Fire Department Emergency Services Review

RICHMOND, CALIFORNIA

March 6, 2023

matrix consulting group

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Introduction and Executive Summary

This document provides the results of the services review for the Richmond Fire Department. This report culminates the efforts of the Matrix Consulting Group team working with the fire department on its operations and resource needs now and into the future. This report also took a great level of input, support and collaboration from fire department staff.

Scope of Work

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

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

The study and this report also provide projections of service needs and resources over a 20-year planning period.

Approaches Utilized in the Study

Data utilized in this study was developed based on the work conducted by the project team, including.

- Interviews conducted with staff.
- Collection and analysis of workload and service data.
- A review of strategic documents and reports, budget data, organizational structure, and key practices.
- Planning documents on anticipated developments in the City over the 20-year planning period.

This study, then, was a comprehensive review of current and projected resource needs now and into the future.

Executive Summary

The City of Richmond is located in northwest Contra Costa County along the San Francisco Bay. Within the city is a Chevron Oil refinery and the Port of Richmond, a deep-water port. Encompassing approximately 56 square miles, the fire department provides service to the city from 7 fire stations. The fire department is a part of the overall county fire protection system in that automatic aid is available from Contra Costa County Fire Department, El Cerrito, Kensington, and Pinole.

In terms of distribution, the measure of getting initial resources to an emergency to begin mitigation efforts, the fire stations are located in an effective manner to provide the services. For concentration, the ability of the emergency services system to get the appropriate number of personnel and resources to the scene of an emergency within a prescribed time to effectively mitigate the incident, the fire protections system can provide appropriate resources. The latter, uses the automatic aid companies to ensure the resources are available to respond. Challenges ahead for the Richmond Fire Department are centered on personnel.

For the operations section of the fire department, the minimum staffing for each shift is 25 personnel. To meet this need, the fire department has used an average of 51,800 hours of overtime for the past four years with worker compensation leave accounting for the largest part. Based on the leave taken for the past four years it will require 1.31 personnel per position to provide staffing for one year or 33 (32.75) personnel per shift. This translates to 99 personnel assigned to the operational staffing to provide the minimum staffing required for operations. While this will not eliminate the use of overtime, it will significantly reduce the use of overtime.

Training and education are considered a major function in a fire department as it is critical for personnel to maintain perishable skills and become proficient to handle low frequency – high consequence events. For Richmond, this area of the fire department is managed and coordinated by a Battalion Chief. Recruitment to fill this position is currently underway. Until the position is permanently filled the duties are being handled by the Deputy Fire Chief. This in in addition to the operational duties of the Deputy Chief to ensure the fire protection system is properly staffed and ready to deliver emergency services.

Risk reduction activities are a part of the Fire Prevention Division. Included in this division is code enforcement, fire investigations, public education, and the needs of the Chevron

Refinery. With a total of five personnel assigned to the division, one is assigned as the Fire Marshal to manage the division and one is assigned to the Chevron Refinery. This leaves three personnel to address public education, code enforcement, plan review, fire investigations, and defensible space inspections. Engine companies do perform some of the fire safety inspections that relieves some of the workload from the fire prevention staff. However, based on the number of annual inspections to be completed, the code enforcement activities will need to be increased from three personnel to four personnel. This allows each inspector to complete 600 initial inspections per year and approximately 300 follow-up inspections per year.

Wildland fires are a continual threat with the number and intensity of these fire increasing throughout the region and the state. There is a significant wildland urban interface on the east side of the city with the Wildcat Canyon Regional Park and the Kennedy Grove Regional Recreation area. These two areas are adjacent to a larger area that includes Briones Regional Park. With the recent history of wildfires in the urban areas such Santa Rosa and Paradise, it is imperative the city prepare for this potential fire threat. Using defensible spaces around homes and businesses, the threat can be reduced. There are over 4,300 defensible space inspections to be completed in the city that could be completed using a civilian inspector to provide education and inspection activities to the residents.

Another unmet need is emergency management and the planning that accompanies this section. Recruitment to fill this position is currently underway. With the current position is unfilled, the duties for this position fall to the Fire Chief. Planning is a key function of this position and without a focused staff these plans can become outdated and of little use in the event of an emergency. As well, there are grant funds that are available to assist the city in mitigation efforts that also requires the planning to be current and approved by various other agencies such as FEMA.

To provide context to the staffing issues, the following table provides a comparison of authorized personnel, unfilled positions, and future needs. This information is as of December 31, 2022.

Richmond Fire Department Staffing Comparison

Position	Authorized Staff	Current Staff	Deviation	Recommended Staffing	Revised Authorized Staff
Fire Chief	1	1	0		1
Deputy Fire Chief	1	1	0		1
Battalion Fire Chief	4	3	1		4
Fire Marshal	1	1	0		1
Deputy Fire Marshal	1	1	0		1
Captain	24	21	3	3	27
Engineer	24	21	3	3	27
Firefighter	30	26	4	15	45
Fire Inspector I	1	1	0	1	2
Fire Inspector II	2	2	0		2
Emergency Services Manager	1	0	1		1
Administrative Service Analyst	1	0	1		1
Associate Admin Analyst	1	0	1		
Emergency Services Analyst	1	0	1		1
Administrative Aid	1	1	0		1
Fire Adaptive Community Coordinator	0	0	0	1	1
Public Education Coordinator	0	0	0	1	1
Total	**94**	**80**	**14**	**24**	**117**

The City Human Resources Department has contracted with CPS Consulting to assist with filling the sworn and promotional vacancies in the Department. Human Resources is recruiting for two (2) open civilian administrative positions. The plan is to hod promotional recruitment processes in January and February 2023 to fill the promotional openings. Interviews with for firefighter openings were conducted in October 2022. These candidates are having background investigations completed and will begin their firefighter training at the Firefighter Training Academy once they pass the background check.

Emergency medical services are delivered using a tiered response between the fire department and American Medical Response (AMR). The county provides, through contract, emergency medical services with the fire departments providing additional response capabilities on critical calls. As an alternative, the city could use smaller vehicles such as a quick response vehicle to deliver the service instead of the fire apparatus. This would reduce the wear and tear on the larger apparatus and could reduce the cost of delivering the service. This would entail the quick response vehicle responding with two personnel leaving the third with the fire apparatus to respond to fire calls as needed. This type of staffing would create a tandem response meaning the quick

response vehicle and fire apparatus would respond together on a fire related call if the quick response vehicle was already out of the station.

Strategic Improvement Opportunities

The following table provides a summary of recommendations established in this report. The report itself should be reviewed to understand the factual basis behind each recommendation as well as the analysis leading to each recommendation.

SUMMARY OF RECOMENDATIONS

ADMINISTRATIVE AND ORGANIZATIONAL
Review the worker compensation process within the city to streamline the processes to ensure employees are receiving appropriate services and a return-to-work authorization within an appropriate time frame reducing the amount of time employees are off duty.
Increase the number of personnel per shift over the next three to five years to reduce the amount of overtime needed to provide services and to address the fatigue and sleep deprivation issues.
Establish a Fire Adaptive Community Coordinator civilian position, in the next 12 to 24 months, to handle the defensible space inspections and create proactive programs increasing education efforts
EMERGENCY OPERATIONS
The city should establish performance objectives for turnout time for medical calls and fire related calls.
Establish a reporting system to create a mechanism to monitor progress of improvements to turnout time.
Establish baseline performance objectives for call processing, turnout time, and travel time for the dispatch center and fire department.
Monitor the various response time components as compared to the established performance objectives.
Work with Contra Costa Fire Protection District and Contra Costa County Emergency Medical Services to address any changes to be made to the emergency medical response in the city.
Consider utilizing cross-staffed quick response EMS vehicles as part of the medical response system to allow a quicker response and potentially reducing the cost of these responses.

ESSENTIAL FUNCTIONS
The city should establish performance objectives for the communications center for call answering and call processing.
Work with the dispatch center to improve the dispatch processes, to improve data capturing, and to meet the established performance objectives.
Establish a reporting system to create a mechanism to monitor progress of improvements to the dispatching services.
Work the dispatch center to improve the use of the Emergency Medical Dispatch (EMD) system to reduce any unnecessary responses of resources to emergency medical calls for service.
Utilize civilian personnel to provide public education and increase the exposure of fire safety education to the school aged children and targeted audiences in support of Community Risk Reduction principles
Monitor fire investigation workload to ensure code enforcement activities are not adversely affected by this collateral duty

Organization and Overview

This section provides an overview of the general characteristics of the Richmond Fire Department.

Background

In 1901, after a significant fire event, it was decided that the community needed fire protection and created a volunteer fire service. 1902 brought about the purchase of the first fire engine, a chemical fire engine. This type of engine was purchased due to the fact that water supply had not yet been established in the city. Eventually, there were a total of five volunteer departments created to serve the city. After functioning as a volunteer department for over a decade, the Richmond Fire Department became a full-time fire department in 1915.

The Fire Department serves the City of Richmond, which is located in northwest Contra Costa County along the San Francisco Bay. The city encompasses nearly 56 square miles of which 22.2 square miles are water and the remaining 33.8 land. Overall population density for the city is approximately 3,425 people per square mile based on the 2020 population of 116,448 and 33.8 square miles of land. Within Richmond resides a Chevron Oil refinery, an Amtrak station, and the Port of Richmond, a deep-water port. The city is also well served by both interstate highway and railroad systems.

The city is governed by six elected Council members and a separately elected Mayor who is also a member of the council. The City also has a City Manager, selected by the Council, who oversees the day-to-day city operations and department heads. The Fire Chief and staff are responsible for the day-to-day operations of the Fire Department.

Demographic Profile

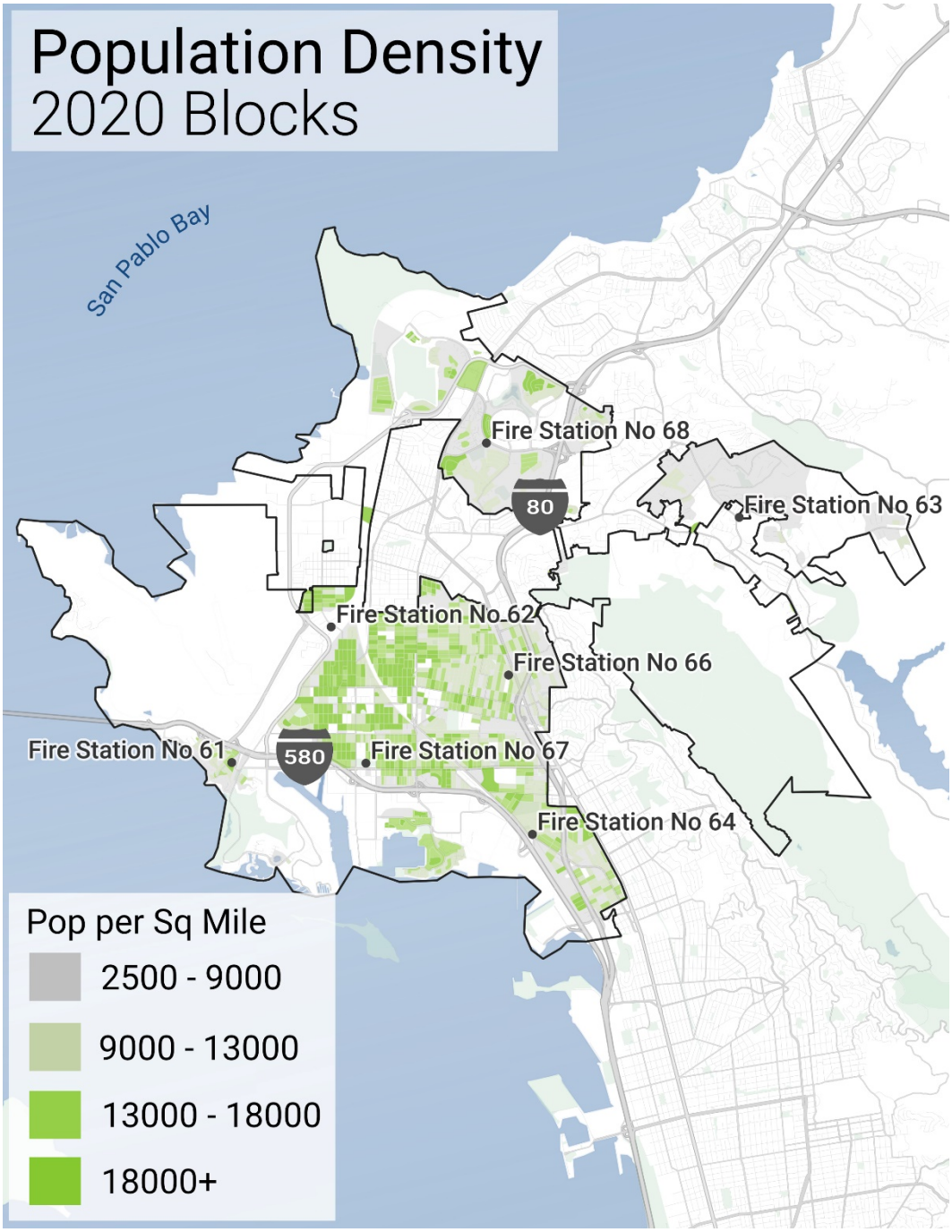
The following table illustrates the demographic profile of City of Richmond and changes that have occurred since the 2010 Census.

City of Richmond Demographics

U.S. Census Bureau	2010	2015	2020
Estimated Richmond Population	102,264	107,597	116,448
Median Age	34.5	35.2	37.2
Children Under Age 5	7.2%	7.2%	5.6%
Children Ages 5 to 19 years	21.5%	18.7%	18.3%
Persons Age 20 to 59 years	56.8%	57.3%	56.4%
Persons Age 60 and Over	14.5%	16.7%	19.6%
Median Income	$27,646	$26,335	$32,714
Employment Sectors:			
Education, Health Care, Soc. Svc.	21.8%	20.7%	22.8%
Retail Trade	10.8%	11.8%	9.4%
Professional, Scientific, Mgmt.	11.1%	13.5%	14.9%
Finance, Insurance, Real Estate	7.2%	5.1%	4.0%
Entertainment, Recreation, Food	10.1%	12.0%	11.7%
Construction	8.5%	9.2%	9.4%
Manufacturing	7.1%	5.7%	4.8%
Transportation, Warehousing, Util.	7.1%	5.5%	7.5%
Public Administration	4.4%	4.0%	3.7%
Other Services	5.7%	6.9%	6.5%
Wholesale	2.9%	2.7%	2.7%
Information	2.7%	1.9%	2.2%
Agriculture, Forestry, Fishing	0.5%	1.1%	0.6%

The population of the City has increased approximately 14% since 2010 adding an estimated 14,184 residents. The largest change between the age groups is the over 60 age group with a 5.1% increase. Additionally, there was a 4.8% decrease in the combined categories under 20 years of age. The median age of the city has risen to 37.2 years, which is an increase of 2.7, for the past nineteen years.

The following map provides a view of population density by census blocks.



Population densities are significantly higher in the areas west of I-80 and more evenly dispersed in the east. The greatest density is located in the center of the incorporated area bordered by I-80 and Richmond Pkwy. There are a few pockets of higher density throughout the eastern portion of the City.

Organization

The RFD operates with a Fire Chief, Deputy Chief, and 3 Battalion Chiefs. The Battalion Chiefs, who report directly to the Deputy Chief, manage three shifts that work a 48 hours on and 96 hours off schedule. Shifts begin and end at 0730 hours. Each shift is made up of 1 Battalion Chief, 8 Captains, 8 Engineers, and 10 Firefighters.

Fire Prevention reports directly to the Fire Chief and currently consists of a Fire Marshal, Deputy Fire Marshall, and 2 inspectors. Also reporting to the Fire Chief are an Administrative position, an Emergency Services Analyst and an Office of Emergency Services which is currently vacant. The delivery and planning of training currently falls under the Deputy Fire Chief while awaiting a process to promote a Battalion Chief to be over Training

Mission Statement

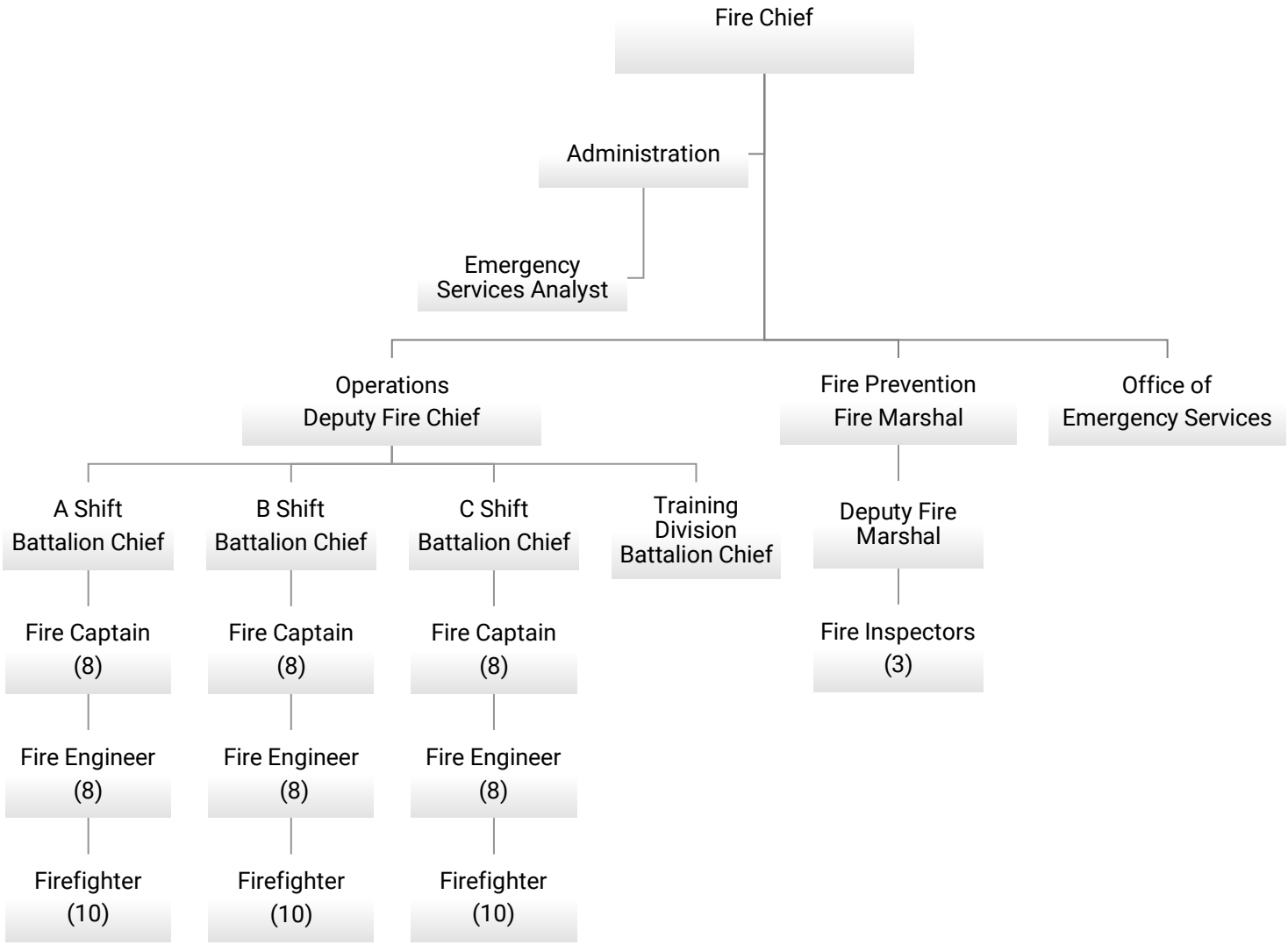
The Richmond Fire Department is a dedicated workforce of highly motivated and technically skilled professionals of rapid response. It is our purpose to protect life and preserve property.

We are a profession that knows no limit to what we will respond to and we prepare without constraint to meet the challenges of our chosen profession.

The citizens, businesses, and visitors to the City of Richmond can expect a caring, courteous, and competent response when rendered our aid.

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

Richmond Fire Department Organizational Chart



Operations

This section provides an overview of the emergency operations of Richmond Fire Department.

Physical Resources

Service to the city is provided from seven (7) fire stations located throughout the incorporated city limits. The following map illustrates the location of the fire stations.

The fire department is authorized 81 operational personnel of which 74 operational positions are currently filled. Each operational shift staffs 7 engine companies and 1 truck company with a minimum of 3 personnel on each apparatus. Including the Battalion Chief, each shift has a minimum staffing of 25 personnel. In addition to fire suppression, the department also provides hazardous materials response, technical rescue, BLS medical first responder, marine response, fire prevention and fire investigations.

The fire department utilizes both automatic aid and mutual aid. Primary automatic aid departments are El Cerrito and Albany south of the city and Contra Costa County Fire in the north. The City of Berkley provides mutual aid when called.

The tables that follow outline the apparatus and staffing for the station.

Station 61

140 W. Richmond Ave.

Description of Use	Provides service to the western section of the city near the Chevron Refinery.				
Apparatus Space	3 bays-drive through				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	E 61	2008	Spartan Gladiator – Hi Tech	Type I Engine	3
	BA 61	2004	Spartan Metro – SVI	Breathing Support	
		2013	Moose Vessel M2-37	Fire Boat	
		2008	Ford F-150	Marine	
		2008	Spartan Gladiator – Hi Tech	Reserve Engine	

Station 62

1065 7th St.

Description of Use	Located in the northwest area of the city providing services to the north and central sections of the city.				
Apparatus Space	2 bays-drive through				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	E 62	2020	Spartan Gladiator– Hi Tech	Type I Engine	3
	BR 62	2001	Chevrolet 3500	Type 6 Engine	Cross Staffed
		2008	Spartan Gladiator	Reserve Engine	

Station 63

5201 Valley View Rd.

Description of Use	Provides service to the eastern areas of the city and is bordered by the San Pablo Ridge to the west.				
Apparatus Space	2 bays-drive through				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	E 63	2012	Spartan Metro Star – Hi Tech	Type I Engine	3
	BR 63	2009	Ford F-450 – Hi Tech	Type 6 Engine	Cross Staffed

Station 64

140 Richmond Ave.

Description of Use	Provides service to the southern section of the city and houses the on-duty Battalion Chief.				
Apparatus Space	3 bays-drive through				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	E 64	2020	Spartan Gladiator – Hi Tech	Type I Engine	3
	T 64	2008	Spartan Gladiator – LTI	Aerial Ladder	3
	BC 64	2015	Ford Explorer	Command	1
	HM 64	2005	Spartan Metro Star – SVI	Hazardous Materials	Cross Staffed

Station 66

4100 Clinton Ave.

Description of Use	Located in the eastern areas along I-80 provides service to the east area but also to the central section of the city.				
Apparatus Space	2 bays-drive through				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	E 66	2020	Spartan Gladiator – Hi Tech	Type I Engine	3
	BR 66	2001	Chevrolet 3500	Type 6 Engine	Cross Staffed

Station 67

1131 Cutting Rd.

Description of Use	Located along the southwest area of the city provides service to the harbor area and the south central section of the city.				
Apparatus Space	3 bay no drive through with 2 bay entrance on East side rear				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	E 67	2019	Spartan Gladiator – Hi Tech	Type I Engine	3
	R 67	2015	Spartan Metro Star – EVI	Heavy Rescue	Cross Staffed
		2008	Spartan Gladiator – Hi Tech	Reserve Engine	

Station 68

2904 Hilltop Rd.

Description of Use	Provides service to the northeast area of the city in the area of the Hilltop Mall.				
Apparatus Space	3 bays-drive through				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	E 68	2019	Spartan Gladiator – Hi Tech	Type I Engine	3
	BR 68	2009	Ford F-450 – Hi Tech	Type 6 Engine	Cross Staffed
	R 68	1999	Navistar Rescue	Ambulance	Cross Staffed
	T 68	2001	Spartan Gladiator – LTI	Aerial Ladder	Cross Staffed

Historical Workload

The Richmond Fire Department responds to emergency and non-emergency calls for service. The following table illustrates the activities of the RFD grouped by the type of call over the last four years.

Calls for Service

	2018	2019	2020	2021	Total	Pct.
Auto Accident	641	726	646	726	**2,739**	4.7%
Medical Calls	8,159	7,739	7,497	7,302	**30,697**	53.1%
Total Medical and Auto Accidents	**8,800**	**8,465**	**8,143**	**8,028**	**33,436**	**57.8%**
Fire Alarm – Activation	410	470	399	465	**1,744**	3.0%
Fire Alarm – False	44	33	24	21	**122**	0.2%
Fire Alarm – Malfunction	130	162	165	145	**602**	1.0%
Auto / Mutual Aid	996	917	824	800	**3,537**	6.1%
Smoke Scare	219	241	270	218	**948**	1.6%
Structure Fire	40	52	59	61	**212**	0.4%
Other Type Fire	104	98	99	90	**391**	0.7%
Vegetation/Debris/Grass	408	592	894	857	**2,751**	4.8%
Vehicle Fires	130	95	144	142	**511**	0.9%
All Fire Calls	**2,481**	**2,660**	**2,878**	**2,799**	**10,818**	**18.7%**
Rescue Calls - Extrication	25	32	20	21	**98**	0.2%
Rescue Calls - Other	14	2	13	4	**33**	0.1%
Rescue Calls - Search	2	5	0	1	**8**	0.0%
Rescue Calls - Water	5	3	3	10	**21**	0.0%
All Rescue Calls	**46**	**42**	**36**	**36**	**160**	**0.3%**
Dispatched/Cancelled	2,242	2,358	2,313	1,961	**8,874**	15.3%
Overpressure Rupture/Explosion/Overheat	4	8	4	3	**19**	0.0%
Good Intent Calls	82	182	184	160	**608**	1.1%
Hazardous Condition	235	293	244	322	**1,094**	1.9%
Hazardous Materials	3	4	2	2	**11**	0.0%
Service Calls	371	402	379	454	**1,606**	2.8%
Severe Weather Alerts	1	22	14	17	**54**	0.1%
Non-Coded Calls	48	300	440	346	**1,134**	2.0%
Other Type of Calls	**2,986**	**3,569**	**3,580**	**3,265**	**13,400**	**23.2%**
Total Calls for Service	**14,313**	**14,736**	**14,637**	**14,128**	**57,814**	

Overall, medical calls combined with auto accidents represent 57.8% of the total call volume. Fire alarms, fire alarm activations, and fire alarm malfunctions, combined total 4.3% of the total call volume. For the four years combined, 15.3% of the calls were dispatched and subsequently cancelled.

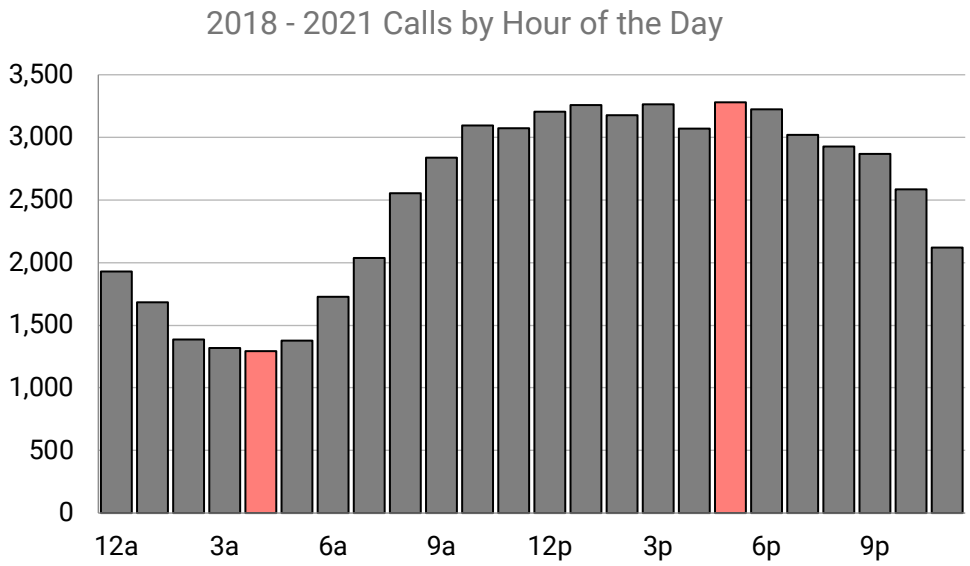
The following table displays the total number of calls for service handled by the Richmond Fire Department by each hour and day of the week for the past four years. Both emergency and non-emergency calls were included to provide an overall view of the call demand on the emergency services system.

2018 – 2021 Calls for Service by Hour and Weekday

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
12 am	0.5%	0.4%	0.4%	0.4%	0.4%	0.4%	0.5%
1 am	0.5%	0.4%	0.4%	0.4%	0.3%	0.4%	0.5%
2 am	0.4%	0.3%	0.3%	0.3%	0.3%	0.3%	0.4%
3 am	0.4%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%
4 am	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%
5 am	0.4%	0.4%	0.3%	0.4%	0.3%	0.3%	0.3%
6 am	0.3%	0.4%	0.5%	0.4%	0.4%	0.4%	0.4%
7 am	0.4%	0.5%	0.5%	0.5%	0.5%	0.5%	0.4%
8 am	0.5%	0.6%	0.7%	0.6%	0.7%	0.6%	0.5%
9 am	0.5%	0.7%	0.7%	0.7%	0.8%	0.7%	0.6%
10 am	0.7%	0.8%	0.7%	0.7%	0.8%	0.8%	0.7%
11 am	0.6%	0.7%	0.7%	0.8%	0.7%	0.7%	0.8%
12 pm	0.7%	0.7%	0.8%	0.7%	0.8%	0.8%	0.7%
1 pm	0.8%	0.7%	0.8%	0.8%	0.7%	0.8%	0.8%
2 pm	0.7%	0.7%	0.8%	0.8%	0.7%	0.7%	0.8%
3 pm	0.7%	0.8%	0.8%	0.8%	0.8%	0.8%	0.7%
4 pm	0.7%	0.8%	0.7%	0.7%	0.7%	0.7%	0.7%
5 pm	0.7%	0.8%	0.8%	0.8%	0.8%	0.7%	0.7%
6 pm	0.8%	0.8%	0.7%	0.8%	0.7%	0.8%	0.7%
7 pm	0.8%	0.7%	0.7%	0.7%	0.7%	0.8%	0.7%
8 pm	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%
9 pm	0.7%	0.7%	0.6%	0.6%	0.7%	0.7%	0.7%
10 pm	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.7%
11 pm	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.6%

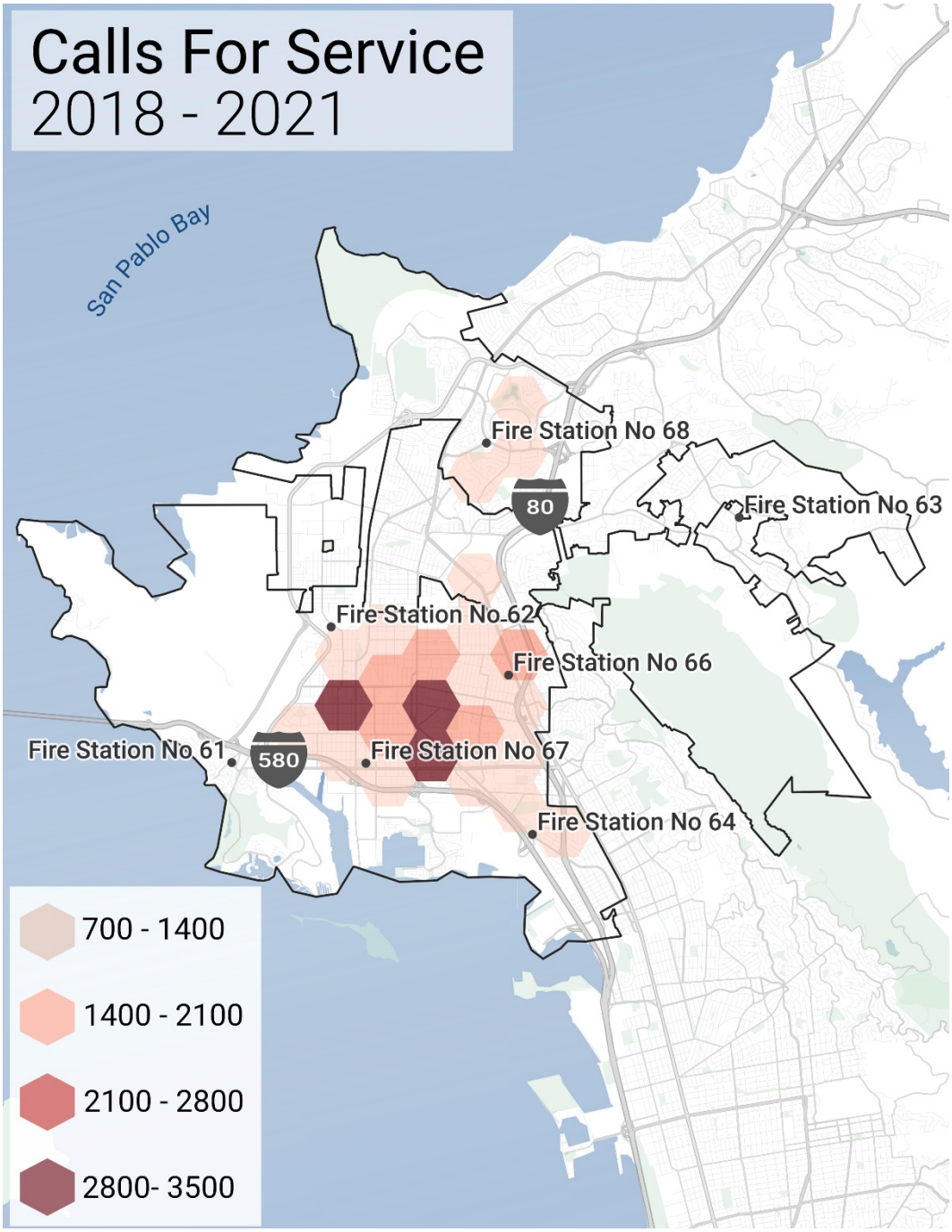
The call volume is heaviest during the middle part of the day from mid-morning to the early evening with Friday having the most calls and Sunday the fewest. The calls for service varied by time of day and day of the week. The busiest hour of the day is 5 pm with the slowest hour being 4 am.

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



As illustrated above, calls continue to increase through the morning hours then remain steady through most of the day peaking at 5 pm. The calls begin to decline at the 7 pm hour and sharply decline at the 11 pm hour. Calls then continue to decline with 4 am being the slowest hour of the day.

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



As illustrated, the highest volume of calls is in the west central portion of the city. There is also a clustering of calls in the northeast located around Station 68.

Training and Education

Training and education for the RFD is managed by the Deputy Fire Chief. Currently there is a vacancy for a Battalion Chief to oversee Training. The following table illustrates the man hours for a variety of topics for 2018 to 2021.

Topic	2018	2019	2020	2021	Total
Academy	77.0	0.0	9,516.0	0.0	**9,593.0**
Administration, Management or Supervision	908.0	661.5	1,005.0	704.5	**3,278.5**
Aircraft/Airfield Operations	56.0	30.0	50.0	56.0	**192.0**
Construction Technology and Fire Protection Systems	3,776.0	257.0	618.5	550.0	**5,201.5**
Emergency Medical	1,025.0	902.5	1,379.3	613.0	**3,919.3**
Emergency Operations	2,193.0	2,163.5	2,454.0	1,956.0	**8,766.3**
Fire and Arson Investigation	61.0	118.0	438.5	334.0	**951.0**
Hazardous Materials	503.0	503.0	548.0	147.0	**1,700.5**
ICS and NWCG Courses	78.0	48.0	30.5	48.0	**204.5**
Instructor Training	78.0	0.0	132.0	138.0	**348.0**
Office and Clerical Skills	174.0	392.5	489.0	448.0	**1,503.5**
Portable and Fixed Accessory Equipment	1,139.0	1,052.5	1,011.5	1,027.0	**4,230.0**
Preventative Maintenance	1,841.0	1,367.0	2,086.0	1,536.0	**6,829.9**
Prevention	948.0	1,536.5	990.5	937.0	**4,411.5**
Rescue Practices	1,252.0	1,068.0	1,221.0	1,292.0	**4,832.5**
Vehicle Operations and Pump Use	930.0	993.5	1,358.5	1,455.0	**4,736.3**
Total Man-Hours	**15,038.0**	**11,094.0**	**23,328.0**	**11,239.0**	

As illustrated 11,239 man-hours were expended for training and education in 2021, an average of approximately 148 hours per person based on 76 personnel records. Hands on training supplemented by online training platforms are both being utilized.

Fire Prevention

Fire safety inspections and public education programs are the responsibility of this section that is headed by the Fire Marshal, Deputy Fire Marshal, and 2 Fire Inspectors. In addition to fire inspections, this section is over fire investigations, plan review, and vegetation management of Very High Hazard Zones. Engine companies will assist with low-risk fire inspections as Fire Prevention performs inspections on high-risk properties and new construction. In the following table the activities of this section are illustrated.

Prevention Activity

	2019	2020	2021
Inspection Activities	4,059	3,273	2,830
Plan Review Activities	300	284	102
Fire Investigations	NR	NR	37
Total Activities	**4,359**	**3,557**	**2,969**

As illustrated above, fire prevention activity has declined over the past three (3) years. Much of this reduction is due to the Covid-19 pandemic that has limited access to commercial occupancies requiring code compliance inspections.

Financial Resources

The City operates on a fiscal year ending on June 30 of each year. The Fire Chief collaborates with the City Manager and the Finance Department to develop the annual budget for the Fire Department.

Revenues

The Fire Department obtains its funding primarily through the general fund. The largest sources of revenue for the City includes sales tax at 29%, utility user tax at 26%, and property taxes at 24% of the General Fund total. The following table illustrates the funding sources for the Fire Department within the General Fund and other sources as identified for the past three years.

Financial Resources	FY 2019/20	FY 2020/21	FY 2021/22
General Fund-0001	$32,481,310	$36,811,379	$37,236,465
Outside Funded Svc-1006	$3,501	$20,000	$0
Emergency Med Svc-1007	$218,705	$301,900	$215,586
Hazmat-1013	$260,528	$360,335	$0
ECIA-1017	$97,415	$67,000	$0
Emergency Operation & Disaster-1304	$123,302	$0	$0
Impact Fee-2113	$74,637	$126,762	$0
Total Financial Resources	**$33,259,398**	**$37,687,376**	**$37,452,051**

Expenditures

The following table is a historical and budgeted summary of the operating expenditures for the Fire Department over the past three years.

Line Item	FY 2021 Actual	FY 2022 Adjusted	FY 2023 Budgeted
Salaries	$16,915,495	$18,632,677	$18,574,259
Benefits	$13,815,750	$14,428,325	$14,824,371
Professional Services	$669,161	$1,865,420	$1,599,815
Other Operating Expenses	$256,769	$407,877	$426,677
Utilities	$28,207	$33,500	$33,500
Equipment & Contract Services	$152,248	$177,950	$234,850
Provision for Insurance Loss	$10,618	$24,861	$23,000
Cost Pool	$892,331	$1,642,331	$1,214,448
Asset/Capital Outlay	$77,811	$33,639	$80,500
Debt Service Expenditure	$114,991	$114,778	$114,613
Operating Transfer Out	$326,018	$326,018	$326,018
Total Fire Department Expenditures	**$33,259,399**	**$37,687,376**	**$37,452,051**

Salaries and Benefits represent 89% of the Fire Department's overall budget. The next significant items, Professional Services and Cost Pool, combined represent 8% of total expenditures.

Emergency Services System Dynamics

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

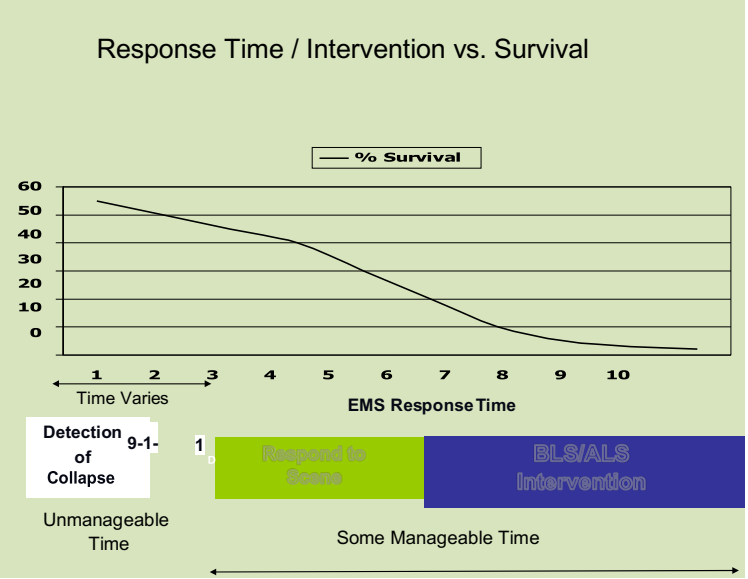
Nationally, the National Fire Protection Association (NFPA), Commission for Public Safety Excellence (CPSE), American Heart Association (AHA), United States Fire Administration (USFA), Underwriters Laboratories (UL), Factory Mutual (FM), National Institutes of Standards and Technology (NIST), and Insurance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

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

The next sections explain the decision points for these factors. It begins with the analysis, followed by how the Boise Fire Department compares to the standards.

Emergency Medical Services

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



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

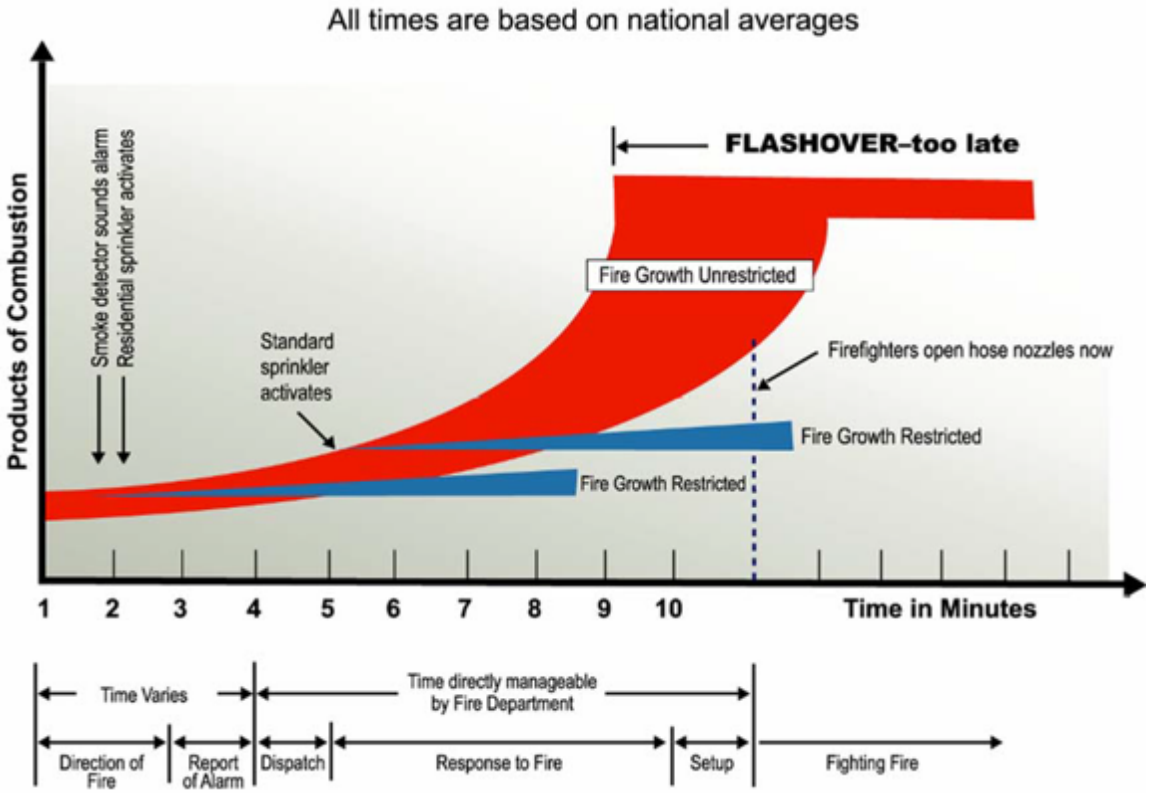
Considering the response time continuum, the response time goal for emergency services is to provide BLS within 6 minutes of the onset of the incident (including detection, dispatch, and travel time) and ALS within 10 minutes. This is often used as the foundation for a two-tier system where fire resources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

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

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

Fire Suppression Services

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



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

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

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

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

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

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

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

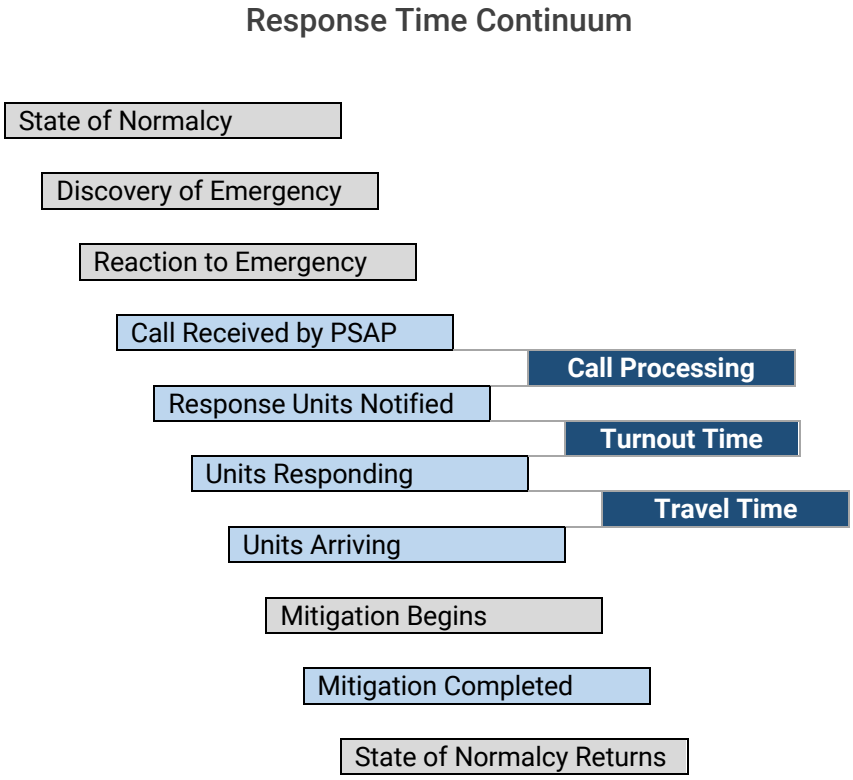
The next section examines the issue of response time.

National Response Time Criteria

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

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

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



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

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

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

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

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

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

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

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

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

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

Service Area/Population Density Response Travel Time Standards

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

Effective Response Force

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

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

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

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

Critical Tasks for the Effective and Efficient Control of Structural Fires

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

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

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

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

Critical Tasks for Hazardous Materials

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

Critical Tasks for Initial Wildland Urban Interface Fires

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

Critical Tasks for Technical Rescue Operations

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

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

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

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

Critical Tasks for Effective Patient Care

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

Critical Tasks for Technical Rescue Operations

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

Evaluation of the Richmond Fire Services

This section compares and evaluates the current deployment and performance of the Richmond Fire Department as it relates to the benchmark and baseline performance objectives.

Response Time Data

Computer Aided Dispatch (CAD) data for 2018, 2019, 2020, and 2021 was examined and evaluated. The data is not without issues such as coding problems, transcription errors, and equipment failures. The project team used the following mechanism to address these issues.

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

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

After filtering the data using the methodology outlined above, the remaining incidents represent the response time for calls for service handled by the Fire Department.

Community Performance Standards

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

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

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

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

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

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

> "There can be incidents or areas where the response criteria are affected by circumstances such as response personnel who are not on duty, unstaffed fire station facilities, natural barriers, traffic congestion, insufficient water supply, and density of population or property. The reduced level of service should be documented in the written organizational statement by the percentage of incidents and geographical areas for which the total response time criteria are achieved.
>
> Additional service delivery performance objectives should be established by the AHJ for occupancies other than those identified within the standard for benchmark single-family dwellings. Factors to be considered include specific response areas (i.e., suburban, rural, and wilderness) and occupancy hazards."

This passage acknowledges the authority having jurisdiction (AHJ) is responsible for determining the level of service to be provided by the emergency services. Considerations for the level of service include, but not limited to, the way the emergency service responds, travel time, staffing, emergency calls versus non-emergency calls, roadways, financial resources, and those calls involving different occupancies.

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

Call Processing

Performance Standards

Dispatch services for the fire department is provided by the police department communications center. As such the fire department does not have direct control over the dispatch center or the call processing performance. NFPA 1221 Standard for the Installation, Maintenance and Use of Emergency Services Communications Systems establishes the call processing benchmarks as outlined in the following chart.

NFPA 1221 Benchmark Performance Objectives

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

Both CPSE and ISO use the 60 second call processing time benchmark performance objective as outlined in NFPA 1221 for their requirements.

System Performance

The table below summarizes the performance of the communications center.

Richmond Communications Center Performance

All Emergency Calls – 90th Percentile Times		2018 – 2021	2018	2019	2020	2021	Benchmark
Call Processing	Pick-up to Dispatch	3:47	3:27	3:34	3:59	4:05	1:00

For the four-year period, call processing was over the performance objective benchmark established by NFPA 1221 by 2 minutes and 47 seconds.

Turnout Time

Performance Standards

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

Turnout Time – Performance Objectives

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

System Performance

The table below illustrates the performance for the Richmond Fire Department.

Richmond Fire Department Turnout Time Performance

All Emergency Calls – 90th Percentile Times			2018 – 2021	2018	2019	2020	2021	Benchmark
Turnout Time	1st Unit	Medical Calls	2:36	2:42	2:30	2:38	2:34	1:00
		Fire Calls	2:22	2:27	2:22	2:19	2:18	1:20

All times shown is the 90th percentile time for the four-year period and then for each of the four years. The benchmark performance objective time shown to the right represents industry best practice. As shown, turnout time for medical calls for the four-year period was 1 minute and 36 seconds over the benchmark performance objective. For the same period, fire related calls were 1 minute and 2 seconds over the benchmark performance objective.

Distribution of Resources

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

Performance Standards

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

First Arriving Unit - Benchmark Performance Objectives

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

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

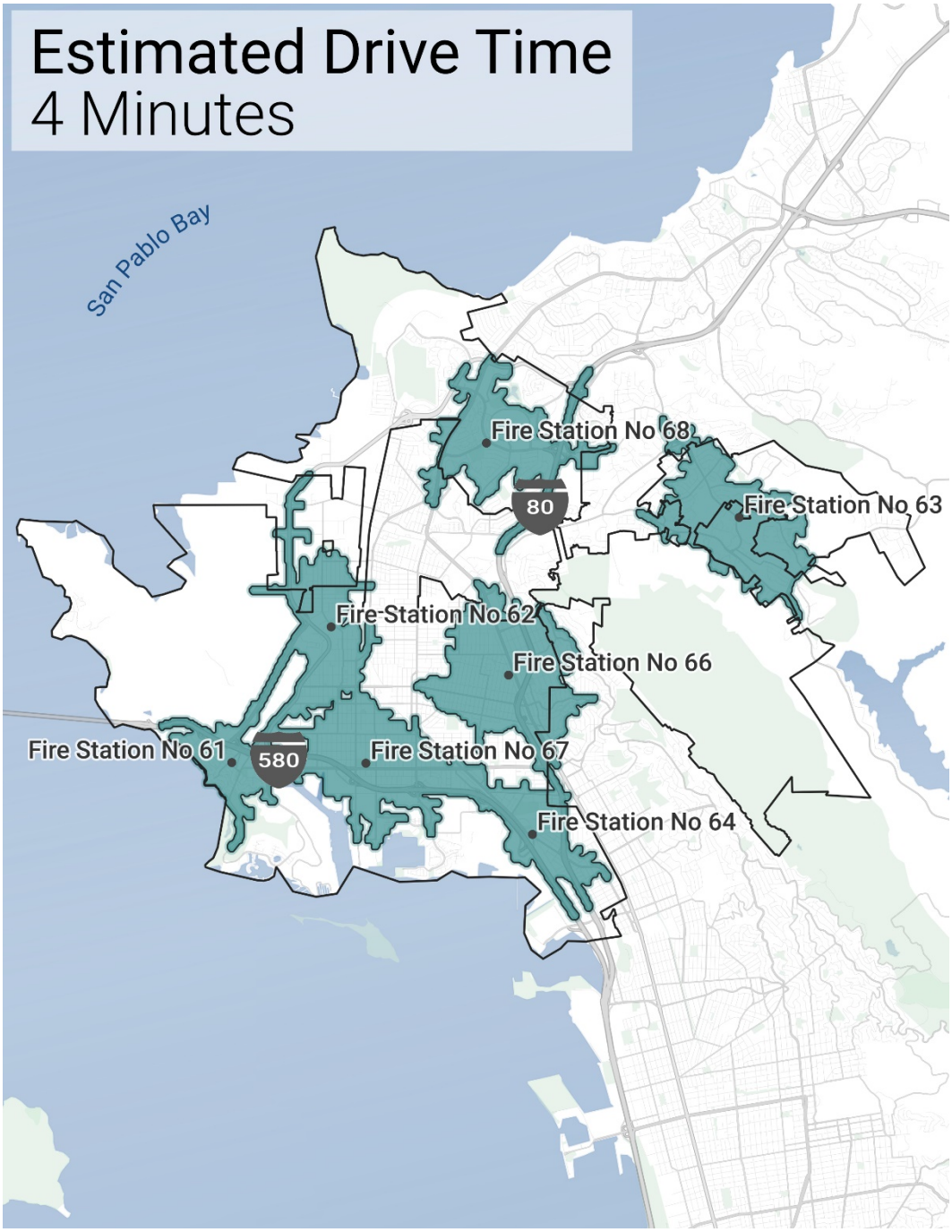
System Performance

Richmond fits the urban demographic definition with a population density 3,425 residents per square mile, however areas adjacent to Wildcat Canyon Regional Park and Sobrante Ridge have lower population densities. The table that follows illustrates the travel time for the urban demographic as compared to the recommended benchmark performance objectives as represented by National Fire Protection Agency (NFPA) Standard 1710.

All Emergency Calls – 90th Percentile Times		2018 – 2021	2018	2019	2020	2021	Benchmark
Travel Time	1st Unit – Distribution	6:44	6:30	6:38	6:52	6:55	4:00

For 2021, the travel time performance in the city is 6 minutes and 55 seconds, which is 2 minutes and 55 seconds over the benchmark performance objective. Travel times have slightly increased from 2018 to 2021.

For a visual perspective the following map illustrates the four-minute travel time expectations using the existing fire stations in the city.



This map illustrates the fire stations used by the Richmond Fire Department to serve the city using the four-minute benchmark performance objective. There are areas to the south of I-580, the central section of the city, and to the east of station 63 that are outside the travel time polygon.

Concentration of Resources

Concentration of resources is generally described as the ability of the emergency services system to get the appropriate number of personnel and resources to the scene of an emergency within a prescribed time to effectively mitigate the incident. There are two segments to this component – the first is the arrival of second suppression apparatus and the second is the arrival of an effective response force both of which use travel time as the measurement.

Performance Standards

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

Second Arriving Suppression Apparatus

Travel time is the primary measurement for the second arriving fire suppression unit. The following table summarizes the differing viewpoints for the travel time of the second arriving unit.

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

As can be noted in the previous table, CPSE and NFPA 1710 have requirements for the second arriving apparatus, ISO is silent on this topic.

First Alarm Assignment

Travel time and number of personnel arriving at the scene of an emergency is the measurement for the first alarm assignment. The next table illustrates the travel time for the first alarm assignment.

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

In the previous table, a moderate risk structure fire is used as the basis for the benchmark performance objectives.

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

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

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

For the effective response force, 16 personnel were used for the concentration of resources representing a moderate risk structure fire (single family house). The following tables illustrate the performance of the fire department for the past four years for each the city.

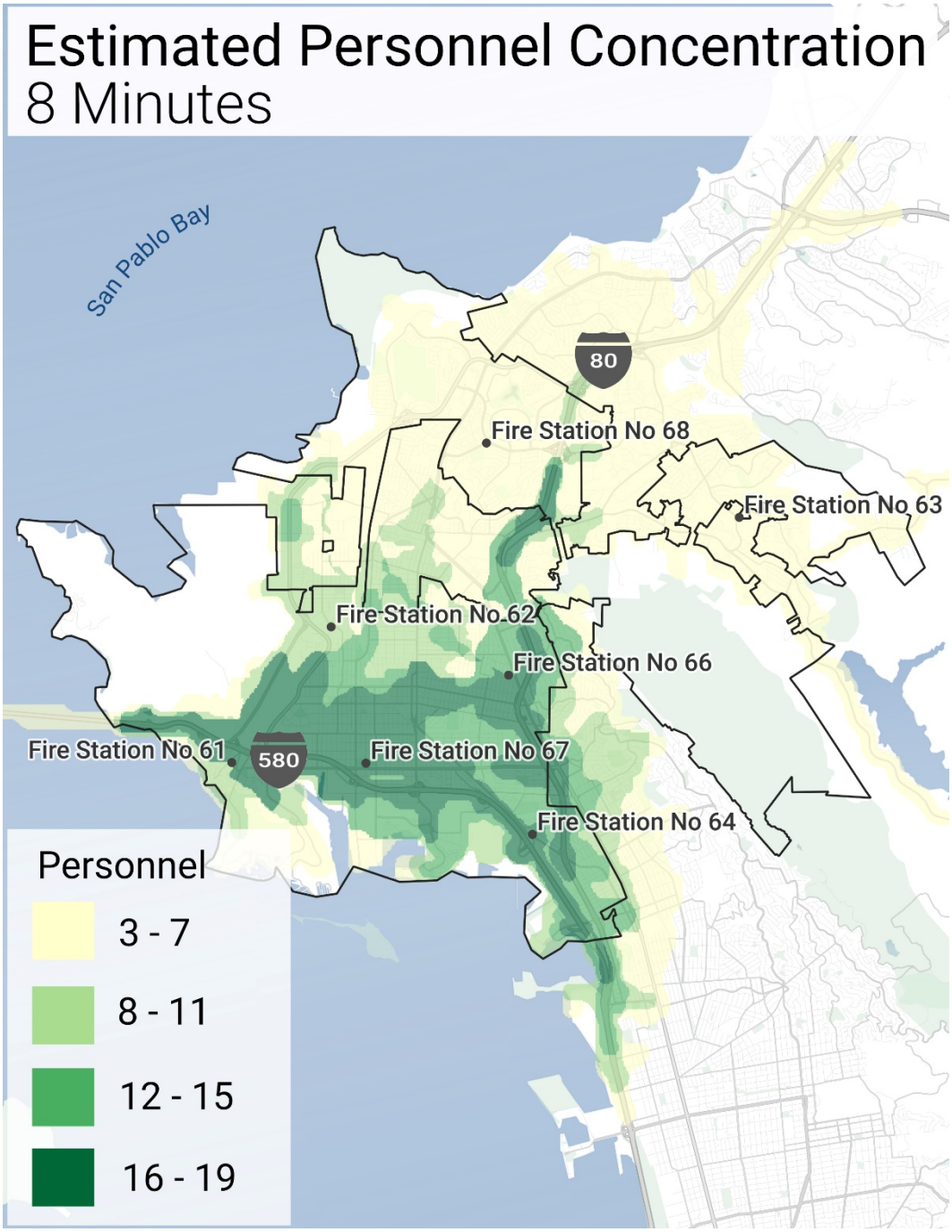
Structure Fires – 90th Percentile Times		2018 - 2021	2018	2019	2020	2021	Benchmark
Travel Time	1st Unit – Distribution	5:28	6:40	4:49	5:29	5:23	4:00
		n = 215	n = 40	n = 52	n = 58	n = 65	
	2nd Arriving Suppression Unit	8:32	9:13	6:38	8:42	8:31	6:00
		n = 167	n = 37	n = 37	n = 44	n = 49	
	ERF – Concentration	24:45	26:59	16:42	12:00	29:33	8:00
		n = 40	n = 18	n = 10	n = 9	n = 65	

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

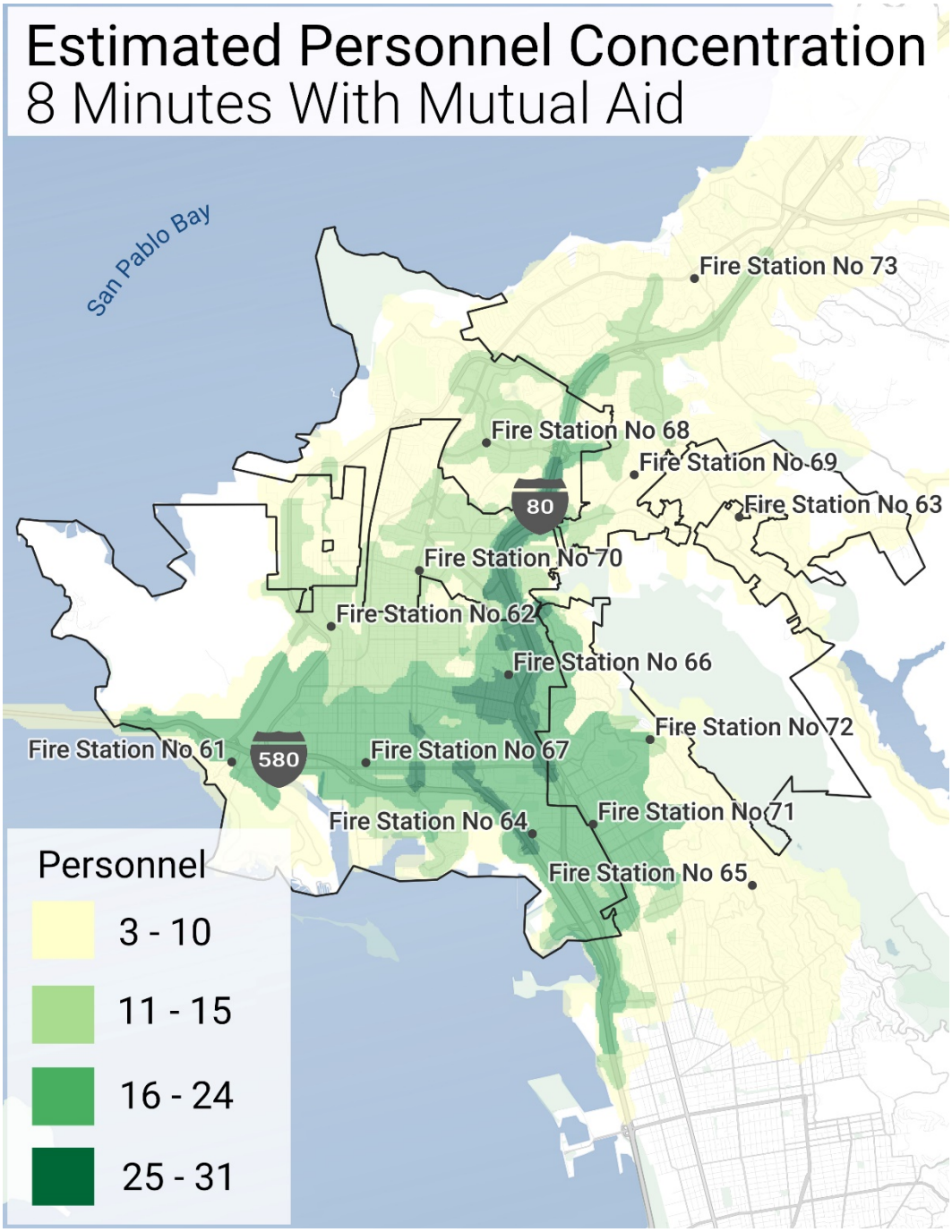
In terms of travel time, the response time for the first arriving unit is relatively close to the benchmark performance objective. However, the second arriving suppression unit for the past four years is 2 minutes and 32 seconds over the benchmark performance objective.

The data for the previous table is limited to structure fires only as coded in the CAD data from the dispatch center. With a smaller data set, one or two calls for service can have an effect on the response time shown. For example, in 2018 of the 18 structure fire calls 2 calls had a travel time of 33 minutes and 46 seconds and the other had a travel time of 44 minutes and 35 seconds to meet the 16 personnel effective response force. Removing these two incidents, the travel time for the remaining 16 incidents was 9 minutes and 23 seconds.

The following map illustrates the expected performance staffing concentrations assuming all resources in each station are available to respond using the 8-minute travel time. In this illustration, only Richmond resources are shown.



As illustrated, the western core of the city can achieve a 16-person effective response force however, areas to the northern sections of the city are not able to meet the effective response force in the eight-minute travel time benchmark performance objective. For additional perspective, the following map illustrates the arrival of an effective response force using the same travel time performance objective that also includes mutual aid partners.



In terms of an effective response force, there are improvements within the city with mutual aid partners. However, the area to the north and east of station 63 is not within the benchmark performance objectives.

System Reliability

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

Unit Utilization

Unit utilization is a factor in determining whether there is an appropriate emergency services system response. For purposes of this analysis, unit utilization is calculated by taking the total hours the unit is committed to incidents for the year divided by the total hours in a year. Expressed as a percentage, it identifies the amount of time the unit is committed but more importantly the amount of time the unit is available.

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

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

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

Richmond Fire Department Actual Unit Utilization

Unit	2018			2019			2020			2021		
	Duration	Pct. of Time	Avg.	Duration	Pct. of Time	Avg.	Duration	Pct. of Time	Avg.	Duration	Pct. of Time	Avg.
E67	835:11:59	9.5%	0:16:15	782:55:26	8.9%	0:13:57	849:28:00	9.7%	0:15:19	847:33:49	9.7%	0:16:46
E62	712:20:10	8.1%	0:16:16	593:44:57	6.8%	0:14:23	652:45:18	7.5%	0:16:10	825:25:57	9.4%	0:22:56
E64	666:15:42	7.6%	0:17:10	706:34:56	8.1%	0:17:05	778:16:57	8.9%	0:17:38	801:54:17	9.2%	0:18:07
E66	684:51:41	7.8%	0:14:19	642:28:22	7.3%	0:14:25	644:25:54	7.4%	0:14:19	795:50:58	9.1%	0:17:54
E68	651:58:57	7.4%	0:17:23	644:02:39	7.4%	0:15:28	711:06:13	8.1%	0:16:54	776:37:52	8.9%	0:17:22
E61	415:30:33	4.7%	0:19:23	379:28:04	4.3%	0:17:44	370:11:16	4.2%	0:16:47	554:01:05	6.3%	0:25:31
E63	258:15:17	2.9%	0:20:27	239:34:45	2.7%	0:17:14	236:57:57	2.7%	0:17:07	275:55:43	3.1%	0:21:44
T64	306:17:29	3.5%	0:15:05	277:58:32	3.2%	0:13:07	264:58:03	3.0%	0:17:27	266:07:46	3.0%	0:18:22

Generally, the unit utilization is not an issue until it begins to reach 20% to 25% and/or if it begins to interfere with the travel time of the unit. Typically, unit utilization is more of an issue for medical units as they handle a high call volume. It is a useful tool with fire suppression units as these units also respond to medical calls although there is no transport involved. In 2021, no units were over 10% with Engine 67 the closest at 9.7% in terms of committed time to emergency calls.

Concurrent Calls

It is common for an emergency services system to have multiple requests for service occurring simultaneously. The larger the system the more frequently this will occur and with the appropriate resources this can be handled efficiently.

Calls	2018	2019	2020	2021	Total	%
1	6,119	5,954	5,825	5,694	23,592	43.4%
2	4,627	4,622	4,591	4,538	18,378	33.8%
3	2,107	1,842	1,986	2,196	8,131	15.0%
4	722	606	700	792	2,820	5.2%
5	248	158	214	249	869	1.6%
6+	154	85	127	226	592	1.1%
Total	**13,977**	**13,267**	**13,443**	**13,695**	**54,382**	**100%**

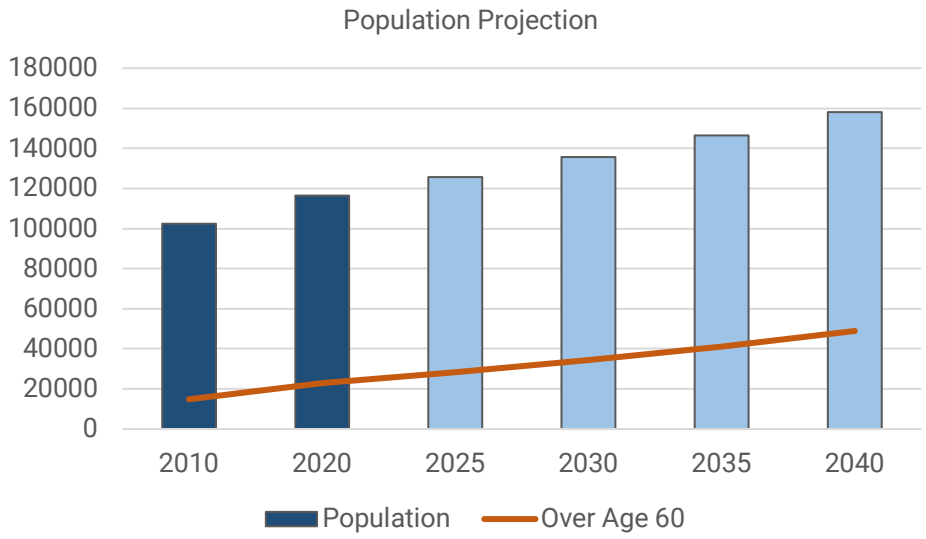
The measurement for concurrent calls is based on the occurrence of additional calls for service while another call is in progress. In this instance, when one call is occurring, 57% of the time more than one request for service is being handled. Further, when one call is in progress, for approximately 49% of those calls there are two or three calls occurring simultaneously.

Strategic Operational Improvement Opportunities

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

Community Growth and Emergency Services Demand

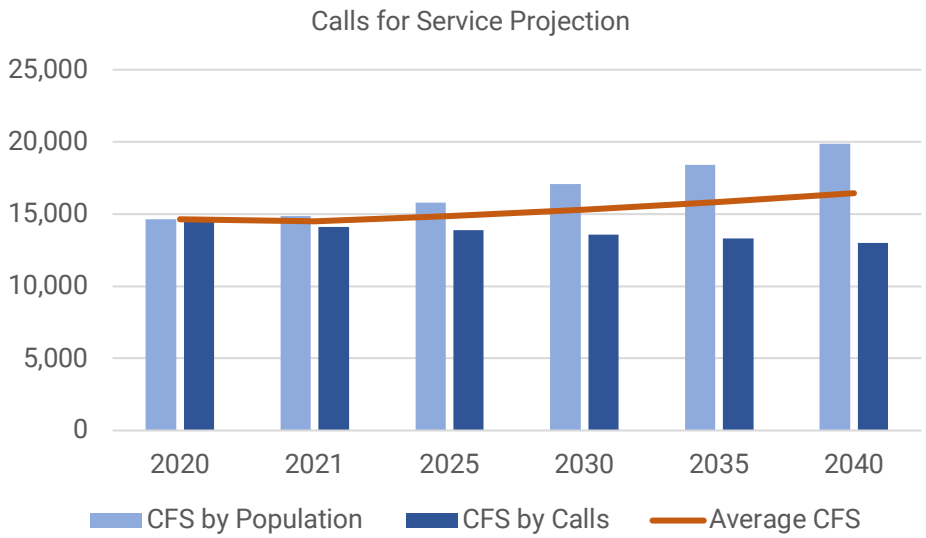
Using the US Census Bureau data, the annual growth rate for the past nine years has been approximately 1.5% for the city. The chart that follows visualizes this trend.



Based on an annual population growth rate of 1.5%, the City of Richmond would reach a population of approximately 158,000 by 2040. However, there are published reports indicating the population growth is slowing. For example, the California Department of Finance projections indicate the population in the city reduced by 0.1% between 2021 and 2022 and a reduction in population of 0.4% for Contra Costa County.

Based on the demographics, the population of the city is also aging. In 2010 approximately 14.5% of the population was 60 years or older. According to the 2020 census, data that age group increased to approximately 19.6% of the population, an annual increase of approximately 0.6%. As the population ages, service demands also begin to change, especially in emergency medical needs.

Based on the 2020 population of the city and the calls for service, the average call per person is 0.13 calls. However, based on the calls for service over the past four years, there has been an average reduction in calls by approximately 0.4% per year. The following chart provides a visual perspective for calls for service.



The overall trend for calls for service has a reduction over the past four years. It should be noted that many departments across the country experienced a reduction in the calls for service due to the pandemic. Some of those departments have reported a sharp increase in calls for service since the pandemic is on the decline while others, such as Richmond, are not witnessing the same increase. The average between the population-based projection and the calls for service, based projection indicates an increase in calls for service from approximately 14,000 in 2021 to approximately 16,500 in 2040.

Staffing and Overtime

In every industry a certain minimum staffing level is formally or informally identified to meet work demands. These work demands can vary widely, from developing a product within recurring deadlines, to meeting specific customer service goals, to ensuring safe practices. If the industry/agency does not have sufficient initial staff resources to meet this baseline (minimum) staffing requirements, overtime will be required *unless* the agency chooses to allow work demand outputs and outcomes to decline/suffer. In general, overtime dedicated consistently to this category will result in long-term negative consequences, such as a decrease in productivity, reduced quality of work, increased safety risks, increased stress, and increased turnover rates.

Characteristics of Overtime

The use of overtime has significant potential benefits as well as disadvantages, and balancing these requires close management, best practice protocols and thoughtful consideration of a variety of other factors related to staff and operations. There are key positive and negative characteristics of overtime, as discussed in the following sub-sections.

Benefits of Overtime

As is well known, the primary benefits an organization derives from using overtime is the cost avoidance of hiring additional personnel. Indeed, proper management of overtime can avoid many undesirable outcomes such as missed deadlines, poorer customer service, cost overruns, staff lay-offs, and a variety of other consequences detrimental to both the organization and employee. Furthermore, overtime to a certain degree is perceived by most to be a desirable benefit, thereby allowing an organization to attract and retain personnel if a moderate amount of overtime is a regular part of the operational culture.

While overtime is fiscally advantageous to an organization based on the avoidance of paying for additional fixed costs such as insurance, sick leave earning, vacation earning, etc., it is only beneficial to a point. There is a "break-even" point where the variable costs (time and-one-half payment, retirement costs, employment taxes, etc.) do not compensate for fixed cost savings. While every single agency would be different dependent upon their unique compensation structures, a general rule of thumb that should be used when considering the fiscal elements of overtime usage compared to the use of new staff positions is:

As a guideline, 54 work hours per employee per week represents the fiscal benchmark break-even point for paying (14-hours weekly) overtime.[2]

It needs to be recognized that the above benchmark is a guideline only and based on a 40-hour employee, not the 56 average work week the personnel in Richmond Fire Operations work. Every unique position in any different agency will have its own "fiscal benchmark outcome" based on the salary, benefit, retirement, and taxing structure that influences overtime costs. The noted benchmark provides guidance that once overtime approaches this benchmark "ceiling," from a fiscal standpoint exclusively a new position should be hired in the vast majority of instances. As discussed subsequently, the fiscal

[2] *Municipal Solid Waste Professionals* article:
http://www.mswmanagement.com/MSW/Articles/Overtime_The_Effect_on_Cost_4174.aspx

reasons to hire personnel instead of use overtime should be considered of secondary importance.

Research data suggest that many employees appreciate the opportunity to earn a moderate amount of overtime over the course of a year. According to *Shiftwork Solutions LLC*, "Employers that offer modest amounts of overtime will not only satisfy a majority of their employees, but also will improve their competitive position in the local market." This is reflected by the results of their shift work surveying which demonstrated that the majority of employees would like some level of weekly overtime (averaging 7.3 hours per week), but with more than 4-in-10 desiring less than 6 hours per week[3]:

When the desired level of weekly overtime by employee is compared against the fiscal benchmark break-even point for overtime, a clear difference emerges. On average employees would desire approximately one-half the fiscal benchmark with only one-in-six employees having a willingness to work that much overtime on a weekly basis. This differential helps frame the potential negative characteristics of overtime, as discussed further below.

Negative Effects

Consideration must be given such factors as fatigue, sleep deprivation, and quality of life issues for any shift that has 24-hour components. In terms of fatigue, studies have documented a root cause in human fatigue is the work and rest patterns in the preceding seven-day period. According to a study by Dr. Susan Koen of Round the Clock Systems, a minimum of a 3:4 ratio is needed to ensure that shift employees obtain a sufficient amount of rest and sleep in order to prevent cumulative physical fatigue as well as a sleep debt. The 24/48 schedule as well as the 48/96 schedule both have a 1:2 ratio, which is significantly better than the recommended minimum. Therefore, the structural design of both schedules supports employees' needed sleep and rest cycles.[4]

However, sleep deprivation is another factor that needs to be considered. According to Dr. Sara Jahnke, your body operates on circadian rhythms, which is a 24-hour cycle of physiological processes. Going without sleep for too long and interrupting that rhythm leads to physical and cognitive problems. Chronic sleep deprivation increases risk for hypertension, cancer, ulcers, heart attack and stroke.[5] The Koen study identifies sleep disruptions as the issue in sleep deprivation. The number of calls during the nighttime

[3] Why Overtime? *Shift Schedule Design*: **www.shift-schedule-design.com**

[4] https://pueblowestmetro.com/AgendaCenter/ViewFile/Item/821?fileID=1323

[5]https://www.firerescue1.com/health-wellness/articles/is-the-firefighter-4896-shift-a-health-hazard-BtSYBb011J5sHVB3/

hours, nighttime identified between 10:00 pm and 6:00 am, could have an effect on the sleep deprivation factor.

In terms of the 48/96 shift, the concern is the first 24-hour shift and those overnight calls. Koen finds for firefighters who typically have one call during the night (depending on the length of the call and how easy it is for them to return to sleep), they will typically start their second day on shift with only mild sleep deprivation. She further reports those firefighters who average two calls during a typical on-duty night will most likely be in a state of moderate sleep deprivation, where cognitive fatigue problems will begin surfacing. However, if managed correctly, these instances can be addressed and not become a problem.

Quality of life issues were also addressed in the Koen study. Family interaction is a large part of the off-duty time. Many of those interviewed indicated they spend their first off-duty day sleeping as their call volume creates sleep deprivation issues. This means they are not positively interacting with their family members. This study identified key aspects of off duty time to consider.

- Consecutive hours available to be a fully present, active family member.
- The amount of weekend off-duty time.
- The frequency of weekend off-duty time.
- The consecutive time spent away from the family.

According to the Koen study, the 48/96 schedule provides additional off duty time allowing the personnel to become fully engaged with their family. However, sleep deprivation is a concern but can be managed. Jahnke states paying attention to sleep, education about proper screening and treatment for sleep disorders, appropriate use of caffeine and appropriate use of napping for busy stations will likely be useful in decreasing the negative effects of shift work among firefighters.

Overtime Management

It is critical to recognize that the underpinnings of overtime usage are an exercise in risk management. Balancing employee, department, city, and community needs through the use of overtime as opposed to other work-related options is ultimately an effort in judging risk. This framing element should be a core management principle as recognizing the symptoms of poorly used overtime as well as solutions that overtime use can bring is tantamount to efficient and effective agency operations. A March 2013 study entitled

'Management of Overtime' by the *Amtrak Office of Inspector General* went into detail to discuss overtime (and related issues) in the context of managing risk.[6]

The following table illustrates the use of overtime for the past four years in the Richmond Fire Department.

	2018	2019	2020	2021
Minimum Staffing	34,749	51,687	58,130	54,500
Other types of Overtime	1,802	878	4,244	3,114
Total OT Hours	**36,551**	**52,565**	**62,374**	**57,614**

The overtime hours shown in the previous table are for those operational personnel and do not include administrative or fire prevention personnel. In 2019, the country was at the height of the global pandemic with many front-line first response personnel contracting the disease. Some of the effects of the pandemic have carried on into 2020 and 2021.

Operational Shift Staffing

As noted previously, the fire department is staffing its operations with 81 personnel, with a minimum staffing of 25 personnel, across seven stations using a three-platoon system. To staff the shifts, 27 personnel are assigned to a shift which allows 2 personnel to be off duty for vacation, holidays, sick leave, or other paid time off without the use of overtime. The following table illustrates the number of hours used by the operational personnel for the past four years.

Type of Leave	2018	2019	2020	2021	Avg.
Catastrophic Leave		86	4	336	142.0
Comp Time Off	4,764	5,392	4,953	6,290	5,349.8
COVID			3,859	1,273	2,566.0
Death in Family	802	498	634	432	591.5
Floating Holiday	32	32	32	16	28.0
Jury Duty	9	10	22	31	18.0
LWOP- Disability		2,440	576	3,240	2,085.3
LWOP-LOA				720	720.0
Paid Admin Leave (HR)		384	288	792	488.0
Parental Leave	244	472	360	144	305.0
Sick	7,784	9,116	7,391	10,711	8,750.5
Unpaid Leave	408	655	5,232	2,501	2,199.0
Vacation	14,767	14,687	13,393	15,337	14,546.0
Work Comp (Injury, TTD)	10,982	17,714	20,366	17,137	16,549.8
Total Hours	**39,792**	**51,486**	**57,110**	**58,960**	**51,837.0**

[6] Management of Overtime Report OIG-A-2013-009, March 26, 2013 pgs 14-16

For the past three years, worker compensation hours averaged 33% of the total leave taken by the operational personnel. Vacation leave accounts for an average of 26% for the same time frame.

Breaking down the shift into hours for the year provides a clear view of staffing issues. There are 8,760 hours in the calendar year and the fire department operates with three shifts. One position requires 2,920 hours to fill that position for the year. Using data from the past four years, the average paid-time-off (PTO) was used to determine the number of hours available for each position. The following table illustrates the hours available.

Hours for One Position	**2,920.00**
Catastrophic Leave	1.8
Comp Time Off	67.7
COVID	32.5
Death in Family	7.5
Floating Holiday	0.4
Jury Duty	0.2
LWOP- Disability	26.4
LWOP-LOA	9.1
Paid Admin Leave (HR)	6.2
Parental Leave	3.9
Sick	110.5
Unpaid Leave	27.8
Vacation	184.1
Work Comp (Injury, TTD)	209.5
Hours Available	2,232.39
Number of Personnel for One Position	**1.31**

Using the average number of operational personnel for the four years of leave data provide an average number of hours for each employee for the type of leave. As shown, it will require 1.31 personnel (2,920 / 2,232.39) to provide staffing for one year or 33 (32.75) personnel per shift. This translates to 99 personnel assigned to the operational staffing to provide the minimum staffing required for operations. For perspective and using the data from the previous table, to staff an engine company with a minimum staffing of 3 personnel, it will require 3.93 or 4 personnel to staff the apparatus. The number used to staff one position will fluctuate from year to year due to unforeseen circumstances such as long-term injury or illness.

One type of leave that stands out is the worker compensation leave. For the past four years there is an average of over 200 hours per year for each employee. Removing this leave type reduces the staffing coefficient changing from 1.31 to 1.2. Using the 1.2 coefficient the number of personnel needed to staff operations goes from 99 personnel to 90 personnel. While the spike in workers compensation coincides with the pandemic,

COVID leave is shown separately. The worker compensation process can become a cumbersome process as there are many moving parts some of which may not be in local control. The process in the city should be reviewed and streamlined as much as possible to ensure the employee receives the appropriate care and more importantly can be returned to the workforce.

Recommendations:

Review the worker compensation process within the city to streamline the processes to ensure employees are receiving appropriate services and a return-to-work authorization within an appropriate time frame reducing the amount of time employees are off duty.

Increase the number of personnel per shift over the next three to five years to reduce the amount of overtime needed to provide services and to address the fatigue and sleep deprivation issues.

Call Processing

The call processing time is measured from the time the call is answered by the dispatcher until the field units are dispatched. Dispatching services in the city is the responsibility of the police department. Establishing performance objectives for call answering and call processing not only provides direction to the employees but also establishes expectations for the public and the agencies served. These performance objectives also provide the basis for staffing and operations within the center. With the establishment of performance objectives, there will need to be mechanism created to monitor the actual performance against the established objectives. This will also provide an avenue for the improvement of performance and operations of the center

The call processing component is not in the direct control of the fire department however, the department should work with the communications center to improve their call processing performance. Times illustrated in the following table is the call processing performance for a four-year period and were obtained via the computer aided dispatch system.

All Emergency Calls – Call Processing	2018 - 2020	Benchmark
90th Percentile	3:47	1:00
80th Percentile	2:50	
70th Percentile	2:22	

As can be seen, the past four years combined of call processing time for emergency calls was 3 minutes and 47 seconds for 90% of the time 2 minutes and 50 seconds for 80% of the time.

The previous table shows the achievable incremental improvement to the call processing time segment of the response time continuum. For example, improving the 90% fractal time from 3 minutes and 47 seconds to 2 minutes and 50 seconds represents a 10% improvement. As well, reducing the 90% fractal time to 2 minute and 22 seconds would represent a 20% improvement. Incremental improvements are measurable and provide a baseline to measure those improvements.

Recommendation

The city should establish performance objectives for the communications center for call answering and call processing.

Establish a reporting system to create a mechanism to monitor progress of improvements to the dispatching services.

Turnout Time

There are several factors that will influence the turnout time for apparatus including the station layout. Such considerations include stairs, detour to restroom, policy for signaling enroute, opening the bay doors, policy for gathering response information, and the personal protective gear that must be donned. In any case, formally establishing turnout time performance objectives provides direction to the employees and establishes the expectations of their performance. As well, the public understands and knows what to expect from their fire services.

The following table illustrates the turnout time for the past four years, derived by combining the last four-years of turnout time data using the same filtering mechanisms as previously noted. It is shown as a fractal time ranging from 90% to 70% for emergency medical calls and fire-related calls.

2018 - 2021	90%	80%	70%	Benchmark
Turnout Time – EMS	2:36	1:57	1:39	1:00
Turnout Time – Fire	2:22	1:45	1:27	1:20

For the past four-years combined the turnout time for medical calls was 2 minutes and 36 seconds for 90% of the time and for 80% of the time the turnout time was 1 minute and 57 seconds.

This table illustrates the achievable incremental improvement to the turnout time segment of the response time continuum. For example, improving the 90% fractal time from 2 minutes and 36 seconds to 1 minute and 57 seconds represents a 10% improvement. As well, reducing the 90% fractal time to 1 minute and 39 seconds would represent a 20% improvement. Incremental improvements are measurable and provide a baseline to measure those improvements.

Recording the time a unit begins its response is a function of the dispatch center and the dispatcher handling the call. The process used in the Communications Center is for the unit to notify the dispatcher of the response and the dispatcher then records or time stamps the enroute time. It is possible for the dispatcher to be handling several issues simultaneously resulting in a delay in the recording of the enroute time. It is also possible for the unit to be delayed in notifying the dispatcher of the response due to other radio traffic or other issues that may be occurring simultaneously. The times and variances previously illustrated is the first step to identify any issues or problems with how response times and unit performance is currently captured and reported. The next step is to establish guidelines for accurately capturing the turnout time performance and identify those times when the turnout time is beyond established thresholds. This will allow for the evaluation of the problem, identify if it is a data issue, an operational issue, or other technical problem and the process further refined to improve the reliability of the data.

Improvement to the turnout time component can take several forms. Some departments have installed timers in the station at the apparatus bay doors that indicate the amount of time that has elapsed since the dispatch was received. This allows the crews to instantly see their turnout time performance and according to some departments has helped to improve their turnout time. Many departments have also encouraged and required the on-duty crews to place their gear at or on the apparatus instead of leaving it in the locker or other location within the station.

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

Another option is to establish a standard operating procedure as to when a unit is to place themselves enroute. For example, one shift will place themselves enroute from the living quarters while another shift will place themselves enroute once they are on the truck. Still yet, another shift may wait until they have cleared the bay doors, all of which will vary the

reported turnout time and possibly skew the data related to actual performance. Establishing a procedure will improve the accuracy of the data.

Recommendations:

The city should establish performance objectives for turnout time for medical calls and fire related calls.

Establish a reporting system to create a mechanism to monitor progress of improvements to turnout time.

Distribution of Resources

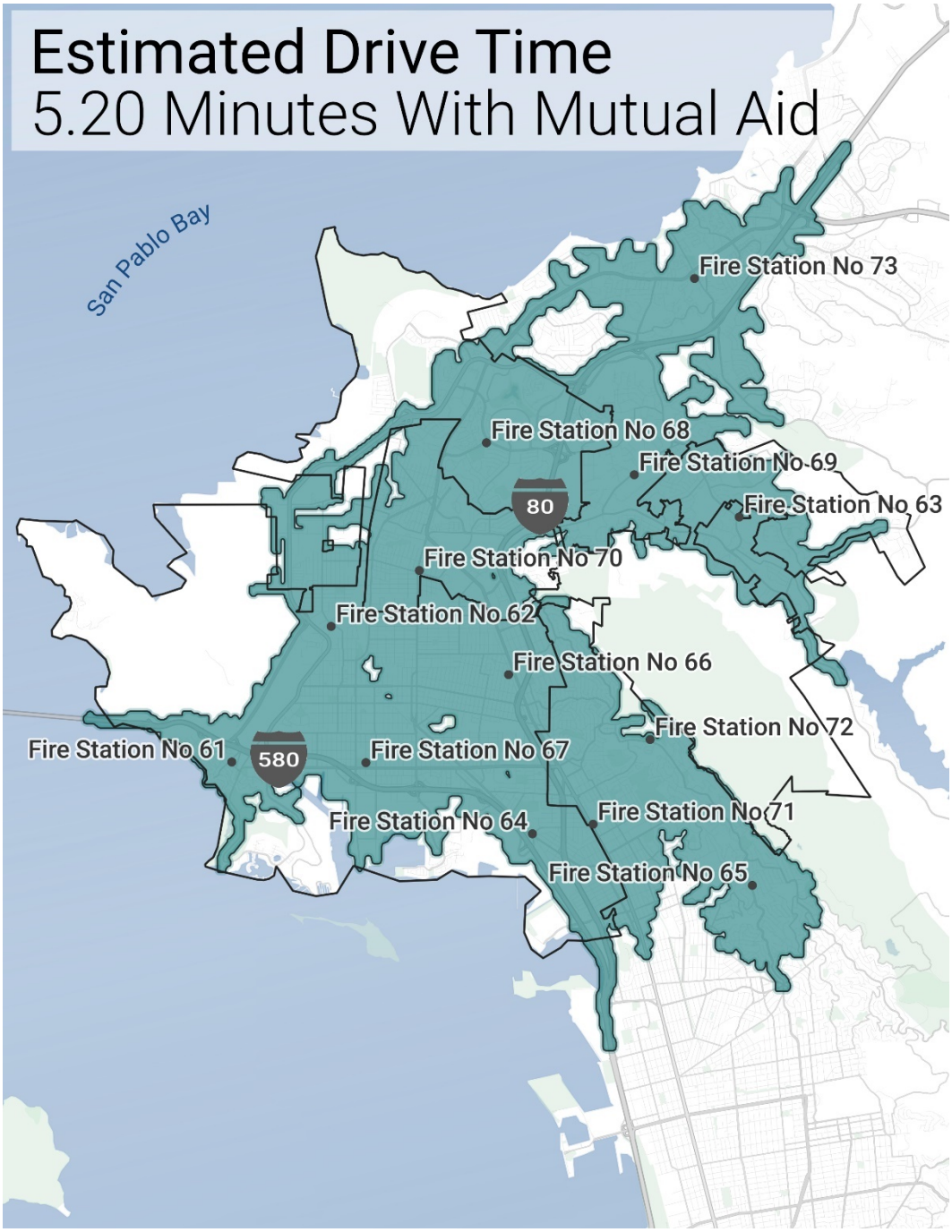
Distribution is the measure of getting initial resources to an emergency to begin mitigation efforts. This is measured in a variety of ways including percentage of square miles, percentage of road miles and travel time. The Insurance Services Office (ISO) has used road miles for many years advocating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

In terms of the distribution of resources, it was previously noted the travel time for the past four years is 6 minutes and 44 seconds as shown in the following table.

All Emergency Calls – 90th Percentile Times		2018 – 2021	2018	2019	2020	2021	Benchmark	CPSE Baseline
Travel Time	1st Unit – Distribution	6:44	6:30	6:38	6:52	6:55	4:00	5:20

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

The following map illustrates the travel time for the city using the Richmond fire stations and the surrounding fire stations that provide automatic and mutual aid. The cooperative efforts between the various fire service agencies provide the region with appropriate responses regardless of the boundary.



In as much as the city has not adopted performance objectives for travel time, using the CPSE baseline travel time the distribution of resources appears to be appropriate based on the GIS analysis. This also illustrates the use of all automatic aid partners which is a common practice throughout the country.

With the GIS analysis illustrating a 5 minute 20 second drive time from all the resources providing appropriate service, a further review of the CAD data indicates there may be

issues that are not providing accurate data. The following table illustrates some of the data issues.

	2018	2019	2020	2021	Total
No Dispatch Time Recorded	1.8%	9.9%	7.2%	1.3%	5.1%
No Enroute Time Recorded	11.2%	12.2%	10.1%	9.2%	10.7%
Call Processing Time at 00:00	4.5%	3.8%	6.2%	6.8%	5.3%
Turnout Time at 00:00	9.5%	2.0%	2.1%	2.3%	4.0%

For the past four years, approximately 5% of the records examined did not have a dispatch time recorded and over 10% of the records examined did not have an enroute time recorded for the unit. More importantly, there are records that have identical time stamps for call received, dispatch and enroute time as illustrated by the approximately 10% of the calls that did not have any time registered for call processing and turnout time. As previously noted, the CAD data is not without coding problems such as an enroute time shown at an earlier time than a dispatch time. The data presented here is after these types of coding issues were removed. As an example of the issue, consider an enroute time that is the same as a dispatch time, this likely means the turnout time is included in the travel time. As such, this extends the travel time and does not provide an accurate measurement and skews the data that would be used for any evaluation of resources. Additionally, sharing the data with the city administration and the general public does not accurately portray the services being provided.

Recommendations:

Establish baseline performance objectives for call processing, turnout time, and travel time for the dispatch center and fire department.

Work with the dispatch center to improve the dispatch processes, to improve data capturing, and to meet the established performance objectives.

Monitor the various response time components as compared to the established performance objectives.

Concentration of Resources

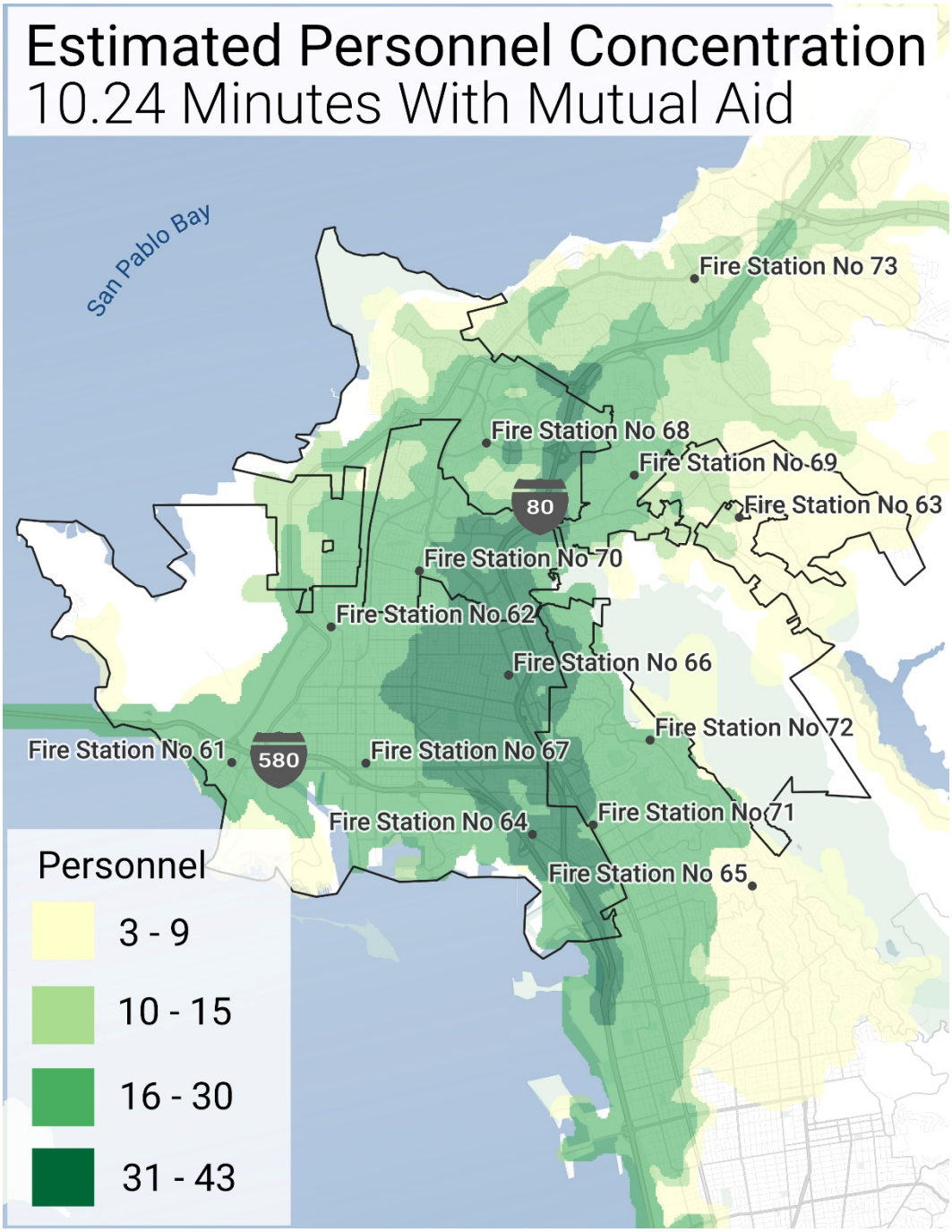
Concentration of resources is generally described as the ability of the emergency services system to get the appropriate number of personnel and resources to the scene of an emergency within a prescribed time to effectively mitigate the incident. There are two segments to this component – the first is the arrival of second suppression apparatus and the second is the arrival of an effective response force both of which use travel time as the measurement.

As previously shown, the travel times for structure fires in the city are illustrated in the following table.

Structure Fires – 90th Percentile Times		2018 - 2021	2018	2019	2020	2021	Benchmark	CPSE Baseline
Travel Time	1st Unit – Distribution	5:28	6:40	4:49	5:29	5:23	4:00	5:20
		n = 215	n = 40	n = 52	n = 58	n = 65		
	2nd Arriving Suppression Unit	8:32	9:13	6:38	8:42	8:31	6:00	10:24
		n = 167	n = 37	n = 37	n = 44	n = 49		
	ERF – Concentration	24:45	26:59	16:42	12:00	29:33	8:00	10:24
		n = 40	n = 18	n = 10	n = 9	n = 65		

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

Note this table includes the CPSE baseline travel times of 5 minutes and 20 seconds for the first arriving unit and 10 minutes and 24 seconds for the second arriving unit and the effective response force. The following map illustrates the arrival of the effective response force in the city using all automatic aid partners.



As illustrated a large area of the city is capable of receiving an effective response force of 16 personnel within the baseline travel time. Areas outside the baseline performance objective are to the east of Station 63 and the far west sections of the city near the bay. As with the distribution section, the CAD data may not be accurate as there is a large disconnect between the data and GIS analysis. Once the issues with the CAD data are corrected and can portray the data more accurately, a more thorough analysis can be completed.

Emergency Medical Services

Contra Costa County Fire Protection District provides emergency medical services to the county through a contract with Contra Costa County. The fire district sub-contracts with American Medical Response (AMR) for service delivery. The contract requires the ambulances to be staffed with one paramedic and one EMT for responses into Contra Costa County and the City of Richmond. As well, the contract has response time requirements and penalties if those are not met. In terms of response by the fire department, the communications center uses an emergency medical dispatch (EMD) system so the calls being responded to by the fire department are priority calls. EMD is a mechanism used by the dispatch center to ensure the right resources are sent to a call for service. This is accomplished through the interrogation of the caller through a series of preset questions to determine the nature of the call. The following table is data from the patient care reports of the fire department.

Richmond Fire Department Patient Care Responses

DISPOSITION	2018	2019	2020	2021	Total	Pct.
Technical Assistance Only (No Patient Contact)	3,108	3,293	2,805	2,819	12,025	37.2%
Transport By AMR (No Fire Ride In)	1,682	2,077	2,000	2,327	8,086	25.0%
Transport by AMR (Fire Ride In)	122	116	140	127	505	1.6%
Cancelled at Scene - No Patient Contact	1,485	1,460	1,869	1,775	6,589	20.4%
Transferred Care (Trans. Outcome TBD)	743	495	378	375	1,991	6.2%
Cancelled Prior To Arrival	361	581	514	571	2,027	6.3%
Dead at Scene	95	117	145	153	510	1.6%
Release At Scene (RAS)	100	166	159	139	564	1.7%
Transport By Other EMS Agency	10	11	21	14	56	0.2%
Declines Care or EMS Transport	3	0	0	0	3	0.0%
Refusal of Care After Treatment	2	0	0	0	2	0.0%
TOTAL	**7,711**	**8,316**	**8,031**	**8,300**	**32,358**	**100.0%**

Over the past four years approximately 27% of the calls were cancelled at the scene or prior to arrival and less than 2% required the fire department to provide personnel to complete patient care during transport. Further evaluation of the data found approximately 96% of the calls had the nature of the call listed as none or unknown. To reduce the number of emergency medical calls fire companies are responding to, the EMD system may need to be adjusted. As well, additional training of the dispatchers may be needed to ensure they are current with EMD system and its use.

While the EMD functions in the dispatch center are used to ensure the appropriate resources are sent to a medical call, another service delivery method could be employed. The current delivery system is to send an engine company to the call. Using a smaller

quick response vehicle, such as an SUV or similar vehicle, to respond to the call for service would reduce the wear and tear on the apparatus and potentially reduce the cost of the operation (fuel, oil, etc.) of the apparatus. The operation would be to have two personnel respond in the SUV to the call leaving one at the station with the engine. Should a fire call be received while the medical crew is out, the engine would respond as would the quick response vehicle to create the 3-person crew. In essence, the engine company would become a two-vehicle unit.

Recommendations:

Work with Contra Costa Fire Protection District and Contra Costa County Emergency Medical Services to address any changes to be made to the emergency medical response in the city.

Work the dispatch center to improve the use of the Emergency Medical Dispatch (EMD) system to reduce any unnecessary responses of resources to emergency medical calls for service.

Consider utilizing cross-staffed quick response EMS vehicles as part of the medical response system to allow a quicker response and potentially reducing the cost of these responses.

Essential Services

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

Fire Prevention Division

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

This division is responsible to provide code enforcement, fire investigations, and public education. Staffing for this division is a Fire Marshal, Deputy Fire Marshal and three Fire Inspectors. One of the Fire Inspectors is assigned to The Chevron Refinery through a contract with Chevron. The Fire Marshal reports to the Fire Chief.

Code Enforcement

There are performance objectives that have been established to provide direction to the code enforcement operations. These objectives use the type of occupancy to determine the frequency of fire safety inspections. As illustrated in the following table, the type of occupancy determines the frequency of fire safety inspections.

Occupancy / Risk Classification	Occupancy Type	Inspection Frequency
State Mandated Inspections – Use Groups A, I, F, E, Daycare	Places of Assembly, Hospitals, Assisted Living Facilities, Residential Care, and Educational Occupancies.	Annually
Fire Prevention Inspections – Use Groups R and H	Hotels, Motels, Boarding Houses, Apartment Houses, Dormitories, and High Hazard Occupancies.	Annually
Engine Company Inspections – Use Groups M and R	Mercantile Stores, Banks, Retail Sales, and Business Offices, Low Risk Apartments	Annually

All the properties have been established as annual inspections, Fire Prevention staff handle all the inspections with the exception of the Mercantile Use Group and lower risk

apartment buildings that are performed by the engine companies. The following table illustrates the workload for the Fire Prevention staff.

Occupancy Type	Number of Occupancies	Target per Staff	Staff Needed
High Risk	566	600	0.9
Moderate Risk	1,160	600	1.9
Follow-Up Inspections	863	1,000	0.9
Total Inspections	2,589		3.7

For follow-up inspections, it is estimated that half of the occupancies inspected will have code violations that will require a follow-up inspection. These inspections are targeted as only the violations are to be reviewed so more can be completed. The current staffing for the fire safety inspections section is 2 personnel for code enforcement activities outside the Chevron Refinery. To meet the established performance objectives, this section should have 4 personnel.

The Chevron Refinery has an inspector assigned to that facility. The mandatory inspections for that facility will need to be monitored to ensure those inspections are being completed as mandated by state regulations. In addition to the Chevron facility, many cities are grappling with the homeless issues and the lack of housing. In many jurisdictions small tent cities are popping up and creating fire safety issues in addition to other challenges. It is not unusual for Fire Prevention staff to become involved as a part of a city's effort to address this issue that will also have an impact on the daily activities of the Fire Prevention Division. As this challenge grows, the staffing for a Fire Prevention Division may need to be increased to handle the influx of the homeless.

Recommendations:

Increase the staffing for code enforcement activities from 3 ~~2~~ personnel to 4 personnel and continue to monitor code enforcement activities to address the staffing needs related to fire safety inspections, fire investigations, and other challenges faced by the city.

Public Education

Public education is a key component of the Community Risk Reduction process. Through this process fire data is collected and used to target audiences within the community about specific fire related issues. Through these education efforts, the fire problem can be reduced.

Within the city there is no public education program or staff to organize or manage such a program. Many cities utilize civilian personnel to deliver the message to the public. Adding a civilian public educator would allow the current staff to concentrate their efforts

on the technical inspections and code enforcement aspects of the Fire Prevention Division. In addition, the wildland fire threat is another area the public educator could be utilized to provide information to the public.

Recommendation

Utilize civilian personnel to provide public education and increase the exposure of fire safety education to the school aged children and targeted audiences in support of Community Risk Reduction principles.

Fire Investigations

Fire investigations are typically handled by the Fire Prevention Division. In 2021 there were 38 fire investigations in the city. The following table provides some context to fire investigations in terms of time spent to complete an investigation.

	Target Hours per Investigation
Fire Investigations	
Incendiary	80
Accidental	10
Undetermined	10
Vehicle Fire Investigations	
Vehicle incendiary	30
Accidental/Undetermined	5

It should be noted the target hours for an incendiary fire investigation is not necessarily for an investigator but rather for the investigation itself meaning some of those hours are attributable to evidence collection and report writing.

Based on the 38 investigations in 2021, that translates to approximately 3 investigations per month. Depending on the type of investigation and the time spent to complete the investigation, this will impede the ability of the inspectors to complete their assigned code enforcement activities.

Recommendations:

Monitor fire investigation workload to ensure code enforcement activities are not adversely affected by this collateral duty.

Wildland Urban Interface

Wildland fires continue to increase in number and intensity throughout the United States. In Richmond, there is a significant wildland urban interface on the east side of the city

with the Wildcat Canyon Regional Park and the Kennedy Grove Regional Recreation area. These two areas are adjacent to a larger area that includes Briones Regional Park.

Mitigation is the largest component of any strategy to minimize the threat and reduction of damage. The National Cohesive Wildland Fire Management Strategy, a collaboration between the Department of Interior and the Department of Agriculture, is one such document that highlights the effective use of mitigation. Fire Adapted Communities is another resource for information and programs for the mitigation efforts in the wildland fire arena. Mitigation efforts begin with the individual homes and the creation of defensible spaces around the structures on the property. In large part this involves education of the homeowner and an inspection of the property to assist the homeowner to become firesafe. Other mitigation efforts are more regional in nature to include clearing of debris, prescribed burns, and other methods to reduce the fuel.

The current program in Richmond uses fire prevention personnel to provide homeowner assessments and other mitigation efforts. There are approximately 4,300 defensible space inspections to be completed on an annual basis. Staffing a Fire Adaptive Community Coordinator would allow for an improved defensible space inspection program. This civilian position would also work in conjunction with the public education specialist to improve the communications with the homeowners and neighborhood associations.

Recommendation

Establish a Fire Adaptive Community Coordinator civilian position, in the next 12 to 24 months, to handle the defensible space inspections and create proactive programs increasing education efforts.

Training and Education

Training and education are considered a major function in a fire department as it is critical for personnel to maintain perishable skills and become proficient to handle low frequency – high consequence events. In Richmond this division is responsible for continuing education to the existing workforce. Training programs offered by the Training Division include fire suppression, emergency medical care, hazardous materials containment and recovery, and technical rescue. There is a Battalion Chief that provides training and education services to the fire department. This position is currently vacant, so the Deputy Fire Chief is managing the programming.

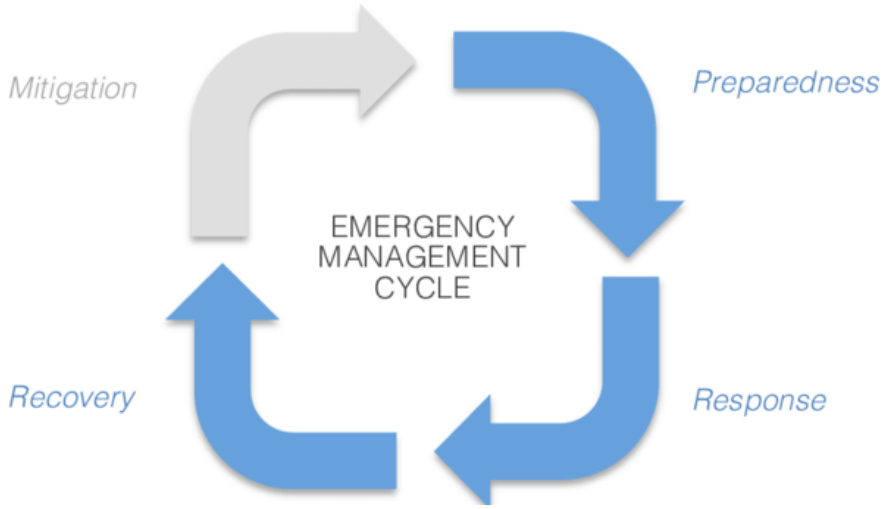
	2018	2019	2020	2021
Total Staff-Hours	15,038.0	11,094.0	23,328.0	11,239.0

As illustrated 11,239 man-hours were expended for training and education in 2021, an average of approximately 148 hours per person based on 76 personnel records. Hands on training supplemented by online training platforms are both being utilized.

Without the Battalion Chief, the Deputy Chief must directly oversee the training function as well as the daily operations of the department. At the time of this report, there is an active recruitment process to fill the position. Filling this position is essential for the continued success of the personnel and fire department.

Emergency Management

Emergency Management essentially contains four phases with each phase containing individual processes or phases.



As shown the four phases are preparedness, response, recovery, and mitigation.

- The purpose of mitigation efforts is to reduce or eliminate the impact from any potential hazards.
- The preparedness phase is building the capacity and capabilities of the County to manage an event or disaster.
- Responding to an event or disaster is the act of mitigating the negative effects of the event or disaster. This can be in the form of a single fire department or health department to several agencies working together.
- Recovery from a large-scale event or disaster can take a considerable amount of time to complete. The complexity of the community involved, and the extent of the damage will challenge the community.

Each phase relies on the other to be successful. The response phase is only successful if the plans were appropriately written and tested. Recovery in the aftermath is successful if the continuity of operations plans were successfully completed and tested. The response to an event is successful if the members of the public are appropriately educated. With emergency management organizations being a clearinghouse agency, they need to be resources for planning, training, education, mitigation, and recovery efforts. Moreover, there are grant funds available for mitigation projects and for building capacity to handle the emergency event that may occur.

Richmond has a dedicated position for the emergency management role; however, it is not filled and the responsibility for these activities shifts to the Fire Chief. The detail required of these plans and activities require a concentrated effort on the part of the emergency management staff. As well, there are likely grant funds that are available to assist the city that are not being acquired due to a lack of focus in this arena. For example, with a Presidential Disaster Declaration in the State of California there are grant funds that become available to any jurisdiction for mitigation projects provided the mitigation plan is up to date and approved by FEMA. At the time of this report, there is an active recruitment process to fill the position. It is imperative the emergency management section be staffed to not only ensure the city is prepared for a large-scale emergency but also to manage any grant funds that may become available.