction occurs with ground shaking that causes loose soils to lose strength and act more like quicksand. This loss of bearing strength can cause structural failures. According to the San Diego County Multi-Jurisdictional Hazard Mitigation Plan, liquefaction is not known to have occurred in the county. However, based on the map contained in the plan, North County Fire Protection District has a significant area that is considered a high risk.

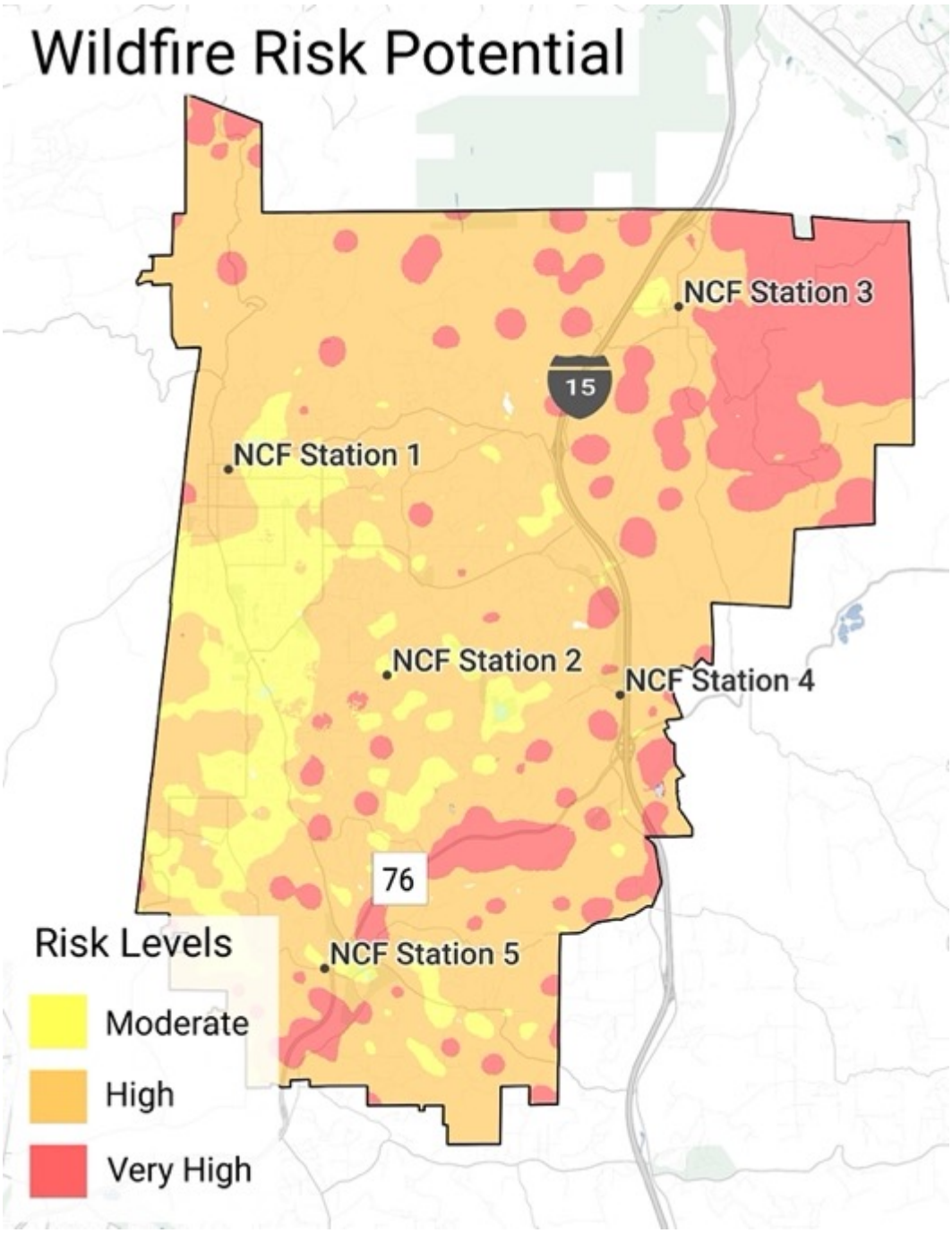
Liquefaction hazard from the San Diego County Multi-Jurisdictional Hazard Mitigation Plan



Note the liquefaction hazard is high in the rainbow area of the district.

Wildland Urban Interface

As the population grows and expands towards the forested areas, an interface between the urban setting and the wildlands is established. In California there are two designated areas known as State Responsibility Area (SRA) and Local Responsibility Area (LRA). These tow designations relate to mitigation efforts and fire response efforts in the state. For the North County Fire Protection District, the Fallbrook area is considered to be LRA while the remaining part of the district is SRA. However, when a fire does occur resources from state and local fire response agencies are utilized. The following map highlights the wildfire risk levels in the fire district.

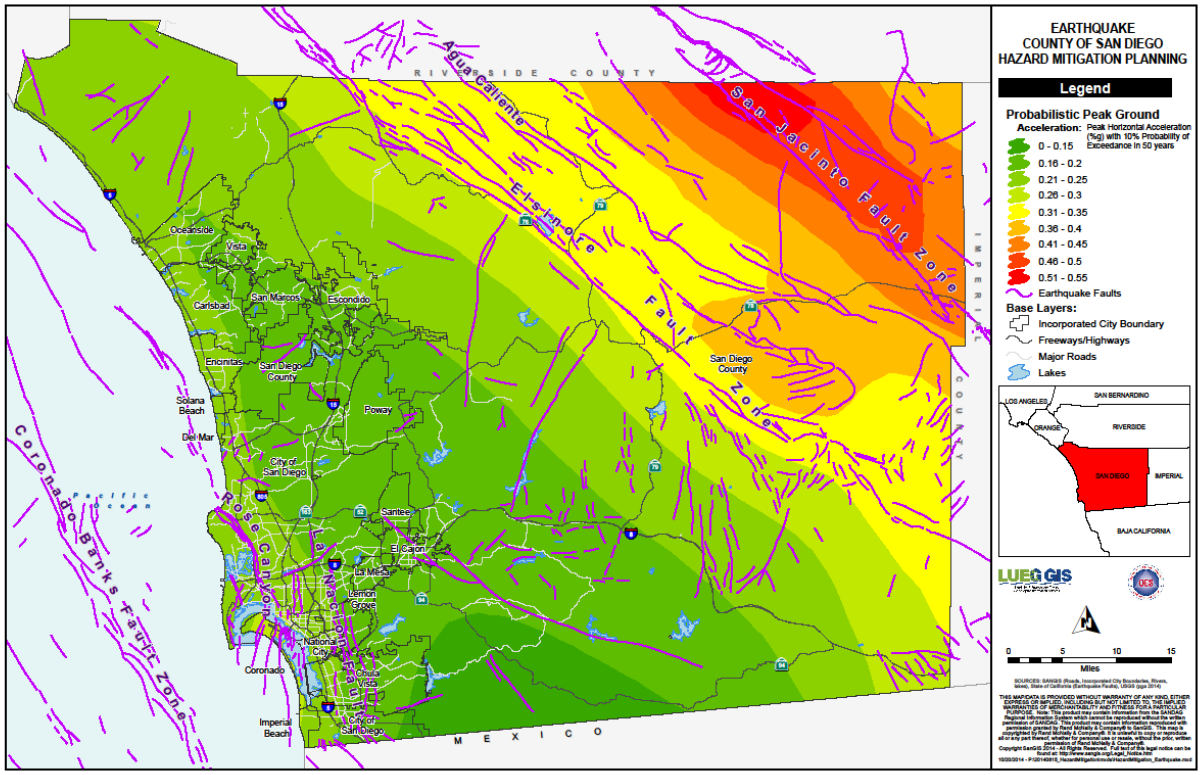


Note the very high-risk level in the Rainbow area of the district as well as along the SR 76 corridor. Areas in the northern area have limited access and contain numerous valley areas potentially creating access issues.

Earthquakes

North County Fire Protection District is situated in an area of the county that does not have any fault lines directly running through the district. There are, however, fault lines in

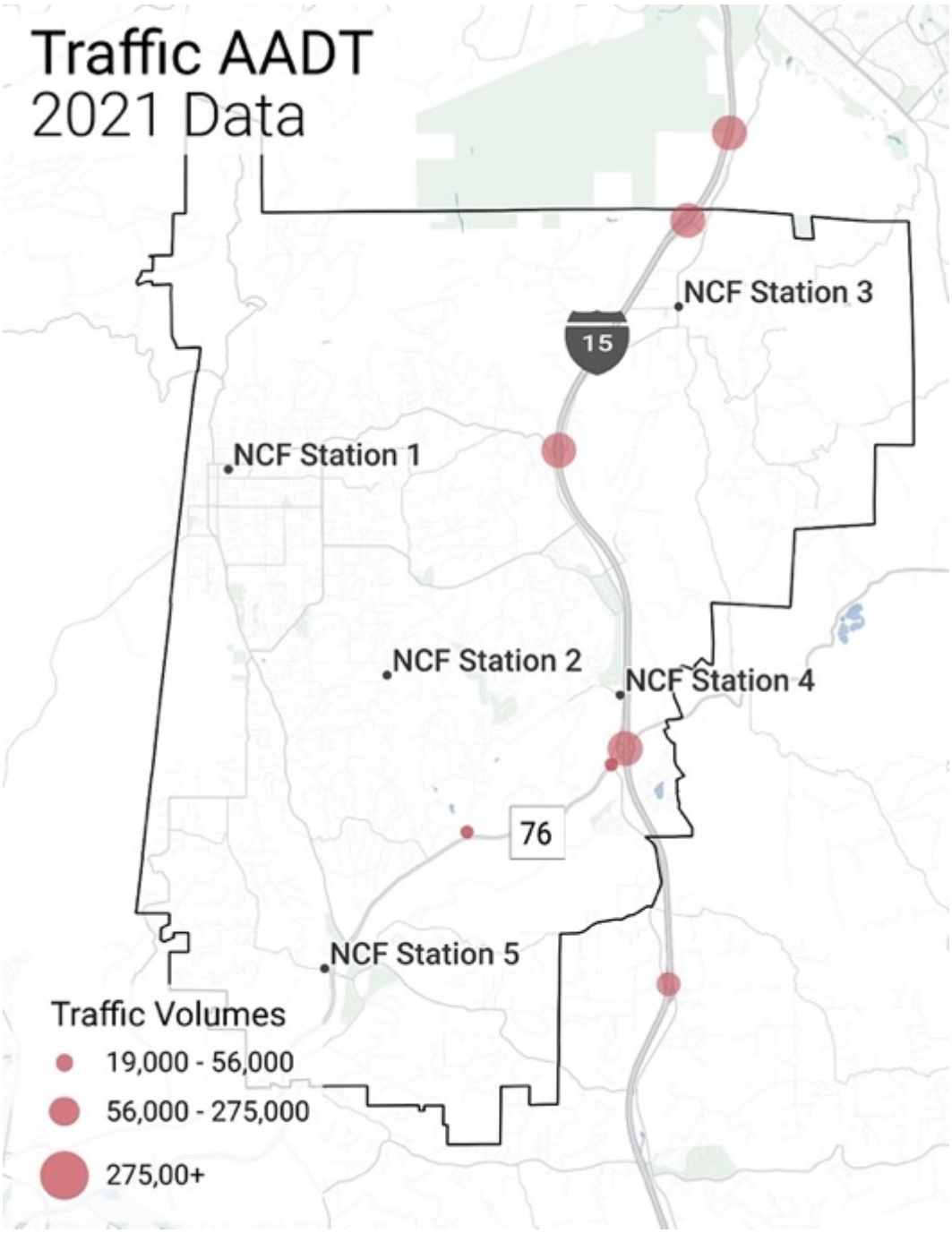
various areas of the county as illustrated in the following map from the San Diego County Multi-Jurisdictional Hazard Mitigation Plan.



Note the Elsinore Fault Zone in the central part of the county and San Jacinto Fault Zone in the eastern part of the county. According to the San Diego County Multi-Jurisdictional Hazard Mitigation Plan, the most recent earthquake occurred on June 15, 2004, approximately 50 miles southwest of San Diego.

Transportation

The North County Fire Protection District is located along I-15 in the northern section of San Diego County. Interstate 15 transects the district on a north-south trajectory connecting San Diego to southwestern parts Los Angeles and on to Las Vegas. Along the southern part of the district is Highway 76 that creates an east-west corridor between Pala Mesa and Oceanside. The data is provided as point data meaning the traffic counts are taken at specific points along the route. The following map illustrates an average daily traffic count as provided by the State of California.



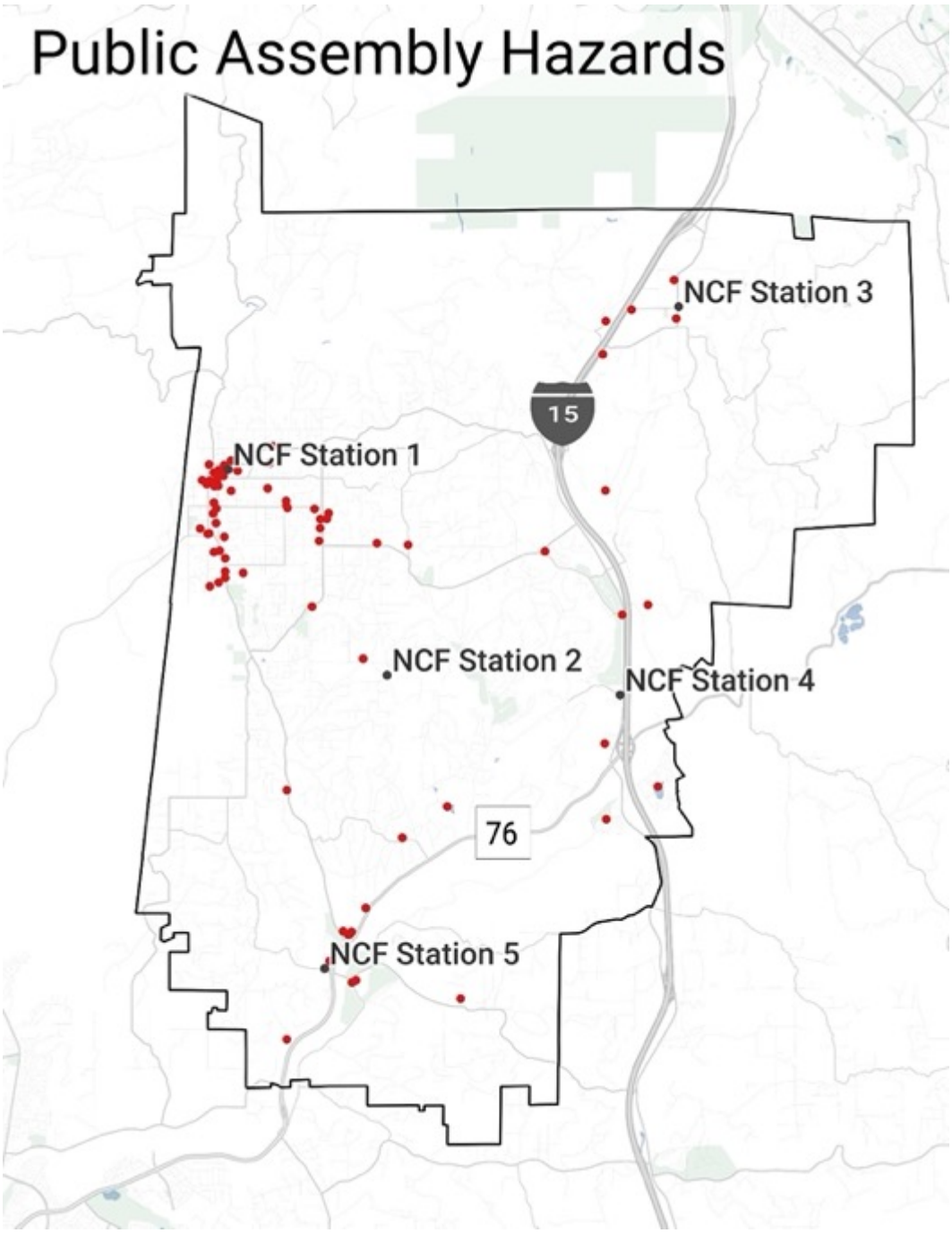
As shown, average traffic counts in the area of Route 76 and Mission Road along I-15 range between 145,000 and 147,000 vehicles daily. State Route 76 has an average daily count of approximately 41,500 vehicles at South Mission Road intersection.

Physical Hazards

Physical hazards are facilities in the built upon area that may present a unique challenge for the Fire District. These facilities are also referred to as target hazards. The Federal Emergency Management Agency (FEMA) defines target hazards as those facilities either in the public or private sector that provide essential products and services to the public, are otherwise necessary to preserve the welfare and quality of life in the community, or fulfill important public safety, emergency response, and/or disaster recovery functions.

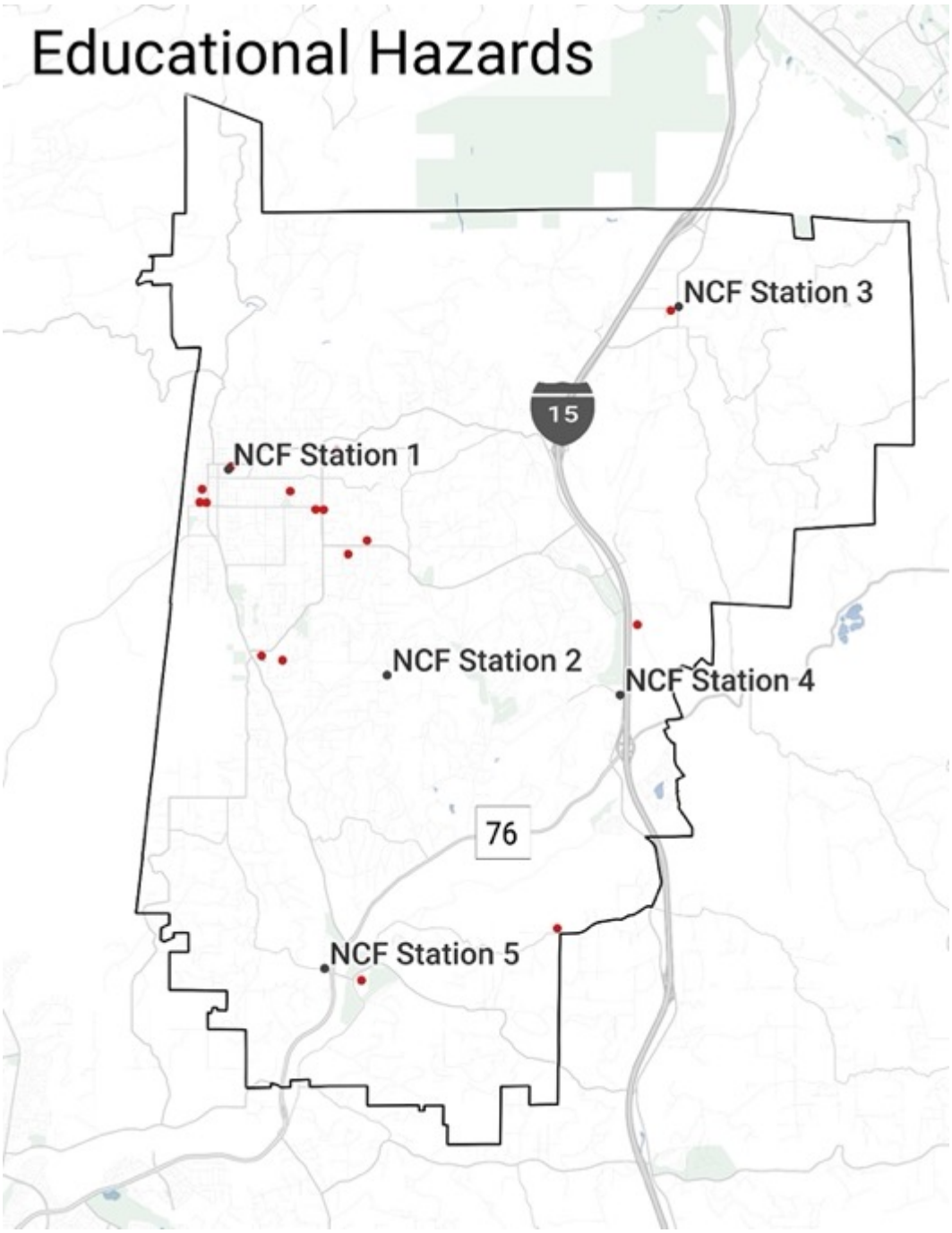
Places of Assembly

Public assembly facilities provide a risk of mass casualty incidents, as well as fires and potential terrorist incidents. The map that follows provides an illustrative view of the locations of these types of facilities in the district. Note the higher concentration of these types of facilities in the Fallbrook area of the district.



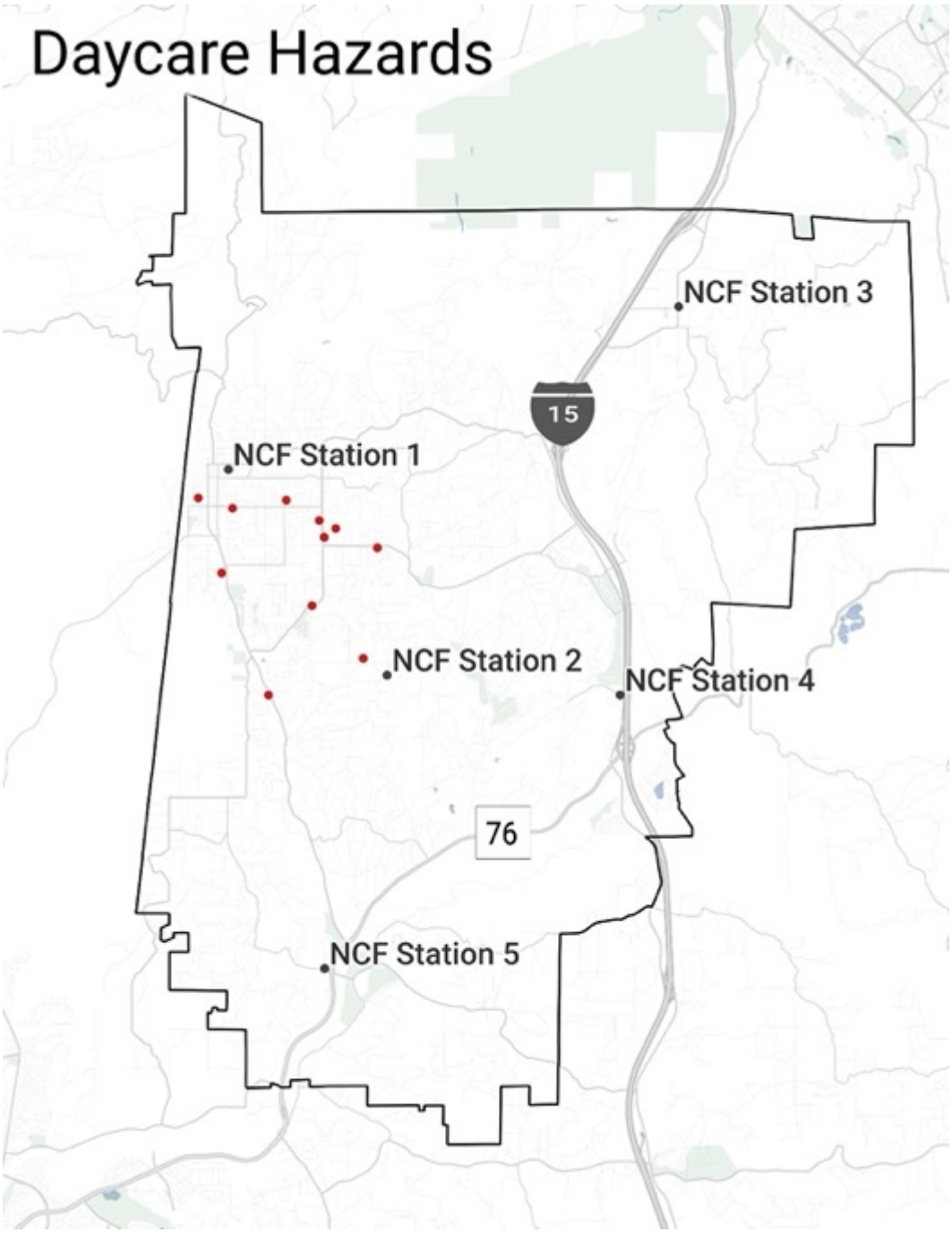
Education Facilities

As with Public Assembly facilities, schools also provide a risk of mass casualty incidents and potential terrorist incidents. These facilities typically have large meeting areas for sports and assembly halls. The following map provides an illustrative view of the locations of these types of facilities in the fire district.



Daycare Facilities

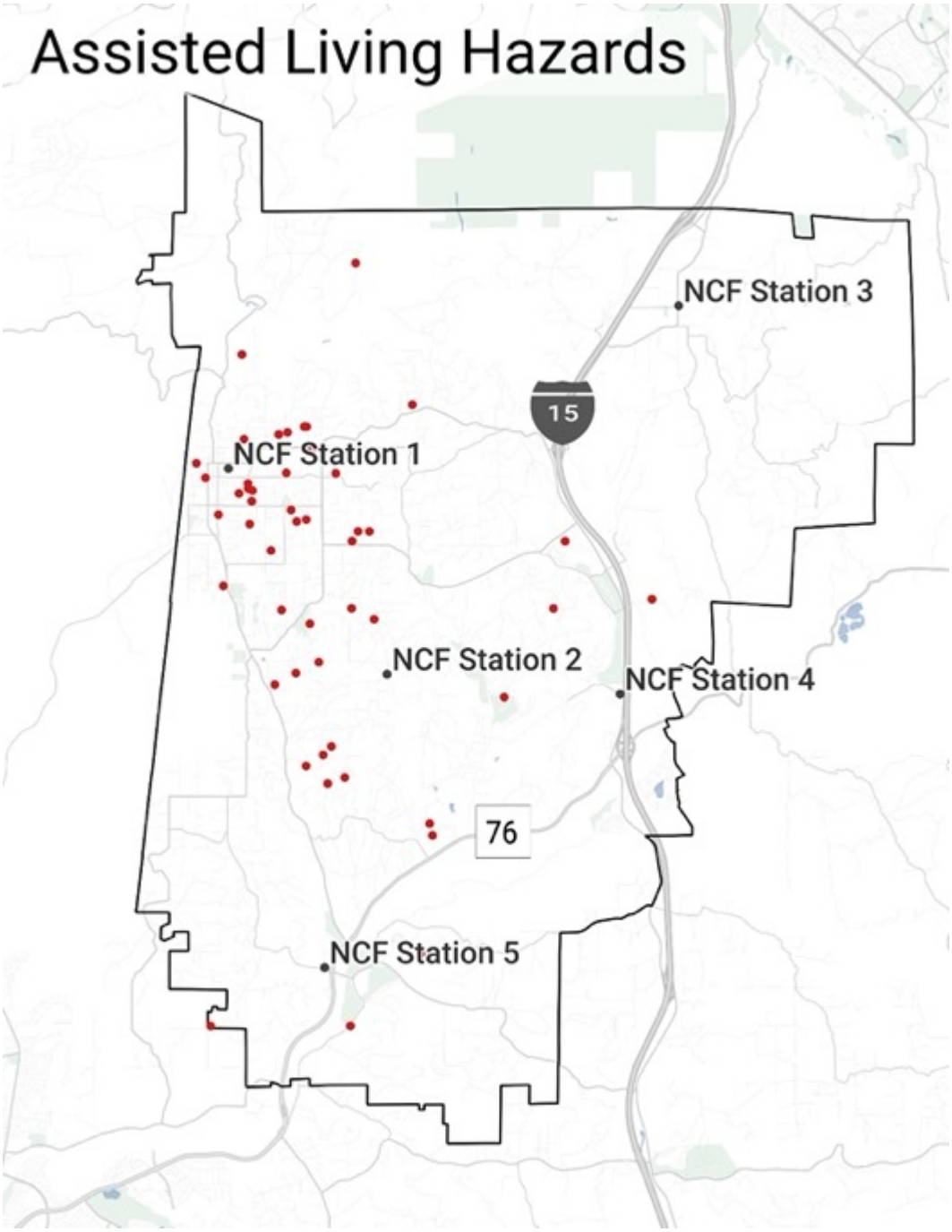
Day care facilities are generally smaller than schools but house children that are much younger in age including infants. These facilities present a life risk due to the younger age of the occupants and the need to assist with evacuation and rescue.



Institutional Facilities

Institutional facilities include hospitals, nursing homes, assisted living facilities and extended care facilities. While most of these facilities have built-in fire protection systems such as fire sprinklers, the residents of these facilities may not be mobile or will at the very least need other assistance in the event of an emergency. Impacts to the emergency medical services system may also be increased as the residents typically

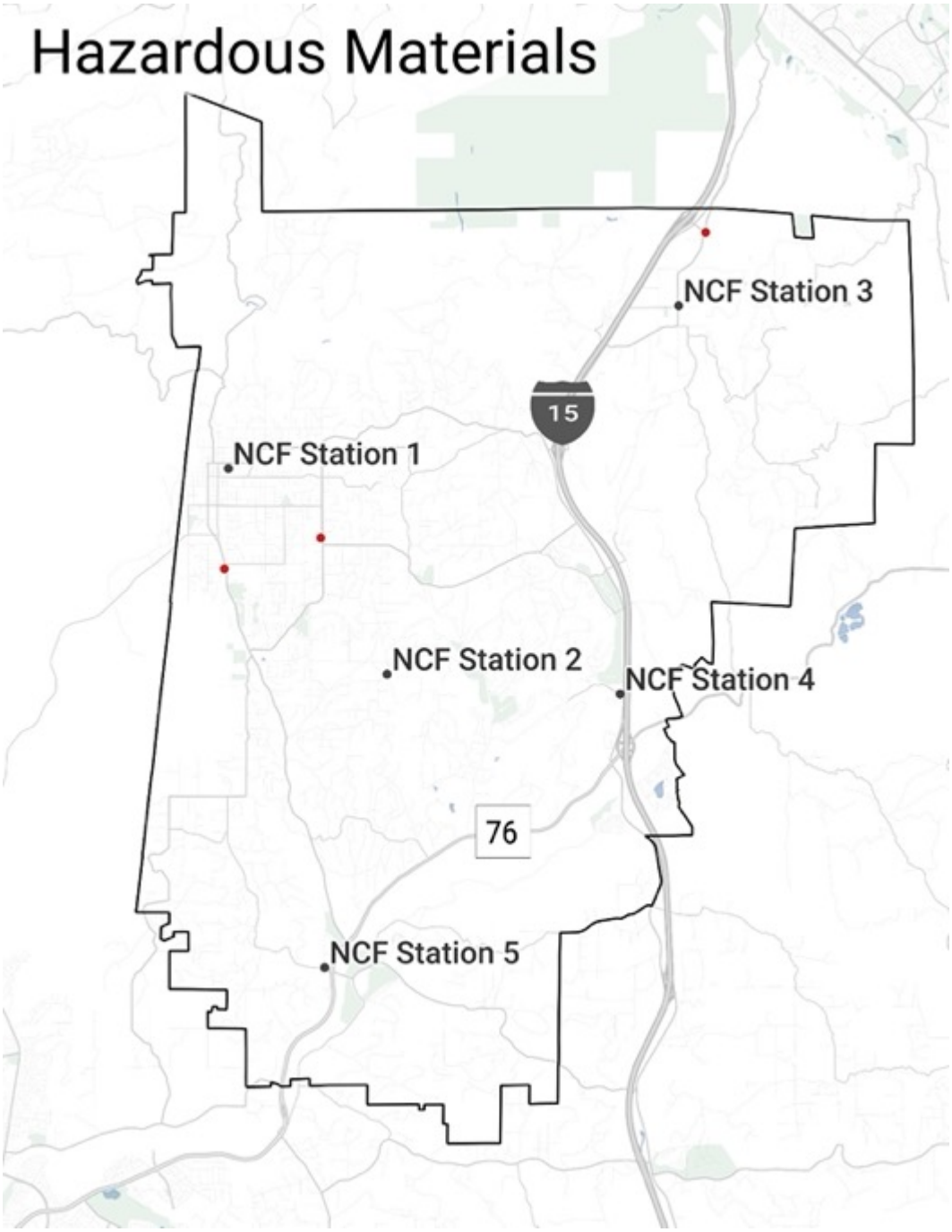
require additional medical care. The following map provides an illustrative view of the locations of these types of facilities in the fire district.



High Hazard Facilities

These types of facilities present a different challenge to the fire district. With these facilities, extinguishing a fire may not be the best solution and there is also the spill hazard that is present. These types of incidents may require more personnel for

suppression, containment or may require specialized equipment. The map that follows provides an illustrative view of the locations of these types of facilities in the fire district.

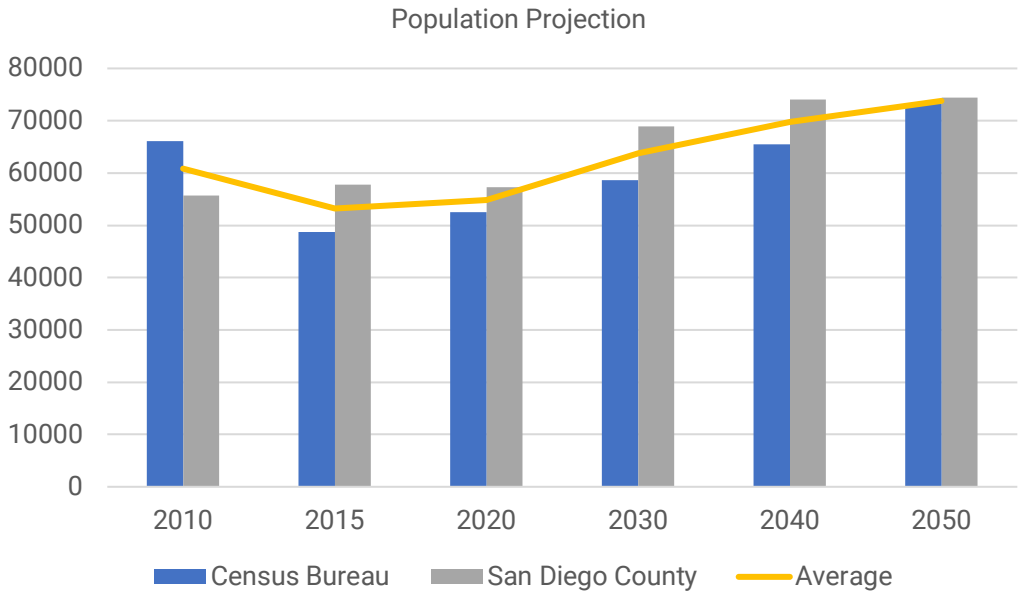


Community Growth and Development

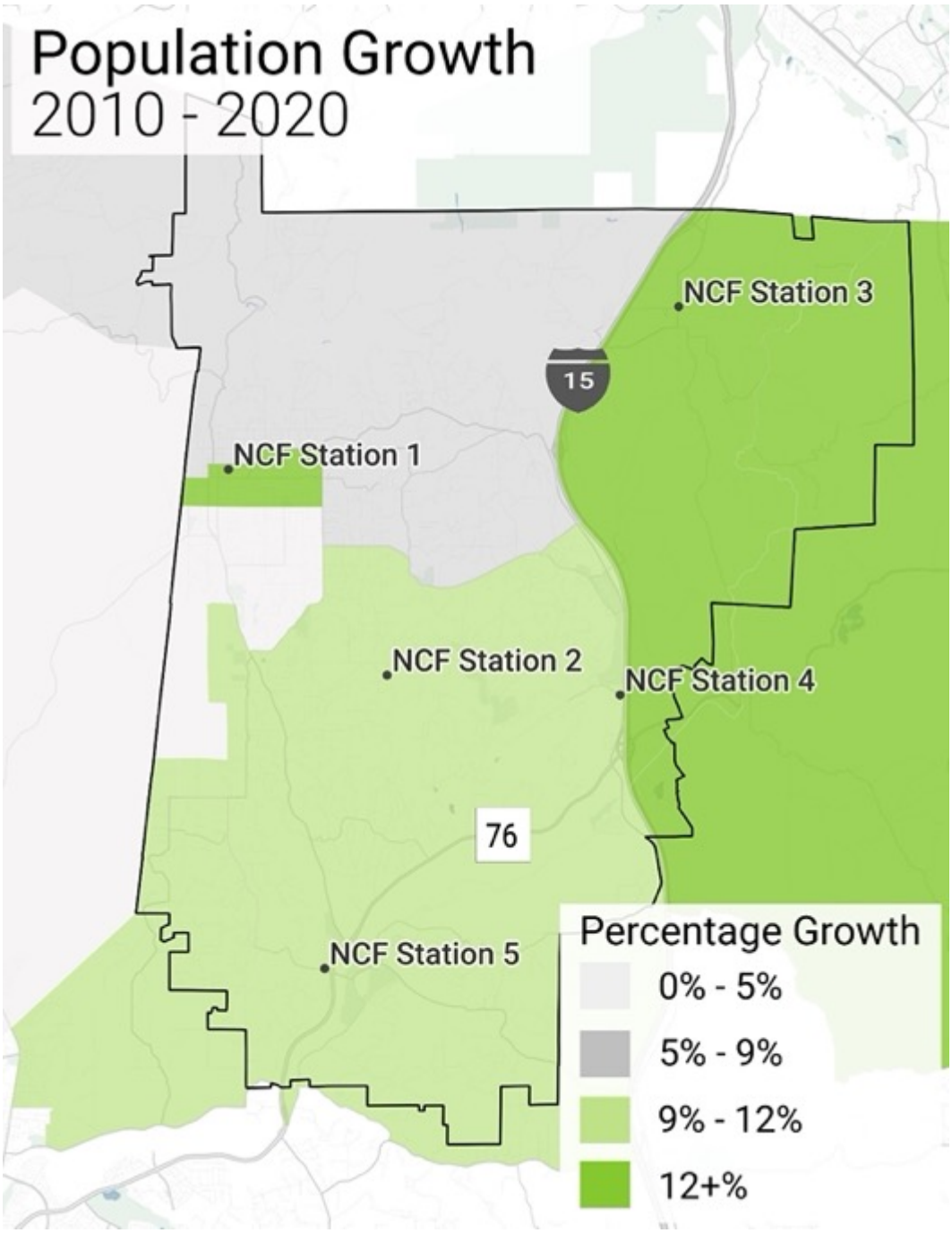
Population Changes

In February 2021 San Diego County produced their Housing Needs Assessment. Within this report there are some growth projections of interest to the fire service community and to the future of fire and emergency medical services delivery. According to this report, the population growth from 2018 to 2050 was projected to be approximately 38.3% for Bonsall, 27.3% for Fallbrook, and 37.0% for the Rainbow area.

Using the US Census Bureau data, the annual growth rate for the past nine year has been approximately 1.1% for the Fallbrook area that includes Bonsall and Rainbow. The chart that follows visualizes these trends and provides a projection comparing the US Census Bureau data and data included in the San Diego report.



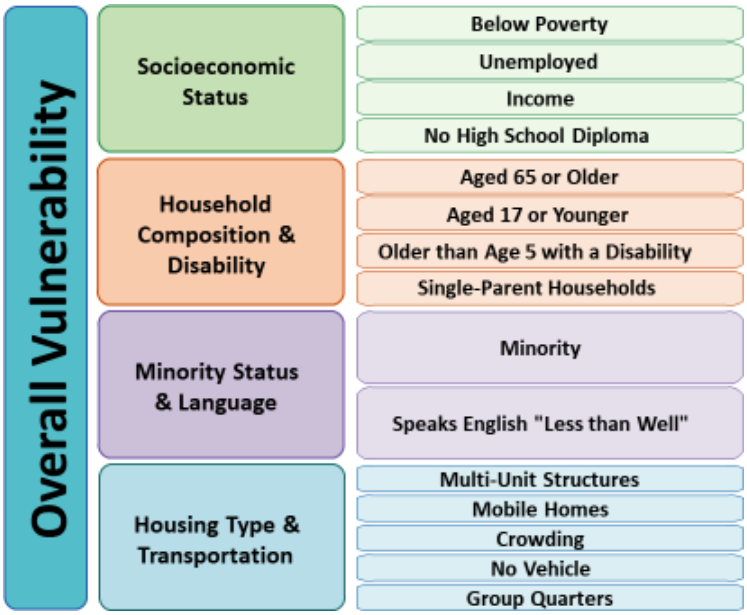
The data collected was integrated into a GIS (geographic information systems) format in order to spatially analyze historical, current, and future growth trends. For a historical view, the following map utilizes the US Census Bureau data to illustrate the population growth during the past nine years.



With the I-15 corridor transecting the fire district, the development is predicted to be along that corridor. The close proximity of San Diego to the south and Temecula to the north, this will allow commuter traffic easier access. As well, the pandemic events of 2020 have allowed many companies to opt for working remote allowing people to live virtually anywhere and still maintain their employment. This change will likely have an effect on the population migration and the changes in the demographics.

Additional Risk Factors

The Center for Disease Control (CDC) created the Social Vulnerability Index (SVI) to assist public health and emergency response organizations to identify and map the areas of a community that will most likely need support before, during, and after a hazardous event. The SVI is determined by examining a variety of factors such socioeconomics, housing composition, and residents with disabilities. The following chart from the CDC illustrates the data from the US Census Bureau used in calculating the SVI for the areas.



As noted, there are 15 social factors that are grouped into 4 themes to create a vulnerability index. Each of the factors receive a ranking that is combined together into the overall theme. It is possible to have an area that has a lower ranking in terms of housing but has a higher ranking due to the age of the residents and the type of household such as single-parent households. The intent is not to identify poor areas of a community but to identify areas that may require additional assistance following an emergency event.

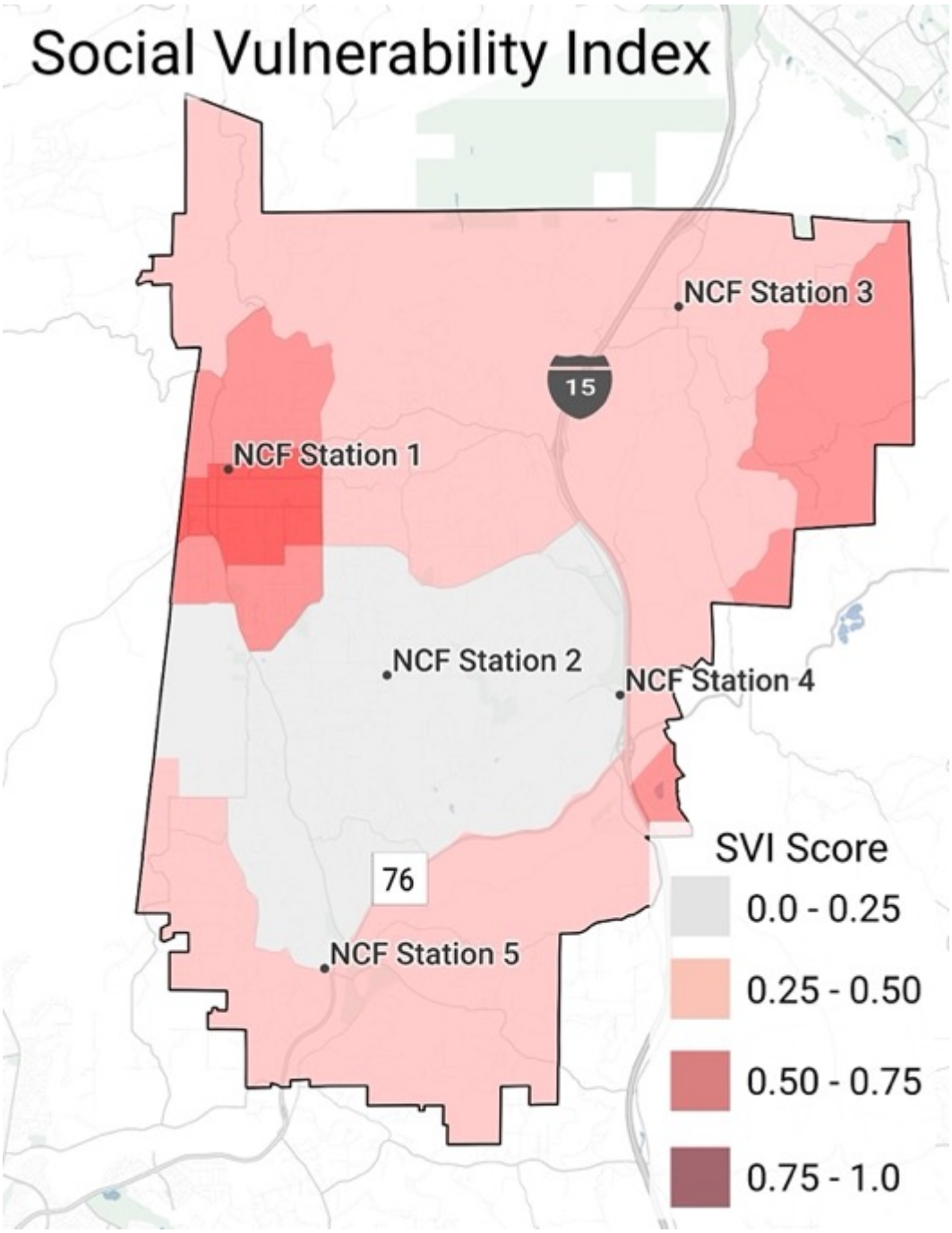
This tool uses specific socially and spatially relevant information to assist public health officials and local planners to better prepare communities to respond to emergency events such as severe weather, floods, disease outbreaks, or chemical exposure.

The tool can be used to:

- Allocate emergency preparedness funding by community need.
- Estimate the type and amount of needed supplies such as food, water, medicine, and bedding.

- Decide how many emergency personnel are required to assist people.
- Identify areas in need of emergency shelters.
- Create a plan to evacuate people, accounting for those who have special needs, such as those without vehicles, the elderly, or people who do not speak English well.
- Identify communities that will need continued support to recover following an emergency or natural disaster.

The map that follows illustrates the SVI score by census tract for the fire district.

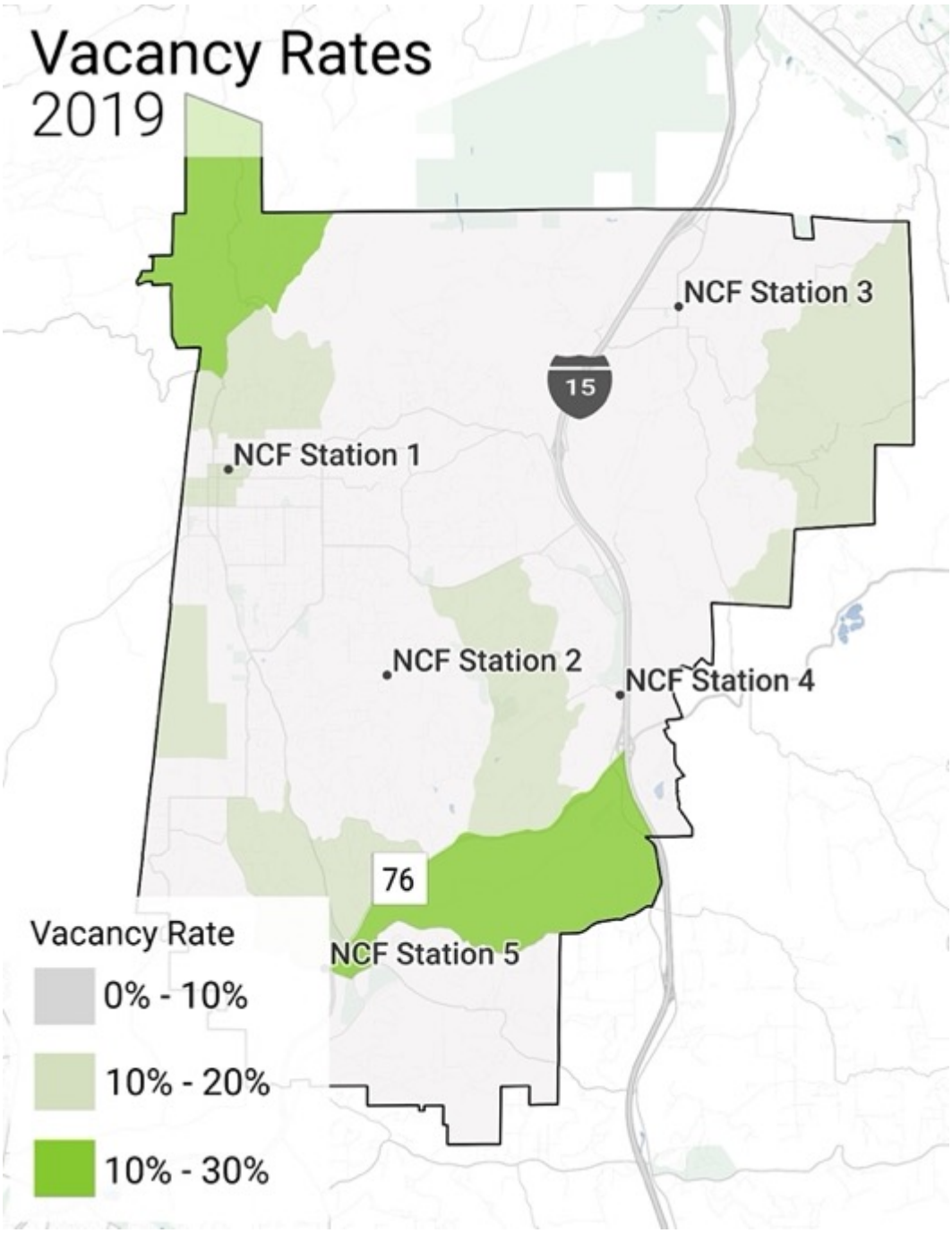


The highest SVI scores are in the south part of Fallbrook with other areas in the Fallbrook area in an increased score area. Areas to the east of Rainbow also have a higher score. The higher score areas in Fallbrook are likely due to the assisted living facilities in the area that may require additional resources and assistance. This is not an indication these areas are deprived it is an indication these areas will likely need additional assistance.

Vacancy Rates

In 2019 there were 17,052 housing units in the Fallbrook CCD area according to the US Census Bureau estimates. Of these housing units, 74.4% were single-family residences, with 18.5% being multi-family, and another 7.2% being mobile homes. Approximately 48% of these units were constructed prior to 1980 and 36% constructed between 1980 and 1999. The risk of fires is greater in older buildings with outdated building codes which may have building construction, type of materials, or wiring that increases the risk and spread of fire.

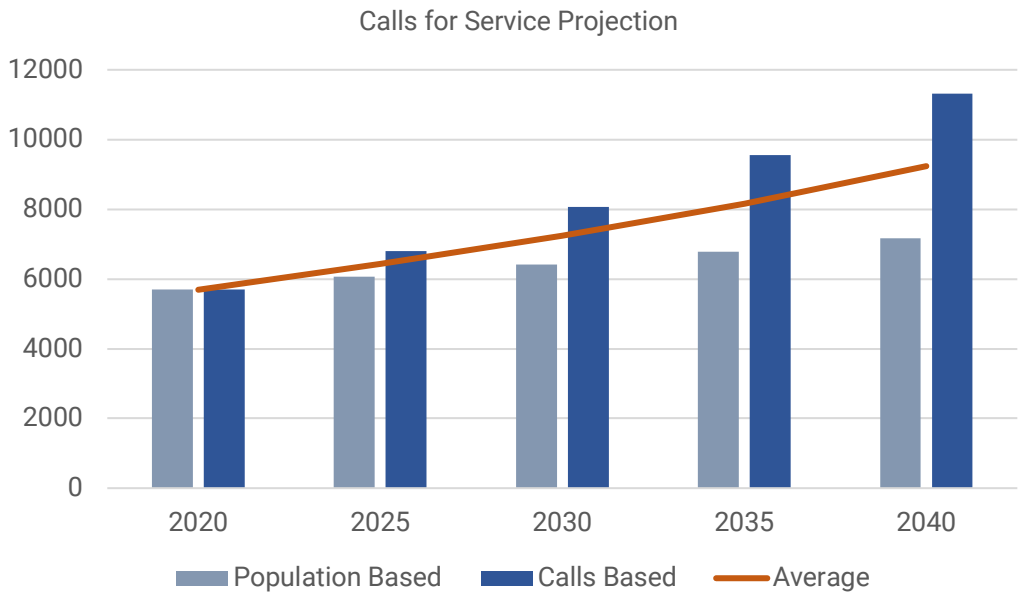
Based on the estimates from the U.S. Census Bureau, the Fallbrook CCD had an overall vacancy rate of 5.2% in 2019 as compared to 6.8% for the State of California. The National Fire Protection Association (NFPA) reports from 2011 – 2015 fire departments responded to an average of 30,200 structure fires per year in vacant properties. According to the report, fires in vacant buildings are more likely to have been intentionally set and to spread beyond the building than fires in other structures. The following map illustrates the vacant buildings, by census tract, based on estimates from the U.S. Census Bureau for 2019.



Emergency Services Demand Projection

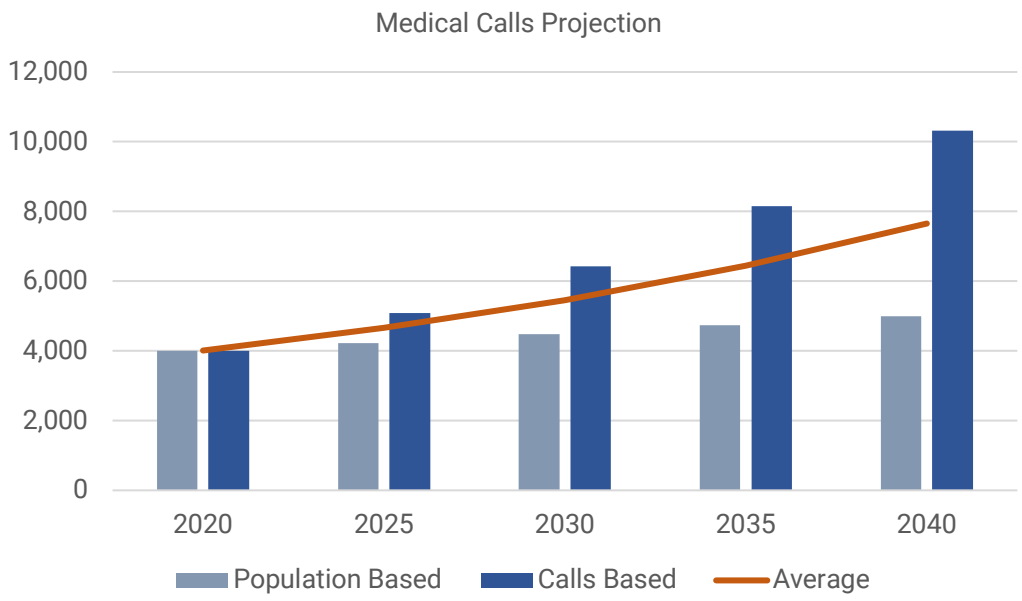
As population in an area continues to grow and new buildings are constructed, the demand for services will also increase. These services take many forms and for all parts of local government including public works, parks, law enforcement and fire and

emergency medical services. For the North County Fire Protection District the calls for service have increased approximately 4.5% from 2020 to 2021 with an average of 3.4% over the past three years. Population growth has increased approximately 1.1% per year for the past 10 years. The following chart illustrates the projected calls for service through 2040.



The calls are shown based on population growth and historical call volume. Based on the past three years the average calls per person is .109 calls per person. Using the historical calls for the past three years the annual average increase is 3.4%. Based on the population growth the calls for service in 2040 is projected to be 7,165. Using the historical calls for service as a base, in 2040 the number of calls will be 11,307. The average between the two methods is 9,236 in 2040.

Using the same methodology, the following chart illustrates the emergency medical calls for service in the fire district.



Based on the past three years the average calls per person is .076 calls per person. Using the historical calls for the past three years the annual average increase is 4.8%. Based on the population growth the calls for service in 2040 is projected to be 4,998. Using the historical calls for service as a base, in 2040 the number of calls will be 10,308. The average between the two methods is 7,653 in 2040.

Given the wide range between the population based and historical workload-based projections, the average projection would appear to provide the best projection of calls for service. The number of emergency medical calls will continue to rise as our population ages. Based on the US Census, the average age in the district has increased from 40.4 to 42.5 over the past ten years. Additionally, those in the age demographic of 60 plus years has increased from approximately 23% of the population to approximately 29% in the same time period.

Administrative Services

Supporting the emergency response and mitigation efforts is a function of the administrative model. In terms of organization risk, the North County Fire Protection District has no support from a municipal organization meaning some issues must be addressed by the fire district.

Organization Assessment

Part of the organizational structure are the administrative policies and procedures that guide the organization. The documented polices of the fire district include finances, human resources, position descriptions, and other internal procedures. Some of the policies have not been reviewed and updated in some instances since 2000. For example, the Discrimination and Harassment Policy was last updated in December 2015 and the Code of Ethics was last updated in June 2008. Other policies and position descriptions have been updated as late as September 2021. Part of this strategic planning process included an employee survey. Based on those results approximately 34% of the respondents either did not express an opinion or disagreed with the policies being current and approximately 36% of the respondents did not express an opinion or disagreed with the policies are not consistently updated. Further, there were comments related to the policies being outdated and not a clear process to revise and update the policies and procedures.

As noted, there is no support for the fire district like there is with a municipal department. As such the risk to the organization is much greater. The fire district should review its policies and procedures on a regular basis to reduce organizational risk. Outdated policies can create organizational risk through the lack of performance or no performance at all. For example, the Discrimination and Harassment Policy was last updated seven (7) years ago and for the Code of Ethics it has been fourteen (14) years. The laws and regulations change as does societal expectations; the policy needs to be reviewed to ensure these changes are reflected in the in the current policy.

Goal 1	**Improve the revision process for policies and procedures of the Board of Directors, administrative, and operational personnel to reduce organizational risk.**

Organization Continuity

Succession planning is a necessary function in every organization no matter the size. It is a process whereby the organization develops employees to fill key roles within the organization. This ensures there is an employee prepared to fill that key role if and when it opens. However, the tendency in most organizations is to plan informally or verbally for succession. Promotion of the most tenured people in the organization to positions that control the organization may not be the best use of this resource.

During the interview process, the project team learned there is a good path for advancement in the organization from the Firefighter position to the Engineer position. The same holds true from the Captain position to the Battalion Chief position. However, at the Battalion Chief level the advancement pathway slows and it is not as easy to make the transition. According to the interviews, with the next step from the Battalion Chief to the Division Chief level it is a change in work schedule that does not provide a clear pathway. In the lower positions there is an "acting" mechanism that allows a lower position to step up into the high role. For example, a Captain can step into the Battalion Chief role while the Battalion Chief is off duty. This is an easy transition as both are on the same schedule. This 'acting" mechanism is not available above the Battalion Chief level.

On a deeper level the current advancement in the organization is from Battalion Chief to Division Chief or Deputy Chief with little to no formal programming to prepare a Battalion Chief for this advancement. The Division Chief or Deputy Chief position is typically more involved with the administrative functions of budgeting, planning, and scheduling. The Battalion Chief is coming from the operations function with little exposure to the budgeting process or any planning processes that occur in the administrative area.

One mechanism to facilitate the continuity of the organization and provide a level of succession planning would be to add and Administrative Battalion Chief. This fourth Battalion Chief could then rotate between shift operations and the administrative functional areas provided exposure. The rotation could be for any period the district would establish; however, the project team recommends at a minimum of one year to ensure a well-rounded exposure to the various functions. This will provide these individuals with an education, training, and exposure to the various functions of the fire district. As well, this will provide a basis and background for promotion to the Division or Deputy Chief level.

A mentoring program would also provide additional support to the continuity and succession plan. These programs provide support to the employees as they settle into a new position, provides an opportunity for the more tenured officer to pass on their expertise, and encourages the development of leadership competencies. Promotions are always difficult but none more so than promoting from an Engineer to Captain. The

Captain is a front-line supervisor and the individual is now the one giving orders and not following them making this transition more difficult. A mentoring program for these promotions is essential to ensure the new officer gets started in the right way. sustain

Goal 2	**Continue to monitor and sustain the succession plan for the management and leadership of the North County Fire Protection District.**

Goal 3	**Monitor and sustain the existing mentoring program to provide support to new officers and in support of the succession plan.**

Organizational Guidance

Organizations and companies have vision and mission statements to provide guidance and direction to everyone involved in the organization. There is no requirement for an organization to have both although many do have both.

The vision statement should provide guidance and be forward-thinking describing an overall direction of the organization. It should support the organization to achieve its goals for the next 5-to-10-year time frame.

The mission statement describes what you do, who you do it for, and the benefit it provides. These are typically short and easily recitable by the members of the organization. The mission statement should guide the leaders in the field to make decisions when presented with a difficult situation, especially those outside the normal operations.

It is not uncommon for an organization to put together vision and mission statements without much thought or in a vacuum. These statements are directly related to the performance of an organization and should be well thought out to provide the direction desired to the organization. Aligning the vision and mission statements with the strategic plan will likely result in better performance and more productive organization.

Goal 4	**Formally adopt a vision statement, mission statement, and core values to be developed by the internal stakeholders of the fire district.**

Emergency Services System Dynamics

In making decisions about the emergency services system, it is important for the leadership of North County Fire Protection District to understand the science behind the location of resources, the deployment strategies of those resources, and other parts necessary to form an effective emergency services system. For many years the Insurance Services Office (ISO) had set the standard for deployment through their Public Protection Classification system. This system was designed to provide insurers a basis for setting insurance rates and to limit their exposure to large losses and catastrophic events. While these efforts provided a good starting point, there is much more for the leadership to know while making decisions about the emergency services in North County Fire Protection District.

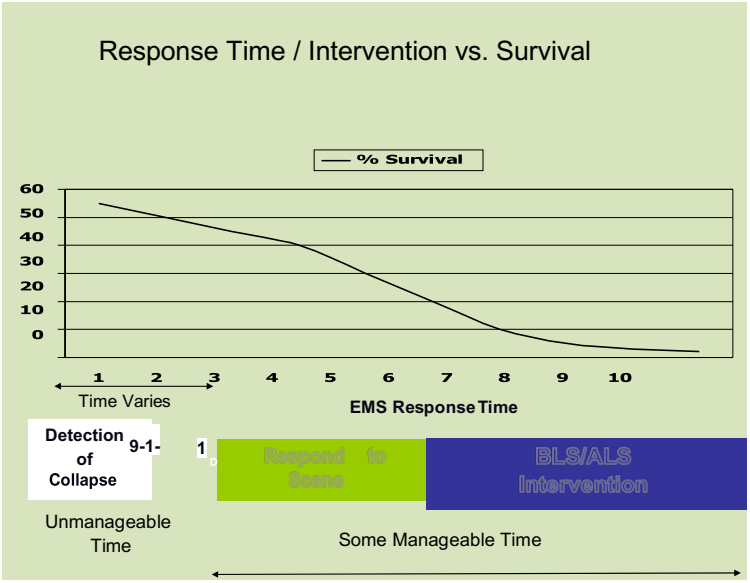
Nationally, the National Fire Protection Association (NFPA), Commission for Public Safety Excellence (CPSE), American Heart Association (AHA), United States Fire Administration (USFA), Underwriters Laboratories (UL), Factory Mutual (FM), National Institutes of Standards and Technology (NIST), and Insurance Services Office (ISO) have put considerable effort into data collection, analysis, and the eventual development of performance objectives for the delivery of fire and emergency medical services. This effort is critical for local governments making decisions about deployment and location of emergency resources. The objectives promoted for Fire/Rescue and EMS providers have their basis derived from research that has been conducted in these two critical issues:

- What is the key point in a fire's "life" for gaining control of the blaze while minimizing the impact on the structure of origin and on those structures around it?
- What is the impact of the passage of time on survivability for victims of cardiac arrest?

The next sections explain the decision points for these factors. It begins with the analysis, followed by how the North County Fire Protection District compares to the standards.

Emergency Medical Services

Delivery of emergency medical services is a function of the emergency services system to be considered. Emergency medical calls are rising in the fire district, and the types of calls are wide ranging. However, as a part of a community's healthcare system, one of the primary factors in the design of the emergency medical response is the ability to deliver basic CPR and defibrillation to victims of cardiac arrest. The graph below demonstrates the survivability of cardiac patients as related to time from onset:



This graph illustrates that the chances of survival of sudden cardiac arrest diminish approximately 10% for each minute that passes before the initiation of CPR and/or defibrillation. These dynamics are the result of extensive studies of the survivability of patients suffering from cardiac arrest. While the demand for services in EMS is wide ranging, the survival rates for full arrests are often utilized as benchmarks for response time standards as they are more readily evaluated because of the ease in defining patient outcomes (a patient either survives or does not). This research results in the recommended objective of provision of basic life support (BLS) within 4-minutes of notification and the provision of advanced life support (ALS) within 8 minutes of notification.

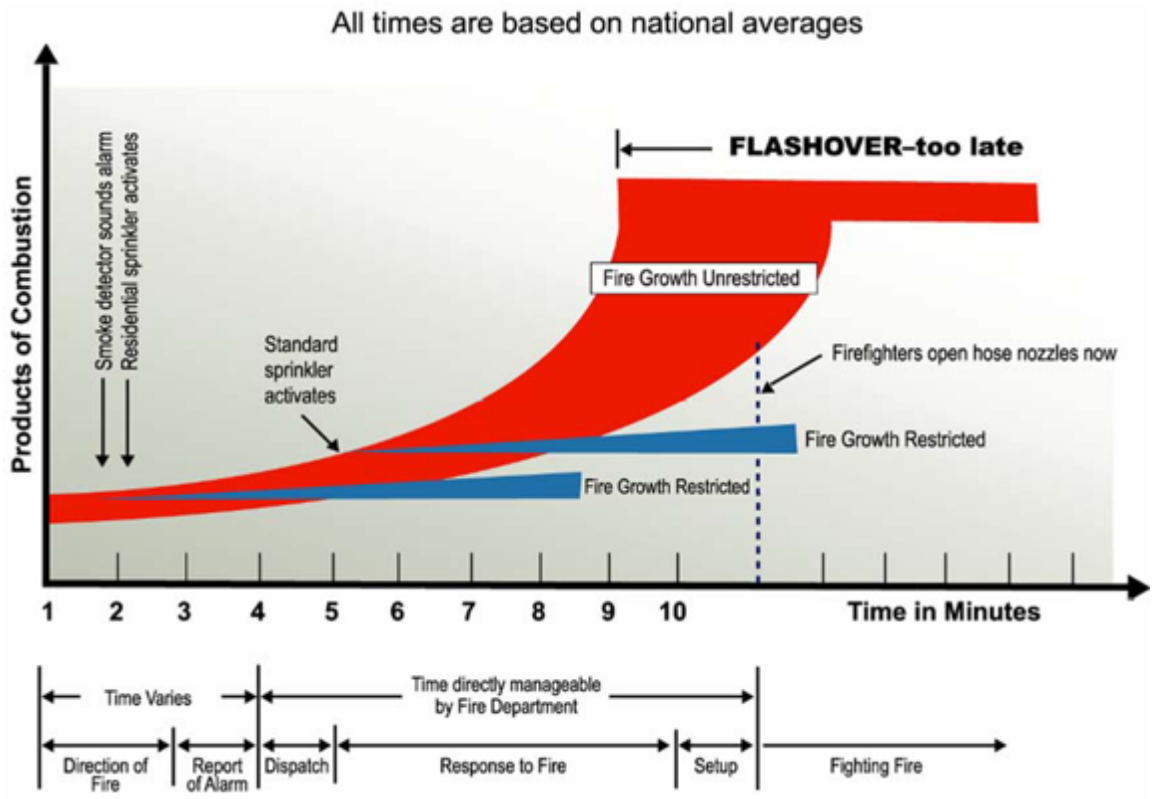
Considering the response time continuum, the response time goal for emergency services is to provide BLS within 6 minutes of the onset of the incident (including detection, dispatch and travel time) and ALS within 10 minutes. This is often used as the foundation for a two-tier system where fire resources function as first responders with additional (ALS) assistance provided by responding ambulance units and personnel.

Additionally, recent research is beginning to show the impact and efficacy of rapid deployment of automatic defibrillators to cardiac arrests. This research – conducted in King County (WA), Houston (TX) and as part of the OPALS study in Ontario, Canada – shows that the AED can be the largest single contributor to the successful outcome of a cardiac arrest – particularly when accompanied by early delivery of CPR. It is also important to note that these medical research efforts have been focused on a small fraction of the emergency responses handled by typical EMS systems – non-cardiac events make up the large majority of EMS and total system responses and this research

does not attempt to address the need for such rapid (and expensive) intervention on these events.

Fire Suppression Services

The chart that follows, shows a typical "flashover" curve for interior structure fires based on data from NFPA, ISO, and the NIST. The point in time represented by the occurrence of "flashover" is critical because it defines when all the contents of a room become involved in the fire. This is also the point at which a fire typically shifts from "room and contents" to a "structure" fire – involving a wider area of the building and posing a potential risk to the structures surrounding the original location of the fire.



Note that this illustration depicts a fire from the moment of inception – not from the moment that a fire is detected or reported. This demonstrates the importance of early detection and fast reporting as well as rapid dispatch of responding units. This also shows the critical need for a rapid (and sufficiently staffed) initial response – by quickly initiating the attack on a fire, "flashover" can be averted. The points below describe the major changes that occur at a fire when "flashover" occurs:

- It is the end of time for effective search and rescue in a room involved in the fire. It means the likely death of any person trapped in the room – either civilian or firefighter.
- After this point in a fire is reached, portable extinguishers can no longer have a successful impact on controlling the blaze. Only larger diameter fire hoses will have enough water supply to affect a fire after this point.
- The fire has reached the end of the "growth" phase and has entered the fully developed phase. During this phase, every combustible object is subject to the full impact of the fire.
- This also signals the changeover from "contents" to "structure" fire. This is also the beginning of collapse danger for the structure. Structural collapse begins to become a major risk at this point and reaches the highest point during the decay stage of the fire (after the fire has been extinguished).

It should be noted that not every fire will reach flashover – and that not every fire will "wait" for the 8-minute mark to reach flashover. A quickly responding fire crew can do things to prevent or delay the occurrence of flashover. These options include:

- Use of a master stream device, using a handline through a window, or other "fast attack" methodology.
- Ventilating the room to allow hot gases to escape before they can cause the ignition of other materials in the room.
- Not ventilating a room – under some circumstances this will stifle a fire and prevent flashover from occurring.

Each of these techniques requires the rapid response of appropriately trained fire suppression resources that can safely initiate these actions. In the absence of automatic fire suppression systems, access to interior fires can again be limited by a safety requirement related to staffing levels. OSHA and related industry standards require the presence of at least 2-firefighters on the exterior of a building before entry can be made to a structure in which the environment has been contaminated by a fire, unless there is an immediate threat to life. Staffing levels also impact property damage, loss of business, and other economic impacts such as utilities, sales and income tax, and property taxes.

The results of the research efforts previously noted have been utilized by communities and first responders, often on their own with no single reference, to develop local response time and other performance objectives. However, there are four major sources of information to which responders and local policymakers can refer when determining the most appropriate response objectives for their community:

- The Insurance Services Office (ISO) provides basic information regarding distances between fire stations. However, this "objective" does little to recognize the unique nature of every community's road network, population, calls for service, call density, etc.
- The National Fire Protection Association (NFPA) promulgated a document entitled: "NFPA 1710: Objective for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments." This document (NFPA 1710) was published in 2001 and generated a great deal of dialogue and debate – which is still ongoing.
- The Commission on Fire Accreditation International (CFAI) in its "Objectives of Coverage" manual, places the responsibility for identifying "appropriate" response objectives on the locality. These objectives should be developed following a comprehensive exercise in which the risks and hazards in the community are compared to the likelihood of their occurrence.
- The American Heart Association (AHA) provides information on the response to cardiac events, the preferred methods of treatment, and the timing of the delivery of the medical care and treatment.

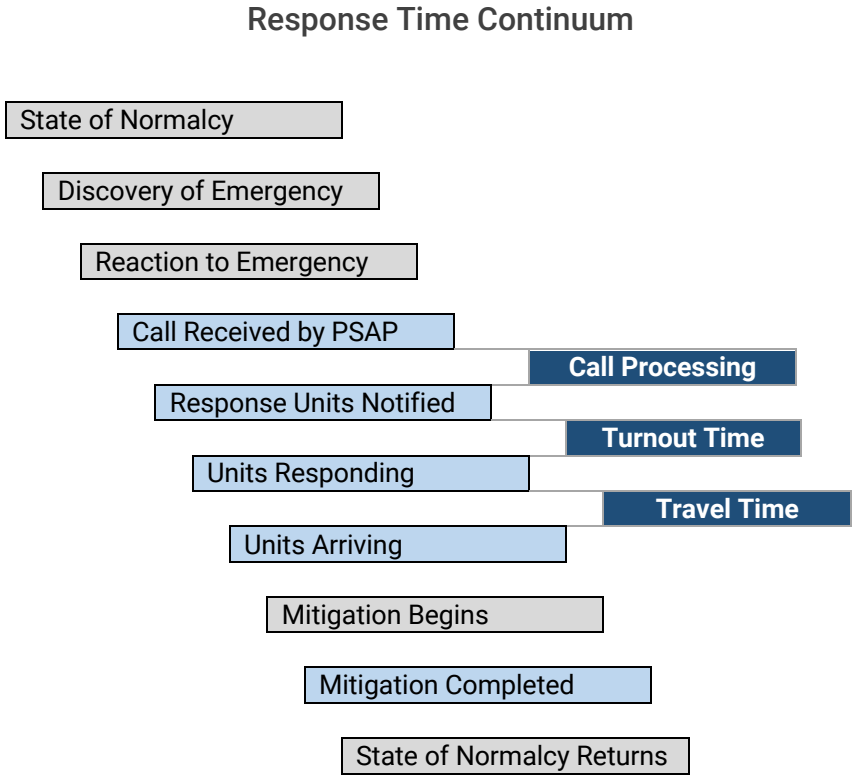
The next section examines the issue of response time.

National Response Time Criteria

The expression of response time has changed. In years past, the measurement was expressed as an average of time. This essentially represents how the system or district is performing 50% of the time and is not a true reflection of how the fire district is performing. With the research that has been performed in developing performance standards and practices, the use of fractal time has become the best practice in the measurement and presentation of response time components. Fractal response time measures how often (as a percent of calls) a department can perform within each response time component. The National Fire Protection Association (NFPA) and the Center for Public Safety Excellence (CPSE) use the 90th percentile as the standard to meet for benchmark and baseline criteria. Benchmark measurements are described as the industry best practice. Baseline measurements are described as the actual performance of the organization.

Response time to an emergency or call for assistance has been broken down into measurable and non-measurable segments. The response time continuum begins when the state of normalcy changes to a recognizable emergency. The following chart outlines the cascade of events that occurs once an emergency starts or is recognized. Those

highlighted points represent hard data or that which is quantitative versus soft data or that which is subjective and unknown.



The highlighted points in the chart above represent three segments that can be used for evaluation; call processing, turnout time, and travel time. Each of these components represent a different point in the response time continuum and through their measurement and evaluation, areas for improvement can be identified. Below are the definitions for the three components:

- Call Processing is the defined as beginning when the call taker answers the call and ends with the dispatching of appropriate emergency services.
- Turnout Time is defined as beginning when the emergency service receives the call and is on the apparatus responding (wheels rolling) to the call.
- Travel Time is defined as beginning when the apparatus and personnel begin the response (wheels rolling) and ends once on location of the emergency (wheels stopped).

The National Fire Protections Association (NFPA), Center for Public Safety Excellence (CPSE), and the Insurance Services Office (ISO) offered reference points for communities to follow relative to fire service responses; however, only NFPA 1710 offers any specificity. It is important to note that the performance objectives (in terms of response

times) provided in the NFPA 1710 document are derived from the basic research previously described. These include the following (all are taken from section 4.1.2.1 of NFPA 1710):

- One minute four seconds (64 seconds) for the processing of an incoming emergency phone call, including the completion of the dispatching of fire response units.
- "One minute twenty seconds (80 seconds) for turnout time for fire related incidents." This is also called reflex time, reaction time, "out-the-chute" time, etc. This is the time that elapses between dispatch and when the units are actively responding.
- "One minute (60 seconds) for turnout time for emergency medical incidents." This is also called reflex time, reaction time, "out-the-chute" time, etc. This is the time that elapses between dispatch and when the units are actively responding to an emergency medical incident.
- "Four minutes (240 seconds) or less for the arrival of the first arriving engine company at a fire suppression incident and/or 8 minutes (480 seconds) or less for the deployment of a full first-alarm assignment at a fire suppression incident."
- "Four minutes (240 seconds) or less for the arrival of a unit with first responder or higher-level capability at an emergency medical incident."
- "Eight minutes (480 seconds) or less for the deployment of a full first-alarm assignment at a fire suppression incident."
- In section 4.1.2.4, NFPA 1710 goes on to state: "The fire department shall establish a performance objective of not less than 90 percent for the achievement of each response time objective specified in 4.1.2.1"
- The American Heart Association (AHA) does not promulgate or identify performance objectives; it does, however, provide the background information and motivation for the responses to cardiac arrest and other health related issues.

It is also critical to note that these time objectives apply to emergency calls for service – there is nothing in the NFPA documents (nor in any other objective) that suggests that communities cannot establish a differential response to calls for service determined to be non-emergency in nature. In the response timetables included below, non-emergency responses were removed; only emergency responses are included.

The expression of response time has changed. In years past the measurement was expressed as an average of time. This essentially represents how the system or department is performing 50% of the time and is not a true reflection of how a department is performing. With the research that has been performed in developing performance standards and practices, the use of fractal time has become the best practice in the

measurement and presentation of response time components. Fractal response time measures how often (as a percent of calls) a department can perform within each response time component. The NFPA and CPSE use the 90th percentile as the standard to meet for benchmark and baseline criteria.

Previously the Center for Public Safety Excellence had defined benchmark and baseline response times for each of the three components. They have since determined they are not a standard making organization and decided to leave the establishment of response time standards to others. However, their body of work is significant and has been used by numerous communities across the country to assist with determining what baseline services should be for a community.

The definitions for the criteria of each service area are defined in the table below. CPSE also gives a community a range of acceptable performance standards from "Baseline", minimally accepted performance or to "Benchmark", fully compliant with best practices. CPSE had previously set the following performance standards for urban, suburban and rural areas:

Service Area/Population Density Response Travel Time Standards

	1st Unit	2nd Unit	1st Alarm Balance	Performance
Urban: Population density of over 1,000 per square mile				
Benchmark	4 minutes	8 minutes	8 minutes	90%
Baseline	5 minutes/12 seconds	10 minutes 24 seconds	10 minutes/24 seconds	90%
Suburban: Population density between 500 and 1,000 per square mile				
Benchmark	5 minutes	8 minutes	10 minutes	90%
Baseline	6 minutes/30 seconds	10 minutes/24 seconds	13 minutes	90%
Rural: Population density of less than 500 per square mile				
Benchmark	10 minutes	14 minutes	14 minutes	90%
Baseline	13 minutes	18 minutes/12 seconds	18 minutes/12 seconds	90%

Effective Response Force

There are several tasks, which must occur simultaneously, to adequately combat different types of fires. The absence of adequate personnel to perform these tasks requires each task to be prioritized and completed in chronological order. These fire ground tasks include command, scene safety, search and rescue, water supply, fire attack, pump operations, ventilation, back up, and rapid intervention.

An initial full alarm assignment should be able to provide personnel to accomplish the following tasks:

- Establish incident command outside of the hazard area. This will allow coordination and direction of the incoming emergency response personnel and apparatus. A minimum of one person should be dedicated to this task.
- Establish an uninterrupted water supply of at least 400 gallons per minute for 30 minutes. Once established the supply line can be maintained by the pump operator to ensure uninterrupted water supply. A minimum of one person is assigned to this task that can then assume support role.
- Establish an effective water flow rate of 300 gallons per minute. This will be supplied to a minimum of two hand lines each operating at a minimum flow of 100 gallons per minute. Each hand line must have two individuals assigned with one serving as the attack line and the other as a back-up line.
- Provision of one support person to handle the hydrant hookup, utility control, forcible entry, and assist in deploying fire hose lines.
- Establish a search and rescue team. Each team will consist of a minimum of two.
- Establish a ventilation team. Each team will consist of a minimum of two personnel.
- Establish an initial rapid intervention team (RIT). Each RIT team shall consist of a minimum of two properly trained and equipped personnel.

Critical tasking will vary depending on the size and nature of the incident. The Center for Public Safety Excellence (CPSE) provides a suggestive list of tasks that need to be completed at a fire situation based on the risk. A similar list is provided within the NFPA 1710 document. The CPSE analysis, from the 8th edition, is summarized in the table below showing the minimum required personnel to mitigate the initial emergency response requirements by occupancy risk:

Critical Tasks for the Effective and Efficient Control of Structural Fires

Critical Task	Maximum Risk	High Risk	Moderate Risk	Low Risk
Attack Line	4	4	4	2
Search and Rescue	4	2	2	0
Ventilation	4	2	2	0
Backup Line	2	2	2	2
Rapid Intervention	2	2	2	0
Pump Operator	1	1	1	1
Water Supply	1*	1*	1*	1*
Support (Utilities)	1*	1*	1*	1*
Command	1	1	1	1
Safety Officer	1	1	1	1
Salvage/Overhaul	2	0	0**	0
Command Aid	1	1	0	0
Operations Chief	1	1	0	0
Logistics	1	0	0	0
Planning	1	0	0	0
Staging Officer	1	1	0	0
Rehabilitation	1	1	0	0
Division Supervisors	2	1	0	0
High-rise Evacuation	10	0	0	0
Stairwell Support	10	0	0	0
Total Personnel	**50 – 51**	**21 – 22**	**16 – 17**	**8 – 9**

*Tasks can be performed by the same individual.
**Task can be performed by the attack crew

Adding to the critical tasks and staffing issues is the OSHA requirement of two in – two out in 1910.134(g)(4). These regulations state that if entry into an Immediately Dangerous to Life and Health (IDLH) atmosphere is necessary, two firefighters must enter together and remain in contact with each other. In addition, there must be two firefighters located outside the IDLH atmosphere for potential rescue if needed. This is a mandatory requirement.

The concept of an effective response force carries through for other response types by the Fire Company. The tables below outline the critical tasks for an effective response force for those response types.

Critical Tasks for Hazardous Materials

Critical Task	High Risk	Low Risk
Command/Safety	2	1
Liaison	1	1
Decontamination	4	4
Research Support	2	1
Team Leader, Entry Team, Backup Team	6	6
Total Personnel	**15**	**13**

Critical Tasks for Initial Wildland Urban Interface Fires

Critical Task	No Hydrants	With Hydrants
Command/Safety	1	1
Pump Operations	1	1
Attack Line	2	2
Structure Protection	3	2
Water Supply	1	0
Tender Operator	2	0
Exposure Lines	2	0
Total Personnel	**12**	**6**

Critical Tasks for Technical Rescue Operations

Critical Task	Swift Water	High/Low Angle	Confined Space
Command/Safety	1	1	2
Rescue Team	3	2	2
Backup Team	2	2	2
Patient Care	2	2	2
Rope Tender	2	0	0
Upstream Spotter	2	0	0
Downstream Safety	2	0	0
Rigger	0	1	1
Attendant	0	1	1
Ground Support	0	4	4
Edge Person	0	1	0
Shoring	0	0	0
Total Personnel	**14**	**14**	**14**

The previous tables illustrate the needs for a sampling of hazardous materials, wildland urban interface, and technical rescue incidents and there are numerous other response types. Each of the technical rescue incidents will require similar numbers of personnel or

more depending on the complexity of the incident. Further, many of the positions require personnel to be certified in those positions or that particular discipline.

As with the emergency services system, an effective response force is needed for the effective and efficient delivery of emergency medical services. A task analysis for emergency medical calls analyzes three different types of calls or patient conditions. These three types of calls usually require the most effort on the part of the response team. Other calls or patient types can generally be handled with two or three personnel. Many times, especially in trauma calls, there are multiple patients. The table below outlines the tasks for handling these critical patients and the number of responders it may require for a successful outcome. It is important to note that some tasks are accomplished by the same personnel, so the total is not simple addition of the positions noted.

Critical Tasks for Effective Patient Care

Critical Task	Cardiac Arrest	Stroke	Multi-System Trauma
Patient Assessment	2 per patient	2 per patient	2 per patient
Airway Management/Intubation	2 per patient	2 per patient	2 per patient
Cardiac Defibrillation	1	N/A	N/A
CPR	1	N/A	N/A
EKG Monitoring	1	1	1
IV/Pharmacology	1	1	1
Splint/Bandage/Immobilization	N/A	N/A	1
Patient Lifting/Packaging	2 – 4	2 – 4	2 – 4
Medical Information Collection	1	1	1
Total per Patient	**6 - 8**	**5 - 7**	**6 - 8**

Critical Tasks for Technical Rescue Operations

Critical Task	Swift Water	High/Low Angle	Confined Space
Command/Safety	1	1	2
Rescue Team	3	2	2
Backup Team	2	2	2
Patient Care	2	2	2
Rope Tender	2	0	0
Upstream Spotter	2	0	0
Downstream Safety	2	0	0
Rigger	0	1	1
Attendant	0	1	1
Ground Support	0	4	4
Edge Person	0	1	0
Shoring	0	0	0
Total Personnel	**14**	**14**	**14**

Evaluation of the North County Emergency Services System

This chapter compares and evaluates the current deployment and performance of the fire district as it relates to the benchmark performance objectives outlined and described in the previous chapter.

Response Time

Computer Aided Dispatch (CAD) data for 2018, 2019, and 2020 was examined and evaluated. The data is not without issues such as coding problems, transcription errors, and equipment failures. The project team used the following mechanism to address these issues.

Only qualified data is used to calculate response time and any related components. To be considered the data must meet the following criteria:

- The incident must have been unique.
- The incident must have involved at least one Fire and Rescue Department unit being dispatched to the call.
- Calls that are missing data are not used in the computations for call processing, turnout time, travel time, or call duration.
- Any call with usually long times or times sorted incorrectly (arrived before dispatch time) were removed.
- Non-emergency responses are removed; only emergency responses are included.

After filtering the data using the methodology outlined above, the remaining incidents represent the response time for calls for service handled by the fire department. With the pandemic in 2020, many departments and agencies had different experiences from decreased call volumes, different types of calls, and deviations in call times. Many of these same departments and agencies are now reporting their call volumes have increased significantly over pre-pandemic times. While these differences will interfere with any trends, it is equally important to note the effect a global event can gave on an emergency services system.

Call Processing

Performance Standards

North County Dispatch Joint Powers Authority provides fire and emergency medical dispatch services to North County Fire Protection District through a joint powers agreement that also services 8 members agencies and 8 contract agencies. NFPA 1221 Standard for the Installation, Maintenance and Use of Emergency Services Communications Systems establishes the call processing benchmarks as outlined in the chart below.

NFPA 1221 Performance Objective

Component	Target	Performance
Calls Answered	Within 15 seconds	90%
	Within 20 seconds	95%
Call Processing	Within 60 seconds	90%
Call Processing for: * Language Translation * TTY/TDD Device Services * Hazardous Materials * Technical Rescue * Text Message * Calls Received during a Disaster * Unable to Determine Location	These types of calls are exempt from the call processing time illustrated above.	

Both CPSE and ISO use the 60 second call processing time benchmark performance objective as outlined in NFPA 1221 for their requirements. NFPA 1720 does not address call processing in any statements and does not reference NFPA 1221.

System Performance

The table below summarizes the performance of the North County Dispatch JPA.

All Emergency Calls – 90th Percentile Times		2018 – 2021	2018	2019	2020	2021	Benchmark
Call Processing	Pick-up to Dispatch	1:08	1:03	1:01	0:55	1:38	1:00

Over the course of four years the communications center has processed the emergency calls in 1 minutes and 8 seconds for 90% of the emergency calls handled for the fire district. For 2021 there was a significant increase in the call processing time over the previous two years.

Turnout Time

Performance Standards

Turnout time is a measurable time segment that begins when the emergency service unit receives the call and is on the apparatus responding (wheels rolling) to the call. The following table provides a comparison between the four models for benchmark performance objectives.

Call Type	NFPA 1710	ISO	CPSE
Emergency Medical Calls	60 seconds or less 90% of the time	No Requirement	60 seconds or less 90% of the time
Fire or Special Operations Calls	80 seconds or less 90% of the time	No Requirement	80 seconds or less 90% of the time

In January 2019 North County Fire Protection District established their own turnout time performance objective of 2 minutes 90%of the time for all emergency responses.

System Performance

The table below illustrates the performance for the North County Fire Protection District.

All Emergency Calls – 90th Percentile Times			2018 - 2021	2018	2019	2020	2021	NCFPD Objectives
Turnout Time	1st Unit	Medical Calls	1:34	1:30	1:19	1:41	1:39	2:00
		Fire Calls	1:49	1:40	1:27	2:01	1:59	2:00

All times shown is the 90th percentile time for each of the four years. The performance objective time shown to the far right represents the turnout time established by the North County Fire Protection District. For the four-year period, the emergency medical calls are under the performance objective time by 26 seconds and the fire related calls are under the performance objective by 11 seconds. The following table illustrates the turnout time for each staffed company in the fire district.

All Emergency Calls – 90th Percentile Times			2018 – 2021	2018	2019	2020	2021	NCFPD Objectives
Turnout Time	Engine 111	Medical Calls	1:49	1:42	1:35	1:59	1:49	2:00
		Fire Calls	2:13	1:54	1:21	2:14	2:23	2:00
	Engine 112	Medical Calls	1:53	1:40	1:38	2:09	1:57	2:00
		Fire Calls	2:34	2:06	1:37	2:31	2:54	2:00
	Engine 113	Medical Calls	1:40	0:00	1:25	1:58	1:48	2:00
		Fire Calls	2:20	0:00	1:42	1:58	2:27	2:00
	Engine 114	Medical Calls	2:06	2:01	1:56	2:18	1:59	2:00
		Fire Calls	2:32	2:07	2:08	2:32	2:33	2:00
	Engine 115	Medical Calls	1:51	1:41	1:44	1:44	2:05	2:00
		Fire Calls	2:20	1:40	1:55	2:09	2:41	2:00
	Medic 111	Medical Calls	1:50	1:43	1:28	1:59	1:57	2:00
		Fire Calls	1:52	1:28	1:05	2:03	2:06	2:00
	Medic 114	Medical Calls	2:08	1:55	1:37	2:23	1:56	2:00
		Fire Calls	2:24	1:59	1:39	2:35	2:23	2:00
	Medic 115	Medical Calls	1:55	1:44	1:34	1:44	2:12	2:00
		Fire Calls	1:58	1:30	1:33	1:45	2:24	2:00

For Engine 113, there was no data in 2018 to determine the 90th percentile turnout time.

Distribution of Resources

Distribution is the measure of getting initial resources to an emergency to begin mitigation efforts. This is measured in a variety of ways including percentage of square miles, percentage of road miles and travel time. The Insurance Services Office (ISO) has used road miles for many years advocating one and a half miles for an engine company and two and a half miles for a ladder company. With the advent of GIS technology and improved computer aided dispatch (CAD) systems, the use of actual travel time is another more accurate measure for the distribution of resources.

Performance Standards

Travel time is a measurable time segment that begins when the apparatus and personnel begin the response (wheels rolling) and ends once on location of the emergency (wheels stopped). It is the most appropriate measurement available for the distribution of resources that has a proven record of success. The table that follows is used for the travel time dynamics of the emergency services system.

First Arriving Unit – Benchmark Performance Objectives

Demand Zone	Demographics	NFPA 1710	ISO	CPSE
Urban	Greater than 1,000 per sq. mile	4 minutes or less 90% of the time.	1.5 road miles in the built-upon area	4 minutes or less 90% of the time
Suburban	500 - 1,000 per sq. mile	4 minutes or less 90% of the time.	1.5 road miles in the built-upon area	5 minutes or less 90% of the time
Rural Area	Less than 500 per sq. mile	4 minutes or less 90% of the time.	1.5 road miles in the built-upon area	10 minutes or less 90% of the time
Remote Area	Travel Distance greater than / equal to 8 miles	4 minutes or less 90% of the time.	1.5 road miles in the built-upon area	No Requirement

There are several notable items contained in the previous table. NFPA 1710 does not address the various demographics or population densities. CPSE addresses the travel time for the various demographics with differing travel times and ISO only addresses the built upon area defined as those areas with fire hydrants available.

In January 2019 North County Fire Protection District established their own response time performance objectives for the first arriving unit to all emergency responses as outlined in the following table:

Population Density	Response Time	Travel Time	Percent
> 500	9:00 minutes	7:00 minutes	90%
100 – 500	13:00 minutes	11:00 minutes	90%
< 500	18:00 minutes	16:00 minutes	90%

The response time performance objectives adopted by North County Fire Protection District includes turnout time and travel time combined. Travel time noted in the previous table is derived by reducing the response time by the 2-minute turnout time performance objective. For purposes of this evaluation the following travel time performance objectives will be used based on the city/area designation in the CAD data.

City Designation	Population Density	Travel Time
Fallbrook	> 500	7:00 minutes
Bonsall	100 – 500	11:00 minutes
Rainbow	< 500	16:00 minutes
North County FPD	100 – 500	11:00 minutes

Calls designated as North County FPD are primarily calls to I-15 for 2018, 2019, and 2020. In 2021 these calls were transitioned to Fallbrook.

System Performance

The table that follows illustrates the travel time for the suburban and rural demographic as compared to the recommended benchmark performance objectives.

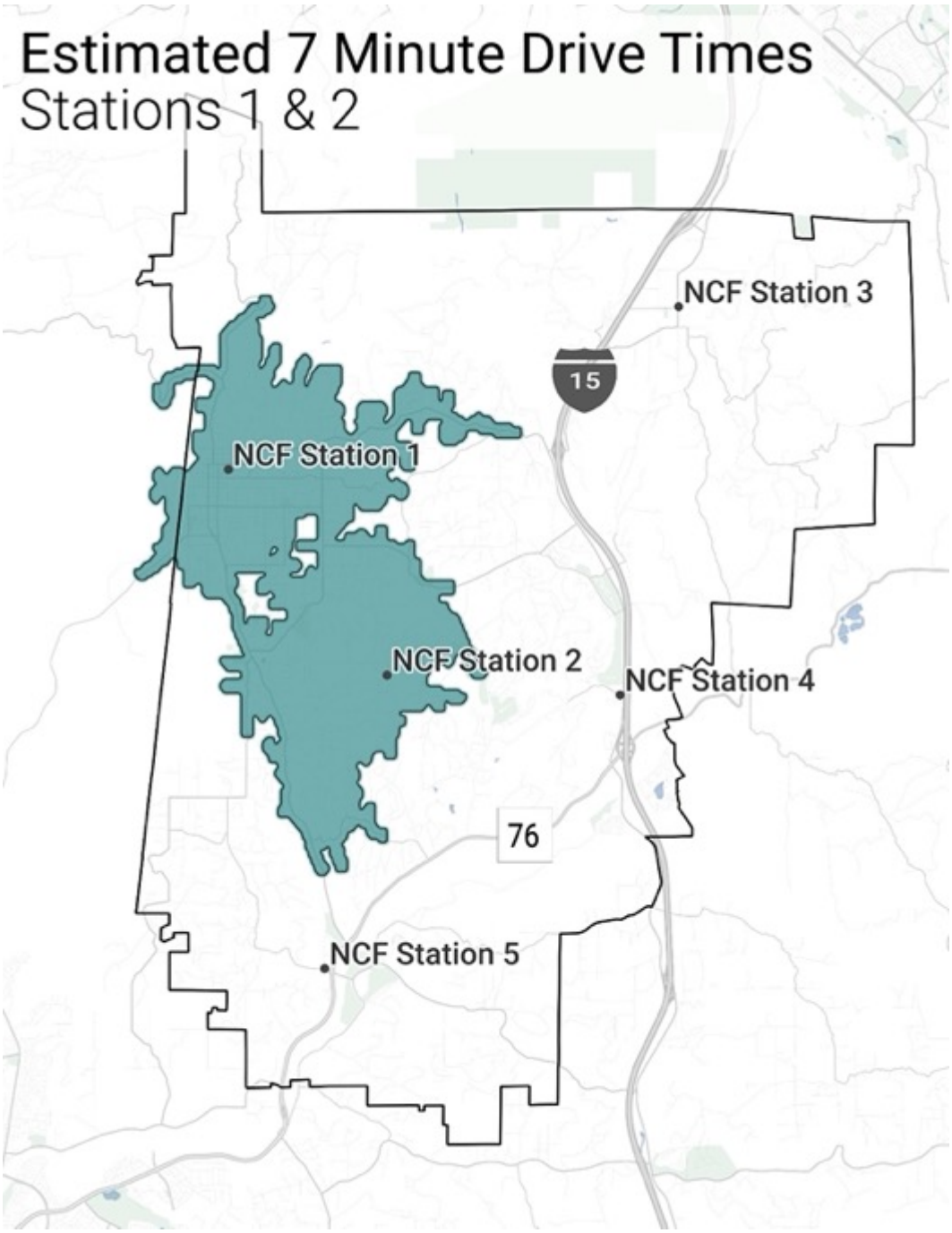
All Emergency Calls – 90th Percentile Times			2018 – 2021	2018	2019	2020	2021	NCFPD Objectives
Travel Time	1st Unit Distribution	District Wide	9:31	9:33	9:33	9:25	9:31	
		Fallbrook	9:23	9:21	9:23	9:23	9:24	7:00
		Bonsall	9:25	9:46	9:31	8:45	9:26	11:00
		Rainbow	13:11	13:23	9:41	11:56	15:02	16:00
		North County FPD	12:56	11:35	13:29	13:50	0:00	11:00

For the past four years travel time for the fire district was 9 minutes and 31 seconds. Using the city designation in the CAD data lends itself to issues, as noted, the designation of North County FPD was predominately the I-15 corridor. In 2021 that changed to the Fallbrook designation. The following table illustrates the travel time for the apparatus.

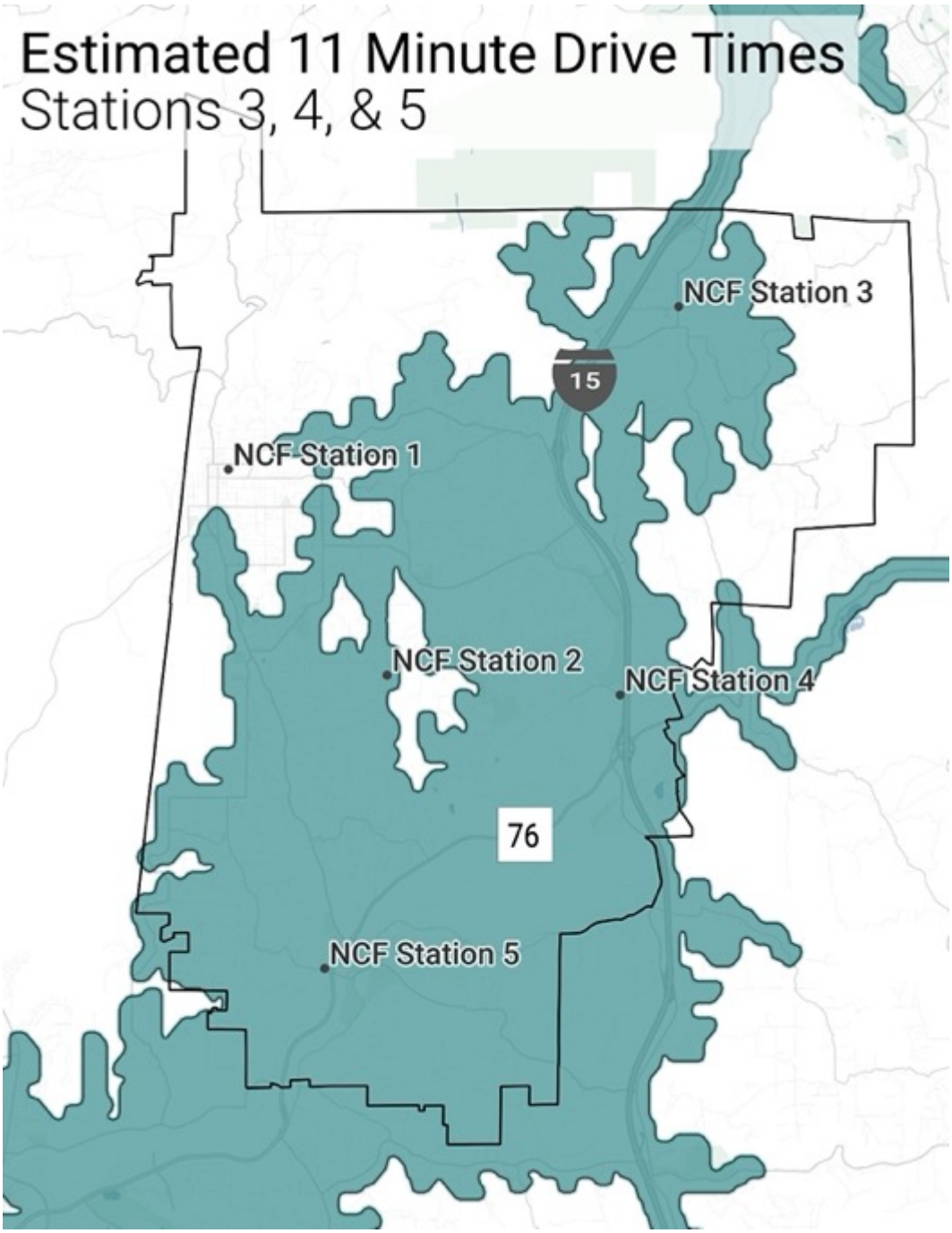
All Emergency Calls – 90th Percentile Times			2018 – 2021	2018	2019	2020	2021	NCFPD Objectives
Travel Time	Engine 111	Fallbrook	8:25	8:25	8:22	8:18	7:52	7:00
	Engine 112	Gird Valley	11:25	10:53	11:22	11:25	11:20	11:00
	Engine 113	Rainbow	13:12	0:00	13:23	10:30	13:00	16:00
	Engine 114	Pala Mesa	10:57	11:45	10:34	10:53	10:35	11:00
	Engine 115	Bonsall	11:40	11:04	11:06	10:56	11:34	11:00
	Medic 111	Fallbrook	11:12	11:12	10:59	11:36	10:47	7:00
	Medic 114	Pala Mesa	14:57	16:10	15:08	13:59	14:25	11:00
	Medic 115	Bonsall	14:38	15:02	15:21	14:28	13:39	11:00

Engine 111 responses are predominately in the Fallbrook area with travel times at 8 minutes and 25 seconds for the past four years or 1 minute and 25 seconds over the performance objective.

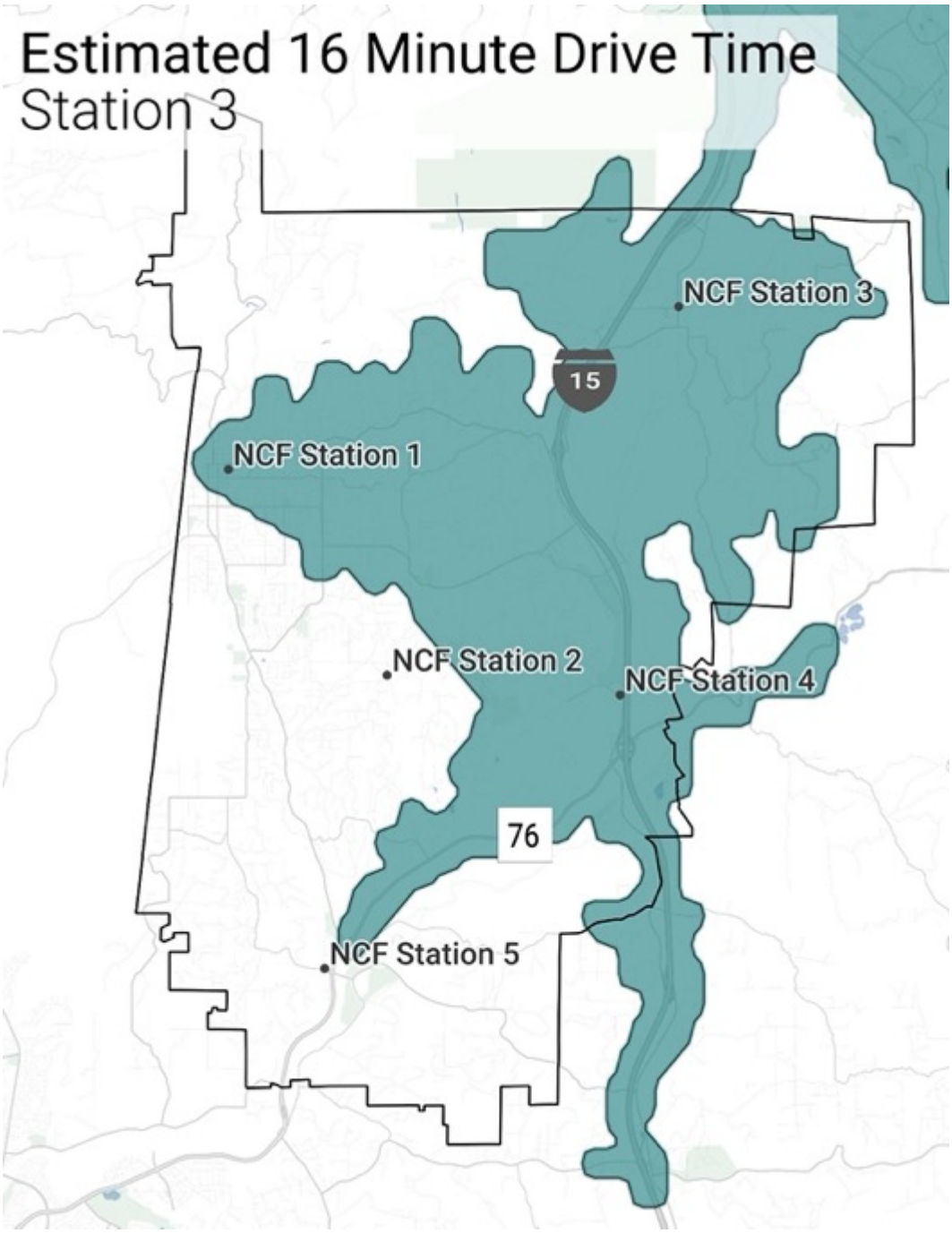
For a visual perspective the following maps illustrates the drive time for the three travel time performance objectives established by the NCFPD.



Stations 1 and 2 provide service primarily to the area with <500 population density. As noted in the previous map, a large part of this population density is within the 7-minute drive time polygon.



Using Stations 3, 4 and 5 for the area with a population density of 100 – 500 people per square mile. While Station 3 is the primary station for the rural areas to the north, it was included here as access to I-15 allows for a response to the south. Note the open areas in the middle part of the district near Station 2. These areas are well covered by the 7-minute travel time.



The most rural area, population density of less than 500 people per square mile, is the far northeastern area of the district. Station 3 provides service to this area and as illustrated the area is well covered in terms of a 16-minute travel time.

Concentration of Resources

Concentration of resources is generally described as the ability of the fire protection system to get the appropriate number of personnel and resources to the scene of an emergency within a prescribed time to effectively mitigate the incident. There are two parts to this component – the first is providing an effective response force and the second is the amount of time to get those resources in place.

Performance Standards

As noted, there are two segments to concentration of resources, the first segment uses travel time, and the second segment involves the number of personnel. Again, these two segments represent the most appropriate measurement available for the concentration of resources and these measurements has a proven record of success nationally.

The concentration segment has two travel time components that must be considered. The first is the travel time for the second arriving apparatus and the second is the balance, travel time and personnel, of the first alarm assignment. The following table summarizes the differing viewpoints for the travel time of the second arriving unit.

Second Arriving Unit - Benchmark Performance Objectives

Demand Zone	Demographics	NFPA 1710	ISO	CPSE
Urban	Greater than 1,000 per sq. mile	6 minutes or less 90% of the time	No time or mileage requirement	8 minutes or less 90% of the time
Suburban	500 - 1,000 per sq. mile	6 minutes or less 90% of the time	No time or mileage requirement	8 minutes or less 90% of the time
Rural Area	Less than 500 per sq. mile	6 minutes or less 90% of the time	No time or mileage requirement	14 minutes or less 90% of the time
Remote Area	Travel Distance greater than / equal to 8 miles	6 minutes or less 90% of the time	No time or mileage requirement	No Requirement

As can be noted in the previous table, CPSE and NFPA 1710 have requirements for the second arriving apparatus, ISO is silent. The next table illustrates the travel time for the first alarm assignment.

First Alarm Assignment - Benchmark Performance Objectives

Demand Zone	Demographics	NFPA 1710	ISO	CPSE
Urban	Greater than 1,000 per sq. mile	8 minutes or less 90% of the time	No time or mileage requirement	8 minutes or less 90% of the time
Suburban	500 - 1,000 per sq. mile	8 minutes or less 90% of the time	No time or mileage requirement	10 minutes or less 90% of the time
Rural Area	Less than 500 per sq. mile	8 minutes or less 90% of the time	No time or mileage requirement	14 minutes or less 90% of the time
Remote Area	Travel Distance greater than / equal to 8 miles	8 minutes or less 90% of the time	No time or mileage requirement	No Requirement

In the previous table, CPSE addresses the first alarm assignment by demographic with different travel time performance objectives for each.

As mentioned above, the second part of the concentration of resources arrival time concerns the number of personnel arriving with the first alarm assignment. The next table summarizes NFPA, ISO, and CPSE standards for the number of personnel arriving for a first alarm assignment for a single-family dwelling.

First Alarm Assignment - Recommended Personnel

Demand Zone	Demographics	NFPA 1710	ISO	CPSE
Urban	Greater than 1,000 per sq. mile	16 personnel	No specific requirement	16 personnel
Suburban	500 - 1,000 per sq. mile	16 personnel	No specific requirement	16 personnel
Rural	Less than 500 per sq. mile	16 personnel	No specific requirement	16 personnel
Remote	Travel Distance greater than / equal to 8 miles	16 personnel	No specific requirement	16 personnel

As illustrated, ISO does not specify the number of personnel that is expected or anticipated to arrive, and instead provides points for the personnel - meaning the more on-duty personnel the more points are added to the overall evaluation. NFPA 1710 and CPSE base their personnel requirements on creating an effective response force using critical tasking.

In January 2019 North County Fire Protection District established several performance objectives to include response time and an effective response force. The following table illustrates the response time for an effective response force.

North County Fire Protection District Effective Response Force Performance Objectives

Population Density	Response Time	Travel Time	Percent
> 500	13:00 minutes	11:00 minutes	90%
100 – 500	18:00 minutes	16:00 minutes	90%
< 500	23:00 minutes	21:00 minutes	90%

According to the response policy, an ALS Engine Company and an ALS Ambulance, five personnel, is considered an effective response force. Since this policy was written, the ambulances are staffed with non-safety personnel meaning they are not certified as firefighters.

Performance

Computer Aided Dispatch (CAD) data was used for the evaluation of resource concentration. To be considered for inclusion the following conditions were required to be met:

- Calls for service designated as a structure fire.
- All the units dispatched must have a recorded arrival time. An assumption was made that if the unit did not arrive on scene that it was cancelled while enroute.

The data used were from 2018, 2019, 2020, and 2021. For staffing of apparatus, suppression apparatus was staffed with three personnel and chief officers were staffed with one personnel.

Second Arriving Apparatus

This part of the concentration model is slightly different in that it only examines the travel time of a second suppression apparatus. This evaluation does not include a personnel component; however, in North County Fire Protection District the arrival of the second suppression unit would typically provide six personnel at the scene.

Benchmark performance objectives established for the second arriving suppression unit are provided by NFPA 1710 and CPSE. NFPA 1710 only addresses the urban setting and has a travel time performance benchmark of 6 minutes for the second arriving suppression unit. CPSE previously established an 8-minute travel time objective for the second arriving suppression unit in the suburban setting. For the rural demographic, CPSE previously established 14 minutes as the travel time objective for the second arriving suppression unit. The following table illustrates the performance for the second arriving apparatus using the CPSE performance objective.

Structure Fire Calls - 90th Percentile Times	2018 – 2021	Benchmark	Number of Calls	Percent Met

2nd Suppression Unit Travel Time	Fire District	13:32	8:00	32	46.9%
	Fallbrook	15:07	8:00	25	48.0%
	Bonsall	8:57	8:00	7	42.9%

Statistically these travel times use a small data set and therefore should be viewed with a certain amount of skepticism.

With a smaller dataset, the travel times shown in the previous table are limited to a four-year period. There are two viewpoints provided in the previous table. For the fire district the second arriving suppression unit was at the scene in 13 minutes and 32 seconds for 90% of the calls examined. A second viewpoint illustrates that for 32 calls evaluated, 46.9% of those calls met the 8-minute travel time performance objective. Using the city designation in the CAD data, structure fire calls were further evaluated. Note that over the four-year period there were only 7 calls in the Bonsall area evaluated with approximately 43% of the calls meeting the 8-minute travel time.

First Alarm Assignment

The following table summarizes the travel time of the first unit and the remaining first alarm assignment for the fire district.

Structure Fires – 90th Percentile Times			2018 - 2021	NCFPD Objectives	Number of calls	Percent Met
Travel Time	1st Unit – Distribution	Fire District	9:12	7:00	183	67.2%
	ERF – Concentration	Fire District	28:58	11:00	31	12.9%
	1st Unit – Distribution	Fallbrook	9:06	7:00	159	69.2%
	ERF – Concentration	Fallbrook	26:40	11:00	25	8.0%
	1st Unit – Distribution	Bonsall	10:16	11:00	24	91.7%
	ERF – Concentration	Bonsall	24:42	16:00	6	66.7%

Statistically these travel times use a small data set and therefore should be viewed with a certain amount of skepticism.

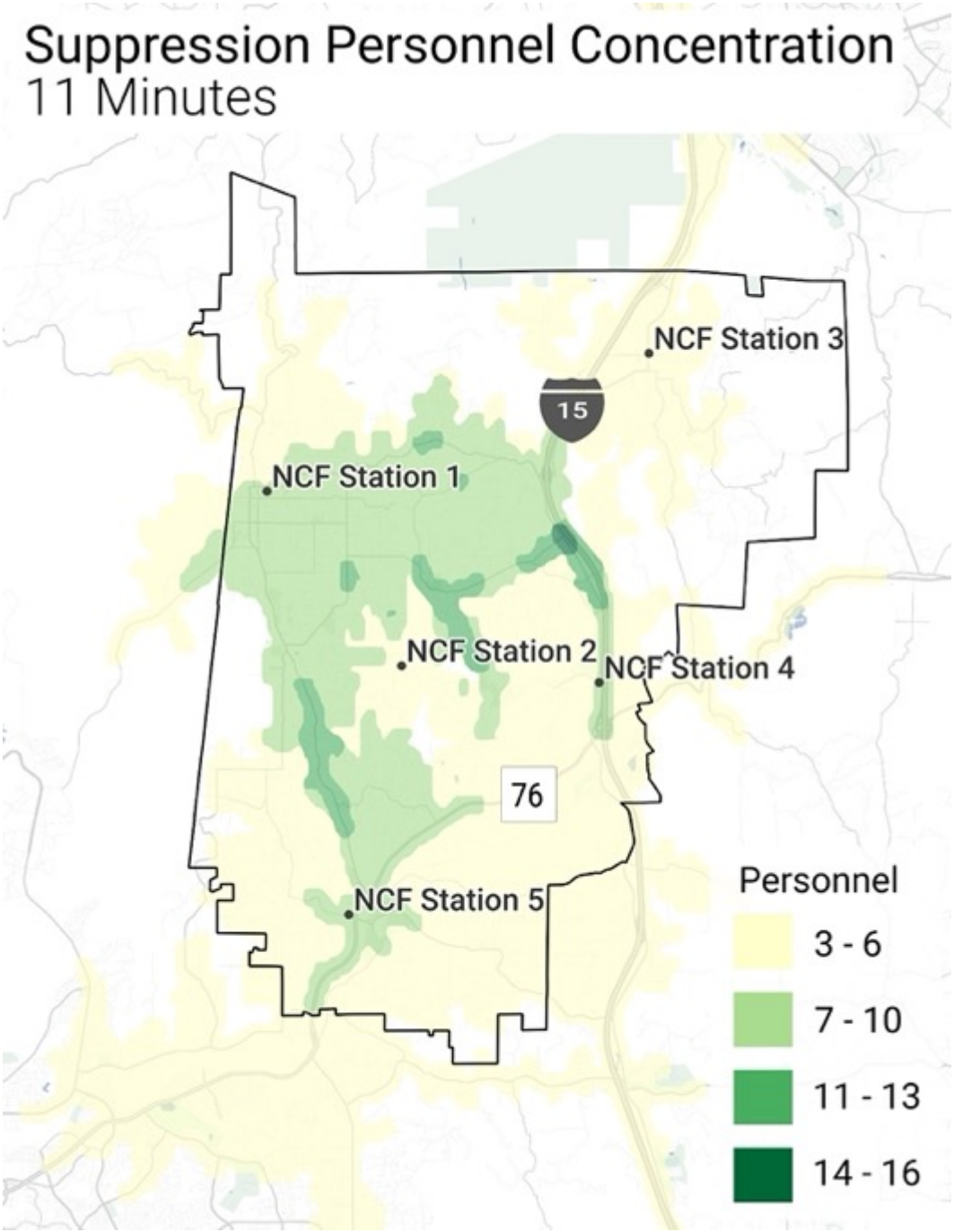
As noted previously the NCFPD performance objectives do not address a structural fire and the effective response force is defined as an Engine Company and a Medic Unit with 5 personnel. Medic Units are staffed with non-safety personnel and therefore are not firefighter certified and do not normally respond to fire related incident.

The previous table utilizes 16 personnel as the effective response force for a structural fire using the total response time for each of the population densities.

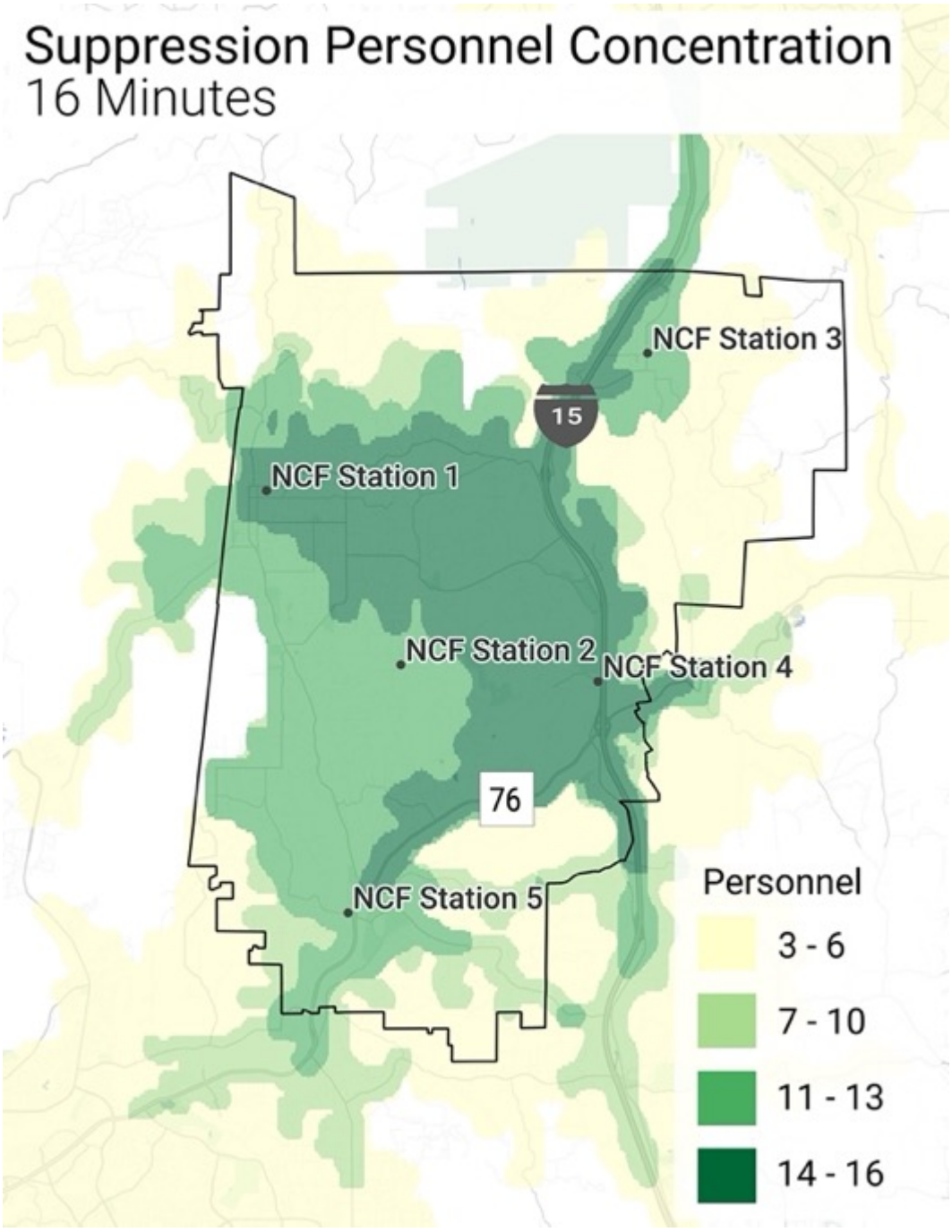
With a smaller dataset, the travel times shown in the previous table are limited to a four-year period. There are two viewpoints provided in the previous table. For the fire district, the first arriving unit was at the scene in 9 minutes and 12 seconds for 90% of the calls examined. The second viewpoint illustrates that for the 183 calls evaluated, 67.2% of the calls met the 7-minute travel time performance objective. The effective response force required a minimum of 16 personnel to arrive at the scene. For the fire district, an effective

response force arrived at the scene in 28 minutes and 58 seconds for 90% of the calls examined with 12.9% of the calls meeting the 13-minute travel time performance objective. Also shown are the travel times for each of the two city designations using the same methodology.

The following map illustrates the number of personnel that can arrive in 11 minutes travel time for a structural fire.



Note the fringe areas of the district only have 3 personnel within the 11-minute travel time with the core of the district able to achieve higher numbers of personnel. This map does not include any mutual aid partners. The next map illustrates the same personnel concentration using an 18-minute travel time component.



As with the previous map, the fringe areas of the district only have three personnel within the 16-minute travel time. To the point, this travel time is designated to the lesser

population densities noting the Rainbow area and the Gird Valley area are afforded higher personnel concentrations.

System Reliability

The concept of distribution and concentration of resources can be influenced by other contributing factors including unit utilization and concurrent calls for service.

Unit Utilization

Unit utilization is another factor in determining whether there is an appropriate emergency services response. Unit utilization is calculated by taking the total hours the unit is committed to an incident divided by the total hours in a year. Expressed as a percentage, it identifies the amount of time the unit is committed but more importantly the amount of time the unit is available. Within the framework of the 80th and 90th percentile performance standards the amount of available time can have an impact in meeting that standard. If utilization rates are too high the units are often unavailable for immediate response.

In 2016 Henrico County Virginia conducted a study of unit utilization. Through their study they developed a scale to identify the community impact on travel time and availability of their emergency medical units.[1]

[1] https://www.fireengineering.com/apparatus-equipment/how-busy-is-busy/#gref

Factor	Indicator	Description
16% to 24%	Ideal Commitment Range	Personnel are able to maintain training requirements and physical fitness and can consistently achieve response time benchmarks. Units are available to the community more than 75 percent of the day. Units below 0.16 should be evaluated for more efficient use as additional operating capacity is available.
25%	System Stress	Community availability and unit sustainability are not questioned. First-due units are responding to their assigned community 75 percent of the time, and response benchmarks are rarely missed. At this level, agency leaders must understand that commitment factor increases are imminent. The community this unit serves will begin to see increasingly longer response times as neighboring stations send apparatus during one out of four calls.
26% to 29%	Evaluation Range	In this range, the community served will experience delayed incident responses. Just under 30 percent of the day, first-due ambulances are unavailable; thus, neighboring responders will likely exceed goals. Agency leadership should immediately begin identifying funding sources to provide relief. At this range, commitment factors are only expected to increase.
30% or more	Line in the Sand	Not Sustainable: Commitment Threshold – shows our community has less than a 70 percent chance of timely emergency service and immediate relief is vital. Personnel assigned to units at or exceeding 0.3 may show signs of fatigue and burnout and may be at increased risk of errors. Required training and physical fitness sessions are not consistently completed.

The following table illustrates the unit utilization for the past four years for the apparatus.

Unit Utilization

Unit	2018			2019			2020			2021		
	Duration	Pct. of Time	Avg.	Duration	Pct. of Time	Avg.	Duration	Pct. of Time	Avg.	Duration	Pct. of Time	Avg.
Medic 111	2326:56:59	26.6%	1:12:36	2497:15:27	28.5%	1:16:22	2615:37:31	29.9%	1:15:18	2637:01:52	30.1%	1:14:53
Medic 115	1359:55:31	15.5%	1:11:50	1599:48:43	18.3%	1:17:06	1548:25:11	17.7%	1:13:09	1705:16:30	19.5%	1:16:08
Medic 114	1342:13:21	15.3%	1:05:44	1410:19:08	16.1%	1:10:59	1399:50:52	16.0%	1:06:33	1651:01:42	18.8%	1:06:40
Engine 111	817:17:53	9.3%	0:22:05	992:09:33	11.3%	0:24:11	1017:17:39	11.6%	0:22:23	1032:07:34	11.8%	0:24:30
Engine 112	418:57:56	4.8%	0:25:41	474:05:20	5.4%	0:24:22	466:27:00	5.3%	0:24:55	540:44:53	6.2%	0:25:16
Engine 114	412:44:28	4.7%	0:28:07	432:39:36	4.9%	0:26:21	509:11:45	5.8%	0:26:59	531:20:12	6.1%	0:26:43
Engine 115	289:23:55	3.3%	0:30:09	436:08:16	5.0%	0:25:16	505:31:37	5.8%	0:28:32	488:05:26	5.6%	0:25:16
Engine 113	0:00:00	0.0%	0:00:00	152:18:11	1.7%	0:30:22	60:08:23	0.7%	0:32:48	307:23:42	3.5%	0:28:04

The busiest units are the emergency medical units with Medic 111 being the busiest in terms of committed time. In 2021 Medic 111 was committed approximately 30% of the time and Medic 115 was committed approximately 20% of the time. As a general rule, the unit utilization is not an issue until it begins to reach 20% to 25% and if it begins to interfere with the travel time of the unit.

Concurrent Calls

It is common for a fire protection system to have multiple requests for service occurring simultaneously. The larger the system the more frequently this will occur. With the appropriate resources this can be handled efficiently. The following table summarizes the number of concurrent calls for the emergency services system for the past three years.

Calls	2018	2019	2020	2021	Total	%
1	1,339	1,252	1,362	1,275	5,228	23.29%
2	1,659	1,564	1,591	1,592	6,406	28.53%
3	1,122	1,177	1,181	1,349	4,829	21.51%
4	647	748	723	896	3,014	13.42%
5	348	379	419	444	1,590	7.08%
6	144	203	209	194	750	3.34%
7+	109	143	203	179	634	2.82%
Total	**5,368**	**5,466**	**5,688**	**5,929**	**22,451**	**100%**

Of the 5.929 calls for service in 2021, there were 1,592 instances that two calls were occurring simultaneously. Likewise, there were 1,349 instances that three calls were occurring simultaneously. Over the past four years approximately 22% of the calls occurred with at least three simultaneous calls. In fact, approximately 76% of the calls occurred with multiple calls occurring in the fire district. It should be noted that it is possible for two or three calls to occur at the same time in different areas of the district such as one in the Rainbow area and one in the Bonsall areas that may not have an effect on the emergency services system. Another factor that is not captured are the back-to-back calls. For example, Engine 111 could respond to a call in the northern section of their district and clear that call only to receive a second call in the southern section of their district. This would not show up as a concurrent call, but it would extend the travel time for the second call. It should also be noted that a single call for service may require a significant number of resources that could impact the delivery of services.

Total Response

Previous sections in this chapter reviewed and evaluated the different response time components individually. Call processing and turnout time are two components that are controllable either by the dispatch center or the fire department. Travel time is less controllable as this utilizes a stationary location, a fire station, as the starting point and the existing roadway network to arrive at the call for service. For this reason, this component is a primary source that is used for the distribution and concentration of resources.

All Emergency Calls – 90th Percentile Times			2018 – 2021	2018	2019	2020	2021	Benchmark
Call Processing	Pick-up to Dispatch		1:08	1:03	1:01	0:55	1:38	1:00
Turnout Time	1st Unit	All Calls	1:37	1:32	1:20	1:44	1:44	2:00
Travel Time	1st Unit Distribution	District Wide	9:31	9:33	9:33	9:25	9:31	
		Fallbrook	9:23	9:21	9:23	9:23	9:24	7:00
		Bonsall	9:25	9:46	9:31	8:45	9:26	11:00
		Rainbow	13:11	13:23	9:41	11:56	15:02	16:00
		North County FPD	12:56	11:35	13:29	13:50	0:00	11:00
Total Response	1st Unit Distribution	District Wide	11:56	11:54	11:47	11:55	12:11	
		Fallbrook	11:50	11:43	11:33	11:53	12:08	10:00
		Bonsall	11:45	11:54	11:49	11:02	12:20	14:00
		Rainbow	14:37	15:55	9:53	14:18	16:17	19:00
		North County FPD	14:54	13:46	14:58	16:46	0:00	14:00

The total response time illustrated in the previous table is measured from the time the call is initiated to the initial arrival of resources. For the past four years the total response time for the first arriving resource is 11 minutes and 56 seconds for 90% of the calls for service. Total response for each of the city designations are also illustrated as a comparison to the overall district experience. Also note the turnout time is not separated between fire and emergency medical calls, this table represents the view from the resident. However, the total response time does illustrate the impact that call processing and turnout time has on the overall response time continuum.

Deployment Improvement Opportunities

During this study, several opportunities for improvement were identified. Some of those are related to the growth of the community, while others are gaps in service levels. This chapter provides recommendations intended to provide improvements to the emergency services system within the North County Fire District (NCFPD).

Community Standards

As noted previously there are three nationally recognized models to use to design and improve a fire protection system in our communities. Each model is based on different aspects of a community from population density, the type of fire department, and the road miles in the area.

The applicability for the NFPA models is based on the definitions of the fire department servicing the community.

NFPA 1710 Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments was last published in 2020.

- Defines a career fire department as one that utilizes full-time or full-time equivalent (FTE) station-based personnel immediately available to comprise at least 50 percent of an initial full alarm assignment.

ISO continues to use their standard 1.5-mile and 2.5-mile criteria for engine company and ladder company placement. Although they now accept a systematic performance evaluation that demonstrates the department can meet the time constraints outlined in NFPA 1710.

Appendix A contained in the NFPA 1710 document provides additional information and background as it pertains to service delivery objectives for the jurisdiction as follows:

> "There can be incidents or areas where the response criteria are affected by circumstances such as response personnel who are not on duty, unstaffed fire station facilities, natural barriers, traffic congestion, insufficient water supply, and density of population or property. The reduced level of service should be documented in the written organizational statement by the percentage of incidents and geographical areas for which the total response time criteria are achieved.
>
> Additional service delivery performance objectives should be established by the AHJ for occupancies other than those identified within the standard for

benchmark single-family dwellings. Factors to be considered include specific response areas (i.e., suburban, rural, and wilderness) and occupancy hazards."

This passage acknowledges the authority having jurisdiction (AHJ), in this case NCFPD, is responsible for determining the level of service to be provided by the fire district. Considerations for the level of service include, but not limited to, the manner in which the fire district responds, travel time, staffing, emergency calls versus non-emergency calls, roadways, financial resources, and those calls involving different occupancies. The levels of service provided to the district should be written and documented so the residents of the district know and understand the expectations of the emergency services system.

Previously the Center for Public Safety Excellence had defined benchmark and baseline response times for each of the three components. These baseline performance objectives were derived from the benchmark response times to a lesser 70% of the benchmark. They have since determined they are not a standard making organization and decided to leave the establishment of response time standards to others. However, their body of work is significant and has been used by numerous communities across the country to assist with determining what baseline services should be for a community.

The definitions for the criteria of each service area are defined in the following table. CPSE also gives a community a range of acceptable performance standards from "Baseline", minimally accepted performance or to "Benchmark", fully compliant with best practices. CPSE had previously set the following performance standards for urban, suburban and rural areas:

Service Area / Population Density Response Travel Time Standards

	1st Unit	2nd Unit	1st Alarm Balance	Performance
Urban: Population density of over 1,000 per square mile				
Benchmark	4 minutes	8 minutes	8 minutes	90%
Baseline	5 minutes/12 seconds	10 minutes 24 seconds	10 minutes/24 seconds	90%
Suburban: Population density between 500 and 1,000 per square mile				
Benchmark	5 minutes	8 minutes	10 minutes	90%
Baseline	6 minutes/30 seconds	10 minutes/24 seconds	13 minutes	90%
Rural: Population density of less than 500 per square mile				
Benchmark	10 minutes	14 minutes	14 minutes	90%
Baseline	13 minutes	18 minutes/12 seconds	18 minutes/12 seconds	90%

While NCFPD fits the NFPA 1710 definition, the standard does not provide any latitude in terms of travel time and population density or roadway networks. These CPSE guidelines

offer the most appropriate and comprehensive performance objectives in terms of travel time components for the distribution and concentration of resources.

Response Standards

With the district having a varying population density there is another issue that impacts the response time continuum. The area is largely rural in nature but has large areas that are suburban in terms of population density. The issue is the roadway network as they maintained their rural nature and are not necessarily configured for a suburban area. Many of the roads are two lane roadways with many heavily lined with trees creating a canopy effect over the roadway. As well, there are numerous small neighborhoods that only have a single access point and is especially true in the Gird Valley area.

Organizational Statement

As accepted by NFPA 1710, the NCFPD has established response time standards and effective response force criteria. The following points illustrate the turnout time standards as established in NCFPD Policy and Procedure Section 427.02

- 3.3.1. TURNOUT TIME: Turnout Time (Reflex Time) is the amount of time that it takes a crew to react after receiving a completed digital response message and then prepare to leave the station. Turnout Times for each station are two (2) minutes from the time of dispatch, ninety percent (90%) of the time for all emergency responses.
- 3.3.2. EXTENDED REFLEX TIME: Extended Reflex Time may result from unavoidable delays. An acceptable extended reflex time (within 3 minutes) will be considered acceptable under the following scenarios:
- 3.3.2.1. Delayed response due to training/drill status;
- 3.3.2.2. Change out into another response apparatus (i.e., Brush unit);
- 3.3.2.3. Public Service Requests.

According to the Policy and Procedure Section 427.02, the following standards are established for response time

- 3.3.5. RESPONSE TIME STANDARDS:

POPULATION DENSITY	FIRST ARRIVING UNIT	ARRIVAL OF AN EFFECTIVE RESPONSE FORCE	PERCENTAGE ACCOMPLISHED
>500	9 minutes	13 minutes	90%
100-500	13 minutes	18 minutes	90%
<500	18 minutes	23 minutes	90%

In terms of an effective response force, the only reference is in section 2.4 as follows:

One “effective response force” (one ALS engine and one ALS ambulance) will remain available in the Northern and Southern portions of the District to the greatest extent practical.

Within the current response times, the fire district has addressed the population density issues. However, the effective response force appears to be directed at a medical call and not any fire type call for service. Medical units are staffed with non-safety personnel, those identified with no firefighting training, and therefore are not considered a part of the response to any type of fire call for service.

As the authority having jurisdiction, NCFPD, should provide a clear and concise organizational statement establishing the levels of service the emergency services system will provide. For example, the North County Fire Protection District is organized to provide fire suppression, emergency medical services, fire prevention education, risk reduction, and other activities that are deemed to be in the best interest of the residents of the fire district. It should be stressed that a one-size fits all approach does not address the issues within the various areas. A fire district adopted organizational statement can address those issues such as the travel time in the district. In crafting the organizational statement any of the sections from the NFPA standards, CPSE guidelines, or the ISO documentation can be utilized as a basis for determining the levels of service and performance objectives of the fire district. For example, responses to emergency calls for service the North County Fire Protection District will arrive within 7 minutes with 70% reliability and arrival within 10 minutes with 90% reliability. Further, the statement could include those reponses for specific areas such as, responses to emergency calls for service in the Rainbow area of the North County Fire Protection District will arrive within 10 minutes with 70% reliability and arrival within 14 minutes with 90% reliability.

Additionally, some fire service organizations will include their vision and mission statements in their organizational statements. Others will include a listing of service capabilities such as rope rescue, structural collapse, and confined space rescue along with their level of service including awareness, operational, or technical.

Generally, this is a one or two page summary that highlights the services and performance of the Fire District to inform and educate the general public about their emergency services and the expectations of the delivery of those services. The organizational statement should also provide direction and guidance for any future expansion of the fire district. Growth in San Diego County is expected to continue as previously documented with some of the growth to impact NCFPD. Having a clear and concise organizational statement, which provides for guidance and direction, will allow the fire district to plan for the needs of the emergency services

Goal 5	**Revise and improve the current emergency services organizational statement to better inform the public and provide guidance to the fire district for emergency service delivery.**

The North County Fire Protection District (NCFPD) is part of the North Regional Zone Automatic Aid Agreement. Through this agreement resources for the response to calls for service are identified and include all agencies in the north county area. Another advantage for these types of arrangements is the expansion capabilities. NCFPD would benefit with the collaboration on other issues such as community outreach and training. There are other regional issues such as wildfire, wildland urban interface, and community risk reduction that would benefit from a more regional approach.

Goal 6	**Continue to support the North Regional Zone and enhance the collaboration between agencies in various areas to includes training, prevention, risk reduction, and outreach.**

Call Processing

As noted previously, the North County Dispatch Joint Powers Authority provides fire and emergency medical dispatch services to North County Fire Protection District through a joint powers agreement. Through this agreement there are other agencies involved in the JPA that also receive services. The North County Fire Protection District should continue to work with the other agencies to ensure their dispatch services are appropriate and work to improve the services of the dispatch center.

Turnout Time

There are several factors that will influence the turnout time for apparatus including the station layout. Such considerations include stairs, detour to restroom, policy for signaling enroute, opening the bay doors, policy for gathering response information, and the personal protective gear that must be donned. As previously noted, NCFPD has established a turnout time performance objective of 2 minutes for all emergency responses with a 90% proficiency rate. As the following table illustrates, the fire district as a whole is under the 2-minute performance objective.

All Emergency Calls – 90th Percentile Times			2018 - 2021	2018	2019	2020	2021	NCFPD Objectives
Turnout Time	1st Unit	Medical Calls	1:34	1:30	1:19	1:41	1:39	2:00
		Fire Calls	1:49	1:40	1:27	2:01	1:59	2:00

However, when the turnout time for individual units are evaluated, the results are slightly different.

All Emergency Calls – 90th Percentile Times			2018 – 2021	2018	2019	2020	2021	NCFPD Objectives
Turnout Time	Engine 111	Medical Calls	1:49	1:42	1:35	1:59	1:49	2:00
		Fire Calls	2:13	1:54	1:21	2:14	2:23	2:00
	Engine 112	Medical Calls	1:53	1:40	1:38	2:09	1:57	2:00
		Fire Calls	2:34	2:06	1:37	2:31	2:54	2:00
	Engine 113	Medical Calls	1:40	0:00	1:25	1:58	1:48	2:00
		Fire Calls	2:20	0:00	1:42	1:58	2:27	2:00
	Engine 114	Medical Calls	2:06	2:01	1:56	2:18	1:59	2:00
		Fire Calls	2:32	2:07	2:08	2:32	2:33	2:00
	Engine 115	Medical Calls	1:51	1:41	1:44	1:44	2:05	2:00
		Fire Calls	2:20	1:40	1:55	2:09	2:41	2:00
	Medic 111	Medical Calls	1:50	1:43	1:28	1:59	1:57	2:00
		Fire Calls	1:52	1:28	1:05	2:03	2:06	2:00
	Medic 114	Medical Calls	2:08	1:55	1:37	2:23	1:56	2:00
		Fire Calls	2:24	1:59	1:39	2:35	2:23	2:00
	Medic 115	Medical Calls	1:55	1:44	1:34	1:44	2:12	2:00
		Fire Calls	1:58	1:30	1:33	1:45	2:24	2:00

As illustrated some units are longer than others. For example, in 2021 Engine 112 had a turnout time of 2 minutes and 54 seconds for fire calls. In fact, each unit was over the 2-minute performance objective on fire calls.

While the overall turnout time performance is under the performance objective, individual units are not meeting the objective. Improvement to the turnout time component can take several forms. Some departments have installed timers in the station at the apparatus bay doors that indicate the amount of time that has elapsed since the dispatch was received. This allows the crews to instantly see their turnout time performance and according to some departments has helped to improve their turnout time. Many departments have also encouraged and required the on-duty crews to place their gear at or on the apparatus instead of leaving it in the locker or other location within the station.

Other remedies include the posting of turnout time by station and by shift. This allows the company officer to see the results and work to improve the turnout time of his or her units. Some departments have instituted a process to hold the company officer accountable for excessively long turnout times by creating a written report as to why the turnout time was excessive. This could be established using the current baseline turnout time as a trigger point to generate a time variance report.

Another option is to establish a standard operating procedure as to when a unit is to place themselves enroute. For example, one shift will place themselves enroute from the living quarters while another shift will place themselves enroute once they are on the truck. Still yet, another shift may wait until they have cleared the bay doors, all of which will vary the reported turnout time and possibly skew the data related to actual performance. Establishing a procedure will improve the accuracy of the data.

Goal 7	**Improve the turnout time performance of the response time continuum.**

Distribution of Resources

Distribution is the measure of getting initial resources to an emergency to begin mitigation efforts. This is measured in a variety of ways including percentage of square miles, percentage of road miles and travel time. The Insurance Services Office (ISO) has used road miles for many years advocating one and a half miles for an engine company and two and a half miles for a ladder company. With the advent of GIS technology and improved computer aided dispatch (CAD) systems, the use of actual travel time is another more accurate measure for the distribution of resources.

Travel time is a measurable time segment that begins when the apparatus and personnel begin the response (wheels rolling) and ends once on location of the emergency (wheels stopped). As noted previously, there are issues related to the roadway network in the fire district. Issues related to the roadway network are primarily narrow two-lane roadways found in rural areas. In the suburban style setting these pose problems with moving fire apparatus in a timely manner. However, there are some roadways that allow for easier movement in the fire district

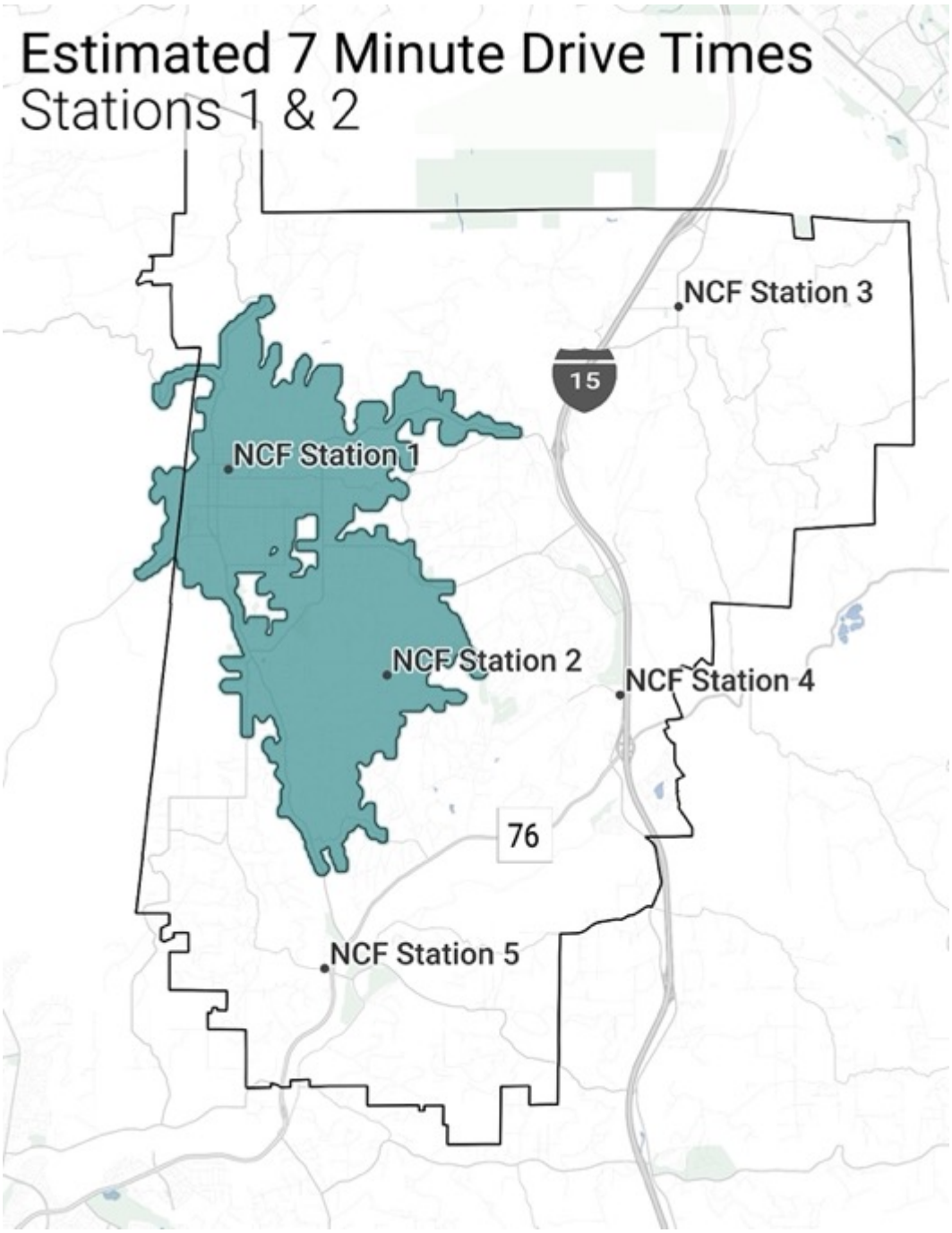
East to West Travel Routes

East Mission Road	Along the northern edge of the district.	Fallbrook to I-15	Two lane road with minimal curves
Reche Road	Middle section of the district	Fallbrook to Old Highway 395	Two lane road a few curves
State Route 76	Along the southern edge of the district	Bonsall to Pala Mesa	Two lane road, divided roadway

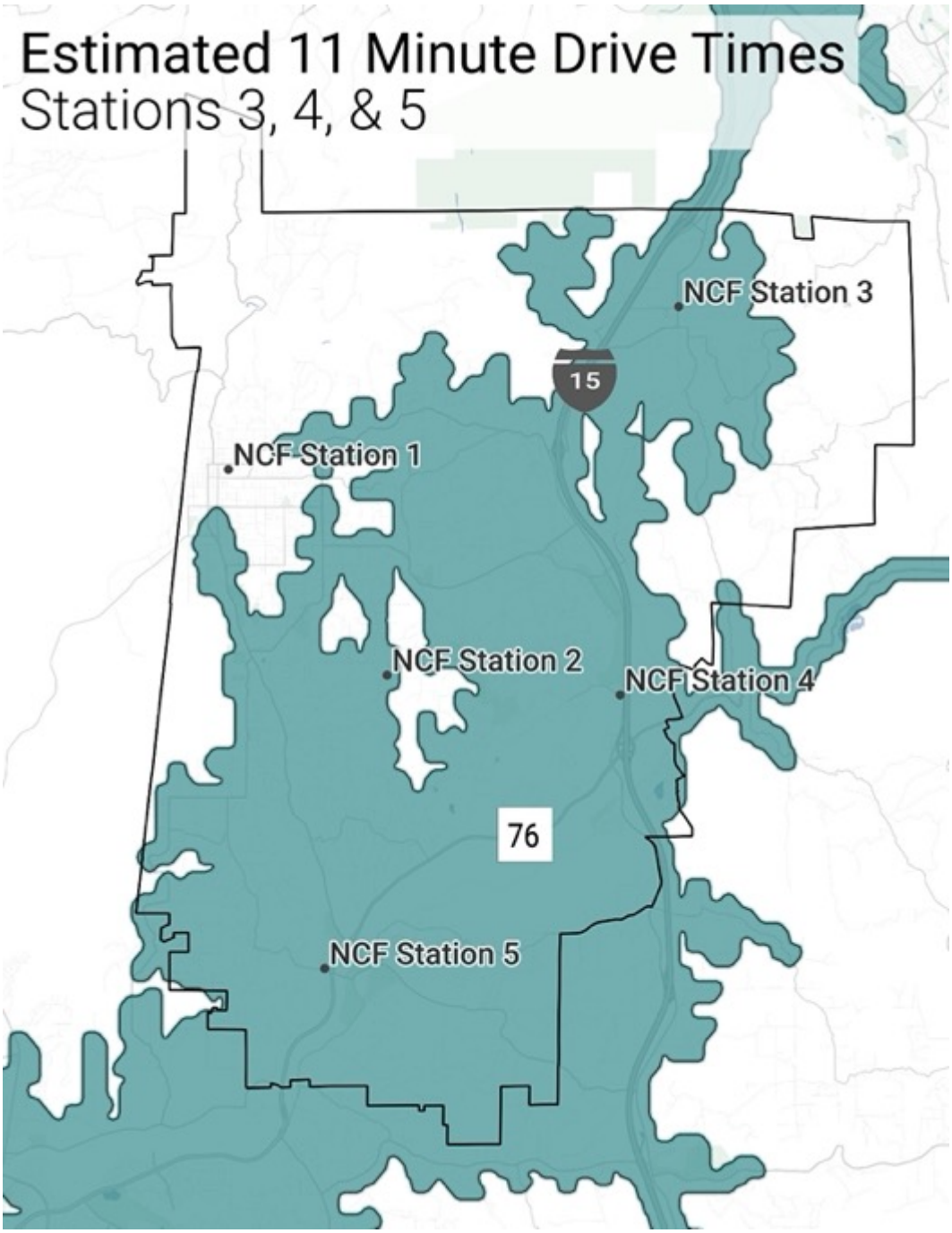
North to South Travel Routes			
South Mission Road	Along the western edge of the district.	Bonsall to Fallbrook	Two lane road to a four-lane road.
Old Highway 395	Parallel to I-15 along the eastern section of the district.	Pala Mesa to E Mission Road and Rainbow	Two lane road, few curves
Gird Road	Middle section of the district	Reche Road to State Route 76	Two lane road, curvy and somewhat narrow
Live Oak Road	Middle section of the district	East Mission Road to Reche Road	Two lane road, curvy, narrow and heavily tree lined (canopy)

The two previous tables highlight the more prominent corridors in the fire district that provide a longer access to the various areas of the district. There are others that provide short connectors but may have more curves and sharper turns that will reduce the effectiveness of the roadway in terms of travel time. These corridors are noted here as they provide the access needed for the existing emergency service system and future expansion.

The following maps illustrate the 7-minute travel time and the 11 minute travel time established by the NCFPD as their performance objectives for the urban and suburban demographics.



Station 1 is located in Fallbrook where a majority of the calls occur and in the middle of the heaviest population density. Station 2 is not located along one of the corridors and as shown is limited to a smaller response area.



As illustrated the travel time for the suburban demographic, 11-minute travel time, the southern section of the district is accessible. Station 3 has accessibility to a large area of that district where the heavier population density occurs.

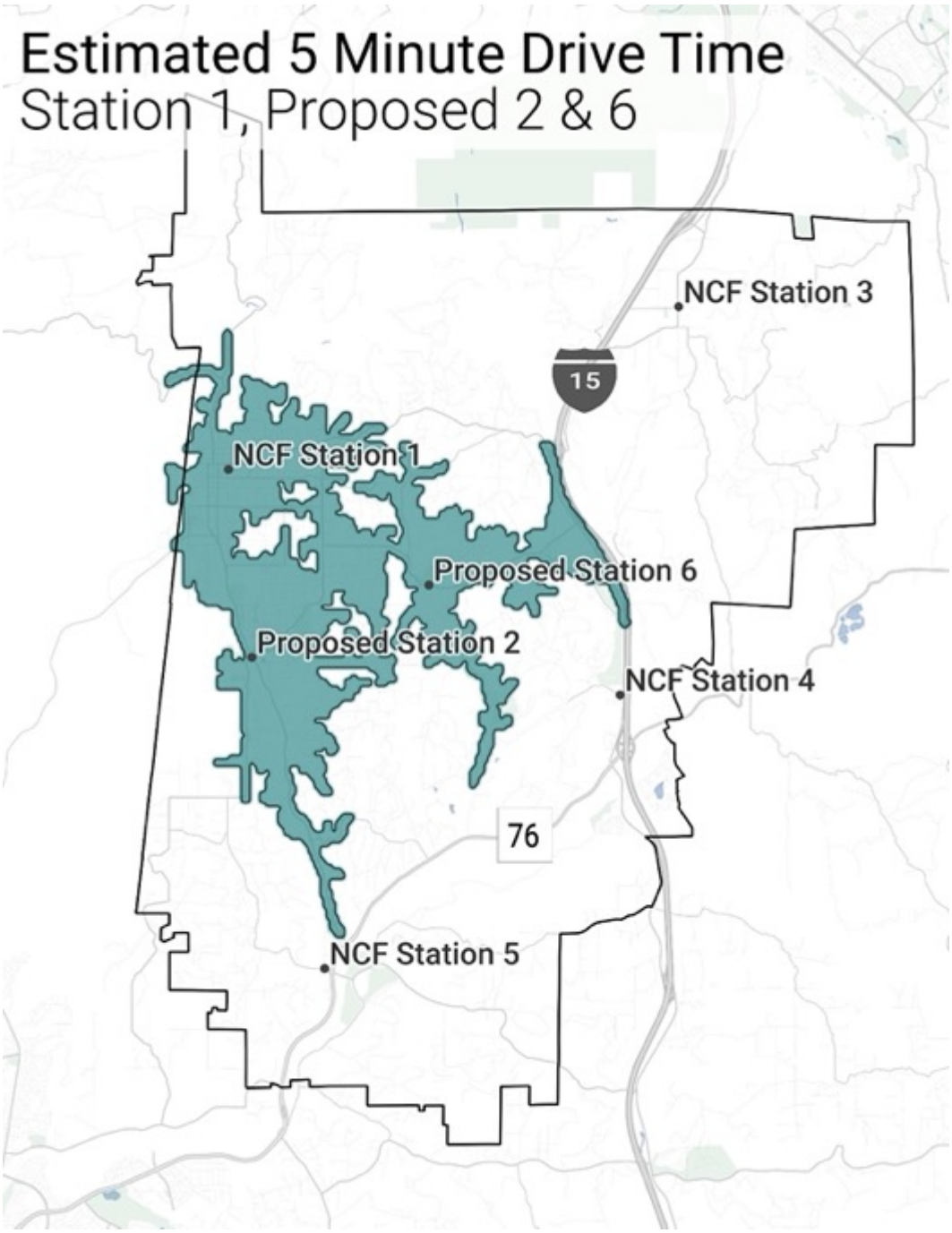
Resource Distribution Improvements

Current growth in the district is predominately infill with a few small subdivisions being developed along the I-15 corridor. The infill is occurring on existing residential lots

increasing the density especially in the Fallbrook area. Further development in other areas such as the Gird Valley will increase the population density, but the area is more likely to remain a suburban type of area. Infrastructure issues such as the roadways may also limit the development of properties in this area.

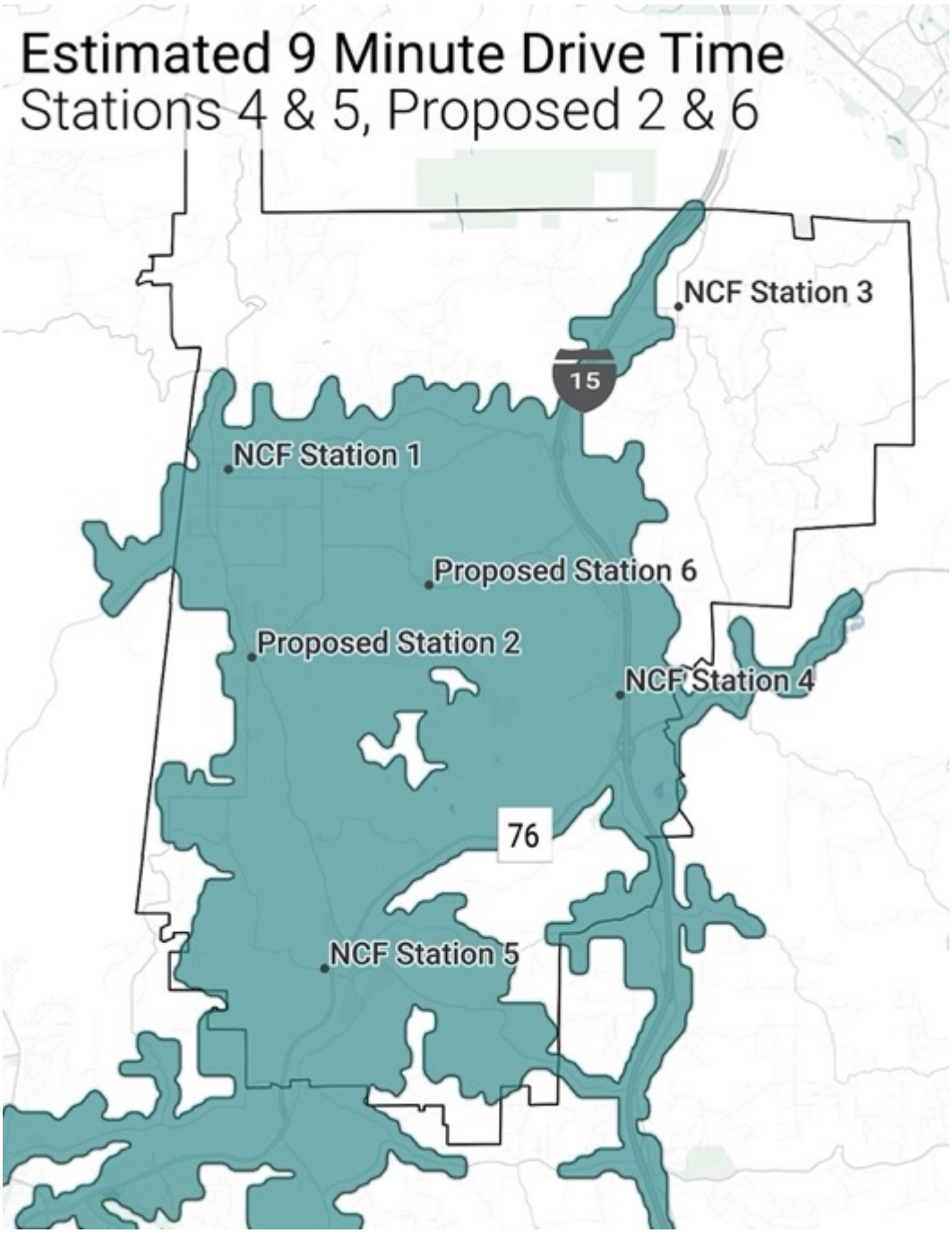
Areas to the south and east of Fallbrook have higher population densities and are outside the travel time polygons. Areas along South Mission Road and the west of South Stage Coach Lane are difficult to respond to with the existing station layout. To improve the response to this area, moving Station 2 to the area of South Mission Road and South Stage Coach Lane provides those resources the ability to response to this southern section of the urban demographic. South Stage Coach Lane is a well-developed connector road that connects to Reche Road and East Mission Road.

Moving Station 2 leaves an opening in the center section of the district and to some extent the Grid Valley area. To improve the response capabilities, Station 6 will need to be added in the area of Reche Road and Gird Road. This addition will provide two different resource improvements. First, it will allow for the response into the western edges of the urban demographic along Reche Road and the northern areas of Green Canyon Road. Secondarily, it will provide resources to the south into the Gird Valley area. The following map illustrates the travel time with Station 1, the new location of Station 2, and the addition of station 6 for the urban demographic in Fallbrook and the surrounding area.



Note the travel time is reduced to 5-minutes instead of the current 7-minutes. Not only is the coverage improved for the area but also the reduction of travel time. Moving Station 2 and adding Station 6 will also have an effect on the southern sections of the district.

The following map illustrates the travel time with these two stations in new locations.



Two notes related to the previous map. First, Station 1 and Station 3 are not considered in the travel time polygons. Second, note the travel time is reduced from the current 11-minutes to 9-minutes. As illustrated in the two previous maps, moving Station 2 and adding Station 6 allows the NCFPD to improve travel time to most areas of the district.

Goal 8	Improve the travel times in the central sections of the fire district.

Concentration of Resources

Concentration is generally described as the ability of the fire protection system to get the appropriate number of personnel and resources to the scene of an emergency within a prescribed time to effectively mitigate the incident. An effective response force is based on the critical task analysis for a specific type of incident. As previously described, an effective response force to a moderate risk structure fire requires 16 to 17 personnel to arrive on scene within a prescribed travel time.

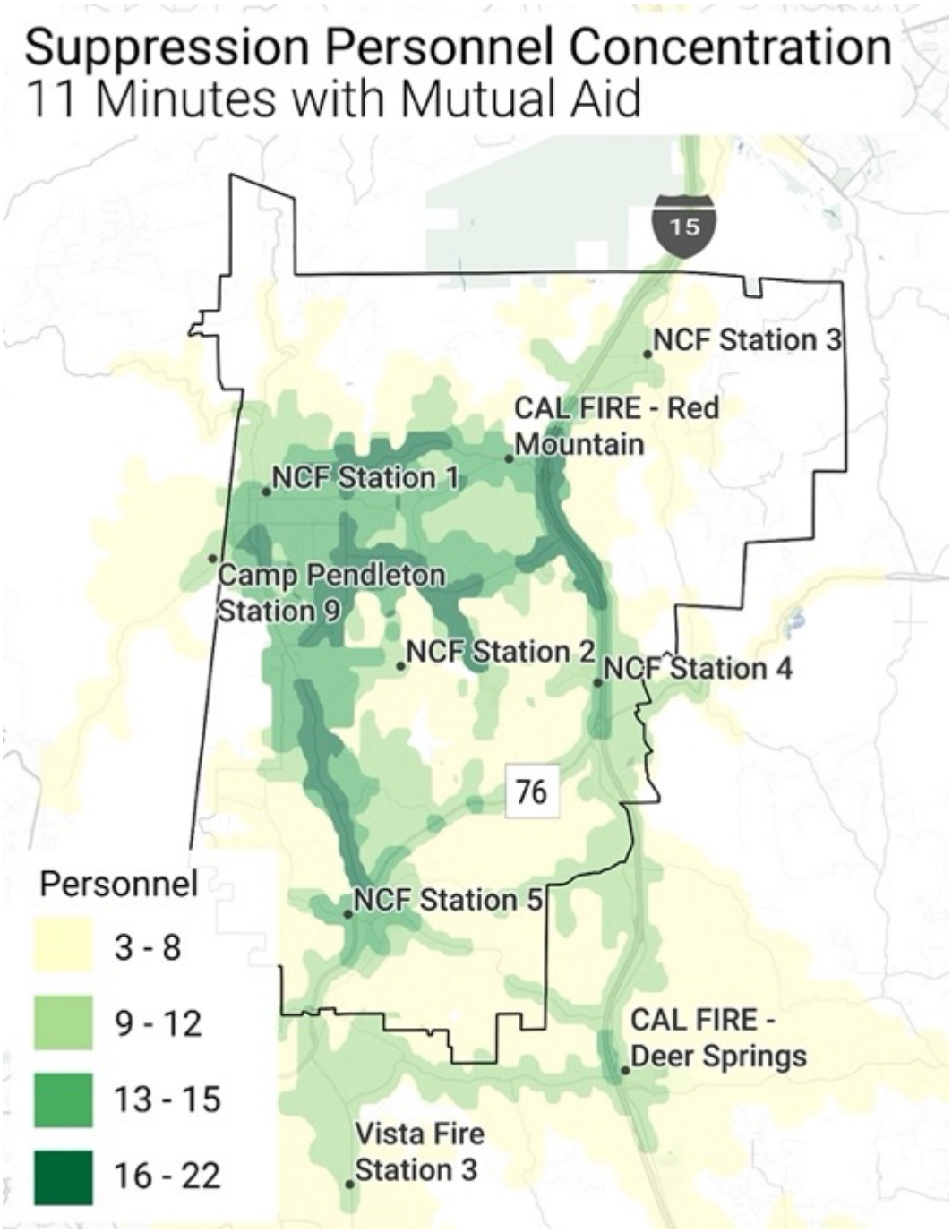
NCFPD has a performance objective for the arrival of an effective response force of 11, 16, and 21 minutes travel time based on the population density. However, the definition of an effective response force is one Engine Company and one Medic Unit with a total of 5 personnel. The following table illustrates the current first arriving travel time and the first alarm assignment based on the NCFPD travel time performance objectives and an effective response force of 16 personnel.

Structure Fires – 90th Percentile Times			2018 - 2021	NCFPD Objectives	Number of calls	Percent Met
Travel Time	1st Unit – Distribution	Fire District	9:12	7:00	183	67.2%
	ERF – Concentration	Fire District	28:58	11:00	31	12.9%
	1st Unit – Distribution	Fallbrook	9:06	7:00	159	69.2%
	ERF – Concentration	Fallbrook	26:40	11:00	25	8.0%
	1st Unit – Distribution	Bonsall	10:16	11:00	24	91.7%
	ERF – Concentration	Bonsall	24:42	16:00	6	66.7%

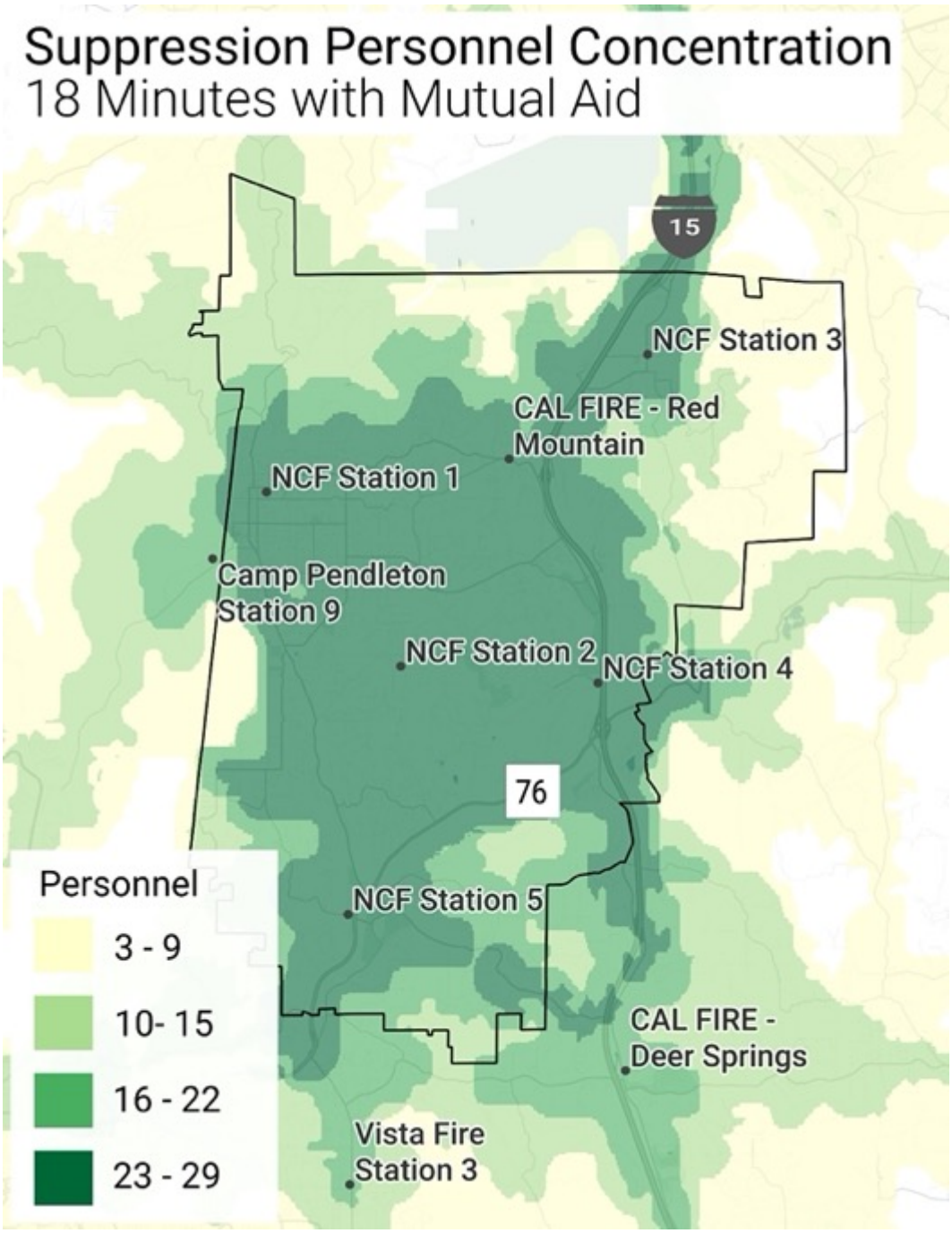
Statistically these travel times use a small data set and therefore should be viewed with a certain amount of skepticism.

Based on the current staffing of 5 engine companies with 3 personnel each and a Battalion Chief, it will require all fire suppression resources to respond to a moderate risk structure fire to achieve an effective response force. As shown previously, there is only one spot in the district that can achieve this in the 11-minute travel time performance objective and that is along I-15.

NCFPD participates in mutual aid using partners in the region. Using these partners allow for additional resources in the event of an incident. The following maps illustrate the effective response force with the mutual aid partners included.

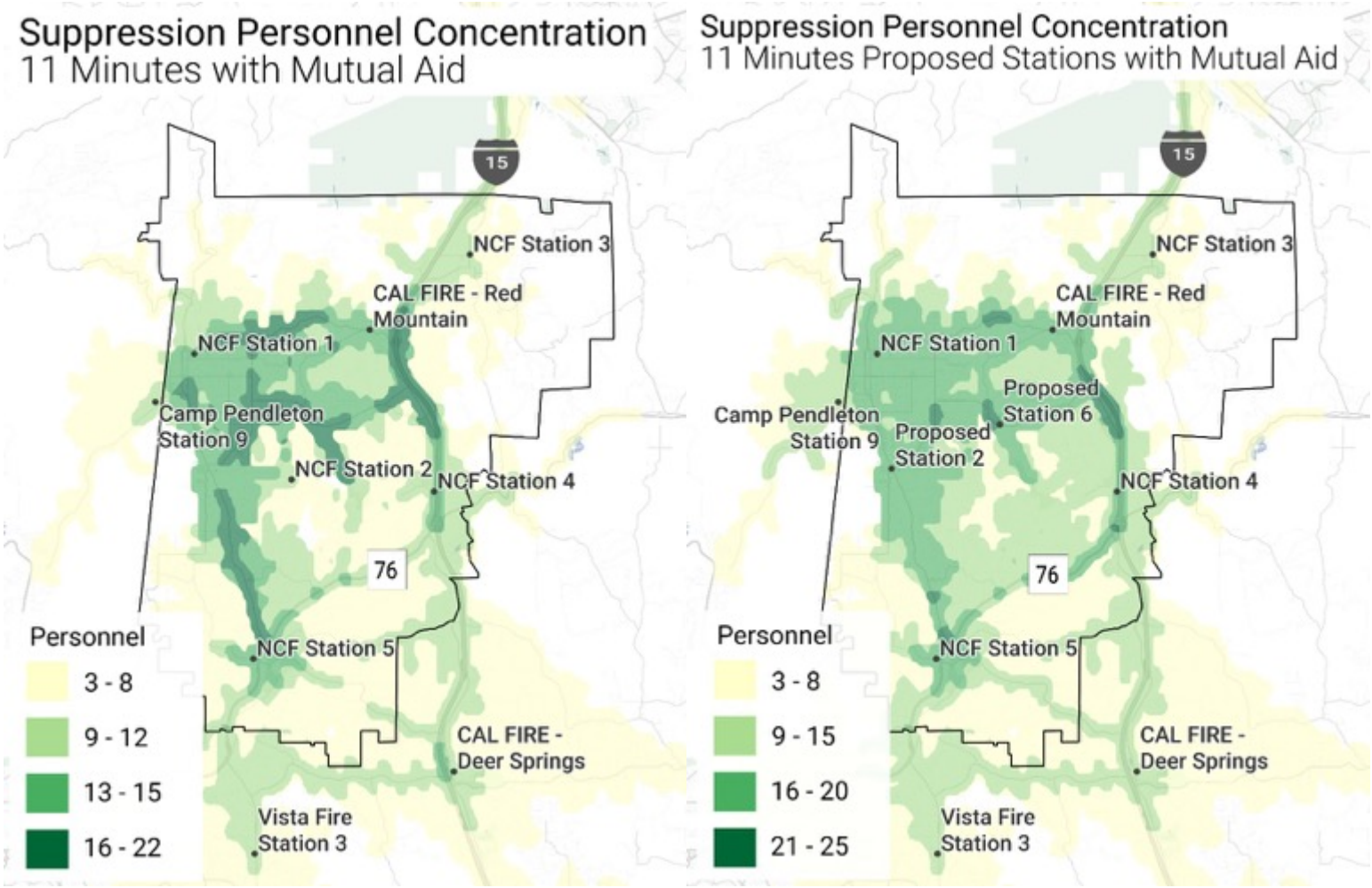


There are additional resources, but they are not within the travel time limits. Note the improvements to the effective response force in the middle sections of the district. The next map illustrates the suburban travel time of 16 minutes.



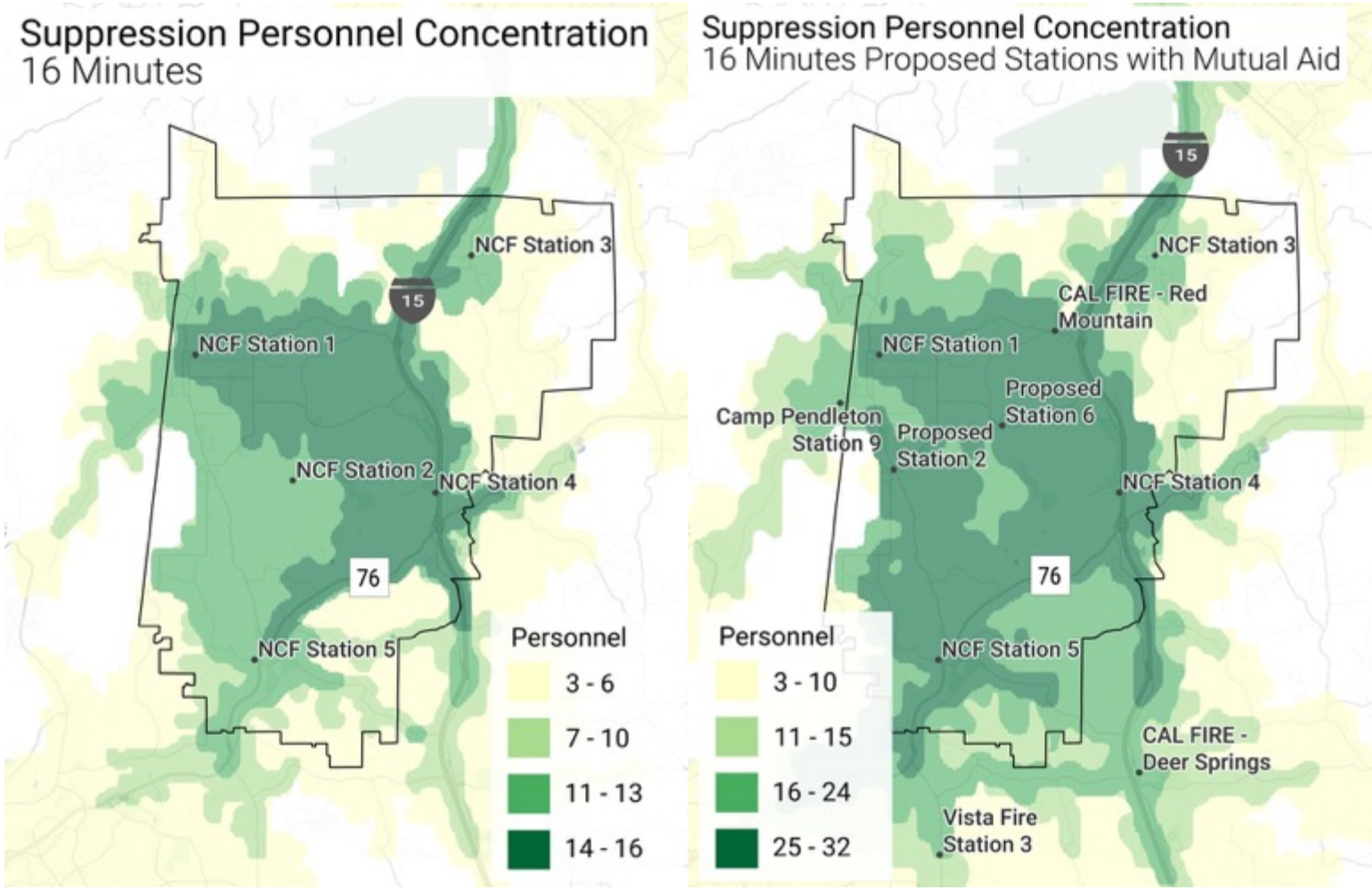
With the mutual aid partners the effective response force increases to a range of 23 to 29 personnel in the 16-minute travel time.

Moving Station 2 and adding Station 6 will improve the distribution of resources and will have an effect on the concentration of resources. The following maps illustrate the concentration of resources following the distribution improvements and with the mutual aid partners.



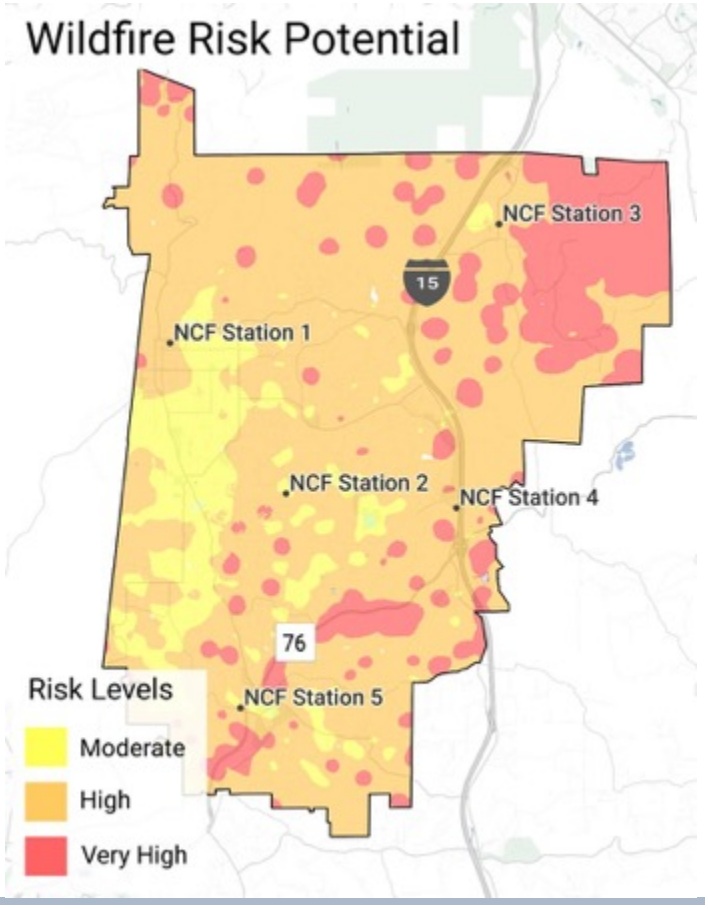
For comparison, the map on the left represents the current deployment of resources with mutual aid. The map on the right represents the deployment of resources with the new fire station configuration and mutual aid partners. Note the difference in the legend, more resources are available within the 11-minute travel time continuum.

The following map illustrates the concentration of resources using the existing stations and with mutual aid partners and new station configuration. However, this set of maps use a 16-minute travel time.



As illustrated, the addition of Station 6 and moving Station 2 significantly improves the resources available for a moderate risk structure fire.

There is a noteworthy Wildland Urban Interface (WUI) risk in the district. The area to the north of Fallbrook contains rugged terrain and has a significant fuel load. This is in addition to the proximity of the housing and the wildland areas, especially in the middle and southern areas of the district. Catching the vegetation fires in their incipient stages can help to avoid a larger issue. Unfortunately, the recent history of WUI fires in California and the western states have been devastating. Getting sufficient resources to the area quickly will help in the control and extinguishment of these fire. Adding these resources to the district will assist the response crews with keeping the vegetation fires small in nature.



Goal 9	**Improve the concentration of resources to create an effective response force for the various types of calls for service in the fire district.**

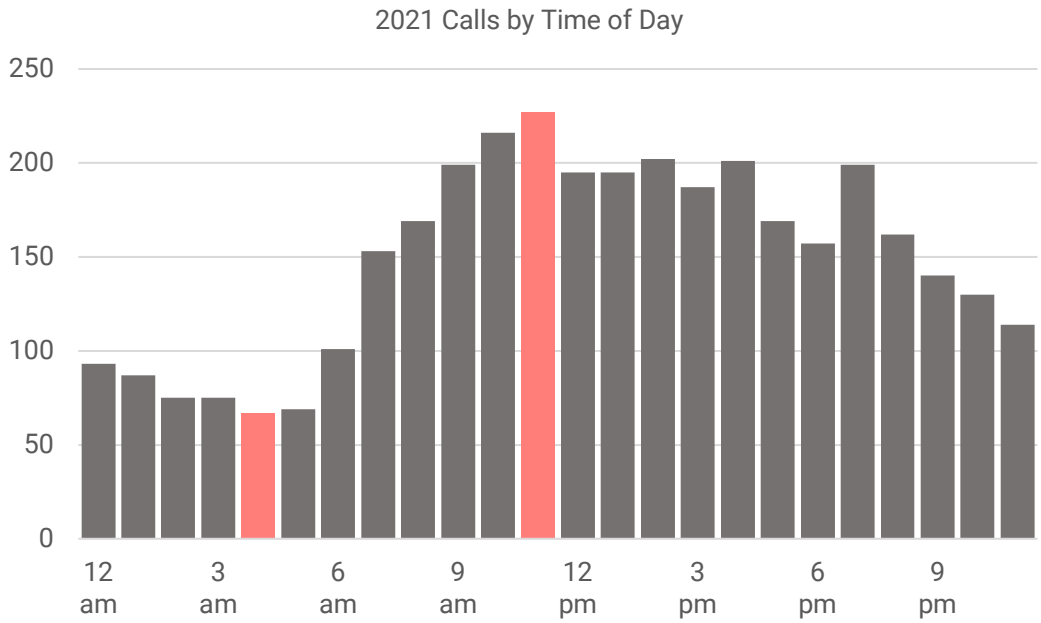
System Reliability

As noted previously, unit utilization is an issue, especially for the medic units. These units have long travel and return times from the hospitals that is also adding to the problem. Currently Medic 111 is at 30% utilization and the other two medic units are fast approaching 20% utilization. In addition, approximately 76% of the calls occurred with multiple calls occurring in the fire district. These two factors create issues for the Medic units to meet a 90% performance objective. Medic 111 is available for calls 70% of the time and with concurrent calls at 76%, the other medic units are likely covering calls for Medic 111 with longer travel times.

Given the system reliability issues for the medic units, a deeper analysis of the calls for service is warranted. The medic units generally do not respond to fire related calls. The following chart highlights the calls for service handled by the medic units in 2021.

	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Total
12 am	15	12	16	10	14	11	15	93
1 am	22	8	16	10	5	12	14	87
2 am	14	17	6	7	9	10	12	75
3 am	18	10	15	7	5	8	12	75
4 am	13	10	4	8	12	9	11	67
5 am	12	7	12	12	6	9	11	69
6 am	12	13	13	18	12	11	22	101
7 am	18	21	20	27	21	25	21	153
8 am	23	23	25	29	25	15	29	169
9 am	27	25	26	22	26	43	30	199
10 am	27	34	31	29	34	29	32	216
11 am	26	28	36	43	31	35	28	227
12 pm	31	21	25	26	29	32	31	195
1 pm	26	29	32	32	22	20	34	195
2 pm	27	34	24	30	31	29	27	202
3 pm	17	33	30	24	21	30	32	187
4 pm	35	35	24	25	29	29	24	201
5 pm	24	21	26	25	30	21	22	169
6 pm	23	18	21	22	24	20	29	157
7 pm	34	33	31	23	31	21	26	199
8 pm	13	16	27	26	27	22	31	162
9 pm	19	12	19	25	25	19	21	140
10 pm	23	17	19	17	13	15	26	130
11 pm	12	19	12	16	14	19	22	114
Total	**511**	**496**	**510**	**513**	**496**	**494**	**562**	**3,582**

As expected, the calls occur mostly during the daytime with 11 am being the busiest time of the day. The following chart provides a different view of the hour of the day.



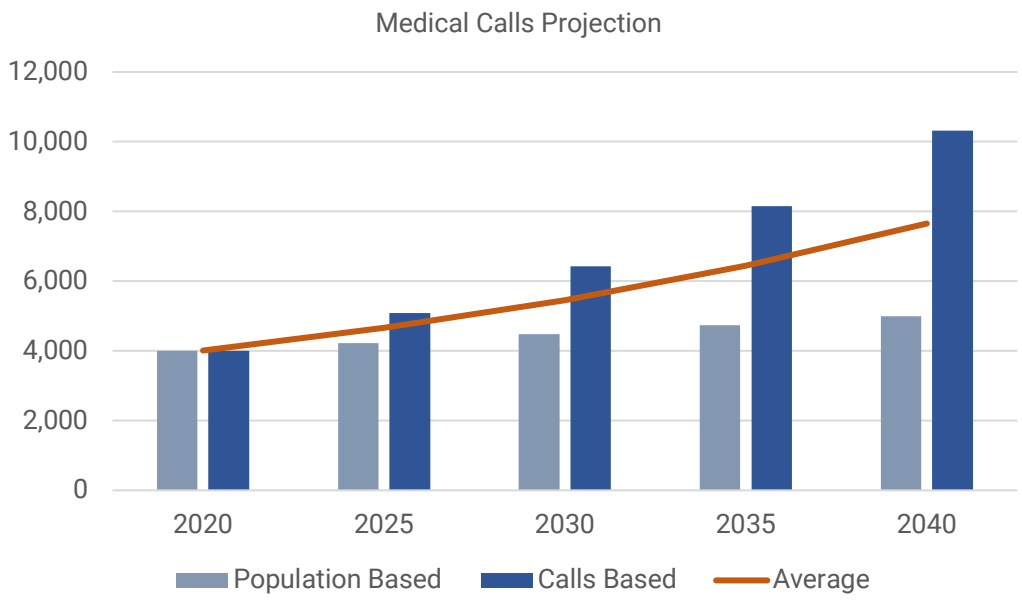
With this chart note the busiest time of the day for medic units is the 11 am hour and the slowest is the 4 am hour. There is a sharp increase in calls beginning at the 7 am hour with the medic calls continuing throughout the day. There is a sharp drop in calls for service at the 4 pm hour with an interesting spike at 7 pm.

Keeping with the calls for service by time of day, the following table highlights the utilization rates for two time periods, daytime (7 am to 7 pm) and nighttime (7 pm to 7 am).

Unit	2021 – Daytime			2021 – Nighttime		
	Duration	Pct. of Time	Avg.	Duration	Pct. of Time	Avg.
Medic 111	1632:43:41	37.3%	1:17:38	1004:18:11	22.9%	1:10:49
Medic 115	1183:40:02	27.0%	1:19:37	521:36:28	11.9%	1:09:14
Medic 114	1138:41:30	26.0%	1:09:26	512:20:12	11.7%	1:01:14

As previously noted, Medic 111 is the busier unit with an overall utilization rate of approximately 30%. In this analysis, Medic 111 has a utilization rate of approximately 37% during the daytime hours. The other two medic units are also significantly higher during the daytime hours.

In addition to the unit utilization, the calls for service are projected to increase. As previously noted, medical calls for service are expected to increase from the current 4,200 calls per year to an average of 7,653 in 2040.



Recall the median age has increased from 40.4 in 2010 to 42.5 in 2020 and those in the age demographic of 60 plus years has increased from approximately 23% of the population to approximately 29%. Increases in the age brackets of our population is a catalyst in the calls for emergency medical services and to the health care system overall.

Adding a peak-time medic unit for the twelve-hour daytime period would ease the daytime utilization rates and improve the availability of a medical unit. As well, it would provide a fulcrum to move to a 24-hour unit once the need is realized. However, workforce availability may present a challenge to the fire district given the current single-role position issues.

Single Role Utilization

Several years ago, the fire district created two separate roles to provide emergency services to the fire district. The primary role is classified as a safety position as a Firefighter/Paramedic. This role is a full-time position that fills both the emergency medical services and fire suppression service provisions for the district. The second role is classified as a non-safety role as a Single Role Paramedic. This position is limited to the provision of emergency medical services to the district. The purpose of these two roles was to reduce the cost of personnel as the single role position was not paid as much as the full-time positions with reduced costs for some of the benefits. The savings was to allow the district to formally establish reserves for physical facilities as well as other issues within the district.

Over the years the viability of the single role position has become an area of concern as there is a high turnover within the program. These views were also expressed in the

employee survey conducted as part of this strategic planning process. Many individuals that become a part of the program are looking to move on into more permanent full-time firefighter/paramedic positions. This makes the North County Fire Protection District program a steppingstone to get to the end goal of a full-time position typically with another organization. In fact, over the past year there have been 12 new employees recruited and placed in the 9 positions that are open. The following tables illustrate the costs for each of the roles.

Full-Time Safety Employee – Step C

	Regular Hourly Rate/Pct.	Hours/Salary	FF/Paramedic
Salary		Based on the current contact	$85,922.00
FLSA		Based on the current contract	$2,339.30
Holiday	$29.51	132.08	$3,897.68
Health	1014.08	26	$26,366.08
Medical Trust	84.09	26	$2,186.34
Life Insurance	2.30	12	$27.60
Worker's Comp	5.7%	$92,158.98	$5,253.06
Uniform Allowance			$700.00
Medicare	1.45%	$92,158.98	$1,336.31
Annual Leave	$29.51	240	$7,082.40
Sick Leave	$29.51	144	$4,249.44
Retirement	13.750%	$92,158.98	$12,671.86
UAL	0.1643%	$92,158.98	$151.42
Admin Fee - Trust	2.47	26	$64.22
Admin Fee for Health	0.25%	$29,295.60	$73.24
Acting Pay	5.00%	$92,158.98	$4,607.95
Cert+	5.00%	$31,576.99	$1,578.85
Education	600.00	$3,186.00	$3,786.00
EE Wellness			$650.00
Workout			$30.00
Medic License			$225.00
Total Cost			**$163,198.74**

In each of the benefits and costs in the previous table are based on the Memorandum of Understanding with the Fallbrook Firefighter's Association (Safety) agreement for period ending September 30, 2021. For purposes of this exercise, the pay is based on Step C for the Firefighter/Paramedic position. As shown, the total cost for this position is $163,198.74. The following table illustrates the same costs for the non-safety single role paramedic.

Single Role Non-Safety Employee

	Regular Hourly Rate/Pct.	Hours/Salary	Single Role Paramedic
Salary	$19.00	2912	$55,328.00
FLSA	$9.50	832	$7,904.00
Health	390.03	26.00	$10,140.78
Uniform			$500.00
Medicare	1.45%	$63,232.00	$916.86
Annual Leave	$24.00	100	$2,400.00
Sick Leave	$24.00	100	$2,400.00
Retirement	13.750%	$55,328.00	$7,607.60
Admin Fee for Health	4.56	12.00	$54.72
Total Cost			**$87,251.96**

Each of the benefits and costs in the previous table are based on the North County Fire Protection District Policy Section 216.08 dated January 23, 2018. As shown, the total cost for this position is $87,251.96. This indicates a savings of $75,946.78 for each position with an annual savings of $683,521 for the 9 positions involved.

As noted previously the single role position have been a revolving door for the past few years with an average of 12 new employees to fill the 9 positions over the past three years. The process to onboard a new employee requires several steps. The first steps primarily involve Human Resources. The following table illustrates the costs associated with their process.

Item	Cost
Interview/Simulation	2,000.00
Background Check	$150.00
Psychological Evaluation	$350.00
Physical	$700.00
Uniforms	$1,500.00
Two Day Orientation	$931.00
Total	**$5,631.00**

As shown in the previous table, it takes $5,631.00 to onboard a new employee. Based on the average of 12 new employees per year over the past three years the total cost was $67,572.00.

Once hired, the new employee receives training and orientation as an on-the-job type of program. The new paramedic is paired with a full-time firefighter/paramedic to receive this training. Within this part of the program, the new paramedic must complete a task book that highlights a variety of skills that must be completed satisfactorily before the new paramedic is permitted to act and function on their own. This is designed to ensure

patient care is appropriate and within the standards of the fire district. As well, it provides a mechanism for the new employee to becomes familiar with the policies and procedures of the district. This function comes with a cost. The full-time firefighter/paramedic with oversight responsibilities is taken from another station and must be replaced during the training period. The training period varies from 30 to 60 days depending on the candidate and the progress made in completing the task book. For purposes of this exercise, six weeks will be used as an average time to complete the process. Typically, there are 10 shifts in a month or 240 hours of work time. Adding another two weeks, 5 shifts, adds another 120 hours for a total of 360 hours of training and orientation. Based on 360 hours of training the following table highlights the cost for overtime.

Hourly OT Rate	Number of Hours	OT Cost per New Employee	Number of New Employees	Total Cost of OT for New Employees
$44.27	360	$15,937.20	12	$191,246.40

Using the same average 12 new employees for the past three years, the total cost for overtime to cover the firefighter/paramedic position was $191,246.40. For perspective, the following table summarizes the cost savings with the single role position.

	Individual Cost	Total Cost
Firefighter/Paramedic	$163,198.74	$1,468,788.68
Single Role	$87,251.96	$785,267.68
Difference	$75,946.78	$683,521.00
Hidden Costs		
Recruitment/Onboarding	$5,631.00	$67,572.00
Overtime for Orientation/Training	$15,937.10	$191,246.80
Net Savings	**$54,378.68**	**$424,702.20**

Based solely on salary and benefits the cost savings is approximately $683,521 annually. Once the additional costs are added to the calculation, the annual savings is reduced to approximately $424,702 annually. There are intangible issues that include the constant shuffling of people through the system and the moving of preceptors from their stations and crews to perform the training and orientation.

In addition to the financial aspect of this role, there are a number of other intangible impacts to the emergency services system. These include, but are not limited to, crew integrity, extended time frames for orientation and on-the-job training, and high turnover rates. With the high turnover rates, the fire district is essentially a training ground for other fire departments and districts meaning the North County Fire Protection District will need to determine if this process should continue.

Goal 10	Evaluate the ambulance delivery system in the Fire Protection District

Essential Functions

The primary purpose of the North County Fire Protection District is to respond to and mitigate fire and medical emergencies within the district. To support these responses, there are a variety of other functions and responsibilities assigned to the fire district such as fire prevention and training. Historically the fire service has been tasked only with fire suppression however, in the past few decades there have been changes that now entails a fire protection system to provide service to the community.

Training and Education

A training division is considered a major function in a fire department as it is critical for personnel to maintain perishable skills and become proficient to handle low frequency – high consequence events. Training is managed by the Division Chief using instructors from various shifts to deliver the programming.

There is a training plan established that identifies the training goals for the year. Within this plan mandatory subjects and hours are established that includes the use of an online training system, target Solutions, tower drills at the Pala tower, and participation in the North Zone multi-company activities. The annual calendar is included that identifies the discipline, subject, and responsible individual for the delivery of the session.

Based on the Training Plan, individuals are required to obtain 240 hours of training in various topics each year. Training is tracked and the following table illustrates the number of man-hours for 2021.

In North County training is managed by the Division Chief using instructors from various shifts to deliver the programming.

Training Discipline	2021
Driver Training	493
Facility Training	723.5
Officer Training	515
Hazardous Materials	241
Company Training	7694.25
Total Man-Hours	**9,666.75**

Current staffing for the training section is limited to the Division Chief. This makes training one of several tasks and responsibilities of the position. As a result, the shift officers are relied upon to deliver training programming and the ensure the training is delivered as scheduled. A dedicated training officer would ensure the training programs

stay focused, scheduled to ensure that all programs are in fact delivered in a timely manner, and to ensure all personnel are maintaining their appropriate certifications.

Not only does the training maintain current skills but also addresses new techniques and procedures, especially in the medical fields. Performance objectives should be established for the training division to measure the progress of the training division and the abilities of the personnel. Many communities rely on the fire department to handle a myriad of emergencies and it is no different in North County. A training division that is active, scheduling appropriate training programs, and measuring success will ensure the department is ready to handle those emergency events when needed.

North County does not have a dedicated training facility. Currently the district uses parking lots, streets, and other areas to perform their training activities. For example, the street next to Station 1 is used for the drivers training practical course. While this works for the district, it can cause issues with other using the road and placing personnel in the street. Using streets and parking lots is not an uncommon practice in the fire service, many departments use the same type set up. In fact, many departments incorporate training props into their new station facilities as they are built such as rope rescue and ladder props.

While North County does have access to a training tower in Pala that is working for the district at this point. However, as the district grows and more personnel are added, a formal training facility will likely be needed.

Goal 11	**Improve the delivery of training programs to the personnel in the North County Fire Protection District.**

Fire Prevention

Fire prevention and loss control is the first defense against unwanted fires. The goal of any fire prevention program is to prevent the fire from occurring, prevent the loss of life, reduce the severity of a fire if one does occur, and if a fire does occur to enable the fire suppression forces to perform their tasks more effectively. These goals are accomplished through building inspections, public education activities, and the planning before a building is built.

Plans for new developments and commercial buildings need to be reviewed by the Fire Department not only to ensure code compliance but also to ensure access and water supplies are adequate. As well, there are fire protection systems and other specialized systems that require closer scrutiny and inspections.

	2019	2020	2021
Plan Check Reviews	291	141	159
New Construction Inspections	217	256	361

Over the past three years there has been an average of 197 plan reviews per year and an average 278 new construction inspections.

Fire safety inspections are performed using fire prevention staff and engine companies. The fire prevention staff performs the state mandated inspections and the engine companies are assigned other inspections.

	2019	2020	2021
Engine Company Inspections	475	395	293
State Mandated Inspections	201	307	275

In addition to the state mandated inspections, wildland/urban interface inspections are performed by the fire prevention staff. Over 20,000 notices are sent to property owners in the fire district each spring to begin the hazard abatement efforts. The Fire District has responsibility of approximately 6,500 parcels in the Local Responsibility Area (LRA). As the district grows with additional housing and structural improvements, this particular type of inspection and enforcement will become more important.

In terms of fire safety education, the fire district has had programs in the past. These programs were held during Fire Prevention Week and included educational programs for school aged children and an open house. However, in 2019 the program was reduced due to the pandemic.

The district would benefit from having additional staffing assigned to fire prevention. Not only to ensure fire safety inspections are completed in a timely manner but also to provide public education programs. The public education programs for school-aged children and with the wildfire urban interface issue. Results from the community survey indicate that approximately 54% of the respondents were not aware of any plans for the prevention or response to wildland fires. Further, approximately 68% were not satisfied with the evacuation routes and approximately 66% were not satisfied with the educational efforts.

Additional concerns were expressed about the lack of alerts and information in Spanish as well as the senior population related to any evacuation processes. The Fire District has begun to address the Spanish speaking community with the addition of the Customer Service/Social Media Specialist. Social media announcements have begun and collaboration with Hispanic organizations is in process.

Goal 12	**Increase fire prevention inspection and public education efforts in the North County Fire Protection District.**

Physical Resources

Included in this chapter is a review and analysis of the physical resources of the Fire District to include facilities and apparatus.

Fire District Facilities

In September 2017 the North County Fire Protection District received a report from Roy Jorgensen Associates related to an assessment of the facilities owned and operated by the fire district. This study examined a variety of components and assigned a score known as the Facility Condition Index (FCI). The following table highlights the FCI score for each of the fire stations and the accumulated deferred maintenance (ADM).

Building	Address	Date of Construction	FCI Score	ADM
Roy Noon	231 East Hawthorne	1968	9.3%	$44,822
Communications Annex	550 East Ivy Street	1968	7.9%	$27,959
Station 4	4375 Pala Mesa Drive	1979	5.6%	$314,901
Station 1	315 East Ivy Street	1963	4.4%	$274,850
Station 6	2309 Rainbow Valley Blvd.	1982	3.5%	$176,638
Maintenance Facility	315 East Ivy Street	2008	3.3%	$119,130
Storage Building	East Hawthorne & North Orange	1968	3.0%	$40,676
Rainbow Training	2309 Rainbow Valley Blvd.	1982	2.0%	$15,257
Station 2	2180 Winterwarm Drive	1963	1.9%	$30,189
Station 3	4157 Olive Hill Road	2008	1.4%	$92,329

The FCI score is based on the total cost of repairs related to the current replacement value with the lower the score being the better condition. Based on this scale, the Roy Noon building, and the Communications Annex have the higher scores but Stations 1 and 4 will require the most funding to repair.

As noted, this study was performed in 2017 and there have been several changes since it was published. For example, Station 3 on Olive Hill Road is no longer used as a fire station. According to this study, $1.1M will be needed to address the accumulated deferred maintenance items. Discussions with staff during the course of this study has presented several options related to the physical facilities, in particular the fire stations.

The original plan for Station 3 was to have a modular unit installed for living quarters, however in January 2022 grant funds from the state became available to renovate the station. This saved the Fire District approximately $400,000. These renovations are designed to address many of the issues with the current station.

Another potential change is with the Station 1 site. This site has approximately 10 acres that includes baseball fields next to the station. One alternative is to sell the property using those funds to rebuild Station 1, the maintenance facility, and provide appropriate housing for the administrative offices. The sale could include the entire parcel or part of the parcel depending on the need for facility space for the fire district or the needs of the buyer. Based on the 2017 study, the current replacement value for Station 1 was estimated at $9.8 million. While there is much to be done for any of this to come to fruition, it would alleviate a considerable amount of maintenance funding and would provide a new facility for Station 1, maintenance, and administrative offices.

In addition to the Station 3 renovation, Station 2 living quarters is currently being renovated. These renovations include kitchen, day room, and bedroom facilities in addition to renovations to the apparatus bays and the exterior of the building. These improvements should address many of the maintenance items noted in the 2017 report. However, at a point in the future this station would be moved to the area of South Mission Road and another station added to the Gird Road and Reche Road area.

Station 4 is currently a modular unit connected to a two bay building and was to be temporary quarters until such time as a new facility could be built. According to the facilities report the FCI score was 5.6% with over $300,000 of deferred maintenance. Based on the distribution of resources analysis, this station should remain at this location. With the renovations occurring at Stations 2 and 3, this station should be the next focus of the fire district. Complete replacement of the existing station using the footprint of Station 5 would provide the fire district with the appropriate space and facilities for the apparatus and personnel.

Goal 13	Continue to improve the facilities of the North County Fire Protection District

Apparatus Replacement

An effective apparatus replacement program will have benchmarks established to drive the replacement schedule. These benchmarks should establish a replacement guideline to categorize the various units and their target replacement date, definitions for the determination of the condition of the vehicle and other criteria to be used in the evaluation of the vehicle. Many fire departments replace apparatus based on the age of the vehicle; one such type of schedule is illustrated in the following table.

Type of Apparatus	Replacement Frequency
Engines and Rescue	Every 25 years
Aerial or Ladder Apparatus	Every 30 years
Ambulances	Every 15 to 20 years
Other Vehicles	As Needed

The following replacement guideline uses a point system to determine when a unit should be replaced. It utilizes a variety of factors such as mileage, reliability, and maintenance costs to score the apparatus. The table that follows identifies those factors and the recommended point system to use.

Replacement Guidelines

Factor	Points
Age	One point for each year of chronological age.
Mileage / Engine Hours	One point for each 10,000 miles or 1,000 engine hours.
Type of Service	Points are based on severity of service 5 points - Engine Company 3 Points - Aerial Ladders / Specialty Units 1 Point - Administrative Vehicles
Reliability	Points are based on the frequency a vehicle is in the garage for repair 5 points - Two or more times per month (average) 3 Points - Two times every three months (average) 1 point - Once every three months (average)
M & R Costs	Maintenance and repair costs on the total life of the vehicle, excluding accident damage. 5 points – M & R costs equal to or greater than original purchase price 4 points – M & R costs 75% to equal to the original purchase price. 3 points – M & R costs 50% to 75% of the original purchase price 2 points – M & R cost 20% to 50% of the original purchase price. 1 point – M & R costs 20% or less than original purchase price.
Condition	Consideration given to body condition, rust, interior condition, accident history, anticipated repairs, etc. 5 points - Poor Condition 4 points - Fair Condition 3 points - Good Condition 2 points - Very Good Condition 1 point - Excellent Condition

This system uses the major components typically considered in evaluating vehicles and then puts a numeric value to the vehicle. It can be adjusted to fit the local perspective. For example, if the maintenance costs are a more important factor, then adjusting the percentage to the original cost will provide a higher weight to that category.

The following table outlines the total score and the expected outcome of that score.

Replacement Guideline Scoring

Point Range	Condition
Fewer than 18 points	Condition I - Excellent
18 to 22 points	Condition II - Good
23 to 27 points	Condition III - Qualifies for Replacement
28 points and above	Condition IV - Needs Immediate Consideration

Another component to this type of system is the collaboration between the Fire Department and those involved in the maintenance of the fleet. All involved should discuss the results of the survey to determine the needs of the apparatus in terms of mechanical issues. It is possible there is a unit or units that will need major repairs that would influence the decision to replace the apparatus.

The most important function of fire apparatus is the safe movement of personnel and equipment to and from an emergency scene and the investment in fire apparatus is a significant endeavor for any community or fire district. Changes in the standards by which they are built and the performance standards by which they are tested continue to evolve and has resulted in rapidly increasing costs for fire apparatus. A typical engine will cost in the range of $500,000 to $600,000 depending on the manufacturer, configuration of the truck and other needs of the fire department. In addition, the aerial ladders will cost in the range of $900,000 to $1.3 million again depending on the same variables. Many departments will borrow the funds to purchase the apparatus while others will have set aside funds based on the depreciation of the current apparatus and planned replacement schedule.

Reserve Funding

Reserve funding is typically used for a variety of reasons that include maintenance and replacement of facilities and apparatus as well as operational reserves. In terms of operational reserves, an organization should have enough reserve funds to cover three to six months of operational expenses. Many organizations will establish other reserve funds with a specific purpose such as apparatus replacement. The following sections

address apparatus and facilities separately as there are several mechanisms that can be used in the establishment and use of reserve funding.

Apparatus

The most common reserve funds for apparatus are based on a depreciation model. In this model, the cost of the apparatus is divided by the expected life, in years, of the apparatus. For example, a $600,000 engine is expected to last 15 years which means the apparatus is depreciating at a rate of $40,000 per year. To ensure there is funding at the end of the lifespan of the apparatus, $40,000 should be set aside each year for the eventual replacement. However, more recently, the interest rates were such that borrowing the funds through a lease-purchase program to replace apparatus was a cheaper endeavor than to set aside the funds. The downside to the lease-purchase option is the ability to miss a payment or contribution to the apparatus reserve funds. Using the reserve fund mechanism allows for the elimination of or missing a contribution due to a major/catastrophic event that may occur, such as a pandemic.

In terms of replacement of apparatus, there should be an administrative policy established for the replacement of apparatus. Policies can determine the years an apparatus would be used as a front-line resource and the number of years as a reserve resource. For example, an engine company would be used as a front-line resource for 10 years and as a reserve for 5 years before it is replaced. This type of replacement cycle can change based on the replacement guidelines previously outlined. Once the apparatus replacement schedule is established, the funding mechanism could be based on the financial conditions at the time. For example, it may be advantageous to use the lease-purchase option on one unit and to establish a reserve fund mechanism on the next purchase. This would need to be determined at the time of replacement based on the current economic and financial conditions of the fire district.

Goal 14	**Continue to fund a reserve fund for the replacement of apparatus and vehicles used by the North County Fire Protection District.**

Facilities

There are two separate facility issues for the North County Fire Protection District. The first is the accumulated maintenance deficiencies (ADM). For a variety of reasons, there were numerous maintenance issues that were deferred or not repaired over the years allowing the facilities to deteriorate. As noted in the 2017 report, there were a number of deferred maintenance items identified in the report that was estimated to cost $1.1M for get caught up. In the recent months, Station 3 is in the beginning stages of renovation

work and Station 2 is in the midst of a renovation. Both of these renovations should address many of the deferred items.

With the ongoing renovations, that leaves Stations 1 and 4 to address the ADM. For Station 1 there is a potential, as previously discussed, to sell all or part of the existing parcel to fund new facilities. Should this potential be realized, the ADM for Station 1 would essentially be eliminated with a new structure. Should this potential sale not be realized, the fire district will need to address the maintenance items. According to the 2017 study, Station 4, the temporary facility has outlived its useful life. To rebuild Station 4 using the Station 5 footprint, it will likely require borrowing funds to replace the station and potentially to finalize any maintenance issues for Station 1.

Reserve studies are generally designed to provide the owners with a cost analysis for the maintenance of their buildings. These reports will address building components such as roofs, gutters, HVAC systems, and external property elements among others. Using typical life expectancy for the various components the study will provide the anticipated cost for replacement and the timing of the replacement. Based on the anticipated cost and the timing for the replacement, an annual reserve fund contribution will be established to ensure funding is available when the replacement is needed. Guidance from this report can be used to plan for the larger maintenance items of the facilities.

The current policy for the North County Fire Protection is place $300,000 per year, or $25,000 per month, into the reserve funds for apparatus and facility funding. The second issue for the Fire District is to ensure the correct funding is being placed in the reserves to accommodate the needed replacements and repairs.

In terms of the reserve study, the current facilities study is now five years old. There have been numerous changes the facilities within the fire district and renovations to some of the existing facilities. It would benefit the fire district to have an updated reserve study completed. The first part of the study should address any ongoing maintenance issues that remain from the previous study. The second part of the study should review the current facilities and the maintenance needs into the future. For example, the roof at Station 5 will need to be replaced at some point, the reserve study would provide a timeline for that replacement and the potential cost. This will provide the fire district with guidance on the annual funding needed to ensure the maintenance costs for major systems and components for the facilities are provided for in the reserve funds to prevent deferred maintenance items in the future.

Goal 15	**Establish a specific reserve fund for the maintenance and replacement of facility components.**

Replacement of apparatus, the ongoing maintenance needs of the facilities, and the potential need for additional apparatus and facilities will require funding for these endeavors. Using the apparatus replacement plan, the need for additional facilities, and the updated reserve study the fire district should seek a long-term funding mechanism. Any additional stations and apparatus will require additional personnel and increased operational cost. Without a funding solution for the infrastructure needs, the operational funding will not likely be sufficient for the future.

Goal 16	**Address the necessity for long-term funding for infrastructure needs of the Fire Protection District to include facilities and apparatus.**