

**ADVANCE
AGENDA ITEM
13A**

Date: April 1, 2021

Council Action Date: April 21, 2021

TO: Honorable Mayor and City Council**FROM:** Alex D. McIntyre, City Manager**SUBJECT:** Fire Department Operational Performance Study

On December 9, 2019, the City Council unanimously approved an agreement with Emergency Services Consulting International to conduct a Fire Department Operational Performance Study. The purpose of the Study was to evaluate current fire operations and their alignment with industry best practices.

The Study is now complete. Emergency Services Consulting International and Staff will present the Study at a Special City Council Meeting on April 21, 2021. A digital copy of the Study is attached to allow sufficient time to review in advance of the presentation. A paper copy of the report will be delivered to City Council by April 7, 2021.

ATTACHMENT:

A Fire Department Operational Performance Study

ATTACHMENT A



Ventura Fire Department

Ventura, California

March 2021

FIRE DEPARTMENT

Operational Performance Study

ESCI Emergency Services
Consulting International

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ACKNOWLEDGMENTS

Fire Chief

David Endaya

Assistant Fire Chief

Matt Brock

Fire Marshal

Joe Morelli

Battalion Chiefs

Jack Hansen

Tony Hill

Kris McDonald

Doug Miser

IAFF Local 3431 President

Fire Captain Shawn Hughes

EMS Coordinator

Heather Ellis

Management Analyst II

Victor Dowbusz

City Manager

Alex McIntyre

Assistant City Manager

Akbar Aikhan

Deputy City Manager

Barry Fisher

Senior Management Analyst

Mitchell Cameron

Assistant Human Resources Director

Valerie Barroso

GIS Systems Analyst II

Don Taylor

Accounting Manager

Bridgette McNally

Ventura City Council

Mayor Sofia Rubalcava

Deputy Mayor Joe Schroeder

Lorrie Brown

Jim Friedman

Jeannette Sanchez-Palacios

Doug Halter

Mike Johnson

Matt LaVere

Cheryl Heitmann

Erik Naserenko

Christy Weir

...and the rest of the employees of the Ventura Fire Department and City of Ventura, who selflessly serve their citizens and visitors with honor and distinction.

EXECUTIVE SUMMARY

In January 2020, Emergency Services Consulting International (ESCI) was retained by the City of Ventura, California, to conduct an Operational Assessment of the Ventura Fire Department (VFD). This assessment was initiated as a result of significant increases in emergency service demand, changes in City administrative leadership, and a desire to identify innovative service delivery options to address the demand for emergency services.

Regarding the analysis of the level of service provided by VFD to the community, ESCI felt it important to note:

The community should set staffing levels based on risk, capability, and citizen expectations. There is no mandated requirement that fits all situations.

During the winter and spring of 2020, ESCI representatives analyzed several aspects of VFD's administrative services and operational performance. This analysis included a review of administrative and financial business practices, deployment of personnel, temporal analysis of emergency operations workload and response time performance, assessment of support services delivery, and evaluation of capital apparatus and facilities.

Near the end of the project, ESCI was unable to conduct an in-person site visit due to the COVID-19 pandemic. As a result, representatives interviewed key stakeholders by telephone to validate the information previously provided, and learn more about the nuances of the community, fire department operations, and service delivery challenges. Tours of the fire stations were conducted via FaceTime video service. In addition, a confidential online survey was conducted to give Department members an opportunity to provide insights, opinions, and ideas about the current status of the Department and its needs. The willingness and flexibility of the VFD stakeholders to collaborate with ESCI in non-traditional ways to finish the project during a pandemic is a tribute to the entire Ventura Community.

In this executive summary, ESCI reviews key information contained in the detailed report, concluding with a variety of recommendations to meet administrative and operational needs, along with options for bolstering operational resources to meet the increased call demand.

The Ventura Community

Ventura's population, like most California coastal community populations, has experienced relatively modest population growth over the past decade, growing only 3.5% during this timeframe, and may have actually had a slight decrease in population (approximately 700) in 2019, according to the California Department of Finance.

Ventura is a diverse community, with over 35% Hispanic population. Over 11% of the population's income is at or below the poverty level, and almost 11% do not have health insurance. The City also experiences a large influx of transient populations, as it serves as the county seat for regional government, law enforcement, and includes large regional health care facilities. Homelessness is another demographic factor that must be mentioned. According to VFD, in 2019, 7.5% of all incidents involved homeless individuals. Nearly two-thirds of the county's overall homeless population is located in Oxnard and Ventura. All of these demographic factors have an impact on the demand for emergency services.

Ventura Fire Department

The VFD is an all-hazards emergency response department, primarily providing fire suppression, emergency medical services (EMS) paramedic first response, ocean and technical rescue, and hazardous materials response. Response units and personnel are housed in six strategically located fire stations throughout the City, with a minimum on-duty staff of 22 personnel. In addition, another engine crew (Medic Engine 7) is staffed 10 hours a day, on an alternating 4- and 5-day weekly work schedule to provide peak demand coverage and backfill for crews engaged in drill/training activities. The Department has a total of 86 personnel, assigned to administration, administrative support, and operations. Additional important program services provided include Fire Prevention/Hazardous Materials Enforcement, Life Safety Education, and Training.

Other System Components

The VFD is part of a larger regional response system that works together in providing emergency response services. Key agencies in this system include:

- American Medical Response® (AMR) & Gold Coast Ambulance®
- Ventura County EMS Agency
- Ventura County Fire Department Fire Communications Center (FCC)
- Community Memorial Hospital® & Ventura County Medical Center®

In addition, VFD is part of an automatic aid/mutual aid program with adjacent fire agencies, including the City of Oxnard Fire Department and Ventura County Fire Departments, who routinely respond into the City on automatic aid assigned incidents, along with VFD units responding into their jurisdictions. This seamless arrangement ensures the dispatching of the closest unit(s) to an incident address, regardless of jurisdictional boundaries, and sharing of resources on first alarm assignments to structure fires and other resource-intensive incidents. The following fire agencies are part of the automatic/mutual aid program:

- Ventura County Fire Department
- City of Oxnard Fire Department
- City of Fillmore Fire Department
- Carpinteria Fire Department
- Federal Fire Department (Point Mugu)
- CAL FIRE

These agencies, along with other regional and state assets, also work closely together on large-scale incidents, such as wildfires.

Critical Issues

To assist ESCI in identifying and addressing administrative and operational issues, the Fire Chief was asked to identify the critical issues faced by the organization. Those issues were:

- An inability to enable or initiate necessary service capability and capacity improvement to meet ever increasing demand for services.
- Lack of stability and tenure in City leadership.
- Institutional inertia to affect significant change in service delivery.
- Changing community demographic and economic conditions that increase service demand.
- Competing City priorities for limited financial resources.
- Lack of public understanding of fire department operations, service delivery, and systems.

VFD Management Processes

ESCI evaluated the Department's management processes, and for the most part, found them to be consistent with contemporary fire service practices. Data collection and analysis is one area where the Department appears to excel, especially in using this information to make operational deployment changes. Inconsistent and anemic public engagement was identified. However, the City recently increased efforts to centralize communications efforts. Personnel assigned to this effort will have responsibilities to support the Fire Department along with other City departments.

Financial Overview

ESCI performed a cursory analysis of the City and Fire Department budgets. Ventura's diverse and thriving economy has produced steady growth in its General Fund primary revenue streams of sales and property taxes. However, the growth in these revenue streams has been unable to match the growth in General Fund expenditures. The addition of the Measure O Initiative to support several aspects of City government has bolstered its ability to provide expected municipal services. Ventura experienced a significant decrease in its unassigned General Fund balance over the historical period reviewed by ESCI, and this is expected to continue. In addition, the COVID-19 pandemic has had a significant impact on the City's 2020 budget, resulting in downward revised overall budget projections and unplanned reductions in expenditures for the remainder of 2020. ESCI also projected a status quo Fire Department expenditure budget through 2024/2025, as shown in the following figure.

**Figure 1: VFD Status Quo Recurring and Non-Recurring Expenses,
Budgeted FY 19/20–Projected FY 24/25**

Description	Budgeted FY 19/20	Projected FY 20/21	Projected FY 21/22	Projected FY 22/23	Projected FY 23/24	Projected FY 24/25
Salaries	12,236,880	12,757,449	13,076,385	13,403,295	13,738,377	14,081,837
Benefits	7,598,188	7,902,116	8,099,668	8,302,160	8,509,714	8,722,457
Salaries & Benefits	19,835,068	20,659,565	21,176,053	21,705,455	22,248,091	22,804,294
Services & Supplies	1,042,212	806,726	824,877	839,395	853,917	868,689
Internal Services	2,468,155	2,477,265	2,534,242	2,591,769	2,630,128	2,669,053
Total Recur. Expenses	\$23,345,435	\$23,943,556	\$24,535,172	\$25,136,619	\$25,732,136	\$26,342,036
Debt Service	-	-	-	-	-	-
Capital	116,557	30,000	-	-	-	-
Total Non-Recur. Expenditures	116,557	30,000	-	-	-	-
Total Expenditures	\$23,461,992	\$23,973,556	\$24,535,172	\$25,136,619	\$25,732,136	\$26,342,036

Staffing and Personnel Management

A thorough review of fire department administration and operations staffing levels and deployment was conducted, with specific focus on:

- Administrative and supervisory support levels
- Operational deployment methodologies and scheduling practices
- Overall adequacy of staffing levels compared to national and regional benchmarks

Administrative Staffing

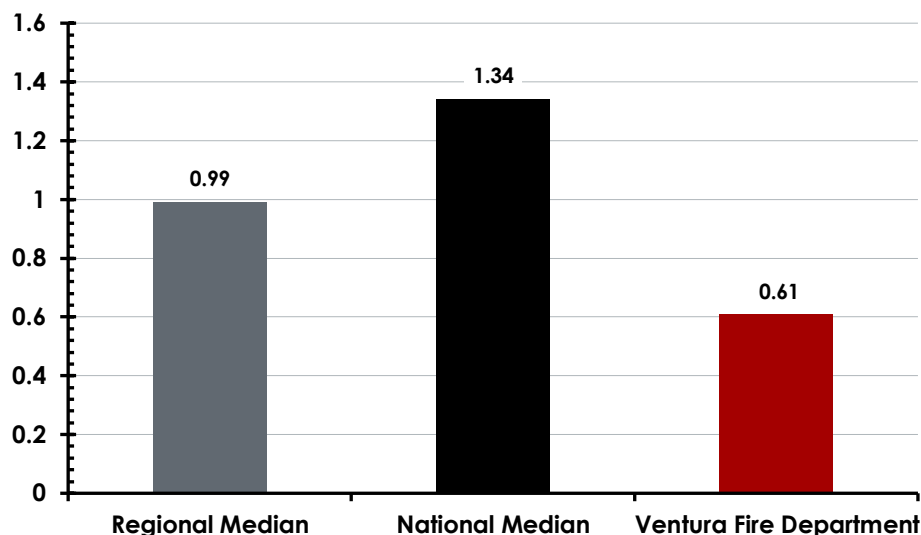
ESCI notes that the current level of administrative and support staffing represents roughly 16% of VFD's total staffing, of which approximately 8% is allocated to the overall direction and governing of the fire department. ESCI noted the Administrative Assistant Chief was eliminated in 2009 due to budget cuts. The tasks and assignments of this position were distributed to the remaining members of the management team or altogether removed. Because of this reduction, the remaining administrative positions assumed additional operational duties in some situations.

The current number of positions assigned to carry out these high-level administrative responsibilities is not enough to meet demand, as daily operational needs routinely detract from the ability to perform necessary administrative tasks. ESCI noted a lack of redundancy or ability to overlap functions when needed, especially if the Assistant Chief or Fire Chief are unavailable due to training, illness, injury, or other leave usages. This situation was encountered during this study when the Assistant Chief was placed on extended leave due to injury, and an Operations Battalion Chief had to be reassigned for two months to an Acting Assistant Chief position to maintain basic administrative management functions.

Operations Staffing

ESCI used the National Fire Protection Association 2016 National Fire Experience Survey data to compare the total number of VFD firefighters with national and regional (Western United States) norms, as shown in the following figure.

Figure 2: Comparison of Firefighting Personnel per 1,000 Population



The 2016 National Fire Experience Survey indicates the national median rate of firefighters per 1,000 population is 1.34, and regionally, the number of firefighters per 1,000 population is .99. Within VFD, the rate of firefighters per 1,000 citizens is .61. These rates do not consider the area covered and are general comparisons by populations served. Large geographical areas with sparse populations often require a greater number of firefighters to achieve service levels. This comparison in and of itself does not indicate a necessary change in staffing, but it serves as a point of reference for analysis of current operational endeavors as compared to other jurisdictions of a similar population base.

Staff Scheduling Methodology

VFD utilizes a traditional three platoon system operating on a 24-hour shift rotation per position for those not assigned to ME-7. Minimum staffing for VFD is three firefighters per engine company and four firefighters per truck company, who work a rotating 48 hours-on, 96 hours-off work schedule. This schedule is becoming more common in Western U.S. fire departments, as it reduces commuting time and related environmental impacts and allows for adequate fatigue recovery time from busy work shifts, including the restoration of healthy sleep patterns.

ESCI also reviewed the average historical leave usage to determine the appropriate minimum staffing needed per day and then calculate the relief factor based on the needed coverage for sick, vacation, and other unplanned leave. The calculation is as follows:

- The average VFD FY 2016–19 firefighter paid leave, time off for training, unscheduled time off, and position vacancies is 27,072 hours annually.
- 27,072 hours = 1,128 days/shifts that need to be filled to account for leave or vacancies annually.
- 1,128 days/shifts divided by the 56-hour work week employee minimum staff count of 69 = an average of 16 days/shifts of leave per employee (FTE) per year.
- Subtract the average 16 days/shifts of leave from the 121 scheduled shifts for a 56-hour week employee = 105 on-duty shifts annually per FTE.
- Divide 56-hour work week 121 scheduled shifts by the 105 on duty shifts = **a relief factor of 1.16 or 11 FTE positions over current minimum 24-hour a day staffing levels will cover the average utilized leave.**

VFD has a shortfall of 8 budgeted FTEs based on average annual leave and vacancy usage to cover operational staffing during the last three years.

Capital Facilities

ESCI virtually toured each of the VFD facilities, including the Fire/Police Administration Building and the designated training facility, after which the following observations and conclusions were determined:

- The newest station is 32 years old and the oldest is 70 years old, with a combined overall average age of 50 years.
- Only two of the six stations are considered in “good” condition.
- Three of the stations do not have seismic protection.
- All of the stations lack the necessary space to adequately and safely support Department operations.
- Previous fire department station assessments identified \$15.24 million in unfunded capital improvements for current fire facilities.

Capital Apparatus

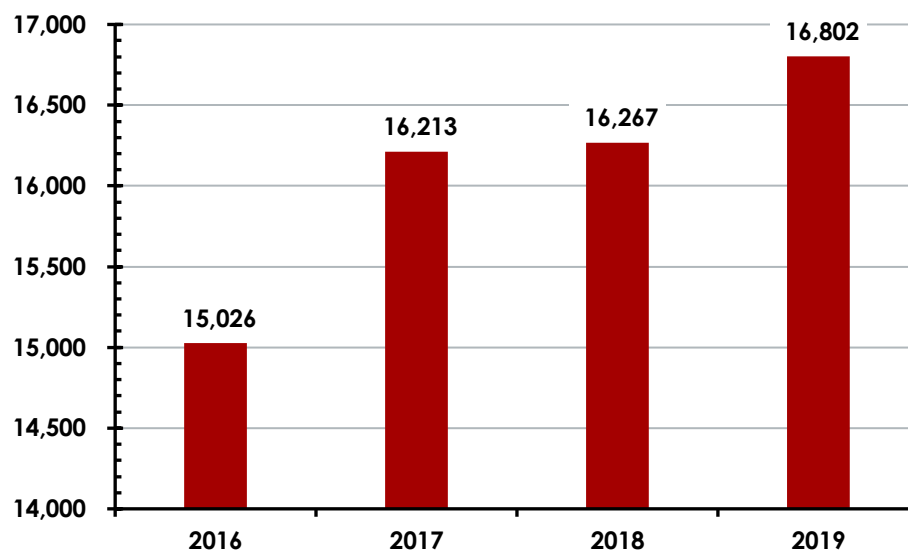
A review of the type, age, and condition of the VFD fire apparatus revealed the average age of the apparatus was 12 years. The Department has established a 20-year replacement schedule for fire engines, and a 25-year replacement schedule for aerial apparatus. Of the seven engines, only two were listed in good condition, with the remaining engines listed as being in only fair condition. Two new engines were placed into service near the end of this study.

Adequate and timely maintenance of the fire fleet was identified during the study, as a result of untimely repairs, deferred maintenance, or improper repairs. ESCI understands recent fleet supervisory changes have been made, and with the addition of the two new engines, improvements in fleet maintenance responsiveness and repair quality should be realized.

Service Delivery & Performance

ESCI studied VFD's historical service demand for the previous four calendar years (2016–2019) from electronic records provided by VFD. These records were consolidated into a single dataset representing 144,167 individual unit responses. Incidents that were canceled enroute and those where there was no incident found on arrival were not included in most of the analysis. The following figure summarizes the overall incident demand over the four-year study period.

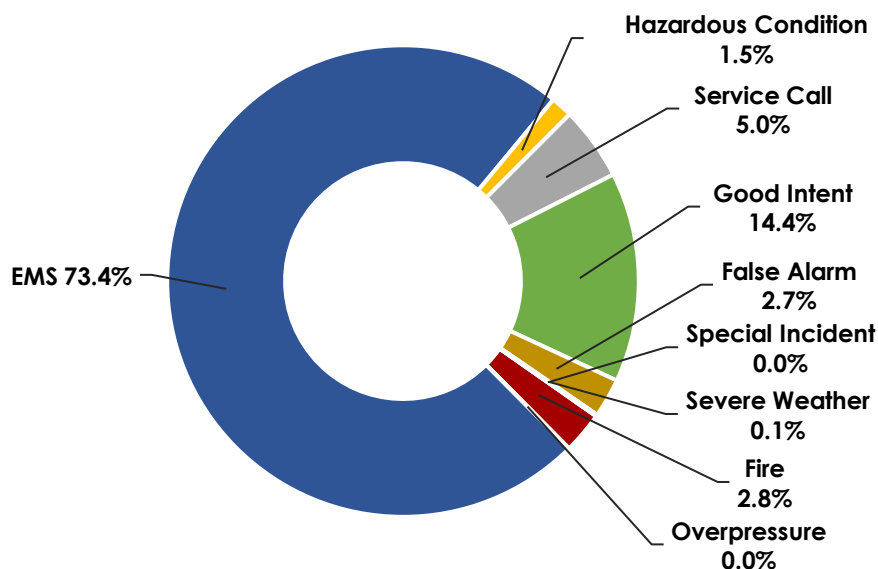
Figure 3: Annual Service Demand, 2016–2019



Service demand increased by 11.8% from 2016 to 2019 and has risen each year throughout the period. Approximately 8% of this growth occurred between 2016 and 2017.

The types of incidents responded to by VFD over this time period were also analyzed. The following figure summarizes this activity by National Fire Incident Reporting System (NFIRS) incident classification type.

Figure 4: Service Demand by Frequency of Incident Type, 2016–2019



The percentages illustrated in the preceding figure are consistent with other fire/EMS/rescue organizations studied by ESCI.

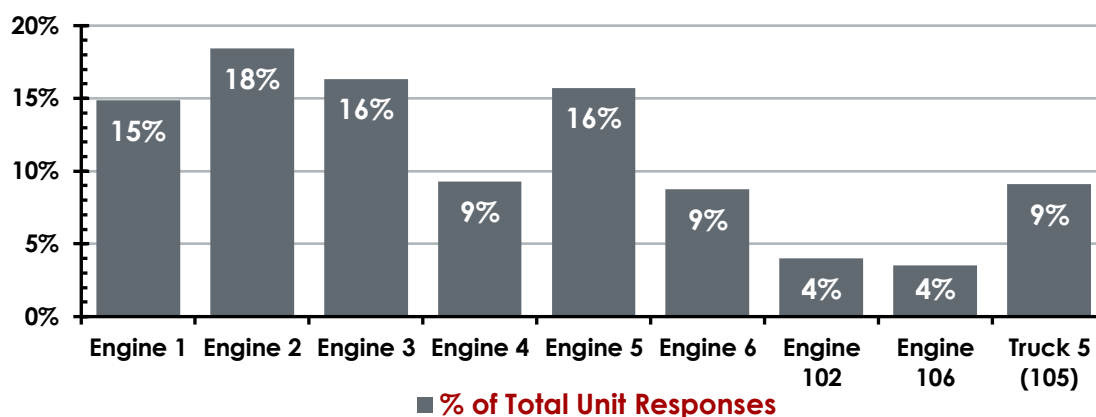
Service Demand by VFD Fire Station

ESCI evaluated the number of incidents that occurred in each station's first response territory. Over the four-year study period, each of the stations maintained a proportionate distribution of service demand. On average, Stations 2, 5, and 3 had the largest percentages of incident volume (21%, 20%, and 20%, respectively). Additionally, Stations 4 and 6 were dispatched to approximately one-half the number of incidents compared to the three busiest stations (11% and 10%, respectively). In total, the six VFD fire stations had a combined average of 44 incidents dispatched daily.

Service Demand by VFD Frontline Apparatus

The following figure shows Medic Engines 2, 3, and 5 had the highest service demand among the engines. Medic Engine 103 had only 162 responses during the study period, so the unit was not included in the figure, nor was Medic Engine 7, as it only became operational in 2018 and had 1,119 responses. Engines 102 and 103 had the lowest demands for service, which is to be expected, as these unit identifiers are primarily used when a front-line engine unit is placed out of service.

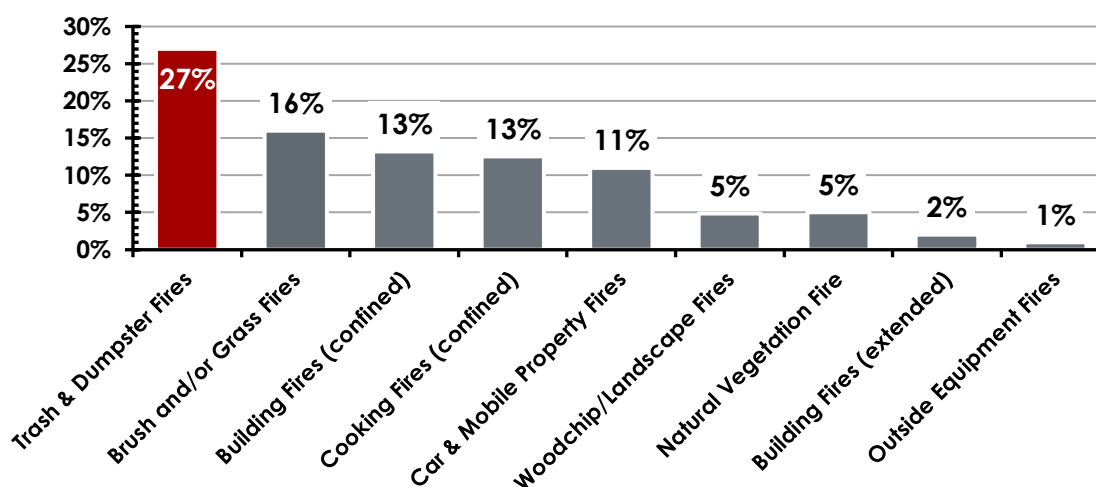
Figure 5: VFD Engine/Truck Responses (2016–2019)



Incidents by NFIRS Type

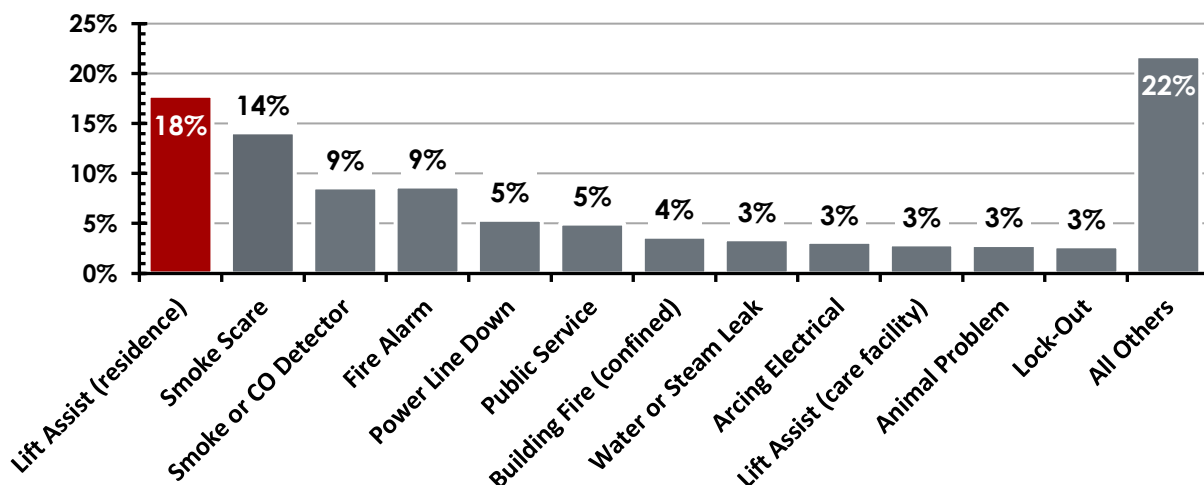
The next figure lists the NFIRS 100 fire-related incidents. The percentages represent each portion of the total incidents assigned an NFIRS 100 type code. For this analysis, ESCI combined several of the incidents with similar type descriptions (e.g., "Brush, or brush and grass mixture fire" and "Grass fire").

Figure 6: VFD Most Frequent NFIRS 100 Fire-Related Incidents (2016–2019)



The following figure illustrates all incidents by NFIRS type-codes other than those in the NFIRS 100 (fire-related) and NFIRS 300 (EMS). As with the fire-related incidents, similar incidents were combined (e.g., “Alarm system sounded, no fire” and “Alarm system sounded due to malfunction”).

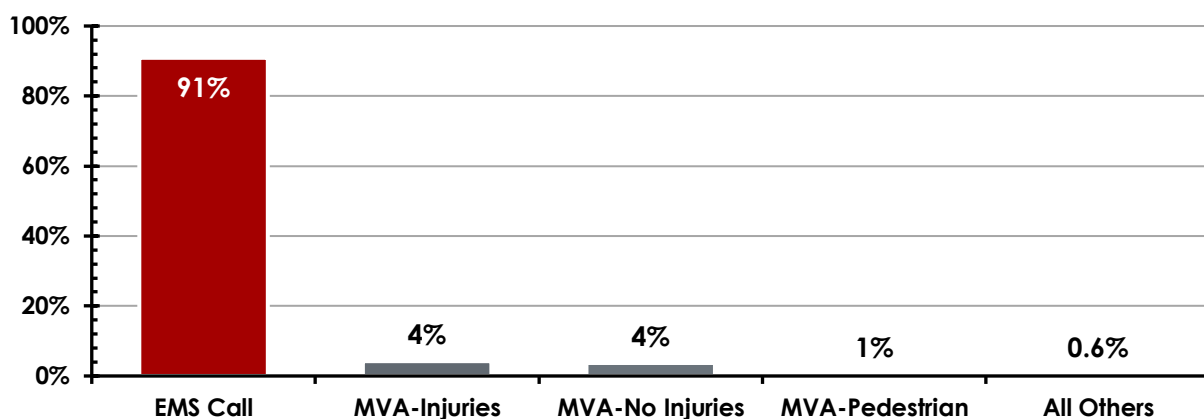
Figure 7: VFD Most Frequent Other Call-Types (2016–2019)



The data showed that among all the “Other” types, residential lift-assists entailed the greatest percentage of all those combined. This was followed by “Smoke Scare,” “Smoke or CO Detectors,” and “Fire Alarms,” respectively.

The next figure displays Ventura’s EMS incidents as recorded by the NFIRS 300 series type-codes. Most incidents in this category were coded as “EMS call, excluding vehicle accident with injury.” This was followed by motor vehicle accidents (MVA) with injuries, without injuries, or involving vehicles versus pedestrians.

Figure 8: VFD Most Frequent EMS Incidents by NFIRS Codes (2016–2019)



Frequency of EMS Incident Types

When responders arrive on the scene of emergency medical incidents, the specific nature of the call can be identified. In the following figure, the relative frequency of the type of injury or illness found on-scene, or primary impression, is shown by year and the cumulative total of the three-year period. The top 20 most common primary impressions are displayed in the following figure.

Figure 9: Frequency of EMS Call Types by Year and Cumulative Totals

Primary Impression Found	2017	2018	2019	Totals
Traumatic Injury	25.8%	23.4%	20.6%	21.9%
General Weakness/Malaise	8.1%	7.3%	8.5%	8.3%
Not Recorded	3.2%	2.9%	7.8%	6.6%
Abdominal Pain/Problems	6.6%	6.0%	5.6%	5.9%
Behavioral/Psychiatric Crisis	5.1%	4.6%	4.5%	4.6%
ALOC (Not Hypoglycemia or Seizure)	3.7%	3.4%	4.1%	4.0%
Respiratory Distress/Other	4.6%	4.2%	3.7%	4.0%
Syncope/Near Syncope	3.5%	3.2%	3.6%	3.7%
Chest Pain – Suspected Cardiac	3.4%	3.1%	3.6%	3.5%
Pain/Swelling—Extremity – Non-Traumatic	2.5%	2.2%	3.3%	3.2%
Seizure – Post	2.8%	2.6%	3.0%	3.0%
Overdose/Poisoning/Ingestion	2.8%	2.6%	2.7%	2.7%
Non-Traumatic Body Pain	3.2%	2.9%	2.6%	2.6%
Alcohol Intoxication	2.8%	2.5%	2.7%	2.6%
Nausea/Vomiting	1.6%	1.5%	2.2%	2.2%
Cardiac Arrest – Non-traumatic	1.7%	1.6%	2.0%	1.9%
Respiratory Distress/Bronchospasm	1.3%	1.2%	2.0%	1.8%
Dizziness/Vertigo	1.7%	1.5%	1.7%	1.7%
Chest Pain – Not Cardiac	1.7%	1.6%	1.6%	1.6%
Stroke/CVA/TIA	1.3%	1.1%	1.4%	1.4%
Total EMS Incidents:	10,143	10,585	10,722	10,775

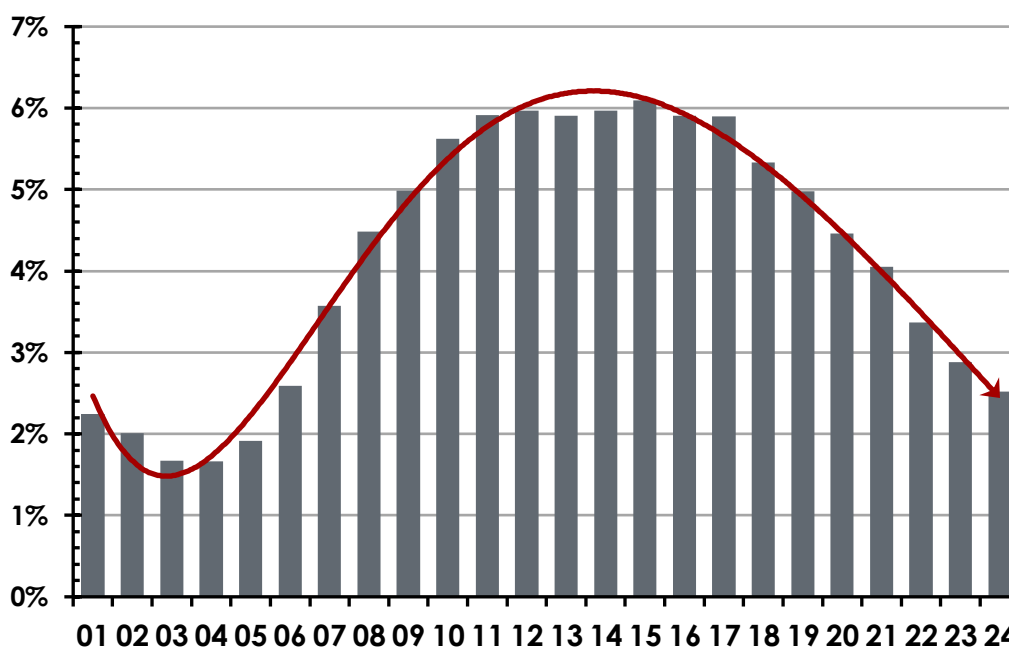
Interestingly, traumatic injuries are the most common medical emergency in Ventura year after year. At over one and a half times the prevalence of the next most common call type, general weakness/malaise, one-fifth of all EMS incidents that were provided with a primary impression were categorized as a traumatic injury. VFD previously recognized that traumatic injuries from falls were a major factor in EMS responses and partnered with local and regional health and social service providers to provide public education outreach to reduce the number of ground-level fall injuries in the city and county. Given the continued number of fall injuries, these efforts should be continued or even increased. VFD may consider further investigation into the high levels of traumatic injuries to determine if community risk reduction efforts may be effective in reducing the prevalence of this call type within the city.

Temporal Variation

The demand for services typically occurs in cyclical patterns. A temporal variation analysis is helpful to determine these trends exist during various time measurements to determine impacts on resources and options for deployment modifications. To determine if these patterns exist, the next section presents the results of the various analyses.

The temporal analysis by month of the year and day of the week reveals very little variation. However, the hour of the day analysis showed a significant variation in service demand as shown in the following figure.

Figure 10: VFD Historical Service Demand by Hour-of-Day (2016–2019)



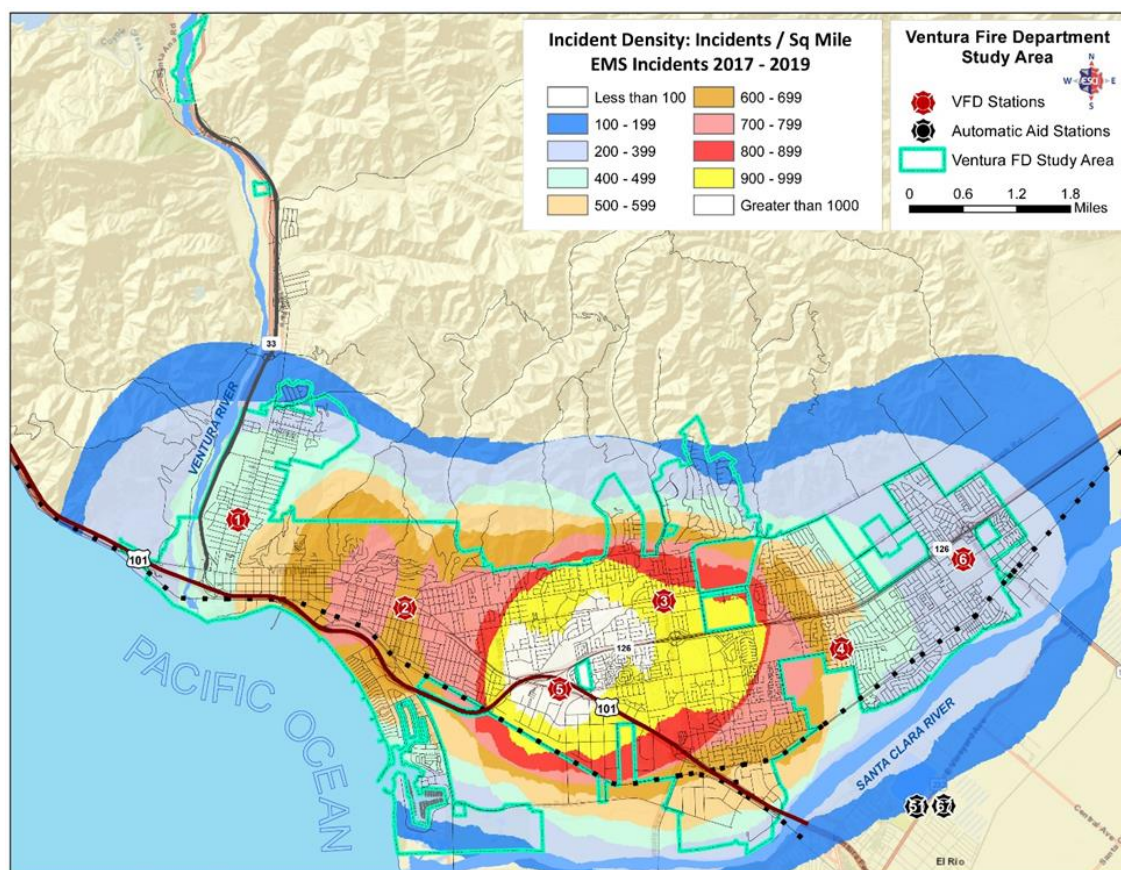
The results in the preceding figure show a common pattern found in many communities. Analysis of service demand regarding specific times of the day revolves largely around the activities of the general population, including the influx and outflow of transient populations during the day, which results in the incident rate increasing during the daytime hours, and decreasing during late evening and early morning hours.

It is important to note that while demand was lower in the early morning hours, fatal residential fires tend to occur most frequently late at night or in the early morning hours while occupants are sleeping. According to the U.S. Fire Administration, from 2014 to 2016, fatal residential fires were highest between 0100 to 0200 hours and 0400 to 0500 hours. The 8-hour peak period (2300 to 0700 hours) accounted for 48% of fatal residential fires.¹

Geographic Service Demand Analysis

ESCI used historical incident data and GIS mapping tools to identify the areas with the highest number of incidents. The following figure shows the EMS incident density, in a format commonly referred to as “Hot Spot Mapping.”

Figure 11: EMS Incident Density Analysis, 2016–2019

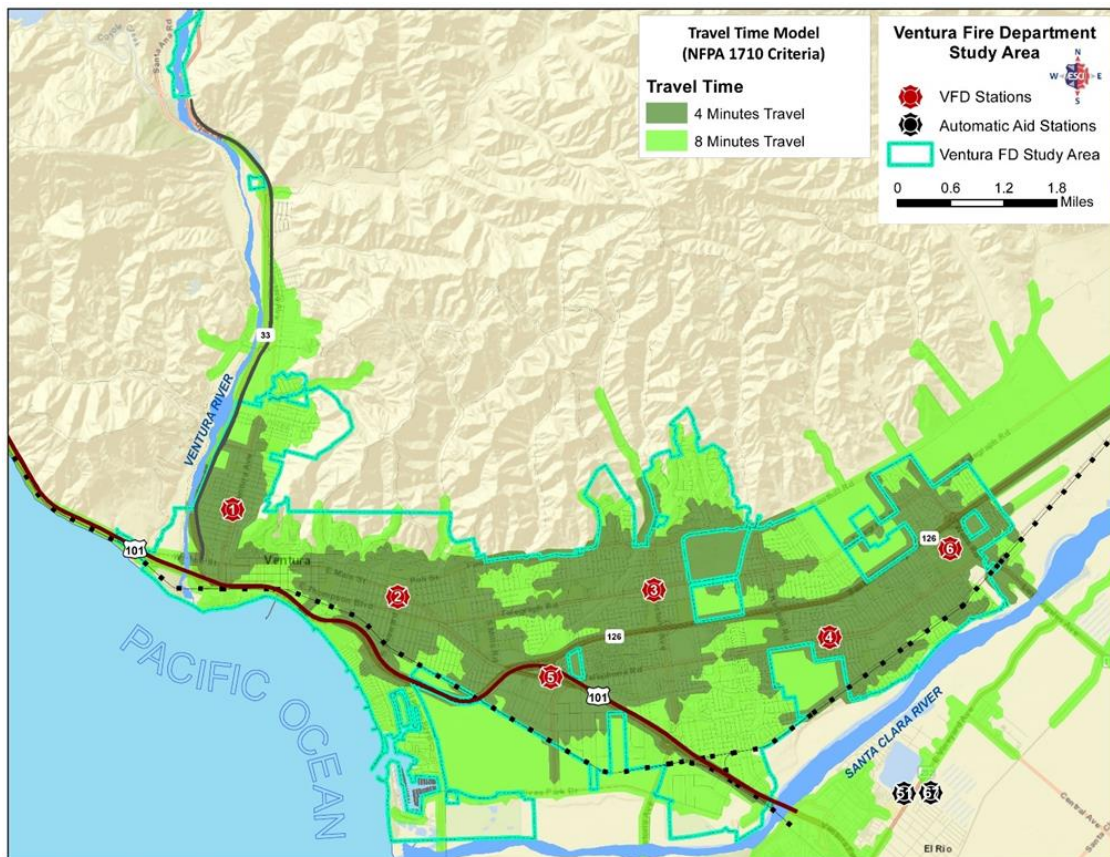


Because EMS incidents represent approximately three-quarters of all incidents that occurred within Ventura's service area, this figure is also representative of the overall incident activity within the city. Additional Hot Spot mapping of other incident types is included in the body of the report. As shown, much of the incident activity occurs within the City's central core adjacent to Station 5 and extends towards Station 3 and into the Montalvo neighborhood.

Resource Distribution

To determine how the current deployment model of the fire department affects coverage throughout the city, ESCI compared VFD's deployment model and response performance against fire service industry standards, including National Fire Protection Association (NFPA) standards and Insurance Services Office (ISO) criteria. The following figure shows the theoretical 4 and 8-minute travel from each of the current fire stations.

Figure 12: 4- and 8-Minute Travel Time, NFPA 1710



ESCI noted a theoretical response time gap into the Montalvo neighborhood in the southern central area of Ventura. This area has a significant number of emergency incidents.

Resource Reliability

In this section, ESCI used several metrics to establish a global perspective on Ventura's ability to provide sufficient responding resources to meet service demand. This was assessed by evaluating two components; Incident Concurrency and Unit Hour Utilization.

Incident Concurrency

An incident concurrency analysis involves identifying how often two or more incidents occur at the same time, placing additional demand on the remaining resources. The following figure summarizes the percentage of times when two or more incidents were ongoing at the same time.

Figure 13: Call Concurrency, 2016–2019

Call Concurrency	
Number of Concurrent Incidents	Percentage of Total Incidents
1	37.5%
2	33.2%
3	17.4%
4	7.7%
5	2.9%
6	0.9%
7	0.2%
8 or more	0.1%

For Ventura, the fire department should anticipate that 62.5% of the time units will be committed to other incidents and will be unavailable for response. This is an important metric as it speaks directly to Ventura's capacity to absorb a medium or high-risk incident, particularly during peak demand periods (8 a.m. through 8 p.m.). This information reveals that VFD's ability to commit sufficient resources internally during this timeframe is doubtful, and the City will most likely need to depend upon automatic aid assistance from neighboring jurisdictions.

Unit Hour Utilization

Unit Hour Utilization (UHU) quantifies the emergency workload placed on a crew assigned to that unit and also can be used to identify the likelihood that a unit was not available for response because it is already committed to another incident. The larger the percentage, the greater its utilization, and the less available to respond to subsequent incidents, participate in training, or perform maintenance or other ancillary duties. The ideal UHU range is typically 16–24%, 25–29% is considered system stress, and anything 30% or higher is considered unsustainable in the long-term. Because of the way VFD tracks apparatus and crews, ESCI was unable to determine UHU by unit. Instead, ESCI calculated UHUs based on the first due sector in which the incident originated. Although it is understood that a first due unit did not respond to all incidents originating within their sector—and that other units would also contribute to that total for certain call types—this method provides a comparison of how busy individual crews were during a three-year period from 2017 through 2019.

Figure 14: Workload by Sector, 2017–2019

Response Zone	Sum	UHU
Sector 1	8688:32:46	33.1%
Sector 2	9161:31:30	34.9%
Sector 3	10133:16:05	38.6%
Sector 4	6077:22:48	23.1%
Sector 5	10215:11:27	38.9%
Sector 6	5905:20:17	22.5%
Sector 7	161:40:37	1.5%

As shown in the preceding figure, four station sectors (highlighted in red) show significantly high emergency activity levels that are well over the 30% unsustainable threshold, and the other two station sectors are approaching system stress levels. Sector 7, which is the ME-7 weekday operation had an activity range from February 29, 2018, through November 11, 2019, is comparatively less active; however, it should be noted that if this sector did not exist, the workload would be distributed to the other six sectors, effectively increasing their overall workload.

Response Time Performance

Response time performance is often the public's most common measure of the effectiveness of a fire department. How quickly units arrive on-scene and resolve the problem are the typical judgments made by the public. ESCI used the NFPA 1710 Standard criteria to evaluate the fire department's 2017–2019 response time performance in each of the following categories:

- **Call Processing Time for all incidents:** The amount of time between when a call is answered by the 911 Primary Public Safety Answering Point (PSAP), or dispatch center, and when units are dispatched.
90th percentile standard: 60 seconds
Actual performance at 90th percentile: 25 seconds
- **Turnout Time:** The time interval between when units are notified of the incident and when the apparatus begins to respond ("wheels rolling").
90th percentile standard: 80 seconds for structure fires/special operations incidents, 60 seconds for medical incidents
Actual performance at 90th percentile: 1 minute, 21 seconds
- **Travel Time:** The amount of time the responding unit actually spends on the road traveling to the incident until arrival at the scene. This is a function of speed, impedance, and distance.
90th percentile standard: 240 seconds
Actual performance at 90th percentile: 5 minutes, 31 seconds
- **Response Time:** This time is calculated from the time the fire department is dispatched to the arrival of the first apparatus. Response Time equals the sum of "Turnout Time" and "Travel Time."
90th percentile standard for structure fires/special operations incidents 320 seconds, 300 seconds for medical incidents
Actual performance at 90th percentile: 6 minutes, 35 seconds
- **Total Response Time:** This is the response time a caller actually experiences from the time they call 911 until units arrive.
90th percentile standard*: 360 seconds
Actual performance at 90th percentile: 6 minutes, 57 seconds

The VFD call processing time and turnout response time performance are excellent compared to other agencies studied by ESCI.

Emergency Medical Services

As authorized by City/County Ordinance, Ventura FD provides first-response paramedic medical services to the City of Ventura. VFD responds to all requests for 911 emergency medical requests received by the dispatch center. VFD has aligned the practice of advanced medical procedures in the field through a comprehensive medical care protocol with the Ventura County Emergency Medical Services Agency (VCEMSA), the Fire Department Medical Director, and Ventura County Medical Center.

VFD employs 47 funded full-time Firefighter/County Accredited Firefighter Paramedics who are assigned to six engine companies, one ladder truck company, and one peak-demand engine company. There are an additional 27 State Licensed Paramedics that are assigned to other positions, such as Captain and Engineer that are not primary care paramedics and do not carry Ventura County Paramedic Certification.

Ambulance transport services for the City of Ventura are provided by American Medical Response (AMR) through a contract with Ventura County. The contract service area is known as Area 7, and service is monitored and administered through the VCEMSA along with AMR Ambulance Services.

The City of Ventura has an agreement directly with AMR to provide a "Stop the ALS Clock" service, by VFD providing ALS medical first response services that arrive before the AMR Ambulance. The contract provides VFD with approximately \$650,000 per year for providing this service, with a formula that establishes base compensation and factors the number of EMS incidents in the city. The EMS incidents are supposed to be totaled annually, and if there is a 3% change or more, the base amount would be changed up or down based on the percentage of change.

There does not appear to have been any analysis or adjustment to the Stop the Clock base compensation from AMR as stipulated in the Emergency Ambulance Transportation Services Contract since 2009. A cursory calculation was performed based on the 2009 analysis and recalculated using the 2019 EMS incident data and the last annual payment made, as shown in the following figure.

Figure 15: Stop the Clock Payment Comparison

Contract	2009 ^A	2019	% Change
EMS Incidents	7,941	12,000	51%
Contract Amount Paid	\$563,220	\$650,000	15.4%

^A Letter from Ventura Fire to AMR, June 24, 2009

This analysis reveals a significant historical disparity between the contract amounts paid to the City and the increased EMS incident workload over the past decade, and likely indicates that the 3% threshold needed to trigger compensation adjustments was likely met in multiple years. In fact, there was a 5.5% increase in EMS incidents between 2016 and 2017 that would have triggered an adjustment. Using a base amount of \$650,000, the adjusted annual compensation would be \$685,750.

EMS System Support

VFD appears to have a robust and contemporary EMS quality assurance/quality improvement program, which includes a full-time EMS Coordinator who is also a registered nurse, and a fully engaged physician Medical Director (MD). The Medical Director participates in field-response ride-alongs, and frequently interacts with the EMS Coordinator and field personnel.

Community Paramedicine

As a part of this project, ESCI conducted an analysis to identify potential opportunities for establishing a *Mobile Integrated Healthcare-Community Paramedicine* (MIH-CP) program to enhance and expand the service-delivery model in Ventura. The motivation to explore this option is the substantial homeless population in Ventura, and EMS incident history that indicated that non-traditional outreach of medical and social resources may reduce EMS incident volume and emergency room visits. An analysis of 2019 patient-disposition data showed that approximately 25% of VFD EMS responses—where they arrived on the scene—did not result in an ambulance transport. While there is no direct correlation between these dispositions and the potential number of patients that might be seen by a MIH-CP program, it is reasonable to assume that a modest percentage of these patients could benefit from a CP response.

Community Paramedicine (CP) programs have become common throughout North America, and are found in a variety of configurations. A recently completed study of MIH-CP pilot programs in California—which included Ventura County—revealed that several models achieved cost-savings to payers, hospitals, and other participants.

At a minimum, the successful implementation of a CP program requires collaboration with healthcare organizations, hospitals, physicians, payer sources, social services, *Accountable Care Organizations* (ACO), home-health agencies, and mental health resources. Implementation of a CP program in Ventura would require identifying underserved populations or those patients in need of in-home services who could benefit from immediate and regular availability of assessment and intervention. ***In September 2020, legislation allowing the implementation of Community Paramedic programs was signed into law by the Governor.*** The law authorizes local EMS agencies to develop CP programs, and outlines requirements for planning, implementing, and monitoring a CP program. Additional guidance and implementation rules will be forthcoming from the State.

Support Programs

ESCI reviewed various VFD support programs that have a direct impact on Department operations and made the following observations.

Training Administration

VFD has one Battalion Chief assigned to administer the Department's Training Program. This Battalion Chief is also assigned additional administrative functions. Based on an internal review of duties assigned, it is estimated the Battalion Chief's time is allocated approximately 40% to Training and 60% to administrative functions. The Training programs coordinated by the Battalion Chief consist of the following:

- Fire service training programs
- Coordination of in-house Lateral new hire training for new firefighters and joint recruit academies with Ventura County Fire
- Promotional Testing
- Safety Officer Response to Incidents

Approximately 20% of Operations-assigned personnel were in probationary status at the time of this study. According to the Training Chief, the annual turnover rate for the Department ranges from three to five percent.

ESCI noted during interviews with line personnel that while the annual training calendar specifies monthly JPRs for all firefighters, teaching methods and consistency of training vary from shift to shift. Multi-company drills are frequently interrupted due to staffing issues and coverage challenges. ESCI understands that these interruptions were one of the primary reasons for staffing an additional engine company (ME-7) crew during the day, Monday through Thursday (and every other Friday), to cover stations for training, as well as provide for peak call load response.

VFD's training facility consists of homemade Ladder/roof props and Conex boxes, located on 2.5 acres of an old water treatment facility. The facility does not have a live-fire prop, training classroom(s), or other fire and driving drill grounds found at more contemporary fire department training facilities. VFD has access to the Ventura County training grounds in Camarillo, California. However, it is located approximately 30 minutes from the city.

Training Records

VFD primarily records company training on paper and sends it through interstation mail to the Training Chief for data entry, even though the SunPro® Fire RMS has a training module for entering and tracking training. Recording of daily training records is performed primarily by the Engineers, as they routinely use Fire RMS to enter vehicle maintenance requests to the City's fleet shop. VFD does not audit the training activity towards achieving identified training goals.

VFD operations personnel participated in approximately 18,000 hours of training in 2019, or an average of 240 hours per firefighter.

Hazardous Materials Response

Hazardous materials incidents are a part of almost every fire department's call volume. While this type of emergency response does not occur as often as other types of emergency incidents, it can be extremely dangerous to emergency responders and the community.

VFD is part of a regional hazardous materials response team, comprised of municipal, county, and regional fire departments in responding to and mitigating hazardous material incidents. The VFD Hazardous Materials Team is certified to the California Type 1 level and operates a large Hazardous Materials response unit out of Station 6. The vehicle is cross staffed with hazardous materials technician certified personnel from Medic Engine 6.

A review of training records and equipment inventory provided by VFD shows the agency has sufficient training, materials, and tools for sophisticated and long-term hazardous materials response.

Communications/Dispatch Services

Emergency communications dispatch for the VFD is provided by the Ventura County Regional Dispatch Center, also known as the Fire Communications Center (FCC). The City of Ventura Police Department is the Primary Answering Point (PSAP) for 911 incidents for assistance in the City of Ventura.

FCC is a division of the Ventura County Fire Department and is a Secondary PSAP, receiving VFD requests for response from the Ventura Police PSAP. FCC is the focal point of emergency service requests for fire and medical responses. FCC serves approximately 812,000 residents in the Ventura County Fire service areas and four other public fire agencies, answering 213,534 requests for service incidents in 2019.

FCC utilizes the Priority Dispatch EMD version 13.2 protocols for all medical 911 calls and was planning on implementing the Fire Emergency Dispatch protocol system at the time of this study.

FCC has also implemented a fire response protocol system that provides tiered responses to all types of fire incidents, particularly wildfire responses. The system utilizes geographic, weather, topographic, and vegetative data to provide for the deployment of enhanced fire resources when necessary.

Discussions with VFD leadership revealed concern and some frustration with the FCC's philosophy of sending a fire department resource to unique non-emergency situations, including but not limited to citizens locked out of their vehicles, outside domestic water supply leaks, or animals in distress. These situations, typically triaged as non-emergent Omega level incidents in the EMD ProQA® system, result in the immediate automatic dispatching of the closest VFD unit to investigate.

Many communities have implemented alternative service request "help lines," such as 211 and 311 to assist citizens with non-emergent social service needs, utility assistance, crisis intervention referrals, and animal problems. Trained call receivers are equipped to assist in identifying the issue and providing information and referrals to an appropriate agency. Ventura County has a 211 referral system that provides similar assistance.

Fire Prevention and Life Safety Education

The VFD follows the 2019 Edition of the California Fire Code (CFC). Data provided by the Department, pertaining to life safety and building fire code inspections, reveals the frequency of inspections performed annually does not meet the State of California annual inspection requirements due to the workload associated with new construction inspections and plan reviews and the limited number of qualified Fire Inspectors. As a result, the Department prioritizes inspections of new construction and high-hazard facilities. ESCI noted that the Department previously assigned engine companies to perform fire inspections in their response sectors. However, the program had to be discontinued in the early 2000s due to a significant increase in emergency responses.

The State of California's Senate Bill 1205 mandates inspections of schools, multi-family complexes (larger than triplex), adult care facilities, and childcare facilities. It also requires annual reporting of compliance with the law during a jurisdiction's annual budget adoption process.

The data provided by VFD Fire Prevention for inspections performed in 2019 that of the 3,467 required annual inspections (NFPA 1730 and California State Law), only 802 inspections were performed.

Figure 16: VFD 2019 Required Annual Inspections

Risk Category	1730 Frequency	# In Ventura	Required Annually	# Inspected	% Completed
Low	3 years	1,710	570	0	0%
Moderate	2 years	440	220	70	31.8%
High	Annual	2,677	2,677	732	27.3%
TOTAL		4,827	3,467	802	23.1%

A review of inspection records, and observations shared by the Fire Marshal, revealed that the data collection system used by fire prevention personnel is cumbersome and inadequate for remote inspection and report generation purposes. Efforts to align records management systems with the City Building Department have not yet been successful.

Fiscal plans for FY 2020–2021 provided for additional extra help positions to augment the special fire risk reduction programs. Earlier in 2020, as a result of the COVID-19 pandemic, anticipated economic impacts, a vacant position was left vacant. However, this position in late 2020 was approved to be filled.

To identify potential options in ensuring completion of the required inspections noted in the preceding figure, ESCI calculated a theoretical daily inspection workload if all inspections were assigned and scheduled uniformly throughout the year, resulting in the following calculation:

Number of annual inspections required = **3,467**

Number of workdays (M–F) in 2021 = **250**

Number of Federal Holidays in 2021 = **10**

$3,467 \div 240 \text{ workdays} = \mathbf{14 \text{ inspections required per day}}$

Evaluation of current Fire Prevention staffing compared to the required daily inspection workload quickly reveals that there is not enough staff to conduct 14 inspections every weekday. Recordkeeping, code consultations, leave time, training, code enforcement follow-up, and other administrative duties are staff activities required above and beyond physically visiting and inspecting occupancies.

New Construction Inspection and Involvement

VFD reviews all new construction plans for compliance with the CFC, except for highly technical or unique buildings. In those cases, the plans are reviewed by a fire protection engineering firm, and the cost for external review is passed onto the builder/architect. Plan review fees are handled by the Building Department, with the Fire Department receiving 1.5% of the fire protection system fees.

New construction inspections are funded by the General Fund with any new construction fees applied to offset a portion of those inspection efforts. The cost of providing these inspections exceeds revenue intake.

Fire and Life Safety Public Education Program

VFD does not deliver a comprehensive, dedicated Fire and Life Safety Public Education Program for the residents of Ventura. However, it does provide some elements of life safety education, including:

- Smoke Detector Program
- Fall Prevention Program (in coordination with the VCEMSA)
- Elementary school student fire safety
- Exit Drills In The Home (EDITH)
- Fire Extinguisher use

Other programs offered to the community by request include Senior Citizen Fire Safety Training, Fire Extinguisher Training, Cardiopulmonary Resuscitation (CPR) Training, and a Juvenile Firesetter Program.

Recommended Strategies & Deployment Options

This Operations Assessment culminates in a series of recommendations based on the observations and analysis previously discussed. These recommendations are grouped by specific timeframes to address, as it would be impossible to address all of them at the same time. Facilitating the adoption and implementation of many of these recommendations will take significant time, resources, and commitment. The suggested timeframes are intended to introduce a realistic “blueprint” for implementation. However, environmental conditions and circumstances may provide challenges or opportunities to address a recommendation(s) outside of the timeframes identified here. Note: some of the recommendations listed in this Executive Summary are discussed in detail in the body of this report, and not in the Executive Summary.

ESCI has grouped the recommendations into three implementation timeline categories: Short-Term (6 months–1 year), Mid-Term (1–3 years), and Long-Term (3–5 years).

Lastly, these recommendations are just that—recommendations. They are ESCI's best effort in providing guidance in addressing issues and deficiencies identified during the study period. City leaders hold the ultimate authority in embracing, revising, or discounting the following guidance.

Short-Term Recommendations

Recommendation 1-A: Develop a Customer-Centered Strategic Plan.

This Operational Assessment document should be considered an initial step in charting a future course for the Department and City in addressing future challenges. However, many of the issues and recommendations in this study will take a “team effort” to address. Identifying the mission, vision, values, goals, and objectives of the Department will be critical to ensuring everyone is pulling in the same direction in accomplishing future goals. ESCI stands ready to facilitate this planning process per the Scope of Work previously submitted to the City.

Recommendation 1-B: Review and revise policies and procedures as necessary on a three-year planning cycle.

This recommendation may be viewed as simply a “housekeeping” item. However, ensuring policies and procedures are contemporary can help ensure business and operational practices are in line with best practices, and consistent with local, state, and federal regulations, and fire service standards. Scheduling periodic reviews on a three-year cycle should be achievable, despite having limited administrative resources.

Recommendation 1-C: Broaden the representation on the Safety Committee.

Participation in the Department Safety Committee should be expanded to include Department administrative civilian personnel to ensure their safety issues, observations, and concerns are clearly communicated and addressed consistent with Department policy and NFPA 1500: *Standard on Fire Department Occupational Safety, Health, and Wellness Program*, Chapter 4.

Recommendation 1-D: Have Fire Captains electronically log all training activities in the Department’s Records Management System (RMS).

Eliminate the recording and submission of training activities on paper. Fire Captains should be trained and assigned responsibility to enter company training activities into the Department’s RMS. Shift battalion chiefs should use the same system to monitor and audit company and shift level training activities on a weekly or monthly basis to ensure compliance with the training schedule and Department mandates.

Recommendation 1-E: Update the Countywide Annual Operations Plan.

The plan, which guides regional responses to hazardous materials incidents and other specialized emergency response programs, was last updated in 2017. The plan should be reviewed and updated to comply with OSHA CFR 1910.120.

Recommendation 1-F: Annually review the AMR EMS Sub-Contract Agreement.

The number of EMS incidents should be annually reviewed consistent with the current AMR contract, and compensation adjustments made if the 3% incident threshold is met. Additionally, the City should consider a 10-year review of EMS incidents to determine if retro-active compensation is due.

Recommendation 1-G: Explore the option of an additional special measure to support Fire Department Operations.

Explore opportunities to obtain a larger share of the Measure O Revenues to support recommendations to increase staffing. Current revenue streams are insufficient to sustain the City's General Fund Operations, and Measure O revenues are being shared by several City departments. Explore opportunities to develop an additional special measure to maintain adequate Fire Department operations in the long-term.

Mid-Term Recommendations**Recommendation 2-A: Conduct a comprehensive engineering and architectural assessment of each of the fire stations.**

It was beyond the scope of this study to conduct a comprehensive evaluation of the VFD fire stations. However, due to the age, conditions, and lack of other features found in more contemporary fire stations, ESCI recommends that the City consider:

- Retaining a qualified firm specializing in fire stations to conduct a comprehensive engineering and architectural assessment of each of VFD's fire stations.
- Developing an appropriate capital facilities improvement plan based on the assessment findings.

Recommendation 2-B: Shorten the replacement schedule for fire apparatus.

Because of the high service demand on its apparatus, VFD should consider the following changes in its capital vehicle replacement schedule:

- Change the projected life-expectancy of its engines to 15 years.
- Change the projected life-expectancy of its aerial ladder truck(s) to 20 years.

Recommendation 2-C: Add 8 firefighter positions to Fire Operations.

VFD should add 8 positions to the fire operations shift schedule to provide adequate relief coverage across the three shifts. The Department currently has 72 FTEs, and theoretically needs 80 budgeted, uniformed FTE personnel.

Recommendation 2-D: Add an Administrative Training Captain position.

The current Training Battalion Chief position spends considerable time performing administrative duties unrelated to Department training activities and administration. Adding a Training Captain position responsible for coordinating and delivering company and shift level training would help ensure the delivery of consistent and high-quality training and drills. It would also have the added benefit of exposing current Captains to administrative and programmatic responsibilities and duties.

Option:

Upgrade the current Training Battalion Chief position to an Assistant Chief position to provide better overall administrative support, and who would also oversee the Training Program and the Training Captain.

Recommendation 2-E: Reconfigure the current commercial occupancy inspection program.

To ensure all state-mandated inspections are completed per annual requirements, VFD should consider hiring additional civilian fire inspectors to perform annually required occupancy inspections. The Department should also consider using retired firefighter annuitants to provide "surge capacity" in meeting inspection deadlines. Consideration should be given to implementing a self-inspection program for low-risk B Occupancy types.

Recommendation 2-F: Increase Public Education and Information Efforts.

The Department should leverage the newly created City Public Information Officer position to improve community engagement with the fire department, and increase the dissemination of department information. In addition, the Department should formally assign someone from inside the Department to assist and liaison with the PIO in this effort.

Recommendation 2-G: Adjust Fire Department Construction Plan Review Fees.

The current Building Department fire code plan review process and fee schedule should be analyzed and adjusted to reflect the actual costs for providing this service.

Recommendation 2-H: Explore the implementation of a First Responder Fee to recover a portion of the costs of providing paramedic engine company responses to the Community.

California State Statutes allow for emergency response agencies that respond to medical emergencies, but that do not have transport capabilities, to develop and implement a fee to recover a portion of the costs of providing that service. Significant additional information is necessary to estimate potential amounts.

Several West Coast and Pacific Northwest fire departments have implemented fire service subscription programs, where residents pay an annual membership fee for fire department services, primarily EMS first response and ambulance transport. Huntington Beach Fire Department and La Habra Fire Department are examples of fire departments using this approach for partial cost recovery. Annual membership costs vary, but are typically in the \$45 to \$70 dollar range.

Examples of the potential benefits of this type of cost recovery program include:

- No out-of-pocket cost to the patient for expenses not covered by medical insurance for emergency medical care/transport.
- Additional revenue to the City/Fire Department to help offset service expenses.
- May have coverage in other communities/fire service jurisdictions that have similar programs and reciprocity agreements.

Potential disadvantages may include:

- Significant public resistance, as the program may be viewed as an additional special tax on residents.
- May require additional administrative support to manage the subscriptions, billing, and collections of the annual fees.
- Significant time and resources would likely be required to initially create a subscription membership campaign.
- Ongoing advertising and public education may be needed to sustain the program (and reliable revenue stream) long-term.

If the City wishes to explore this option further, ESCI recommends contacting the previously mentioned fire departments, or other West Coast fire and EMS agencies that use this approach to fully understand the pros and cons of these programs.

Long-Term Recommendations

Recommendation 3-A: Purchase a “field-friendly” fire inspection records management system (RMS).

There are many software options available for digitally recording fire inspections in the field, using tablet PCs and laptop computers. Ideally, the RMS should also integrate with the Building Department's RMS for seamless tracking and reporting of building and fire code inspection activities.

Recommendation 3-B: Establish fire inspection metrics, and regularly publish these activities via the online Department “dashboard.”

Fire inspection activities should be integrated into the Department's mySidewalk® online reporting system.

Recommendation 3-C: Develop and implement a formal Community Risk Assessment and Reduction Plan.

ESCI recommends that VFD develop and implement a formal Community Risk Reduction (CRR) plan that is updated annually. The plan should evaluate the risks that are faced most by Ventura residents and establish strategies for reducing those risks. A formal risk evaluation will evaluate the need for additional programming, which could include carbon monoxide emergencies, cooking safety, and injury prevention. ESCI further recommends that the VFD consider the long-term establishment of the position of Community Outreach Coordinator, which would oversee the development, delivery, and maintenance of the Department's CRR Program. This position may be volunteer or paid and assigned to the Fire Prevention Division.

Recommendation 3-D: Establish a Community Paramedic Program.

VFD should work with the VCEMSA to implement a Community Paramedic Program that provides pro-active medical assessment, care, and social services referrals. Implementation of a VFD paramedic squad concept could include a CP program as well.

Operations Deployment Options Considered

During this study, ESCI identified several ideas and potential options to maintain or enhance emergency operations capability and capacity. ESCI noted that the City had not added operational resources to address the increasing demand for service since 1988, except for the addition of the ME-7 peak-demand unit in 2018.

Reconfigure Medic Engine 7

Two options were explored related to ME-7:

Increase Staffing to Make ME-7 a Full-Time Unit

ESCI understands three current positions are used to staff the ME-7 peak demand unit. Converting this unit to a full-time three-person engine crew would theoretically require 10.44 positions, using a 1.16 staffing relief factor. However, staffing must either be increased to 12 or reduced to nine to equalize available personnel across the three shifts. Converting the three current positions from a 40-hour schedule to the 48/96-hour rotating shift schedule and adding six employees to staff the unit would mean scheduled and unscheduled leave usage would result in increased use of overtime to cover vacancies.

Converting ME-7 to full-time status without adding a fire station will require housing the unit and crew at Station 1, which is the only station with enough living space to house an additional crew and apparatus.

Maintain ME-7 Staffing as Part-Time and Add Six Employees

As noted in the Staffing section of this report, ESCI identified a theoretical shortage of eight positions needed to provide scheduled and unscheduled leave coverage.

Maintaining ME-7 as a peak-demand unit and adding two employees per shift for leave coverage would likely reduce overtime usage and mandatory shift holdovers across the three shifts. It would also occasionally bolster daily staffing during shifts when fewer employees are using vacation or sick leave. Further, it would allow engines to continue to go out of service for training.

Estimated Personnel Costs

The following figure estimates the cost for increased staffing for moving ME-7 to full-time status or adding personnel to each shift for relief purposes.

Figure 17: Estimated Costs for Adding Firefighter Positions

Cost Component	Cost per Position (2020)	Estimated Cost for Six Positions	Estimated Cost for Nine Positions
Salary & Benefits	\$157,661	\$945,966	\$1,418,949
Turnouts, uniforms, & related equip. ¹	\$12,000	\$72,000	\$108,000
Total:	\$169,661	\$1,017,966	\$1,526,949

¹ Additional SCBA equipment was not included in the estimate.

Station 7 Cost Estimate

Adding a station in close proximity to the harbor and freeway appeared at first glance to be an attractive option for several reasons, including potentially available land already owned by the City, a significant amount of developer money set aside for a station, and ease of arterial access to the northwest area west of the freeway. However, as noted in the *Service Delivery* section of this report, ESCI's spatial analysis shows that while this location would improve response time performance to the harbor area and would reduce some of the incident workload on Stations 1, 2, and 5, it provides only limited increased response capability into Stations 1, 2, and 5's response sectors.

A July 2019 NFPA research paper—*Research Needs of the U.S. Fire Service*—assessed the age and condition of fire stations across the country. They estimated the square footage cost of constructing a new fire station between \$275 and \$400 per-square-foot, or an average of \$337.50 per-square-foot. This estimate means that a 10,000 square-foot fire station may cost approximately \$3.4 million, and a 6,000 square-foot station may cost slightly over \$2 million. However, station programmatic requirements, regional land values, construction costs, and California environmental requirements would most likely result in much higher construction costs in Ventura. For example, the Los Angeles County Fire Department implemented a developer impact fee schedule that identifies several current and future fire station projects throughout its service area that were estimated between \$700 and slightly over \$800 per-square-foot.¹ Recent Ventura County Fire Department new station construction costs for two new fire stations were estimated between \$700 and \$800 per-square-foot as well, and that does not include costs related to land procurement, permitting, or architectural design. This means construction costs alone of a 6,000 square-foot station may cost upwards of \$4.8 million.

Regardless, estimating construction costs on a comparative square foot basis is problematic for the reasons noted above. Instead, a deliberate planning and budget process should be undertaken to identify the most cost-effective approach in building a facility that can adequately serve the community for decades.

Relocate Station 4

As noted in the spatial analysis of incident history and response time performance sections, the locations of Stations 3, 4, and 5 do not theoretically provide timely response coverage to portions of the Montalvo area of the city, which has a significant call load. The main benefits of moving the station approximately 1 mile west of its current location—closer to major north-south arterials Johnson Drive and South Victoria Avenue—include improved first due response time performance into the Montalvo district, while maintaining timely back-up capabilities into the Station 6 sector.

¹ County of Los Angeles Fire Department, Fiscal Year-End Report and Updated Developer Fee for the Benefit of the Consolidated Fire Protection District of Los Angeles County, January 22, 2019.

Alter Run-Cards to Eliminate Dispatching to Certain Types of Omega Incidents

Anecdotal information shared with ESCI indicates that VFD is occasionally dispatched to situations not normally handled by the fire department, including animals in distress and vehicle lockouts. While the Department relies on company officers to use good judgment in making determinations on how best to respond to these incident types, VFD should work with the Ventura County FCC management to implement a protocol that refers to certain requests for service that may be classified as Omega level incidents to the on-duty VFD Battalion Chief (BC) to handle. The BC can then communicate with the calling party to determine the issue, problem-solve, and determine the appropriate resources to assist.

Add Paramedic Squads

As noted elsewhere in this report, EMS incidents have had the largest impact on VFD service demand. However, VFD continues to send expensive fire apparatus and three-person paramedic crews on every EMS incident. In this option, two-person paramedic squads, equipped with ALS equipment and utility vehicles would be strategically deployed in the City to respond to EMS incidents, and paramedic staffing on engine companies would be phased out. Each squad would be staffed with one EMT and one paramedic.

ESCI estimates three units would be required to maintain adequate coverage.

Alternatively, two squads could be added, and a paramedic engine company maintained for surge capacity.

During most Alpha and Bravo level incidents, the paramedic squad would respond alone. On Charlie through Echo level incidents, the closest engine company would be dispatched along with the squad to ensure a timely response.

These units could also be used to implement or augment a Community Paramedic program, providing pro-active medical and social services support to vulnerable population groups in Ventura.

Utilizing single-role paramedics or firefighter paramedics to staff these units is another consideration. Using single-role paramedics and EMTs may appear attractive, as their total cost of compensation is typically less than firefighter EMTs and paramedics. Another potential benefit is that these positions could be viewed as a "stepping stone" for employment as a VFD firefighter.

However, the single-role EMT/paramedic approach also has potential drawbacks, including, but not limited to:

- Single-role paramedics do not qualify for the Fair Labor Standards Act (FLSA) Section 7(k) overtime exemption. This means that any hours worked over 40 hours in a seven-day work period must be paid at one and one-half times their regular hourly rate of pay. This can impact the total number of employees required to provide 24/7 coverage, how these employees are scheduled, and how their hourly rate of pay is calculated.
- Their scope of work would be limited to providing EMS only, including being able to provide EMS standby at fires or other complex rescue scenes.
- Turnover would likely be higher than that of firefighters.

Using firefighter EMTs and paramedics to staff the squads would increase the overall deployment capacity and capabilities to respond to structure fires and other complicated rescue incidents, as these employees could fully function as firefighters and also allow for more flexible scheduling and assignment on any given shift. The most obvious drawback of this approach is the more expensive overall cost of compensation per employee.

Estimated Cost

The following figure estimates the cost of adding either a two-person firefighter paramedic squad or single-role paramedics to the VFD. Note, EMS equipment costs could be minimized if current equipment carried on engines is moved to the squads.

Figure 18: Estimated Paramedic Squad Startup Costs

Cost Component	Estimated Cost per Dual-Role Squad	Estimated Cost per Single-Role Squad
Squad Vehicle & Equipment	\$120,000	\$120,000
EMS Equipment	\$50,000	\$50,000
Salary/Benefits	\$1,103,627 ¹	\$1,267,596 ²
2 Sets Turnout Gear & SCBA	\$98,000 ⁴	\$60,000 ³
Total:	\$1,371,627	\$1,497,596

¹ 7 – 1st step Firefighter Paramedic positions at \$157,661 salary/benefits each

² 12 – Single role Paramedic positions at \$105,633 salary/benefits each

³ Single role Paramedic outfitting costs \$5,000 per employee

⁴ Dual role Paramedic outfitting costs \$12,000 per employee, + 2 SCBAs @ \$7,000 each

In a single-role paramedic squad approach, the salary and benefits costs were estimated at two-thirds of the dual role positions, as the FLSA schedule adopted is unknown. Additionally, only basic personal protective equipment is included.

Seven additional FTE positions would be required to staff each dual-role paramedic squad on a 24/7 basis, with an estimated salary/benefits cost of \$1,103,627 per unit, and 12 single role paramedics may be required due to FLSA considerations, resulting in a cost estimate of \$1,267,596 per unit.

Another option is to use peak demand scheduling for these units, and place employees on a 40-hour work schedule, similar to the ME-7 schedule. This would significantly reduce the overall cost, as only two positions per unit would be needed.

Add BLS/ALS Transport Unit(s)

This option is not currently available to VFD as the VCEMSA controls ambulance transport service licensing. However, it is important to note the key considerations that must be addressed in implementing an ambulance transport program if the opportunity arises in the future.

- An ambulance fee structure and payment/write-off rules would need to be adopted.
- Loss of current AMR payments.
- Number of units required 24/7.
- Determine in-house vs. contracted ambulance billing.
- Purchase and outfitting of ambulances (recommend five).
- Auto-aid or contract agreements with private ambulance and fire department EMS transport providers.
- Need for a continued City financial subsidy to maintain the operation, as collected fees from private insurance, Medicare and Medi-Cal would not cover total ambulance operational expenses.

Operational Deployment Costing Matrix

The following figure summarizes the estimated costs for implementing the preceding described operations staffing and capital enhancements. With the exception of new firefighter-paramedic positions and single-role paramedic positions, the salary and benefits costs are based on mid-step 2020 for the various positions as provided by the City Payroll Division.

Figure 19: Operations Options Estimated Cost Matrix

Recommendation	Est. One Time Cost (2020 dollars)	Est. Annual Salary/Benefits Cost (2020 dollars)
2C: Add 8 Firefighter Operations Relief Positions	\$96,000 ¹	\$1,261,288
2D: Add an Administrative Training Captain Position	\$12,000 ¹	\$233,133 ²
2D (Option 1): Upgrade the current Training Battalion Chief position to an Administrative A/C position	\$12,000 ¹	\$207,376 ^{2,3}
Operations Deployment Options		
Reconfigure ME-7 (Option 1): Add six positions to make Medic Engine 7 a full-time unit	\$72,000 ¹	\$945,966
Keep ME-7 as a peak demand unit (Option 2): Add two positions per shift for leave coverage	\$72,000 ¹	\$945,966
Add 2 Paramedic Squads-Dual Role FF/PMs: Add 14 FF/PM positions + equipment/vehicles	\$536,000	\$4,536,000
Add 2 Paramedic Squads-Single Role Paramedics: Add 24 PM positions + equipment/vehicle	\$460,000	\$2,535,192
Construct Station 7 near the Harbor: 6,000 square-foot station	\$4,800,000 ⁴	\$100,000 ⁵
Relocate Station 4 closer to Montalvo area: 6,000 square-foot station	\$4,800,000 ⁴	Current Cost

¹ Based on outfitting costs of \$12,000 per position

² Based on mid-point step pay

³ Difference between mid-point Administrative BC pay and A/C pay + replacement FF/PM

⁴ Based on an \$800 per square foot estimate

⁵ Estimated new annual operating costs of station

ESCI also estimated projected salary and benefits costs in two-year increments to 2032 for each of the above options that include staff adds. These simple projections assumed a 2% annual increase in salary and a 7% annual increase in benefits costs. The position pays based on mid-point in applicable pay scales. Benefits costs for single role paramedic positions were estimated roughly at 40% of total salary and benefits.

Figure 20: Operations Options Salary/Benefits Estimated Cost Projections (2020–2032)

Recommendation	2020	2022	2024	2026	2028	2030	2032
2C: Add 8 Firefighter Operations Relief Positions	1,261,288	1,377,449	1,404,237	1,654,134	1,818,815	2,004,329	2,213,571
2D: Add an Administrative Training Captain Position	233,133	254,151	277,699	304,123	333,817	367,233	404,888
2D (Option 1): Upgrade the current Training Battalion Chief position to an Administrative A/C position ¹	207,376	352,195	383,717	419,020	458,617	503,099	553,139
Operations Deployment Options							
Reconfigure ME-7 (Option 1): Add six positions to make Medic Engine 7 a full-time unit ²	1,066,238	1,162,822	1,279,576	1,448,962	1,611,420	1,795,500	2,004,256
Keep ME-7 as a peak demand unit (Option 2): Add two FF/PM positions per shift for leave coverage	945,966	1,033,087	1,053,177	1,240,600	1,364,111	1,503,247	1,660,179
Add 2 Paramedic Squads-Dual Role FF/PMs: Add 14 FF/PM positions	4,536,000	4,930,730	5,372,049	5,866,281	6,420,646	7,043,393	7,743,950
Add 2 Paramedic Squads-Single Role Paramedics: Add 24 PM positions	2,535,192	2,743,584	2,975,751	3,234,877	3,524,599	3,849,070	4,213,032

¹ Difference between mid-point Administrative BC pay and A/C pay + replacement FF/PM in first year, then A/C pay in subsequent years

² Includes 2 Captains, 2 Engineers, 2 FF/PM positions

Next, ESCI created “packages” of options and totaled the costs to provide overall financial impact estimates for each. These packages were created with a baseline package that includes:

- Recommendation 2C: Add 8 Firefighter Operations Relief Positions (Not included in Deployment Package 3).
- Recommendation 2D: Add an Administrative Training Captain position.
 - Recommendation 2D, Option 1: Upgrade the current Training Battalion Chief position to an Administrative Assistant Chief position.

ESCI's analysis of the comparative benefits and drawbacks of each package is also included in the following deployment package descriptions.

Deployment Package 1

In this package, eight Firefighter operations relief positions and an Administrative Training Captain position are added. An optional upgrade of the current Training Battalion Chief position is added as well. Six Firefighter positions are added to make Medic Engine 7 a full-time response unit and is housed in a new Ventura Harbor fire station, and two dual-role Firefighter/Paramedic squads are added.

Figure 21: Deployment Package 1

Recommendation	2020	2022	2024	2026	2028	2030	2032
2C: Add 8 Firefighter Operations Relief Positions	1,261,288	1,377,449	1,404,237	1,654,134	1,818,815	2,004,329	2,213,571
2D: Add an Administrative Training Captain Position	233,133	254,151	277,699	304,123	333,817	367,233	404,888
2D (Option 1): Upgrade the current Training Battalion Chief position to an Administrative A/C position ¹	207,376	352,195	383,717	419,020	458,617	503,099	553,139
Reconfigure ME-7 (Option 1): Add six positions to make Medic Engine 7 a full-time unit ²	1,066,238	1,162,822	1,279,576	1,448,962	1,611,420	1,795,500	2,004,256
Add 2 Paramedic Squads-Dual Role FF/PMs: Add 14 FF/PM positions	4,536,000	4,930,730	5,372,049	5,866,281	6,420,646	7,043,393	7,743,950
Add a Fire Station: Construct Station 7 near the Harbor ¹	4,800,000	108,160	116,986	126,532	136,856	148,024	160,103
Total:	12,104,035	8,185,507	8,834,264	9,819,052	10,780,171	11,861,578	13,079,907

¹ Annual Station Maintenance cost estimated at \$100,000 = 4% inflation annually starting in 2022.

² Includes 2 Captains, 2 Engineers, 2 FF/PM positions

Deployment Package 1 Benefits

- Decreased reliance on overtime coverage for scheduled and unscheduled leaves.
- Decreased instances of mandated overtime coverage.
- Increased operational and administrative training support.
- Increased coverage to the western city and harbor areas.
- Adding Medic Engine 7 = Reduced incident load primarily for Stations 1, 2, and 5.
- Adding paramedic squads = Reduced incident load for all city stations.
- Faster first unit arrival time to incidents in the Ventura Harbor area.
- Partial capital cost offset with set aside available funds.

Deployment Package 1 Drawbacks

- Significant one-time capital expense.
- Significant ongoing salary/benefits costs for dual-role Firefighter/Paramedic positions compared to single role paramedic positions.
- No improvement in first unit arrival coverage in the Montalvo area.
- Potential Battalion Chief management span of control issues.

Deployment Package 2

In this package, eight Firefighter operations relief positions and an Administrative Training Captain position are added. An optional upgrade of the current Training Battalion Chief position is added as well. Six Firefighter positions are added to make Medic Engine 7 a full-time response unit and is housed in a new Ventura Harbor fire station, and two single-role Paramedic squads are added.

Figure 22: Deployment Package 2

Recommendation	2020	2022	2024	2026	2028	2030	2032
2C: Add 8 Firefighter Operations Relief Positions	1,261,288	1,377,449	1,404,237	1,654,134	1,818,815	2,004,329	2,213,571
2D: Add an Administrative Training Captain Position	233,133	254,151	277,699	304,123	333,817	367,233	404,888
2D (Option 1): Upgrade the current Training Battalion Chief position to an Administrative A/C position ¹	207,376	352,195	383,717	419,020	458,617	503,099	553,139
Reconfigure ME-7 (Option 1): Add six positions to make Medic Engine 7 a full-time unit ²	1,066,238	1,162,822	1,279,576	1,448,962	1,611,420	1,795,500	2,004,256
Add 2 Paramedic Squads-Single Role Paramedics: Add 24 PM positions	2,535,192	2,743,584	2,975,751	3,234,877	3,524,599	3,849,070	4,213,032
Add a Fire Station: Construct Station 7 near the Harbor ¹	4,800,000	108,160	116,986	126,532	136,856	148,024	160,103
Total:	10,103,227	5,998,361	6,437,966	7,187,648	7,884,124	8,667,255	9,548,989

¹ Annual Station Maintenance cost estimated at \$100,000 = 4% inflation annually starting in 2022.

² Includes 2 Captains, 2 Engineers, 2 FF/PM positions

Deployment Package 2 Benefits

- Decreased reliance on overtime coverage for scheduled and unscheduled leaves.
- Decreased instances of mandated overtime coverage.
- Increased operational and administrative training support.
- Increased coverage to the western city and harbor areas.

- Adding Medic Engine 7 = Reduced incident load primarily for Stations 1, 2, and 5.
- Adding paramedic squads = Reduced incident load for all city stations.
- Single role paramedic positions may be a “stepping-stone” into open FF/PM positions.
- Faster first unit arrival time to incidents in the Ventura Harbor area.
- Partial capital cost offset with set aside available funds.

Deployment Package 2 Drawbacks

- Significant one-time capital expense.
- Larger number of employees required to staff the single-role paramedic units, compared to dual-role Firefighter/Paramedic configuration.
- No improvement in first unit arrival coverage in the Montalvo area.
- Potential Battalion Chief management span of control issues.

Deployment Package 3

In this package, an Administrative Training Captain position is added. An optional upgrade of the current Training Battalion Chief position is added as well. Medic Engine 7 remains in its current configuration as a staffed unit only during peak demand hours. Two additional Firefighter positions are added for relief coverage purposes on each shift. Two single-role Paramedic squads are added.

Figure 23: Deployment Package 3

Recommendation	2020	2022	2024	2026	2028	2030	2032
2D: Add an Administrative Training Captain Position	233,133	254,151	277,699	304,123	333,817	367,233	404,888
2D (Option 1): Upgrade the current Training Battalion Chief position to an Administrative A/C position ¹	207,376	352,195	383,717	419,020	458,617	503,099	553,139
Keep ME-7 as a peak demand unit (Option 2): Add two FF/PM positions per shift for leave coverage	945,966	1,033,087	1,053,177	1,240,600	1,364,111	1,503,247	1,660,179
Add 2 Paramedic Squads-Single Role Paramedics: Add 24 PM positions	2,535,192	2,743,584	2,975,751	3,234,877	3,524,599	3,849,070	4,213,032
Total:	3,921,667	4,383,017	4,690,344	5,198,620	5,681,144	6,222,649	6,831,238

¹ Difference between mid-point Administrative BC pay and A/C pay + replacement FF/PM in the first year, then A/C pay in subsequent years

Deployment Package 3 Benefits

- Decreased reliance on overtime coverage for scheduled and unscheduled leaves.
- Decreased instances of mandated overtime coverage.
- Increased operational and administrative training support.
- Adding paramedic squads = Reduced incident load for all city stations.
- Single role paramedic positions may be a “stepping stone” into open FF/PM positions.

Deployment Package 3 Drawbacks

- No appreciable response coverage improvements to either the Ventura Harbor or Montalvo areas.
- Larger number of employees required to staff the single-role paramedic units, compared to dual-role Firefighter/Paramedic configuration.
- Potential Battalion Chief management span of control issues.

Deployment Package 4

In this package, eight Firefighter operations relief positions and an Administrative Training Captain position are added. An optional upgrade of the current Training Battalion Chief position is added as well. Six Firefighter positions are added to make Medic Engine 7 a full-time response unit and is housed in a new Ventura Harbor fire station. Two single-role Paramedic squads are added, and Station 4 is moved slightly west to improve response coverage into the Montalvo area.

Figure 24: Deployment Package 4

Recommendation	2020	2022	2024	2026	2028	2030	2032
2C: Add 8 Firefighter Operations Relief Positions	1,261,288	1,377,449	1,404,237	1,654,134	1,818,815	2,004,329	2,213,571
2D: Add an Administrative Training Captain Position	233,133	254,151	277,699	304,123	333,817	367,233	404,888
2D (Option 1): Upgrade the current Training Battalion Chief position to an Administrative A/C position ¹	207,376	352,195	383,717	419,020	458,617	503,099	553,139
Reconfigure ME-7 (Option 1): Add six positions to make Medic Engine 7 a full-time unit ²	1,066,238	1,162,822	1,279,576	1,448,962	1,611,420	1,795,500	2,004,256
Add 2 Paramedic Squads-Single Role Paramedics: Add 24 PM positions	2,535,192	2,743,584	2,975,751	3,234,877	3,524,599	3,849,070	4,213,032
Add a Fire Station: Construct Station 7 near the Harbor ¹	4,800,000	108,160	116,986	126,532	136,856	148,024	160,103
Move a Fire Station: Move Station 4 closer to Montalvo area	4,800,000	108,160	116,986	126,532	136,856	148,024	160,103
Total:	14,903,227	6,106,521	6,554,952	7,314,180	8,020,980	8,815,279	9,709,092

¹ Difference between mid-point Administrative BC pay and A/C pay + replacement FF/PM in the first year, then A/C pay in subsequent years

² Includes 2 Captains, 2 Engineers, 2 FF/PM positions

Deployment Package 4 Benefits

- Decreased reliance on overtime coverage for scheduled and unscheduled leaves.
- Decreased instances of mandated overtime coverage.
- Increased operational and administrative training support.
- Increased coverage to the western and southern city areas and the harbor.
- Significant improvement in first unit arrival coverage in the Montalvo area.
- Adding Medic/Engine 7 = Reduced incident load primarily for Stations 1, 2, and 5.
- Adding paramedic squads = Reduced incident load for all city stations.
- Faster first unit arrival time to incidents in the Ventura Harbor area.
- Partial capital cost offset with set aside available funds.

Deployment Package 4 Drawbacks

- Significant one-time capital expense.
- Significant ongoing salary/benefits costs for a dual-role Firefighter/Paramedic positions compared to single role paramedic positions.
- Potential Battalion Chief management span of control issues.

ORGANIZATIONAL & COMMUNITY OVERVIEW

The City of Ventura

The City of Ventura, California—officially designated as the City of San Buenaventura—is a Pacific Ocean coastal community located approximately 70 miles northwest of Los Angeles and is approximately 32 square miles in size. Located alongside the Ventura River, Ventura serves as the County Seat of Ventura County. Ventura had an estimated population of 111,128 as of July 1, 2018. The overall county population is estimated at 850,967.² The City of Oxnard borders the City to the southeast. The following figure illustrates the study area and current VFD station locations.

Figure 25: Study Area with Station Locations

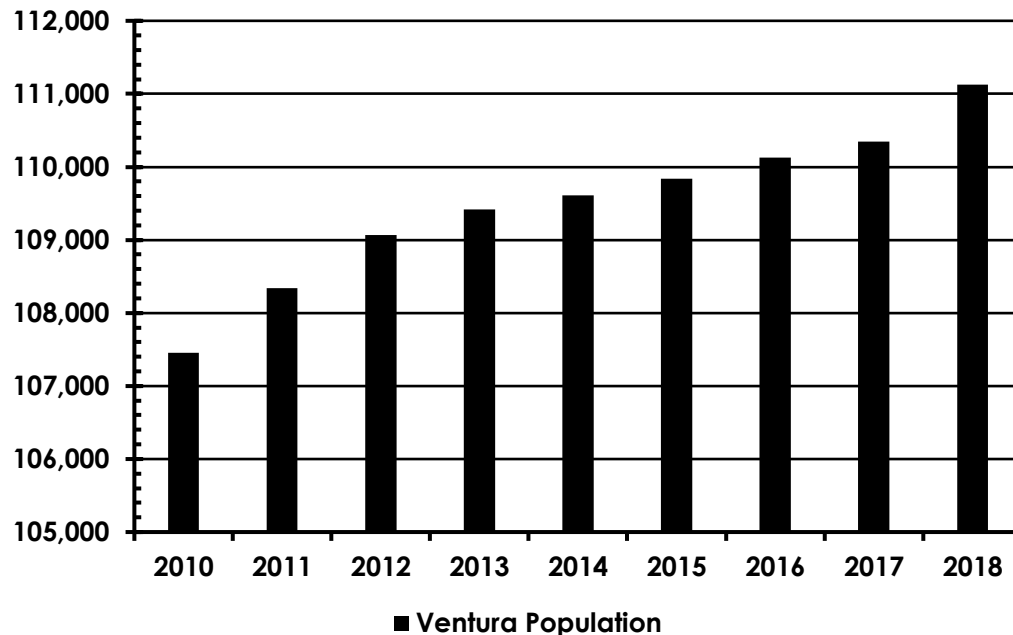


² United States Census Bureau, Community Facts, American Fact Finder.

Community Demographics

The City's population has grown by approximately 3.6% since 2010, with an increase of approximately 3,800 new residents. The following figure illustrates resident population growth since 2010.

Figure 26: Ventura Population, 2010–2018²



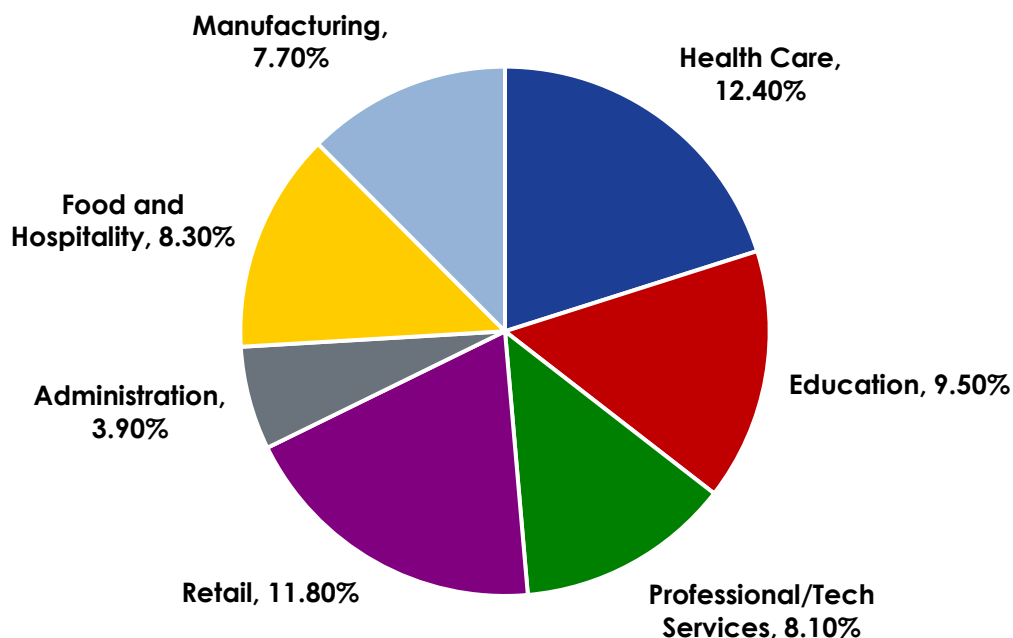
According to the California Department of Finance, California's overall population grew by only .2% in 2019, continuing a historically slow growth trend that started with the 2008 "Great Recession." Counties and cities experiencing the greatest growth in the state are in the Inland Empire and Central Valley, with growth rates over 2% in 2019, and Coastal Counties experienced the least growth, and in some cases experienced declining populations.³

³ California Department of Finance, "California Tops 39.8 Million Residents at New Year Per New State Demographic Report, May 1, 2020.

Economic and Jobs Information

The Ventura labor market primarily supports the following economic sectors: Health care and education, trade/transport/utility services, leisure and hospitality services, manufacturing, and business/professional services.⁴ The following figure summarizes the various job sectors in Ventura as of 2017, per the U.S. Department of Labor Bureau of Statistics ACS 5-year estimate:

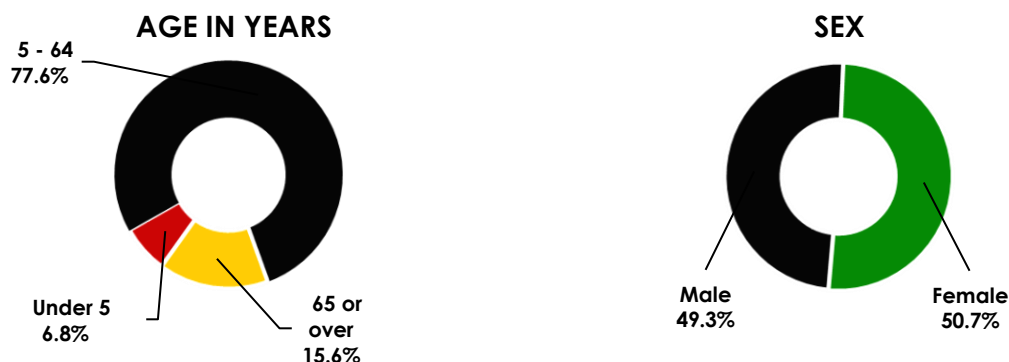
Figure 27: Job Sectors in Ventura (2017)



Select Demographics

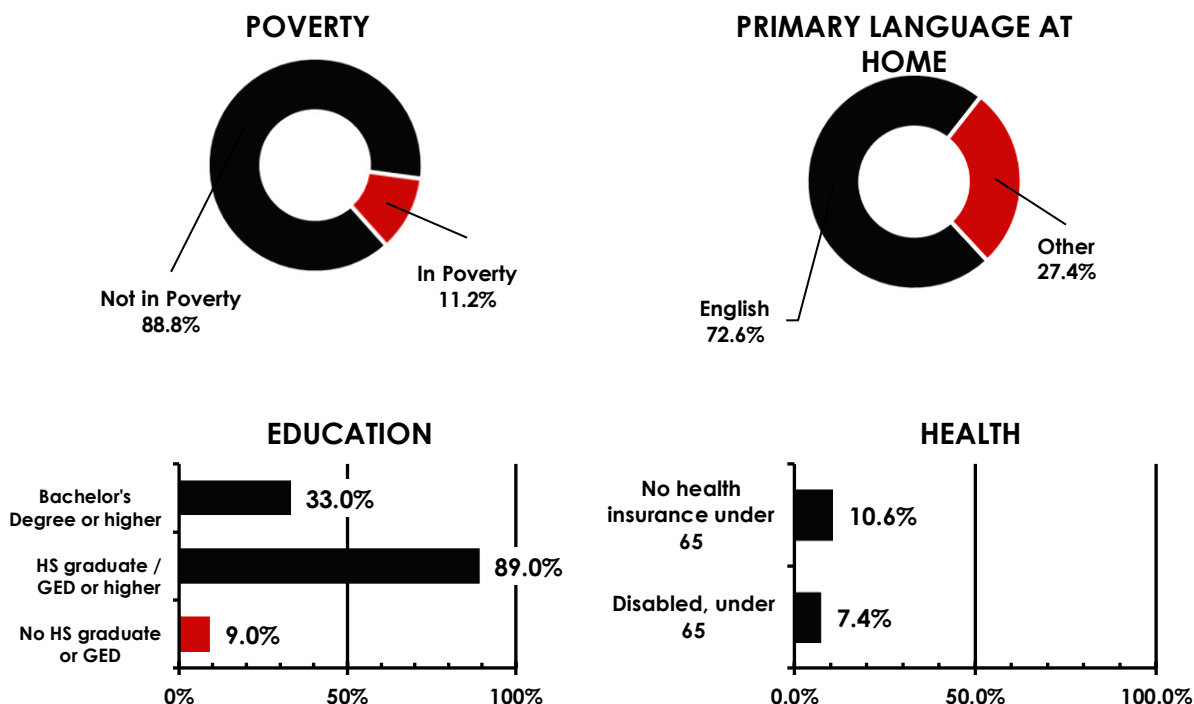
Select demographics for the City—age, sex, ethnicity, housing type, income level, primary language, education, health, and assessed property values—are shown in the following figures.

⁴ U.S. Department of Labor-Bureau of Labor Statistics.

Figure 28: Select Ventura Demographics

Ventura is a diverse community, comprised predominately of White (56.3%) and Hispanic (35.4%) populations. Asian and African American populations comprise 5.4% of the population, followed by Hawaiian and Native Americans (under 2%).⁵

The following figures summarize economic, health, and ethnic factors that may impact how emergency services are delivered.

Figure 29: Other Demographic Factors

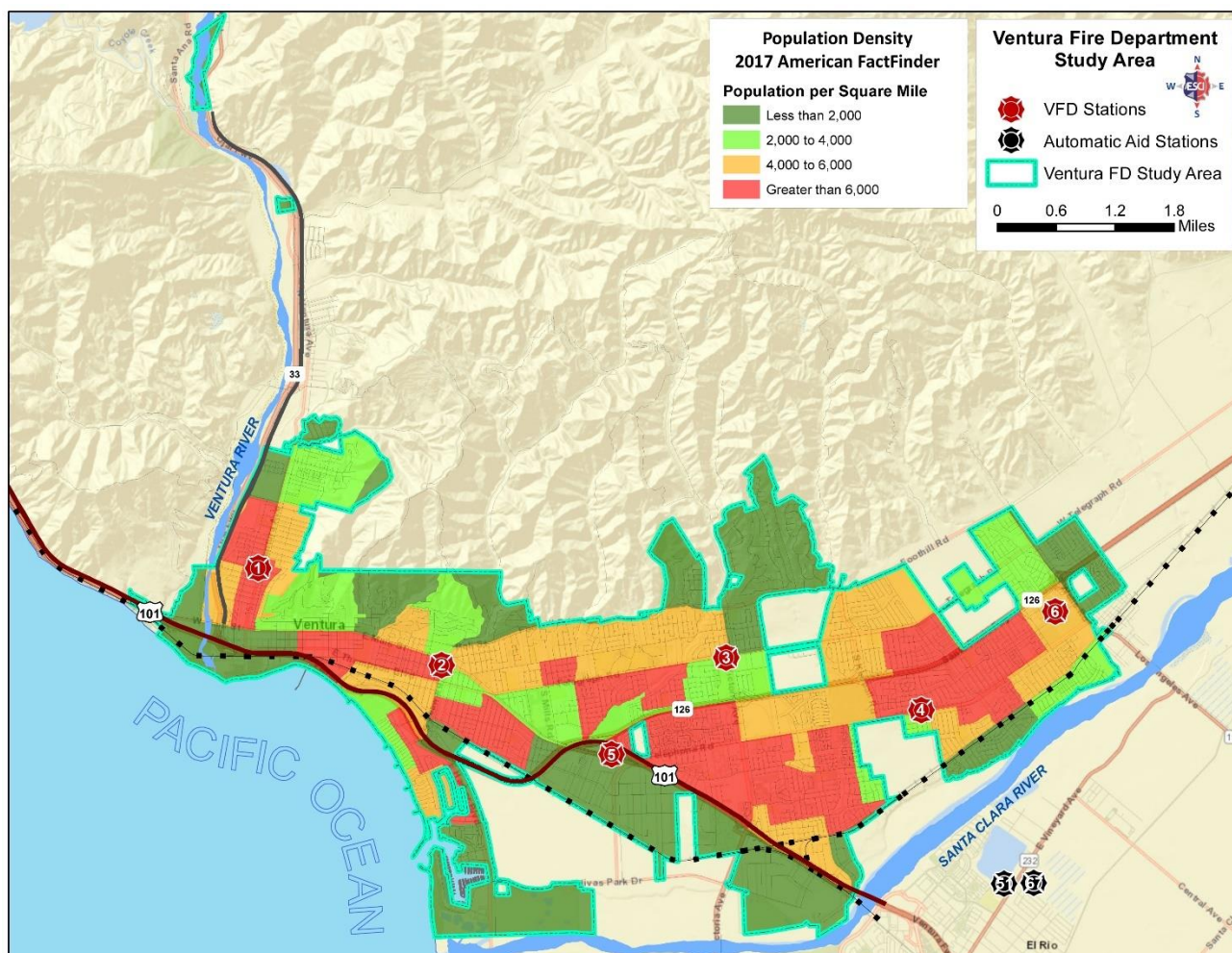
⁵ United States Census Bureau, Quick Facts, 2018.

Other Demographic Factors

Specific to Ventura, additional demographic elements and influences are present that likely impact public safety and emergency response. As the county seat, regional law enforcement, jail, and regional large health care facilities are located within the Ventura city limits. The operation of these facilities results in a constant influx of transient populations that use fire and EMS services.

Population density is another demographic component that impacts the delivery of fire and EMS services. As in almost every community, Ventura's population is unevenly distributed. The following figure illustrates the City's population density.

Figure 30: Ventura Population Density, 2017



County population density is likely a factor that influences service demand in Ventura as well. According to Open Data Network.com®, as of 2018, the estimated population density in Ventura County was 439 people per square mile. Interestingly, the population density in neighboring Santa Barbara County is only 152 people per square mile.

In interviews with Ventura elected officials, questions were asked about why the City of Santa Barbara's total number of fire department incidents is significantly less than Ventura's incident count. Both cities are county seats, are located on the coast, and have regional health care facilities. Additionally, City staff asked ESCI to evaluate the demographics and fire department incident history of Santa Monica as well. ESCI performed a cursory U.S. Census demographic comparison between the two cities to identify significant causal factors that may influence their fire department incident workloads. The following figure illustrates the results of the comparison.

Figure 31: Ventura & Santa Barbara Demographics Comparison

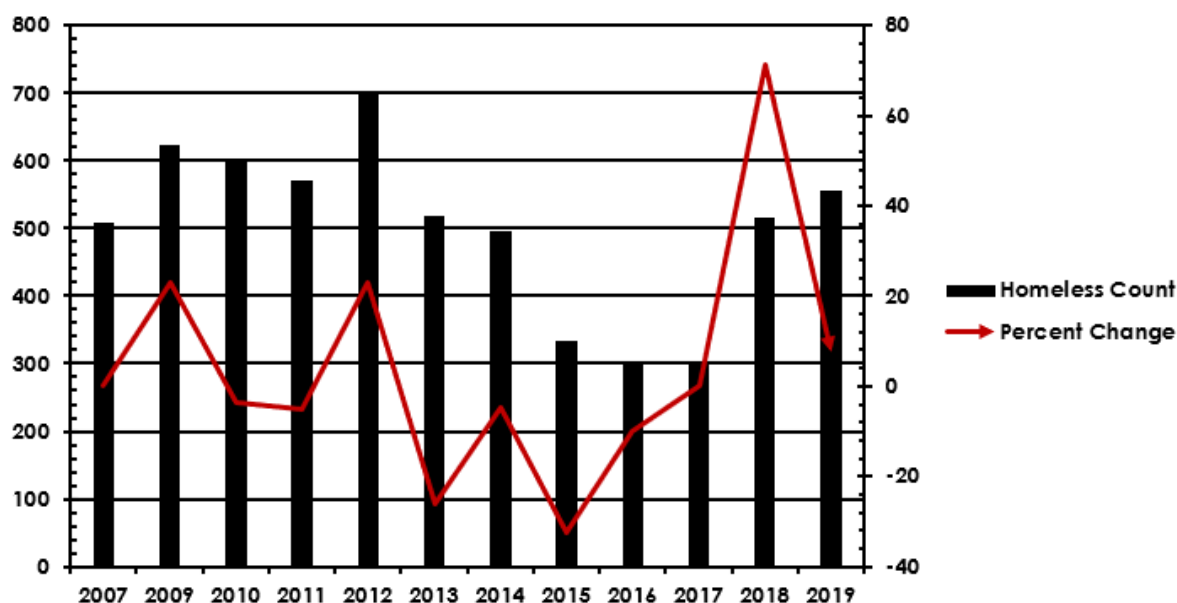
Demographic	Ventura	Santa Barbara	Santa Monica
City Land Size (square miles)	21.7	21.09	8.41
2019 Population	111,128	91,350	90,401
2019 Population Density (per sq. mile)	5,023	4,687	10,767
Poverty Rate	10.2%	13.2%	10.4%
Median Age	38.8	37.9	39.9
2019 County Population	846,106	446,499	10,098,052
2019 County Population Density (per sq. mile)	432	162	2,489
Number of Households	41,096	36,699	45,487
Number of Employees	52,498	50,705	52,400
Mean Travel to Work Time (in minutes)	25.7	17.0	26.0
Total Number of Incidents (2019)	16,802	11,000	13,006
Number of EMS Incidents (2019)	12,000	7,320	9,976
Number of Fire Incidents (2019)	435	693	256
Number of Other Incidents (2019)	4,364	2,987	2,774
Number of Incidents Per Capita	.15	.10	.14
Number of Staffed Fire Suppression Apparatus	7	8	7
Number of Fire Stations	6	7	4

Ventura's population is approximately 22% greater than Santa Barbara's, and the population density is approximately seven percent greater. When compared with Santa Monica, Ventura's population is approximately 19% higher, but the population density is 114% lower.

County population and surrounding population density appear to be the greatest difference among the three regions, with an 89% greater population in Ventura County than Santa Barbara County, and a 189% denser population per square mile. Los Angeles County was not factored, as its demographics are outliers.

Population and human activity are the primary influences on fire department service demand, especially for emergency medical situations. This dynamic is explored further in the *Service Delivery* section of this report. While the relative populations and population densities between the two cities vary moderately, the overall county populations and densities are markedly different, especially given the proximity of the City of Oxnard, which may significantly influence service demand in Ventura due to increased non-resident/worker activity.

Homelessness and vagrancy are also factors that impact emergency services. According to Ventura County's 2019 Homeless Count program, nearly two-thirds of the county's overall homeless population (1,699) are equally distributed between the cities of Oxnard (548) and Ventura (555). The following figure summarizes the number of homeless people located in the City of Ventura since 2007. Note: 2008 data was not available.

Figure 32: Homelessness Population History⁶

As illustrated in the preceding figure, significant fluctuations in the homeless population have been documented over the past twelve years. The reasons for this are not known. Spikes in this population group appeared in 2009 (23% increase), 2012 (23% increase), and 2018 (71% increase). Overall, the homeless population appears to be less than the peak years 2009–2012.

Chronic illness or disability is another factor within this population group that may result in increased reliance on fire and EMS resources. Almost 30% of this group 18 years and older suffer from chronic health conditions, and 22% self-identified as substance abusers.

VFD has been tracking incidents involving the homeless population since 2018. In 2018, almost 7% of all incidents involved the homeless, and this percentage increased to 7.5% in 2019.⁷

⁶ Ventura County Homeless County and Population Survey: Final Report, April, 2019.

⁷ Ventura Fire Department Records Management System, January, 2020.

Demographics Discussion

In addition to the distribution of the population in Ventura, population demographics can affect the nature of risk and emergency service demand. An October 2019 NFPA research report *Home Structure Fires* cited a study by Gilbert and Butry that determined population “frailty,” defined by age- and gender-adjusted natural cause mortality rates, can identify populations vulnerable to fire death but not those vulnerable to non-fatal injuries. The NFPA report revealed that more than half (54%) of the fatal home fire victims were 55 and over, and one-third (34%) were at least 65 years old. One of every five fatal home fire victims was between 55 and 64 years of age. More than two-thirds (69%) of the people who were non-fatally injured were between 35 and 64 years of age.

EMS incidents in 2019 represented almost 75% of the overall service demand in the city. Below is a further explanation of these special risk groups, and their impact on emergency services.

In urban cities, several factors have been identified that place certain groups of people at higher risk of being injured or killed in a fire. An NFPA report identified these groups as:⁸

- Children under 5 years of age
- Older Adults over 65 years of age
- Lack of health insurance
- People with disabilities
- People with a language barrier
- People in low-income communities

Age: The elderly may have difficulty escaping from fire due to physical limitations and diminished sensory perception (primarily hearing and vision). Quality of life issues, chronic illness, and the proliferation of assisted living/nursing home facilities also increase emergency medical service demand. The very young also represent a vulnerable population, as they do not have the ability to appropriately and quickly recognize and react when faced with an immediately dangerous situation. Over 15% of the City's population is 65 years or older.²

⁸ National Fire Protection Association, 2007; Urban Fire Safety Project, Emmitsburg, MD.

Lack of health insurance: People under 65 years of age with no health insurance are more prone to chronic illness or exhibit poor physical condition simply because they do not seek prompt treatment. Almost 11% of Ventura's population under age 65 do not have health insurance, which likely results in higher demand on the EMS system.²

Disabilities: People under 65 years of age with disabilities comprise almost 8% of Ventura's population and may be incapable of quickly recognizing an emergency and reacting appropriately.²

Language barrier: Segments of the population may have cultural differences or language barriers that inhibit their ability to call for help when needed or effectively communicate their needs and concerns. According to the NFPA, "Language barriers, cultural differences, and inexperience with unfamiliar home technologies are factors that mark the challenges of helping newcomers live safely from the threat of fire in the home."⁹ Just over 15% of the city's population is foreign-born; and 27.4% of the population speak a language other than English at home.²

Low-income: Those with low incomes use fire and EMS services more often than those with higher incomes. Just over 10% of Ventura's population live below the poverty level (The U.S. Census Bureau 2018 poverty threshold is defined as \$13,064 for an individual, \$25,554 for a family of four).² Low income is often combined with other factors such as education or work status. According to the VFD, approximately 9% of overall calls for service in 2017 were attributed to this population group.

Governance & Administration

The City of Ventura is governed under a City Council/City Manager form of government, with a seven-member City Council, one of whom is appointed as Mayor. The City is moving towards a District voting system for Councilmembers, with four members elected by District in 2018, and the remaining three elected at-large. These remaining positions will be elected by District in 2020. The Mayor is selected by the Councilmembers and serves a two-year term. All Councilmembers serve for four years and are elected on a 2-year staggered basis.

⁹ Serving immigrant and refugee populations, National Fire Protection Association, 2017.

According to the City's website, the Council established the following goals for 2019–2020:

- Stabilize and Strengthen the Organization
- Reinitiate General Plan Update
- Create an Economic Development Strategy
- Open Permanent Homeless Shelter
- Find Opportunities to invest in Beautifying the Community
- Develop a Coastal Area Strategic Plan

An appointed City Manager oversees the operations of the City, which consists of the following departments:

- City Attorney
- City Manager/Administration
- Community Development
- Finance & Technology
- Fire
- Human Resources
- Parks, Recreation & Community Partnerships
- Police
- Public Works
- Water

ESCI noted that the City Manager position has been “in flux” over the past few years, until a permanent appointment was made in late 2018. There has also been significant turnover in other key City department positions as well. This amount of turnover may have stymied long-term planning and implementation efforts for key City initiatives, including necessary Fire Department improvements and programs.

Ventura Fire Department

The VFD was originally organized as the Monumental Fire Company in 1875, and officially became a City fire department in 1878.¹⁰ The Department is organized into the following divisions:

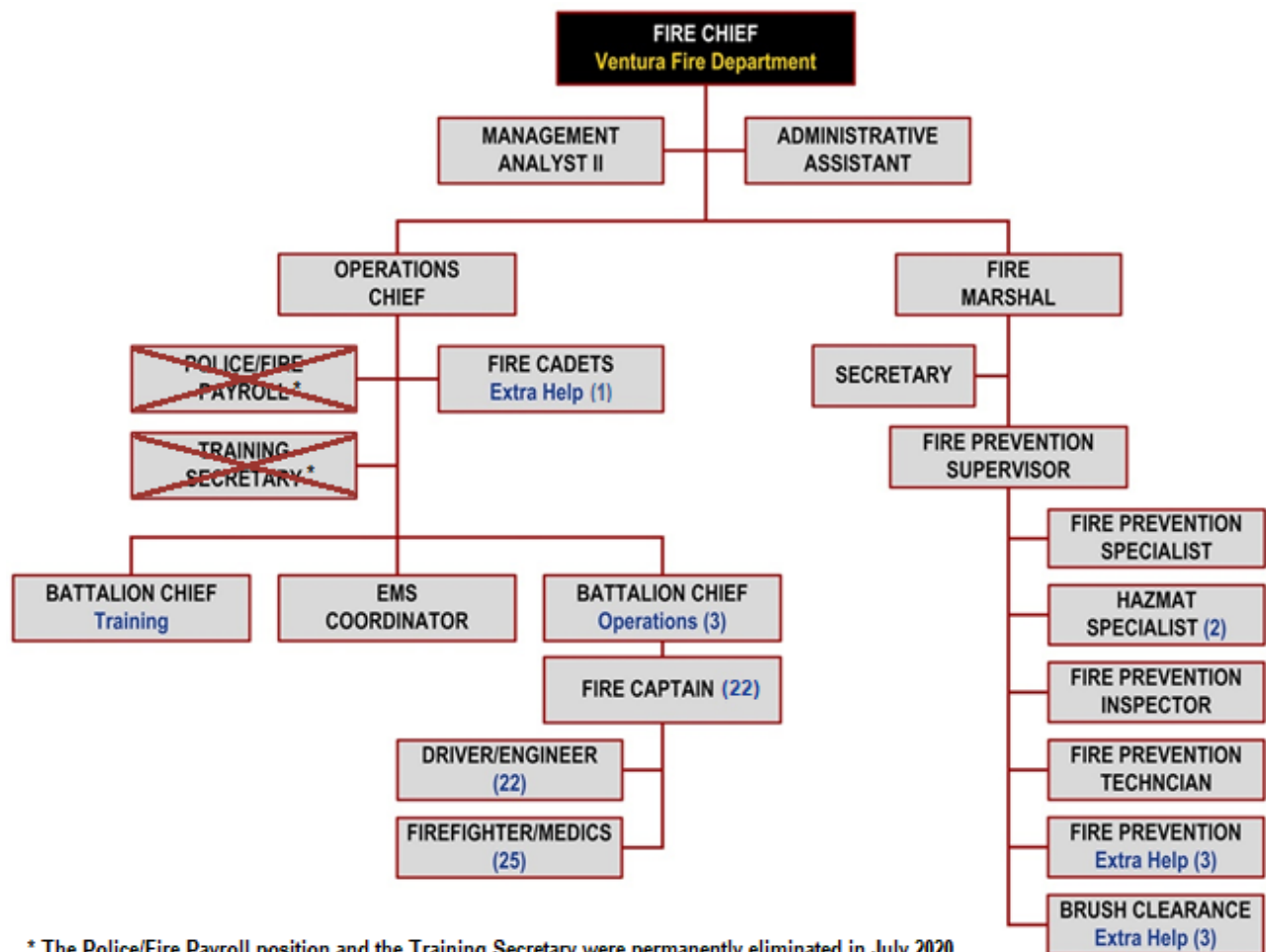
- Fire Administration
- Operations
- Fire Prevention

¹⁰ City of Ventura website.

Over the past 145 years, the Department has incrementally expanded to meet community expectations and growth. Today, the VFD operates out of six strategically located fire stations, the most recent of which was built and staffed 32 years ago.

The Fire Chief oversees an Operations Assistant Chief (AC) and Fire Marshal (FM). The AC of Operations is responsible for fire, EMS, and training functions, and internal department employee payroll/HR functions. All other support functions, including facilities and apparatus maintenance, Information Technology, GIS, legal, finance, and budget, are performed by other City departments. The following figure illustrates the Department's current organizational structure.

Figure 33: VFD Organization



Operations Division

In 1995, a VFD ALS ambulance program was established, staffed with firefighter paramedics. Subsequently, a private ambulance provider assumed ambulance transport duties, the VFD ambulance transport program was discontinued, and VFD maintained one firefighter paramedic assigned on each of the seven VFD fire apparatus located in the six fire stations to provide ALS Medical First Response (MFR).

Each engine company consists of a Captain, Driver Engineer, and a Firefighter Paramedic. The Department's truck company consists of a Captain, Driver Engineer, and two Firefighter Paramedics. Five out of the six stations are staffed with a crew of three. One station houses an engine company and the truck company.

Additionally, the Department has several firefighters who have specialized training and equipment to perform the following emergency services: Hazardous Materials Response, Ocean Rescue, and Urban Search and Rescue. The VFD participates in the Ventura County Urban Search and Rescue Task Force 7, a regional Hazardous Materials Response Team, and a Regional Ocean Rescue Team.

Besides providing emergency response to their respective response sectors, each station also has defined programmatic support duties.

- Station One – Public Education/Community Risk Reduction
- Station Two – Ocean Rescue Program
- Station Three – Operations Division scheduling
- Station Four – Wildland Firefighting, Secondary PPE maintenance and cleaning
- Station Five – SCBA maintenance, Urban Search and Rescue Program
- Station Six – HazMat Program, Primary PPE maintenance and cleaning

Fire Prevention

The VFD's Fire Prevention Division is responsible for all fire prevention and life safety public education programs and activities. Fire prevention and enforcement activities include fire protection systems acceptance testing and inspections, educational and health care facility inspections, Hazardous Materials Enforcement Program, natural fuels reduction program, special events life safety inspections, and fire cause investigations. Public education efforts are primarily focused on delivering fire safety education to grade school students in the spring.

The City has required residential sprinklers in all new and significantly remodeled single-family homes since 1992.

Previous Studies

ESCI understands that this study effort is the latest in a string of fire department studies that have taken place over the past 17 years. The following figure summarizes the scope of these previous studies.

Figure 34: Previous Fire Department Studies/Assessments

Year	Report Scope
2003	Funding for Public Safety, Streets, and Parks
2004	Fire Department Self-Assessment
2004	Fire Department Peer Review
2006	Fire Department Merger Feasibility Study
2007	Updated Funding for Public Safety, Streets, and Parks 2003 Study
2012	Fire and Police Operational Details Report
2019	Operational Review – Internal Fire Department Report

ESCI understands that three additional studies—a Standards of Cover study, 90th Percentile Response Time Study, and a Fire Station Location study—are currently underway through the International Association of Firefighters, at the request of the Ventura Firefighters Association.

A Word About the COVID-19 Pandemic

At the time of this study, the COVID-19 pandemic occurred, wrecking economic and societal norms, and killing or disabling hundreds of thousands of people world-wide. No U.S. city has been untouched by this deadly virus, including the City of Ventura.

As a result, fire and EMS departments across the nation scrambled to modify response procedures, procure adequate personal protective equipment (PPE), and take steps to ensure staff remained healthy and response ready. The VFD was no exception, taking social distancing measures, such as closing the administrative offices and fire stations from the public, purchasing and deploying disinfecting supplies, restricting in-person meetings and multi-company training sessions, and limiting the number of personnel who interact with COVID-19 suspected patients. Specific to this study effort, ESCI was unable to conduct a site visit to interview key stakeholders and had to rely on teleconferencing interviews and virtual station tours to gather some of the necessary information.

The response steps taken by the City overall mirrored those noted above. The economic impact on Ventura businesses, as well as large and small businesses across the country, has been profound. Unemployment skyrocketed, and the economy entered a recession seemingly overnight. Locally, the City's revenues, especially sales tax revenue, declined dramatically, forcing the City to take steps to reduce expenditures and revise downward future budget forecasts. The long-term economic impacts are not yet known.

ESCI suspects many of the short-term strategies implemented around the country will become long-term and perhaps permanent societal and business practice norms. The form and depth of these changes are yet to be identified.

Components of the Emergency Services System

As in most communities throughout the United States, fire departments rely on and work with other organizations and personnel that comprise the overall emergency services delivery system. This is particularly true in EMS, which consists of more than a few elements working together in order to achieve the best patient outcomes.

Ambulance Transport Services

Private ambulance companies provide BLS and ALS pre-hospital and hospital transport services within the city limits. The primary ambulance service providers are *American Medical Response®*, *Lifeline Medical Transport®*, and *Gold Coast Ambulance®*. In addition, the Ventura County Sheriff Office maintains four rotary wing aircraft that are equipped and staffed to provide air medical transport from the field to the hospital throughout Ventura County.

Ventura County EMS Agency

The delivery of pre-hospital emergency medical care is administered and overseen by the Ventura County Health Care Agency (VCHCA). The VCHCA has oversight over the various facets of in-hospital and out-patient health care delivery system in Ventura County. The EMS Agency is a division of VCHCA and the Public Health Department and is responsible for the oversight and coordination of the delivery of pre-hospital emergency medical care. The Division serves as the regulatory agency for all emergency medical care delivery across all public and private pre-hospital care providers. It also disperses public funds, monitors system performance, and regulates and administers county-wide EMS training, certifications, and patient care protocols.

Emergency Communications

911 calls in Ventura County are routed to one of five Primary Safety Answering Points (PSAPs), depending on caller location. The following emergency services agencies operate PSAPs:

- Oxnard Police Department
- Ventura Police Department
- Ventura County Sheriff
- California Highway Patrol
- Port Hueneme Police Department

Regardless of the agency, almost all fire and EMS calls are immediately routed to the Ventura County Fire Department Fire Communications Center (FCC) for processing. However, if the call has a law enforcement component, the PSAP may interrogate the caller and not transfer the caller to an FCC dispatcher.

When a fire or EMS call is received at the PSAPs, a call receiver quickly determines if the incident is law enforcement in nature or requires fire/EMS response. If the caller indicates the incident is fire/EMS related, the call will likely be immediately transferred to the FCC. FCC dispatchers then query the caller to identify the nature and severity of the situation through the use of the *Medical Priority Dispatch®* program, which enables dispatchers to uniformly interrogate callers, determine the nature of the incident or medical severity, dispatch the appropriate emergency responders, and provide medically validated and potentially life-saving pre-arrival instructions. The *Fire Priority Dispatch®* program, which allows for more accurate identification and prioritization of fire and other non-medical incidents, is slated to be implemented in 2020.

Medical Facilities

Two main hospitals serve the Ventura region: Community Memorial Hospital (CMH) and Ventura County Medical Center (VCMC). CMH is a 242-bed facility with a 24/7 Emergency Department. VCMC is a 208-bed facility and is the designated Level II Trauma Center serving the West Ventura County area.

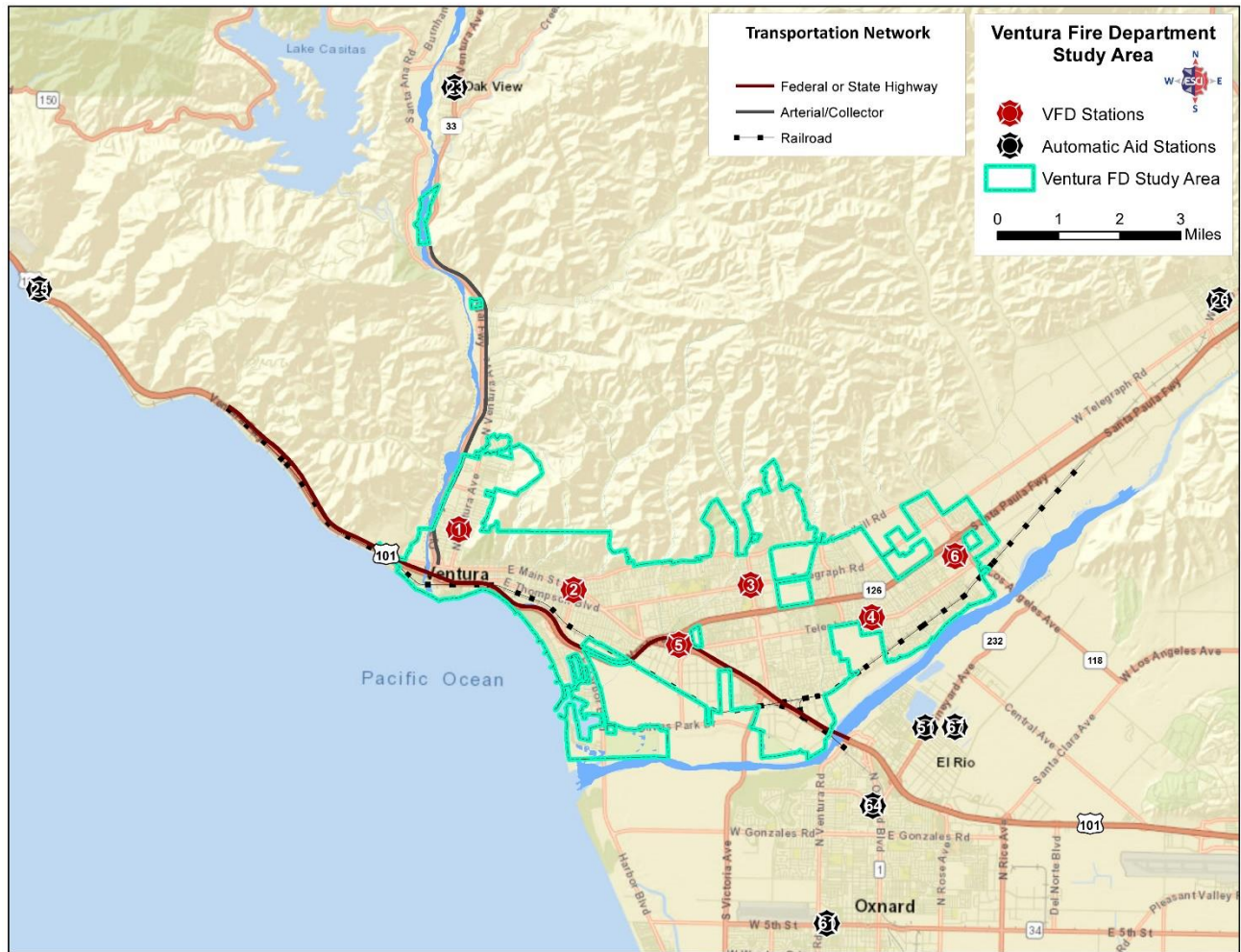
Mutual Aid Organizations

VFD is part of an automatic aid/mutual aid program with adjacent fire agencies, including the City of Oxnard Fire Department and Ventura County Fire Departments, who routinely respond into the City on automatic aid assigned incidents, along with VFD units responding into their jurisdictions. This seamless arrangement ensures the dispatching of the closest unit(s) to an incident address, regardless of jurisdictional boundaries, and sharing of resources on first alarm assignments to structure fires and other resource-intensive incidents. The following fire agencies are part of the automatic/mutual aid program:

- Ventura County Fire Department
- City of Oxnard Fire Department
- City of Fillmore Fire Department
- Carpinteria Fire Department
- Federal Fire Department (Point Mugu)
- Cal Fire

These agencies, along with other regional and state assets, also work closely together on large scale incidents, such as wildfires.

The following figure illustrates the various fire station locations of the immediately adjacent automatic/mutual aid fire agencies.

Figure 35: Locations of Fire Stations Providing Automatic Aid

MANAGEMENT COMPONENTS

Effective fire department management is an increasingly complex challenge for today's fire service leaders. Balancing the often-competing community expectations, elected and appointed official mandates, employee demands, expanding safety standards, and ever-increasing constraints on financial resources places tremendous pressure on fire departments across the country. This is particularly true for the VFD.

This section of the report addresses the elements typically found in the management structure of fire departments and compares them to VFD processes.

Mission, Vision, and Values

An organization must have a plan in place, complete with goals and objectives established and communicated, and metrics in place to measure effectiveness or achievement. The Department has an established mission statement which was created in 1996. It is displayed in the fire stations and on the Department's intranet. Vision and value statements are also in place. However, these are not clearly or institutionally integrated into routine Department communications. Mission, Vision, Values, Goals, and Objective statements are typically created during a formal strategic planning process, which results in the creation and formal adoption of a written strategic plan. This process typically includes the following components:

- Internal and external environmental scan (SWOT Analysis)
- Mission, vision, and values statements
- Initiatives, goals, and subordinate objectives with performance metrics or outcome statements
- Timelines assigned to each objective
- Initiative manager assigned to each initiative
- Responsible persons assigned to coordinate achievement of each objective

The strategic plan establishes timelines for the goals and objectives to be accomplished and assigns them to appropriate personnel to complete. In creating a strategic plan, the goals and objectives are prioritized, and timelines are created to establish a realistic and achievable workflow. Personnel are then assigned to manage progress to achieve each objective and be accountable for their progress. All work and department activities should support the mission, propel the agency toward its vision, and reinforce the organization's values.

ESCI understands that VFD may engage in a strategic planning process at the conclusion of this study, which would result in a full-fledged strategic plan for a three to five-year period, including reviewing or revising the 1996 mission statement and related department vision and values statements. The Plan would ensure that all personnel have a clear understanding of what is to be accomplished, by when, and by whom. All non-emergency work that does not align with the Plan should be evaluated for its importance and relevance to the organization and community.

Personnel Management

Effective and efficient management of personnel is critical to the success of any organization. This section of the study examines the administrative components related to managing VFD staff.

Policies, Rules and Regulations, and Guidelines

When a new VFD employee is hired they receive copies of the City's Personnel Rules & Regulations, Alcohol & Drug Policy, Discrimination/Harassment Policy, Prevention of Violence Policy, Information Technology Policy, and FMLA/CFRA Policies, and must formally acknowledge having received them.

The VFD Policy Manual, which includes standard operating procedures (SOPs) and Standard Operating Guidelines (SOGs), is extensive and organized for easy reference. This manual is periodically updated as conditions warrant. The City also has overarching administrative policies and procedures incorporated in a City Employee Handbook.

ESCI recommends establishing a policy and procedure for an ongoing structured review of Department-specific policies and procedures, including the creation of a Department SOP/SOG review committee. ESCI recommends reviewing one-third of the policies and guidelines annually, ensuring the entire manual is reviewed and updated every three years. Implementing this approach will take dedicated administrative effort, and may not be achievable with existing administrative resources.

Job Descriptions

The VFD organization is comprised of fire service positions commonly found in similar-sized fire departments. These positions include: Firefighter, Firefighter Paramedic, Engineer, Captain, Battalion Chief, Fire Marshal, Fire Prevention Specialist, Code/Fire Inspector, Fire Prevention Supervisor, Emergency Medical Services Coordinator, Assistant Chief, and Fire Chief. In addition, VFD has three additional unique positions: a Preservation Services Technician, Management Analyst II, and a Hazardous Materials Specialist. A review of current job descriptions is available on the City's Human Resources website. Job descriptions should receive periodic review and revision. Sworn VFD job descriptions are annually reviewed, and non-sworn job descriptions are reviewed only as needed.

Compensation

VFD's ability to attract, hire, and retain employees has a direct impact on its ability to effectively and efficiently provide the desired services. Agencies should provide periodic reviews of current compensation structures, market competitiveness, and City compensation philosophies. These internal and external comparisons of equitable positions and workloads ensure the agency can attract and maintain an effective workforce. VFD completes necessary pay and benefit studies in conjunction with collective bargaining.

The VFD employees are represented by the Ventura City Firefighter's Association, Ventura Fire Management Association, and the Service Employees International Union, depending on the rank and classification of the employee. These organizations negotiate for the employee's hours, wages, terms, and conditions of employment.

Disciplinary Process

Under the existing organizational configuration, personnel-related decisions are made at different levels. The Fire Chief and Assistant Chief of Operations can hire, discharge, and promote. Discipline can be issued at several levels of the organization based on the severity of the infraction. The policy is outlined in the progressive discipline process in the SOPs, the Collective Bargaining Agreement, and the City's Personnel Rules and Regulations. Personnel-related decisions can, and often do, subject an organization to potentially extensive liability exposure. Risk can result from a hiring mistake, improperly processed disciplinary process, wrongful termination claims, and more. Access to legal counsel can reduce this liability. The employees are afforded an appeal process through the established grievance policy.

Counseling Services

Firefighters often encounter extremely stressful and horrific situations, including situations where their own safety and wellbeing may be jeopardized. The percentage of firefighters struggling with career-related stress is significant, resulting in increasing suicide rates, higher divorce rates, or addictions such as alcohol, drugs, or gambling. Firefighters may experience Post-Traumatic Stress Disorder (PTSD), which requires readily accessible professional support systems in place that genuinely understand an employee's circumstances and can provide expert guidance.

The City is enrolled in an Employee Assistance Program (EAP), and VFD has a Critical Incident Stress Management (CISM) peer support team.

Application, Recruitment, and Retention Process

VFD periodically advertises on its website, social media, and sends notifications to localities and affiliations to advertise openings within the Department. The Human Resources Department performs qualification checks and reference checks on potential candidates. Background checks are performed by a contracted third-party service. The Department uses the Candidate Physical Agility Test (CPAT) and written exam offered through the Firefighter Candidate Testing Center to be eligible for hire. A panel interview is conducted after successful physical and knowledge testing is completed. Candidates are then subjected to a Fire Chief's interview. An NFPA 1582: *Standard on Comprehensive Occupational Medical Program for Fire Departments* medical exam is required.

ESCI reviewed operations assigned employee attrition over the last four years, and noted that ten employees took a service or medical disability retirement, eight left for other employment, four left for personal reasons, and three failed their probationary period. This equals approximately 14% of the total workforce. This is reviewed in more detail in the Staffing and Personnel Management section of this report.

Performance Reviews, Testing, Measurement, and Promotion Process

VFD provides annual performance reviews for full-time employees that include a comprehensive analysis of employee performance goals and objectives. Promotional testing is completed on an as-needed basis to fill open Engineer, Captain, and Battalion Chief positions.

Health and Safety

NFPA 1500: *Standard on Fire Department Occupational Safety and Health Program* is the industry standard for the development and administration of a fire department safety program. At the time of this report, VFD has a safety committee in place that meets regularly. The establishment and empowerment of a safety committee can be one of the best tools to increase the safety of firefighters. ESCI strongly encourages the Department to ensure all activities of the safety committee are in alignment with Chapter 4 of NFPA 1500. To be effective, safety committees must be diverse in their representation from across the Department, ensuring representation by shift, rank, function, and interest, and including representation from non-uniformed and staff members as well. VFD should ensure and evaluate the diversity of representation within the safety committee.

The committee should meet monthly and include in its mission raising awareness and modifying member behaviors that will result in a safe work environment. Additionally, the committee should review all accidents, injuries, near-miss incidents, and workplace safety suggestions. The committee should analyze this information and report the findings to the Fire Chief. As opposed to being reactionary through the development of additional rules, ESCI recommends that the committee should work to implement member safety education programs and encourage members' safety self-awareness. The committee should maintain regular and open meeting times and locations; minutes of the meetings should be recorded and posted for all members of the Department to review. A diverse representation of command staff and labor representatives should constitute the committee.

Management Documents and Processes

Besides department-specific policies and procedures, municipalities also have overarching policies and procedures that pertain to all departments. These include—but are certainly not limited to—the following subjects: civil service, discipline, information technology use, proper use of government property, record archiving, communicating with the public, and purchasing rules.

VFD does not utilize a Civil Service Commission, or related rules defining hiring, discipline, or promotional processes for fire and police employees. Instead, collective bargaining agreements and related Memorandum of Understanding (MOU) documents, and the City's Personnel Rules and Regulations.

As previously noted, legally vetted fire department policies are in place, and are occasionally updated and referenced in training sessions.

Critical Issues

All public safety agencies face critical issues and challenges. Some public safety leaders unwisely choose to face these issues and challenges alone, foregoing the willingness of talented members of the organization in helping create strategies and solutions. ESCI sees no evidence of this at VFD. In fact, the Department appears to have been immersed in multiple outside assessments and problem-solving efforts over the past 15 plus years, including this study. These efforts identified key challenges, issues, and recommendations to meet public expectations and service delivery demands. Yet, challenges remain. As part of this study, the Fire Chief was asked to identify the critical issues faced by the organization. Those issues are:

- An inability to enable or initiate necessary service capability and capacity improvement to meet an ever increasing demand for services.
- Lack of stability and tenure in City leadership.
- Institutional inertia to affect significant change in service delivery.
- Changing community demographic and economic conditions that increase service demand.
- Competing City priorities for limited financial resources.
- Lack of public understanding of fire department operations, service delivery, and systems.

Each is a critical issue that has roots in societal and organizational challenges. Adequately addressing these issues requires extensive involvement with City elected officials and other City department heads. Strategies and recommendations for doing so are addressed later in this report.

Internal and External Communications

VFD is a mid-sized fire department responsible for managing a workforce distributed across three shifts and six fire stations. Consistently and concisely communicating with shift workers across three shifts poses logistical challenges, requiring a strategic, accurate, and affirming approach to ensuring everyone “gets the message.” Clear, consistent, and open communication is vital to the health of any fire service organization, as rumors and inaccurate information can quickly spread and undermine the mission and morale of the organization.

VFD currently uses the traditional communications pathways found in fire department organizations, including staff meetings and internal emails. The Firefighter's Association periodically publishes a newsletter to internally communicate with line staff.

E-mail is a communication tool used often by fire departments, and VFD is no exception. However, it is important to use it appropriately if communicating important or sensitive topics, as email lacks contextual perspective, and is a poor substitute for two-way communication. Intranet is a useful (although passive) tool in communicating larger topics. Fire departments often rely on intranet for the distribution of training and certification materials, regulatory documents, and other resources.

All hands meetings (all personnel gathered for one meeting) can be a powerful communication method. However, they are often expensive and logistically challenging to set up. This should be reserved for dealing with very specific circumstances that require sensitive and immediate wide-spread dissemination of information. Conversely, shift meetings and station "roundtable" meetings are excellent communication mediums that can facilitate powerful and intimate two-way communication and information sharing between senior command staff and operations personnel.

The Department's chain of command as noted in the organizational chart clearly delineates authority and respective communication channels. Communication occurs between the Assistant Chief and the Battalion Chiefs through monthly or twice monthly Operations staff meetings. Battalion Chiefs occasionally conduct shift meetings. However, incident call load and weekly training activities make it difficult to schedule and hold these meetings reliably.

Today's public expects strategic, frequent, responsive, and transparent communication from government agencies. Engaging external stakeholders—citizens, other City departments, and surrounding emergency response agencies—is also important to the credibility and success of VFD. However, the Department does not have a formal Public Information Officer (PIO) position, or anyone designated to perform PIO functions typically deployed in contemporary fire service organizations.

Given the lack of an assigned PIO, it is not surprising that passive methods are relied upon to communicate with external constituents, which requires citizens to initiate action to receive information, such as accessing the fire department website, Instagram® page, or Facebook® page.

The Department's Facebook® and Instagram® accounts are regularly updated with public safety information, emergency incident photos, and other department activity photos. The Facebook account has almost 11,000 followers, and the Instagram account has over 1,800 followers. ESCI noted that VFD has a Twitter® account. However, it has not been updated for several years, and is essentially inactive, with only 1400 followers.

Additional tools are available to push the communication and information out to the community. Examples include traditional platforms such as fire department newsletters (included with utility bills, for example), community open-houses, or speakers bureau events.

Communications Discussion

Internal communication methods appear to be sufficient to disseminate information throughout the organization. The Battalion Chief position serves as the primary conduit for disseminating important daily information to on-duty crews, which is typically done via telephone. ESCI noted that some personnel feel that the Operations Battalion Chiefs do not spend enough time communicating or visiting the stations, as they believe they must spend an inordinate amount of time performing administrative duties.

Previous external communications pathways and engagement efforts appeared to be anemic for the size of the organization. ESCI understands the City recently added a PIO position, which is now supporting public information outreach efforts on behalf of the VFD.

Security & Recordkeeping

VFD buildings and facilities are secured by either electronic keypad locks, or manually locked doors. Only two stations (Stations 1 and 6) have security fencing around the station perimeter. As a result, some of the stations have experienced employee vehicle break-ins and vagrant activity around station perimeters. ESCI understands the Department is planning on installing additional security measures as the budget allows.

Computer systems are password protected and managed by the City Information Technology department. Response vehicles rely on locked fire stations to provide security (which can be defeated with open bay doors as identified above).

All testing records are in place for fire hose and pump testing, which is performed by suppression crews. Minor repairs to self-contained breathing apparatus (SCBA) are performed in house, along with fit testing, while ladder, breathing air testing, and gas detector calibrations are contracted to a third party. Fire apparatus repair records are maintained by the City Fleet Department.

Proper recordkeeping and secure record archiving are essential to meet legal, regulatory, and business best practices for government agencies. Secure document archiving can also assist in addressing legal and/or other administrative actions confronting a fire department. Non-EMS incident reporting is performed via the Zoll RescueNet® FireRMS records management system. EMS records are entered via the ImageTrend® ePCR records management system.

Management, financial, and operational reports that are VFD-centric are provided to the City Council. Annual reports are only occasionally published and distributed.

Personnel records are kept in hard copy, and electronic format in the City's Human Resources Department's Aggresso® payroll/HR records management system. Hard copies of personnel information are archived depending on the type of record. Employee exposure reports and other medical-related information are appropriately stored separately from other personnel records. These are sound practices in the fire service industry and within a City government.

FINANCIAL OVERVIEW

A significant amount of historical financial information for Ventura was obtained through a review of the City's Comprehensive Annual Financial Reports for the fiscal years ending June 30, 2015, through June 30, 2019. Typical governmental accounting utilizes funds to group related activities and maintains control over resources that are segregated, typically through the budget process, for specific activities. The use of fund accounting is also necessary to ensure finance-related legal requirements. Including the General Fund, the City operates through sixteen separate "governmental" funds, ten "proprietary" funds and three "fiduciary" funds. The most significant of the governmental funds is the General Fund through which most revenues are collected, and City government activities are conducted. The proprietary and fiduciary funds are not evaluated or discussed for this report. The City also utilizes Internal Service Funds such as Information Technology, Fleet Maintenance, and Facilities Maintenance to accumulate various costs that are allocated to City Departments.

The City reports its operations and balances using "government-wide financial statements that are designed to provide the readers with a broad overview of the City's finances, in a manner similar to private-sector business."¹¹ The statement of net position contained in the government-wide statements presents information on all of the City's assets and, additionally, deferred outflows of resources, and liabilities plus deferred inflows of resources, with the difference reported as net position. Similar to a private business financial statement, this statement combines and consolidates governmental funds' current financial resources (short-term spendable resources) with capital assets and long-term obligations.

The government-wide financial statements separate activities of the City that receive funding principally from taxes and intergovernmental revenues, denoted as government activities, and from functions that are intended to recover all or a significant portion of their costs from charges for services, denoted as business activities. Government activities include most of the City's basic services such as general government, public safety, public works, and community development, and receive funding through property tax, sales tax, and other fees and taxes. The City's water, sewer, and gas systems are included in the proprietary funds and receive support through charges for these services.

¹¹ Ventura, CA, Comprehensive Annual Financial Report, Fiscal Year Ended June 30, 2019.

Governmental funds focus on current inflows and outflows of resources. Governmental funds provide a detailed but short-term view of the City's operations. Analyzing these funds' statements, in conjunction with the government-wide financial statements, provides insight into the long-term impact of the City's short-term decisions. The City considers the General Fund to be its major fund.

The following section of the ESCI study focuses on the financial analysis of the General Fund, Measure O Fund, and the General Grant and Categorical Fund, examining "near-term inflows and outflows of spendable resources, as well as on balances of spendable resources available at the end of the fiscal year."¹²

Historical analysis using this focus gives the reader a more realistic view of the City's short-term future (0–5 years) financial health and performance. Conversely, the statement of net position found in the Comprehensive Annual Financial Report looks at total assets (including fixed facilities, apparatus, and equipment) and liabilities (such as bonded debt and other long-term liabilities), the difference being its net position, to give the City a longer-term view of its financial health.

Revenues and Expenses

The following figure shows recurring and non-recurring revenues as well as restricted and unrestricted fund balance for the General Fund (GF) and Measure O Fund for the period FY 14/15 through FY 18/19. Recurring revenues are those that can be reasonably expected to occur on a year-to-year basis in a generally predictable manner, such as property and other taxes, impact fees, and billing for various services such as fire inspections/plans review. Non-recurring revenues are those that are finite in nature, such as grants, creation of debt instruments, and sales of surplus equipment; or difficult to predict year-to-year, such as donations, interest, and other miscellaneous income.

¹² Ventura CA Comprehensive Annual Financial Report, Fiscal Year Ended June 30, 2019

Property tax and sales tax revenues each account for approximately 24% of the General Fund revenues received by the City. Property taxes are limited to a maximum rate of one percent based on the assessed value of the property being taxed. Assessed values may be increased a maximum of 2% per year, but the property is typically only reassessed as a result of a sale or significant new construction activity. Properties experiencing either of those activities are reassessed at the value of the construction or the purchase price of the property. Property tax revenues experienced a significant decrease between FY 14/15 and FY 15/16, decreasing from \$29.9 million to \$25.6 million but have increased from that point to \$27,695,420 in FY 18/19.

This decrease in property tax was offset by a corresponding increase in sales tax during the same period. These "swings" between the classifications is a result of the sunset of a provision in the legislation that allowed for a certain portion of the sales tax revenue to be treated as property tax.

Utility user taxes add another approximately 10% to the annual total tax collections. The balance of the tax revenues is from transient occupancy (hotel) taxes, franchise taxes and PEG fees, business taxes, and a myriad of other taxes.

Figure 36: Ventura General Fund Actual Receipts, FY 14/15–FY 18/19

Description	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19
Property Taxes	29,910,015	25,564,071	24,614,890	25,894,567	27,695,420
Sales Tax	18,322,803	22,037,371	24,953,883	25,996,135	26,772,513
Utility Tax	8,352,711	8,218,259	7,689,361	8,186,452	7,618,648
Other Tax	13,289,268	14,621,352	13,959,149	15,946,670	10,693,726
Total Taxes	\$69,874,797	\$70,441,053	\$71,217,283	\$76,023,824	\$72,780,307
Licenses & Permits	2,755,827	3,020,376	5,737,390	4,347,402	6,037,608
Intergovernmental Resources	9,201,518	9,241,715	9,760,559	10,286,815	10,683,093
Charges For Services	9,841,942	9,823,581	9,408,301	15,743,674	15,270,647
Fines & Forfeitures	1,552,034	1,791,002	2,089,615	3,228,192	2,926,552
Use Of Money & Property	988,409	1,811,670	1,785,867	2,270,491	2,461,660
Franchise & Peg Fees	–	–	–	–	4,855,152
Miscellaneous	2,534,607	2,609,020	2,452,770	3,027,188	2,415,736
Recurring Revenues	\$96,749,134	\$98,738,417	\$102,451,785	\$114,927,586	\$117,430,755
Transfers From Other Funds	1,763,261	2,116,936	5,875,698	1,699,608	1,532,566
Non-Recurring Receipts	\$1,763,261	\$2,116,936	\$5,875,698	\$1,699,608	\$1,532,566
Total Revenues	\$98,512,395	\$100,855,353	\$108,327,483	\$116,627,194	\$118,963,321

The City accounts for the expenditure of funds by department within its operating structure. Within each of these departments, various types of expenditures occur for such items as salaries and benefits, supplies, services, and capital expenditures.

General Fund recurring expenses have increased by approximately 23% between FY 14/15 and FY 18/19. While some smaller impact categories such as General Government and Community Development showed decreases between FY 17/18 and FY 18/19, the more significant categories, Police, Fire, Public Works, and Parks, all experienced significant escalation in costs between FY 14/15 and FY 18/19. The FY 2017/2018 increase in the Parks and Recreation expenditures was a result of the transfer of the Golf Course from a proprietary fund to the General Fund. Subsequent year expenditures related to that operation decreased as the Golf Course operations were stabilized.

The FY 18/19 Recurring Expenses totaled \$115,121,239 and were allocated among the various operating department as indicated in the following figure.

Figure 37: General Fund FY 18/19 Actual Expenses as a Percentage of Recurring Expenses

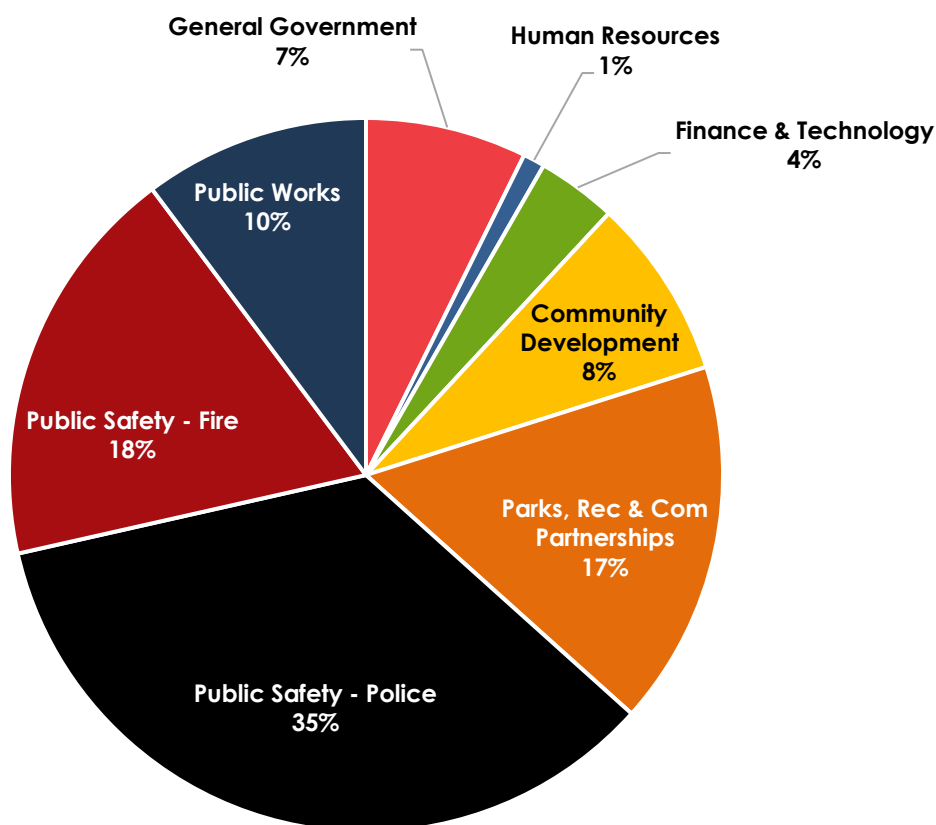


Figure 38: Ventura General Funds Actual Expenditures, FY 14/15–FY 18/19

Description	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19
General Government	3,744,778	2,369,355	5,471,132	4,194,546	8,175,873
Human Resources	853,330	872,736	946,145	969,518	1,104,504
Finance & Technology	16,002,996	13,831,163	10,051,270	4,276,733	4,035,809
Community Development	5,669,697	6,502,602	6,020,438	9,787,785	9,170,130
Parks, Rec & Com Partnerships	11,773,429	12,572,500	12,965,831	24,724,639	18,508,207
Public Safety – Police	32,134,429	34,197,359	35,533,289	38,225,102	38,947,867
Public Safety – Fire	17,131,687	18,388,728	19,542,047	18,991,079	20,479,100
Public Works	6,876,635	6,486,456	8,155,694	8,891,569	11,437,361
Transfers Out	–	3,954,275	5,532,047	6,704,274	3,262,388
Total Recurring Expenses	\$94,186,981	\$99,175,174	\$104,217,893	\$116,765,245	\$115,121,239
Capital Expenditures	–	15,726	–	–	262,197
Total Non-Recurring Expenditures	–	\$15,726	–	–	\$262,197
Total Expenses	\$94,186,981	\$99,190,900	\$104,217,893	\$116,765,245	\$115,383,436

Critical to the sustainability of government entities is the ability to maintain a reserve balance with which to take advantage of opportunities or to weather financial/economic downturns such as we are currently experiencing with the COVID-19 pandemic. Financial best practice, as recommended by the Government Financial Officers Association (GFOA), provides guidance on how to account for fund balance and how much is recommended for various purposes.¹³ Risk of various types, whether natural or human-made, should be accounted for when developing a fund balance policy. Specifically, GFOA recommends that governments maintain at least two months or just under 17% of operating revenues or expenditures at a minimum. The prudent financial policies of the City have allowed the General Fund reserves to grow. However, unassigned fund balances have decreased approximately 50% between FY 14/15 and FY 18/19. The following figure follows the growth of the fund balance for the historical period. Adjustments to the prior year beginning fund balance were necessary due to discrepancies between report years.

¹³ <http://www.gfoa.org/fund-balance-guidelines-general-fund>.

Figure 39: Ventura General Funds Actual Ending Fund Balances and Classification of Fund Balances, FY 14/15–FY 18/19¹⁴

Description	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19
Total Revenues	98,512,395	100,855,353	108,327,483	116,627,194	118,963,321
Total Expenses	94,186,981	99,190,900	104,217,893	116,765,245	115,383,436
Net Change (Deficit)	4,325,414	1,664,453	4,109,590	(138,051)	3,579,885
Beginning Fund Balance	30,382,163	34,672,541	34,847,715	38,294,007	37,702,386
Unlocated Audit Report Diff.	(35,036)	(1,489,279)	(663,298)	(453,120)	399,223
Ending Fund Balance	\$34,672,541	\$34,847,715	\$38,294,007	\$37,702,386	\$41,681,494
Non-Spendable	2,355,952	2,387,994	2,111,091	3,945,295	3,141,607
Restricted	3,563,142	1,501,720	2,912,051	2,837,584	2,698,836
Committed	399,729	12,405,296	12,479,502	14,083,309	15,075,620
Assigned	5,074,932	5,937,379	5,491,766	5,754,838	7,467,625
Unassigned	23,278,786	12,615,326	15,299,597	11,081,360	13,297,806
Ending Fund Balance	\$69,345,082	\$69,695,430	\$76,588,014	\$75,404,772	\$359,391,239 83,362,988

A special sales tax of one-half of one percent is collected through Measure O, approved by voters on November 8, 2016, and used for specific purposes in support of Police, Fire, Parks, Public Works, and General Government activities. The following figure indicates the revenues received from this initiative and the benefits provided to the City's various departments.

¹⁴ City of Ventura CA Comprehensive Annual Financial Report, June 30, 2019, Pg. 123

Figure 40: Measure O Initiative Actual Revenues and Expenditures, FY 14/15–FY 18/19

Description	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19
Sales Tax	–	–	2,579,582	11,501,101	13,083,929
Use of Money	–	–	2,957	26,444	327,849
Other	–	–	–	14,717	1,992
Total Revenues	–	–	\$2,582,539	\$11,542,262	\$13,413,770
City Manager	–	–	–	123,226	130,956
Parks, Rec & Com Partnerships	–	–	–	1,000,799	2,117,803
Public Safety – Police	–	–	–	321,133	2,057,903
Public Safety – Fire	–	–	–	1,586,522	1,746,970
Public Works	–	–	–	708,218	3,245,361
Transfers Out	–	–	–	247	13,687
Capital Outlay	–	–	–	437,367	1,079,216
Total	–	–	–	\$4,177,512	\$10,391,896
Net	–	–	\$2,582,539	\$7,364,750	\$3,021,874
Beginning Fund Balance	–	–	–	2,582,539	9,947,289
Ending Fund Balance	–	–	\$2,582,539	\$9,947,289	\$12,969,163

Ventura Fire Department

The staff of the City and the VFD provided considerable financial information and background data to ESCI. This data covered actual revenue and expenses for the fiscal periods ending June 30, 2015, through June 30, 2019, and was reviewed in detail for the following discussion. The Department is primarily supported through various revenue streams collected by the City's General Fund. The Department also benefits from a Measure O initiative approved by the voters in November 2016. Additionally, the Department applies for and receives various grants on an annual basis. The Department operates through several separate divisions within the General Fund (01), with Administration (51100), Fire Suppression (52100), Fire Prevention (53210), being the most significant by expenditure amounts. Several grants and reimbursements from various sources are accounted for through the General & Categorical Grant Program Fund (02) and include mutual aid reimbursements, SAFER grants, EMPG grants, FEMA AFG grants, and Homeland Security grants. Additionally, as previously mentioned, the Department receives a portion of the Measure O Initiative to pay certain fire suppression salaries and benefits.

The following figure is a consolidation of the General Fund, Measure O, and Grant Funds costs of operating the various divisions of the fire department.

Figure 41: VFD Recurring and Non-Recurring Expenses, FY 14/15–FY 18/19

Description	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19
Salaries	10,614,917	11,183,886	11,268,708	11,904,553	12,564,918
Benefits	5,264,909	5,431,616	5,803,759	6,053,968	6,799,589
Salaries & Benefits	15,879,826	16,615,502	17,072,467	17,958,521	19,364,507
Services & Supplies	824,211	904,207	961,399	1,093,008	1,247,132
Internal Services	1,910,478	1,990,242	2,007,394	2,010,837	2,446,086
Non-Operating	–	(7,800)	1,822	10,918	–
Total Recurring Expenses	\$18,614,515	\$19,502,151	\$20,043,082	\$21,073,284	\$23,057,725
Debt Service	51,878	189,649	12,018	192,462	46,507
Capital	–	–	–	50	–
Total Non-Recurring Expenditures	51,878	189,649	12,018	192,512	46,507
Total Expenditures	\$18,666,393	\$19,691,800	\$20,055,100	\$21,265,796	\$23,104,232

Similar to most municipal public safety agencies, salaries and benefits is the most significant portion of the budget, in this instance averaging 85% of the recurring expenses of the Department during the historical period. However, unlike numerous other California cities, Ventura's conservative financial policies have allowed it to prepay significant portions of the unfunded accrued actuarial pension liabilities and is "on sound financial footing to manage the anticipated increases."¹⁵ Additionally, the City has no other post-employment benefit (OPEB) obligations.

Various labor agreements exist between the employees, dependent on rank, of the fire department and the City. These agreements stipulate various terms of compensation and increases thereto as well as other types of compensation and incentives. The current two-year agreements are set to expire on December 31, 2020. These agreements stipulated a total pay increase of 5%, 2.75% in year one, and 2.25% in year two.

The Department is authorized at 86 full-time equivalent positions (effective 7/20) operating in two main divisions, Suppression/Operations and Fire Prevention. The Suppression/Operations Division currently deploys 22 firefighters from six stations on a 24-hour per day basis. A Battalion Chief oversees these crews as well as a 40-hour per week daytime roving paramedic engine. The Fire Prevention Division develops programs and policies to prevent or reduce the magnitude of emergency occurrences of fire incidents. Oversight of the Department is provided by Fire Administration led by the Fire Chief.

¹⁵ City of Ventura CA Comprehensive Annual Financial Report, June 30, 2019, Pg. vii.

The analysis of historical revenues and expenses for the City and Fire Department were completed to help identify relevant financial trends, strengths, and weaknesses, and to lay the groundwork for subsequent financial projections. The historical analysis helps illustrate how each funds its services—where the money comes from and where it goes. Historical budget data for each was provided by staff and was supplemented with a review of past audits and historical budget records. Where discrepancies were encountered between reported actual budget data and annual financial audits, between various audits and/or when external auditors were changed, ESCI used reconciling adjustments as the basis for addressing discrepancies between the various reports. The use of audit reports only may include non-cash adjustments that affect only financial presentations.

Financial Forecast

City of Ventura

Ventura's diverse and thriving economy has produced steady growth in its General Fund primary revenue streams of sales tax and property taxes. However, the growth in these revenue streams has been unable to match the growth in General Fund expenditures. The addition of the Measure O Initiative to support several aspects of City government has bolstered its ability to provide expected municipal services. Ventura has experienced a significant decrease in its unassigned General Fund balance over the historical period reviewed by ESCI and this is expected to continue. The City Council established Budget principles as a framework to develop the FY 19/20 annual budget. These principles include, among others, long-term financial stability. The pursuit of revenue enhancements helps to improve and maintain core City services, increase efficiency in the delivery of services by investing in new technologies, and proactively manage the loss of institutional knowledge through succession planning efforts.

A thorough analysis of the various funds' historical revenues and expenditures is completed to begin the process of the development of the City's annual budget. Revenue estimates are completed for each fund using various strategies. Staff provides insight into salary and benefit changes to estimate personnel costs, and Departments provide input on organizational needs and City Council established goals. Each fund is required to balance its expenditures with its revenue projections.

The City has expanded and contracted individual department budgets according to planned expenditures.

Expansion in expenses in General Fund departments is projected to exceed revenues from all sources bringing the General Fund spendable reserve balance to approximately less than one month's expenditures at the end of the forecast period. While the figure indicates a fund balance of approximately \$27 million, the majority of those funds are restricted from general expenditures.

Based upon the information contained in the Proposed Budget package for FY 2019/20, ESCI developed the following status quo forecast to assess the sustainability of operations at the current level over the next five years. The forecast is based on the information and projections contained in the aforementioned budget proposal.

- **Revenue Assumptions**

The revenue assumptions are generalized across all General Fund departments and are based on the projections provided in the Proposed Budget FY 2020–2021.

- **Expenditure Assumptions**

The expenditure assumptions are generalized across all General Fund departments and are based on the projections provided in the Proposed Budget FY 2020–2021.

**Figure 42: Ventura Government Funds Projected Activities,
Adopted Budget FY 20/21–Projected FY 25/26**

Description	Adopted FY 20/21	Projected FY 21/22	Projected FY 22/23	Projected FY 23/24	Projected FY 24/25	Projected FY 25/26
Property Taxes	29,400,578	29,400,578	30,414,273	31,462,919	32,547,721	33,669,925
Sales Tax	25,372,510	27,771,230	28,521,053	29,291,121	30,081,982	30,894,195
Charges For Services	13,514,589	15,021,400	15,321,828	15,628,265	15,940,830	16,259,646
Other Agencies	11,088,982	11,088,982	11,518,078	11,963,777	12,426,723	12,907,584
Utility Users Tax	7,618,308	7,756,230	7,534,384	7,492,769	7,451,384	7,410,228
Licenses & Permits	3,944,078	4,347,402	4,750,986	4,881,638	5,015,883	5,153,820
Other Taxes	14,108,908	15,737,479	16,119,457	16,510,706	16,911,452	17,321,924
Fines & Forfeitures	3,183,649	3,247,322	3,312,268	3,378,514	3,446,084	3,515,006
Use Of Money & Property	1,795,011	1,897,873	2,231,772	2,359,662	2,494,882	2,637,850
Other Revenue	1,831,997	1,781,997	1,830,111	1,879,524	1,930,271	1,982,388
Subtotal Revenues	111,858,610	117,870,492	121,554,209	124,848,895	128,247,212	133,518,407
Internal Transfers	1,685,711	1,696,938	1,713,908	1,731,047	1,748,357	1,765,841
Use of Fund Balance	1,959,935	673,109	–	–	–	–
Total Revenues	115,504,256	120,240,540	123,268,116	126,579,942	129,995,569	133,518,407
Expenditures by Category						
Personnel Services	73,181,018	75,495,760	78,502,507	81,059,294	83,662,413	85,029,223
Services & Supplies	22,031,820	24,040,842	23,726,455	23,882,352	24,240,587	24,604,196
Internal Services	14,772,452	16,184,719	16,346,566	16,673,497	17,006,967	17,347,106
Capital Outlay	609,335	–	–	–	–	–
Subtotal Expenditures	110,594,625	115,721,321	118,575,527	121,615,143	154,909,967	126,980,525
Non-Operating	160,300	164,316	139,649	143,987	148,498	153,190
Revenues & Contingencies	592,954	602,655	600,839	599,034	597,240	595,456
Transfers	4,156,377	3,752,248	3,752,248	3,752,248	3,752,248	3,752,248
Total Expenditures	115,504,256	120,240,540	123,068,263	126,110,413	129,407,953	131,481,419
Estimated Available Fund Balance at Year End	9,813,235	9,140,126	9,339,979	9,809,509	10,397,124	12,434,112

It must be noted that the five-year outlook above was prepared early in the calendar year 2020, which was prior to the outbreak of the COVID-19 Pandemic and subsequent recession and does not reflect any resulting revenue losses or reduced expenditures.

Ventura Fire Department

Salary and benefit costs are projected to increase two and one-half percent annually.

The other operating costs of the Department, including but not limited to repairs, fuel, office supplies, uniform costs, operating supplies, utilities, radios, and fleet management costs, are projected to grow at one and three-quarters percent annually based on historical data.

**Figure 43: VFD Status Quo Recurring and Non-Recurring Expenses,
Budgeted FY 19/20–Projected FY 24/25**

Description	Budgeted FY 19/20	Projected FY 20/21	Projected FY 21/22	Projected FY 22/23	Projected FY 23/24	Projected FY 24/25
Salaries	12,236,880	12,757,449	13,076,385	13,403,295	13,738,377	14,081,837
Benefits	7,598,188	7,902,116	8,099,668	8,302,160	8,509,714	8,722,457
Salaries & Benefits	19,835,068	20,659,565	21,176,053	21,705,455	22,248,091	22,804,294
Services & Supplies	1,042,212	806,726	824,877	839,395	853,917	868,689
Internal Services	2,468,155	2,477,265	2,534,242	2,591,769	2,630,128	2,669,053
Total Recurring Expenses	\$23,345,435	\$23,943,556	\$24,535,172	\$25,136,619	\$25,732,136	\$26,342,036
Debt Service	–	–	–	–	–	–
Capital	116,557	30,000	–	–	–	–
Total Non-Recurr. Expend.	116,557	30,000	–	–	–	–
Total Expenditures	\$23,461,992	\$23,973,556	\$24,535,172	\$25,136,619	\$25,732,136	\$26,342,036

STAFFING AND PERSONNEL MANAGEMENT

In the following sections, ESCI explores the Department's current staffing levels and administrative functions, evaluates them against best business practices and national standards, and makes recommendations at the end of this report where appropriate.

Administrative and Support Staffing

Typical responsibilities of fire department administration and support staff include planning, organizing, directing, coordinating, and evaluating the various programs within the Department. This list of functions is not exhaustive, and other functions may be applicable. It is also important to understand these functions may occur simultaneously, requiring the Fire Chief and administrative support staff to balance work in many different areas at the same time. This is certainly the case in Ventura.

The following figure reviews the administration and support organizational structure of VFD at the time of the study.

Figure 44: VFD Administrative and Support Staffing

Position Title	Number of Positions	Hours Worked/Week	Work Schedule
Career Admin/Support Staff (full-time & part-time)	<i>Individuals considered full-time or part-time staff primarily assigned to manage, plan, or support the activities of the agency and its programs.</i>		
Fire Chief	1	40	M-F
Assistant Chief	1	40	M-F
Battalion Chief Training	1	40	M-F
Administrative Assistant	1	40	M-F
Secretary	1 ^A	40	M-F
Fire Prevention Specialist	1	40	M-F
Code/Fire Inspector	2	40	M-F
Management Analyst II	1	40	M-F
Fire Prevention Supervisor	1	40	M-F
Fire Marshal	1	40	M-F
Emergency Medical Services Coordinator	1	40	M-F
Hazardous Materials Specialist	2	40	M-F
Total Administrative and Support Staff FTEs	14	–	–
Total Department FTEs	85	–	–

^A Two administrative support positions (one Fire FTE, and one VPD FTE that performed payroll work for VFD) were permanently eliminated by furlough in 2020 due to COVID-19 pandemic budget impacts.

ESCI notes that the current level of administrative and support staffing represents roughly 16% of VFD's total staffing, of which approximately 8% is allocated to the overall direction and governing of the fire department. It is ESCI's experience that typical effective administrative staffing totals for a fire department operation range up to 15% of agency totals. After reviewing the specific functions and responsibilities assigned to the workgroup, including the unique job duties of the EMS Coordinator, Fire Prevention Staff, Hazardous Materials Specialist, and the Preservation Services Technician, ESCI concludes that the number of full-time equivalents (FTEs) with administrative support assignments is at or below the typical administrative levels necessary to appropriately support a fire department the size and complexity of VFD.

ESCI noted that COVID-19 pandemic-related staffing reductions in July 2020 resulted in the permanent elimination of two administrative positions that provided VFD administrative support, such as payroll/scheduling, accounting, and overall administrative logistical support for the Operations Division. The duties of the eliminated positions were distributed to the Administrative Assistant, Management Analyst, and Fire Prevention Division Secretary, with the long-term effects of these reductions on the organization not yet fully known.

ESCI also noted the Administrative Assistant Chief was eliminated in 2009 due to budget cuts. The tasks and assignments of this position were distributed to remaining members of the management team, or altogether removed. Because of this reduction, the remaining administrative positions assumed additional operational duties in some situations.

Administration Discussion

Current overall Department administrative and operational responsibilities lie with the Fire Chief and Assistant Chief. Some of the typical responsibilities of the Fire Chief include planning, organizing, directing, and budgeting for all aspects of the Department's operations. The Assistant Chief of Operations assists in these administrative responsibilities, but also is responsible for directly overseeing the Operations Division. The civilian EMS Coordinator reports to the Operations Assistant Chief.

The current number of positions assigned to carry out these high-level administrative responsibilities is barely enough to meet the demand, as daily operational needs routinely detract from the ability to perform necessary administrative tasks. ESCI noted a lack of redundancy or ability to overlap functions when needed, especially if the Assistant Chief or Fire Chief are unavailable due to training, illness, injury, or another leave usage. This situation was encountered during this study when the Assistant Chief was placed on extended leave due to injury, and an Operations Battalion Chief had to be reassigned for two months to an Acting In Charge Assistant Chief position to maintain basic administrative management functions.

Near the end of this study, ESCI was asked to explore options related to increasing administrative support in the Fire Department, and specifically assess the option of adding a non-uniformed administrative management position that would be responsible for handling the Department's internal business and administrative duties. In the following figure, ESCI identified the pros and cons of increased administrative support using a uniformed and non-uniformed position.

Figure 45: Administrative Management Position Comparison

Comparisons	Civilian Director	Uniformed Assistant Chief
Advantages	<ul style="list-style-type: none"> • Lower salary & benefits costs. • Likely will have extensive administrative business experience and education. • Larger candidate pool. • May have specific administrative qualities/experience desired by the City/Department. 	<ul style="list-style-type: none"> • Extensive Operational experience that could enhance the application of administrative duties. • Ability to "cross-over" to assist other administrative functions that require operational experience and expertise. • Increased "bench depth" to backfill the position if necessary due to short-long-term leave. • Potential increased career advancement opportunity. • Increased Incident Command support at complex emergencies. • Ability to act as Fire Chief, as necessary.
Disadvantages	<ul style="list-style-type: none"> • No "bench depth" to backfill the position if necessary due to short-long-term leave. • Lack of experience in specific complex fire administrative duties (scheduling, work rule application, etc.). • No comparable position level currently in the City. 	<ul style="list-style-type: none"> • Higher salary/benefits costs. • Potential lack of qualified internal candidates.

Fire Prevention and Life-Safety

The Fire Prevention Division is staffed with eight employees and is responsible for providing the Department's fire prevention and life-safety public education programs. These activities typically include new construction plans review, fire inspections of all existing commercial occupancies, hazardous materials enforcement programs, fire hazard reduction programs, public education, fire cause determination, and investigations.

Training

A Battalion Chief serves as the Training Chief for the Department, and is responsible for all Department training program design, coordination, activities, and evaluations. The value in this arrangement is that the training of all personnel is delivered in a consistent manner.

Fire Cadet

The Operations Assistant Chief oversees the Department's Fire Cadet Program. Fire Cadets are specially trained part-time employees who have a strong interest in the fire service, and provide operational logistical support to the fire stations and crews. Examples of their duties include, but are not limited to, refilling breathing cylinders, delivering medical oxygen cylinders and medical supplies, delivering station supplies and apparatus fuel, and providing on-scene fireground logistical support. Currently, there is only one Fire Cadet, after the elimination of another position a year ago.

Emergency Response Staffing

It takes an adequate and properly trained staff of emergency responders to put the appropriate emergency apparatus and equipment to its best use in mitigating incidents. Insufficient staffing at an emergency scene decreases the effectiveness of the response and increases the risk of injury to all individuals involved.

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

The number and types of tasks needing simultaneous action will dictate the minimum number of firefighters required to combat different types and magnitudes of fire. In the absence of adequate personnel to perform concurrent action, the commanding officer must prioritize the tasks and complete some in sequential order, rather than concurrently.

These tasks include:

- Command
- Scene safety
- Search and rescue
- Fire attack
- Water supply
- Pump operation
- Ventilation
- Backup/rapid intervention

The first 15 minutes are the most crucial period in the suppression of a fire. The timing of this 15-minute period does not start when the firefighters arrive at the scene but begins when the fire initially starts. How effectively and efficiently firefighters perform during this period has a significant impact on the overall outcome of the event. This general concept is applicable to fire, rescue, and medical situations. Responders must perform critical tasks in a timely manner to control a fire or treat a patient. VFD is responsible for ensuring that responding companies can perform all the described tasks in a prompt, efficient, and safe manner.

Considerable ongoing local, regional, and national discussion and debate draws a strong focus and attention to the matter of firefighter staffing. Frequently, this discussion is set in the context of firefighter safety. The jurisdiction may choose to establish response demand zones and use criteria outlined in National Fire Protection Association (NFPA) standards. NFPA 1710: *Standard for Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments* specifies the number of firefighters assigned to a particular response apparatus, often characterized as a “minimum of four personnel per engine company.”

ESCI notes that the more critical issue is the number of firefighters assembled at the scene of an incident in conjunction with the scope and magnitude of the job tasks expected of them, regardless of the type or number of vehicles upon which they arrive.

The community should set staffing levels based on risk, capability, and citizen expectations. There is no mandated requirement that fits all situations.

Some fire department deployment terms are interchangeable, such as assembly of firefighters on an incident which may also be referred to as “Initial Full Alarm Assignment,” “Effective Firefighting Force” (EFF), or “Effective Response Force” (ERF). In the following figures, ESCI summarizes the NFPA 1710 level of staffing comprising this effective response force for three different scenarios.¹⁶

Figure 46: Initial Full Alarm Assignment for Residential Structure Fires

Initial Full Alarm Assignment—2,000 SF Residential Structure Fire	
Incident Commander	1
Water Supply Operator	1
2 Application Hose Lines	4
1 Support member per line	2
Victim Search and Rescue Team	2
Ground Ladder Deployment/Ventilation	2
Aerial Device Operator	1
Incident Rapid Intervention Crew (4 FF)	4
Total	17

The preceding figure shows staffing needed to safely and effectively mitigate a single-family residential structure of a 2,000-square-foot two-story without a basement and with no exposures.

The following figure describes an initial full alarm assignment for an open-air strip-type shopping center. Note that as the risk and difficulty become greater, the staffing levels needed for effective mitigation increase.

¹⁶ 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* (National Fire Protection Association 2020 ed.) Article 5.2.4 Deployment.

Figure 47: Initial Full Alarm Assignment for Strip Shopping Center

Initial Full Alarm Assignment Open Air Strip Shopping Center (13,000 ft² to 196,000 ft²)	
Incident Commander	2
Water Supply Operators	2
3 Application Hose Lines	6
1 Support member per line	3
Victim Search and Rescue team	4
Ground Ladder Deployment/Ventilation	4
Aerial Device Operator	1
Rapid Intervention Crew (4 FF)	4
EMS Care	2
Total	28

The following is an initial full alarm assignment for a three-story apartment building with a single 1,200-square-foot apartment fire.

Figure 48: Initial Full Alarm Assignment for a Three-Story Apartment Building

Initial Full Alarm Assignment 1,200 ft² Apartment (3-story garden apartment)	
Incident Commander	2
Water Supply Operators	2
3 Application Hose Lines	6
1 Support member per line	3
Victim Search and Rescue Team	4
Ground Ladder Deployment	4
Aerial Device Operator	1
Rapid Intervention Crew (4 FF)	4
EMS Care (1 crew)	2
Total	28

These are generalizations representative of different types of structures and their associated risks. Each department may handle these types of fires with fewer or more personnel; however, this describes the work functions that must take place, generally concurrently and for safe and effective fire handling in a timely manner.

VFD Standard Operating Procedures (SOPs) dictate the following first alarm assignment for structure fires.

Figure 49: VFD Initial First Alarm Assignment—Structure Fire

Initial Full Alarm Assignment—2,000 ft² Residential Structure Fire	
Unit	Number of Personnel
Battalion Chief	2
4 Engines	12
2 Trucks	8
Total Minimum Personnel	22

In all cases, the above initial alarm assignment includes the use of automatic aid companies from the surrounding county and cities, and usually includes an engine, a Battalion Chief, and a truck company. The on-duty minimum first alarm assignment staffing meets the requirements for a routine house fire. However, it is not sufficient for a strip shopping mall or an apartment building fire unless these structures have built-in fire suppression systems. Because VFD staffs most response units with a minimum of three firefighters, an initial full alarm force for this level of hazard would commit close to half or more of on-duty staffing, along with staff from the closest automatic aid jurisdiction, reducing the Department's ability to quickly respond while units are still engaged in an incident(s).

The rapid deployment of additional crews and resources is necessary when a fire escalates beyond the capability of the initial alarm assignment, or the fire has unusual characteristics such as a wind-driven fire or fires started or fed by accelerants. There are also types of large and complex incidents, such as mass casualty incidents, explosions, earthquakes, severe weather events that would require additional resources. It is difficult or impossible to staff for these worst-case incidents. Instead, VFD appropriately relies on its strong local, mutual, and state mutual aid and automatic aid plans for the timely and organized deployment of additional resources.

The following figure depicts the emergency staffing employed by VFD.

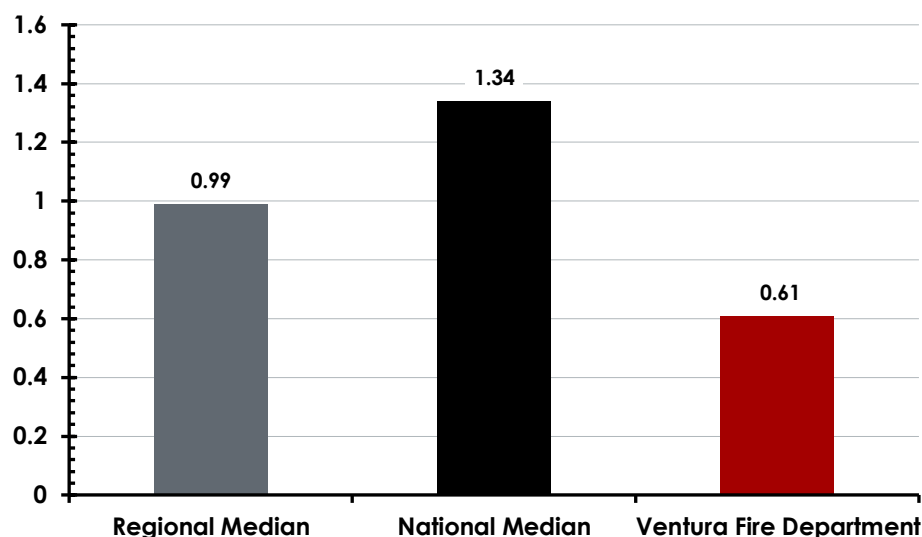
Figure 50: VFD Total Emergency Response Staffing

Position Title	Number of Positions	Hours Worked/Week	Work Schedule
Career Operational Staff (full-time)	<i>Individuals considered full-time employees, primarily assigned to provide emergency services at the operational level.</i>		
Battalion Chief	3	56	48/96
Captain ^A	22	56	48/96
Engineer ^A	22	56	48/96
FF/Paramedic ^A	25	56	48/96
Total Operational Staff FTEs^A	72	56	48/96
Total Department FTEs	85	–	–

^A 1 FTE is assigned to ME7 on a 40-hour workweek schedule.

The current Battalion Chief (3 FTEs) and Captain (22 FTEs) to firefighter (47 FTEs) ratio for full-time positions within VFD operations is 53%. It is important to note that the Assistant Chief of Operations controls daily operations and administrative tasks as well. This oversight falls back to the Battalion Chief after the Assistant Chief goes home for the day. Operational duties can detract from the Assistant Chief's ability to provide administrative support and vice versa.

A means of comparison, also used on a national basis, is measuring the number of firefighters on staff per 1,000 population of the service area. The following figure illustrates the current comparison of VFD's staffing with both national and regional (Western United States) norms.

Figure 51: Comparison of Firefighting Personnel per 1,000 Population

The 2016 National Fire Experience Survey indicates the national median rate of firefighters per 1,000 population is 1.34, and regionally, the number of firefighters per 1,000 population is .99. Within VFD, the rate of firefighters per 1,000 citizens is .61. These comparisons do not consider the area covered and are general comparisons by populations served. Large geographical areas with sparse populations often require a greater number of firefighters to achieve service levels. This comparison in and of itself does not indicate a necessary change in staffing, but it serves as a point of reference for analysis of current operational endeavors as compared to other jurisdictions of a similar population base.

VFD uses a three-platoon (shift) system working two consecutive 24-hour shifts, followed by 96 hours off duty. This schedule results in an average 56-hour workweek. Each shift is led by a Battalion Chief (3 total) that serves as the senior officer on the shift. These Battalion Chiefs answer directly to the Assistant Chief of Operations who is on a weekly 40-hour schedule and assumes an operational role as needed. These individuals are responsible for all aspects of the shift operations and serve as the Fire Chief's representative at significant incidents.

The Department operates with a Captain assigned to manage each fire station and who serves as the company officer on assigned apparatus. The Department also uses promoted apparatus Engineers who are responsible for all aspects of maintaining and operating fire apparatus. This position may be filled by a qualified Firefighter/Paramedic as required. When fully staffed, one officer, one engineer, and a firefighter staff each of the six fire station engines and four personnel assigned on Medic Truck 5 at Station 5. An additional engine company is assigned to Station 1 for peak load staffing on a 40-hour basis. This will be discussed separately from the full-time staffing of operational units needed for 24/7 coverage.

Due to daily vacancies created by scheduled and unscheduled leaves, acting officers and engineers typically fill in these vacancies. Daily minimum shift staffing is 23 personnel, and there is a total of 72 budgeted operations positions across the three shifts.

Operations Schedule Discussion

The 24-hour shift followed by at least 24 hours off duty remains the predominant schedule for fire departments in the Western United States. However, some departments, like VFD, have recently transitioned to a 48-hour on, 96-hour off shift schedule, citing research suggesting longer periods of off-duty time allows for full restoration of healthy sleep patterns. Reduced commuting trips is also frequently cited. One comparative analysis of the 24-hour and 48-hour schedule suggested the work/rest ratio was the same between the two schedules.¹⁷ The author noted the positive benefits of increased relaxation and family engagement afforded by the 96-hour off-duty time and suggested this results in a better rested and healthier employee. However, the author also cautioned employees might be at risk for excessive fatigue in the second half of the shift if their sleep was significantly disrupted during the first shift. The author noted:

Lastly, fire companies or truck units that have three or more calls per night, resulting in insufficient deep, restorative sleep for the brain to function effectively will be too sleep-deprived to be safe and effective in their second 24-hour on-duty day. In this latter case, the safety and performance risks created by the 48/96 schedule outweigh the family, social, and morale benefits of this schedule design.

¹⁷ Koen, S. "24/48 vs. 48/96 Work Schedules: A Comparative Analysis," Round the Clock Systems, 2005.

The EMS community has also been concerned for some time about the negative physical and mental effects of lengthy EMS shifts and the implications on safety. An *Interim Safety Advisory Committee* of the *National EMS Advisory Council* addressed the issue of fatigue in EMS workers in a report published in 2012.¹⁸ The review of the existing research literature and government work-hour regulations noted a profound lack of research specific to the EMS environment. It noted much more research—specific to the EMS environment—is needed to quantify and validate the issue of fatigue among EMS providers, along with identifying strategies to address the issue within the EMS environment. However, they clearly expressed their expert opinion that poor sleep and fatigue is a threat to the safety of EMS workers and their patients.

Furthermore, the federal government aggressively regulates and monitors commercial transportation workers, including commercial pilots, railroad workers, long-haul truck drivers, and ship workers. With regard to long-haul truck and passenger-carrying drivers, there are very restrictive rules in place to address potential driver fatigue. ESCI highlights these specific requirements because Firefighters, Firefighter/Paramedics, and EMS workers routinely drive emergency vehicles in all types of weather conditions—often for extended periods (long-distance interfacility transfers, for example). The following figure is a summary of the rules for truck drivers. This is presented to provide context on the level of the federal government's concern about driver fatigue.¹⁹

¹⁸ Safety Committee INTERIM Advisory (May 30, 2012). Fatigue in emergency medical services. The National EMS Advisory Council.

¹⁹ 349 Code of Federal Register 395.1–5.

Figure 52: Commercial Driver Work Rules

Property Carrying Drivers	Passenger Carrying Drivers
11-Hour Driving Limit May drive a maximum of 11 hours after 10 consecutive hours off-duty.	10-Hour Driving Limit May drive a maximum of 10 hours after 8 consecutive hours off-duty.
14-Hour Limit May not drive beyond the 14th consecutive hour after coming on duty, following 10 consecutive hours off-duty. Off-duty time does not extend the 14-hour period.	15-Hour Limit May not drive after having been on duty for 15 hours, following 8 consecutive hours off-duty. Off-duty time is not included in the 15-hour period.
Rest Breaks May drive only if 8 hours or less have passed since the end of the driver's last off-duty or sleeper berth period of at least 30 minutes.	60/70-Hour Limit May not drive after 60/70 hours on duty in 7/8 consecutive days.

As noted in the preceding figure, the focus is not only on the length of the work periods but also *the length of the off duty/rest periods*.

ESCI noted that VFD allows employees to work up to 120 consecutive hours (5 24-hour shifts) before mandating time off. Given the current VFD incident workload, the Department should closely monitor the fatigue of crews and consider reducing the number of consecutive hours worked threshold to 72 or 96 hours.

Staff Allocation of Various Functions

VFD allocates its career staff to six fire stations. These stations are located based on the specific geographic requirements and service level needs of the area. The staff for each fire station receives calls for service and responds in the appropriate apparatus. Some of the fire stations are also equipped with a ladder truck, water tender, and/or brush engine apparatus in addition to an engine. Fire Station 5 contains a cross-staffed Urban Search and Rescue response unit and Fire Station 6 contains a cross-staffed Hazardous Materials Response Unit. If required to respond in any of these apparatuses, staff must move from their current apparatus assignment and relocate to the required or requested apparatus. The Battalion Chiefs perform necessary command and control during incidents and manage the administrative duties for the shift. This staffing allocation across the stations and units is a typical staffing model across the United States for career organizations.

Medic Engine 7 Staffing

The VFD has deployed an additional engine company with a minimum staffing of three firefighters during peak call load hours between 8 a.m. and 6 p.m., Monday through Thursday and every other Friday. This unit is primarily responsible for backfilling for engine crews committed to shift training activities, and also adds capacity during peak call load times. The unit also helps to reduce response times and increase the ability to handle concurrent calls for service as well as provide additional firefighters when assembling the ERF for fire-related calls in accordance with NFPA 1710. This additional response unit uses dedicated staff working an alternative schedule that equates to an average of 45 hours a week in 10-hour shifts.

Staff Scheduling Methodology

VFD utilizes a traditional three platoon system operating on a 24-hour shift rotation per position (except for those assigned to ME-7). The total number of positions allocated to the Department is ultimately a policy decision made by City leaders. With that said, maintaining a minimum staffing level 24 hours a day, seven days a week, requires personnel be available to backfill for scheduled and unscheduled leaves to maintain this staffing level. Providing this backfill is typically done by hiring off-duty personnel back on overtime or scheduling additional personnel on a shift to provide the necessary relief coverage. Determining the theoretical number of employees necessary to provide adequate relief coverage is often described as a "relief factor." Minimum staffing for VFD is one Battalion Chief, three Firefighters per engine company, and four Firefighters per truck company.

The staffing methodology used by VFD is very common across the United States for firefighters working on a 24-hour period and proves effective for agencies with moderate workloads. Large agencies with heavy workloads have implemented different staffing models to avoid employee fatigue, including working split shifts (10 and 14-hour shifts for example). However, the 24-hour work period reduces the number of crew changes that occur in each period, the total number of overall staff required, and reduces the overall cost of benefits associated with the additional FTEs required to work a split shift schedule.

A common industry practice to achieve optimal staffing and efficiency is to determine the appropriate minimum staffing needed per day, identify the amount of historical leave usage, and calculate the relief factor that can then be used to determine the theoretical number of employees needed on each shift to meet minimum staffing requirements.

Minimum Staffing Factor Determination

The following schedule components and leave usage history were used to determine the theoretical minimum number of personnel needed to fill the minimum 23 daily staffing positions for fire operations separate from the peak-load fire engine model to avoid overtime for unscheduled hours.

Minimum Staffing

- 365 days per year x 24 hours per day = 8,760 hours per year per position.
- 8,760 hours per year x 23 minimum positions daily = 201,480 hours per year that must be staffed for 24/7 coverage.
- 56-hour work week equals 2,912 scheduled hours per position annually: $201,480 / 2,912 = 69.2$ (69) FTE positions for minimum staffing.
- VFD currently has 72 FTEs budgeted for fire suppression staffing.

Fifty-Six-Hour Relief Factor

The next staffing factor to be analyzed is the “relief factor” or the amount of additional FTE positions needed to reasonably cover “off time” including, leave, training, vacancies, etc. The following is an industry-accepted methodology used to determine a relief factor to adequately cover paid leave, training time off, and vacancies for 24-hour fire department shifts. Determining the relief factor is outlined in the following:

- The average VFD FY 2016–19 firefighter paid leave, time off for training, unscheduled time off, and position vacancies is 27,072 hours annually.
- 27,072 hours = 1,128 days/shifts that need to be filled to account for leave or vacancies annually.
- 1,128 days/shifts divided by the 56-hour workweek employee minimum staff count of 69 = an average of 16 days/shifts of leave per employee (FTE) per year.
- Subtract the average 16 days/shifts of leave from the 121 scheduled shifts for a 56-hour workweek employee = 105 on-duty shifts annually per FTE.
- Divide 56-hour workweek 121 scheduled shifts by the 105 on-duty shifts = a relief factor of 1.16 or 11 FTE positions over current minimum 24-hour a day staffing levels will cover the average utilized leave.

Current Staffing vs. Current Budgeted FTEs for VFD

Using the staffing relief factor as calculated above, VFD theoretically needs 80 budgeted, uniformed FTE personnel to achieve the 1.16 relief factor and currently has 72 budgeted, uniformed FTE available. Therefore, VFD has a shortfall of 8 budgeted FTEs based on average annual leave and vacancy usage to cover operational staffing during the last three years. As a result, almost all Operations Division leave vacancies are filled with existing employees on overtime.

These numbers do not consider the physical operations aspect of assigning staff where most needed, nor does it consider staffing for the 40-hour peak load engine company. These operational decisions may change based on staffing needs throughout the year and staff may need to be adjusted or moved amongst the shifts to accommodate, as leave usage is typically not equally used across the shifts, and the total number of theoretical personnel needed may not divide equally across the shifts.

It is important to annually review leave usage and recalculate the relief factor to determine if the actual time being used by employees is being covered by budgeted FTEs. Discrepancies will often manifest in significant use of overtime coverage.

Lastly, ESCI examined the Department's attrition over the past five years. Employees leave their employer for various reasons, retirement, termination, layoff, personal reasons, or employment with another agency. The following table summarizes VFD's attrition over the past five years.

Figure 53: VFD Attrition, 2015–2020 YTD

Reason for Leaving Employment	Number of Employees
Failed Probation	3
Resigned for employment at Ventura County Fire	3
Resigned for employment with another fire agency	1
Resigned for employment in private sector	1
Resigned for unknown employment	3
Resigned for personal reasons	3
Disability retirement	3
Service retirement	7
Resigned for unknown reason	1
Total	25

Diversity

ESCI understands that VFD has been recently struggling with attracting, hiring, and retaining minorities, especially women. Anecdotal information shared by the Department indicates that targeted recruitment efforts towards women have had limited success, and those women who were offered positions went through most, if not all, of the onboarding process and then declined the position to take a position at another department. VFD leadership feels they cannot compete with other larger departments that offer a wider range of jobs, more promotional opportunities, and better pay and benefits packages.

As of October 2020, out of 85 total employees, there were 65 White employees (76%), 19 Hispanics (22%), and one Asian employee. There were four female employees, but all are in civilian administration positions.

VFD and the City's Human Resources Department exert considerable effort in trying to attract minority candidates. These efforts include partnering with the California Firefighter Joint Apprenticeship Committee (CAL-JAC), and the Firefighter Candidate Testing Center (FCTC) to ensure that the candidate testing process is fair, without bias, and does not unintentionally discriminate against women and minorities. The FCTC is also the active recruiting arm of the CAL-JAC, and VFD partners with them in local and regional career fairs targeting women and minority groups.

The CAL-JAC also hosts the Commission to Recruit Women for the Fire Service, whose members are comprised of active and retired high-ranking female firefighters. The mission of the Commission is to promote and educate young student women, college-aged women, and transitioning military women about the benefits and opportunities of a fire service career.

Attrition & Diversity Discussion

Selecting, hiring, equipping, and training new firefighters is time-consuming and expensive. Fire service organizations, including VFD, spend considerable time and resources in trying to ensure new employees are successful and enjoy long-term careers. However, as shown in the preceding figure, employees leave for various reasons. ESCI noted that the largest segment of VFD attrition was due to service and disability retirements (40%).

The length of time necessary to select, hire, and train employees is another significant factor that needs to be recognized. It takes time to perform all of the necessary steps, processes, and to deliver the required education to ensure an employee is prepared and trained to deploy on an operations assignment safely. Depending on the number of current operations employees available at any given time, the Department may have to backfill the vacancy with a current employee working on overtime until the new employee completes their training and can fill the vacancy. This can take months, and result in significant expenses beyond the typical expenses of hiring, equipping, and training the new employee.

A research paper written as part of the curriculum of the Naval Post Graduate School examined the cultural impacts related to generational differences in today's employees. The paper, published in December 2017, titled *Millennials in the Fire Service: The Effectiveness of Fire Service Recruiting, Testing, and Retention*, used a scientific survey to identify reasons why fire departments across the country are not able to attract suitable candidates or keep employees.

The paper's author, Bullhead City, Arizona Assistant Fire Chief Scott Neal, reached the following conclusions:

...the fire service—within the defined scope of the survey—is not attracting the number and quality of applicants that it did 20 years ago. Second, the generational traits of millennials do not fully align with the traditional business model of the modern fire service. Parents direct their children toward the college education many of them did not get themselves. This is a competing interest with trade-based professions like the fire service.

The five forces of influence that shaped millennials during their childhood are rendering recruitment methods ineffective in maintaining a stable workforce.

Finally, the fire service testing process does not necessarily identify the most-desired traits in a candidate. The traditional written exam, physical agility test, and oral board schematic have remained unchanged for decades.

Using a systematic evaluation process—like that found in continuous quality improvement—is an important step in making fundamental changes to fire service testing.

These impediments may be a factor in recruiting qualified VFD candidates and retaining them in the long-term. Requiring a current paramedic certification may be another recruiting impediment. While it is outside the scope of this study to delve deeper into this issue, given the Department's recent experience, attention should be given to performing an introspective analysis of the current hiring requirements, practices, training methods (and methodologies), organizational support, and employee motivational factors.

Lastly, recruitment and retention of minority populations in the nation's fire service have been a long-standing issue. Nationally, minorities make up only 14.3% of the firefighter population, and women make up only 4.9%.²⁰ VFD and the City's use of the FCTC's candidate testing service helps ensure an unbiased, inclusive, and valid testing process.

40-Hour Staffing of Medic Engine 7

The staffing needed to cover the operation of ME-7 is in addition to the daily staffing of the six fire stations previously described. This staffing requires a Captain, Engineer, and a Firefighter/Paramedic from 0800 hours to 1800 hours, Monday through Thursday and every other Friday. Employees assigned to this unit work an alternative schedule separate from the rest of the Department and includes the use of overtime to keep the unit in service when unscheduled ME-7 leave occurs. An optimal method would be to convert this apparatus to the same schedule as the rest of the Department to realize the benefit of the overall number of FTEs for the relief factor described.

Deployment Methods and Staffing Performance for Incidents

Typical fire department responses across the nation include structure fires, vehicle fires, wildland fires, vehicle accidents, hazardous materials responses, technical rescue responses, general calls for service, and emergency medical incidents. As noted elsewhere in this report, EMS incidents comprise the majority of VFD responses.

The current daily operational staffing is roughly 26 employees per shift, which reduces to 23 when the peak load engine company goes home for the day as well as every other Friday when it is not in service.

²⁰ Firefighters, DataUSA, <https://datausa.io/profile/soc/332011/>.

VFD's current minimum daily staffing is set at a level that can theoretically deploy enough resources to effectively mitigate small to moderate size incidents, augmented by the automatic aid response from outside fire departments. Because VFD uses a minimum staffing of three per engine company, there are times when the on-scene staff is not sufficient to begin interior firefighting operations in accordance with NFPA and OSHA. These standards require a "two-in/two-out" rule for firefighter numbers prior to entering an immediately dangerous to life and health atmosphere (IDLH). The periods when a fire station is unable to respond to emergency calls within its assigned area is an issue of response reliability and is covered in detail later in this report.

Staff Survey

Given the community growth history and related concerns about the impacts of this growth on VFD operations, ESCI solicited feedback on various topics related to Department administrative support, emergency operations, and culture. To ensure that all members had an opportunity to share their observations and opinions, a confidential online 15-question survey was created and sent to all department members, including civilian employees. Another eight-question survey was created and sent to administrative-assigned personnel only. These surveys asked members to rate the degree to which they agreed or disagreed with various statements related to department administrative support, operations, training, supervision, and response readiness. The survey results are listed in Appendix A. The following is a summary of the most significant findings of the operations survey.

Sixty members completed the operations survey, which represents approximately 69% of the total department membership, and 100% of the administrative personnel completed the administration survey.

Operations Survey Results

The majority of the respondents (55%) had six years or more experience with VFD, and the next highest group (35%) had between one and five years of experience. The rank distribution was evenly split between the Captains, Engineers, and Firefighter/Paramedics. Five Chief officers completed this survey as well.

The adequacy of fire suppression training was affirmed by 56% of the respondents, but 42% had either no opinion or disagreed that training was adequate. Slightly over 50% felt that the Department provides excellent fire suppression equipment or specialize response equipment. A significant percentage of respondents (60%) felt that fire training resources and facilities were inadequate.

Similarly, a larger percentage of respondents (63%) felt that the fire stations are inadequate yet well maintained for their current mission, and only 15 respondents felt that the stations were adequate. Eighty-five percent at least somewhat agreed that Department officers and culture place a high priority on safety.

EMS training was rated fairly high as well, with approximately 86% of the respondents at least somewhat agreeing with the statement. The adequacy of EMS equipment was rated somewhat lower, with 79% at least somewhat agreeing with the statement, and 19% were either neutral or disagreed.

Familiarity with target hazards was ranked moderately high, with over 69% at least somewhat agreeing with the statement, but 30% either had no opinion or disagreed they were familiar. Eighty-five percent of the survey respondents felt that the Incident Command System (ICS) was appropriately used on emergency scenes.

Lastly, members were asked if adding more operational resources, including an additional engine company, would allow them to better support fire prevention and community risk reduction efforts. Seventy-five percent of the survey respondents agreed with the statement. However, due to an error in configuring the survey question, ten comments were noted as “other” responses. All of these comments were supportive of adding operations resources, but some felt that the additional resource would not be enough to significantly contribute to pro-active community risk reduction efforts.

Administration Survey Results

Twelve administrative-assigned employees completed the survey. However, only 11 provided answers to all the statements. Eighty-three percent of the respondents felt they have the administrative tools necessary to perform their jobs, and 75% feel that they can complete their work within assigned timelines. However, completion of fire inspections within established timeframes appears to be an issue, with approximately 50% of respondents feeling that they meet mandated timelines, and 36% feeling that they cannot meet the timelines. Even more specifically, 27% of respondents strongly disagreed that the Department has enough resources and expertise to perform new construction/development/fire protection system plan reviews.

Positive working relationships with other City departments were affirmed by only 50% of the respondents. However, three respondents had no opinion. Ten out of the 12 respondents (83%) felt there is a strong teamwork culture and open communication channels within the administration, and 90% felt that the Department is positively viewed by local construction and developer organizations.

Approximately one-half of the respondents felt that the current Records Management System (RMS) used for fire prevention activities is adequate, and 35% at least disagreed with the statement.

Survey Discussion

Operations staff clearly feel that the Department has a strong safety culture and deploys the Incident Command System appropriately during emergencies. However, they also feel that they do not have adequate station or training facilities. Approximately one-half of the survey respondents feel the fire suppression equipment is substandard. The adequacy of EMS equipment and training was clearly supported in the survey results. Not surprisingly, most respondents feel that additional operations resources are needed to fulfill their mission. However, opinions were mixed on whether these resources would help bolster community risk reduction efforts.

Administrative staff clearly feel supported as a team, and have adequate administrative tools to function well. However, specific fire prevention resources and systems appear to lack in quantity and expertise to meet Department or outside imposed mandates.

CAPITAL FACILITIES & APPARATUS

Many industry experts agree that three basic resources are required to successfully carry out the mission of a fire department: trained personnel, reliable firefighting equipment, and strategically placed and appropriately sized fire stations. No matter how competent or numerous the firefighters, if appropriate capital equipment is not available for use by responders, it would be impossible for VFD to deliver services effectively. The most essential capital assets for use in emergency operations are facilities and apparatus (response vehicles). Of course, the fire department's available financial resources will determine the level of capital equipment it can acquire and make available for use by emergency personnel. This section of the report assesses the respective capital facilities, vehicles, and apparatus of the VFD.

Fire Stations & Other Facilities

Fire stations play an integral role in the delivery of emergency services for several reasons. To a large degree, a station's location dictates response times to emergencies. A poorly-located station can mean the difference between confining a fire to a single room, and losing the entire structure. Fire stations must also be designed to adequately house equipment and apparatus, as well as to meet the needs of the organization and its personnel. It is important to research needs based on service demand, response times, types of emergencies, and projected growth prior to making a commitment to establish a fire station.

Consideration should be given to a fire station's ability to support the Department's mission as it exists today and into the future. The activities that take place within a fire station should be closely examined to ensure the structure is adequate in both size and function. Examples of these functions and characteristics may include the following:

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

In gathering information from the VFD leadership team, ESCI asked them to rate the condition of each of their fire stations using the criteria in the following figure.

Figure 54: Criteria Utilized to Determine Fire Station Condition

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

ESCI virtually toured each of the stations operated by VFD and, combined with the information provided, produced the observations listed in the following figures.

Figure 55: VFD Fire Station 1

Address/Physical Location:	717 N. Ventura Avenue, Ventura, CA 93001
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**General Description:**

Two bay station. The kitchen was remodeled 2 years ago. Secure vehicle parking lot. Storage and distribution point for EMS supplies.

Structure

Construction Type	Type III			
Date of Construction	1980			
Seismic Protection	Unknown			
Auxiliary Power	Yes			
General Condition	Good			
Number of Apparatus Bays	2	Drive-through bays	0	Back-in bays
Special Considerations (ADA, etc.)	Some			
Square Footage	5,351			

Facilities Available

Separate Rooms/Dormitory/Other	4	Bedrooms	8	Beds	0	Dorm Beds
Maximum Station Staffing	4					
Exercise/Workout Facilities	In apparatus bay					
Kitchen Facilities	Yes					
Individual Lockers/Storage	Yes					
Shower Facilities	Yes					
Training/Meeting Rooms	None					
Washer/Dryer	Yes					

Safety & Security

Sprinklers	No
Smoke Detection	Yes
Decon./Biohazard Disposal	No
Security	Yes
Apparatus Exhaust System	Yes

Figure 56: VFD Fire Station 2**Address/Physical Location:**

41 S. Seaward Avenue, Ventura, CA 93001

**General Description:**

Small, two-bay station, with a separate adjacent remodeled house and garage for the Operations Battalion Chief. The house also has a 12-seat training room. Also houses swim rescue equipment.

Structure

Construction Type	Type III			
Date of Construction	1952			
Seismic Protection	Unknown			
Auxiliary Power	Yes			
General Condition	Fair			
Number of Apparatus Bays	0	Drive-through bays	2	Back-in bays
Special Considerations (ADA, etc.)	No			
Square Footage	2,709			

Facilities Available

Separate Rooms/Dormitory/Other	4	Bedrooms	0	Beds	6	Dorm Beds
Maximum Station Staffing	3					
Exercise/Workout Facilities	In apparatus bay					
Kitchen Facilities	Yes					
Individual Lockers/Storage	Yes					
Shower Facilities	Yes					
Training/Meeting Rooms	No					
Washer/Dryer	No					

Safety & Security

Sprinklers	No
Smoke Detection	No
Decon./Biohazard Disposal	No
Security	No
Apparatus Exhaust System	Yes

Figure 57: VFD Fire Station 3

Address/Physical Location:	5838 Telegraph Road, Ventura, CA 93003
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**General Description:**

Houses engine company and reserve engine.
The layout is similar to Station 2.

Structure

Construction Type	Type III			
Date of Construction	1958			
Seismic Protection	Yes			
Auxiliary Power	No			
General Condition	Fair			
Number of Apparatus Bays	0	Drive-through bays	1	Back-in bays
Special Considerations (ADA, etc.)	No			
Square Footage	3,087			

Facilities Available

Separate Rooms/Dormitory/Other	4	Bedrooms	0	Beds	6	Dorm Beds
Maximum Station Staffing	3					
Exercise/Workout Facilities	In apparatus bay					
Kitchen Facilities	Yes					
Individual Lockers/Storage	Yes					
Shower Facilities	Yes					
Training/Meeting Rooms	No					
Washer/Dryer	Yes					

Safety & Security

Sprinklers	No
Smoke Detection	Yes
Decon./Biohazard Disposal	Yes
Security	No
Apparatus Exhaust System	Yes

Figure 58: VFD Fire Station 4

Address/Physical Location:	8303 Telephone Road, Ventura, CA 93004
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**General Description:**

Small, two-bay station housing one engine company. Located in a primarily residential area. Commercial washer/extractor and serves and secondary turnout gear cleaning station.

Structure

Construction Type	Type III		
Date of Construction	1965		
Seismic Protection	Yes		
Auxiliary Power	Yes		
General Condition	Fair		
Number of Apparatus Bays	0	Drive-through bays	2 Back-in bays
Special Considerations (ADA, etc.)	No		
Square Footage	3,097		

Facilities Available

Separate Rooms/Dormitory/Other	4	Bedrooms	0	Beds	6	Dorm Beds
Maximum Station Staffing	3					
Exercise/Workout Facilities	In apparatus bay					
Kitchen Facilities	Yes					
Individual Lockers/Storage	Yes					
Shower Facilities	Yes					
Training/Meeting Rooms	None					
Washer/Dryer	Yes					

Safety & Security

Sprinklers	No
Smoke Detection	No
Decon./Biohazard Disposal	Yes
Security	No
Apparatus Exhaust System	Yes

Figure 59: VFD Fire Station 5

Address/Physical Location: 4225 E. Main Street, Ventura, CA 93003

**General Description:**

Houses ladder company and engine company. SCBA filling and repair station. Recently installed cascade O₂ filling system.

Structure

Construction Type	Type III			
Date of Construction	1977			
Seismic Protection	No			
Auxiliary Power	Yes			
General Condition	Poor – Constant plumbing issues			
Number of Apparatus Bays	1	Drive-through bays	1	Back-in bays
Special Considerations (ADA, etc.)	No			
Square Footage	6,312 – 3-story			

Facilities Available

Separate Rooms/Dormitory/Other	7	Bedrooms	0	Beds	9	Dorm Beds
Maximum Station Staffing	7					
Exercise/Workout Facilities	In apparatus bay					
Kitchen Facilities	Yes					
Individual Lockers/Storage	Yes					
Shower Facilities	Yes					
Training/Meeting Rooms	No					
Washer/Dryer	Yes					

Safety & Security

Sprinklers	No
Smoke Detection	Yes
Decon./Biohazard Disposal	No
Security	No
Apparatus Exhaust System	Yes

Figure 60: VFD Fire Station 6

Address/Physical Location:	10797 Darling Road, Ventura, CA 93004
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**General Description:**

Houses engine company Haz Mat unit and reserve ladder truck. Serves as the Department's primary equipment maintenance and turnout gear cleaning facility.

Structure

Construction Type	Type III			
Date of Construction	1988			
Seismic Protection	Yes			
Auxiliary Power	Yes			
General Condition	Good			
Number of Apparatus Bays	2	Drive-through bays	1	Back-in bays
Special Considerations (ADA, etc.)	Yes			
Square Footage	6,100			

Facilities Available

Separate Rooms/Dormitory/Other	4	Bedrooms	0	Beds	6	Dorm Beds
Maximum Station Staffing Capability	4					
Exercise/Workout Facilities	In apparatus bay					
Kitchen Facilities	Yes					
Individual Lockers/Storage	Yes					
Shower Facilities	Yes					
Training/Meeting Rooms	No					
Washer/Dryer	Yes					

Safety & Security

Sprinklers	Yes
Smoke Detection	Yes
Decon./Biohazard Disposal	No
Security	Yes
Apparatus Exhaust System	Yes

Figure 61: VFD Administrative Headquarters

Address/Physical Location:	1425 Dowell Drive, Ventura, CA 93003
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**General Description:**

The building is a combined police/fire administration headquarters. VFD is assigned to approximately 20% of the building space, with the remainder assigned to the Police Department. The Fire Prevention staff is also assigned to this facility.

Structure

Construction Type	Type III
Date of Construction	1982
Seismic Protection	No
Auxiliary Power	Yes
General Condition	Fair
Number of Apparatus Bays	None
Special Considerations (ADA, etc.)	Yes
Square Footage	<i>Not reported</i>

Facilities Available

Separate Rooms/Dormitory/Other	Not applicable
Administrative Staffing	Fire Administration, Training, Fire Prevention, and EMS Administration personnel
Exercise/Workout Facilities	Yes
Kitchen Facilities	Yes
Individual Lockers/Storage	No
Shower Facilities	Yes
Training/Meeting Rooms	Yes
Washer/Dryer	No

Safety & Security

Sprinklers	Yes
Smoke Detection	Yes
Security	Yes

Summary of the Fire Stations

The following figure lists some of the basic features of each Ventura Fire Station.

Figure 62: Summary of the Basic Features of VFD's Fire Stations (2020)

VFD Station	Age	Rated Condition	Number of Apparatus ^A	No. of Apparatus Bays	Minimum Staffing
Fire Station 1	40 years	Good	3 frontline	2 drive-through	3
Fire Station 2	70 years	Fair	2 frontline	2 back-in	4
Fire Station 3	62 years	Fair	1 frontline	1 back-in	3
Fire Station 4	55 years	Fair	2 frontline	1 back-in	3
Fire Station 5	43 years	Poor	2 frontline	1 of each	7
Fire Station 6	32 years	Good	1 frontline	2 drive-through	3

^ASome apparatus are cross-staffed. Some stations house reserve apparatus.

As shown in the preceding figure, VFD's fire stations range in age from 32–70 years, with a combined average of 50 years. Two of the six fire stations were considered to be in "Good" condition, three in "Fair" condition, and one in "Poor" condition. The combined fire stations house approximately 11 frontline apparatus within nine bays. ESCI noted the exercise and workout equipment at every station is also located in an apparatus bay which creates an increased exposure for firefighters to the toxic products of combustion.

Fire Stations & Facilities Discussion

Due to the COVID-19 pandemic, ESCI was unable to personally tour each facility. However, a real-time video tour of each facility was hosted by the VFD Training Battalion Chief using the FaceTime® video application. This information, linked with the submitted survey table information, led to the following observations.

All six stations have Plymovent® vehicle exhaust systems installed. Four of the six stations do not have decontamination and biohazard disposal capabilities—an important feature to have as the majority of VFD's calls involve contact with emergency medical patients. None of the stations have separate interior exercise rooms, and most exercise equipment is located in crowded apparatus bays.

Stations 1 and 3 have non-fire-rated large single pane windows between the living quarters and the apparatus floor.

Four of the six stations were reported to lack a security system, with two not having smoke detection. Of all the stations, Fire Station 6 is the only one with a sprinkler system. According to the information provided to ESCI, Stations 1, 2, and 5 either do not have seismic protection, or it was unknown whether the station has seismic protection.

ESCI noted that the configuration of four of the six stations requires apparatus back into the apparatus bays. This requires personnel to act as flaggers to stand in the middle of the traffic lanes to stop traffic, potentially exposing them to being struck by a vehicle.

All VFD fire stations are of a substantial age, and none should be considered in “Excellent” condition. However, all appear to be well-maintained. The City’s Public Works Department oversees fire station maintenance and minor upgrades. They also identified the following fire station capital improvement projects and cost estimates that are currently unfunded.

- Fire Station alerting system upgrade: \$650,000
- Fire Station 2 relocation: \$5.8 million
- Fire Station 5 improvements: \$1.6 million
- Fire pump testing station: \$390,000
- Fire Station 7 Design and construction: \$6.8 million

Total Estimated Unfunded Capital Improvement/Replacement cost: \$15.24 Million

While not a consensus standard, many in the industry consider that fire stations should be built to last about 50 years. However, the age of a fire station should not be the only consideration for replacement, upgrade, or remodeling. Many components and functions of the facility must be evaluated and considered—especially firefighter health and safety.

It must be noted that it is beyond the scope of this study to conduct a comprehensive structural assessment of VFD’s fire stations. However, in 2005, the City of Ventura retained a consulting firm to develop a “Fire Station Master Plan.”²¹ According to the report, Stations 2, 3, and 4 had been recently remodeled to upgrade station conditions and address gender accommodation issues. Although this study is about 15 years old, it was apparent to ESCI that much of the content is relevant today and should be addressed by City staff and the City Council.

²¹ Ventura Fire Department “Fire Station Master Plan;” Hughes, Perry, & Associates (2015).

Fire Apparatus & Vehicles Fleet Inventory

Fire suppression apparatus, special operations and support units, and some command vehicles are unique and expensive pieces of equipment customized to operate for a specific community and defined mission. Other than its firefighters, officers, and support staff, emergency apparatus and vehicles are the next most important resources in a fire department that have a direct impact on service delivery.

Apparatus must be in good condition, regularly maintained, and configured in a way that ensures reliable, safe, and effective deployment and operations at emergency incidents. As a result, most fire apparatus are very expensive to purchase and maintain and offer little flexibility in use and reassignment to other missions. The next figure lists VFD's current command units and staff vehicle inventory.

Figure 63: VFD Command & Staff Vehicles (2020)

Apparatus	Type	Manufacturer	Year	Condition	Assigned to:
Chief 1	Staff	Ford	2017	Good	Fire Chief
Asst. Chief	Staff	Ford	2020	Good	Assistant Chief
Training Chief	Staff	Ford	2019	Good	Training BC
Battalion 10	Command	Ford	2018	Good	Shift BC
Battalion 10R	Command	GMC	2007	Fair	Reserve

The following figure lists the frontline fleet inventory of VFD's engines and single truck.

Figure 64: VFD Frontline Engines & Truck Fleet (2020)

Apparatus	Type	Manufacturer	Year	Condition	Features
Engines					
Medic Engine 1	Engine	Seagrave	2007	Fair	1500 gpm/500 gal.
Medic Engine 2	Engine	Pierce	2014	Good	1500 gpm/500 gal.
Medic Engine 3	Engine	Seagrave	2007	Fair	1500 gpm/500 gal.
Medic Engine 4	Engine	Seagrave	2007	Fair	1500 gpm/500 gal.
Medic Engine 5	Engine	Pierce	2014	Good	1500 gpm/500 gal.
Medic Engine 6	Engine	Seagrave	2007	Fair	1500 gpm/500 gal.
Medic Engine 7	Engine	Seagrave	2000	Fair	1500 gpm/500 gal.
Trucks					
Medic Truck 5	Truck-Tiller	Pierce	2012	Good	100-ft. aerial

The preceding figure shows that VFD's engines ranged in age from 6–20 years, with an average age of 12 years. Of the seven engines, five were rated to be in “Fair” condition.

The next figure lists the inventory of the Department's reserve apparatus.

Figure 65: VFD Reserve Apparatus (2020)

Apparatus	Type	Manufacturer	Year	Condition	Features
Engines					
Medic Engine 102	Engine	Seagrave	1999	Fair	1500 gpm/500 gal.
Medic Engine 103	OES Engine	HME	2008	Fair	750 gpm/500 gal.
Medic Engine 106	Engine	Seagrave	2001	Fair	1500 gpm/500 gal.
Trucks					
Medic Truck 105	Truck-Tiller	Seagrave	1995	Poor	100-ft. aerial

The next figure lists the inventory of other VFD apparatus and specialty and support units.

Figure 66: Other VFD Apparatus & Support Units (2020)

Apparatus	Type	Manufacturer	Year	Condition	Features
Engine 601	Type 6	Ford	2019	Good	200 gal. pumper
Hazmat 6	Specialty	Pierce	2006	Good	Box on frame
US&R 5	Rescue	International	1992	Poor	Tractor & trailer
Tender 4	Tender	Westmark	1999	Fair	500 gpm/1800 gal.
Utility 5	Rescue	Ford	2019	Good	Ocean Rescue; 4x4
Utility 6	Truck	Ford	2016	Good	4x4
Utility 200	Truck	Ford	1999	Fair	Fire Cadet vehicle
Utility 2	Truck	Ford	2017	Good	Back-up command

ESCI understands that two replacement engines have been ordered and will be placed into service in 2020. They will replace the engines currently assigned to Stations 2 and 5. ME-7 will be placed into reserve status, and ME-102 will be decommissioned. MT-105 is scheduled for replacement in 2021.

Other Capital Fire Equipment

VFD has several other types of capital equipment and tools used for emergency response. Two of the most important—and expensive—tools are mobile/portable radio equipment and self-contained breathing apparatus (SCBA).

ESCI understands both tools are slated for replacement in the near future. Approximately 30 vehicle mobile radios and 150 handheld radios must be replaced to be compatible with regional and state frequency re-banding changes. Early cost estimates for replacement of the current radios, batteries, chargers, and installations are projected at \$1 Million.

VFD uses the MSA® FireHawk model SCBA. The units are over ten years old, and the manufacturer has announced they will no longer support the maintenance of the units or provide replacement parts by 2026, if not sooner. The estimated replacement cost for these units and related support equipment is currently estimated at over \$1.3 million.

Replacement of 15 iPad® tablet computers is also slated for 2020, at an estimated cost of \$10,500.

Capital Medical Equipment

Since EMS represents the highest service demand on the VFD, ESCI reviewed an inventory of its capital medical equipment. The following section describes some of the capital medical equipment maintained by the VFD.

Cardiac Monitor/Defibrillators

VFD utilizes 12 *Physio-Control LIFEPAK 15®* Monitor/Defibrillator for advanced life support procedures. These devices were purchased in 2014, and are scheduled for replacement beginning 2022 through 2023 at an approximate cost of \$25,000 each.

Chest Compression System

The Department has applied for an *Assistance to Firefighters Grant* (AFG) to purchase 12 LUCAS® Chest Compression Systems, at a total cost of approximately \$240,000.

These devices perform automated chest compression to cardiac arrest victims, consistent with national standards. The device eliminates the need for a firefighter (or other EMS personnel) to perform manual chest compressions, which can be ergonomically and physically taxing, resulting in sub-optimal CPR.

Video Laryngoscopy Device

In 2019, VFD purchased 12 *Airtraq®* video laryngoscopy systems at the cost of \$9,900. This reusable device uses a remote camera to assist in placing an endotracheal (ET) tube into the trachea of patients requiring advanced airway support—especially in cases where proper tube placement may be difficult due to unusual airway anatomy or trauma.

ESCI believes the purchase of the chest compression systems and video laryngoscopes are consistent with contemporary pre-hospital care modalities and have the potential to improve outcomes in certain high-acuity patients.

Other planned minor capital EMS equipment purchases over the next two to three years includes oxygen cylinders, oxygen refilling stations, EMS equipment bags, and suction units, at a total estimated cost of \$70,000.

Capital Improvement Planning

The City of Ventura and the VFD do not have a Capital Improvement Plan (CIP) for any of its facilities. The Department maintains a capital equipment replacement plan, with identified equipment replacement dates and funding mechanisms in place.

Future Apparatus Serviceability

Identifying and tracking the reliability and costs for maintaining expensive emergency apparatus are important aspects in ensuring prudent financial planning and emergency services delivery. Apparatus service-lives can be readily predicted based on factors including vehicle type, call volume, age, maintenance downtime, and maintenance costs.

As a general guideline, NFPA 1901: *Standard for Automotive Fire Apparatus* recommends placing fire apparatus 15 years of age or older into reserve status, and replacing apparatus 25 years or older.²² This standard identifies the following objective criteria in evaluating fire apparatus lifespan:

- Vehicle road mileage.
- Engine operating hours.
- The quality of the preventative maintenance program.
- The quality of the driver-training program.
- Whether the fire apparatus was used within its design parameters.
- Whether the fire apparatus was manufactured on a custom or commercial chassis.
- The quality of workmanship by the original manufacturer.
- The quality of the components used in the manufacturing process.
- The availability of replacement parts.

The average age of the frontline and reserve VFD's engines is 12 years. The aerial ladder truck is approximately eight years old.

²² NFPA 1901: Standard for Automotive Fire Apparatus; Section D.3.

Apparatus Replacement Planning

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

VFD has an apparatus replacement plan that established a 20-year life-expectancy for its engines, and 25-year life-expectancy for its aerial ladder truck. The reserve apparatus replacement plan is currently being reassessed due to greater mileage and wear and tear on its frontline apparatus.

The following figure provides an estimate of replacement costs and replacement years for each of VFD's frontline engines and aerial ladder truck. In this figure, ESCI utilized a 15-year life expectancy for frontline engines and 20 years for the truck (in contrast to VFD's current plan of 20 and 25 years). As mentioned previously, NFPA 1901 recommends that fire apparatus 15 years of age or older be placed into reserve and replaced after another 10 years of use.

Figure 67: Estimated VFD Frontline Apparatus Replacement Costs & Dates (2020)

Apparatus	Estimated Replacement Cost ^A	Annual Cash Requirements	Life Expectancy	Replacement Year
Engine 1	\$681,408	\$45,427	15 years	2022
Engine 2	\$896,686	\$59,779	15 years	2029
Engine 3	\$681,408	\$45,427	15 years	2022
Engine 4	\$681,408	\$45,427	15 years	2022
Engine 5	\$896,686	\$59,779	15 years	2029
Engine 6	\$681,408	\$45,427	15 years	2022
Engine 7	\$630,000	N/A	15 years	Overdue
Truck 5	\$1,921,239	\$96,062	20 years	2032
Totals:	\$7,070,244	\$397,329		

^AUsing a 4% rate of inflation.

The amounts contained in the preceding figure are rough estimates only and are intended to provide a context for the approximate potential costs and life expectancies of apparatus. Replacement costs could be higher or lower, depending upon the configurations of each apparatus and the actual date of replacement.

Fleet Maintenance

Those responsible for managing and maintaining a fleet of fire apparatus should be concerned about aging apparatus and vehicles and ensure that a funded replacement schedule is in place. As frontline units age, fleet costs and downtime for repairs will naturally increase.

In Ventura, the City's *Public Works Fleet Division* is responsible for the acquisition, maintenance, and repair of fire apparatus and other public safety vehicles, and received recognition as being the "Number 1 Fleet in the Nation" by *Government Fleet Magazine* (June 2015). Six mechanics perform fire apparatus maintenance and repairs, and all have attended fire apparatus specialty training, including pump repairs. However, firefighters expressed significant concerns about the age, maintenance, and reliability of the fire apparatus as indicated in the staff survey results summarized in Appendix A. Several comments indicated that fleet repairs are not routinely done, not done properly, or are being deferred. According to the Public Works Department, recent management changes in the Fleet Division should improve the responsiveness and quality of repairs performed.

The following figure is one example that can be used for determining the condition of fire apparatus and vehicles.

Figure 68: Example Criteria & Method for Determining Apparatus Replacement

Components	Points Assignment Criteria	
Age:	One point for every year of chronological age, based on in-service date.	
Miles/Hours:	One point for every 10,000 miles or 1,000 hours	
Service:	1, 3, or 5 points are assigned based on service-type received (for instance, a pumper would be given a 5 since it is classified as severe duty service).	
Condition:	Takes into consideration body condition, rust interior condition, accident history, anticipated repairs, etc. The better the condition, the lower the assignment of points.	
Reliability:	Points are assigned as 1, 3, or 5, depending on the frequency a vehicle is in for repair. For example, a 5 would be assigned to a vehicle in the shop 2 or more times per month on average, while a 1 is assigned to a vehicle in the shop on average of once every three months or less.	
Point Ranges	Condition Rating	Condition Description
Under 18 points	Condition I	Excellent
18–22 points	Condition II	Good
23–27 points	Condition III	Consider Replacement
28 points or higher	Condition IV	Immediate Replacement

Economic Theory of Apparatus Replacement

The *Economic Theory of Vehicle Replacement* is another conceptual model used to determine when a vehicle should be replaced. The theory states that, as a vehicle ages, the cost of capital diminishes and its operating cost increases. The combination of these two costs produces a total cost curve. The model suggests the optimal time to replace any piece of apparatus is when the operating cost begins to exceed the capital costs. This optimal time may not be a fixed point, but rather a time range.

Shortening the replacement cycle time window can result in optimal savings to the fire department. If an agency does not routinely replace equipment in a timely manner, the overall reduction in replacement spending can result in accelerated maintenance and repair expenditures. Fire officials, who assume that deferring replacement purchases is a good tactic for balancing the budget, need to understand two possible outcomes that may occur because of that decision:

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

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

SERVICE DELIVERY & PERFORMANCE

The following section provides various analyses of the VFD historical service demand for the previous four calendar years (2016–2019). This includes a breakdown by National Fire Incident Reporting System (NFIRS) incident type category along with incident density maps generated through GIS analysis. Unless specifically noted, calls canceled while en route and those in which no incident was found on arrival were excluded from most of the service demand analyses.

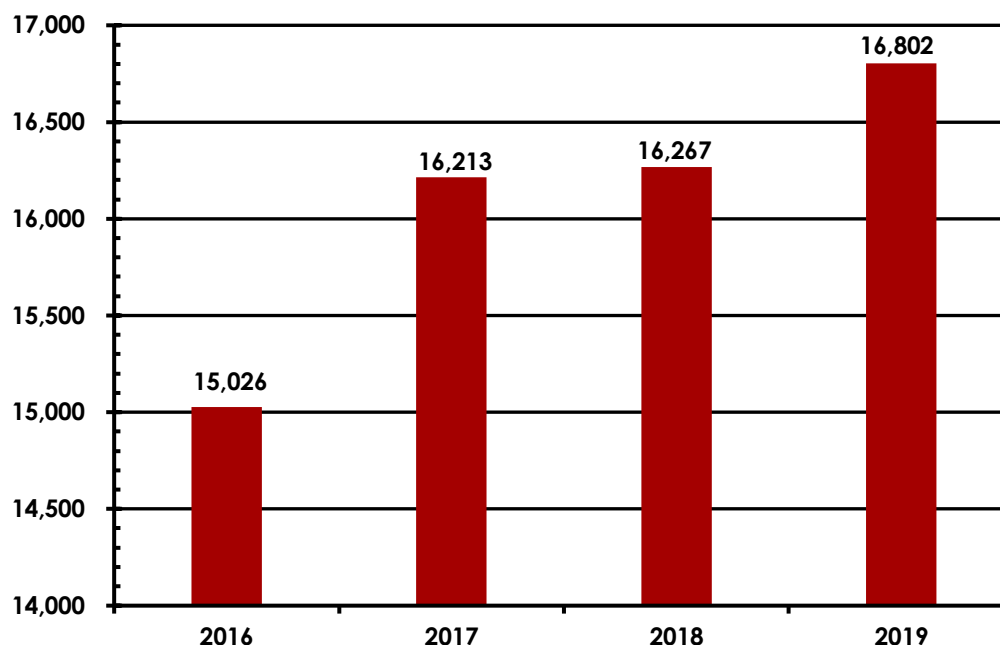
Data Source

For the purpose of this study, VFD provided ESCI with four datasets from its records management system (Zoll® RescueNet FireRMS) for each year 2016–2019. These were consolidated into a single dataset representing 144,167 individual records (or unit responses) during the 48-month period.

VFD Service Demand Analysis

In addition to identifying the types and frequency of service demand, an understanding of when these events are likely to occur is critical in determining when system demand will be at its greatest. Knowledge of when high demand periods occur will assist fire department leadership in determining whether staffing levels are sufficient for that demand, and also in scheduling additional duties such as training, fire safety inspections, and vehicle maintenance.

Annual calls for service provide a foundation for discussion on service demand trends within Ventura. Increases or decreases may superficially suggest growth or declines in population, or these changes may be attributed to other factors, which will be explored in detail within this section. The following figure illustrates how the fire department's workload has changed over the last four years.

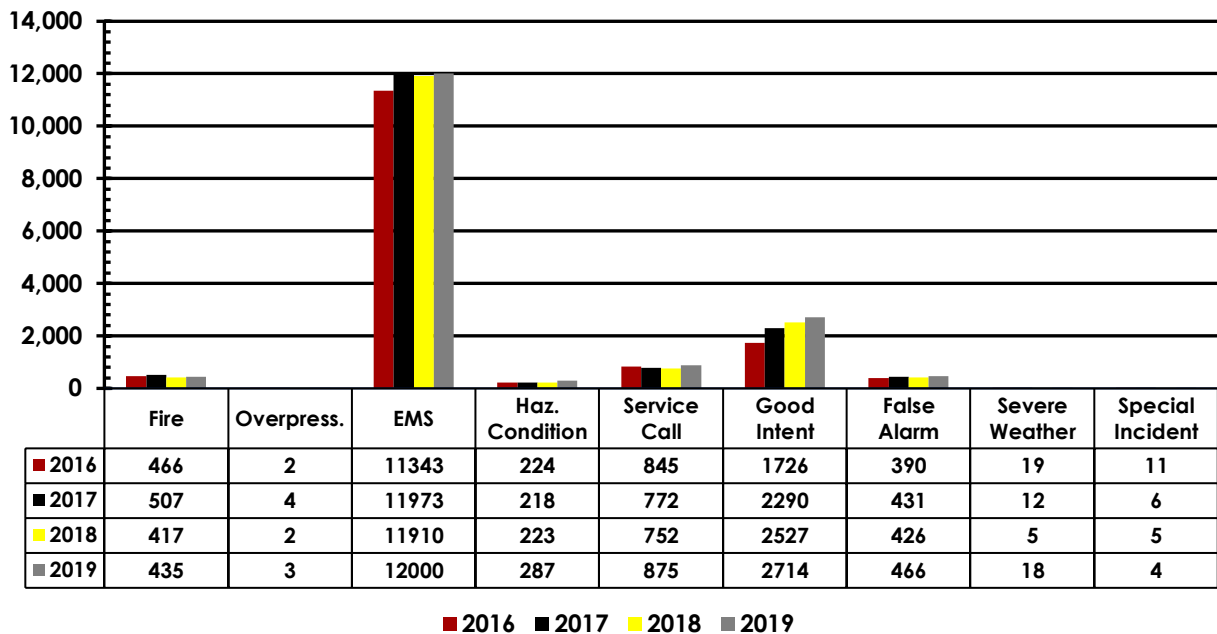
Figure 69: Annual Service Demand, 2016–2019

Service demand increased 11.8% from 2016 to 2019 and has risen each year throughout the period. Approximately 8% of this growth occurred between 2016 and 2017.

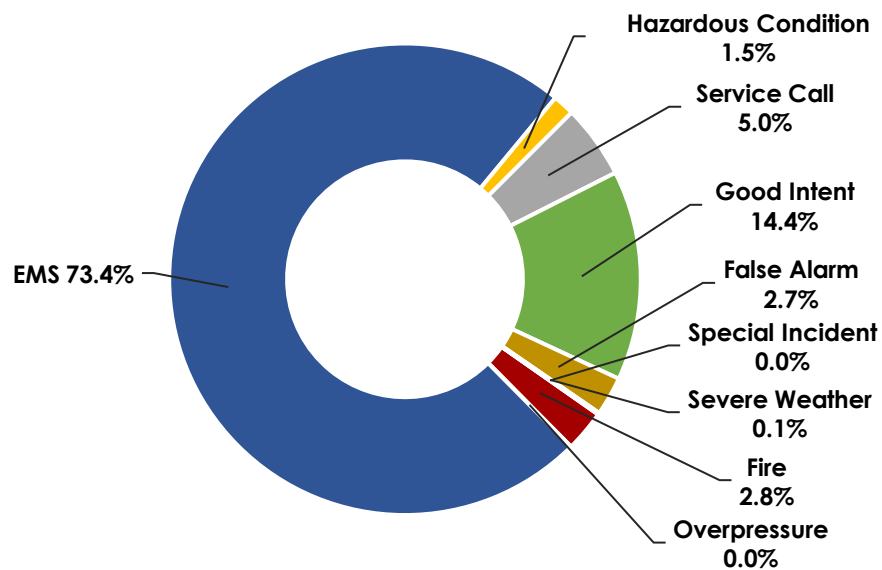
Service demand by incident type was also evaluated. Categories used in this analysis are based upon the NFIRS guidelines for grouping incident types. Within these classifications, the following incident types are grouped within these broad corresponding series:

- **100** Fires
- **200** Overheat/Overpressure
- **300** EMS
- **400** Hazardous Conditions
- **500** Service Call
- **600** Good Intent
- **700** False Alarms
- **800** Severe Weather
- **900** Special Incident

The following figure displays service demand during the 2016–2019 study period by general NFIRS classifications.

Figure 70: Service Demand by NFIRS Classification, 2016–2019

Additionally, the following figure illustrates the overall distribution of incident types during the study period to provide an understanding of service demand relative to incident categories.

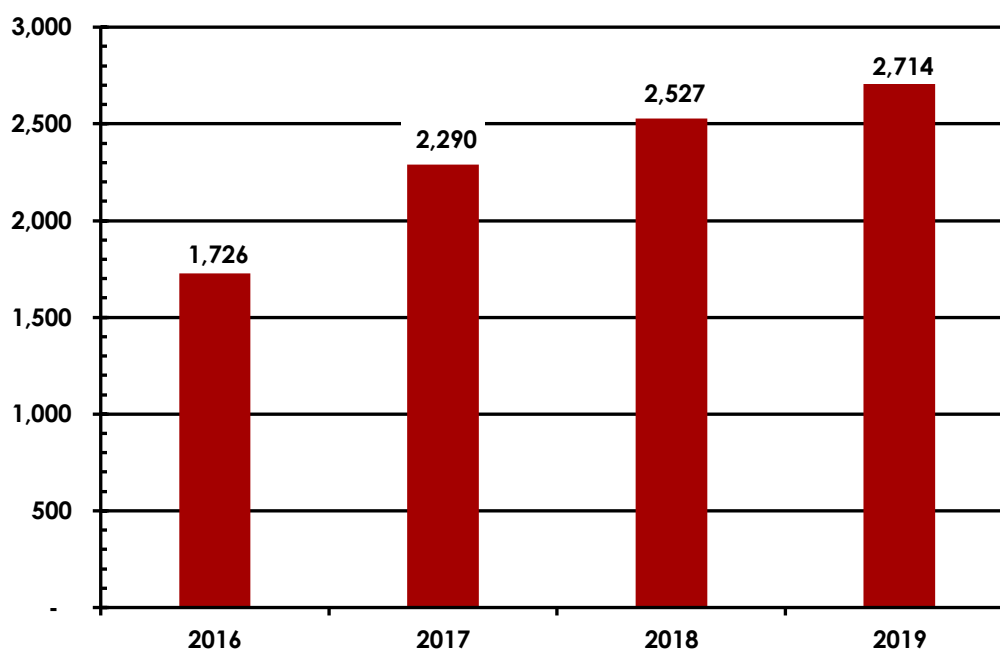
Figure 71: Service Demand by Frequency of Incident Type, 2016–2019

The majority of Ventura's incidents are EMS-related (73.4%), with Good Intent (14.4%), Service Calls (5.0%), Fires (2.8%), and False Alarms (2.7%), rounding out the top five incident types. Hazardous Conditions (1.5%), Severe Weather (0.1%), Special Incidents (0.0%), and Overpressure (0.0%) represented the remaining 1.6% of incident types. Overall, the distribution of incident types is consistent with other fire rescue organizations across the nation studied by ESCI.

Canceled Incidents & False Alarms

The next figure illustrates the percentage of incidents that were canceled en route or unfounded incidents determined after arrival. These include those incidents in which callers canceled the response request, no incident was found on arrival, or first arriving EMS or law enforcement units determined a fire unit response was not required. This incident type totaled 9,257 (14.4%) of incidents dispatched during the study period.

Figure 72: Frequency of Good Intent Incidents (2016–2019)



When visualized year by year, the trend in the number of false incidents reported to the fire department has increased 57.2% during the period, with an average annual increase of 14.3%. As illustrated in Figure 71, Good Intent calls accounted for 14.4% of the Department's overall incident volume for the period.

Service Demand by VFD Fire Station

The next figure illustrates Ventura's service demand by individual fire station during 2016–2019. It is important to distinguish the total number of incidents originating in a fire station's assigned response sector from the total responses for a particular apparatus. For example, while a specific number of incidents may have occurred in the Station 1 response area, Medic Engine 1 responded to incidents beyond its sector, which results in a higher number of actual responses for Medic Engine 1. Conversely, another VFD unit or Ventura County Fire Department unit may have responded to an incident in Station 1's territory due to automatic aid CAD recommendation.

Over the four-year period, each of the stations maintained a proportionate distribution of service demand. On average, Stations 2, 5, and 3 had the largest percentages of incident volume. Additionally, Stations 4 and 6 were dispatched to approximately one-half the number of incidents compared to the three busiest stations.

Figure 73: VFD All Incidents Dispatched—Fire Stations (2016–2019)

Station	2016	2017	2018	2019	Average
Station 1	2,824 (19%)	2,911 (18%)	2,967 (18%)	3,015 (18%)	2,929 (18%)
Station 2	3,056 (20%)	3,423 (21%)	3,220 (20%)	3,447 (23%)	3,287 (21%)
Station 3	2,951 (20%)	3,173 (20%)	3,258 (20%)	3,261 (20%)	3,161 (20%)
Station 4	1,868 (12%)	1,887 (12%)	1,792 (11%)	1,759 (11%)	1,827 (11%)
Station 5	2,869 (19%)	3,237 (20%)	3,354 (21%)	3,419 (21%)	3,220 (20%)
Station 6	1,445 (10%)	1,557 (10%)	1,617 (10%)	1,696 (10%)	1,579 (10%)

The following lists the combined average daily incidents dispatched by fire station:

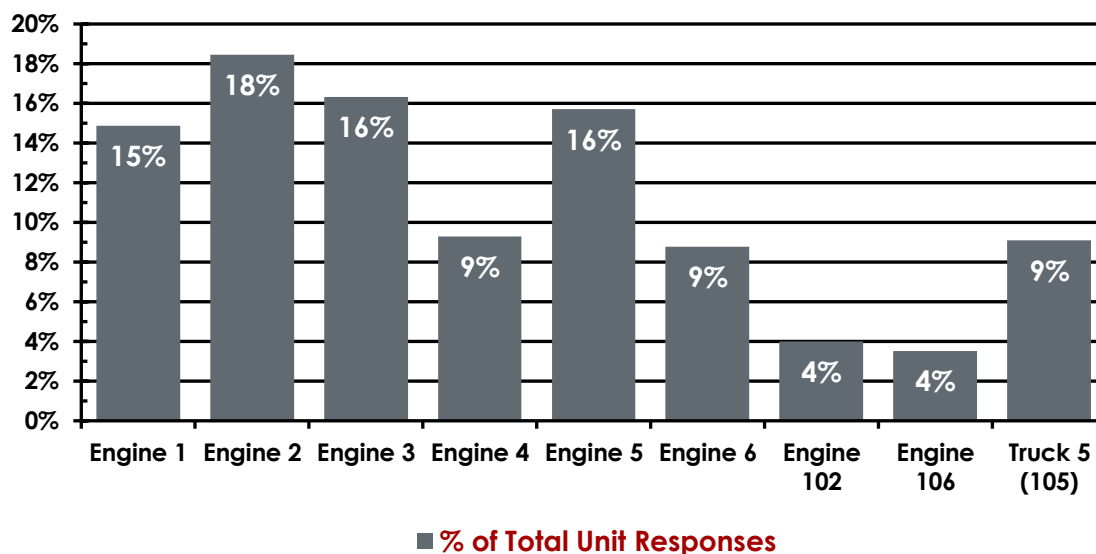
- **Station 1:** 8.0 incidents on average per day
- **Station 2:** 9.0 incidents on average per day
- **Station 3:** 8.7 incidents on average per day
- **Station 4:** 5.0 incidents on average per day
- **Station 5:** 8.8 incidents on average per day
- **Station 6:** 4.3 incidents on average per day

The six VFD fire stations had a combined average of 44 incidents dispatched daily.

Service Demand by VFD Frontline Apparatus

The following figure shows the results of the analysis of engine company responses. The results show each engine's percentage of the total engine responses, and each engine's share of the total apparatus responses.

Figure 74: VFD Engine/Truck Responses (2016–2019)



As shown, Medic Engines 2, 3, and 5 had the highest service demand among the engines. Medic Engine 103 had only 162 responses during the study period, so the unit was not included in the preceding chart, nor was Medic Engine 7, as it only became operational in 2018 and had 1,119 responses. Engines 102 and 103 had the lowest demands for service, which is to be expected, as these unit identifiers are primarily used when a front-line engine unit is placed out of service.

Incidents by NFIRS Type

The next figure lists the NFIRS 100 fire-related incidents. The percentages represent each portion of the total incidents assigned an NFIRS 100 type code. For this analysis, ESCI combined several of the incidents with similar type descriptions (e.g., "Brush, or brush and grass mixture fire" and "Grass fire").

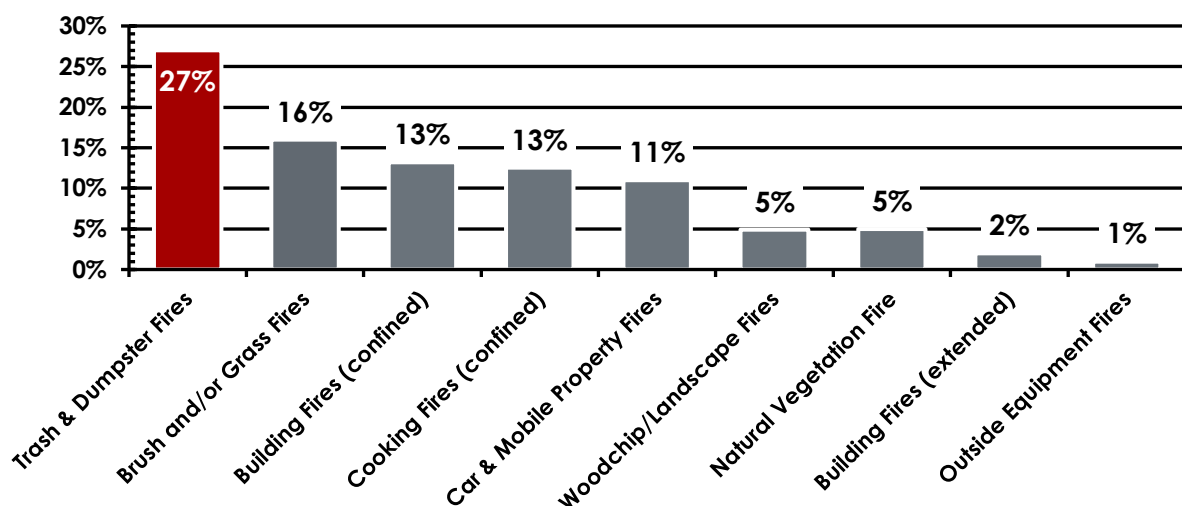
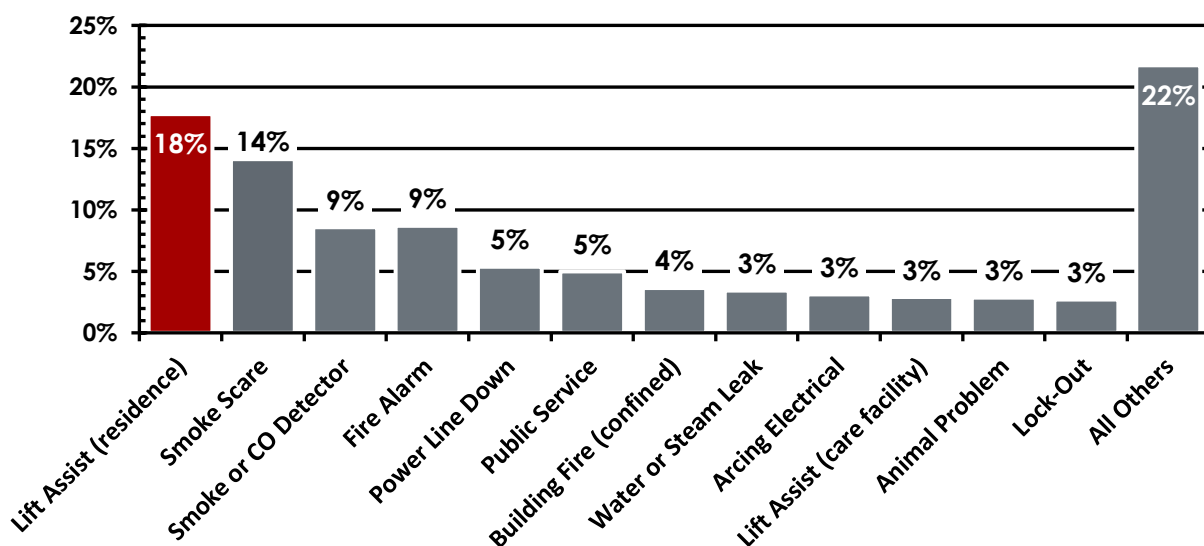
Figure 75: VFD Most Frequent NFIRS 100 Fire-Related Incidents (2016–2019)

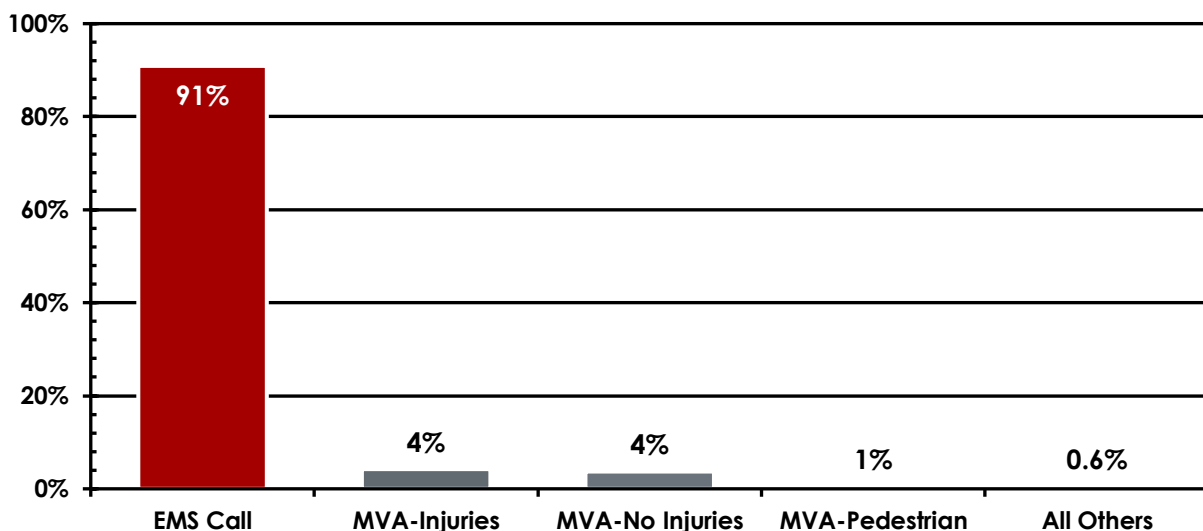
Figure 76 illustrates all incidents by NFIRS type codes other than those in the NFIRS 100 (fire-related) and NFIRS 300 (EMS). As with the fire-related incidents, similar incidents were combined (e.g., “Alarm system sounded, no fire” and “Alarm system sounded due to malfunction”).

Figure 76: VFD Most Frequent Other Call Types (2016–2019)

The data showed that among all the “Other” types, residential lift-assists entailed the greatest percentage of all those combined. This was followed by “Smoke Scare,” “Smoke or CO Detectors,” and “Fire Alarms,” respectively.

The next figure displays Ventura's EMS incidents as recorded by the NFIRS 300-series type codes. Most incidents in this category were coded as "EMS call, excluding vehicle accident with injury." The was followed by motor vehicle accidents (MVA) with injuries, without injuries, or involving vehicles versus pedestrians.

Figure 77: VFD Most Frequent EMS Incidents by NFIRS Codes (2016–2019)



Frequency of EMS Incidents Types

When responders arrive on the scene of emergency medical incidents, the specific nature of the call can be identified. In the following figure, the relative frequency of the type of injury or illness found on-scene, or primary impression, is shown by year and the cumulative total of the three-year period. The top 20 most common primary impressions are displayed in the following figure.

Figure 78: Frequency of EMS Call Types by Year and Cumulative Totals

Primary Impression Found	2017	2018	2019	Totals
Traumatic Injury	25.8%	23.4%	20.6%	21.9%
General Weakness/Malaise	8.1%	7.3%	8.5%	8.3%
Not Recorded	3.2%	2.9%	7.8%	6.6%
Abdominal Pain/Problems	6.6%	6.0%	5.6%	5.9%
Behavioral/Psychiatric Crisis	5.1%	4.6%	4.5%	4.6%
ALOC (Not Hypoglycemia or Seizure)	3.7%	3.4%	4.1%	4.0%
Respiratory Distress/Other	4.6%	4.2%	3.7%	4.0%
Syncope/Near Syncope	3.5%	3.2%	3.6%	3.7%
Chest Pain – Suspected Cardiac	3.4%	3.1%	3.6%	3.5%
Pain/Swelling—Extremity – Non-Traumatic	2.5%	2.2%	3.3%	3.2%
Seizure – Post	2.8%	2.6%	3.0%	3.0%
Overdose/Poisoning/Ingestion	2.8%	2.6%	2.7%	2.7%
Non-Traumatic Body Pain	3.2%	2.9%	2.6%	2.6%
Alcohol Intoxication	2.8%	2.5%	2.7%	2.6%
Nausea/Vomiting	1.6%	1.5%	2.2%	2.2%
Cardiac Arrest – Non-traumatic	1.7%	1.6%	2.0%	1.9%
Respiratory Distress/Bronchospasm	1.3%	1.2%	2.0%	1.8%
Dizziness/Vertigo	1.7%	1.5%	1.7%	1.7%
Chest Pain – Not Cardiac	1.7%	1.6%	1.6%	1.6%
Stroke/CVA/TIA	1.3%	1.1%	1.4%	1.4%
Total EMS Incidents:	10,143	10,585	10,722	10,775

Interestingly, traumatic injuries are the most common medical emergency in Ventura year after year. At over one and a half times the prevalence of the next most common call type, general weakness/malaise, one-fifth of all EMS incidents that were provided with a primary impression were categorized as a traumatic injury. The remaining are common EMS call types, including general weakness, abdominal pain, behavioral crisis, loss of consciousness, and respiratory distress. VFD responds to a significant number of ground level falls with injury. As a result, the Department has been participating in an elderly fall prevention program. ESCI noted that the number of traumatic injury incidents has decreased approximately 5% since 2017. Yet, it is unknown if this downward trend is partially due to fall prevention education efforts. VFD may consider a further investigation into the high levels of traumatic injuries to determine if additional community risk reduction efforts may be effective in reducing the prevalence of this call type within the City.

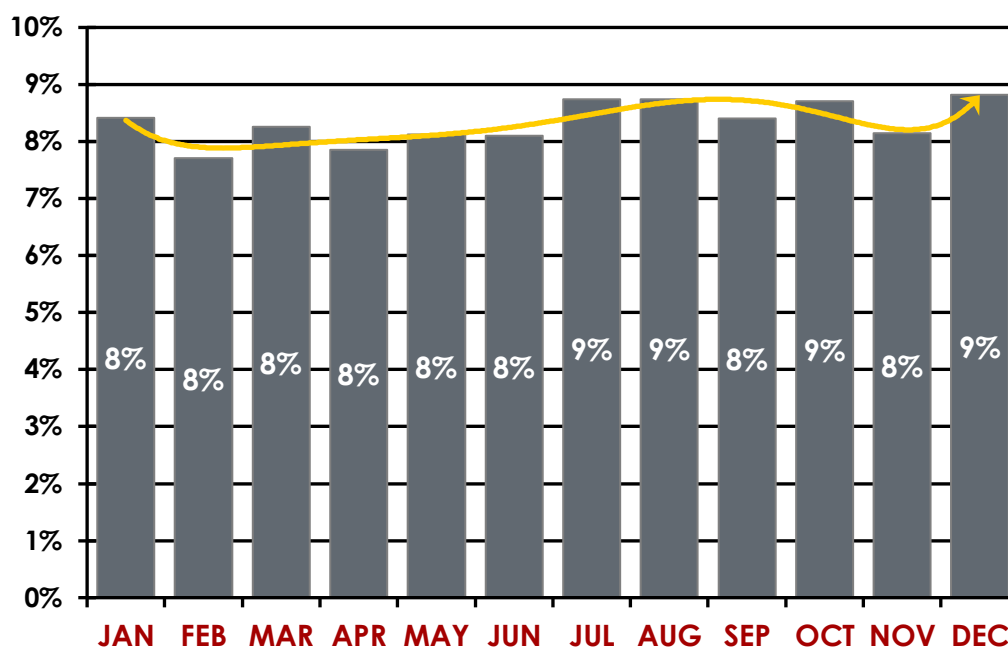
Temporal Variation

Demand for services typically occurs in cyclical patterns. A temporal variation analysis helps determine whether these trends exist during various time measurements to assess impacts on deployment modifications, resources, and options. To determine if these patterns exist, the next section presents the results of the various analyses.

The following figures illustrate VFD service demand for the 2016–2019 study period, categorized by month, day of the week, and hour of the day.

Service Demand by Month

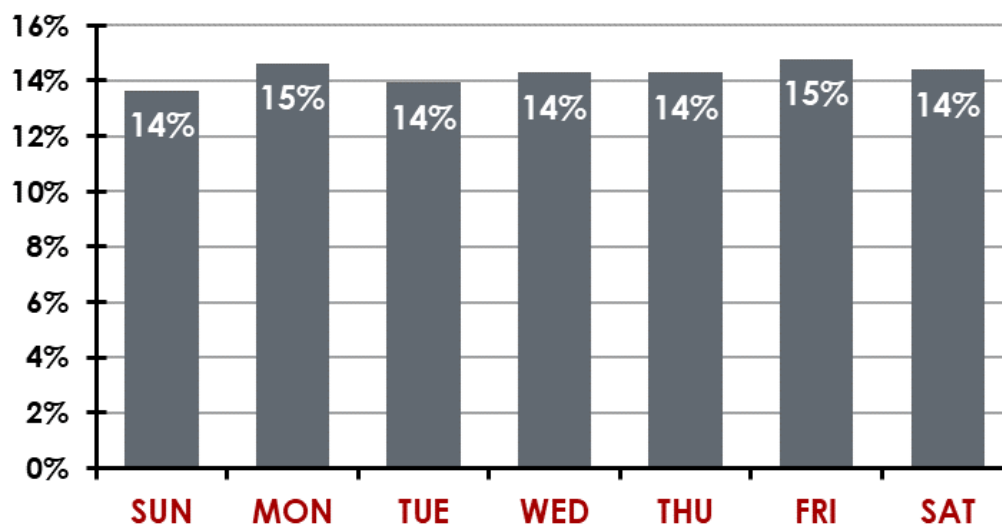
The next figure is an illustration of VFD's service demand by month.

Figure 79: VFD Historical Service Demand by Month (2016–2019)

Unlike some communities where service demand increases during certain months because of summer or winter tourist activities, the preceding figure shows that call volumes in the VFD service area varied little from month to month.

Service Demand by Day of Week

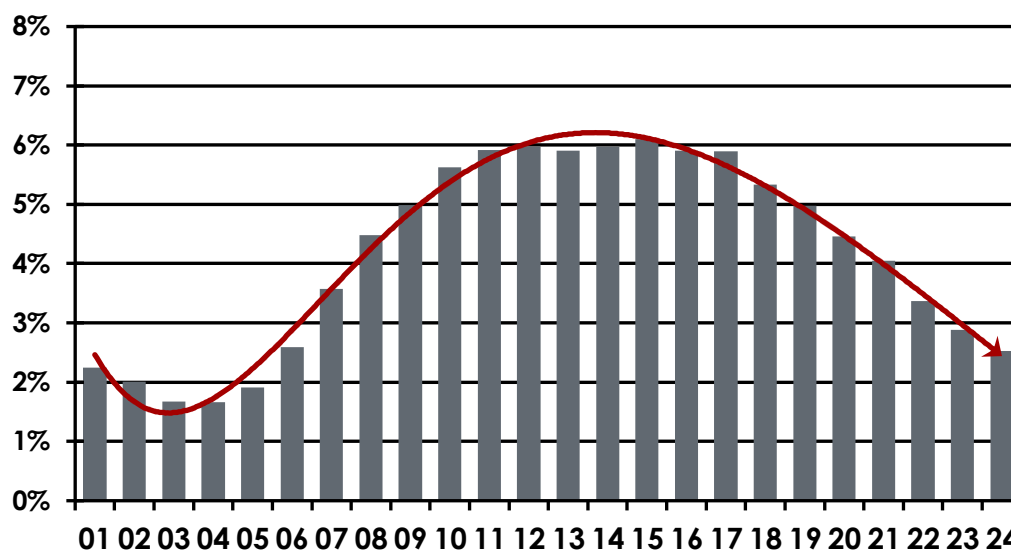
The next figure illustrates Ventura's service demand by the day of the week. As with the monthly analysis, daily call volumes fluctuated only slightly.

Figure 80: VFD Historical Service Demand by Day-of-Week

Service Demand by Hour of Day

The final temporal analysis of service demand examines call volumes summarized by hour-of-day for all incidents, and is illustrated in the following figure.

Figure 81: VFD Historical Service Demand by Hour-of-Day (2016–2019)



Hourly service demand analysis is one of the most important metrics for agencies providing fire protection, EMS, and other emergency and non-emergency services. Information from the results of these analyses can be used to determine daily staffing requirements as well as the best time intervals in which to schedule peak demand units.

The results in the preceding figure show a common pattern found in many communities. Analysis of service demand regarding specific times of the day revolves largely around the activities of the general population, including the influx and outflow of transient populations during the day, which results in the incident rate increasing during the daytime hours, and decreasing during late evening and early morning hours.

It is important to note that while demand was lower in the early morning hours, fatal residential fires tend to occur most frequently late at night or in the early morning hours while occupants are sleeping. According to the U.S. Fire Administration, from 2014 to 2016, fatal residential fires were highest between 0100 to 0200 hours and 0400 to 0500 hours. The 8-hour peak period (2300 to 0700 hours) accounted for 48% of fatal residential fires.

In Ventura, call volumes began to increase after 0500 hours, peaking during 1200–1800 hours (12 p.m.–6 p.m.). Service demand began to decline after 1800 hours into the late evening and early morning. The following lists the busiest consecutive periods during the study period:

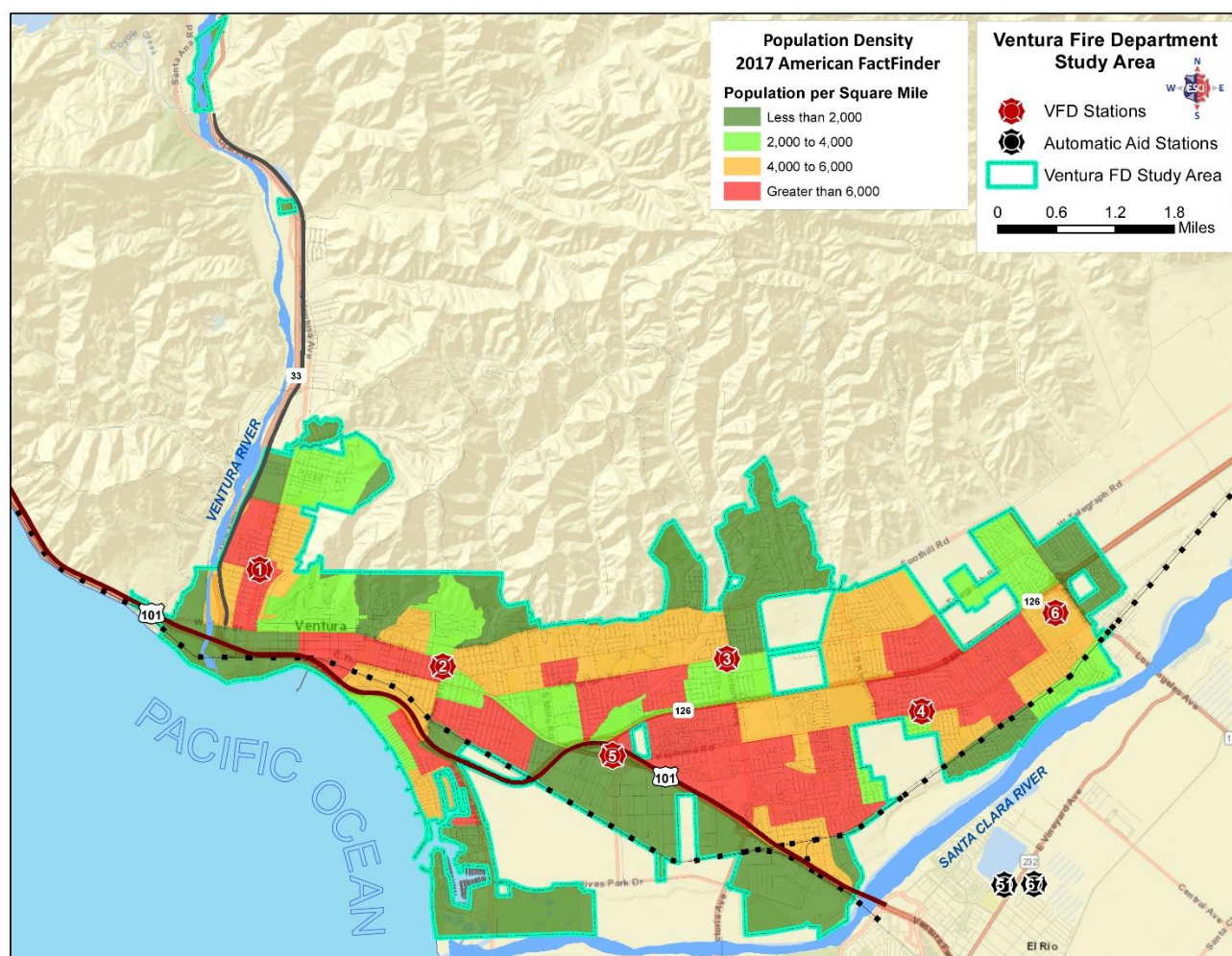
- Busiest 12-hour period:
 - 8 a.m.–8 p.m.: 67% of total incidents
- Busiest 10-hour period:
 - 9 a.m.–7 p.m.: 58% of total incidents
- Busiest 8-hour period:
 - 10 a.m.–7 p.m.: 47% of total incidents

This information is useful when evaluating whether adequate personnel are scheduled during the highest periods of service demand. ESCI noted that the 2018 implementation of ME-7 and associated work schedule is consistent with this temporal finding.

Geographic Service Demand Analysis

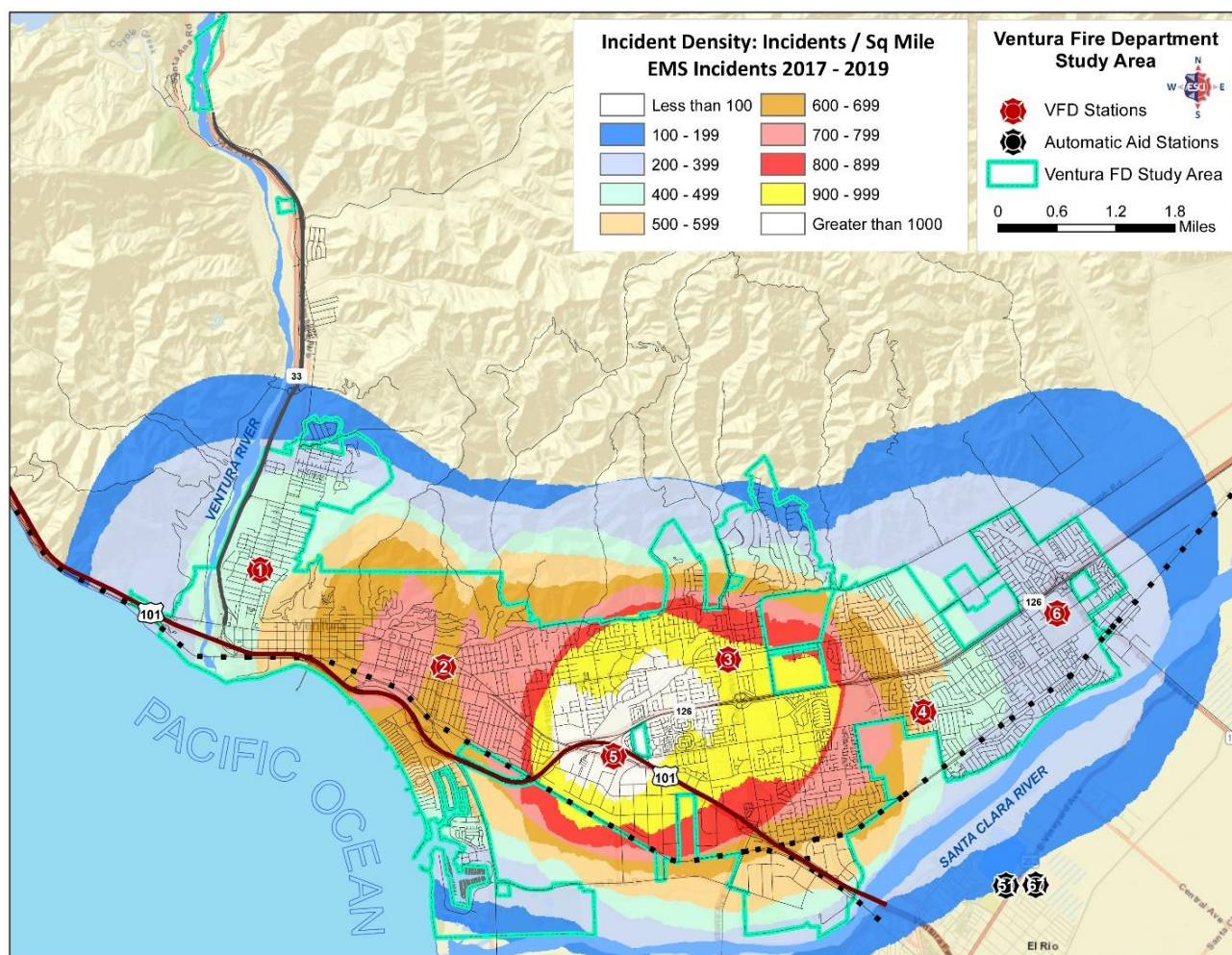
A major contributing factor to the levels of service demand experienced by Ventura is the population density of the areas served within its jurisdiction. The City of Ventura is an urban municipality, with many of its developed areas exceeding population densities of 4,000 people per square mile.

The following figure displays population density by U.S. Census block groups, the smallest unit of measurement category available from the Census Bureau that contains annual updates to estimates. This data is based on 2017 estimates, and provides detail of Ventura's population density patterns. Detailed census block information is updated every ten years following the completion of the U.S. Census survey.

Figure 82: Population Density 2017 Census Block Groups

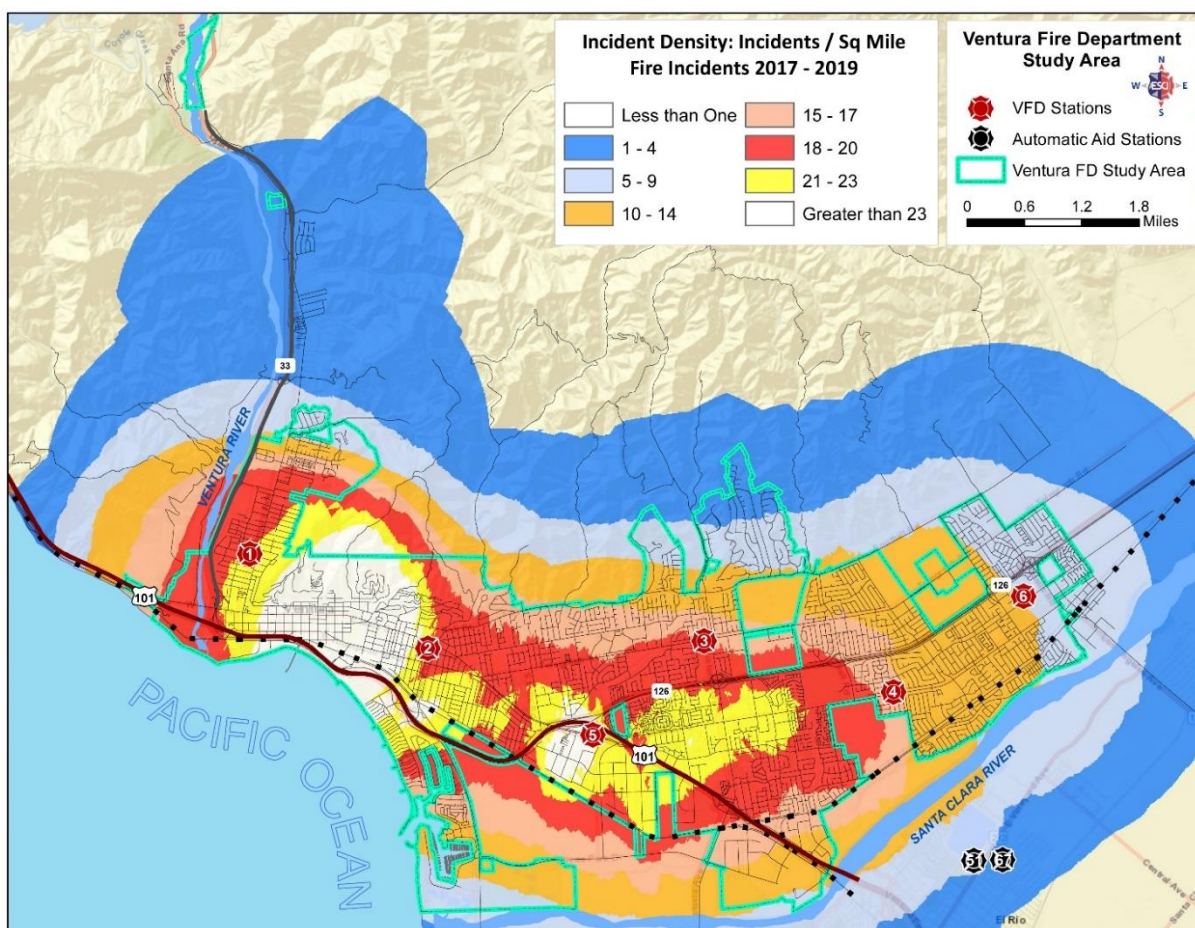
Ventura's fire stations are located within or adjacent to areas of higher population density, as higher population concentrations generally drive the levels of service demand.

The next figure illustrates an analysis of EMS incident density using four years of response data from 2016 through 2019. This analysis, commonly referred to as "Hot Spot Mapping," calculates areas of greatest demand based on the density of incidents within an area. This analysis does not indicate how many incidents occurred within each ring, but instead provides a way to compare each area to one another. In this analysis, each ring shows a different incident density per square mile. Because EMS incidents represent approximately three-quarters of all incidents that occurred within Ventura's service area, this figure is also representative of the overall incident activity within the City.

Figure 83: EMS Incident Density Analysis, 2016–2019

Much of the incident activity occurs within the City's central core adjacent to Station 5 and extends towards Station 3 and into the Montalvo neighborhood. This analysis provides insight into why the fire stations were located in their present positions, as well as an indication of areas where the fire department frequently responds. The blue to light purple shades of colored banding across other areas of the City do not indicate that no demand for fire rescue services occurred, but instead suggests that the locations of service demand were less densely clustered than in other areas of the City.

Next, the same analysis is provided for all fire incidents (100-series NFIRS codes),

Figure 84: Fire Incident Density Analysis, 2016–2019

In this analysis, although a hotspot of the greatest density still exists around Station 5 and south of Station 3 in the Montalvo neighborhood, ESCI identified another area between Stations 1 and 2 and extended southwards towards the Ventura harbor area. Because fires represent one of the incident types requiring the greatest number of resources to safely and effectively mitigate, particular attention should be paid to this area in subsequent analysis, such as Effective Response Force (ERF) covered later within this section.

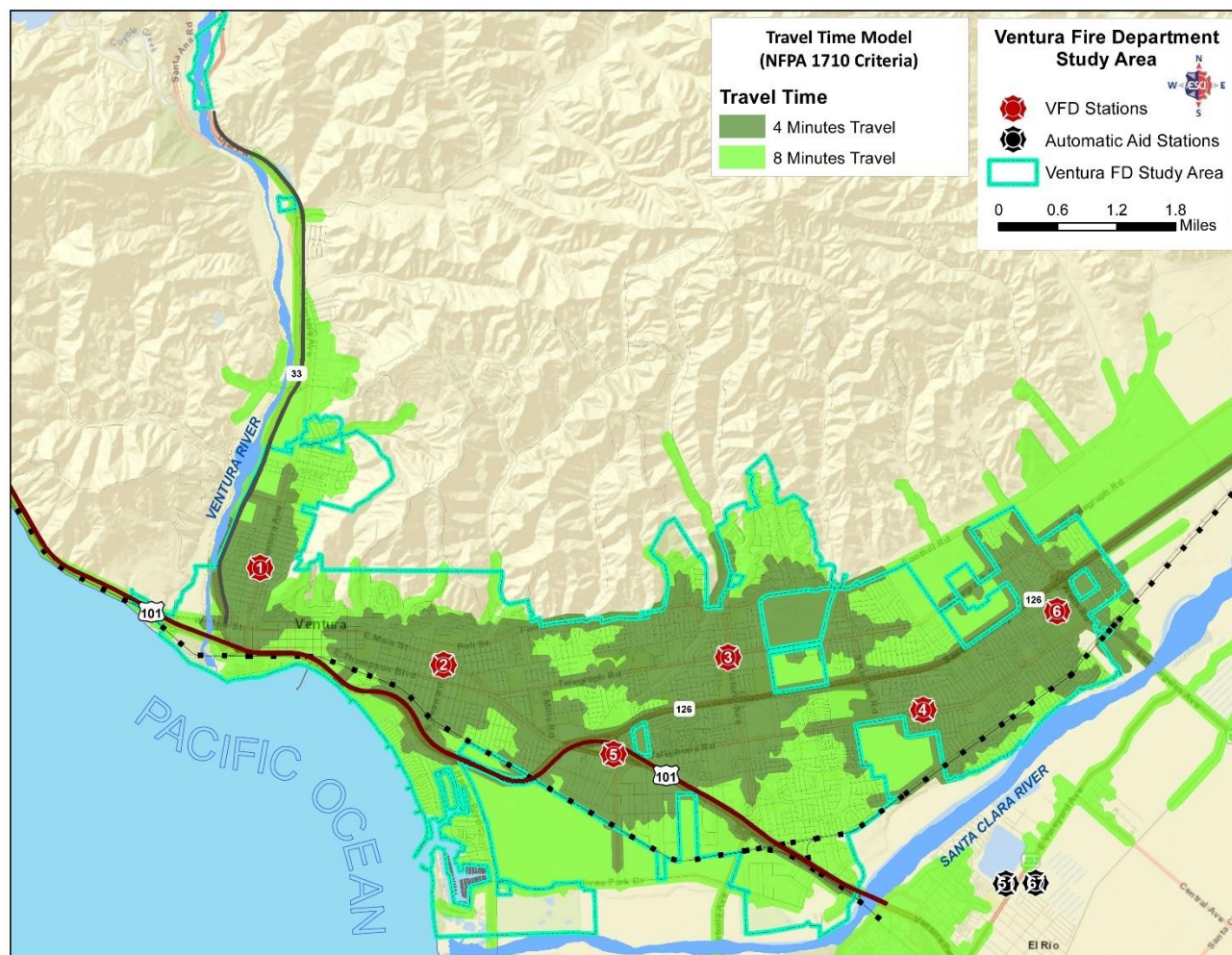
Resource Distribution

To determine how the current deployment model of the fire department affects coverage throughout the City, ESCI compared VFD's deployment model and response performance against fire service industry standards, including National Fire Protection Association (NFPA) standards and Insurance Services Office (ISO) criteria.

In the first section, NFPA criteria specific to fire department performance were applied, and Ventura's performance was evaluated.

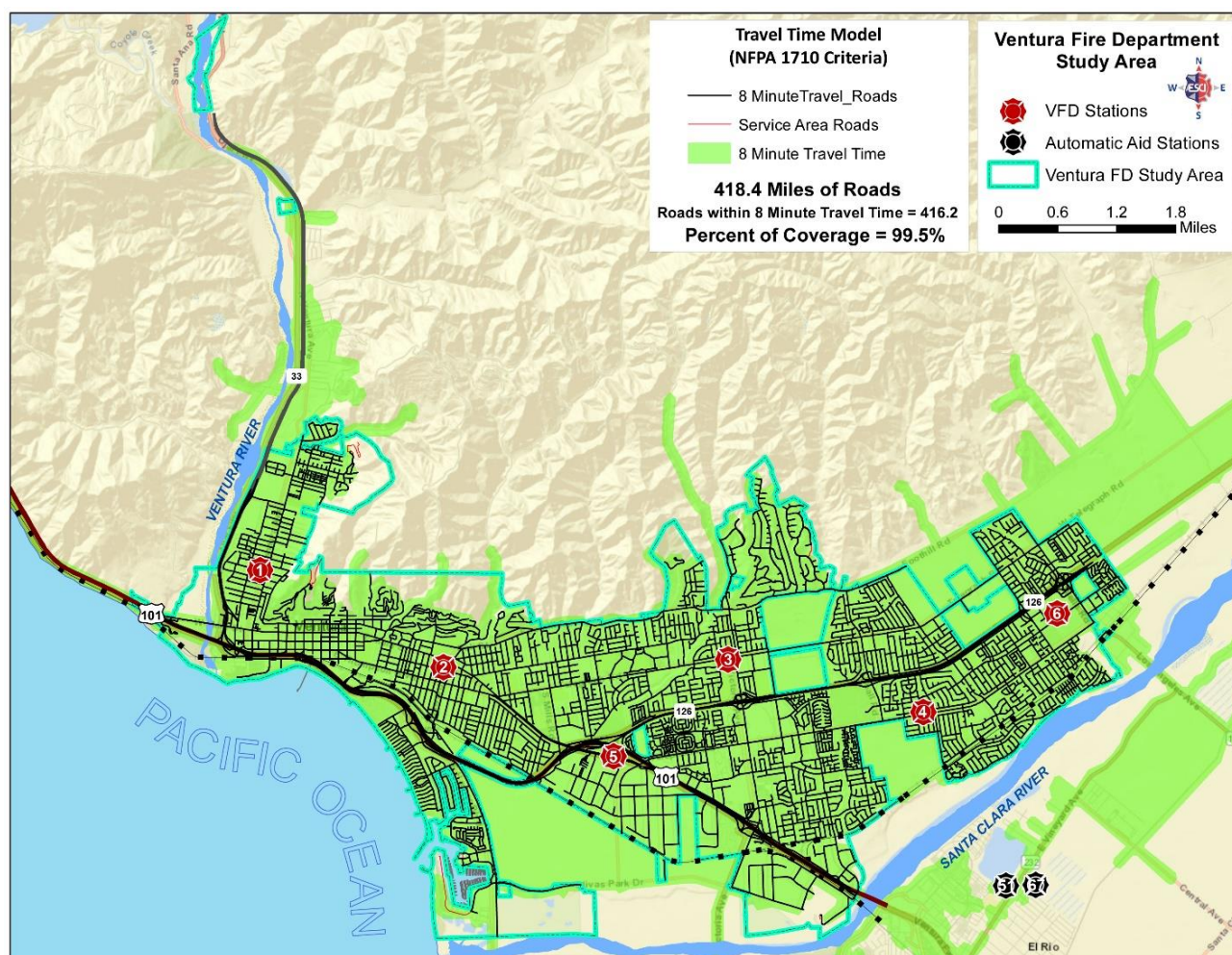
NFPA 1710 Criteria

The National Fire Protection Association (NFPA) is an industry trade association that develops and provides standards and codes for fire department and emergency medical services. One of these standards, 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*, serves as a national consensus standard for career fire department deployment, performance, operations, and safety. Within this standard, a travel time (from the time a unit begins responding to an incident until they arrive on the scene) of 240 seconds, or 4 minutes, is identified as the benchmark for career departments for the first unit to arrive at an emergency incident. Additionally, the standard states that the balance of the response (called the effective response force or ERF) is required to arrive to the incident within 480 seconds, or 8-minutes. The following figure illustrates Ventura's theoretical ability to meet these standards based upon predicted travel times using historical traffic data from Esri® for traffic patterns within the City. Unshaded pockets indicate that the area falls outside of the model's maximum extension from the road network.

Figure 85: 4- and 8-Minute Travel Time, NFPA 1710

The map shows that VFD should theoretically have the capability to meet the NFPA 1710 first responding unit requirement of a 4-minute travel to the central core of the City. All of Ventura is within an 8-minute travel time of a fire station and areas outside of the 4-minute travel fall within a 4 to 8-minute travel. However, this analysis only evaluates travel time from current station locations, and does not take into account the availability or actual location of any particular unit when an emergency incident occurs.

NFPA 1710 also provides response time criteria for EMS incidents requiring ALS level care. In these situations, NFPA 1710 requires that ALS resources arrive on the scene of an emergency medical incident within an 8-minute travel time. Given that all frontline VFD engines and truck company are staffed and equipped for ALS care, ESCI plotted the eight-minute travel response time from each station, as illustrated in the following figure.

Figure 86: ALS 8-Minute Travel, NFPA 1710

As illustrated in the preceding figure, all areas of Ventura lie within an 8-minute travel time of an ALS resource, assuming all units are available and in quarters.

ISO Criteria

The Insurance Services Office (ISO) is a New Jersey-based advisory organization that provides insurance carriers with a classification rating of a local community's fire protection capabilities. The Property Protection Class (PPC®) score or rating classifies communities based upon an overall scale of 1 (best protection) to 10 (no protection) and assesses all areas related to fire protection.

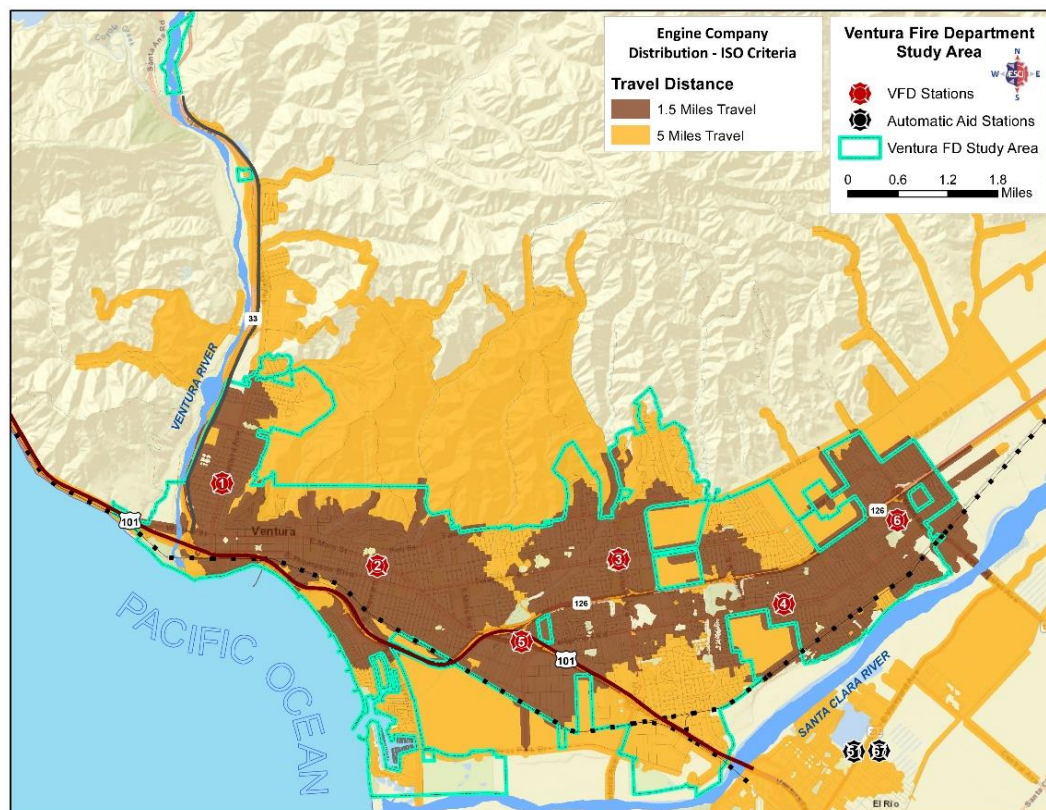
These areas are broken into four major categories and associated weighting of the overall rating:

- Emergency dispatch and communications (10 points)
- Water supply system and distribution capabilities (40 points)
- Fire department Capability (50 points)
- Community Risk Reduction efforts (an additional 5.5 points credit is available above 100 points)

Engine Company Travel Time

A key area of credit towards a jurisdiction's PPC® score is the degree to which structures protected by the fire department fall within a 1.5 road-mile service area of a fire station. This 1.5 road-mile standard is used to estimate a 4-minute travel time for first responding units as required by NFPA 1710. In the following figure, an analysis was completed for current fire stations with areas in brown indicating those structures within a 1.5-mile drive. Based on the ISO engine company travel criteria, approximately 70.4% of Ventura is included within the 1.5-mile travel distance.

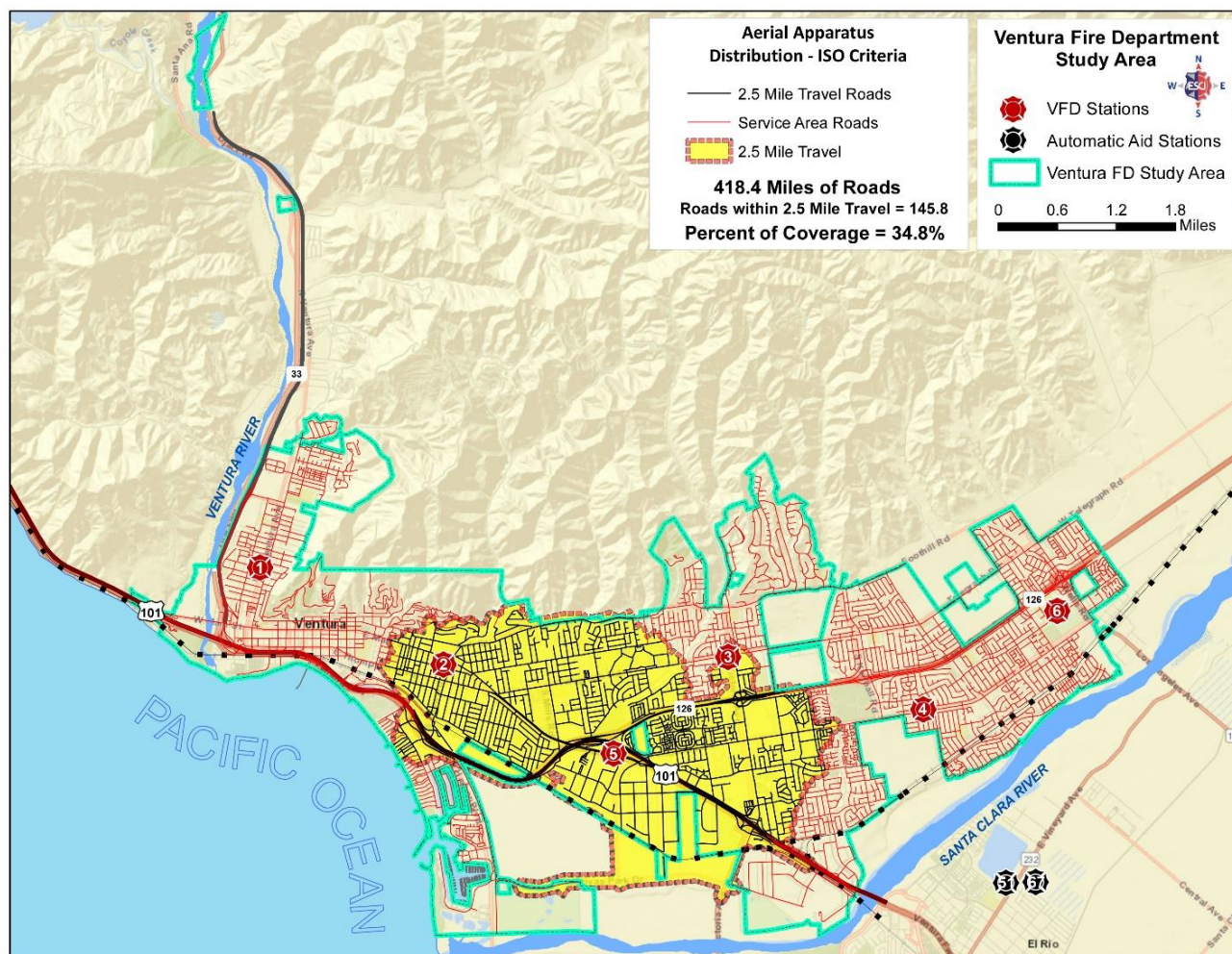
Figure 87: ISO 1.5-Mile Engine Company Service Area



Ladder Company Travel Time

In many jurisdictions across the country, ladder companies are deployed only to certain types of incidents and are not necessarily considered as the first due unit for all other incident types. Because of this, ISO uses a 2.5 road-mile travel distance for ladder companies to estimate an 8-minute travel time in urban and suburban areas. The following figure displays Ventura's ladder company theoretical travel time performance from Station 5.

Figure 88: ISO 2.5-Mile Ladder Company Service Area

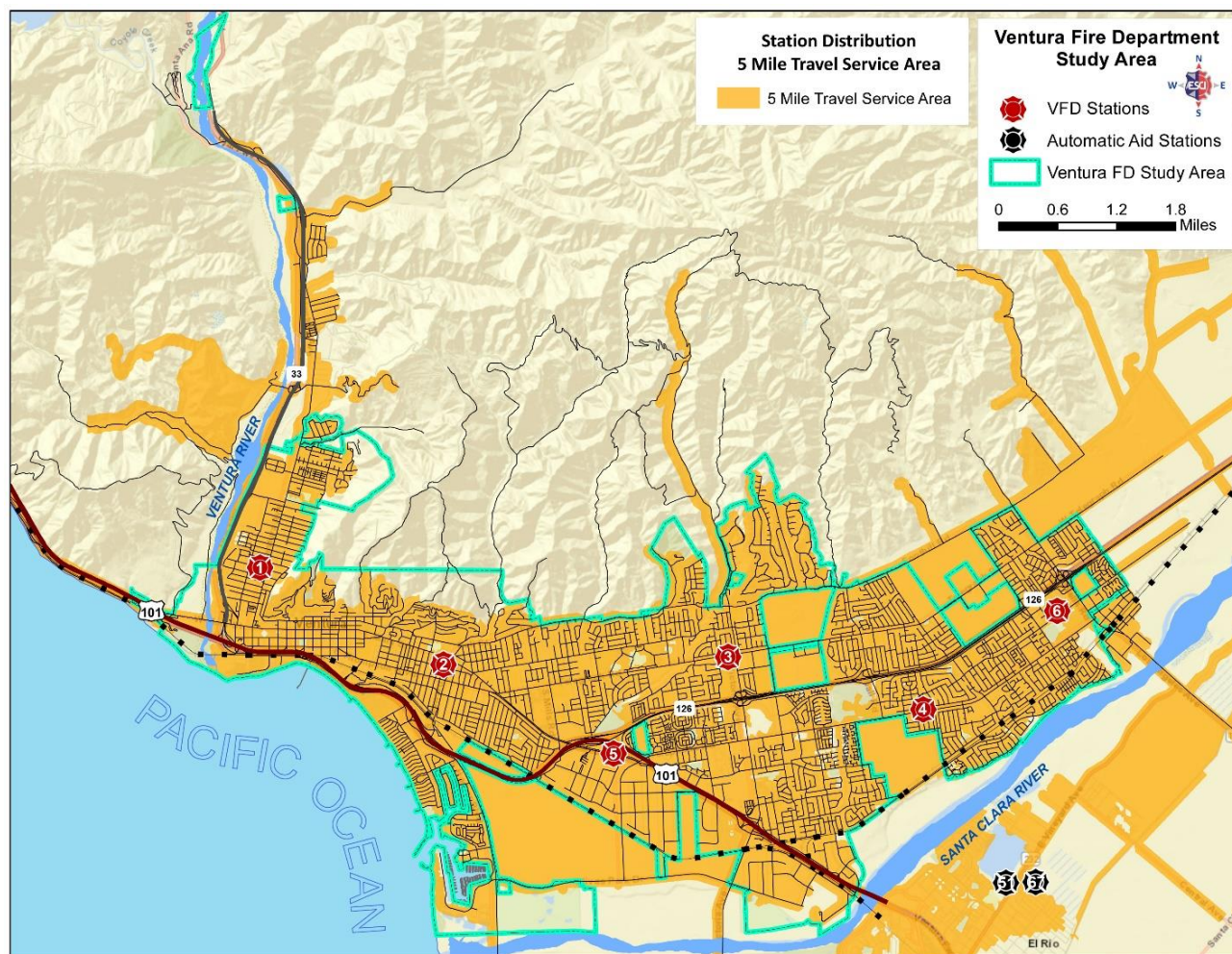


When Ventura's ladder company is evaluated, Ventura is able to provide ladder coverage to 34.8% of the City within a 2.5-mile travel.

ISO Fire Station Coverage

In order to receive an ISO PPC® rating that indicates fire protection is available, structures must generally be located within 5-miles of a fire station. Areas outside of 5-miles are subject to receiving a PPC® rating of 10, meaning no fire department coverage is available. Within the City of Ventura, 100% of the City lies within 5-miles of a Ventura fire station and are eligible to receive a rating based upon the performance of the fire department.

Figure 89: ISO 5-Mile Service Area

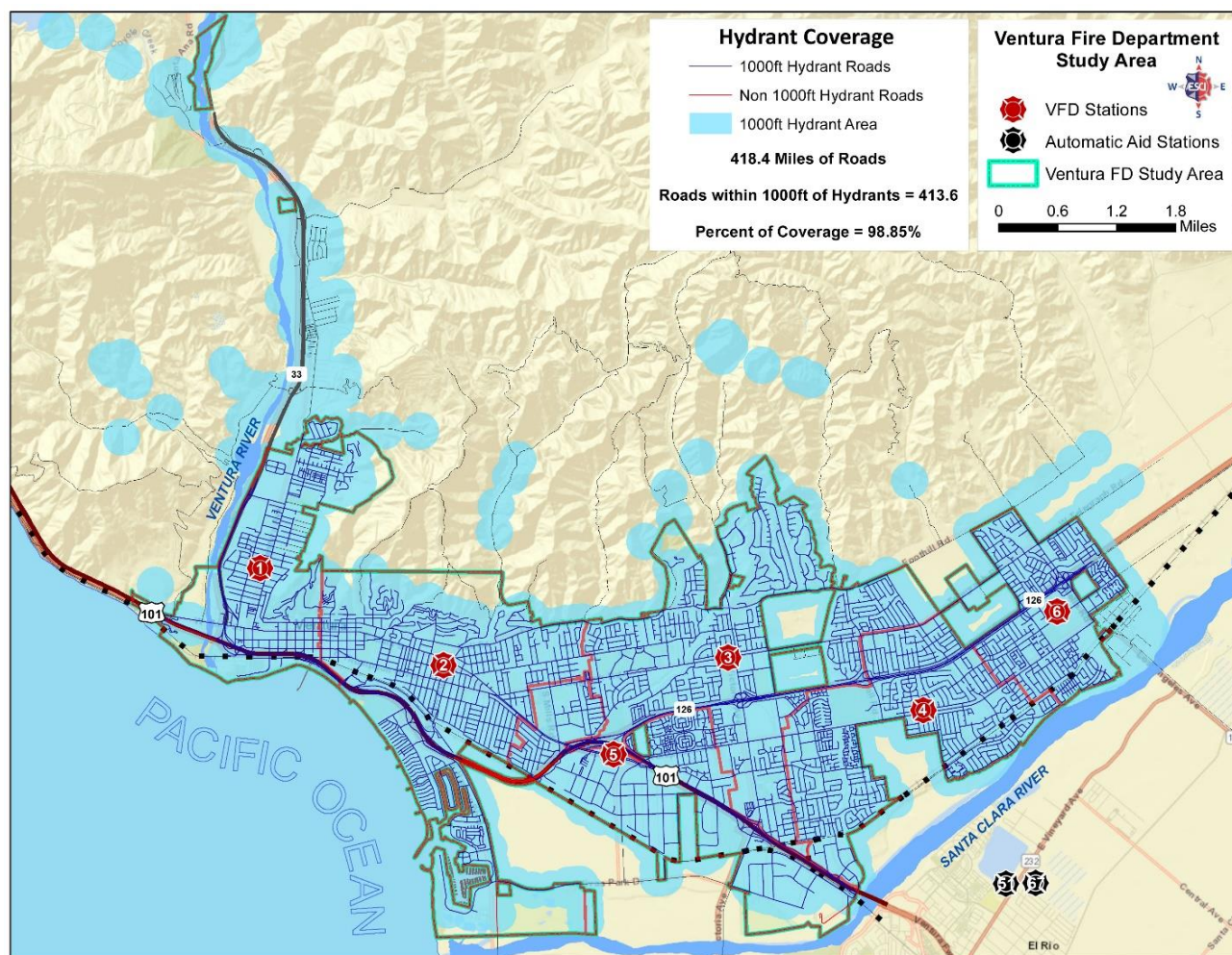


Water Supply and Hydrant Locations

Access to an adequate water supply is a fundamental requirement for fire suppression in urban settings. A hydrant distribution system(s) for this water supply must be located in strategic locations that allow for rapid fire department access.

The following map illustrates the fire hydrant coverage within Ventura using ISO criteria that structures must be located within 1,000 feet of a fire hydrant.

Figure 90: ISO Fire Hydrant Coverage



Based on hydrant locations provided to generate this figure, the entire City of Ventura is fully hydrated and lies within the ISO standard for the required maximum distance to a fire hydrant.

Resource Reliability

In this section, ESCI used several metrics to establish a global perspective on Ventura's ability to provide sufficient responding resources to meet service demand. When all units are available and in quarters, supplying sufficient resources is typically not a problem; however, when two or more incidents occur simultaneously, or units are committed to incidents for extended periods of time, overall service delivery capability and capacity can be significantly impacted.

Incident Concurrency

Incident concurrency analysis involves identifying how often two or more incidents occur at the same time, placing additional demand on the remaining resources. For example, when two units are engaged in separate incidents and a third separate incident is dispatched, this results in three concurrent incidents.

The following figure summarizes the percentage of times when two or more incidents were ongoing at the same time.

Figure 91: Call Concurrency, 2016–2019

Call Concurrency	
Number of Concurrent Incidents	Percentage of Total Incidents
1	37.5%
2	33.2%
3	17.4%
4	7.7%
5	2.9%
6	0.9%
7	0.2%
8 or more	0.1%

Based on the data provided by VFD, non-concurrent incidents occurred approximately 37.5% of the time, while two or more incidents were ongoing approximately 62.5% of the time, and three or more incidents were ongoing approximately 29.3% of the time. This information provides insight into the Department's ability to meet service demand with current resources and deployment strategies. For Ventura, the fire department should anticipate that 62.5% of the time, units will be committed to other incidents and will be unavailable for a response. This is an important metric as it speaks directly to Ventura's capacity to absorb a medium or high-risk incident, particularly during peak demand periods from 8 a.m. through 8 p.m. Additionally, as the greatest density of incidents occurs around Station 5, with an additional area of high density for fires occurring between Stations 1 and 2, Ventura's ability to commit sufficient resources internally is doubtful, and the City will most likely need to depend upon automatic aid assistance from neighboring jurisdictions.

Unit Hour Utilization

Another component that must be considered when evaluating Resource Reliability is Unit Hour Utilization (UHU). UHU quantifies the emergency workload placed on a crew assigned to that unit and can also describe the amount of time that a unit is not available for response because it is already committed to another incident. The larger the percentage, the greater its utilization, and the less available it is for assignment to subsequent incidents for service, training, maintenance, or other ancillary duties. UHU rates are expressed as a percentage of the total number of hours in a year.

In May 2016, Henrico County (VA) Division of Fire published an article after studying its department's EMS workload. As a result of the study, Henrico County Division of Fire developed a general commitment factor scale for its department. The next figure is a summary of the findings as it relates to commitment factors.

Figure 92: Commitment Factors as Developed by Henrico County (VA) Division of Fire, 2016

Factor	Indication	Description
16–24%	Ideal Commitment Range	Personnel can maintain training requirements and physical fitness and can consistently achieve response time benchmarks. Units are available to the community more than 75% of the day.
25%	System Stress	Community availability and unit sustainability are not questioned. First-due units are responding to their assigned community 75% of the time, and response benchmarks are rarely missed.
26–29%	Evaluation Range	The community served will experience delayed incident responses. Just under 30% of the day, first-due ambulances are unavailable; thus, neighboring responders will likely exceed goals.
30%	"Line in the Sand"	Not Sustainable: Commitment Threshold—the community has less than a 70% 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.

UHU is primarily concerned with measuring the workload of the crews staffing each unit. Due to the way Ventura tracks its units, the true measure of crew activity using UHUs were not available at the time of the study. This is because activity is tracked by apparatus ID number and not by the assigned crew, also known as "Static Unit ID." As Ventura crews often transfer onto reserve apparatus due to mechanical problems or required maintenance, the reserve unit identifier is used instead of the station crew identifier, making it impossible to determine the crew's regularly assigned station location.

Given this, ESCI calculated UHUs based on the first due sector in which the incident originated. Although it is understood that a first due unit did not respond to all incidents originating within their sector—and that other units would also contribute to that total for certain call types—this method provides a comparison of how busy individual crews were during a three-year period from 2017 through 2019.

Figure 93: Workload by Sector, 2017–2019

Response Zone	Total Hours/Minutes/Seconds	UHU
Sector 1	8688:32:46	33.1%
Sector 2	9161:31:30	34.9%
Sector 3	10133:16:05	38.6%
Sector 4	6077:22:48	23.1%
Sector 5	10215:11:27	38.9%
Sector 6	5905:20:17	22.5%
Sector 7	161:40:37	1.5%

Based upon the data provided, sectors 5, 3, and 2 are the busiest, with activity rates of 38.9%, 38.6%, and 34.9%, respectively, followed closely by Sector 1 at 33.1%. Although Sector 4 (23.1%) and Sector 6 (22.5%) had significantly lower activity rates, when compared with the findings from the Henrico County Fire Study findings, Sectors 1–6 had relatively high activity rates, and all crews are approaching the threshold for system stress, assuming that the majority of incidents are responded to by first due crews. Sector 7, which had an activity range from February 29, 2018, through November 11, 2019, is comparatively less active; however, this is a part-time unit, and the classification of Sector 7 within the data appeared sporadic when evaluating the consistency of that designation's use. It should be noted that if this sector did not exist, the workload would be distributed to the other six sectors, effectively increasing their overall workload.

UHU & Workload Discussion

In June 2019, an internal Operational Review was completed by the VFD to evaluate the impact of Medic Engine 7 and crew UHU rates.²³ As described previously, the Static Unit ID configuration presents challenges in accurately assigning the emergency responses of frontline crews assigned on reserve apparatus to their assigned station. In an attempt to quantify these responses to the assigned crew, the Department determined the percentage of overall responses per unit, applied that percentage to the overall number of responses of the reserve units to determine the number of responses of that percentage, and added them to the frontline unit responses.

²³ Ventura Fire Department Resource Utilization Analysis and Implementation of Medic Engine 7. June 30, 2019.

The Department also quantified non-emergency unit activities as part of the overall UHU calculation. These activities included returning to quarters, prepping the unit for the next incident, and incident documentation. As a result, the Department determined the average crew unit hour utilization rate was 35.3% department-wide.

Although ESCI does not typically include these additional factors due to lack of objective supportive data of such activities, ESCI's calculations using the simplistic sector methodology align closely with VFD's previous emergency response UHU calculations, even though different methodologies were used.

VFD's internal report also included UHU calculations of additional tasks and duties which must also be performed throughout a duty shift, including but not limited to building and vehicle cleaning and maintenance, public education/tours, fitness and exercise, training, and administrative tasks. The time required for these duties, in addition to time committed to the provision of emergency response and incident mitigation, provide multiple indicators that VFD crews may be operating at an unsustainable pace, which may lead to increased burnout, stress, increased sick leave usage, workers' compensation claims, and overall attrition. As noted in the *Staffing* section of this report, the 48-hour work shift along with current work rules, coupled with the high emergency workload as noted here, should be of concern to the City and Fire Department.

Response Time Performance

Response time performance is often the public's most common measure of the effectiveness of a fire department. How quickly units arrive on the scene and resolve their problem are the typical judgments made by the public. ESCI used the NFPA 1710 Standard criteria to evaluate the fire department's response time performance, which is comprised of the following components:

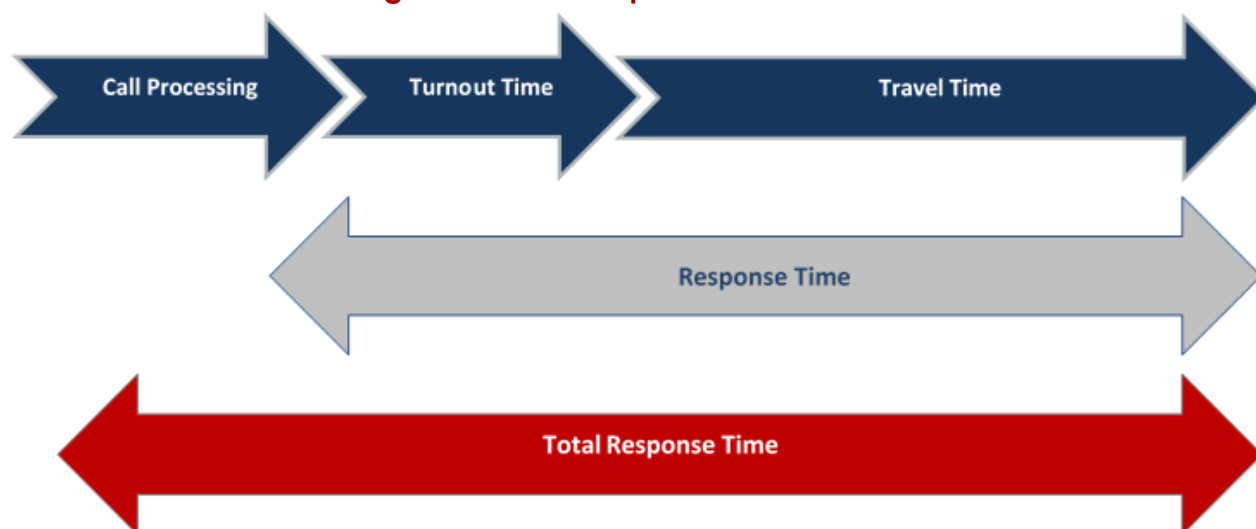
- **Call Processing Time:** The amount of time between when a call is answered by the 911 Primary Public Safety Answering Point (PSAP), or dispatch center, and when units are dispatched.
- **Turnout Time:** The time interval between when units are notified of the incident and when the apparatus begins to respond ("wheels rolling").
- **Travel Time:** The amount of time the responding unit actually spends on the road traveling to the incident until arrival at the scene. This is a function of speed, impedance, and distance.

- **Response Time:** This time is calculated from the time the fire department is dispatched to the arrival of the first apparatus. Response Time equals the sum of "Turnout Time" and "Travel Time."
- **Total Response Time:** This is the most apparent time for the caller requesting emergency services. Total response time is the amount of time it takes from the time they place the emergency call until units arrive. This time often includes factors both within and outside the control of the fire department, particularly when another agency provides dispatch services.

Breaking down, tracking, and analyzing the individual components of response time is important in identifying internal and external barriers to fast and efficient response time performance. Once an emergency response organization gains "ground-truth" of its current response time performance for each of the components noted above, it can develop response goals and standards that are both relevant and achievable. Fire service best practices recommend that fire service organizations monitor and report the components of Total Response Time. ESCI noted that VFD aggressively and regularly monitors, measures, and reports on its response time performance.

The Response Time Continuum is comprised of the three elements described above—Call Processing, Turnout Time, and Travel Time. Total Response Time is the sum of all of these times. The components of the VFD Response Time Continuum are evaluated in further detail in the next sections. The following figure is an illustration of the Total Response Time Continuum.

Figure 94: Total Response Time Continuum



Historically, fire departments used average response times as a response time performance measurement. The average is a commonly used descriptive statistic, also called the *mean* of a data set. Averages may not accurately reflect the performance for the entire data set because the average can be significantly skewed by data outliers, especially in small data sets. Percentile measurements are a better measure of performance since they show that most of the data set has achieved a particular level of performance. The 90th percentile means that 90% of responses were equal to or better than the performance identified, and that the other 10% can be attributed to data outliers, inaccurate data, or situations outside of normal operations that delayed performance. This can be compared to the desired performance objective to determine the degree of success in achieving the goal.

In evaluating the various response time components using the fractile analysis method, each component must be evaluated and quantified separately, as the available data—and the quality of the data may vary significantly.

To provide an analysis of performance for emergency incidents within Ventura, the following assumptions were made:

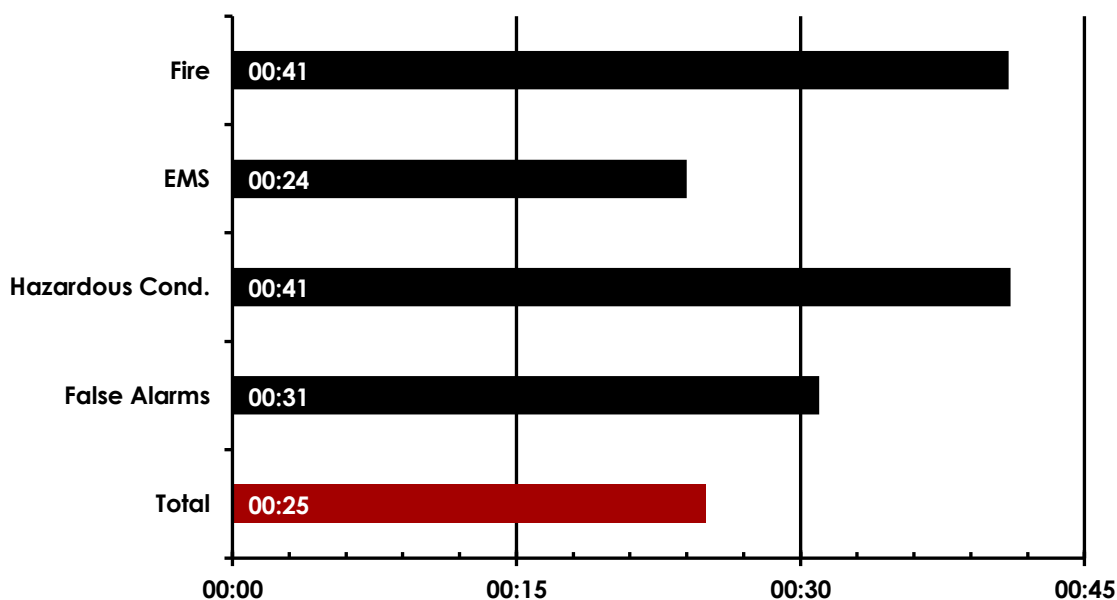
- Non-emergency incident types were removed
- Mutual and auto aid given were removed
- Other aid given were removed
- NFIRS call types within the 500, 600, 800, and 900 series were removed
- Cells containing zeros or no value were removed

Call Processing Performance

The industry standard for call processing (or alarm handling) is NFPA 1221: *Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems*. This standard identifies a call processing time standard of not more than 60 seconds, 90% of the time. For special operations, incidents requiring translation, or other factors described in the standard, times should not exceed 90 seconds at the 90th percentile. It should be noted that the VFD does not have direct supervision over the Ventura County Fire Communications Center (FCC), so these performance measures are not within its control. ESCI recommends that the VFD actively work with the FCC to ensure compliance with NFPA 1221: *Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems*.

Examining VFD's January 1, 2017, through December 31, 2019 data revealed that the overall call processing time was 25 seconds at the 90th percentile. This is due primarily to the "Quick Launch" process adopted by Ventura County, where the dispatcher immediately notifies the appropriate response units of the incident prior to obtaining a complete description and detailed information about the incident. Although this process may occasionally result in units being canceled en route or subsequently being reassigned to a different incident, it dramatically reduces the amount of time normally required for call processing and initial notification of emergency units. This concept is in use by other fire departments studied by ESCI, and is also known as "pre-alerting."

Figure 95: Call Processing, 90th Percentile, 2017–2019

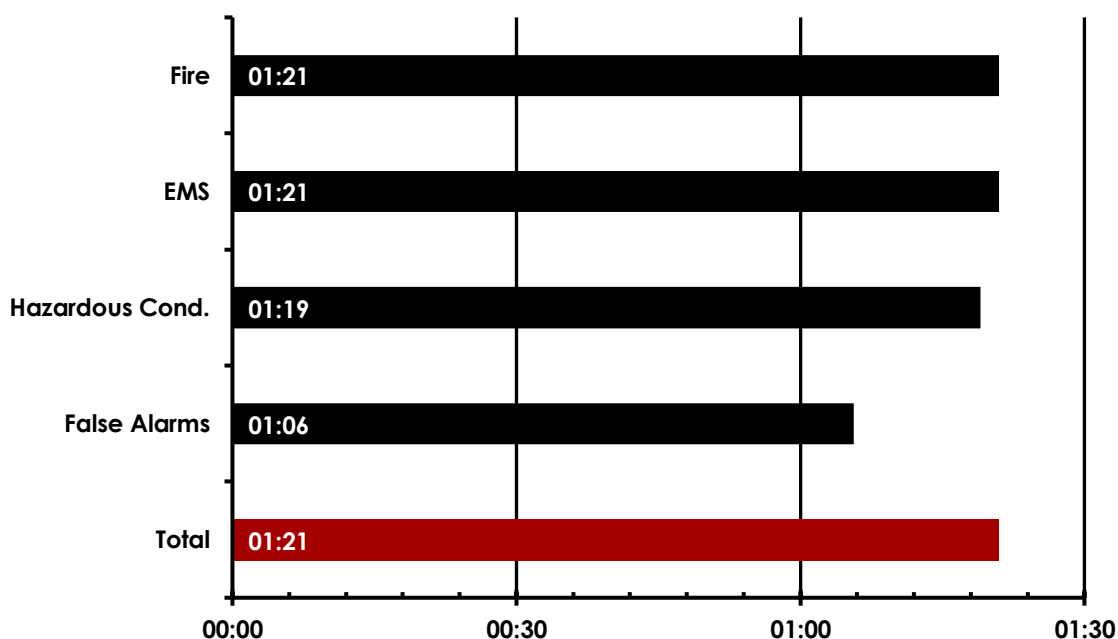


Turnout Performance

The second component of the response continuum, and one that is directly affected by response personnel, is turnout performance—the time from when the crews are alerted to an incident until they begin responding to the incident.

NFPA 1710 identifies a 90th percentile turnout performance of 80 seconds for fire and special operations incidents and 60 seconds for high acuity EMS incidents. The following figure illustrates VFD's turnout time performance.

Figure 96: Turnout Time, 90th Percentile, 2017–2019

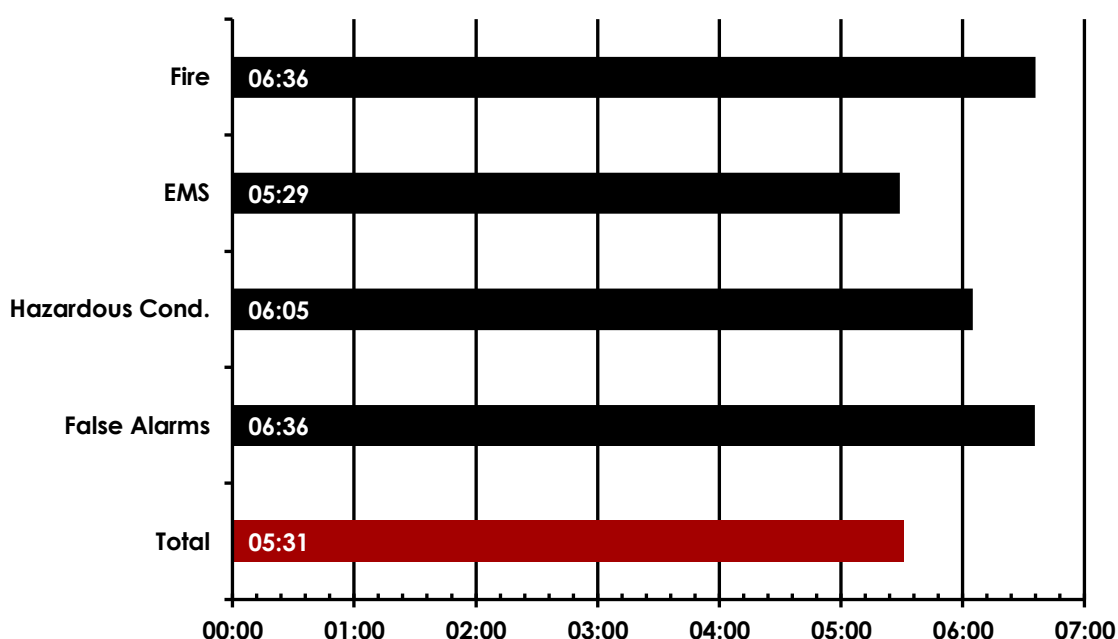


When evaluating Ventura's turnout performance, turnout times for fires nearly meet NFPA standards with similar performance across the board. While NFPA 1710 provides a goal for performance, in ESCI's experience, Ventura has strong turnout time performance. The most common factors that can influence turnout times include deployment strategies (such as transferring gear from one apparatus to another), station design, and the policies currently in place regarding turnout performance expectations.

Travel Time Performance

The third component of the response continuum is travel time. It is important to understand that travel time is not specifically a factor of speed as much as it is the result of proper placement of fire stations from which emergency response begins. Travel time is the amount of time between when the apparatus departs for the call and when it arrives on the scene measured at the 90th percentile. NFPA 1710 identifies that the first due fire or EMS unit should arrive on the scene within 4 minutes, or 240 seconds after starting to travel to the scene. The following figure illustrates VFD's travel time performance.

Figure 97: Travel Time, 90th Percentile, 2017–2019



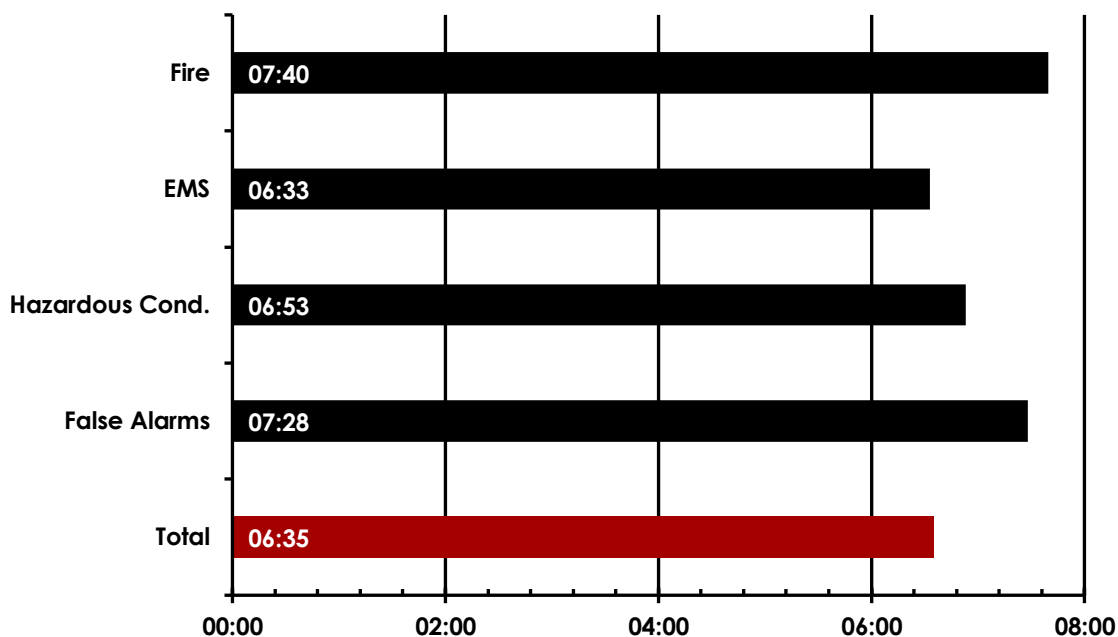
Overall, travel time performance across Ventura was approximately one and a half minutes above the NFPA standard. Travel to EMS incidents performed the best at 5 minutes, 29 seconds, while responses to fires and false alarms possessed 6 minutes, 36 seconds travel time at the 90th percentile.

In addition to station location relative to incident location, overall service demand and high call volumes can also negatively affect travel time if the first due unit is not available to respond within its sector. When this occurs, other units must travel from another sector to respond and subsequently increase the travel time.

Response Time Performance

Response time is the amount of time from initial notification to the fire department until the first unit arrives on-scene. While not specifically addressed by NFPA 1710, it is a combination of turnout and travel time standards or 5 minutes for most emergency responses and 5 minutes, 20 seconds for fire and special operations incidents.

Figure 98: Response Time, 90th Percentile, 2017–2019



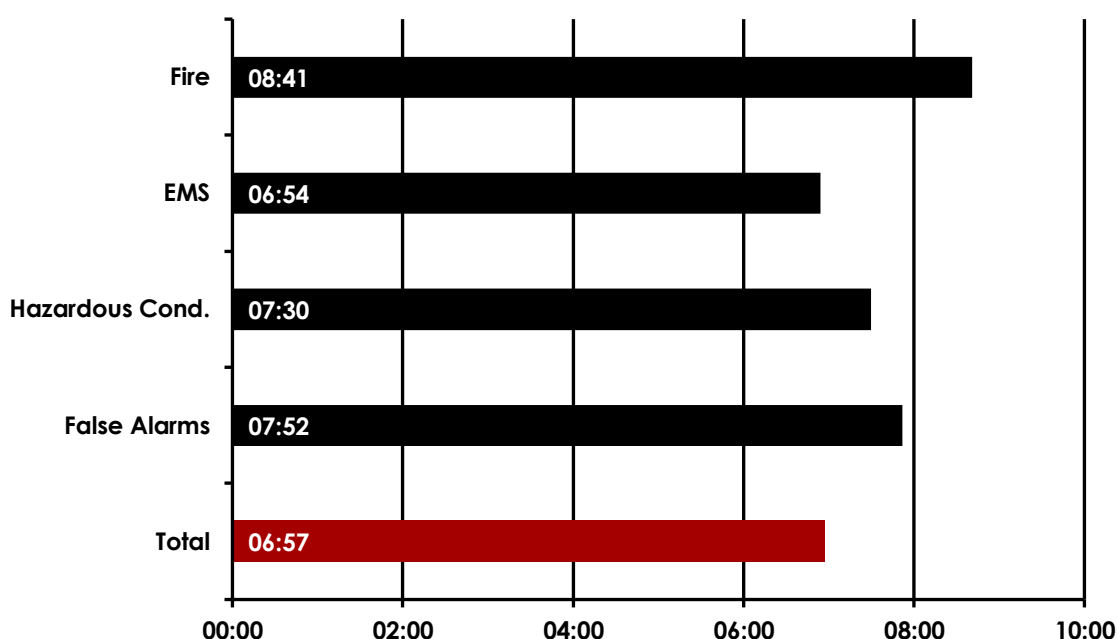
The response time performance for all emergency incidents was 6 minutes, 35 seconds at the 90th percentile. The best performance was for EMS incidents at 6 minutes, 33 seconds, and the longest response times were related to fire responses at 7 minutes, 40 seconds at the 90th percentile.

Since this is a combination of turnout time and travel time, response time provides a broader metric for examining performance. Because these performance metrics are calculated using fractile analysis, totals from one area to another cannot be added together and compared.

Total Response Time Performance

The culmination of the Response Time Continuum is Total Response Time. When citizens call for emergency assistance, this metric represents what they experience as they place the call and wait for help to arrive. Total response time is the amount of time that elapsed from when the call was initiated at the communications center until the first emergency unit arrived on the scene. Similar to response time performance, NFPA 1710 does not provide a standard for this metric; however, it is presented here for informational purposes at the 90th percentile.

Figure 99: Total Response Time, 90th Percentile, 2017–2019



With a total response time for all responses at 6 minutes, 57 seconds, the VFD is performing at a high level relative to other agencies studied by ESCI, especially in the call processing and turnout response time components. While this analysis only examines the first unit to hit each benchmark per incident and the initial unit arriving on the scene, this analysis does not indicate whether sufficient resources initially arrived. VFD should continue to monitor response time performance closely for trends and seek opportunities to improve on performance.

Mutual and Automatic Aid Systems

No emergency response organization possesses all of the resources needed to quickly mitigate all possible types of incidents. Additionally, when mutually beneficial agreements are possible, particularly when they occur at little cost to the organizations, good governance suggests that these opportunities should be leveraged to provide higher service levels to the participating communities. Two types of agreements are discussed in this section—mutual and automatic aid agreements. In mutual aid agreements, two or more organizations agree that, *when requested*, they will supply the other agency with the requested resources if available. Mutual aid requests are typically made by responding or on-scene personnel. The other type of agreement, automatic aid, occurs, as the name implies, automatically. When an emergency call is received by the dispatch center, all available resources are identified based on the appropriate unit type and their proximity to the call, and results in the *automatic dispatching of the closest or most appropriate unit*, regardless of the incident location or response agency jurisdiction. The following figure presents the locations of VFD stations, as well as the locations of automatic aid fire stations within 3 miles of the municipal boundaries of Ventura.

Figure 100: Automatic Aid Fire Stations



VFD maintains automatic aid agreements with several adjacent fire departments, including Ventura County Fire Department and Oxnard Fire Department, which maintain staffed fire stations surrounding the City of Ventura. Automatic aid is routinely used throughout Ventura and the surrounding cities and county.

These agreements are important as they allow the fire department to plan for low frequency/high risk occurrences that are difficult to staff for, as well as provide a safety net during times of heavy and unexpected service demand. Additionally, automatic aid agreements are recognized by ISO, and additional credit is awarded when automatic aid agreements are in place with organizations that can reach within the service area within an 8-minute travel time.

In the following figure, the types of outside agency aid given and received are displayed along with their relative percentage of the total number of incidents. Approximately 91% of VFD responses did not require mutual or automatic aid. Additionally, Ventura provided automatic or mutual aid approximately 41% more often than received. Overall, the difference equates to a relatively small number of incidents, 1,184 or an average of 395 incidents per year.

Figure 101: Distribution of Mutual/Automatic Aid with Cumulative Totals

Aid Type	2017	2018	2019	% of Total
Automatic Aid Received	585	511	580	3.4%
Automatic Aid Given	905	836	1,042	5.6%
Mutual Aid Given	30	35	25	0.2%
Mutual Aid Received	6	4	3	0.0%
Other Aid Given	11	0	0	0.0%
None	14,676	14,881	15,152	90.7%

EMS SUPPORT & SYSTEM OVERSIGHT

EMS System

As with most all-hazards fire departments, medical emergencies account for most of the incidents to which the Department responds. One of the goals of a fire department is to provide the best possible care to its citizens in a timely and effective manner. One element that makes up an effective and efficient EMS program is to have the EMS system integrated with the community's overall health care system. NFPA 450: *Guide for Emergency Medical Services & Systems*, provides a technical reference to addressing the multiple elements of emergency medical systems and will be used where applicable in this section of the report.

Authorized by City/County Ordinance, Ventura FD provides first-response paramedic medical services to the City of Ventura. VFD responds to all requests for 911 emergency medical requests received by the dispatch center. VFD has aligned the practice of advanced medical procedures in the field through a comprehensive medical care protocol with the Ventura County Emergency Medical Services Agency (VCEMSA), the Fire Department Medical Director, and Ventura County Medical Center.

The VFD is dispatched to incidents by the Ventura County Regional Fire and EMS Communications Center, also known as the Fire Communications Center (FCC). The FCC utilizes Emergency Medical Dispatching criteria to manage medical incident caller information to better manage the number and type of resources sent to medical incidents. The FCC utilizes Priority Dispatch Pro QA version 13 that is integrated into the Computer-Aided Dispatch (CAD) system, along with hard copy back-up in the event of computer failure.

VFD employs 25 funded full-time Firefighter/County Accredited Firefighter Paramedics who are assigned to six engine companies, one ladder truck company, and one peak-demand engine company. There are an additional 27 State Licensed Paramedics that are assigned to other positions, such as Captain and Engineer that are not primary care paramedics and do not carry Ventura County Paramedic Certification.

Ambulance transport services for the City of Ventura and surrounding unincorporated areas including Saticoy, Montalvo, Rincon and La Conchita, are provided by American Medical Response (AMR) through a contract with Ventura County. The contract service area is known as Area 7, and service is monitored and administered through the VCEMSA along with AMR Ambulance Services. According to VCEMSA, the AMR contract has specific performance and reporting requirements. VCEMSA generates calendar year performance reporting for all of the ambulance transport providers. The last report generated was for 2018, and the 2019 report is due to be released in the Spring of 2020. According to VCEMSA, AMR, in concert with the "Stop the ALS Clock" (see below) agreement, is in compliance with the County Performance Contract in the City of Ventura.

The City of Ventura has an agreement directly with AMR to provide a "Stop the ALS Clock" service, by VFD providing ALS medical first response services that arrive before the AMR Ambulance. The Contract provides VFD with approximately \$650,000 per year for providing this service, with a formula that establishes base compensation and factors the number of EMS incidents in the City. The EMS incidents are supposed to be totaled annually, and if there is a 3% or more change from the previous year, the base amount would be changed up or down based on the percentage change.

Interestingly, ESCI noted that there does not appear to have been any analysis or adjustment to the Stop the Clock base compensation from AMR as stipulated in the Emergency Ambulance Transportation Services Contract since 2009. A cursory calculation was performed based on the 2009 analysis that was performed by the VFD, and memorialized in a subsequent letter to AMR. Using this information, ESCI took the 2009 payment amount and recalculated it using the 2019 EMS incident data, and last annual payment made, as shown in the following figure.

Figure 102: Stop the Clock Payment Comparison

Contract	2009 ^A	2019	% Change
EMS Incidents	7,941	12,000	51%
Contract Amount Paid	\$563,220	\$650,000	15.4%

^A Letter from Ventura Fire to AMR, June 24, 2009.

This analysis reveals a significant historical disparity between the contract amounts paid to the City and the increased EMS incident workload over the past decade, and likely indicates that the 3% threshold needed to trigger compensation adjustments was likely met in multiple years. In fact, there was a 5.5% increase in EMS incidents between 2016 and 2017 that would have triggered an adjustment. Using a base amount of \$650,000, the adjusted annual compensation would be \$685,750.

According to the VFD EMS Coordinator, the funds are utilized for EMS supplies, equipment, and some operational payroll. These funds are in lieu of the GMET state Medicaid funds for providing prehospital care to patients. As noted above, any change to the number of EMS incidents and level of care provided by VFD would likely impact this revenue stream.

In late 2019, VCEMSA received the "EMS System Assessment Report," performed by Page, Wolfberg, and Wirth Law Firm that examined the state of the ambulance transport, pre-hospital response and treatment systems, and agencies.²⁴ The report provided detailed information relating to the past and current response, support, and fiscal performance of the EMS systems within Ventura County. Within the *Fiscal Performance* section of the report, information relating to the financial sustainability of the ambulance transport company (AMR) and the fees paid by the ambulance company to the VCEMSA, VCFD and VFD were not sustainable given declining revenue reporting versus increasing expenses. As a result, VFD should be hyper-vigilant in reviewing AMR's annual reporting to the VCEMSA relating to the financial viability of the current and future "Stop the Clock" fees received from AMR to VFD, given the reliance of these funds by VFD to support the funding for positions, equipment, and support. In addition, the potential for any future change to the type of EMS responses by VFD that reduce the number of incidents and the level of services would likely reduce AMR's Stop the Clock payments.

EMS Records Management

VFD utilizes computerized records management software and portable computer hardware to document patient care. VFD contracts with the countywide and state-authorized *ImageTrend*® electronic patient care reporting software (ePCR). The data from the ePCR is transmitted to each of the hospitals and the VCEMSA for sharing of demographic and patient care information, case review, and data analytics. This information is also who then sends periodic reports to the State of California EMS Agency.

²⁴ Ventura County EMS System Assessment Report, Page, Wofberg and Wirth, pages 38, 40, and 48, November 12, 2019.

Medical Control and Oversight

The Department's EMS program is administered by an EMS Coordinator who is assigned to the Operations Division, and reports to the Operations Assistant Chief. This full-time civilian administrative position coordinates with the VCEMSA, Medical Director, and hospitals. The EMS Coordinator is a Registered Nurse with previous first responder experience.

VFD utilizes Dr. David Chase, a licensed physician affiliated with the EMS Medical Directors Association of California, to serve as the Medical Director for the agency. The Medical Director serves as the authority for VFD to provide emergency medical response. VFD follows Ventura County EMS Agency Protocols, which are updated regularly. The Medical Director participates in field-response ride-alongs and directly interacts with the EMS Coordinator, and meets with VFD medical personnel four to eight times a month. The Medical Director participates in Quality Management review and provides feedback to the VFD EMS Coordinator and field EMS personnel.

Quality Assurance/Quality Improvement

VFD has an EMS quality assurance (QA) program that was recently improved. The EMS Coordinator and light-duty assigned personnel review the ePCRs to improve the quality of the information and data collected by field personnel. Next, the patient's hospital records are "data mined" to match up the pre-hospital field impressions and care provided with the in-hospital diagnosis and subsequent care.

VFD specifically reviews cardiac arrest, suspected heart attack, trauma, and stroke medical incidents. These reviews are shared with those paramedics on the incidents, and when deemed an educational value to all of the paramedics. The internal review committee was formed in 2019 comprised of VFD paramedics, the agency Medical Director, VCEMSA, and the EMS Coordinator.

EMS Training and Skills Evaluation

The VFD EMS Coordinator creates an annual EMS training calendar and oversees training delivery. This training includes:

- Information and trends gathered through the ePCR reviews
- Specific training offered by various providers (Airway Lab 2x/year)
- ACLS, PALS, CPR/CAM (Cardiac Arrest Management)
- An additional 12 hours of EMS-specific training pre-approved by VCEMSA

Most of the training is delivered using in-house instructors. Approximately six hours of training per year are provided electronically. New EMS personnel are assigned field preceptors to evaluate their ALS knowledge and skills. The paramedic recertification process is managed by the VFD EMS Coordinator through an email notification to the employee two months prior to expiration.

EMS System Discussion

Given that almost 75% of all VFD incidents are EMS-related, this level of effort requires continuous surveillance and quality management to ensure compliance with County, State, and local requirements. Even more importantly, engaged medical oversight helps ensure patients receive appropriate and high-quality medical care. Consistent and ongoing EMS quality management requires dedicated resources and programmatic systems to ensure timely and consistent review of pre-hospital medical care, and identification of necessary corrective actions or emphasized training.

Community Paramedicine

As a part of this project, ESCI analyzed potential opportunities for establishing a *Mobile Integrated Healthcare-Community Paramedicine* (MIH-CP) program to enhance and expand the service-delivery model in Ventura. Also known simply as Community Paramedicine (CP) programs, they have become common throughout North America, and are found in a variety of configurations.

Currently, VFD provides BLS and ALS medical first response only, and relies on AMR for ground ambulance transport. The deployment of these resources utilizes protocol-based dispatch methods to determine emergent versus non-emergent responses. Successful implementation of an MIH-CP program requires a good deal of preliminary investigation to determine both the need and potential sustainability of the program. Numerous systems around the nation have implemented MIH-CP programs, only to see failure due to a lack of adequate planning and/or financial sustainability prior to implementation.

There are multiple successful MIH-CP programs that address community needs using different models. A recently completed study of MIH-CP pilot programs in California—which included Ventura County—revealed that several models achieved cost-savings for payers, hospitals, and other participants. Additionally, overall patient satisfaction and quality of care improved in multiple instances. A summary of their findings is below:²⁵

Post-Discharge, Short-Term Follow-Up Projects

Hospital readmissions within 30 days of discharge decreased for all sites and diagnoses except for heart failure patients enrolled in one project, in which less-intensive services were provided as compared to other post-discharge projects. Community Paramedics identified 129 patients (14%) who misunderstood how to take their medications, or had duplicate medications, and were at risk for adverse effects. Community Paramedics educated patients on how to take their medications and identified incidences where they were given duplicate prescriptions. They also assisted patients in obtaining refills, if needed.

Frequent EMS-User Projects

These projects achieved reductions in numbers of 911 incidents, ambulance transports, and emergency department (ED) visits among enrolled patients. Community Paramedics assisted patients in obtaining housing and other non-emergency services that met the physical, psychological, and social needs that led to their frequent EMS use. Both projects achieved cost-savings for payers, but only one realized sufficient savings to offset the expenses of operating the program. These projects also decreased the amount of uncompensated care furnished by ambulance providers and hospitals, because 35% of enrolled patients were uninsured.

Hospice Project

Community Paramedics mainly provided hospice patients and their families with psychosocial support and administered medications from patient's "comfort care" packs when necessary, and in consultation with a hospice nurse. Ventura County participated in this project. The hospice project enhanced the EMS and hospice agencies' ability to honor the wishes of patient to receive care at home, by reducing rates of ambulance transports to an emergency department from 80% to 36%. The project also achieved savings for Medicare and other payers by reducing unnecessary ambulance transports, ED visits, and hospitalizations.

²⁵ Janet M. Coffman, PhD, MPP, Cynthia Wides, MA, Matthew Niedzwiecki, PhD, and Igor Geyn, *Evaluation of California's Community Paramedicine Pilot Project*, January 23, 2017.

Alternate Destination—Behavioral Health Care Project

Paramedics performed medical screenings of patients to determine whether they could be safely transported directly to a mental health crisis center. Ninety-five percent of patients were evaluated at the behavioral health crisis center without the delay of a preliminary emergency department visit. Only 5% of patients required subsequent transfer to the ED, and there were no adverse outcomes. After refining the field medical evaluation protocols, the rate of transfer to an ED fell to zero. The project yielded savings for payers, primarily *Medi-Cal*, because screening behavioral health patients in the field for medical needs and transporting them directly to the mental health crisis center averted the need for an ED visit and subsequent transfer to a behavioral health facility. For uninsured persons, the amount of uncompensated care provided by ambulance providers and hospitals also decreased. Community safety was enhanced because it reduced the time that law enforcement devoted to behavioral health incidents.

Alternate Destination—Urgent Care Projects

More data are needed to make firm conclusions about the alternate destination—medical care projects due to the limited number of patients enrolled and the number of patients rerouted or transferred to an ED. Among the limited number of patients who were enrolled, Paramedics were able to identify patients for whom transport to an urgent care center was an appropriate option. No patients experienced an adverse outcome, although two patients were transferred to an ED following admission to an urgent care center, and nine patients were rerouted to an ED because the urgent care center declined to accept the patient. To operate safely and efficiently, these projects need to closely match field-screening protocols with the capabilities of urgent care centers, and the illnesses and injuries they are willing to treat. The projects yielded modest savings because insurers paid less for treatment provided in urgent care centers than in emergency departments for the same illnesses and injuries.

The aforementioned are but a few examples of the many programs that exist, with 33 states and several countries employing MIH-CP programs within their communities. Other notable programs include:²⁶

²⁶ Joint Committee on Rural Emergency Care (JCREC), National Association of State Emergency Medical Services Officials, National Organization of State Offices of Rural Health, *State Perspectives Discussion Paper on Development of Community Paramedic Programs*, December, 2010.

- *MedStar, Transport Alternative Destination/Alternative Transport Program (Texas)*—A collaborative effort of MedStar, the emergency physicians board, and public health. The overall goal of this program is to help ensure the right patient, receives the right care, at the right time, and in the right setting. Patients in this program receive better healthcare at a reduced cost to them and the community.

Patients with chronic or non-acute conditions are treated by *Advanced Practice Paramedics* who bring preventative services to patients at the most risk for medical emergencies. The program reduces healthcare expenditures by reducing the probability of providing acute emergency medical care for at-risk and medically underserved patients.

- *Wake County EMS (North Carolina)*—In addition to providing increased community resources for acute care, Paramedics in this program also provide preventative care to some high-risk patient populations, and seek further care for those patients who may be better served at locations other than local hospital emergency departments. These Paramedics are part of a healthcare team that improves emergency response, mitigates the need for some responses, and provides care to some patients that have limited access to any other care.

Each of these communities identified special needs populations in their region that would benefit from the establishment of an MIH-CP program, tailored to their specific needs.

Community Paramedicine Discussion

At a minimum, successful implementation of a CP program requires collaboration with healthcare organizations, hospitals, physicians, payer sources, social services, *Accountable Care Organizations (ACO)*, home-health agencies, and mental health resources. Implementation of a CP program in Ventura would require identifying underserved populations or those patients in need of in-home services who could benefit from immediate and regular availability of assessment and intervention. ***In September 2020, legislation allowing the implementation of Community Paramedic programs was signed into law by the Governor.*** The law authorizes local EMS agencies to develop CP programs, and outlines requirements for planning, implementing, and monitoring a CP program. Additional guidance and implementation rules will be forthcoming from the State.

Hospitals today are more interested in funding CP programs than they were a few years ago. The readmission penalties imposed by the *Centers for Medicare & Medicaid Services* (CMS) are having a greater impact on their revenue streams, as additional diagnoses are added to the penalty list, and the national readmission rates continue to decline. By using Community Paramedics to follow-up with recently discharged hospital patients, so as to ensure their compliance with medications and after-care therapy, experience has demonstrated reduced hospital re-admission frequency. For this and other reasons, a broad-based collaborative effort between EMS and other local health and social service providers can reap benefits for all involved.

An analysis of 2019 patient-disposition data showed that approximately 25% of VFD EMS responses—where they arrived on the scene—did not result in an ambulance transport. While there is no direct correlation between these dispositions and the potential number of patients that might be seen by an MIH-CP program, it is reasonable to assume that a modest percentage of these patients could benefit from a CP response.

SUPPORT PROGRAMS

Training

A comprehensive training program is one of the most critical factors in ensuring the safe and effective delivery of emergency services. This is especially true of smaller fire departments where staffing is limited, but the types of incidents they respond to can be the same as larger departments. Failure to provide necessary and effective training on a continual basis endangers firefighters and the citizens they serve, while concurrently exposing the fire department to liabilities with potentially severe consequences. It is proven that a well-trained workforce contributes substantially to better outcomes on incidents.

Following an initial training program, all firefighting personnel should actively be engaged in an ongoing training program that includes testing and ensuring practical skills and knowledge are maintained.

In order to deliver a comprehensive training regime, emergency service organizations must have access to qualified instructors and training resources. These resources are typically found within the organization, externally with regional partners, or a combination of both. It is essential to ensure training programs are applicable, consistent, and of high quality, and not just delivered to simply fulfill mandatory training hours. Fire administrators and instructors must ensure firefighters, EMS personnel, and officers are not only competent, but also self-confident in the variety of skills necessary to perform effectively in high-stress situations.

The types of training to consider when developing a training program include the following:

- Basic and advanced firefighter training
- Basic and advanced medical training
- Driver/operators training courses
- Hazardous materials training
- Firefighter safety and survival
- Technical rescue training, including US&R certifications
- Wildland firefighting operations and refresher course work
- Fireboat Training
- Ocean Rescue Awareness
- Training Task Books for all qualified positions
- Officer development training

Training Administration

VFD has one Battalion Chief assigned to administer the Department's Training Program. This Battalion Chief is also assigned additional administrative functions. Based on an internal review of duties assigned, it is estimated the Battalion Chief's time is allocated approximately 40% to training and 60% to administrative functions. The Training programs coordinated by the Battalion Chief consists of the following:

- Fire service training programs
- Coordination of in-house Lateral new hire training for new firefighters and joint recruit academies with Ventura County Fire
- Promotional Testing
- Safety Officer Response to Incidents

VFD Training Procedures are reviewed and updated as needed. The Department intranet provides in-house and regionally created online training that provides entry to advanced-level training. This system is managed regionally with fire agencies in Ventura County.

VFD has a training budget of \$464,192. This includes the wages and related costs for the Battalion Chief (\$263,000). Academy costs and overtime for covering costs, professional development, specialized training for HazMat, technical rescue, and wildland training. Promotional testing and tuition reimbursement are also costs applied to this budget.

Training Delivery

Approximately 20% of Operations-assigned personnel are currently in probationary status. According to the Training Chief, the annual turnover rate for the Department ranges from 3 to 5%.

New firefighters are hired both with and without experience or related firefighter certifications. VFD conducts an in-house lateral four-week firefighter training program for experienced firefighters who are hired from other fire departments. VFD also partners with Ventura County Fire Department (VCFD) to train new inexperienced firefighters recruits in an approximately 16 to 18- week academy, after which they complete the in-house VFD four-week academy. The Department temporarily assigns an operations Captain to help with the VCFD and VFD training programs on an as-needed basis. Upon hire, all new firefighters attend a basic City and Department administrative orientation, as well as familiarization with the apparatus, facilities, and response districts. Upon completion of the training academies, the probationary firefighters must complete monthly post academy training topics and drills.

Current paramedic certification is a job hiring pre-requisite, which helps ensure advanced life support medical care on all apparatus. However, it also limits the number of applicants for open positions.

The Training Battalion Chief establishes an annual training calendar that specifies monthly mandatory Job Performance Requirements (JPRs) for all firefighters. The JPRs are annually adjusted and modified based on department needs and various mandates. The calendar includes both fire and emergency medical services (EMS) training. Station Captains and Operations Battalion Chiefs manage accountability of these training requirements.

ESCI noted during interviews with line personnel that while the annual training calendar specifies monthly JPRs for all firefighters, teaching methods and consistency of training vary from shift to shift. Multi-company drills are frequently interrupted due to staffing issues and coverage challenges. ESCI understands that these interruptions were one of the primary reasons for staffing an additional engine company crew (ME-7) during the day, Monday through Thursday (and every other Friday) to cover stations for training, as well as provide for peak call load response. VFD does drill with the neighboring auto-aid fire agencies, however, the drills are not scheduled, due to call loads. There are coordinated special drills specific to Hazardous Materials, Ocean Rescue, and Urban Search & Rescue (USAR).

VFD's training facility consists of homemade Ladder/roof props and Conex boxes, located on 2.5 acres of an old water treatment facility. The facility does not have a live-fire prop, training classroom(s), or other fire and driving drill grounds found at more contemporary fire department training facilities. VFD has access to the Ventura County training grounds in Camarillo, California. However, it is located approximately 30 minutes from the city.

Training Records

VFD primarily records company training on paper and sends it through interstation mail to the Training Chief for data entry, even though the SunPro® *Fire RMS* has a training module for entering and tracking training. Recording of daily training records is performed primarily by the Engineers, as they routinely use *Fire RMS* to enter vehicle maintenance requests to the City's fleet shop. VFD does not audit the training activity towards achieving identified training goals.

Fire personnel certification records are maintained electronically and in paper format. The paper certifications are archived in the training files located with the Training Chief's office.

According to the Training Chief, VFD personnel participated in approximately 18,000 hours of fire training in 2019, or an average of 240 hours per firefighter. Other training topics covered included:

- Ocean Rescue
- US&R
- HazMat
- Rope Rescue
- Peer Support
- Mass Casualty Incidents
- Wellness, injury prevention, and physical fitness education
- Active Shooter
- Apparatus Orientation
- Other non-specific training

Hazardous Materials Response

Hazardous materials incidents are a part of almost every fire department's call volume. While this type of emergency response does not occur as often as other types of emergency incidents, it can be extremely dangerous to emergency responders and the community. This section of the report examines VFD's significant local and regional capability to respond to and control hazardous materials releases.

VFD is part of a regional hazardous materials response team, comprised of municipal, county, and regional fire departments in responding to and mitigating hazardous materials incidents. Department training and training with other area fire departments occur annually. The VFD Hazardous Materials Team is certified to the California Type 1 level. All of the area fire departments utilize the NFPA 472: *Standard for Competence of Hazardous Materials/Weapons of Mass Destruction Incidents Job Performance Requirements* (JPRs) that relate to hazardous materials in order to meet the continuing education requirements for certification purposes.

VFD responded to 287 hazardous materials responses in 2019, most of which were for petrochemical spills. There is no response time goal established for assembling the team. Call-back of off-duty personnel is available for extended operations, and the Team relies on multi-county mutual-aid response for complex and large incidents.

Given the significant risk hazardous materials incidents pose to the City and emergency responders, a high priority is placed on ensuring response readiness at all times. Large amounts and wide varieties of highly toxic hazardous materials travel flow into and out of the City daily via the various transportation networks, including roadways, pipelines, and railway. Industrial warehousing and manufacturing processes that use hazardous materials are also significant community hazards, which require the regular filing of Emergency Planning and Community Right-To-Know Act (EPCRA) Tier II reports. ESCI understands the City's Tier II hazardous materials inventory was recently updated by the County.

VFD operates a large Hazardous Materials response unit out of Station 6. The vehicle is cross-staffed with hazardous materials technician certified personnel from Medic Engine 6. This is a "Level A" Type 1 resource—the highest level of Hazmat response capability.

Hazmat certification levels are defined by NFPA 472: *Standard for Competence of Hazardous Materials/Weapons of Mass Destruction Incidents* and by the Occupational Safety and Health Administration (OSHA) in CFR 1920.120. The highest level of certification for responders is the "Technician" level. Thirty-eight personnel are certified as Haz-Mat Technicians, and 37 are certified to the Operations level, resulting in considerable response capability. In addition, eight personnel are certified Hazardous Materials Incident Commanders.

NFPA 472 also defines the requirements of a Hazardous Materials Safety Officer certification level. However, no VFD personnel are certified at this level. Instead, the Safety Officer position is filled via automatic aid from the Ventura County Fire Department HazMat Team, which is a part of the 1st and 2nd Alarm HazMat Response in the City.

ESCI staff performed a comprehensive assessment based on industry standard practice and consistent with the Occupational Safety and Health Administration (OSHA), NFPA 472: *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, NFPA 473: *Standard for Competencies for EMS Personnel Responding to Hazardous Materials/Weapons of Mass Destruction Incidents*, NFPA 1710, and the International Fire Service Training Association (IFSTA). Four major areas were assessed:

- Standard Operating Procedures, Policies, and Guidelines
- Human Resources
- Training
- Equipment

Standard Operating Procedures, Policies, and Guidelines

The VFD HazMat Team performs under the Countywide Annual Operations Plan (AOP), which conforms to the elements of an Emergency Response Plan (ERP) mandated by the Federal Occupational Safety and Health Administration (OSHA) 29 CFR 1910.120 (q)(1) and California Code of Regulations Title 8, Section 5194. These regulations require that employers establish emergency procedures to be followed when responding to emergencies involving hazardous materials. This plan is available online to all employees and reflects pre-planning and coordination with outside stakeholders. The AOP was last updated in FY 2016–17.

VFD has adopted and uses the NIMS/ICS system to manage all emergency incidents. This system defines the lines of authority, roles, and responsibilities for managing large-scale incidents, including uncontrolled hazardous materials releases. Furthermore, it designates a single incident commander as well as mandates the implementation of Unified Command in certain circumstances. Passing of command to senior officials is recognized, and the Hazardous Materials Safety Officer is identified.

During hazardous materials responses, specially trained VFD paramedics stand by during actual and potential Immediately Dangerous to Life and Health (IDLH) atmospheres.

The County AOP identifies: Safe isolation distances and areas of refuge for responders; the type and level of required personal protective and emergency equipment; site security and control requirements; and usage of a personal accountability system. The AOP is thorough and details the use of emergency evacuation procedures, decontamination procedures to include collection and disposal of runoff. Finally, the Plan details the procedures for after-action reports and critiques. The Plan also identifies how to request other local, regional, state, and federal resources.

The VFD hazardous materials team has a detailed personal protective equipment (PPE) plan, consistent with OSHA CFR 1910.120 that outlines; the policies and procedures to address proper selection of PPE; their use and limitations; work period duration; proper maintenance and storage; proper decontamination and disposal; training and fitting; donning and doffing; and inspection procedures. VFD also has policies and procedures that reference the proper usage, calibration, and maintenance of atmospheric monitors.

Hazardous Materials Personnel

CFR 1910.120 requires employers to ensure that firefighters operating in a potential or known IDLH environment work in teams of two or more and have a properly equipped rescue team standing by to perform an immediate rescue of personnel operating in the hazardous environment. The accepted industry standard requires seven hazardous materials technicians trained to facilitate a minimal entry during a hazardous materials response.²⁷ These seven people must be dispatched on the initial hazardous materials emergency response once it is determined that an emergency exists. Of these seven, one should be the designated hazardous materials safety officer trained in accordance with NFPA 472, and another as the Incident Commander.

VFD has a written medical surveillance plan for personnel assigned to the hazardous materials response team. This plan requires periodic physician assessments and surveillance, including ongoing assessments after toxic exposures above permissible exposure limits (PELs). All employees receive proper respiratory clearance examinations and annual respirator fit testing.

Training

The VFD hazardous materials team certifies that its members have achieved technician level training in accordance with NFPA 472. The Department keeps records documenting initial and refresher training, along with completion of a task book issued to all members and certifies all members who are required to use respiratory protection. All members have been trained to at least the Hazardous Materials First Responder level. The VFD Hazardous Materials Team has a plan for annual refresher training, including evaluating proficiency in handling various hazardous materials situations. According to the VFD Hazardous Materials Team leader, all personnel meet the minimum annual training requirements set forth by the California State Fire Marshal, NFPA 472, and OSHA standards. Team leaders have expressed a need to train more often to increase efficiency and proficiency for rescuers.

²⁷ NFPA 472 2018 Edition Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents.

Hazardous Materials Response Equipment

A review of the equipment inventory provided by VFD shows the agency has sufficient materials and tools for hazardous materials response. VFD has an adequate supply of decontamination equipment. This equipment consists of the required containment and collection items as well as the necessary cleaning solutions for decontamination operations.

The inherent ability of hazardous materials emergencies to progress into longer-term operations dictates the need to ensure effective rehabilitation of deployed personnel. VFD has arrangements in place for the sheltering of personnel from the elements during rest periods, as well as performing physiological assessments and monitoring. Ambulances, buses, ventilated tents, and shelter are all available to VFD during a hazmat incident, as well as procedures in place to obtain meals for responders during extended operations.

VFD has various methods for the analysis and detection of hazardous materials. This includes PH paper, multi-gas monitoring equipment, radiological monitors, and colorimetric chemical detection and analysis. There are also sufficient supplies for gathering and collecting samples.

Every member of the VFD hazardous materials team operating on-scene has intrinsically safe hand-held radios, and specialized microphone/speaker accessories for use in Level A suits.

VFD has an assortment of equipment to handle various types of common hazardous materials releases, such as Liquified Petroleum Gas (LPG) and natural gas (NG) leaks. Additional spill and leak equipment are available, including but not limited to Level A and B chlorine leak kits, drum handling equipment, overpack drum equipment and supplies, firefighting foam suppression equipment and supplies, and approximately 60 spare SCBA air cylinders.

VFD stocks the necessary medical equipment to monitor and provide treatment for team members during entry. VFD maintains an adequate number of reference materials and has field internet capabilities for accessing hazardous materials reference materials, including the ability to deploy a weather station for immediate on-site analysis. The regional hazmat team has drone capabilities for incident response.

Communications/Dispatch Services

Communications Overview

Emergency communications dispatch for the VFD is provided by the Ventura County Regional Dispatch Center (FCC). The City of Ventura Police Department is the Primary Answering Point (PSAP) for 911 incidents in the City of Ventura.

FCC is a division of the Ventura County Fire Department, and is a Secondary PSAP, receiving VFD requests for response from the Ventura Police PSAP. FCC is the focal point of emergency service requests for fire and medical responses. FCC serves approximately 812,000 residents in the Ventura County Fire service areas and four other public fire agencies answering, 213,534 requests for service incidents in 2019.²⁸ FCC coordinates responses with other dispatch centers in the region: CAL FIRE; Los Padres National Forest; Los Angeles County Fire; Santa Barbara County Fire; ambulance transport providers; state and local law enforcement agencies; utility providers; and community service agencies. FCC also provides the after-hours answering point for the County Medical Examiner's Office.

FCC utilizes the *Priority Dispatch*® Emergency Medical Dispatch Protocols for all medical 911 calls. These protocols are annually reviewed by the Agency's Medical Director, Doctor Stephen Levine, and when new software versions are updated as defined by the protocol vendor and Agency Medical Director.

To guide and manage the Center operations, FCC utilizes the current editions of the NFPA 1061: *Standard for Public Safety Telecommunications Personnel Professional Standards Qualifications*, and NFPA 1221: *Standard for Installation, Maintenance, and Use of Emergency Services Communications Systems*.

FCC has also implemented a fire response protocol system that provides tiered responses to all types of fire incidents, particularly wildfire responses. The system utilizes geographic, weather, topographic, and vegetative data to provide enhanced fire department resource dispatching.

²⁸ Suburbanstats.org.

Dispatch Center Staffing

FCC is staffed by:

- Center Manager, Battalion Chief
- Staff Services Manager
- 4 Supervisors
- 34 full-time combined Call-Taker/Fire Telecommunicators
- Training Supervisor
- Technical Systems Supervisor
- (5) Administrative Support Staff

The Center is staffed in two 12-hour shifts consisting of:

- Day Shift
 - (1) Supervisor
 - (7) Dispatcher
- Night Shift
 - (1) Supervisor
 - (5) Dispatchers

Communications Center Facility

The current stand-alone dispatch facility became operational in 2005. Since then, the building and its systems have undergone periodic updating in accordance with the Ventura County Fire Department Facility and Capital plans, which are updated annually during the budget process. The facility has three backup power interruption redundancies, including "shore power" connections for outside power sources, uninterruptible power supply battery systems (UPS), and an onsite generator with automatic transfer switch capability.

A back-up dispatch center is co-located at Ventura County Fire Station 42 in Moorpark. This center is maintained and tested quarterly.

Communications Center Systems

FCC's Computer Aided Dispatch (CAD) system was installed in 2005. The system is continuously updated and maintained by the vendor Central Square®, and FCC technicians.

The dispatch systems that alert and send information to the fire stations, ambulances, alpha-numeric pagers, and the mobile data computers in the fire and EMS transport units are continuously updated in accordance with manufacturer recommendations and requirements. The radio recording system records all of the radio traffic on all regional fire radio network frequencies used by the Ventura City Fire Department.

Communications Center Performance

FCC dispatching performance is constantly monitored by management using an online “dashboard” that tracks the current actions of the Center. The Center Manager also reviews performance reports daily and provides monthly reports to the VCFD and VFD management teams. The following figure summarizes the Center's 2019 Fire Service incident activity and response performance.

Figure 103: 2019 Ventura County Regional Dispatch Center Performance

Activity	Performance Metrics
Number of 911 Calls for Service	66,794
All incoming 7-digit Calls	146,740
Call Answering Time Interval	95.86% < 10 seconds
Call Processing Times (all calls)	94.8% < 10 seconds
Fire Incidents	2,708
EMS Incidents	63,197

Communications Budget

The VFD FY 2019–20 budget for dispatch services provided by FCC is \$114,750. The projected FY 2020–21 budget for dispatch services is \$116,066.²⁹ FCC operations are funded through the Ventura County Fire Department. The FY 2019–20 FCC Operating budget is \$996,636.³⁰ The cost of the VFD contract is based on an average call load for the agencies dispatched by FCC and divided based on the system demand. The VCFD has a budget planning process that includes long-term planning for communications and dispatch facilities, systems, and services.

²⁹ [https://www.cityofventura.ca.gov/DocumentCenter/View/18416/FY-2019-20-Adopted-Budget?bidId=.](https://www.cityofventura.ca.gov/DocumentCenter/View/18416/FY-2019-20-Adopted-Budget?bidId=)

³⁰ [https://vcportal.ventura.org/auditor/docs/adopted-budgets/fy2019-2020/8.%20%20Special%20Districts/2.%20%20Fire%20Protection%20District.pdf.](https://vcportal.ventura.org/auditor/docs/adopted-budgets/fy2019-2020/8.%20%20Special%20Districts/2.%20%20Fire%20Protection%20District.pdf)

Communications Discussion

Discussions with VFD leadership revealed concern and some frustration with the FCC's philosophy of sending a fire department resource to unique non-emergency situations, including but not limited to citizens locked out of their vehicles, outside domestic water supply leaks, or animals in distress. These situations, typically triaged as non-emergent Omega level incidents in the EMD ProQA® system, result in the immediate automatic dispatching of the closest VFD unit to investigate.

Many communities have implemented alternative service request "helplines," such as 211 and 311, to assist citizens with non-emergent social services needs, utility assistance, crisis intervention referrals, and animal problems. Trained call receivers are equipped to assist in identifying the issue and providing information and referrals to an appropriate agency. Ventura County has a 211 referral system that provides similar assistance.

Efforts should be undertaken to reduce the reliance on fire department emergency response resources in handling certain non-emergent requests for assistance, including referral to 211, transfer of the call to a duty officer in the applicable jurisdiction, or referral to the appropriate public agency.

Fire Prevention and Life Safety Education

In today's fire service, the many competing interests for limited funding make establishing priorities very difficult. Often the mission of fire prevention and public education programs becomes a combined effort between the department and their municipality. Outreach and education combined with identifying and emphasizing Community Risk Reduction (CRR) should become part of the everyday mission of the fire department.

Fire Prevention

It is far more effective to prevent fires and other emergencies than it is to respond to them. The financial impact of a fire or injury goes far beyond the cost of extinguishment or treatment. According to the Federal Emergency Management Agency (FEMA), 40% of businesses do not reopen following a disaster. Additionally, another 25% fail within one year. The United States Small Business Administration found that more than 90% of companies fail within two years of being struck by a disaster.³¹

³¹ <https://encompass.eku.edu/cgi/viewcontent.cgi?article=1166&context=etd> p. 3.

The fiscal impacts of injuries, while not as immediately evident, can be equally devastating. Individuals experiencing an injury may lose the ability to earn an income during the recovery time, and businesses lose productivity of that individual until they return to work. Beyond the fiscal impacts associated with lost work time, injured persons and families often experience significant emotional trauma.

A strong fire prevention and life safety program, based on effective application of relevant codes and ordinances, reduces the loss of property, life, and the personal disruption that accompanies a catastrophic fire and accidents.³²

The fundamental components of an effective fire prevention program are listed in the following figure, accompanied by the elements needed to address each component.

Figure 104: Fire Prevention Program Components

Fire Prevention Program	Elements Needed to Address Program
Fire Code Enforcement	Proposed construction and plans review New construction inspections Existing structure/occupancy inspections Internal protection systems design review Storage and handling of hazardous materials
Public Fire and Life Safety Education	Public education Specialized education Juvenile firesetter intervention Prevention information dissemination
Fire Cause Investigation^A	Fire cause and origin determination Fire death investigation Arson investigation and prosecution

^A Investigations are performed by specially trained personnel assigned to Operations

Plan Reviews and Inspection Activities

The review of planned construction is a critical component of fire prevention. Working in conjunction with the local, county, and/or regional building officials ensures that planned construction will be built to applicable fire codes and standards that make for a safe environment for those that will occupy/use it.

³² <https://encompass.eku.edu/cgi/viewcontent.cgi?article=1166&context=etd>.

A comprehensive fire inspection and construction plan review program ensures that the business/occupancy continues to meet the codes and standards to which it was built, and also provides an opportunity for fire personnel to develop a plan of action (pre-plan) in the event of a fire or other emergency. The recommended frequency for business/occupancy inspection may vary based on the type of property and degree of hazard. The National Fire Protection Association (NFPA) recommended standard for fire safety inspections by hazard class is noted in the following figure.

Figure 105: Recommended Fire Inspection Frequencies per NFPA 1730

Hazard Classification	Example Facilities	Recommended Inspection Frequency
Low	Apartment common areas, small stores, and offices, medical offices, storage of other than flammable or hazardous materials.	Annual
Moderate	Gas stations, large (> 12,000 square feet) stores and offices, restaurants, schools, hospitals, manufacturing (moderate hazardous materials use), industrial (moderate hazardous materials use), auto repair shops, storage of large quantities of combustible or flammable material.	Semi-Annual
High	Nursing homes, large quantity users of hazardous materials, industrial facilities with high process hazards, bulk flammable liquid storage facilities, facilities classified as an "extremely hazardous substance" facility by federal regulations (SARA Title III).	Quarterly

The VFD follows the 2019 Edition of the California Fire Code (CFC). Data provided by the Department, pertaining to life safety and building fire code inspections, reveals the frequency of inspections performed annually does not meet the State of California annual inspection requirements due to the workload associated with new construction inspections and plan reviews and the limited number of qualified Fire Inspectors. As a result, the Department prioritizes inspections of new construction and high-hazard facilities. ESCI noted that the Department previously assigned engine companies to perform fire inspections in their response sectors. However, the program had to be discontinued in the early 2000s due to a significant increase in emergency responses.

The State of California's Senate Bill 1205 mandates inspections of schools, multi-family complexes (larger than triplex), adult care facilities, and childcare facilities. It also requires annual reporting of compliance with the law during a jurisdiction's annual budget adoption process.

The data provided by VFD Fire Prevention for inspections performed in 2019 that of the 3,467 required annual inspections (NFPA 1730 and California State Law), only 802 inspections were performed.

Figure 106: VFD 2019 Required Annual Inspections

Risk Category	1730 Frequency	# In Ventura	Required Annually	# Inspected	% Completed
Low	3 year	1,710	570	0	0%
Moderate	2 year	440	220	70	31.8%
High	Annual	2,677	2,677	732	27.3%
TOTAL		4,827	3,467	802	23.1%

A review of inspection records, and observations shared by the Fire Marshal, revealed that the data collection system used by fire prevention personnel is cumbersome and inadequate for remote inspection and report generation purposes. Efforts to align records management systems with the City Building department have not yet been successful.

Fiscal plans for FY 2021 provided for additional Inspector positions to augment the inspection program. However, as a result of the anticipated financial impacts of the ongoing COVID-19 pandemic, the hiring of these new positions has been delayed.

To identify potential options in ensuring completion of the required inspections noted in the preceding figure, ESCI calculated a theoretical daily inspection workload if all inspections were assigned and scheduled uniformly throughout the year, resulting in the following calculation:

Number of annual inspections required = **3,467**

Number of workdays (M–F) in 2021 = **250**

Number of Federal Holidays in 2021 = **10**

$3,467 \div 240 \text{ workdays} = \mathbf{14 \text{ inspections required per day}}$

Evaluation of current Fire Prevention staffing compared to the required daily inspection workload quickly reveals that there is not enough staff to conduct 14 inspections every weekday. Recordkeeping, code consultations, leave time, training, code enforcement follow-up, and other administrative duties are staff activities required above and beyond physically visiting and inspecting occupancies.

Fire Departments across the United States utilize civilian or sworn operations assigned personnel to perform occupancy inspections. The use of civilian personnel typically results in cheaper personnel costs as opposed to using sworn firefighters. In addition, sworn operations firefighters have many competing priorities during any given shift, besides responding to emergencies.

Using retired firefighter annuitants may be another option for adding inspection capacity on a short-term basis. Utilizing part-time retired firefighters or inspectors may be a cost-effective way to bolster the fire inspection program. However, CalPERS rules prohibit annuitants from working more than 960 hours per year.

New Construction Inspection and Involvement

VFD reviews all new construction plans for compliance with the CFC, except for highly technical or unique buildings. In those cases, the plans are reviewed by a Fire Protection Engineering firm, and the cost for external review is passed onto the builder/architect. Plan review fees are handled by the Building Department, with the Fire Department receiving 1.5% of the fire protection system fees.

New construction inspections are funded by the General Fund with any new construction fees applied to offset a portion of those inspection efforts. The costs of providing these inspections exceed revenue intake.

The City should consider reviewing and updating the current fee schedule to seek parity in the costs of providing services with the fees being applied to new projects.

Fire and Life Safety Public Education Program

Delivering fire and life safety messages must be accomplished through an intentional process resulting from a strategic fire protection campaign. A comprehensive fire and life safety education program involves teaching the public methods and techniques used to minimize the occurrence of fire and other accidents. A well-educated and trained public can become a “force multiplier” in maintaining a safe community.

VFD does not deliver a comprehensive, dedicated Fire and Life Safety Public Education Program for the residents of Ventura. However, it does provide some elements of life safety education, including:

- Smoke Detector Program
- Fall Prevention Program (in coordination with the VCEMSA)
- Elementary school student fire safety
- Exit Drills In The Home (EDITH)
- Fire Extinguisher use

Other programs offered to the community by request include Senior Citizen Fire Safety Training, Fire Extinguisher Training, Cardiopulmonary Resuscitation (CPR) Training, and a Juvenile Firesetter Program.

Fire Origin and Cause Determination

Accurately determining the cause of a fire is an essential element of a fire department's fire prevention efforts. When fires are set intentionally, identification and/or prosecution of the responsible offender is critical in preventing additional fires and potential loss of life. Further, if the cause of fires is accidental, it is also of great importance because knowing and understanding how accidental fires start is the most effective way to identify appropriate fire prevention and public education measures to prevent a reoccurrence.

VFD provides fire origin and cause determination and works in partnership with the Ventura Police Department as necessary for arson investigations and prosecution. There are three qualified Fire Investigators within the VFD who are assigned to the Operations Division.

The demand for fire investigations can currently be met by the available investigator-qualified VFD staff. Consideration for succession planning in these highly technical positions should be continued and bolstered to assist with attrition challenges.

Data Collection and Analysis

Finally, one aspect that is critical to the entire VFD operation is the collection of data and statistical analysis of that information. Therein lays the primary reason for maintaining an accurate record of emergency responses, fire inspections and code enforcement, fire investigations, and public education programs. Complete, accurate, and thorough data collection is absolutely necessary for planning purposes.

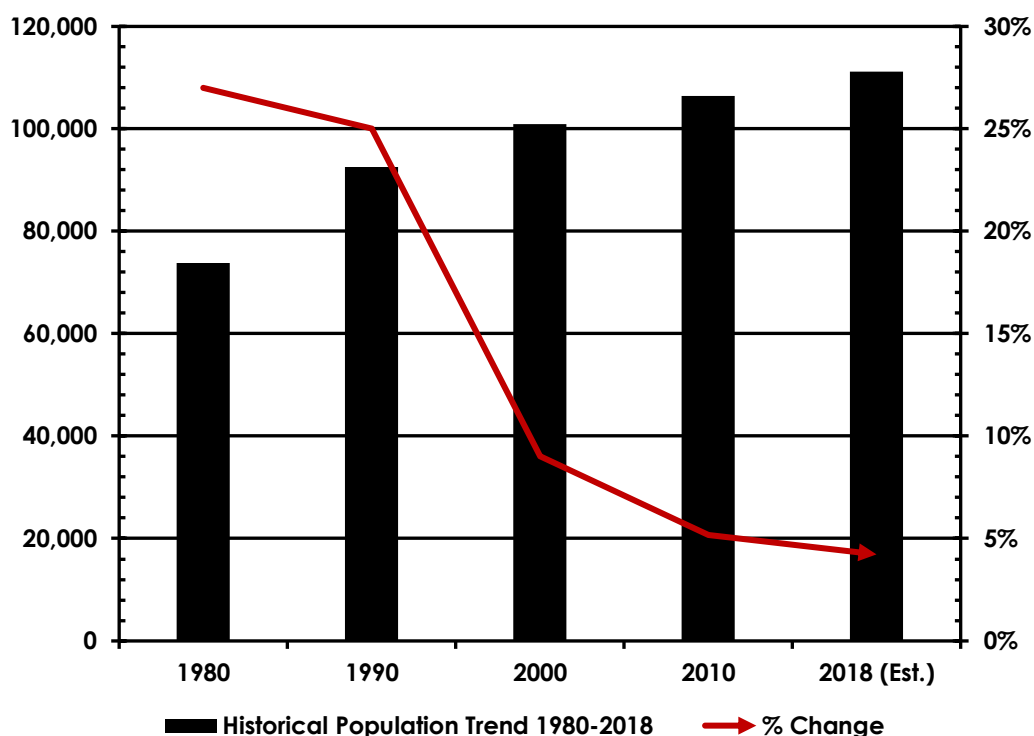
VFD presently uses Firehouse software as its RMS to record inspections, incident data and produce reports. Efforts to join the Building Department RMS would enhance records and performance management.

POPULATION & SERVICE GROWTH PROJECTIONS

Population Growth & Demographic Projections

Future emergency service demand is largely tied to changes to the service area population, economic activity, and demographics. Analyzing historical population data can assist in forecasting future service demand. ESCI used data from the U.S. Census Bureau, VFD statistics, and City statistics and development plans to assist in projecting future growth. The following figure shows the historical population growth in Ventura.³³

Figure 107: Historical Population Trends

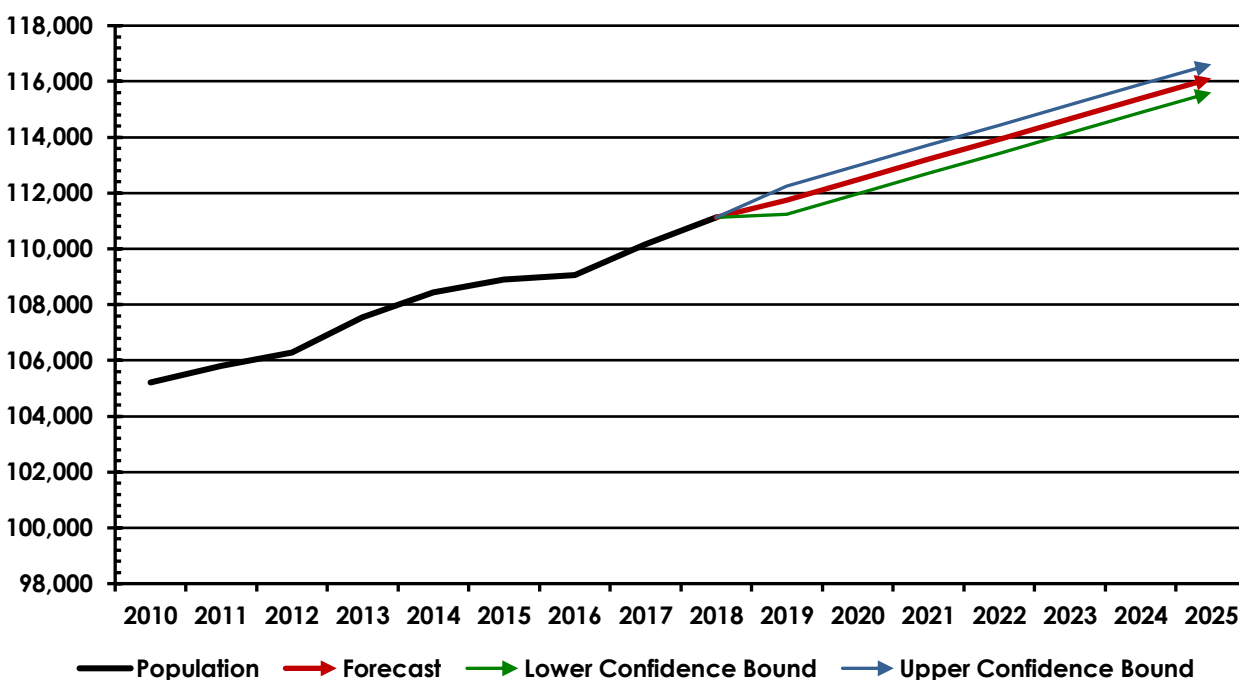


The city experienced significant population growth between 1970–1990, with a 27% overall growth rate between 1970 and 1980, and a 25% growth rate between 1980–1990. Since then, the city's population grew at a much slower rate, as shown in the preceding figure. The overall average growth rate was 9% over this time span.

³³ U.S. Census Bureau, 2010 Census.

A 2018 Municipal Service Review report compiled by the Ventura Local Agency Formation Commission projected that the City's population will grow by slightly over 12% over the next 20 years, at an average of 2.4% annually. However, the report noted that this estimate is based on historical growth. Other forecast models, such as the Southern California Association of Governments Regional Transportation Plan/Sustainable Communities Strategy projected slightly higher population growth. ESCI used the U.S. Census Annual 2010–2018 Estimates of Resident Population to project population growth through 2025. The following figure illustrates this projection.

Figure 108: Ventura Future Population Growth Projection (2020–2025)

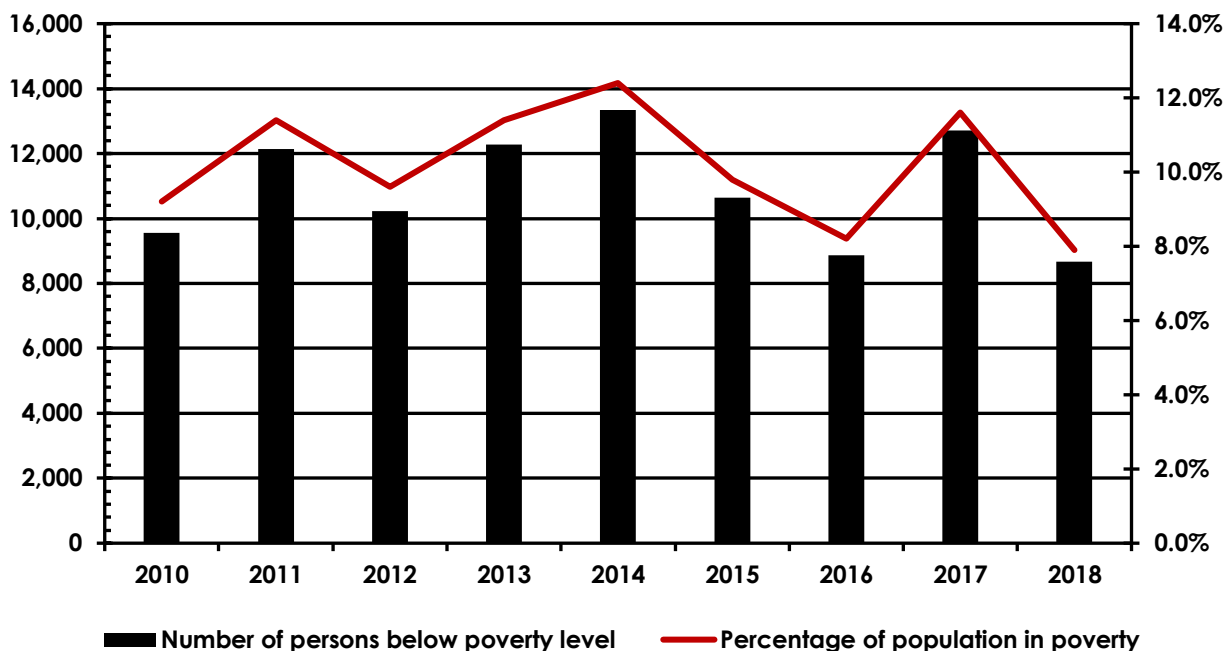


As illustrated in the preceding figure, ESCI projects that the City may experience relatively minor growth over the next five years. However, a May 2020 California Population estimate report that evaluated city and county population changes from 2019 noted that Ventura's population likely decreased by 745 residents in 2019.³⁴

³⁴ California Department of Finance, "California Tops 39.8 Million Residents at New Year Per New State Demographic Report," May 1, 2020.

Poverty is another population demographic that must be considered when projecting future service demand, as those in poverty typically use EMS services more, and are at higher risk for fires. The following figure summarizes the estimated annual poverty levels in the City since 2010.³⁵

Figure 109: City of Ventura Estimated Poverty Population (2010–2018)



As illustrated in the preceding figure, the poverty level varied significantly from year to year since 2010, with an average poverty rate of 10.2% over the entire 8-year time span. The reasons for these fluctuations are unknown. As noted previously in this study, those suffering in poverty tend to use emergency services more often than those who are more affluent.

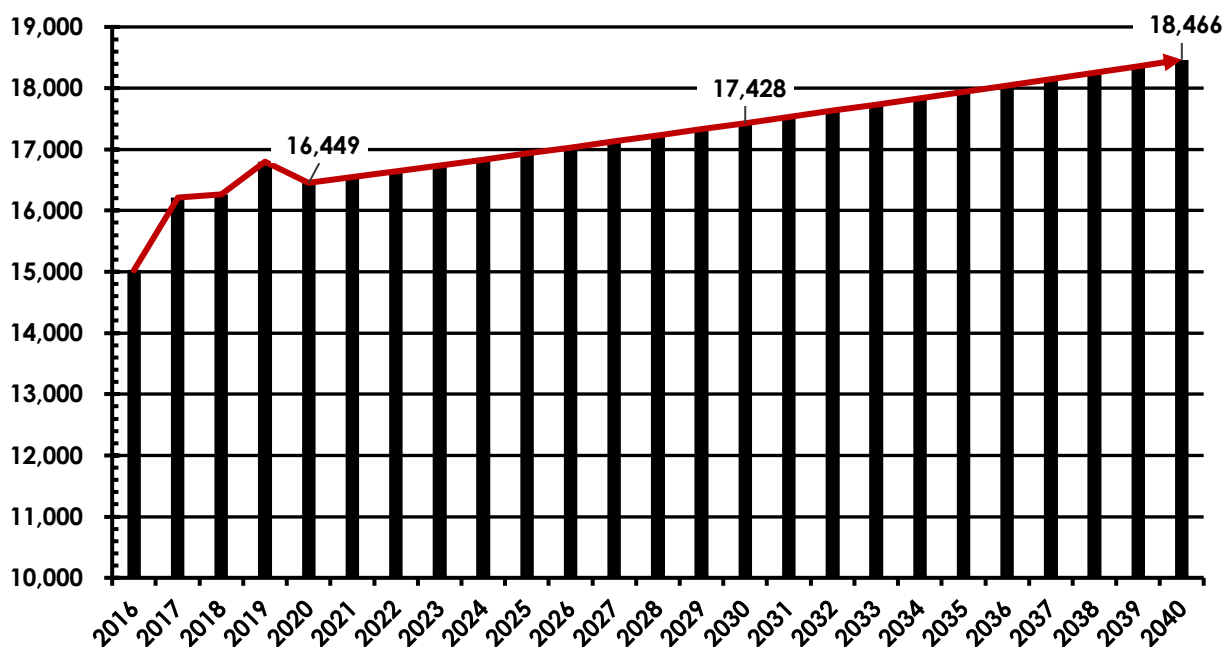
³⁵ U.S. Census Bureau, Quick Facts.

Service Demand Growth Projections

Demand for services is often tied to the size of the population served. Other factors such as age, access to medical care, general health, and economic stability can all influence how frequently emergency services are requested. In Ventura, the average per capita rate of service demand for 2016 through 2019 was 14.6 incidents per 100 people with an upper range of 14.76 in 2018 (meaning an increase in incidents for the total number of people) and a low end of 13.78 in 2016 (meaning a decrease in incidents for the total number of people). Based on ESCI's experience, this per capita rate is high and would typically be expected to lie within the 8 to 12 per capita range.

In the following figure, service demand projections are illustrated as a linear increase using the average per capita rate of 14.6 incidents per 100 population.

Figure 110: Service Demand Projections Based on Per Capita Rates



Using the historical per capita rates of service demand from 2016 through 2019, Ventura could experience service demands upwards of 18,000 incidents for service annually by 2040. As the majority of the incidents will most likely be EMS in nature, future planning for resources and staffing should be considered accordingly. Additionally, as this per capita rate appears to be high based on ESCI's observations of other departments, a leveling off or a decrease in demand year to year could occur.

RECOMMENDED STRATEGIES & DEPLOYMENT OPTIONS

This Operations Assessment culminates in a series of recommendations based on the observations and analysis previously discussed. These recommendations are grouped by specific timeframes to address, as it would be impossible to address all of them at the same time. Facilitating the adoption and implementation of many of these recommendations will take significant time, resources, and commitment. The suggested timeframes are intended to introduce a realistic “blueprint” for implementation. However, environmental conditions and circumstances may provide challenges or opportunities to address a recommendation(s) outside of the timeframes identified here.

ESCI has grouped the recommendations into three implementation timeline categories: Short-Term (6 months–1 year), Mid-Term (1–3 years), and Long-Term (3–5 years).

Lastly, these recommendations are just that—recommendations. They are ESCI’s best effort in providing guidance in addressing issues and deficiencies identified during the study period. City leaders hold the ultimate authority in embracing, revising, or discounting the following guidance.

Short-Term Recommendations

Recommendation 1-A: Develop a Customer-Centered Strategic Plan.

This Operational Assessment document should be considered an initial step in charting a future course for the Department and City in addressing future challenges. However, many of the issues and recommendations in this study will take a “team effort” to address. Identifying the mission, vision, values, goals, and objectives of the Department will be critical to ensuring everyone is pulling in the same direction in accomplishing future goals. ESCI stands ready to facilitate this planning process per the Scope of Work previously submitted to the City.

Recommendation 1-B: Review and revise policies and procedures as necessary on a three-year planning cycle.

This recommendation may be viewed as simply a “housekeeping” item. However, ensuring policies and procedures are contemporary can help ensure business and operational practices are in line with best practices, and consistent with local, state, and federal regulations, and fire service standards. Scheduling periodic reviews on a three-year cycle should be achievable, despite having limited administrative resources.

Recommendation 1-C: Broaden the representation on the Safety Committee.

Participation in the Department Safety Committee should be expanded to include Department administrative civilian personnel to ensure their safety issues, observations, and concerns are clearly communicated and addressed consistent with Department policy and NFPA 1500: *Standard on Fire Department Occupational Safety, Health, and Wellness Program*, Chapter 4.

Recommendation 1-D: Have Fire Captains electronically log all training activities in the Department's Records Management System (RMS).

Eliminate the recording and submission of training activities on paper. Fire Captains should be trained and assigned responsibility to enter company training activities into the Department's RMS. Shift battalion chiefs should use the same system to monitor and audit company and shift level training activities on a weekly or monthly basis to ensure compliance with the training schedule and department mandates.

Recommendation 1-E: Update the Countywide Annual Operations Plan.

The plan, which guides regional responses to hazardous materials incidents and other specialized emergency response programs, was last updated in 2017. The plan should be reviewed and updated to comply with OSHA CFR 1910.120.

Recommendation 1-F: Annually review the AMR EMS Sub-Contract Agreement.

The number of EMS incidents should be annually reviewed consistent with the current AMR contract, and compensation adjustments made if the 3% incident threshold is met. Additionally, the City should consider a 10-year review of EMS incidents to determine if retro-active compensation is due.

Recommendation 1-G: Explore the option of an additional special measure to support Fire Department Operations.

Explore opportunities to obtain a larger share of the Measure O Revenues to support recommendations to increase staffing. Current revenue streams are insufficient to sustain the City's General Fund Operations, and Measure O revenues are being shared by several City departments. Explore opportunities to develop an additional special measure to maintain adequate Fire Department operations in the long-term.

Mid-Term Recommendations

Recommendation 2-A: Conduct a comprehensive engineering and architectural assessment of each of the fire stations.

It was beyond the scope of this study to conduct a comprehensive evaluation of the VFD fire stations. However, due to the age, conditions, and lack of other features found in more contemporary fire stations, ESCI recommends that the City consider:

- Retaining a qualified firm specializing in fire stations to conduct a comprehensive engineering and architectural assessment of each of VFD's fire stations.
- Developing an appropriate capital facilities improvement plan based on the assessment findings.

Recommendation 2-B: Shorten the replacement schedule for fire apparatus.

Because of the high service demand on its apparatus, VFD should consider the following changes in its capital vehicle replacement schedule:

- Change the projected life-expectancy of its engines to 15 years.
- Change the projected life-expectancy of its aerial ladder truck(s) to 20 years.

Recommendation 2-C: Add 8 firefighter positions to Fire Operations.

VFD should add 8 positions to the fire operations shift schedule to provide adequate relief coverage across the three shifts. The Department currently has 72 FTEs, and theoretically needs 80 budgeted, uniformed FTE personnel.

Recommendation 2-D: Add an Administrative Training Captain position.

The current Training Battalion Chief position spends considerable time performing administrative duties unrelated to Department training activities and administration. Adding a Training Captain position responsible for coordinating and delivering company and shift level training would help ensure the delivery of consistent and high-quality training and drills. It would also have the added benefit of exposing current Captains to administrative and programmatic responsibilities and duties.

Option:

Upgrade the current Training Battalion Chief position to an Assistant Chief position to provide better overall administrative support, and who would also oversee the Training Program and the Training Captain.

Recommendation 2-E: Reconfigure the current commercial occupancy inspection program.

To ensure all state-mandated inspections are completed per annual requirements, VFD should consider hiring additional civilian fire inspectors to perform annually required occupancy inspections. The Department should also consider using retired firefighter annuitants to provide "surge capacity" in meeting inspection deadlines. Consideration should be given to implementing a self-inspection program for low-risk B Occupancy types.

Recommendation 2-F: Increase Public Education and Information Efforts.

The Department should leverage the newly created City Public Information Officer position to improve community engagement with the fire department, and increase the dissemination of department information. In addition, the Department should formally assign someone from inside the Department to assist and liaison with the PIO in this effort.

Recommendation 2-G: Adjust Fire Department Construction Plan Review Fees.

The current Building Department fire code plan review process and fee schedule should be analyzed and adjusted to reflect the actual costs for providing this service.

Recommendation 2-H: Explore the Implementation of a First Responder Fee to recover a portion of the costs of providing paramedic engine company responses to the Community.

Several West Coast and Pacific Northwest fire departments have implemented fire service subscription programs, where residents pay an annual membership fee for fire department services, primarily EMS first response and ambulance transport. Huntington Beach Fire Department and La Habra Fire Department are examples of fire departments using this approach for partial cost recovery. Annual membership costs vary, but are typically in the \$45 to \$70 dollar range.

Examples of the potential benefits of this type of cost recovery program include:

- No out-of-pocket cost to the patient for expenses not covered by medical insurance for emergency medical care/transport.
- Additional revenue to the City/Fire Department to help offset service expenses.
- May have coverage in other communities/fire service jurisdictions that have similar programs and reciprocity agreements.

Potential disadvantages may include:

- Significant public resistance, as the program may be viewed as an additional special tax on residents.
- May require additional administrative support to manage the subscriptions, billing, and collections of the annual fees.
- Significant time and resources would likely be required to initially create a subscription membership campaign.
- Ongoing advertising and public education may be needed to sustain the program (and reliable revenue stream) long-term.

If the City wishes to explore this option further, ESCI recommends contacting the previously mentioned fire departments, or other West Coast fire and EMS agencies that use this approach to fully understand the pros and cons of these programs.

Long-Term Recommendations

Recommendation 3-A: Purchase a “field-friendly” fire inspection records management system (RMS).

There are many software options available for digitally recording fire inspections in the field, using tablet PCs and laptop computers. Ideally, the RMS should also integrate with the Building Department's RMS for seamless tracking and reporting of building and fire code inspection activities.

Recommendation 3-B: Establish fire inspection metrics, and regularly publish these activities via the online department “dashboard.”

Fire inspection activities should be integrated into the Department's mySidewalk® online reporting system.

Recommendation 3-C: Develop and implement a formal Community Risk Assessment and Reduction Plan.

ESCI recommends that VFD develop and implement a formal Community Risk Reduction (CRR) plan that is updated annually. The plan should evaluate the risks that are faced most by Ventura residents and establish strategies for reducing those risks. A formal risk evaluation will evaluate the need for additional programming, which could include carbon monoxide emergencies, cooking safety, and injury prevention. ESCI further recommends that the VFD consider the long-term establishment of the position of Community Outreach Coordinator, which would oversee the development, delivery, and maintenance of the Department's CRR Program. This position may be volunteer or paid and assigned to the Fire Prevention Division.

Recommendation 3-D: Establish a Community Paramedic Program.

VFD should work with the VCEMSA to implement a Community Paramedic Program that provides pro-active medical assessment, care, and social services referrals. Implementation of a VFD paramedic squad concept could include a CP program as well.

Operations Deployment Options Considered

During this study, ESCI identified several ideas and potential options to maintain or enhance emergency operations capability and capacity. ESCI noted that the City had not added operational resources to address the increasing demand for service since 1988, except for the addition of the ME-7 peak-demand unit in 2018.

Reconfigure Medic Engine 7

Two options were explored related to ME-7:

Increase Staffing to Make ME-7 a Full-Time Unit

ESCI understands three current positions are used to staff the ME-7 peak demand unit. Converting this unit to a full-time three-person engine crew would theoretically require 10.44 positions, using a 1.16 staffing relief factor. However, staffing must either be increased to 12 or reduced to nine to equalize available personnel across the three shifts. Converting the three current positions from a 40-hour schedule to the 48/96-hour rotating shift schedule and adding six employees to staff the unit would mean scheduled and unscheduled leave usage would result in increased use of overtime to cover vacancies.

Converting ME-7 to full-time status without adding a fire station will require housing the unit and crew at Station 1, which is the only station with enough living space to house an additional crew and apparatus.

Maintain ME-7 Staffing as Part-Time and Add Six Employees

As noted in the Staffing section of this report, ESCI identified a theoretical shortage of eight positions needed to provide scheduled and unscheduled leave coverage.

Maintaining ME-7 as a peak-demand unit and adding two employees per shift for leave coverage would likely reduce overtime usage and mandatory shift holdovers across the three shifts. It would also occasionally bolster daily staffing during shifts when fewer employees are using vacation or sick leave. Further, it would allow engines to continue to go out of service for training.

Estimated Personnel Costs

The following figure estimates the cost for increased staffing for moving ME-7 to full-time status or adding personnel to each shift for relief purposes.

Figure 111: Estimated Costs for Adding Six Firefighter Positions (2020 Salary)

Cost Component	Cost per Position (2020)	Estimated Cost for Six Positions	Estimated Cost for Nine Positions
Salary & Benefits	\$157,661	\$945,966	\$1,418,949
Turnouts, uniforms, & related equip. ¹	\$12,000	\$72,000	\$108,000
Total:	\$169,661	\$1,017,966	\$1,526,949

¹ Additional SCBA equipment was not included in the estimate.

Station 7 Cost Estimate

Adding a station in close proximity to the harbor and freeway appeared at first glance to be an attractive option for several reasons, including potentially available land already owned by the City, a significant amount of developer money set aside for a station, and ease of arterial access to the northwest area west of the freeway. However, as noted in the *Service Delivery* section of this report, ESCI's spatial analysis shows that while this location would improve response time performance to the harbor area and would reduce some of the incident workload on Stations 1, 2, and 5, it provides only limited increased response capability into Stations 1, 2, and 5's response sectors.

A July 2019 NFPA research paper—*Research Needs of the U.S. Fire Service*—assessed the age and condition of fire stations across the country. They estimated the square footage cost of constructing a new fire station between \$275 and \$400 per-square-foot, or an average of \$337.50 per-square-foot. This estimate means that a 10,000 square-foot fire station may cost approximately \$3.4 million, and a 6,000 square-foot station may cost slightly over \$2 million. However, station programmatic requirements, regional land values, construction costs, and California environmental requirements would most likely result in much higher construction costs in Ventura. For example, the Los Angeles County Fire Department implemented a developer impact fee schedule that identifies several current and future fire station projects throughout its service area that were estimated between \$700 and slightly over \$800 per-square-foot.³⁶ Recent Ventura County Fire Department new station construction costs for two new fire stations were estimated between \$700 and \$800 per-square-foot as well, and that does not include costs related to land procurement, permitting, or architectural design. This means construction costs alone of a 6,000 square-foot station may cost upwards of \$4.8 million.

Regardless, estimating construction costs on a comparative square foot basis is problematic for the reasons noted above. Instead, a deliberate planning and budget process should be undertaken to identify the most cost-effective approach in building a facility that can adequately serve the community for decades.

Relocate Station 4

As noted in the spatial analysis of incident history and response time performance sections, the locations of Stations 3, 4, and 5 do not theoretically provide timely response coverage to portions of the Montalvo area of the city, which has a significant call load. The main benefits of moving the station approximately 1 mile west of its current location—closer to major north-south arterials Johnson Drive and South Victoria Avenue—include improved first due response time performance into the Montalvo district, while maintaining timely back-up capabilities into the Station 6 sector.

³⁶ County of Los Angeles Fire Department, Fiscal Year-End Report and Updated Developer Fee for the Benefit of the Consolidated Fire Protection District of Los Angeles County, January 22, 2019.

Alter Run-Cards to Eliminate Dispatching to Certain Types of Omega Incidents

Anecdotal information shared with ESCI indicates that VFD is occasionally dispatched to situations not normally handled by the fire department, including animals in distress and vehicle lockouts. While the Department relies on company officers to use good judgment in making determinations on how best to respond to these incident types, VFD should work with the Ventura County FCC management to implement a protocol that refers to certain requests for service that may be classified as Omega level incidents to the on-duty VFD Battalion Chief (BC) to handle. The BC can then communicate with the calling party to determine the issue, problem-solve, and determine the appropriate resources to assist.

Add Paramedic Squads

As noted elsewhere in this report, EMS incidents have had the largest impact on VFD service demand. However, VFD continues to send expensive fire apparatus and three-person paramedic crews on every EMS incident. In this option, two-person paramedic squads, equipped with ALS equipment and utility vehicles would be strategically deployed in the City to respond to EMS incidents, and paramedic staffing on engine companies would be phased out. Each squad would be staffed with one EMT and one paramedic.

ESCI estimates three units would be required to maintain adequate coverage. Alternatively, two squads could be added, and a paramedic engine company maintained for surge capacity.

During most Alpha and Bravo level incidents, the paramedic squad would respond alone. On Charlie through Echo level incidents, the closest engine company would be dispatched along with the squad to ensure a timely response.

These units could also be used to implement or augment a Community Paramedic program, providing pro-active medical and social services support to vulnerable population groups in Ventura.

Utilizing single-role paramedics or firefighter paramedics to staff these units is another consideration. Using single-role paramedics and EMTs may appear attractive, as their total cost of compensation is typically less than firefighter EMTs and paramedics. Another potential benefit is that these positions could be viewed as a "stepping stone" for employment as a VFD firefighter.

However, the single-role EMT/paramedic approach also has potential drawbacks, including, but not limited to:

- Single-role paramedics do not qualify for the Fair Labor Standards Act (FLSA) Section 7(k) overtime exemption. This means that any hours worked over 40 hours in a seven-day work period must be paid at one and one-half times their regular hourly rate of pay. This can impact the total number of employees required to provide 24/7 coverage, how these employees are scheduled, and how their hourly rate of pay is calculated.
- Their scope of work would be limited to providing EMS only, including being able to provide EMS standby at fires or other complex rescue scenes.
- Turnover would likely be higher than that of firefighters.

Using firefighter EMTs and paramedics to staff the squads would increase the overall deployment capacity and capabilities to respond to structure fires and other complicated rescue incidents, as these employees could fully function as firefighters and also allow for more flexible scheduling and assignment on any given shift. The most obvious drawback of this approach is the more expensive overall cost of compensation per employee.

Estimated Cost

The following figure estimates the cost of adding either a two-person firefighter paramedic squad or single-role paramedics to the VFD. Note, EMS equipment costs could be minimized if current equipment carried on engines is moved to the squads.

Figure 112: Estimated Paramedic Squad Startup Costs

Cost Component	Estimated Cost per Dual-Role Squad	Estimated Cost per Single-Role Squad
Squad Vehicle & Equipment	\$120,000	\$120,000
EMS Equipment	\$50,000	\$50,000
Salary/Benefits	\$1,103,627 ¹	\$1,267,596 ²
2 Sets Turnout Gear & SCBA	\$98,000 ⁴	\$60,000 ³
Total:	\$1,371,627	\$1,497,596

¹ 7 - 1st step Firefighter Paramedic positions at \$157,661 salary/benefits each

² 12 - Single role Paramedic positions at \$105,633 salary/benefits each

³ Single role Paramedic outfitting costs \$5,000 per employee

⁴ Dual role Paramedic outfitting costs \$12,000 per employee, + 2 SCBAs @ \$7,000 each

In a single-role paramedic squad, the salary and benefits costs were estimated at two-thirds of the dual-role Firefighter/Paramedic. The FLSA schedule is unknown, other than the fact that the single role paramedic positions would not be eligible for the FLSA 7K exemption from overtime pay for all hours worked over 40 hours per designated seven-day work period. Therefore, ESCI assumed a 40-hour workweek schedule, which equates to 12 personnel required to fill two positions 24/7 before applying leave factors for vacation and sick leave. Additionally, only basic personal protective equipment is included.

Seven additional Firefighter/Paramedic positions would be required to staff each dual role paramedic squad on a 24/7 basis, with an estimated salary/benefits cost of \$1,103,627 per unit, or \$1,055,256 for 12 paramedics per unit if single role paramedics are used.

Another option is to use peak demand scheduling for these units, and place employees on a 40-hour work schedule, similar to the ME-7 schedule. This would significantly reduce the overall cost, as only two positions per unit would be needed.

Add BLS/ALS Transport Unit(s)

This option is not currently available to VFD as the VCEMSA controls ambulance transport service licensing. However, it is important to note the key considerations that must be addressed in implementing an ambulance transport program if the opportunity arises in the future.

- An ambulance fee structure and payment/write-off rules would need to be adopted.
- Loss of current AMR payments.
- Number of units required 24/7.
- Determine in-house vs. contracted ambulance billing.
- Purchase and outfitting of ambulances (recommend five).
- Auto-aid or contract agreements with private ambulance and fire department EMS transport providers.
- Need for a continued City financial subsidy to maintain the operation, as collected fees from private insurance, Medicare and Medi-Cal would not cover total ambulance operational expenses.

Operational Deployment Costing Matrix

The following figure summarizes the estimated costs for implementing the preceding described operations staffing and capital enhancements. With the exception of new firefighter-paramedic positions and single-role paramedic positions, the salary and benefits costs are based on mid-step 2020 for the various positions as provided by the City Payroll Department.

Figure 113: Operations Options Estimated Cost Matrix

Recommendation	Est. One Time Cost (2020 dollars)	Est. Annual Salary/Benefits Cost (2020 dollars)
2C: Add 8 Firefighter Operations Relief Positions	\$96,000 ¹	\$1,261,288
2D: Add an Administrative Training Captain Position	\$12,000 ¹	\$233,133 ²
2D (Option 1): Upgrade the current Training Battalion Chief position to an Administrative A/C position	\$12,000 ¹	\$207,376 ^{2,3}
Operations Deployment Options		
Reconfigure ME-7 (Option 1): Add six positions to make Medic Engine 7 a full-time unit	\$72,000 ¹	\$945,966
Keep ME-7 as a peak demand unit (Option 2): Add two positions per shift for leave coverage	\$72,000 ¹	\$945,966
Add 2 Paramedic Squads-Dual Role FF/PMs: Add 14 FF/PM positions + equipment/vehicles	\$536,000	\$4,536,000
Add 2 Paramedic Squads-Single Role Paramedics: Add 24 PM positions + equipment/vehicle	\$460,000	\$2,535,192
Construct Station 7 near the Harbor: 6,000 square-foot station	\$4,800,000 ⁴	\$100,000 ⁵
Relocate Station 4 closer to Montalvo area: 6,000 square-foot station	\$4,800,000 ⁴	Current Cost

¹ Based on outfitting costs of \$12,000 per position

² Based on mid-point step pay

³ Difference between mid-point Administrative BC pay and A/C pay + replacement FF/PM

⁴ Based on an \$800 per square foot estimate

⁵ Estimated new annual operating costs of station

ESCI also estimated projected salary and benefits costs in two-year increments to 2032 for each of the above options that include staff adds. These simple projections assumed a 2% annual increase in salary and a 7% annual increase in benefits costs. Position pays based on mid-point in applicable pay scales. Benefits costs for single role paramedic positions were estimated roughly at 40% of total salary and benefits.

Figure 114: Operations Options Salary/Benefits Estimated Cost Projections (2020–2032)

Recommendation	2020	2022	2024	2026	2028	2030	2032
2C: Add 8 Firefighter Operations Relief Positions	1,261,288	1,377,449	1,404,237	1,654,134	1,818,815	2,004,329	2,213,571
2D: Add an Administrative Training Captain Position	233,133	254,151	277,699	304,123	333,817	367,233	404,888
2D (Option 1): Upgrade the current Training Battalion Chief position to an Administrative A/C position ¹	207,376	352,195	383,717	419,020	458,617	503,099	553,139
Operations Deployment Options							
Reconfigure ME-7 (Option 1): Add six positions to make Medic Engine 7 a full-time unit ²	1,066,238	1,162,822	1,279,576	1,448,962	1,611,420	1,795,500	2,004,256
Keep ME-7 as a peak demand unit (Option 2): Add two FF/PM positions per shift for leave coverage	945,966	1,033,087	1,053,177	1,240,600	1,364,111	1,503,247	1,660,179
Add 2 Paramedic Squads-Dual Role FF/PMs: Add 14 FF/PM positions	4,536,000	4,930,730	5,372,049	5,866,281	6,420,646	7,043,393	7,743,950
Add 2 Paramedic Squads-Single Role Paramedics: Add 24 PM positions	2,535,192	2,743,584	2,975,751	3,234,877	3,524,599	3,849,070	4,213,032

¹ Difference between mid-point Administrative BC pay and A/C pay + replacement FF/PM in first year, then A/C pay in subsequent years

² Includes 2 Captains, 2 Engineers, 2 FF/PM positions

Next, ESCI created “packages” of options and totaled the costs to provide overall financial impact estimates for each. These packages were created with a baseline package that includes:

- Recommendation 2C: Add 8 Firefighter Operations Relief Positions (Not included in Deployment Package 3).
- Recommendation 2D: Add an Administrative Training Captain position.
 - Recommendation 2D Option 1: Upgrade the current Training Battalion Chief position to an Administrative Assistant Chief position.

ESCI's analysis of the comparative benefits and drawbacks of each package is also included in the following deployment package descriptions.

Deployment Package 1

In this package, eight Firefighter operations relief positions and an Administrative Training Captain position are added. An optional upgrade of the current Training Battalion Chief position is added as well. Six Firefighter positions are added to make Medic Engine 7 a full-time response unit and is housed in a new Ventura Harbor fire station, and two dual-role Firefighter/Paramedic squads are added.

Figure 115: Deployment Package 1

Recommendation	2020	2022	2024	2026	2028	2030	2032
2C: Add 8 Firefighter Operations Relief Positions	1,261,288	1,377,449	1,404,237	1,654,134	1,818,815	2,004,329	2,213,571
2D: Add an Administrative Training Captain Position	233,133	254,151	277,699	304,123	333,817	367,233	404,888
2D (Option 1): Upgrade the current Training Battalion Chief position to an Administrative A/C position ¹	207,376	352,195	383,717	419,020	458,617	503,099	553,139
Reconfigure ME-7 (Option 1): Add six positions to make Medic Engine 7 a full-time unit ²	1,066,238	1,162,822	1,279,576	1,448,962	1,611,420	1,795,500	2,004,256
Add 2 Paramedic Squads-Dual Role FF/PMs: Add 14 FF/PM positions	4,536,000	4,930,730	5,372,049	5,866,281	6,420,646	7,043,393	7,743,950
Add a Fire Station: Construct Station 7 near the Harbor ¹	4,800,000	108,160	116,986	126,532	136,856	148,024	160,103
Total:	12,104,035	8,185,507	8,834,264	9,819,052	10,780,171	11,861,578	13,079,907

¹ Annual Station Maintenance cost estimated at \$100,000 = 4% inflation annually starting in 2022.

² Includes 2 Captains, 2 Engineers, 2 FF/PM positions

Deployment Package 1 Benefits

- Decreased reliance on overtime coverage for scheduled and unscheduled leaves.
- Decreased instances of mandated overtime coverage.
- Increased operational and administrative training support.
- Increased coverage to the western city and harbor areas.
- Adding Medic Engine 7 = Reduced incident load primarily for Stations 1, 2, and 5.
- Adding paramedic squads = Reduced incident load for all city stations.
- Faster first unit arrival time to incidents in the Ventura Harbor area.
- Partial capital cost offset with set aside available funds.

Deployment Package 1 Drawbacks

- Significant one-time capital expense.
- Significant ongoing salary/benefits costs for dual-role Firefighter/Paramedic positions compared to single role paramedic positions.
- No improvement in first unit arrival coverage in the Montalvo area.
- Potential Battalion Chief management span of control issues.

Deployment Package 2

In this package, eight Firefighter operations relief positions and an Administrative Training Captain position are added. An optional upgrade of the current Training Battalion Chief position is added as well. Six Firefighter positions are added to make Medic Engine 7 a full-time response unit and is housed in a new Ventura Harbor fire station, and two single-role Paramedic squads are added.

Figure 116: Deployment Package 2

Recommendation	2020	2022	2024	2026	2028	2030	2032
2C: Add 8 Firefighter Operations Relief Positions	1,261,288	1,377,449	1,404,237	1,654,134	1,818,815	2,004,329	2,213,571
2D: Add an Administrative Training Captain Position	233,133	254,151	277,699	304,123	333,817	367,233	404,888
2D (Option 1): Upgrade the current Training Battalion Chief position to an Administrative A/C position ¹	207,376	352,195	383,717	419,020	458,617	503,099	553,139
Reconfigure ME-7 (Option 1): Add six positions to make Medic Engine 7 a full-time unit ²	1,066,238	1,162,822	1,279,576	1,448,962	1,611,420	1,795,500	2,004,256
Add 2 Paramedic Squads-Single Role Paramedics: Add 24 PM positions	2,535,192	2,743,584	2,975,751	3,234,877	3,524,599	3,849,070	4,213,032
Add a Fire Station: Construct Station 7 near the Harbor ¹	4,800,000	108,160	116,986	126,532	136,856	148,024	160,103
Total:	10,103,227	5,998,361	6,437,966	7,187,648	7,884,124	8,667,255	9,548,989

¹ Annual Station Maintenance cost estimated at \$100,000 = 4% inflation annually starting in 2022.

² Includes 2 Captains, 2 Engineers, 2 FF/PM positions

Deployment Package 2 Benefits

- Decreased reliance on overtime coverage for scheduled and unscheduled leaves.
- Decreased instances of mandated overtime coverage.
- Increased operational and administrative training support.
- Increased coverage to the western city and harbor areas.

- Adding Medic Engine 7 = Reduced incident load primarily for Stations 1, 2, and 5.
- Adding paramedic squads = Reduced incident load for all city stations.
- Single role paramedic positions may be a “stepping-stone” into open FF/PM positions.
- Faster first unit arrival time to incidents in the Ventura Harbor area.
- Partial capital cost offset with set aside available funds.

Deployment Package 2 Drawbacks

- Significant one-time capital expense.
- Larger number of employees required to staff the single-role paramedic units compared to dual-role Firefighter/Paramedic configuration.
- No improvement in first unit arrival coverage in the Montalvo area.
- Potential Battalion Chief management span of control issues.

Deployment Package 3

In this package, an Administrative Training Captain position is added. An optional upgrade of the current Training Battalion Chief position is added as well. Medic Engine 7 remains in its current configuration as a staffed unit only during peak demand hours. Two additional Firefighter positions are added for relief coverage purposes on each shift. Two single-role Paramedic squads are added.

Figure 117: Deployment Package 3

Recommendation	2020	2022	2024	2026	2028	2030	2032
2D: Add an Administrative Training Captain Position	233,133	254,151	277,699	304,123	333,817	367,233	404,888
2D (Option 1): Upgrade the current Training Battalion Chief position to an Administrative A/C position ¹	207,376	352,195	383,717	419,020	458,617	503,099	553,139
Keep ME-7 as a peak demand unit (Option 2): Add two FF/PM positions per shift for leave coverage	945,966	1,033,087	1,053,177	1,240,600	1,364,111	1,503,247	1,660,179
Add 2 Paramedic Squads-Single Role Paramedics: Add 24 PM positions	2,535,192	2,743,584	2,975,751	3,234,877	3,524,599	3,849,070	4,213,032
Total:	3,921,667	4,383,017	4,690,344	5,198,620	5,681,144	6,222,649	6,831,238

¹ Difference between mid-point Administrative BC pay and A/C pay + replacement FF/PM in first year, then A/C pay in subsequent years

Deployment Package 3 Benefits

- Decreased reliance on overtime coverage for scheduled and unscheduled leaves.
- Decreased instances of mandated overtime coverage.
- Increased operational and administrative training support.
- Adding paramedic squads = Reduced incident load for all city stations.
- Single role paramedic positions may be a “stepping stone” into open FF/PM positions.

Deployment Package 3 Drawbacks

- No appreciable response coverage improvements to either the Ventura Harbor or Montalvo areas.
- Larger number of employees required to staff the single-role paramedic units, compared to a dual-role Firefighter/Paramedic configuration.
- Potential Battalion Chief management span of control issues.

Deployment Package 4

In this package, eight Firefighter operations relief positions and an Administrative Training Captain position are added. An optional upgrade of the current Training Battalion Chief position is added as well. Six Firefighter positions are added to make Medic Engine 7 a full-time response unit and is housed in a new Ventura Harbor fire station. Two single-role Paramedic squads are added, and Station 4 is moved slightly west to improve response coverage into the Montalvo area.

Figure 118: Deployment Package 4

Recommendation	2020	2022	2024	2026	2028	2030	2032
2C: Add 8 Firefighter Operations Relief Positions	1,261,288	1,377,449	1,404,237	1,654,134	1,818,815	2,004,329	2,213,571
2D: Add an Administrative Training Captain Position	233,133	254,151	277,699	304,123	333,817	367,233	404,888
2D (Option 1): Upgrade the current Training Battalion Chief position to an Administrative A/C position ¹	207,376	352,195	383,717	419,020	458,617	503,099	553,139
Reconfigure ME-7 (Option 1): Add six positions to make Medic Engine 7 a full-time unit ²	1,066,238	1,162,822	1,279,576	1,448,962	1,611,420	1,795,500	2,004,256
Add 2 Paramedic Squads-Single Role Paramedics: Add 24 PM positions	2,535,192	2,743,584	2,975,751	3,234,877	3,524,599	3,849,070	4,213,032
Add a Fire Station: Construct Station 7 near the Harbor ¹	4,800,000	108,160	116,986	126,532	136,856	148,024	160,103
Move a Fire Station: Move Station 4 closer to Montalvo area	4,800,000	108,160	116,986	126,532	136,856	148,024	160,103
Total:	14,903,227	6,106,521	6,554,952	7,314,180	8,020,980	8,815,279	9,709,092

¹ Difference between mid-point Administrative BC pay and A/C pay + replacement FF/PM in the first year, then A/C pay in subsequent years

² Includes 2 Captains, 2 Engineers, 2 FF/PM positions

Deployment Package 4 Benefits

- Decreased reliance on overtime coverage for scheduled and unscheduled leaves.
- Decreased instances of mandated overtime coverage.
- Increased operational and administrative training support.
- Increased coverage to the western and southern city areas and the harbor.
- Significant improvement in first unit arrival coverage in the Montalvo area.
- Adding Medic/Engine 7 = Reduced incident load primarily for Stations 1, 2, and 5.
- Adding paramedic squads = Reduced incident load for all city stations.
- Faster first unit arrival time to incidents in the Ventura Harbor area.
- Partial capital cost offset with set aside available funds.

Deployment Package 4 Drawbacks

- Significant one-time capital expense.
- Significant ongoing salary/benefits costs for dual-role Firefighter/Paramedic positions compared to single role paramedic positions.
- Potential Battalion Chief management span of control issues.

Figure 119: Deployment Package 1

Recommendation	2020	2022	2024	2026	2028	2030	2032
2C: Add 8 Firefighter Operations Relief Positions	1,261,288	1,377,449	1,404,237	1,654,134	1,818,815	2,004,329	2,213,571
2D: Add an Administrative Training Captain Position	233,133	254,151	277,699	304,123	333,817	367,233	404,888
2D (Option 1): Upgrade the current Training Battalion Chief position to an Administrative A/C position ¹	207,376	352,195	383,717	419,020	458,617	503,099	553,139
Reconfigure ME-7 (Option 1): Add six positions to make Medic Engine 7 a full-time unit ²	1,066,238	1,162,822	1,279,576	1,448,962	1,611,420	1,795,500	2,004,256
Add 2 Paramedic Squads-Dual Role FF/PMs: Add 14 FF/PM positions	4,536,000	4,930,730	5,372,049	5,866,281	6,420,646	7,043,393	7,743,950
Add a Fire Station: Construct Station 7 near the Harbor ¹	4,800,000	108,160	116,986	126,532	136,856	148,024	160,103
Total:	12,104,035	8,185,507	8,834,264	9,819,052	10,780,171	11,861,578	13,079,907

¹ Difference between mid-point Administrative BC pay and A/C pay + replacement FF/PM in the first year, then A/C pay in subsequent years

² Includes 2 Captains, 2 Engineers, 2 FF/PM positions

Figure 120: Deployment Package 2

Recommendation	2020	2022	2024	2026	2028	2030	2032
2C: Add 8 Firefighter Operations Relief Positions	1,261,288	1,377,449	1,404,237	1,654,134	1,818,815	2,004,329	2,213,571
2D: Add an Administrative Training Captain Position	233,133	254,151	277,699	304,123	333,817	367,233	404,888
2D (Option 1): Upgrade the current Training Battalion Chief position to an Administrative A/C position ¹	207,376	352,195	383,717	419,020	458,617	503,099	553,139
Reconfigure ME-7 (Option 1): Add six positions to make Medic Engine 7 a full-time unit ²	1,066,238	1,162,822	1,279,576	1,448,962	1,611,420	1,795,500	2,004,256
Add 2 Paramedic Squads-Single Role Paramedics: Add 24 PM positions	2,535,192	2,743,584	2,975,751	3,234,877	3,524,599	3,849,070	4,213,032
Add a Fire Station: Construct Station 7 near the Harbor ¹	4,800,000	108,160	116,986	126,532	136,856	148,024	160,103
Total:	10,103,227	5,998,361	6,437,966	7,187,648	7,884,124	8,667,255	9,548,989

¹ Difference between mid-point Administrative BC pay and A/C pay + replacement FF/PM in the first year, then A/C pay in subsequent years

² Includes 2 Captains, 2 Engineers, 2 FF/PM positions

Figure 121: Deployment Package 3

Recommendation	2020	2022	2024	2026	2028	2030	2032
2C: Add 8 Firefighter Operations Relief Positions	1,261,288	1,377,449	1,404,237	1,654,134	1,818,815	2,004,329	2,213,571
2D: Add an Administrative Training Captain Position	233,133	254,151	277,699	304,123	333,817	367,233	404,888
2D (Option 1): Upgrade the current Training Battalion Chief position to an Administrative A/C position ¹	207,376	352,195	383,717	419,020	458,617	503,099	553,139
Keep ME-7 as a peak demand unit (Option 2): Add two FF/PM positions per shift for leave coverage	945,966	1,033,087	1,053,177	1,240,600	1,364,111	1,503,247	1,660,179
Add 2 Paramedic Squads-Single Role Paramedics: Add 24 PM positions	2,535,192	2,743,584	2,975,751	3,234,877	3,524,599	3,849,070	4,213,032
Total:	5,182,955	5,760,466	6,094,581	6,852,754	7,499,959	8,226,978	9,044,809

¹ Difference between mid-point Administrative BC pay and A/C pay + replacement FF/PM in first year, then A/C pay in subsequent years

Figure 122: Deployment Package 4

Recommendation	2020	2022	2024	2026	2028	2030	2032
2C: Add 8 Firefighter Operations Relief Positions	1,261,288	1,377,449	1,404,237	1,654,134	1,818,815	2,004,329	2,213,571
2D: Add an Administrative Training Captain Position	233,133	254,151	277,699	304,123	333,817	367,233	404,888
2D (Option 1): Upgrade the current Training Battalion Chief position to an Administrative A/C position ¹	207,376	352,195	383,717	419,020	458,617	503,099	553,139
Reconfigure ME-7 (Option 1): Add six positions to make Medic Engine 7 a full-time unit ²	1,066,238	1,162,822	1,279,576	1,448,962	1,611,420	1,795,500	2,004,256
Add 2 Paramedic Squads-Single Role Paramedics: Add 24 PM positions	2,535,192	2,743,584	2,975,751	3,234,877	3,524,599	3,849,070	4,213,032
Add a Fire Station: Construct Station 7 near the Harbor ¹	4,800,000	108,160	116,986	126,532	136,856	148,024	160,103
Move a Fire Station: Move Station 4 closer to Montalvo area	4,800,000	108,160	116,986	126,532	136,856	148,024	160,103
Total:	14,903,227	6,106,521	6,554,952	7,314,180	8,020,980	8,815,279	9,709,092

¹ Difference between mid-point Administrative BC pay and A/C pay + replacement FF/PM in first year, then A/C pay in subsequent years.

² Includes 2 Captains, 2 Engineers, 2 FF/PM positions

APPENDIX A: STAFF SURVEY RESULTS

The following is a summary of the surveys that were sent to VFD Operations and Administrative staff. Seventy-two department members completed the surveys. The percentages have been rounded.

Survey Instructions: Emergency Services Consulting International (ESCI) is conducting an Operational Performance study for VFD. As part of this study, we want to provide an opportunity for you to *confidentially* share your thoughts and observations about the Department and programs. The survey should take less than 10 minutes to complete. You may also contact the ESCI Project Manager, Bill Boyd, at 360-305-1102 if you have any questions or wish to share additional information beyond any comments you provide in the survey answers. Thank you for your participation!

Operations Staff Survey

Question 1: The current method of delivering on-shift fire training is adequate to maintain my knowledge and skills.

Level of Agreement	Percentage of Respondents
Strongly Agree	7%
Agree	30%
Somewhat Agree	20%
Neither Agree or Disagree	13%
Somewhat Disagree	8%
Disagree	8%
Strongly Disagree	13%

Question 2: I feel our department has excellent equipment for fire suppression operations.

Level of Agreement	Percentage of Respondents
Strongly Agree	5%
Agree	23%
Somewhat Agree	13%
Neither Agree or Disagree	13%
Somewhat Disagree	10%
Disagree	12%
Strongly Disagree	12%

Question 3: I feel we have excellent equipment for specialized emergency response operations (HazMat, Technical Rescue, Wildland, etc.).

Level of Agreement	Percentage of Respondents
Strongly Agree	7%
Agree	22%
Somewhat Agree	25%
Neither Agree or Disagree	12%
Somewhat Disagree	10%
Disagree	7%
Strongly Disagree	15%

Question 4: I feel our fire training resources and facilities are adequate for safe and effective training.

Level of Agreement	Percentage of Respondents
Strongly Agree	2%
Agree	10%
Somewhat Agree	15%
Neither Agree or Disagree	13%
Somewhat Disagree	17%
Disagree	18%
Strongly Disagree	25%

Question 5: Our fire stations are adequate for supporting our current mission, and are well maintained.

Level of Agreement	Percentage of Respondents
Strongly Agree	2%
Agree	10%
Somewhat Agree	13%
Neither Agree or Disagree	12%
Somewhat Disagree	8%
Disagree	32%
Strongly Disagree	23%

Question 6: Our officers and department culture place my personal safety above all else.

Level of Agreement	Percentage of Respondents
Strongly Agree	33%
Agree	34%
Somewhat Agree	15%
Neither Agree or Disagree	5%
Somewhat Disagree	3%
Disagree	2%
Strongly Disagree	5%

Question 7: I feel adequately trained and prepared to evaluate and treat EMS patients.

Level of Agreement	Percentage of Respondents
Strongly Agree	38%
Agree	40%
Somewhat Agree	8%
Neither Agree or Disagree	12%
Somewhat Disagree	0%
Disagree	0%
Strongly Disagree	0%

Question 8: We have excellent equipment to evaluate and treat EMS patients.

Level of Agreement	Percentage of Respondents
Strongly Agree	33%
Agree	43%
Somewhat Agree	3%
Neither Agree or Disagree	15%
Somewhat Disagree	0%
Disagree	2%
Strongly Disagree	2%

Question 9: We always operate appropriately while using the Incident Command System (ICS) on all significant emergency incidents.

Level of Agreement	Percentage of Respondents
Strongly Agree	28%
Agree	40%
Somewhat Agree	17%
Neither Agree or Disagree	12%
Somewhat Disagree	2%
Disagree	2%
Strongly Disagree	0%

Question 10: I am familiar with the building layouts, special features, and special hazards of the target hazards in my community.

Level of Agreement	Percentage of Respondents
Strongly Agree	5%
Agree	32%
Somewhat Agree	32%
Neither Agree or Disagree	10%
Somewhat Disagree	7%
Disagree	10%
Strongly Disagree	3%

Question 11: The culture in each station supports the Department's overall mission and operation.

Level of Agreement	Percentage of Respondents
Strongly Agree	8%
Agree	18%
Somewhat Agree	25%
Neither Agree or Disagree	18%
Somewhat Disagree	8%
Disagree	13%
Strongly Disagree	8%

Question 12: Adding additional operational resources (i.e., another engine company) would allow us to better support fire prevention and community risk reduction efforts in our community.

Level of Agreement	Percentage of Respondents
Strongly Agree	70%
Agree	5%
Somewhat Agree	0%
Neither Agree or Disagree	3%
Somewhat Disagree	0%
Disagree	2%
Strongly Disagree	17%

Question 13: How long have you been with VFD?

Years of Service	Percentage of Respondents
Less than 1 year	8.3%
1–5 years	35%
6–10 years	15%
11–20 years	32%
21+ years	8.3%

Question 14: What is your rank?

Position	Percentage of Respondents
Firefighter/Paramedic	28%
Engineer	30%
Captain	30%
Chief Officer	11%

Question 15: What is your assignment?

Position	Percentage of Respondents
Operations	83%
Administration	2%
Fire Prevention	15%

Administrative Staff Survey

Question 1: I have, or have access to, the administrative tools I need to effectively do my job.

Level of Agreement	Percentage of Respondents
Strongly Agree	17%
Agree	58%
Somewhat Agree	8%
Neither Agree or Disagree	8%
Somewhat Disagree	8%
Disagree	0%
Strongly Disagree	0%

Question 2: I can typically complete my assigned work with the resources available within assigned timelines.

Level of Agreement	Percentage of Respondents
Strongly Agree	8%
Agree	42%
Somewhat Agree	25%
Neither Agree or Disagree	8%
Somewhat Disagree	17%
Disagree	0%
Strongly Disagree	0%

Question 3: Most fire inspections are completed within established inspection frequency timeframes.

Level of Agreement	Percentage of Respondents
Strongly Agree	0%
Agree	27%
Somewhat Agree	18%
Neither Agree or Disagree	18%
Somewhat Disagree	0%
Disagree	18%
Strongly Disagree	18%

Question 4: We have enough resources and expertise to competently perform new construction, development, and fire protection system plan reviews.

Level of Agreement	Percentage of Respondents
Strongly Agree	0%
Agree	27%
Somewhat Agree	18%
Neither Agree or Disagree	9%
Somewhat Disagree	18%
Disagree	0%
Strongly Disagree	27%

Question 5: We have an excellent working relationship with other City departments we coordinate with.

Level of Agreement	Percentage of Respondents
Strongly Agree	25%
Agree	25%
Somewhat Agree	8%
Neither Agree or Disagree	25%
Somewhat Disagree	8%
Disagree	8%
Strongly Disagree	0%

Question 6: We have a strong administrative team culture and open communication channels.

Level of Agreement	Percentage of Respondents
Strongly Agree	83%
Agree	0%
Somewhat Agree	0%
Neither Agree or Disagree	0%
Somewhat Disagree	0%
Disagree	8%
Strongly Disagree	0%

Question 7: We are viewed as supportive and positive by the community's building, industrial, and developer organizations and owners.

Level of Agreement	Percentage of Respondents
Strongly Agree	18%
Agree	36%
Somewhat Agree	36%
Neither Agree or Disagree	9%
Somewhat Disagree	0%
Disagree	0%
Strongly Disagree	0%

Question 8: The records management system(s) used to schedule, track, and record fire prevention activities is sufficient for our purposes:

Level of Agreement	Percentage of Respondents
Strongly Agree	0%
Agree	36%
Somewhat Agree	18%
Neither Agree or Disagree	9%
Somewhat Disagree	0%
Disagree	18%
Strongly Disagree	18%

Question 9: Select your area of responsibility.

Assignment	Number
Overall Administration & Support	3
Fire Prevention	9

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