Community Risk Assessment and Standards of Cover

COSUMNES COMMUNITY SERVICES DISTRICT FIRE DEPARTMENT

Original Publication: May 18, 2023
Edition 2: May 2025

matrix consulting group

COSUMNES
ELK GROVE
CFD
GALT
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Introduction and Executive Summary

Cosumnes Community Services District (District) retained the Matrix Consulting Group to facilitate a Community Risk Assessment and Standards of Cover for the Cosumnes Fire Department (CFD). This document includes the project team's research and analysis of the CFD and community that includes risk assessment, staffing, response capabilities, and deployment analysis.

Scope of Work

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

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

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

Approaches Utilized in the Study

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

- Internal Interviews – members of the project team individually interviewed numerous executive, management, and supervisory staff of the District.
- Data Collection – the project team collected a wide variety of external and internal data documenting the structure, operations, and organization, including:
  - CFD staffing and scheduling.
  - Documentation reflecting operations management.
  - Numerous output data points reflecting services provided.

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

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

Executive Summary

The Cosumnes Community Services District provides parks and recreation as well as fire, rescue, and emergency medical services to an estimated 210,000 residents. The District is located south of Sacramento covering 157 square miles that includes the cities of Elk Grove and Galt as well as unincorporated areas of Sacramento County. The services provided by the CFD include fire suppression, rescue, emergency medical services, fire prevention, public education, fire investigation, and special operations response to technical search and rescue incidents. These services are provided by 222 career personnel.

Based on the California Department of Finance population projections, Sacramento County is expected to have an annual population increase of 0.6% through 2060. Using this data, the District population is projected to be 253,119 in 2050. There are new developments in the area of Highway 99 and Kammerer Road that not only include residential housing but also commercial and hotel occupancies. Managing this new growth and development will present challenges for the CFD and the District. To best prepare for these challenges, the District will need to maintain appropriate levels of service and expand the emergency services system.

Maintaining appropriate levels of service begins with establishing performance objectives for the CFD that will be utilized in future planning efforts. These performance objectives can be used to confirm when new resources will be needed. This can include adding resources such as personnel, apparatus, or facilities, or replacing resources to alleviate maintenance needs or to upgrade systems and technologies that will aid in improving services. The District should incorporate establishing a funding mechanism into these planning efforts, especially as this would pertain to the maintenance and replacement of physical resources such as facilities and apparatus. These plans should take into consideration production timelines.

There is a need to expand the emergency services system as emergency medical calls are on the rise and medic units are being over utilized. Based on the number of calls for service and the utilization of these units, additional medical resources should be added as peak time resources. As additional resources are added, operational management and oversight should be considered and adjusted, as well. There are options to provide these additional resources contingent on the availability of a workforce and physical resources such as vehicles and equipment.

Strategic Improvement Opportunities

The following tables provide a summary of opportunities for improvement established in this report. The report itself should be reviewed to understand the factual basis behind each opportunity as well as the analysis leading to each opportunity. The following suggested timelines are provided for implementation as funding allows:

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

Short Term Improvement Opportunities – less than 18 months

Administrative Operations

- Add a second Shift Battalion Chief to operations to improve the supervision, support, and development of personnel as well as command and control of multiple company emergency responses.

Performance Objectives

- In keeping with previously established benchmark performance objectives, the CFD should establish a 90-second turnout time benchmark performance objective for 90% of the emergency calls for service.
- In keeping with the NFPA guidance, the CFD should establish a 4-minute travel time benchmark performance objective for 90% of the emergency calls for service in the urban planning zones.
- Following the CPSE guidance, the CFD should establish a 10-minute travel time benchmark performance objective for 90% of the emergency calls for service in the rural planning zones.
- In keeping with the NFPA guidance, the CFD should establish an 8-minute travel time benchmark performance objective for 90% of the emergency calls for service in the urban planning zones for the arrival of an effective response force.
- Following the CPSE guidance, the CFD should establish a 14-minute travel time benchmark performance objective for 90% of the emergency calls for service in the rural planning zones for the arrival of an effective response force.

Communications and Call Processing

- Take a lead role in collaborating with the partner agencies and Sacramento Regional Fire/EMS Communications Center (SRFECC) to improve the call processing performance.
- Continue to support the acquisition and implementation of an updated Computer Aided Dispatch (CAD) platform for the SRFECC.
- Work with the SRFECC to identify process errors and create a plan to correct data errors.

Turnout Time

- Consider tools such as timers and standard operating procedure updates to promote improvements for turnout time to emergency calls for service.

- Consider upgrading personnel and fire station alerting systems to ensure proper and prompt notification of an emergency call.

Distribution of Resources

- Upgrade the current traffic signal pre-emption system to take advantage of newer technologies to reduce travel time and improve civilian and firefighter roadway safety.
- Based on the higher unit hour utilization during the daytime hours and the increased travel time indicated with the concurrent calls, the CFD should add at least three staffed medical units (transport or non-transport) during the daytime hours, 7 a.m. to 7 p.m., to supplement the available resources.

Intermediate Term Improvement Opportunities – 18 months-5 years

Concentration of Resources

- Increase the minimum staffing of Engine Companies 71, 74, and 76 from three personnel to four personnel to improve the development of an effective response force and provide additional support for the second arriving suppression unit.

Long Term Improvement Opportunities – 5 years or longer

Distribution of Resources

- Consider constructing and staffing a new station in the 8200 block of Long Leaf Drive to enhance and support the level of service in the central section of Elk Grove.
- Consider constructing and staffing a new station in the area of Elk Grove Blvd. and Franklin Blvd. to enhance and support the level of service in the western section of Elk Grove.
- Consider adding a second ladder company to a station with access to the southern section of Elk Grove.

Concentration of Resources

- Increase the minimum staffing of all engine companies from three personnel to four personnel to provide improved resources on the first arriving suppression unit and to improve the development of an effective response force.

Administrative Operations

- Create a new branch for Community Risk Reduction. This new branch would house the current Fire Prevention Division and all its individual parts. With the new designation, additional duties could fall into the branch such as targeted public education based on the identified fire problem in the community and wildland mitigation activities and education.
- Create a new Deputy Chief of Community Risk Reduction position to manage the newly formed Community Risk Reduction branch.
- Reimagine the Administration and Support Services branch as the Support Services branch maintaining the current Fleet Maintenance, Logistics, Staffing, and Training and Special Operations.

Physical Resources

- Develop a long-term funding plan for CFD facilities that identifies specific building systems, their life expectancy, and the anticipated cost for repair or replacement to allow the District to properly plan and appropriate adequate reserve funding to relieve the stress on the general fund when capital replacement needs arise.

- Consider a complete replacement of Fire Station 71 to incorporate modern technologies and space requirements that address industry related health issues, fitness, and appropriate gender facilities.
- Consider using an apparatus replacement system that accounts for maintenance costs, operating costs, and general reliability and condition assessments to provide benchmarks for the planned replacement of apparatus.
- Develop a long-term funding plan for the CFD for fire apparatus and other vehicles that identifies the benchmarks established by the apparatus replacement system to allow the District to properly plan and appropriate adequate reserve funding to relieve the stress on the general fund when capital replacement needs arise.

Response Capability Maintenance

- Create a working group designed to meet at the end of the first quarter of the calendar year to review the past year performance and provide recommendations for improvement to the response system.
- Begin a process of training and educating personnel on incident reporting to ensure accuracy and complete Record Management System (RMS) data. Continue reviewing and analyzing response data and performance on a monthly basis to ensure the data is accurate for analysis.
- Creation of the Community Risk Reduction branch will place all fire prevention, public education, and mitigation efforts within one branch. By design, this allows for more inclusion of mitigation and risk reduction methodologies into the response model and planning of future programs and activities

Cosumnes Fire Department Organization

This chapter provides an overview of the general characteristics, organization, and operations of the Cosumnes Fire Department.

Background

The formation of the CFD began in 1893 with the founding of the Elk Grove Fire Department. After operating for several years and advancing their equipment and apparatus, the Elk Grove Fire Department received their first motorized apparatus in 1921. It was that same year that the Galt Volunteer Fire Department was founded approximately 13 miles to the south of Elk Grove.

Both departments progressed in service and size and in the 1950s received ambulances from Sacramento County which increased transport services. In 1934, an Assistant Fire Chief was hired as the first paid position for the Elk Grove Fire Department and in 1940 the first full-time paid Fire Chief was hired. The Galt Volunteer Fire Department hired its first full-time Fire Chief in 1961. In 1962 the Elk Grove Fire Department added their first paid firefighter and throughout the 1960s, 70s, and 80s, both departments grew adding staff, stations, and apparatus.

In 1985, the Elk Grove Fire Department and Elk Grove Recreation and Park District merged and became the Elk Grove Community Services District. The merged Elk Grove Community Services District was authorized to provide fire protection services as outlined in the Sacramento Board of Supervisors Resolution #85-853. The enabling legislation is Community Services District Law located in Government Code Sections 61000 – 61114.

In the years just prior to this, the Galt Volunteer Fire Department became the Galt Fire Protection District and upgraded their ambulance service from basic EMT to paramedic level with the first Sacramento County paramedic class. In 2006, the Galt Fire Protection District and the Elk Grove Community Services District merged and were reorganized to create the Cosumnes Community Services District (District) which includes the Fire Department and Parks and Recreation Department. The name of the District was derived from the Cosumnes River that runs southwest between Elk Grove and Galt.

The CFD serves approximately 157 square miles including the cities of Elk Grove and Galt as well as the unincorporated south Sacramento County areas. The CFD provides response for fire protection, rescue, and emergency medical services, including

ambulance transport, hazardous materials, rescue, wildland fires, fire prevention, and inspections.

Governance

The District is governed by a five-member board whose members are elected from one of five electoral divisions. Board Members are elected by their division to a four-year staggered term and must reside within their division. The Fire Chief reports to the General Manager who is appointed by the Board of Directors to oversee the day-to-day operations of the District.

The Board of Directors provides guidance and authorization of programs and services through their approval of the biennial budget.

The District published the Cosumnes Community Services District 2021 District Strategic Plan[1] to provide clear directions and prioritization of resources and initiatives. The 2022-2027 Cosumnes Community Services District Fire Department Strategic Plan[2] was developed to provide guidance to the CFD and to support the District plan. Included in the Cosumnes Fire Department Strategic Plan are future needs for the delivery of services, such as new fire stations, and has identified the need for future Stations 78 and 79 further to the south of Elk Grove. Annual reports to the Board of Directors communicate the performance of the CFD and an update of the status of the strategic plan objectives. These reports also provide a mechanism to identify trends in the performance of the CFD through a variety of metrics related to service delivery.

Organization

Reporting directly to the Fire Chief are two Deputy Fire Chiefs, an Executive Assistant, and an Administrative Manager. The two Deputy Fire Chiefs oversee the two branches of the CFD, Administration and Support Services and Operations.

The Administration and Support Services branch consists of a Deputy Fire Chief directly overseeing four management personnel. These direct reports are an Assistant Fire Chief/Fire Marshal managing the Fire Prevention Division, an Assistant Fire Chief managing the Training Division, a Fleet Manager managing Fleet Maintenance, and a Battalion Chief of Administration managing logistics, disaster preparedness, and staffing.

[1] Cosumnes Community Services District 2021 District Strategic Plan
[2] Cosumnes Community Services District Fire Department Strategic Plan 2022-2027

The Operations branch consists of a Deputy Fire Chief overseeing seven management personnel. These direct reports are an Assistant Fire Chief managing the EMS Division and six Shift Battalion Chiefs overseeing an individual shift of 58 personnel. The shift is comprised of the two Battalion Chiefs, 10 Captains, 10 Engineers, and 38 Firefighters. See Appendix A for organizational chart.

Mission, Vision, Values, and Motto

Mission Statement

The Cosumnes Fire Department saves lives and protects the community through prevention, preparedness, and emergency response in a timely, courteous, and effective manner.

Vision Statement

The Cosumnes Fire Department will continue to be a mission-focused organization that strives for excellence, commits to its values, and serves a growing diverse community.

The organizational charts that follow illustrate the current CFD organization.

Values

Integrity, Professionalism, Teamwork, Courage, and Service

Motto

Striving to Exceed Expectations at All Times

Stations and Staffing

Service to the District is currently provided from nine fire stations, seven located in Elk Grove and two located in Galt, and the Fire Department Headquarters. The Fire Headquarters facility houses the training center, EMS Division, and Fleet Maintenance. The following map illustrates the locations of the fire stations and headquarters.

The CFD has 183 career personnel working in shift operations with 61 personnel assigned to each of three shifts (A, B, C). Shift personnel operate on a three platoon system, working two days on duty followed by four days off duty. The daily minimum staffing is 53 personnel including the 2 Shift Battalion Chiefs. Additionally, a minimum of 20 personnel must be licensed paramedics each day to ensure the advanced life support (ALS) status of nine engine companies, one ladder truck company, eight transporting fire

based medic units, and two non-transporting squad units. There are seven detail pool personnel on each shift that are not assigned to a specific fire station. They are distributed to fill any gaps in the minimum staffing due to planned or unplanned leave before overtime is required to meet minimum staffing requirements. The tables below outline the apparatus and staffing for each station.

Station 45

229 5th Street, Galt

Description of Use Apparatus Space	Providing Fire and EMS service to the west Galt area west of Hwy 99 (Division 1). Three long bays with drive through				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	Engine 45	2022	Pierce	Type 1 Engine	3
	Engine 345	2007	West-Mark	Type 3 Engine	Cross Staffed
	Tender 45	2007	Pierce/Kenworth	Water Tender	Cross Staffed
	Medic 45	2020	Dodge 4500	Ambulance	2

Station 46

1050 Walnut Avenue, Galt

Description of Use Apparatus Space	Providing Fire and EMS service to northeast Galt area east of Hwy 99 (Division 1). Two short bays with drive through				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	Engine 46	2008	Pierce	Type 1 Engine	3
	Engine 346	2007	West-Mark	Type 3 Engine	Cross Staffed
	Medic 46	2020	Dodge 4500	Ambulance	2

Station 71

8760 Elk Grove Blvd., Elk Grove

Description of Use Apparatus Space	Providing Fire and EMS service to central Elk Grove east of Hwy 99 (Division 5). Includes the office and dormitory for the Shift Battalion Chief. Four long bays with drive through				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	Battalion 10	2017	Chevrolet Tahoe	Command	1
	Squad 71	2024	Ram 2500 Big Horn	Squad Unit	2
	Engine 71	2022	Pierce	Type 1 Engine	3
	Tender 71	2005	Pierce Kenworth	Water Tender	Cross Staffed
	Engine 571	2019	Dodge 4500 4x4	Type 5 Engine	Cross Staffed
	Medic 71	2019	Ram 4500	Ambulance	2

Station 72

10035 Atkins Dr., Elk Grove

Description of Use Apparatus Space	Providing Fire, EMS, and water rescue service in southwest Elk Grove between Hwy 99 and I-5 (Division 3). Three long bays with drive through and a six bay storage building				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	Battalion 11	2024	Chevrolet Tahoe LT	Command	1
	Engine 72	2016	Pierce	Type 1 Engine	3
	Engine 372	2009	West-Mark	Type 3 Engine	Cross Staffed
	Boat 72	2009	Achilles	Boat w/trailer	Cross Staffed
	Medic 72	2018	Dodge	Ambulance	2
	Ladder Truck	2006	Pierce Aerial	Ladder Truck	Reserve
	Flood Boat Trailer A				

Station 73

9607 Bond Rd., Elk Grove

Description of Use Apparatus Space	Providing Fire and EMS service located in east Elk Grove (northern Division 1 bordering northeast Division 5). Three long bays with drive through				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	Engine 73	2018	Pierce	Type 1 Engine	3
	Engine 373	2006	West-Mark	Type 3 Engine	Cross staffed
	Medic 73	2017	Dodge 4500	Ambulance	2
	OES 8432 Flood Boat Trailer B	2015	HME	Type 3 Engine	Reserve

Station 74

6501 Laguna Park Dr., Elk Grove

Description of Use Apparatus Space	Providing Fire, EMS, and technical search and rescue service located in the Laguna area of Elk Grove (northeast Division 2 near the borders of Divisions 3 and 4). Three long bays with drive through				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	Engine 74	2014	Pierce	Type 1 Engine	3
	Truck 74	2008	Pierce Aerial	Ladder/Truck	4
	Rescue 74	2008	Pierce	Heavy Rescue	Cross Staffed
	RT 74	2005	Ford E350	Rescue Tender	Cross staffed
	Squad 74	2024	Ram 2500 Big Horn	Squad Unit	2

Station 75

2300 Maritime Dr., Elk Grove

Description of Use	Providing Fire, EMS, and special response service located in the Laguna West area of Elk Grove near Interstate 5 (Division 2).				
Apparatus Space	Three long bays with drive through				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	Engine 75	2018	Pierce	Type 1 Engine	3
	Engine 375	2006	West-Mark	Type 3 Engine	Cross staffed
	Foam 75	2001	Ford F550	Foam Unit	Cross Staffed
	Air 75	2020	Ram	Air Unit	Cross Staffed
	Medic 75	2018	Dodge	Ambulance	2

Station 76

8545 Sheldon Rd., Elk Grove

Description of Use	Providing Fire and EMS service located in north Elk Grove (eastern Division 4 bordering Division 5).				
Apparatus Space	Three long bays with drive through				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	Engine 76	2016	Pierce	Type 1 Engine	3
	Engine 576	2019	Dodge 4500 4x4	Type 5 Engine	Cross Staffed
	Medic 76	2017	Didge 4500	Ambulance	2
	Reserve Type 3	–			Reserve

Station 77

8350 Poppy Ridge Rd., Elk Grove

Description of Use	Providing Fire and EMS service located in south central Elk Grove. This service area is bordered by highway 99 on the east and services a wide mix of residential and commercial areas.				
Apparatus Space	Three short bays with drive through and a six-bay storage building				
Assigned Apparatus	Unit ID	Year	Description	Type	Minimum Staffing
	Engine 77	2006	Pierce	Type 1 Engine	3
	Engine 377	2009	West-Mark	Type 3 Engine	Cross Staffed
	Medic 77	2017	Didge 4500	Ambulance	2
	OES 381	2014	HME	Type 1 Engine	Reserve

Agency Programs and Services

Fire Suppression

The CFD's fire suppression program is designed to protect life, property, and the environment from the devastating effects of fires within its jurisdiction. The program takes a multifaceted approach that combines prevention, preparedness, rapid response, and ongoing training. With highly trained personnel, strategically placed fire stations, and modern firefighting apparatus, the CFD is well-equipped to rapidly respond to fire incidents. Mutual aid agreements are in place to ensure coordination during large-scale emergencies.

For wildland season, the CFD addresses the needs of grass fires within its jurisdictional boundaries and assists other agencies in the county. In addition, the CFD partners with external agencies such as California Fish and Game, CalFire, Cal OES, and SRFECC to declare and communicate the conditions of wildland season, including Red Flag conditions. The fire agencies in Sacramento County operate under the SOG Wildland Operations, which identifies appropriate tactics, objectives, and communications to standardize response.

Emergency Medical Services

The CFD provides advanced life support (ALS) prehospital care and ambulance transportation from fire apparatus and ambulances throughout the district. The CFD is also the primary ambulance transportation provider for southern Sacramento County, including the Wilton, Herald, Courtland, and Walnut Grove Fire Districts. The EMS Division supports the 24-hour emergency response and transport of nine ALS engine companies, one ALS ladder truck company, and eight ALS transporting ambulances through education/training, medication/equipment, billing, telehealth, certification, continuous quality improvement (CQI), infection control, controlled substances and exposure tracking, and data collection and analysis.

The EMS Division responded to 23,817 incidents in 2023 with 17,861(75%) of those being medical in nature. There were 12,468 patients transported to local emergency departments for continued treatment and care.

Technical Rescue Services

The CFD has an established Technical Rescue program to provide emergency response to incidents that are beyond the scope of traditional firefighting. Personnel involved in the rescue program undergo extensive training in various disciplines such as confined space rescue, trench rescue, structural collapse rescue, swift water rescue, high and low-angle

rescue, and heavy machinery entrapment. In 2023 there were 57 personnel trained to the level of Rescue Technical and 20 personnel were members of the Sacramento Urban Search and Rescue Task Force 7. The CFD has multiple policies in place outlining the response to all types of technical rescue incidents.

The CFD has a Special Operations Captain assigned to the Training Division to coordinate the technical rescue program, including maintenance and inventory of rescue equipment.

Hazardous Materials Response

The CFD responds to HAZMAT incidents at an awareness and operations level with responders trained to the level of Hazardous Material First Responder Operational. The CFD complies with the Hazardous Waste Operations Emergency Response (HAZWOPER) standard during all HAZMAT incidents and has a policy in place to outline HAZMAT response with the primary objective being to protect public safety, the environment, and the health of the first responders. The CFD has an agreement for automatic aid from Sacramento City and Sacramento Metro Fire Departments to provide technicians and specialists to HAZMAT incidents.

Training and Education

The Training Division is managed by an Assistant Fire Chief who reports directly to the Deputy Fire Chief of Administration and Support Services. The Assistant Chief is aided by two Training Captains, one Special Operations Captain, and an Administrative Specialist.

A yearly calendar is created to schedule quarterly, monthly, and daily training topics. Live fire exercises are scheduled on a quarterly basis. The CFD has a five-story Class A and Class B burn building at the Fire Training Center adjacent to Fire Headquarters in southern Elk Grove east of Hwy 99. Members are required to complete two hours of training each working shift which is inclusive of company and department level training. In service training is supplemented with an online platform, Vector Solutions. Currently, the Training Division is experiencing challenges with completing training with on-duty personnel due to call volume.

The following illustrates a portion of the more than 10,300 hours of individual training hours recorded in 2022 by the members of the CFD.

Table 1: Individual Training Activity

Topic/Area	Hours
Other	3,281
EMS*	2,286
Firefighting/Fire ground Operations	1,797
Rescue and Extrication	956
Wildfire operations	565
Hose/Tools/ Equipment	404
Engineer/Pumping Operations	392
Administration	309
Inspections/Public Education	166
Ethics	121
Aerial Operations	77
Hazardous Materials	25
Total Training Hours	**10,379**

*EMS training is completed in the EMS Division

Fire Prevention

Fire and life safety prevention and mitigation programs are the responsibility of the Fire Prevention Division that is headed by the Assistant Fire Chief/Fire Marshal with a staff of both civilian and safety personnel. Two Deputy Fire Marshals oversee the day-to-day activities of the division.

One Deputy Fire Marshal is assigned to supervise the annual fire inspection program as well as new construction plan review and on-site inspections. Outside contractors may be used for plan review support during exceptionally busy periods.

The other Deputy Fire Marshal supervises the code enforcement program, wildland fire mitigation, public education, and fire investigations. Fire investigations are coordinated jointly with members of the Fire Prevention Division and qualified shift personnel.

The following table illustrates the activities of this division.

Table 2: Prevention Activity

	2022	2021	2020
State Mandated Inspections	165	168	166
Annual Inspections	31	112	13
Rotation Inspections	10	25	NR
Target Hazard Inspections	10	17	NR
Total Inspections	216	322	179
Plan Checks	1,845	1,251	841
New Construction Inspections	2,058	2,624	NR
Total Plans Review Tasks	3,903	3,875	841
Public Education Events	45	29	NR
Total Fire Prevention Activities	4,164	4,226	1,020

In December of 2022, Fire Prevention identified the need to inspect 75 churches and 775 commercial occupancies in addition to the numbers shown above. In addition to the illustrated activities, there were 43 fire investigations November 2021 – November 2022. It should be noted that 2020 was the year of the COVID-19 pandemic and outside contact was typically minimalized nationally.

Public Education

Within the Fire Prevention Division is the Public Education program. This program targets educational and outreach services that engage residents across their lifespan, teaching them how to identify and respond to risks associated with fire hazards and medical emergencies. The services work collectively to raise public awareness about fire and life safety issues and establish a proactive presence in the community. The program is coordinated by a Public Education Specialist who works in conjunction with District officials and alongside line personnel to deliver services.

Domestic Preparedness

The Domestic Preparedness, Planning, and Response program establishes an organized approach to managing a large-scale emergency or disaster. The Cosumnes Fire Department follows various emergency operations plans to provide direction on how to respond to an emergency from the onset, through an extended response, and into the recovery process.

Financial Resources

The District has a Biennial Budget with each fiscal year ending on June 30. The budget is prepared by the Executive Staff of the District and approved by the Board of Directors. Typically, the first year is approved and the second year is reviewed between the two years for any significant changes.

Mutual and Automatic Aid Partners

The Cosumnes Fire Department participates in mutual and automatic aid with the neighboring agencies and is called on by California Office of Emergency Services (CalOES) to assist in larger incident events.

- Courtland Fire Department *
- Folsom Fire Department *
- Herald Fire Department *
- Isleton Fire Department *
- Liberty Rural Fire Protection District
- Lodi Fire Department
- Office of Emergency Services
- River Delta Fire Department *
- Sacramento Fire Department *
- Sacramento Metropolitan Fire Department *
- Stockton Fire Department
- Thornton Fire Department
- Walnut Grove Fire Department *
- West Sacramento Fire Department
- Wilton Fire Department *
- Woodbridge Fire Department

* Sacramento Regional Fire/EMS Communications Center (SRFECC) was organized through a Joint Powers Agreement (JPA) pursuant to the provisions of Title I, Division 7, Chapter 5, Article 1, Sections 6500 et seq. Of the California Government Code to provide public safety communications management/dispatch services for its member agencies. The CFD is also a member of the SRFECC.

Documentation of Area Characteristics

Demographic Profile

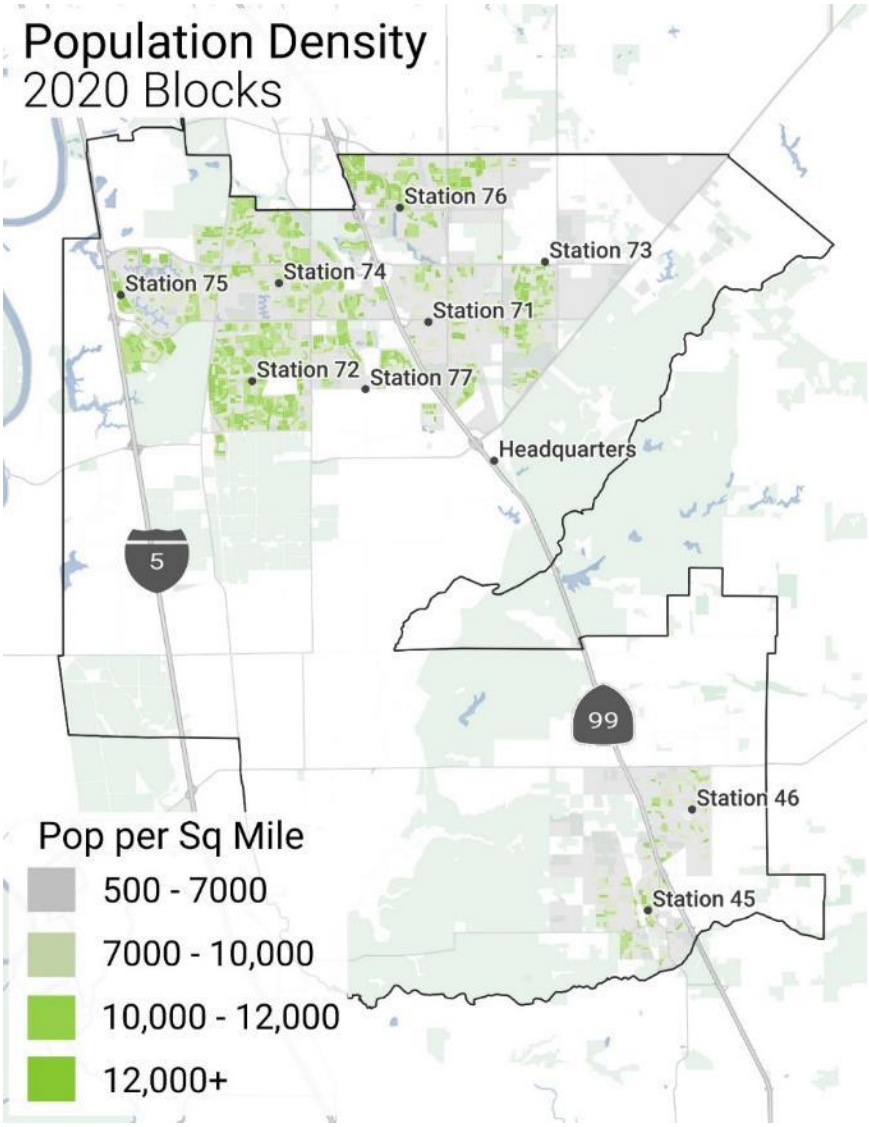
The following table illustrates the demographic profile of the District and changes that have occurred since 2010.

Table 3: Cosumnes CSD Demographics

	2010	2015	2020
Estimated Population	183,255	198,002	207,958
City of Elk Grove	153,015		174,775
City of Galt	23,647		26,536
Unincorporated Area	6,593		6,647
Major Employers			
Apple			5,000
Elk Grove Unified School District			4,055
CA Correctional Healthcare Services			1,124
Cosumnes Community Services District			554
Wal-Mart			515
Bel Air/Raleys Supermarkets			398
AllData			376
City of Elk Grove			347

The population of the District has increased approximately 14% since 2010, adding an estimated 24,703 residents. From 2010 to 2020, the population of Elk Grove has increased approximately 14% while Galt has increased approximately 12%. Based on 2020 data, Elk Grove accounts for approximately 84% and Galt accounts for approximately 13% of the District's population.

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



As illustrated, the largest population centers are primarily dispersed in Elk Grove with additional smaller pockets in Galt. Populations are spread out evenly within each city although Galt has higher density pockets in the southern areas of the city.

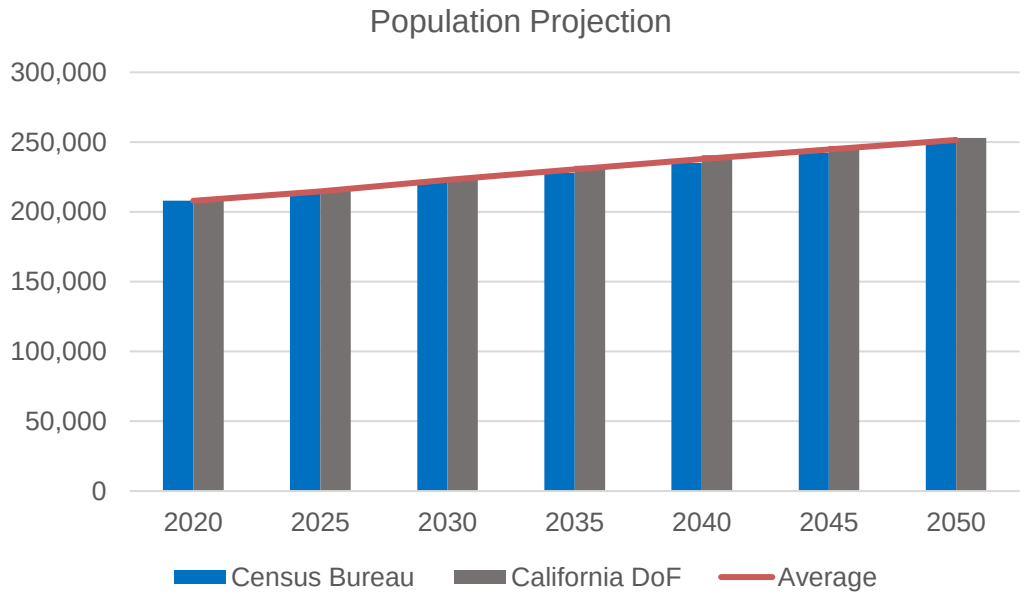
Community Growth and Development

This section provides an overview of the anticipated growth within the District and the projection of the demand for services.

Population Changes

In 2020, the California Department of Finance published population growth projections for each county to the year 2060. The projection noted Sacramento County would have an average 0.6% population increase each year from 2022 through 2060. The projected population of Sacramento County for 2020 was 1,562,242, however, according to the US Census Bureau the population for Sacramento County in 2020 was 1,585,055.

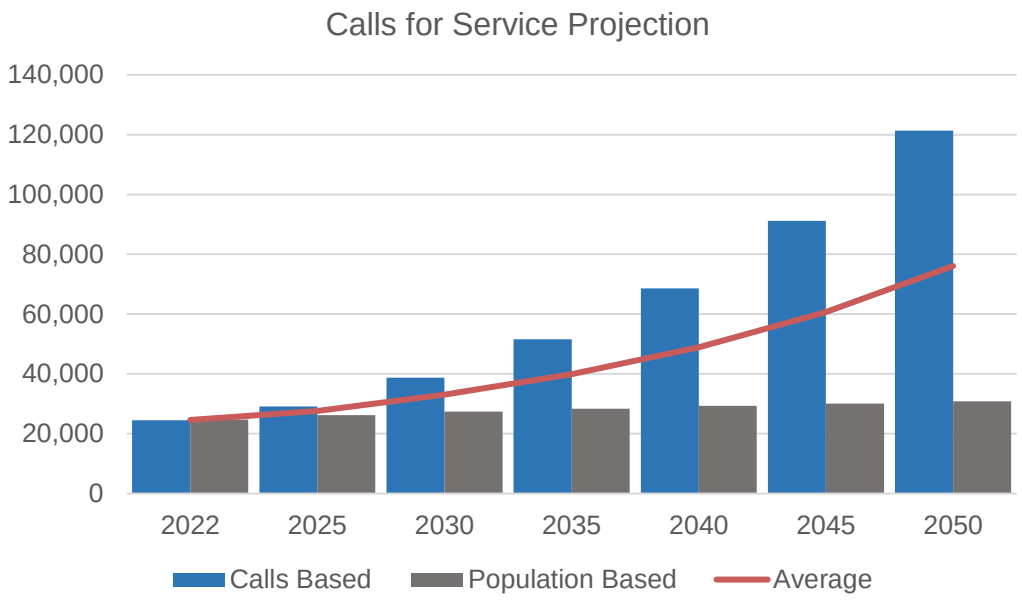
Extrapolating similar projections for the District, the population would be projected to increase from 207,958 in 2020 to 253,119 in 2050. The following chart illustrates the population growth based on the California Department of Finance projections and data from the US Census Bureau.



As illustrated, there is no significant difference between the Department of Finance and that extrapolated from the US Census Bureau.

Emergency Services Demand Projection

As population in an area continues to grow and new buildings are constructed, the demand for services will also increase. These services take many forms for all parts of local government including public works, parks, law enforcement, and fire and emergency medical services. For the CFD the calls for service have increased an average of 5.9% each year from 2019 to 2022. Population growth has increased approximately 0.6% per year for the past 10 years. The following chart illustrates the projected calls for service through 2050.

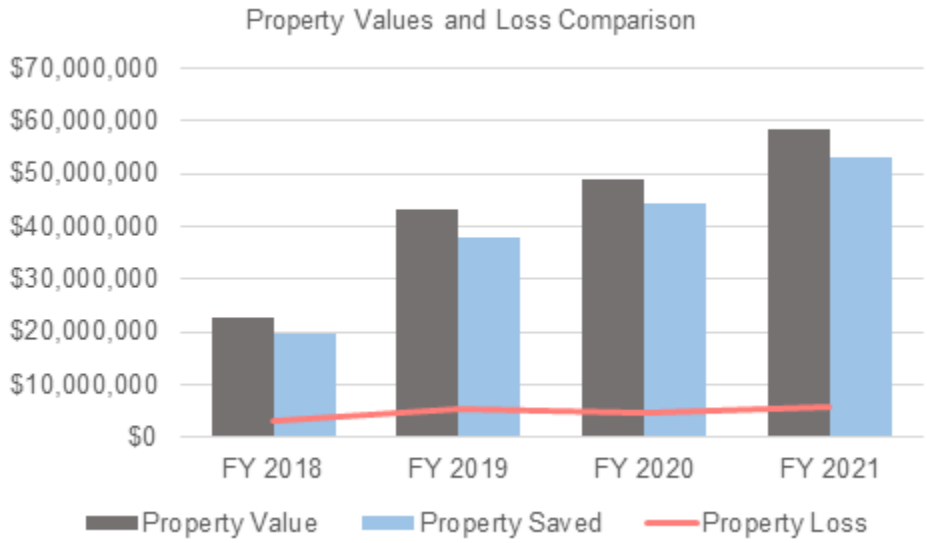


The calls are shown based on population growth and historical call volume. Over the past four years the average call volume is 0.12 calls per person. Using the historical calls for the past four years the annual average increase is 5.9%. Based on the population growth, the calls for service in 2050 are projected to be 30,837. Using the historical calls for service as a base, in 2050 the number of calls will be 121,356. The average between the two methods is 76,097 in 2050.

It should be noted that there are a few factors that may contribute to the differences between these two estimating methods. First, the Covid-19 pandemic in 2020 was responsible for many departments nationwide experiencing a drop or minimal growth in call volume. Then in the following year the same departments experienced a significant increase in call volume.

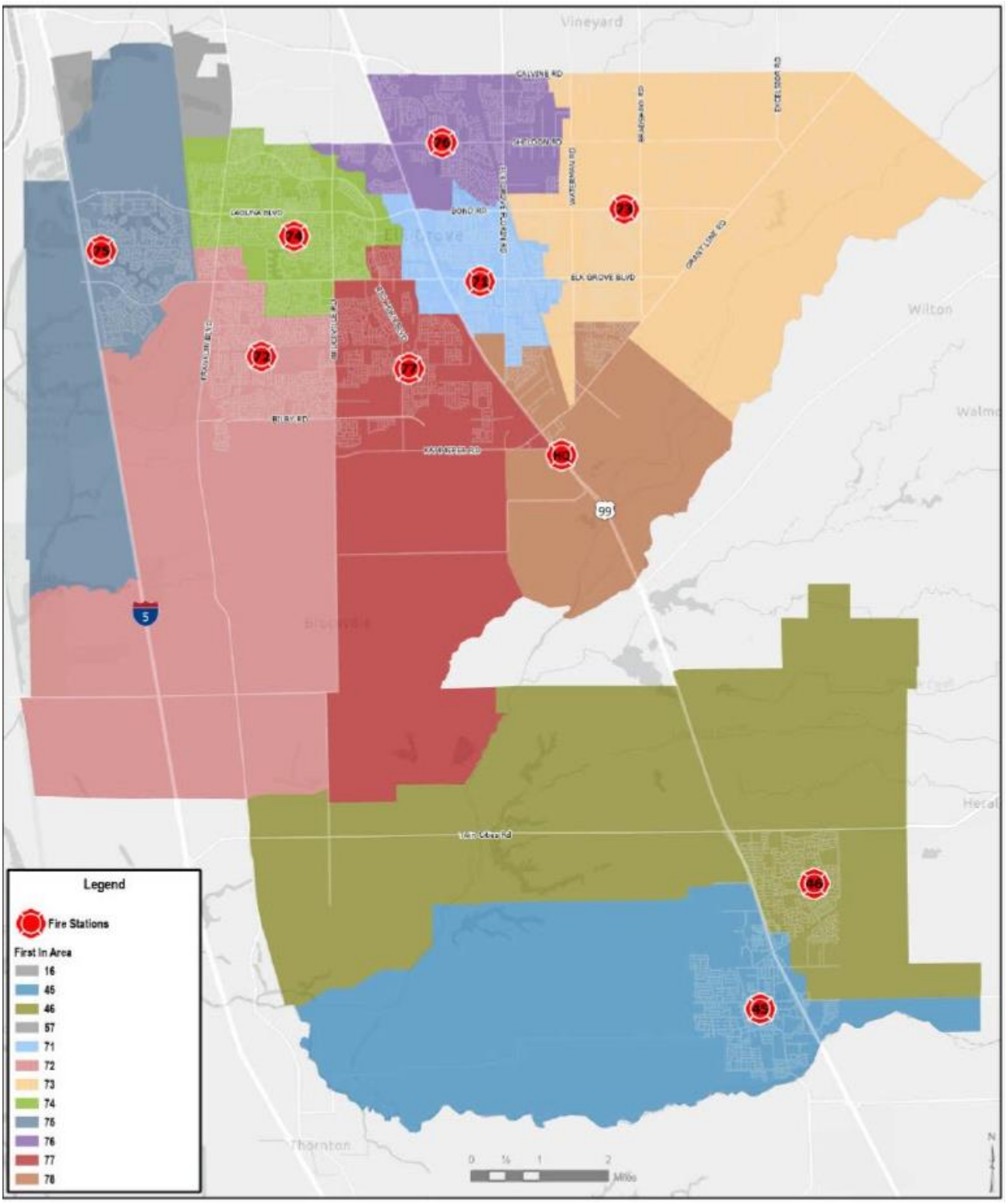
Property Values and Loss

The following chart illustrates the property values for the District with a comparison to property saved and property loss due to fires in the District.

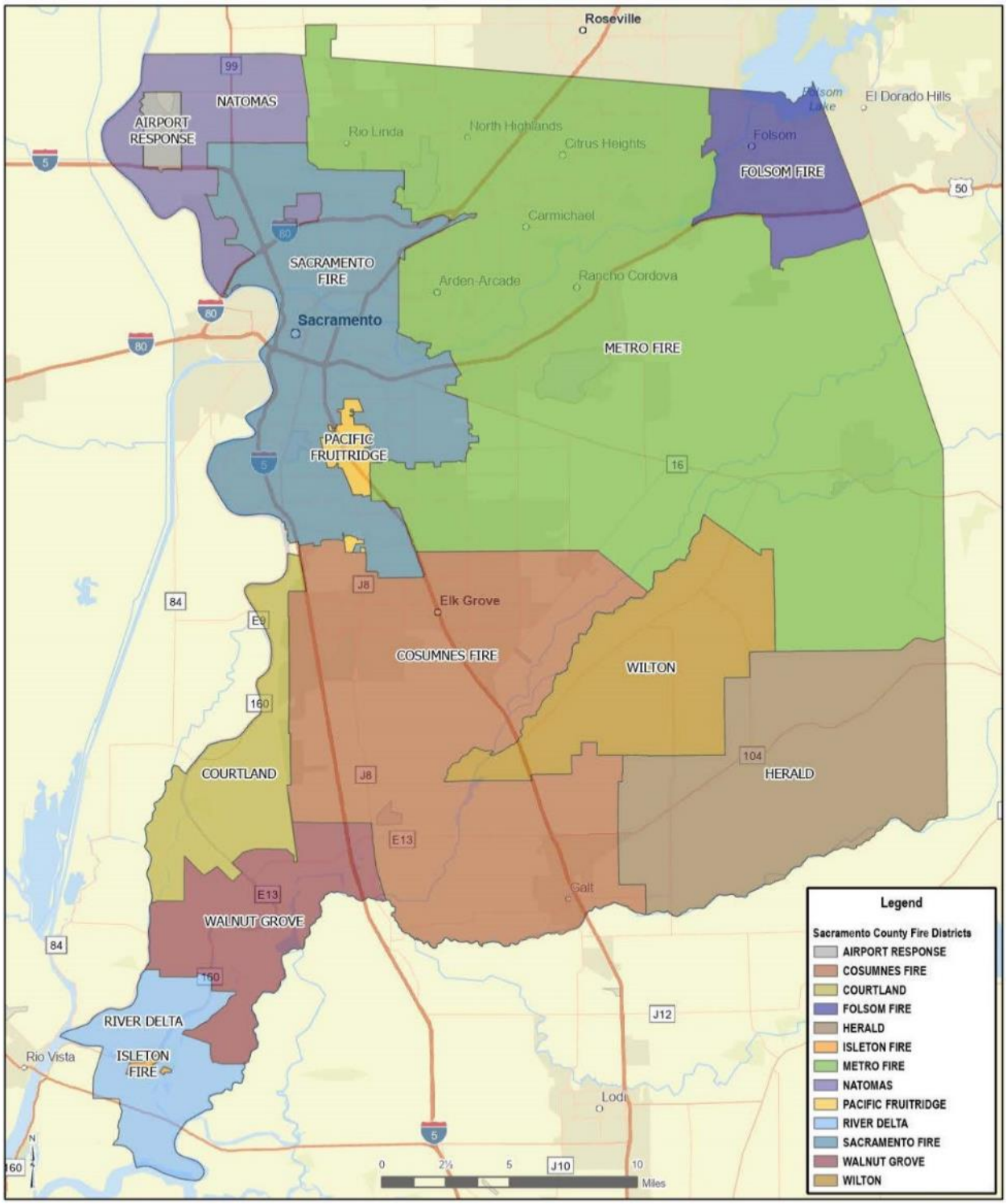


For the four-year period, property loss due to fire represented approximately 10.8% of the total property value.

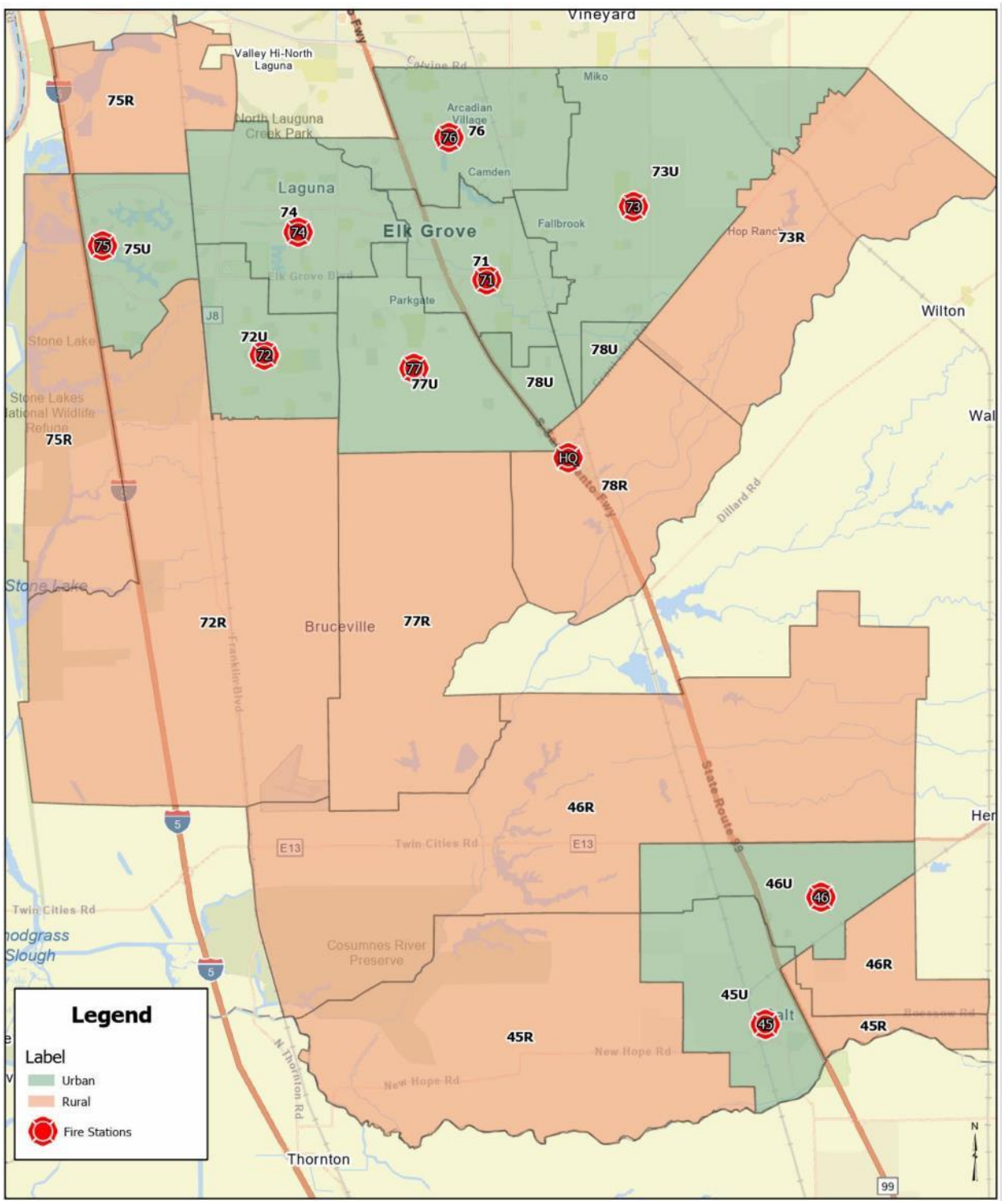
Map of Service Area Boundaries



Map of Other Service Area Boundaries

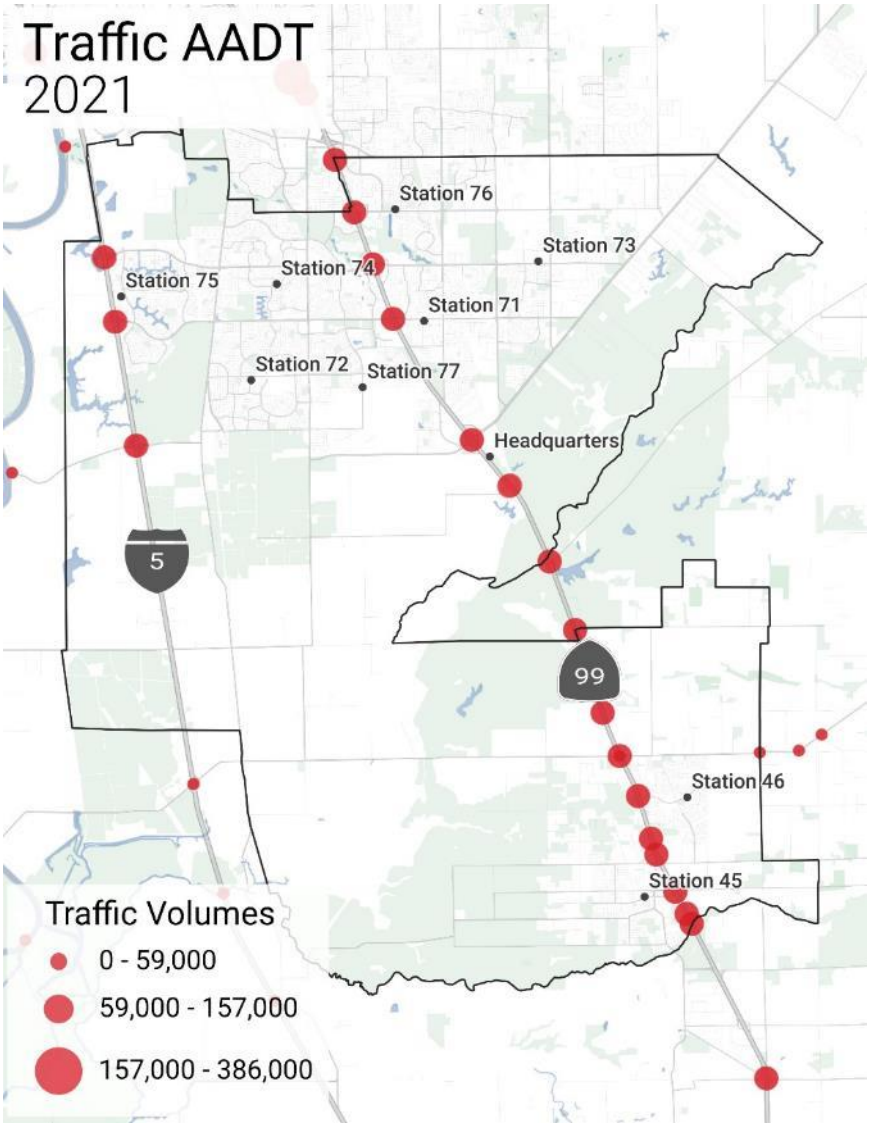


Map of Planning and Assessment Zones



Transportation Systems

Within the District there are several hazards related to the transportation of people, freight, and other commodities. Highway 99 and Interstate 5 transverse the District along a north-south route. Interstate 5 is a major highway that spans from the Canadian Border to the Mexican Border traversing three states. Highway 99 runs parallel to Interstate 5 and at times runs congruently from the Canadian Border to the Mexican Border. The following map illustrates the traffic counts at various points along the route.



According to Caltrans traffic count data, approximately 24% of the vehicular traffic on Interstate 5 are trucks and on Highway 99 approximately 15% are trucks. Note this is an annual average daily traffic count, this does not address peak time traffic.

In terms of railroad transportation, Union Pacific Railroad is the primary rail carrier in Sacramento County. Other smaller regional lines exist in support of the Union Pacific operations. The following map illustrates the primary rail lines in the District.

Rail Freight is tracked as freight originating in California and freight terminating in California. The following table illustrates the freight movement in California.

Table 4: Rail Freight in California

Originating	Number of Railcars	Pct of Total	Terminating	Number of Railcars	Pct of Total
Intermodal	3,148,900	92.2%	Intermodal	2,976,300	80.8%
Food Products	53,200	1.6%	Chemicals	113,500	3.1%
Chemicals	31,600	0.9%	Farm Products	99,800	2.7%
Glass & Stone	28,300	0.8%	Food Products	106,100	2.9%
Nonmetallic Minerals	20,000	0.6%	Coal	36,900	1.0%
Other	132,200	3.9%	Other	351,800	9.5%
Total	**3,414,100**	**100.0%**	**Total**	**3,684,400**	**100.0%**

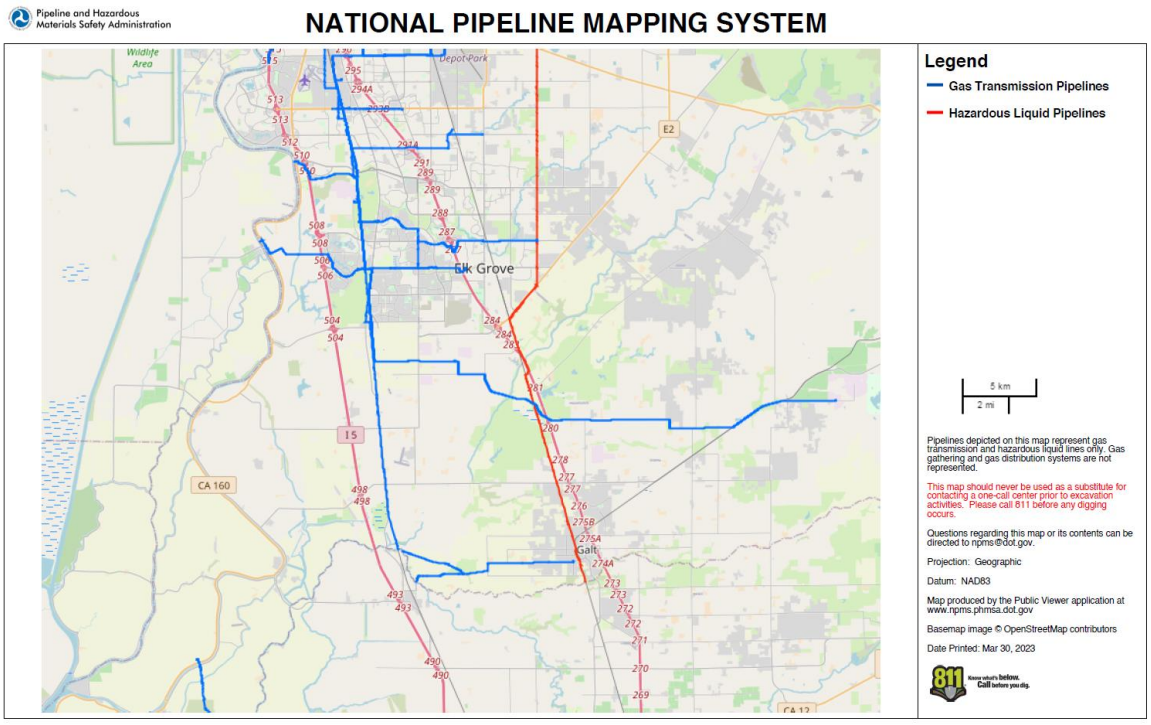
The following table highlights the freight movement specifically for Union Pacific Railroad. Their data ranked the top five commodities by volume.

Table 5: Union Pacific Rail Freight

Originating	Terminating
Intermodal - Wholesale	Intermodal - Wholesale
Auto Parts	Assembled Autos
Assembled Autos	Auto Parts
Canned and Paste	Grain
Cement and Misc. Mineral	Biofuels and Sweeteners

They did note there were 1,401,600 railcars that originated in California and 1,535,178 railcars that terminated in California.

Moving gas and liquid hazardous materials is accomplished, in part, by using underground pipelines. These pipe lines are designed to move large quantities of materials to distribution points and to those points for consumer pipeline systems such as natural gas. The following map provides a view of the transmission pipelines in the District. This information is publicly available through the National Pipeline Mapping System[3] and is for illustrative purposes only.



[3] National Pipeline Mapping System

The red colored pipeline is a transport for any hazardous liquid while the blue colored lines are designated as gas transmission pipelines.

Critical Infrastructure

Critical infrastructure refers to the essential systems, facilities, and assets—whether publicly or privately owned—that are vital to the health, safety, and well-being of the community. Their disruption or failure could significantly impact emergency response, public health, economic stability, and overall community resilience. In alignment with FEMA's definition, the fire department identifies and monitors critical infrastructure within its jurisdiction to ensure appropriate planning, response capabilities, and continuity of operations. This section outlines the key infrastructure assets within the service area and their relevance to fire and emergency services.

Water

The District has three primary water providers: two in the City of Elk Grove and one in the City of Galt. In Elk Grove, water is provided by the Sacramento County Water Agency (SCWA) to residents living west of Highway 99. Additionally, SCWA sells water to the Elk Grove Water District (EGW) for distribution east of Highway 99. SCWA relies heavily on surface water in years with plenty of water and more heavily on groundwater in drier years. The primary intake for surface water is located just west of the District on the Sacramento River, at Freeport.

The City of Galt provides water within its boundaries. The system is primarily reliant on groundwater. The current system comprises two three-million-gallon storage tanks, two 1.5-million-gallon storage tanks, booster pump stations, seven wells with filtration treatment systems, and chlorination for disinfection.

Emergency Services

The District has three primary law enforcement partners. The Cities of Elk Grove and Galt each operate stand-alone police departments. Additionally, unincorporated areas within the District are served by the Sacramento County Sheriff's Office.

Fire and EMS services are provided by Cosumnes Fire. Cosumnes Fire operates 20 ALS units (nine Fire Engines, one Ladder Truck, eight Fire/Medics and two Squads) from nine fire station strategically located throughout district. Additionally, automatic aid is established within the County's "boundary-drop" system.

Communications

The Cosumnes Fire Department participates in a regional partnership with Sacramento Regional Radio Communications System (SRRCS), responsible for the radio towers utilized for 911 radio communication within Sacramento County. Radio transmittals within this system include, but are not limited to, initial dispatch alerts, receiving and providing critical incident and scene details to and from dispatch, communication with other personnel on and off incidents, and receiving updated scene safety or incident information. The Cosumnes Fire Department utilizes wireless networks in conjunction with the radio system to receive information about the incident while enroute to the location utilizing Mobile Data Computers (MDCs) and cell phone applications in each unit to connect to our Computer Aided Dispatch (CAD) system. Emergency personnel use these tools to navigate to the location of the incident, get additional information about the call, and communicate between one another and to dispatch. Wireless networks are vital in patient and department reporting as well, with field units utilizing mobile devices to transmit patient care reports after providing medical care to a patient in the field. Though there are multiple redundancies, failure in whole or in part of either of these communication infrastructures hinders the effectiveness of field units and dispatch to carry out vital public safety duties and it is essential to ensure the stability and longevity of these resources.

Gas/Electric

Critical Utility infrastructure is present at multiple locations throughout the district.

Overhead electrical transmission lines are present throughout the district. Lower voltage overhead distribution lines are also present in older areas of the two cities. Distribution lines in areas developed in the last 20 years are largely underground.

High-pressure natural gas transmission lines are also present in multiple areas of the jurisdiction. The department knows the location, size, and operating pressures of these lines.

Information Technology

The Cosumnes Community Services District's Information Technology (IT) Division is a vital component of the Cosumnes Fire Department and the broader community, ensuring the seamless operation, security, and efficiency of critical technology systems. It manages crucial technology, including servers, cloud applications, GIS tools, and specialized systems, while enforcing data governance and security measures to protect District resources. The IT Division also oversees fire station communication systems and

alerting systems, ensuring rapid and reliable dispatch of emergency personnel. Additionally, IT safeguards cybersecurity through phishing simulations, antivirus protection, mobile device management, and 24/7 threat detection via a partnership with RedCanary. The IT Division ensures the reliability, security, and integration of District technology, ultimately strengthening CFD operations and public safety efforts.

Historical Resources

Downtown Elk Grove, known as “Old Town” is a federally recognized Historic District. Many of the buildings date back to the late 1800s. The rural community of Sheldon, which is now incorporated into the City of Elk Grove, has significant agricultural history and is identified in the Elk Grove General plan as an “Integral part of Elk Grove’s Identity”.

The City of Galt’s General Plan identified 50 structures as historic resources, including three churches that date to the 1880s. Many of these buildings are still in good condition and are used as residences in the City’s core area. Additionally, two buildings in the core area are sites listed on the National Register of Historic Places.

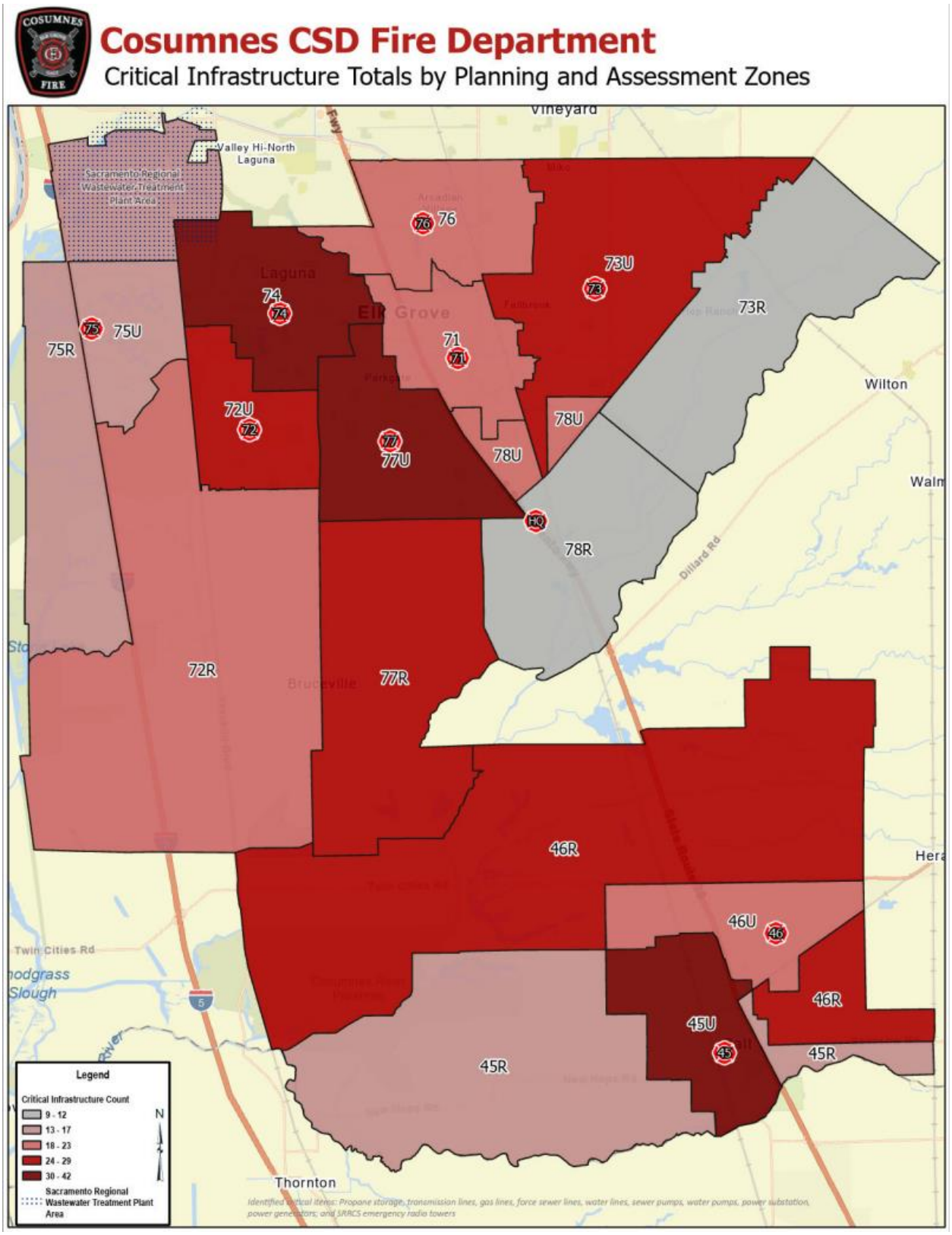
Government Facilities

Galt and Elk Grove have various buildings used to support the community. Community centers, public safety buildings, schools, corporation yards, and their respective City Halls are all critical to the ongoing operations. Additionally, the District owns multiple buildings fundamental to the jurisdiction's ongoing activities, including fire stations, fire headquarters, district offices, parks, aquatics centers, and gymnasiums.

Two significant government facilities are in the district's unincorporated areas. The wastewater treatment plant, located on Dwight Road, commonly known as Sacramento Regional County Sanitation District, is the second largest treatment plant in the nation and serves 1.6 million people throughout Sacramento County and West Sacramento daily. Additionally, the Rio Cosumnes Correctional Center (RCCC), located on Bruceville Road, is the primary custody facility for inmates sentenced to County Jail by Sacramento County Courts.

Chemical Facilities

There are a variety of chemical facilities in the jurisdiction, two of which are noteworthy. Located on Grant Line Road, it is the largest propane storage facility on the West Coast. The second location is a compressed gas production facility located on Enterprise Way in Galt. Both of these facilities are known to the department and included in the annual inspection programs.


Cosumnes CSD Fire Department
Critical Infrastructure Totals by Planning and Assessment Zones
Vineyard
Valley Hi-North Laguna
Sacramento Regional Wastewater Treatment Plant Area
Laguna
Elk Grove
Wilton
Walnut Grove
Bruceville
Dillard Rd
Twin Cities Rd
Thornton
76
74
75
75U
75R
73U
73R
71
72U
72
72R
77
77U
78U
78R
HQ
77R
46R
46U
46
45U
45
45R
Legend
Critical Infrastructure Count
9 - 12
13 - 17
18 - 23
24 - 29
30 - 42
N
Sacramento Regional Wastewater Treatment Plant Area
Identified critical items: Propane storage, transmission lines, gas lines, force sewer lines, water lines, sewer pumps, water pumps, power substation, power generators, and SRRCS emergency radio towers

Community Risk Assessment

Risk is defined as the possibility of loss or injury or other unwelcome adverse circumstances or events. As a community we try to reduce the effects of unwanted events through mitigation efforts prior to an emergency and using services such as police departments, public works, and fire departments to mitigate the incident once it occurs. Determining the fire and non-fire risks in a community provides the foundation to develop mitigation strategies and the resources that may be needed should that incident occur. Components used in the risk assessment are further defined in the following sections.

Risk Factors and Categories

The first step is to identify the risks in a community. These are identified by the responses being made by the emergency services to include emergency medical calls and fires. Further identification of the types of emergency medical calls and fires will allow a more defined risk assessment. In addition to the types of response being made by the emergency services, there are natural and manmade hazards that also have an impact on a community. These events range from earthquakes and floods to hazardous material incidents and acts of terrorism. These events may not occur as often as an emergency medical call, but they can have a lasting effect on the community.

Risk Evaluation

Risk assessment models typically used for a community risk assessment use a two axis, probability and consequences, model to evaluate a designated risk. A more modern evaluation method is a three-axis model that allows a deeper look at how a community is affected by hazards. To classify a risk, the probability, consequences to the community, and impact on the fire department are all assessed. These three categories are then graphically or numerically illustrated to show or rank the overall impact a hazard has on a community. The CFD is responsible for fire response, medical response, rescue response, wildfire response, and hazardous materials response. Additionally, there may be natural and manmade disasters that will need to be evaluated.

Probability

Probability is defined as the likelihood that an unwanted event will occur within a given period of time. Events that occur weekly are highly probable while those that occur annually are less probable. The following matrix provides a method to score the probability of an event occurring. While there are various methods to quantify the

probability, the following table was adapted from the Community Risk Assessment guide developed as a part of the Vision 20/20 Community Risk Reduction project[4].

Table 6: Probability

Probability Score	Descriptor	Description
2	Unlikely	• Events may only occur in exceptional circumstances. • Greater time span than annually.
4	Possible	• Might occur at some time – annually. • No recent recorded incidents.
6	Probable	• Likely to or may occur/recur – quarterly. • Strong anecdotal evidence it will occur.
8	Highly Probable	• Likely to or may occur/recur – weekly. • High level of recorded incidents and/or strong anecdotal evidence.
10	Frequent	• Occurs at least daily to multiple times each day.

[4] Vision 20/20 Community Risk Reduction

Consequence

Consequence is the measure of a disparate outcome that can be defined by loss of life, property, and/or historic values. There may also be additional economic considerations such as loss of jobs and loss of tax revenue. The following matrix provides a method to score the consequences to the community that an event may create.

Table 7: Consequence

Consequence Score	Descriptor	Description
2	Insignificant	• No injuries or fatalities. • A small number displaced and little to no outside support is needed. • No environmental concerns.
4	Minor	• A small number of injuries but no fatalities. • Minor medical treatment required. • Some displacement possible (less than 24 hours) with minimal support needed. • No lasting environmental effects.
6	Moderate	• Some hospitalizations, but no fatalities. • Dozens may be displaced for up to 24 hours and in need of some outside support. • Some environmental impacts with short term effects.
8	Significant	• More than 25 people are affected. • Multiple serious injuries and hospitalizations with possible multiple fatalities. • Large numbers displaced and there is a definite need for outside resources. • Significant environmental impact with long term effects.
10	Catastrophic	• Large numbers are affected with multiple hospitalizations and fatalities. • Widespread long-term displacement with a definite need for outside resources. • Damage to infrastructure and loss of key services. • Significant long term environmental impact and the community needs long term support.

Impact on Emergency Services

The risk assessment model utilized is a three-axis model that allows a deeper look at how a community is affected by hazards. The CFD is accountable for fire response, medical response, rescue response, wildfire response, and hazardous materials response. This third axis of the risk assessment scores the impact on the CFD to provide the services needed to the community during certain hazards.

The following matrix illustrates the impact score and what may be an example of the type of call creating that impact. The score is based on the number of units assigned to the type of call. For example, a moderate impact will utilize approximately 25% of the available resources that may impact other calls for service occurring.

Table 8: Impact on the Cosumnes Fire Department

Impact Score	Descriptor	Description
2	Minimal	• 5 or less personnel – Example – Low risk EMS calls (sick person, minor injury). (1 to 2 units)
4	Minor	• 6 – 8 personnel – Example – Low risk fires, service calls, moderate risk EMS calls. (2 units)
6	Moderate	• 9 – 12 personnel – Example – Low risk hazardous materials calls, auto accidents with entrapment. (3 units)
8	Significant	• 13 – 18 personnel – Example – Moderate risk structure fire, high risk hazardous materials. (4 to 6 units)
10	Catastrophic	• > 18 personnel – Example – Maximum/High risk structure fires, large wildland fires, natural disaster. (more than 6 units)

Risk Assessment

In consideration of the three axis model, Heron's Formula is used to calculate a score for the risk. The formula uses the scores from probability(P), consequence(C), and impact(I) to create the overall quantitative score.

$$\text{Risk} = \sqrt{\frac{(PC)^2 + (CI)^2 + (IP)^2}{2}}$$

Using the score derived from the previous calculation provides a mechanism to rank the various risks faced by the community and the CFD. The following table highlights the level of risk based on the score.

Table 9: Level of Risk

Score	Overall Level of Risk
0 – 30	Low
31 – 50	Moderate
51 – 84	High
85+	Max

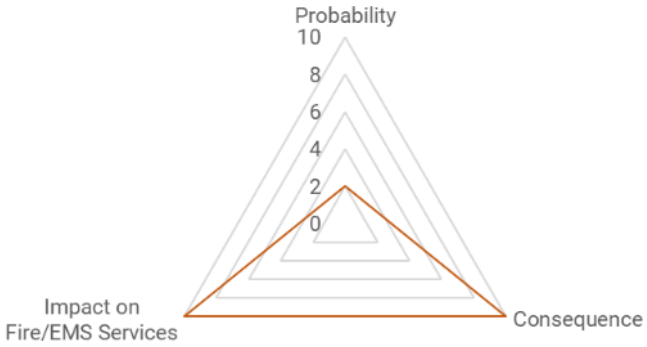
Natural Hazard Assessment

Areas served by the CFD are included in the Sacramento County Local Hazard Mitigation Plan[5] (SCLHMP), last updated in 2021. This plan is a useful source of natural hazard identification, probability, and vulnerability of the various hazards that may impact the residents and businesses of the District.

Earthquake

An earthquake occurs when two blocks of the earth slip past each other on a fault plane. This action results in ground shaking and radiates seismic energy. The effects of an earthquake can be felt far from where it occurs. In Sacramento County, there have been no major earthquakes recorded. However, the county and the District have felt the results of earthquake epicenters located outside the county. According to the SCLHMP, there have been four earthquakes of a magnitude 5.0 or greater within 90 miles of the county in the last 20 years. The following graph highlights the components of the risk.

Earthquake Risk



Flood

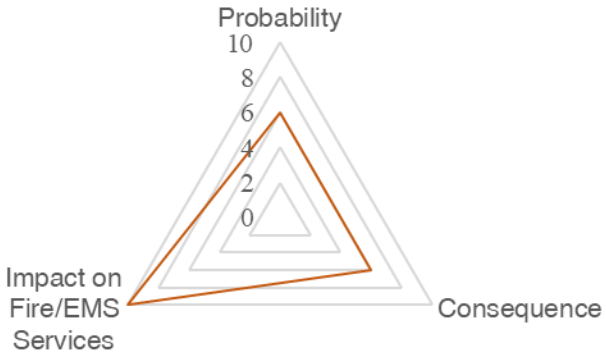
Flooding in the District typically occurs in the unincorporated area between Elk Grove and Galt along the Cosumnes River. There are other sources including Dry Creek on the south side of Galt and Deadman Gulch in the northern section of the city. In Elk Grove, Laguna Creek dissects the city from the north to the west.

In addition to flooding caused by heavy rains and snow melts, flash floods are also possible due to heavy rains and substantial amounts of rain in a brief period of time. The SCLHMP identified 112 flood events, defined as flash floods, floods, and heavy rain, from

[5] Sacramento County Local Hazard Mitigation Plan

1993 through May 2020. For the county this averaged four events per year during this time frame. The following map illustrates the flood zones for the District.

Flood Events



The impact for the CFD is the use of special teams. Water rescues will likely require boats and other watercraft and personnel trained to operate in these types of events. The risk score for this type of event is 65.2.

Physical Hazards

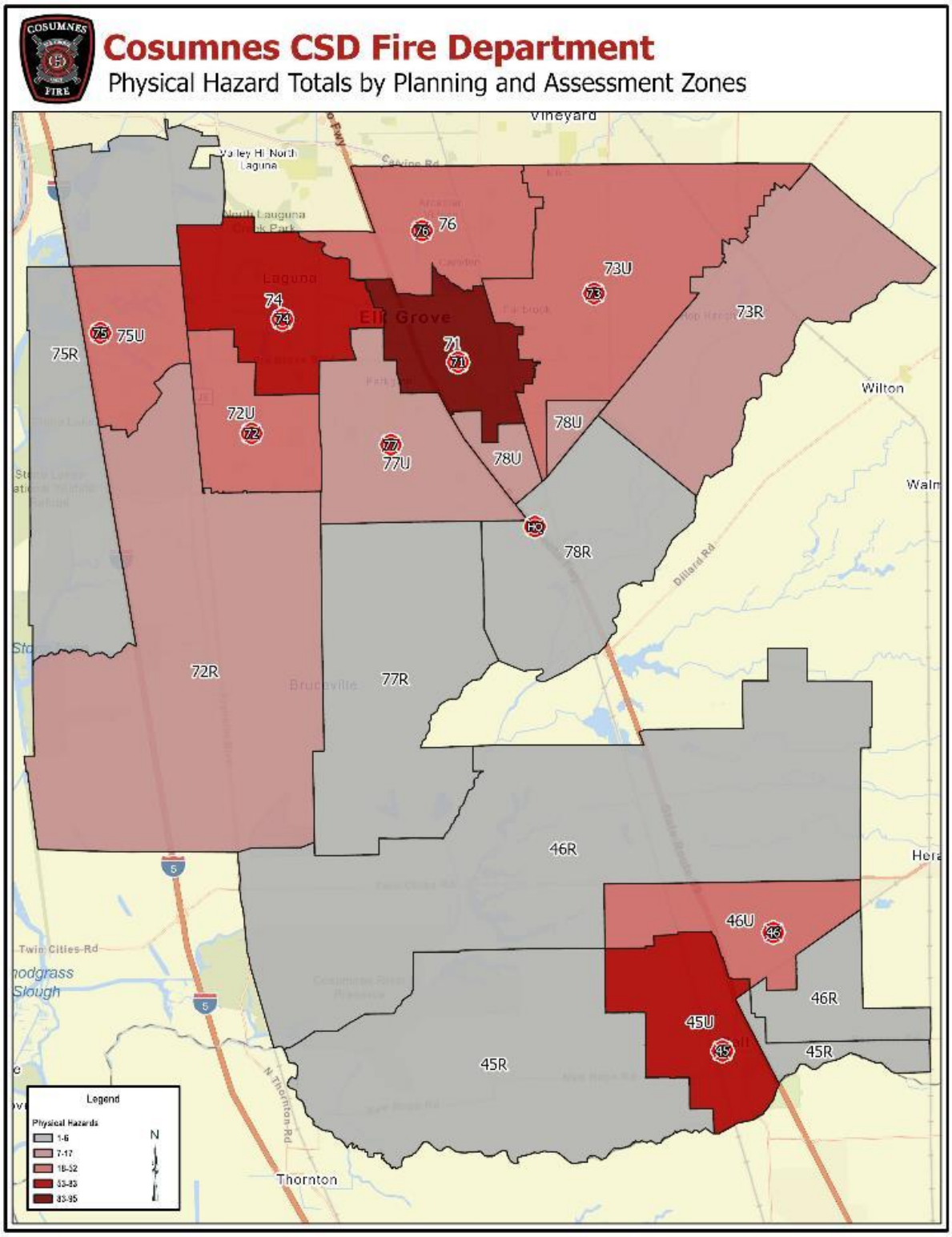
Physical hazards are those locations within the community—whether public or private—that provide essential products, services, or functions necessary for daily operations, public welfare, and disaster recovery. These may include healthcare centers, utility infrastructure, and other sites critical to maintaining continuity of service during and after emergencies. Each of these physical hazards present a significant hazard in varying ways to include terrorism/mass casualty incidents, loss of a business, loss of a cultural asset, or the loss of dwelling units. As part of the Community Risk Assessment, identifying and understanding these facilities helps the fire department support continuity planning and interagency coordination efforts.

The following table illustrates the type and number of target hazards in the District.

Table 10: Physical Hazard Type

Physical Hazard Type	Total Physical Hazards	Pct of the Total
Assembly	283	59.7%
Educational	88	18.6%
Multifamily Dwelling	57	12.0%
Hazardous Materials Storage Facilities	22	4.6%
Assisted Living, Nursing Homes, Hospitals, Extended Care Facilities	11	2.3%
Hotel/Motel	8	1.7%
Other	5	1.1%
Total	**474**	

The largest segment of physical hazards are places of assembly that include restaurants, places of worship, and nightclubs. To further illustrate the physical hazards in the District, the following map highlights the location of these hazards.

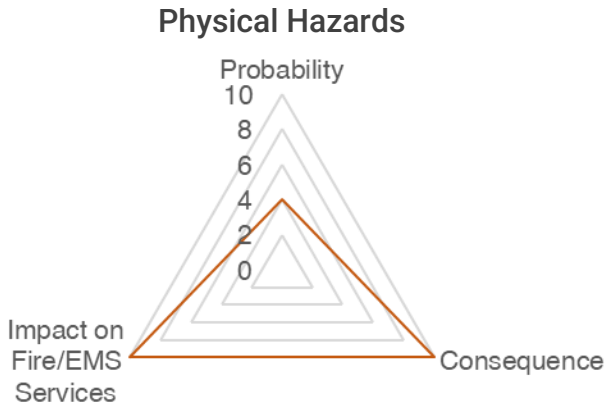


The CFD Fire Prevention Division has identified special target hazards that require additional inspection and analysis due to the storage and handling of hazardous materials, the type of occupancy, or the processes of each target hazard. Specifically, these special hazards include the largest propane distribution plant in the western United States, asphalt plants, glass factories, hydrogen production facilities, and large-scale lithium-ion storage. These occupancies are defined as target hazards by the Fire Prevention Division to highlight the need for special attention. The list that follows illustrates these occupancies that receive special attention by the Fire Prevention Division. These special target hazards are included in the previous Physical Hazard Type table.

Table 11: Special Target Hazards

Occupant Name	
Air Products	City of Galt Wastewater Treatment Plant
Apple Inc - Sac 01 (Bldg. A)	International Paper Co
Apple Inc - Sac 02 (Bldg. B)	Marathon Petroleum Corporation - CLOSED
Apple Inc - Sac 03 (Bldg. C)	Rio Cosumnes Correctional Center
Apple Inc - Sac 04 (Bldg. D)	Sacramento Regional Wastewater Treatment Plant
Arctic Glacier Premium Ice	Scott's Miracle Grow
Cardinal Health	Suburban Propane
City of Elk Grove Special Waste Collection Center	

As illustrated, there is a large concentration of target hazards in the north central section of the District. This area is in the center section of Elk Grove and contains approximately 25% of the target hazards.



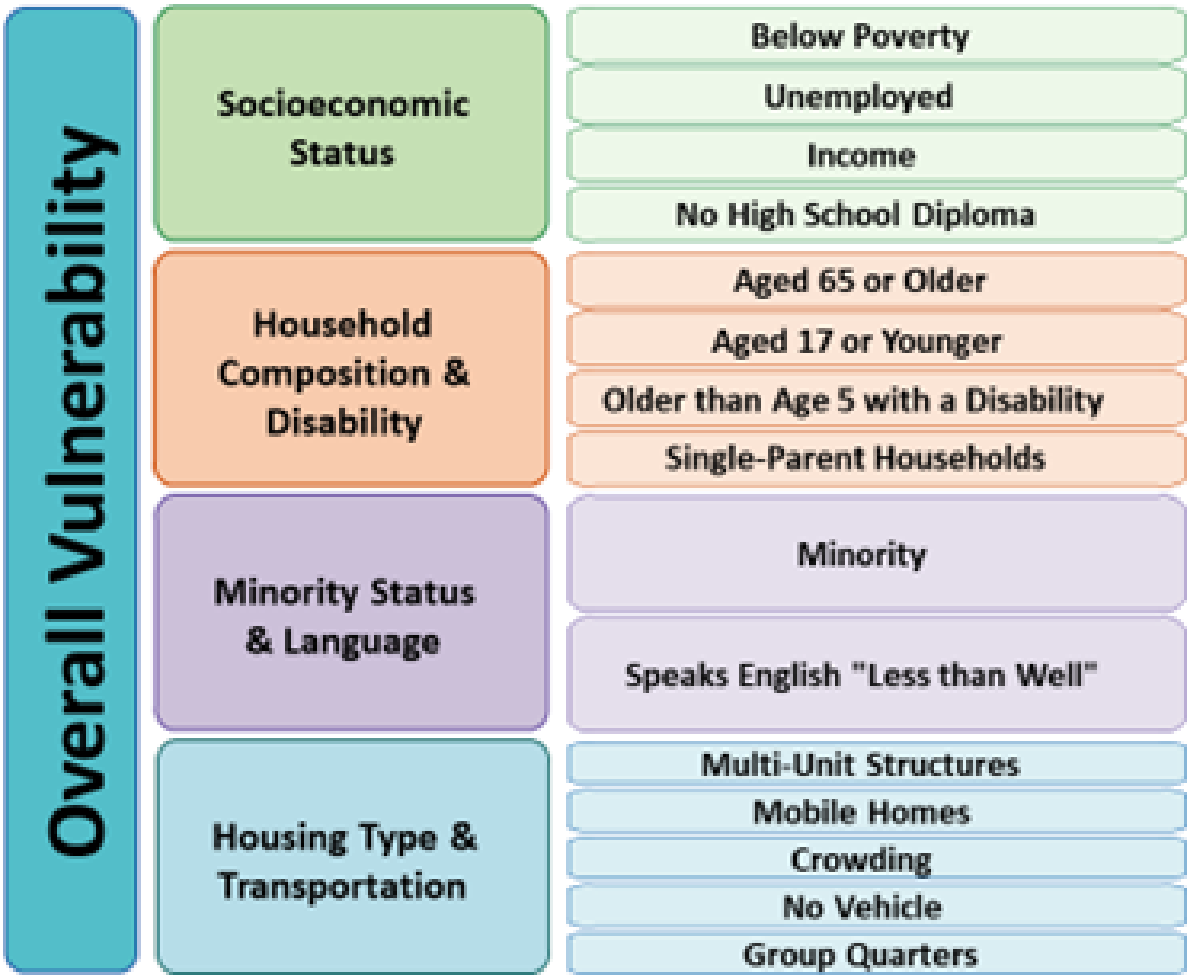
In terms of probability, there are an average of 72 structure fires a year with most of those occurring in residential structures. Target hazards were considered an annual occurrence. The overall risk score for these target hazards is 81.2 which is due to the impact on the community and to the CFD.

Supplemental Risk Factors

This section provides an overview and analysis of factors that can and will have an impact on the delivery of services and the recovery of the community from emergency events.

Social Vulnerability

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



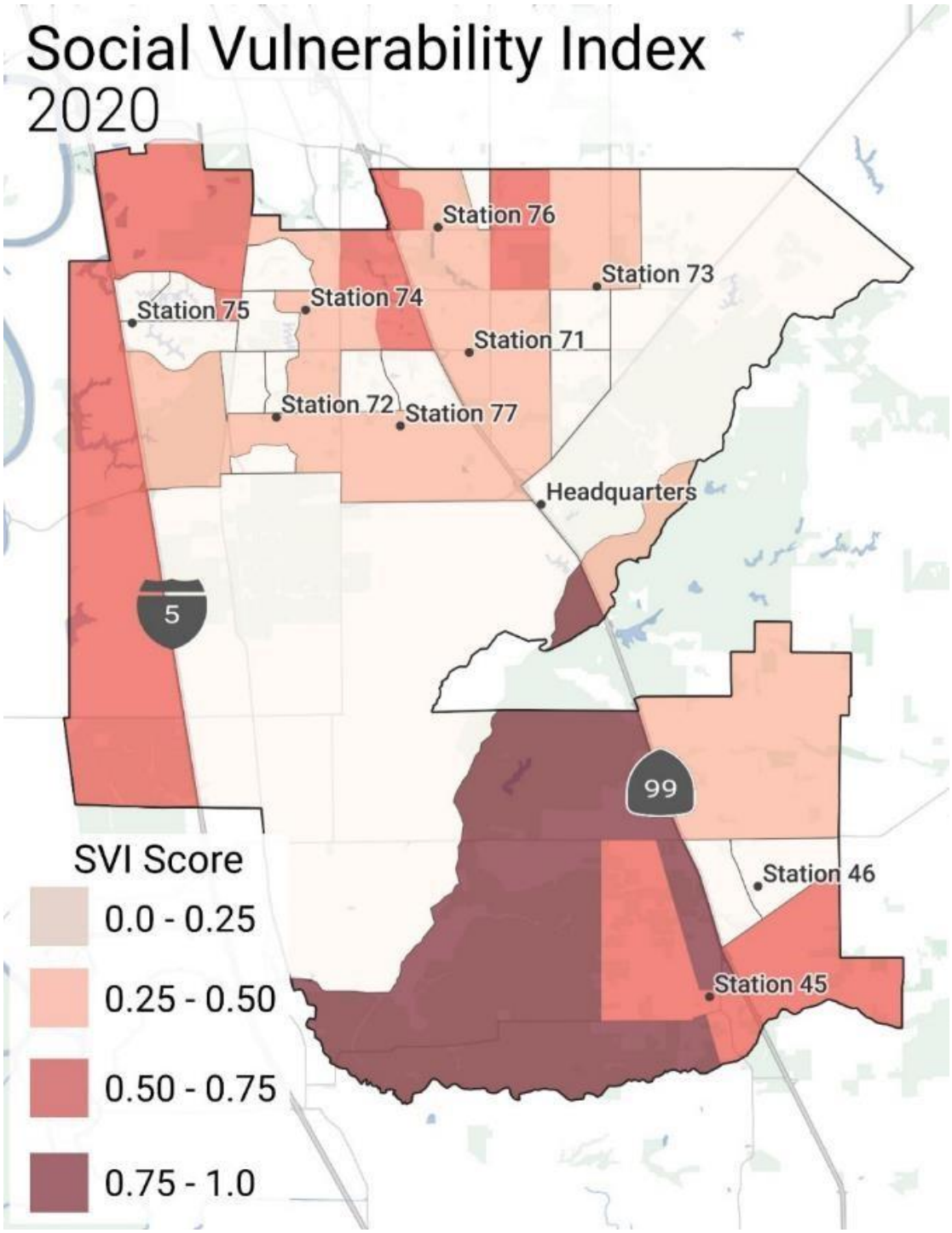
As noted, there are 15 social factors that are grouped into four themes to create a vulnerability index. Each of the factors receive a ranking that is combined into the overall theme. It is possible to have an area that has a lower ranking in terms of housing but has a higher ranking due to the age of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

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

The tool can be used to:

- Allocate emergency preparedness funding by community need.
- Estimate the amount and type of needed supplies such as food, water, medicine, and bedding.
- Decide how many emergency personnel are required to assist people.
- Identify areas in need of emergency shelters.
- Create a plan to evacuate people, accounting for individuals who have unique needs, such as those without access to transportation, those with limited mobility or medical requirements, or those with communication barriers such as language access.
- Identify communities that will need continued support to recover following an emergency or natural disaster.

The map that follows illustrates the SVI score by census blocks for the District.

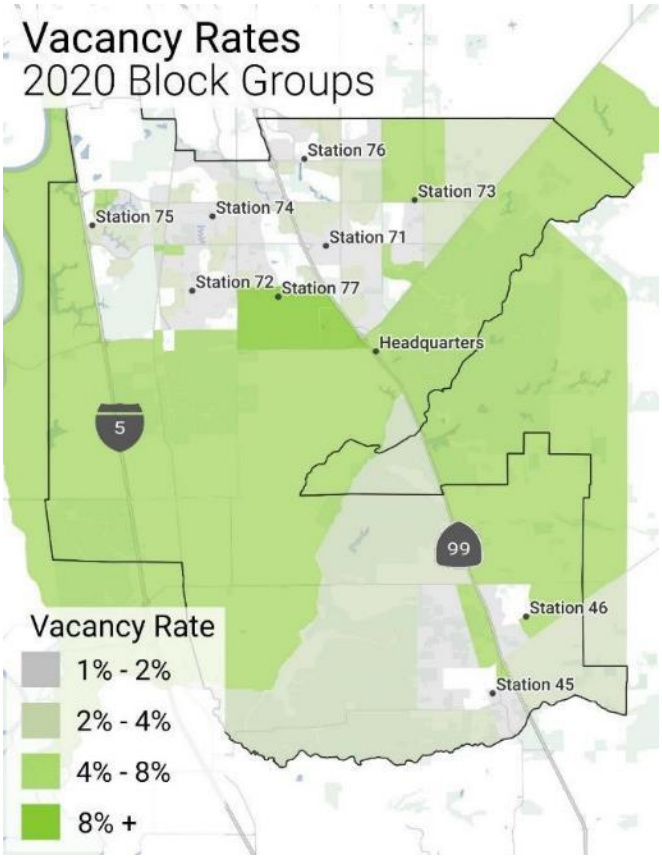


The highest SVI scores are primarily to the west of Galt in a predominately rural area. Other areas with higher scores are in the southern areas of Galt and to the west of Elk Grove. The elevated SVI score in these areas may be due in part to the types and density of housing and residential units or topography and access. This is not an indication these areas are deprived; it is an indication these areas will likely need additional assistance.

Vacancy Rates

In 2020, the US Census Bureau estimated approximately 53,627 housing units in Elk Grove and 8,458 in Galt. In Elk Grove, approximately 54% of these units were constructed prior to 2000 and in Galt approximately 74% were built prior to 2000. Additionally, 74% were owner-occupied housing in Elk Grove and 75% were owner-occupied in Galt. The risk of fire is greater in older buildings with outdated building codes which may have building construction, type of materials, or wiring that increases the risk and spread of fire. Also, research from the NFPA has noted rental property as a factor in fires involving unsafe human behavior and with fatal fires.

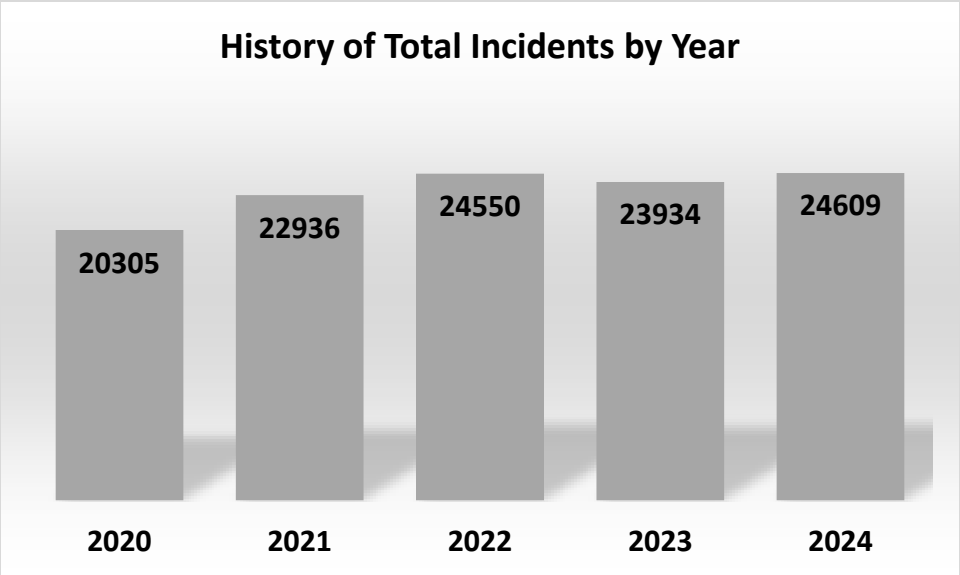
The NFPA reports that from 2011 – 2015 fire departments responded to an average of 30,200 structure fires per year in vacant properties. According to the report, fires in vacant buildings are more likely to have been intentionally set and to spread beyond the building than fires in other structures. The following map illustrates the vacant buildings, by census tract, based on estimates from the US Census Bureau for 2020.



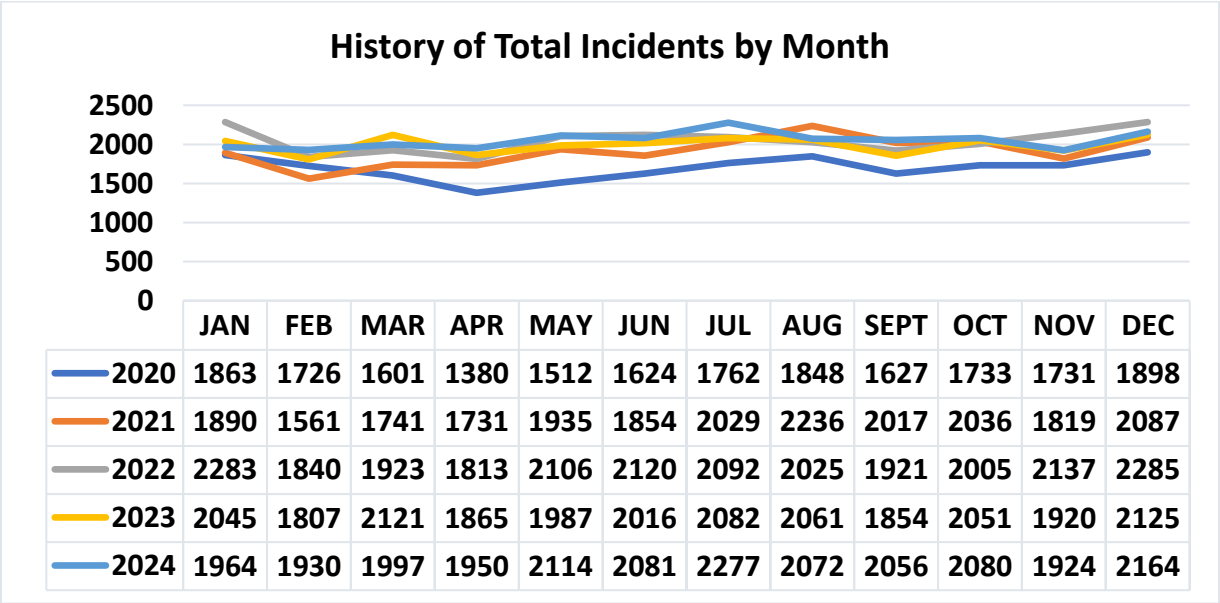
The green areas in the previous map are mostly rural areas. More notably is the 8% or more in the area of Fire Station 77. This area is currently being developed so there is an expectation the vacancy rate will drop considerably over the next few years.

Historical Workload and Performance

The CFD incidents have increased over the years, with a minor dip in 2023. The long-term trend shows a general rise, with an increase of 21.2% from 2020 to 2024.

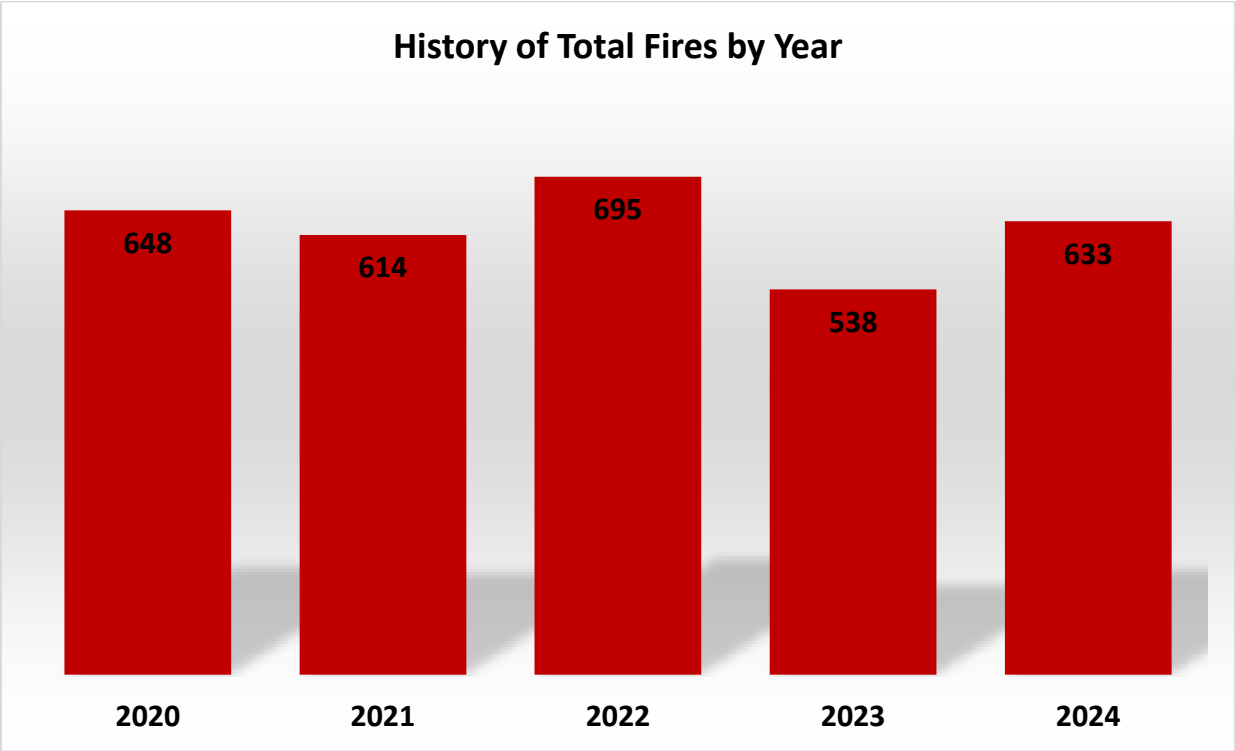


The CFD responds to an average of 2,000 incidents each month. The past five years has followed a similar trend with an increase in incidents in July and August, which aligns with fire season which typically involve a rise in wildfires due to warmer, drier weather. An additional peak is seen in the winter months of December and January. This is likely related to “sick season” with a higher occurrence of illnesses. The months of February, April, and November show lower incident numbers.



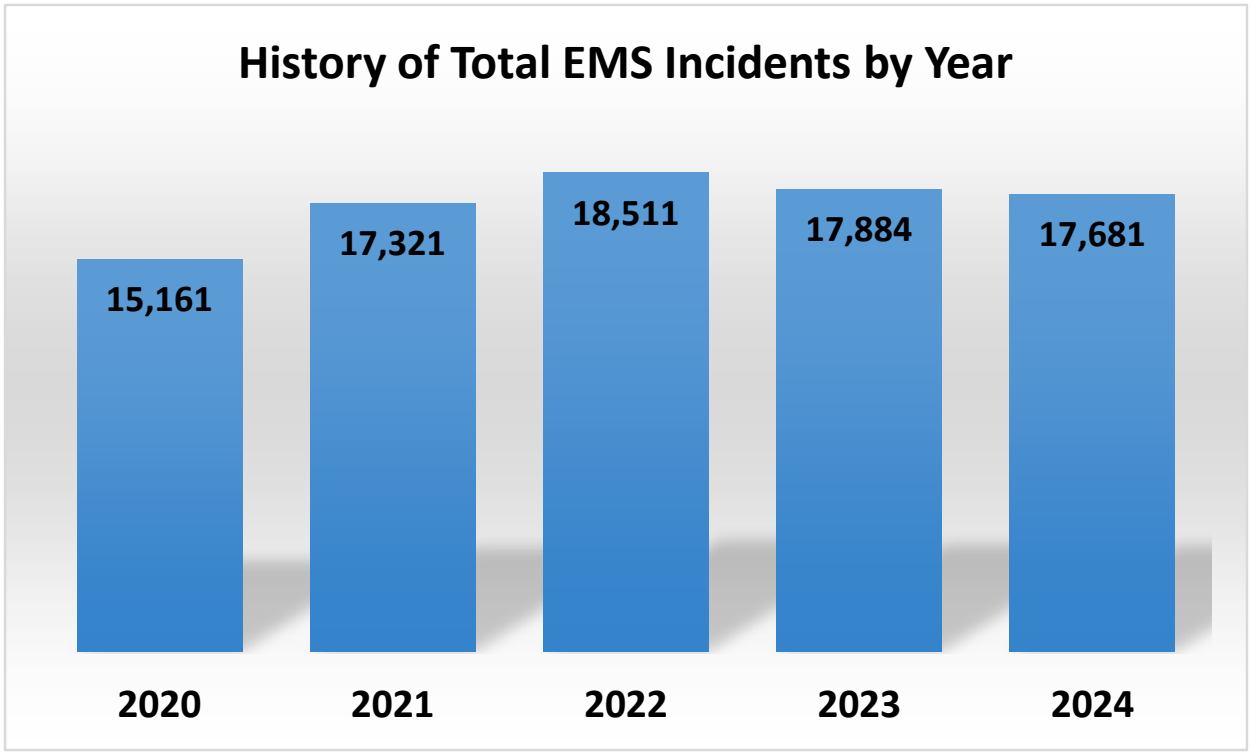
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
2020	1863	1726	1601	1380	1512	1624	1762	1848	1627	1733	1731	1898
2021	1890	1561	1741	1731	1935	1854	2029	2236	2017	2036	1819	2087
2022	2283	1840	1923	1813	2106	2120	2092	2025	1921	2005	2137	2285
2023	2045	1807	2121	1865	1987	2016	2082	2061	1854	2051	1920	2125
2024	1964	1930	1997	1950	2114	2081	2277	2072	2056	2080	1924	2164

Fire Suppression Overview



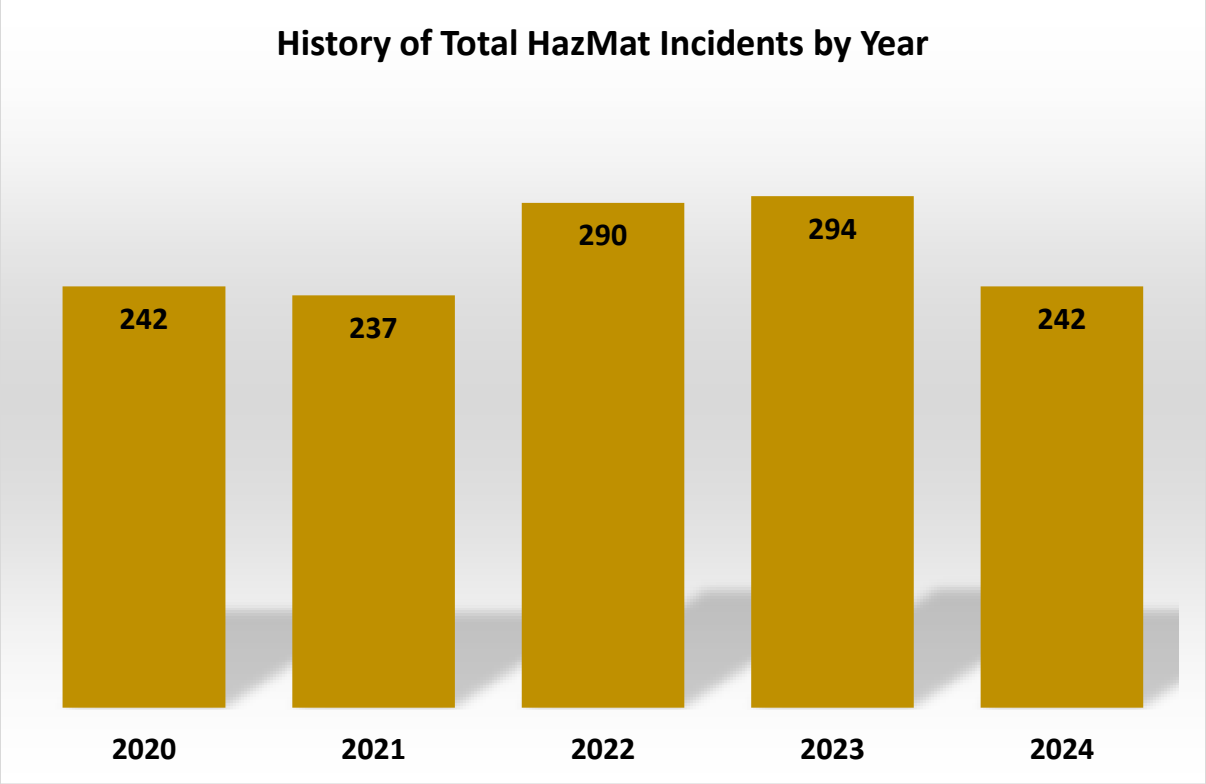
Fire Suppression Overview	2020	2021	2022	2023	2024
Fire, other	42	37	36	30	15
Structure Fire	112	149	144	157	178
Fire in mobile property used as a fixed structure	1	4	2	4	2
Vehicle fire	58	57	78	61	64
Natural vegetation fire	309	237	254	146	254
Outside rubbish fire	101	109	146	106	99
Special outside fire	24	19	30	31	19
Crop fire	1	2	5	3	2
TOTAL	**648**	**614**	**695**	**538**	**633**

EMS Overview



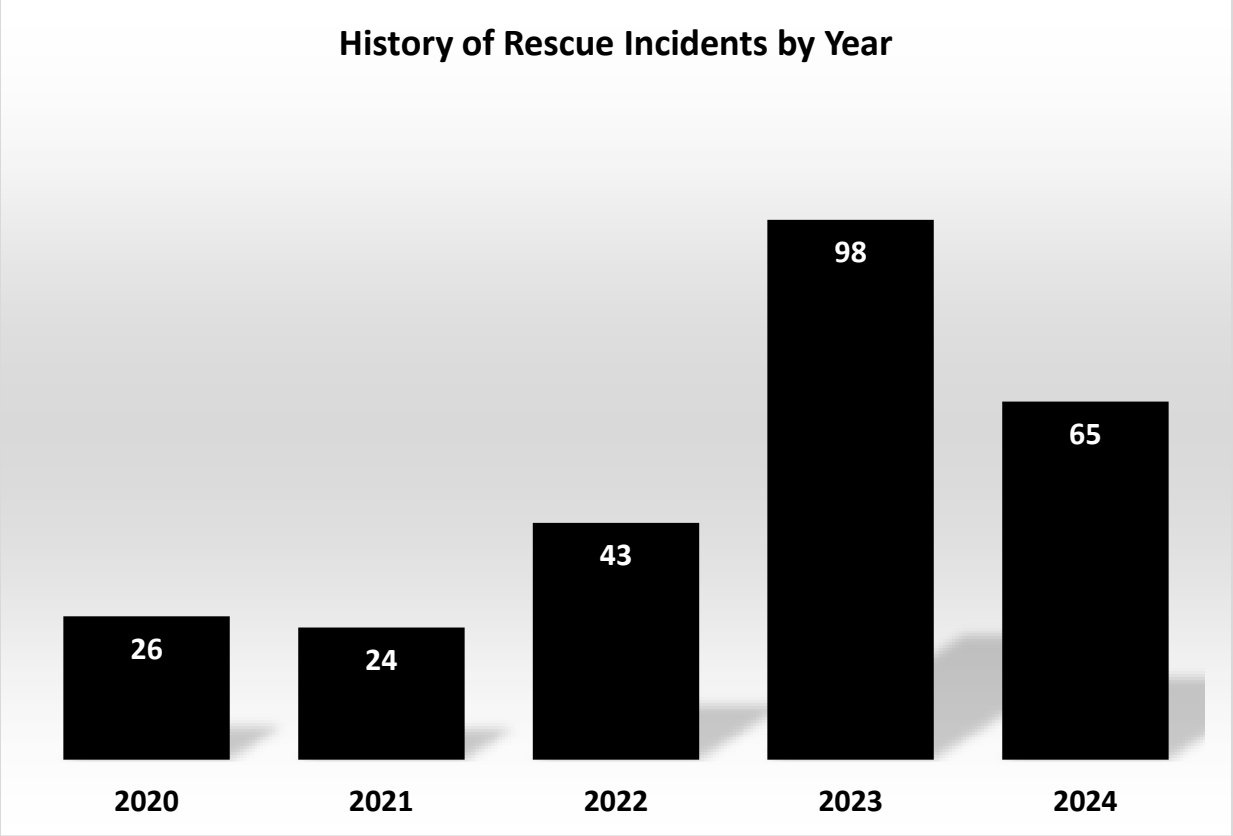
EMS Overview	2020	2021	2022	2023	2024
EMS Incident, other	5	11	4	11	1
Medical assist	50	31	41	15	12
Emergency medical service incident	14,339	16,268	17,528	17,075	16,915
Vehicle accident	767	1,011	938	783	753
TOTAL	**15,161**	**17,321**	**18,511**	**17,884**	**17,681**

Hazardous Materials Overview



Hazardous Materials Overview	2020	2021	2022	2023	2024
Hazardous condition, other	23	31	30	12	17
Combustible/Flammable spills and leaks	97	98	132	135	110
Chemical release, reaction, or toxic condition	34	27	33	36	33
Electrical wiring/Equipment problem	68	65	79	96	78
Biological hazard	0	1	0	1	0
Accident, potential accident	7	5	5	5	1
Attempted burning, illegal action	13	10	11	9	3
Total	**242**	**237**	**290**	**294**	**242**

Technical Rescue Overview



Technical Rescue Overview	2020	2021	2022	2023	2024
Lock-In	6	8	2	16	27
Search for lost person	2	0	2	6	0
Extrication, rescue	17	10	23	42	35
Water and ice-related rescue	0	4	14	30	3
Electrical rescue	0	0	1	0	0
Standby	1	2	1	4	0
Total	**26**	**24**	**43**	**98**	**65**

Table 12: Other Calls Overview

Other Calls Overview	2020	2021	2022	2023	2024
Overpressure Rupture, Explosion, Overheat (NoFire)					
Overpressure rupture, explosion, overheat, other	0	1	1	0	0
Overpressure rupture from air or gas (no fire)	0	0	1	1	0
Explosion (no fire)	3	2	2	1	1
Excessive heat, scorch burns with no ignition	5	4	6	4	6
Total	8	7	10	6	7
Service Call					
Service call, other	42	61	41	21	8
Person in distress	91	110	81	56	34
Water problem	32	44	55	52	50
Smoke, odor problem	32	33	34	25	23
Animal problem or rescue	56	72	56	63	62
Public service assistance	1,031	1,178	1,266	1,464	1,785
Unauthorized burning	31	25	28	24	52
Cover assignment	4	4	2	2	6
Total	1,319	1,527	1,563	1,707	2,020
Good Intent Call					
Good intent call, other	135	153	156	70	33
Dispatched and canceled en route	1,542	1,847	1,887	1,460	1,432
Wrong location, no emergency found	165	181	254	632	1247
Controlled burning	17	16	23	20	21
Vicinity alarm	1	0	1	0	0
Steam, other gas mistaken for smoke	93	86	92	98	118
EMS call where party has been transported	3	2	1	1	3
HazMat release investigation w/ no HazMat found	10	8	16	54	79
Total	1,966	2,293	2,430	2,335	2,933
False Alarm and False Call					
False alarm or false call, other	256	233	312	168	60
Malicious, mischievous false alarm	24	21	42	32	40
System or detector malfunction	213	249	212	314	363
Unintentional system or detector operation (no fire)	396	372	417	533	548
Total	889	875	983	1,047	1,011
Severe Weather and Natural Disaster					
Severe Weather and Natural Disaster	11	14	9	17	3
Total	11	14	9	17	3
Special Incident Type					
Special type of incident, other	33	24	15	7	12
Citizen complaint	1	0	1	1	2
Total	34	24	16	8	14

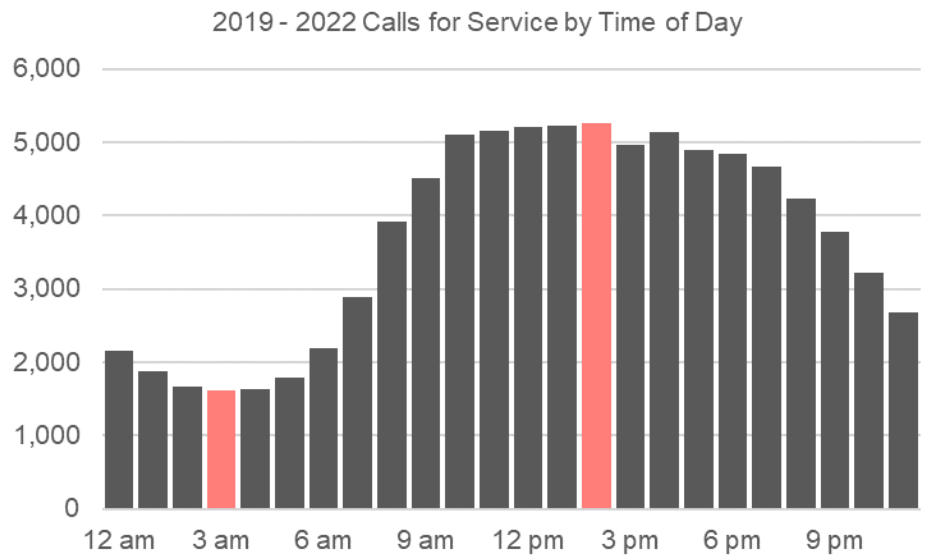
The following table displays the total number of calls for service managed by the CFD by each hour and day of the week for the past four years. Both emergency and non-emergency calls for service are included to provide an overall view of the call demand on the emergency services system.

Table 13: 2019 – 2022 Calls for Service by Hour and Weekday

	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Total
12 am	330	332	296	274	310	293	315	2,150
1 am	304	268	254	261	235	254	299	1,875
2 am	274	230	225	220	239	210	265	1,663
3 am	252	221	203	229	211	243	253	1,612
4 am	238	233	241	226	213	239	244	1,634
5 am	257	259	271	290	225	244	235	1,781
6 am	272	351	341	292	343	292	301	2,192
7 am	379	440	445	426	432	413	346	2,881
8 am	489	605	625	615	558	542	478	3,912
9 am	552	708	690	702	675	661	528	4,516
10 am	631	789	742	787	761	752	636	5,098
11 am	631	798	808	726	783	778	637	5,161
12 pm	570	831	778	768	763	802	701	5,213
1 pm	647	775	761	778	788	749	735	5,233
2 pm	642	845	747	767	796	771	701	5,269
3 pm	598	738	720	771	742	766	624	4,959
4 pm	610	794	746	753	784	789	667	5,143
5 pm	617	783	713	692	711	706	667	4,889
6 pm	633	704	692	676	685	767	677	4,834
7 pm	670	647	691	667	676	683	625	4,659
8 pm	585	592	572	600	587	660	631	4,227
9 pm	576	510	525	490	531	538	602	3,772
10 pm	423	445	419	456	440	504	532	3,219
11 pm	387	352	357	352	379	389	462	2,678
Total	**11,567**	**13,250**	**12,862**	**12,818**	**12,867**	**13,045**	**12,161**	**88,570**

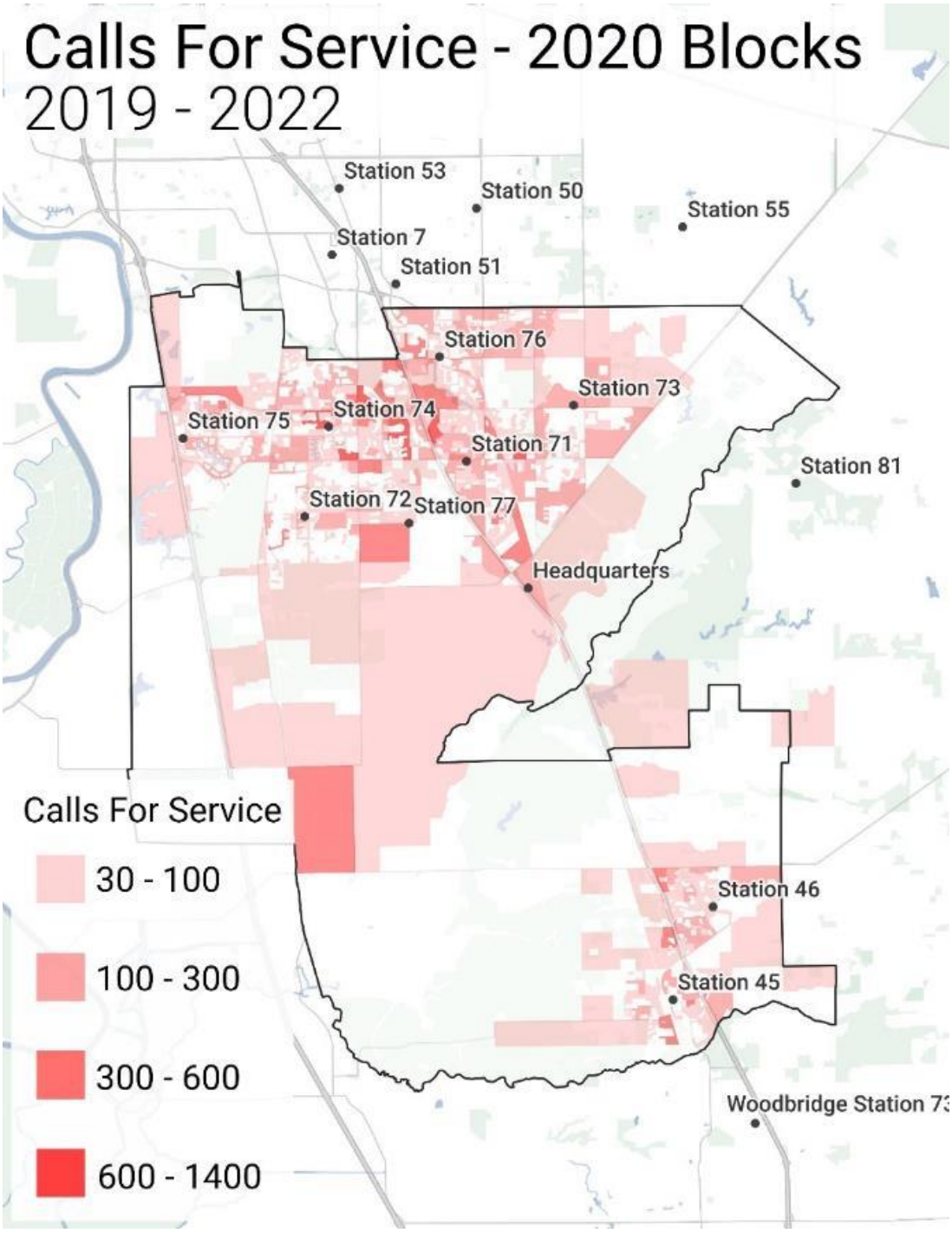
The call volume is heaviest during the middle part of the day from mid-morning to the early evening with every day of the workweek relatively even in terms of the number of calls for service. The calls for service varied by time of day and day of the week. The busiest hour of the day is 2 pm with the slowest hour being 3 am.

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



As illustrated above, calls increase sharply at the 8 am hour peaking at 2 pm but remain relatively steady from 10 am to 4 pm. The calls begin to gradually decline at the 6 pm hour and continue to steadily decline with 3 am being the slowest hour of the day.

The following map illustrates the call demand using GIS technology to outline where the majority of the calls for service occurred.



As illustrated, the highest volume of calls is in the central area of Elk Grove. There is also a significant clustering of calls around Station 45 in Galt.

Risk Classification and Categorization

Fire Suppression

Low risk fire suppression incidents include small fires, fire alarms, passenger vehicle fires, and other small incidents. These incidents require no more than one fire suppression apparatus with no more than four personnel for an effective response force. The critical tasks for these incidents include scene safety, establishing command, investigating and mitigating the incident, and extinguishment.

FIRE SUPPRESSION	
LOW	
Code	**Description**
DUMP	Dumpster Fire
FEN	Fence Fire
IAC	Internal Alarm Commercial
IAR	Internal Alarm Residential
IB	Illegal Burn
OT1	Other Level One
S1	Outbuilding Fire
TRA	Trash Fire
TRANS	Transformer
TREE	Tree Fire
VF	Vehicle Fire
VFP	Vehicle Fire Parking
WD	Wires Down
CRITICAL TASK ANALYSIS/PERSONNEL	
Scene Safety/Command	1
Investigate/Mitigate	3*
Extinguishment	3*
EFFECTIVE RESPONSE FORCE	
PERSONNEL	3 to 4
APPARATUS	1 Engine or Truck
*Tasks can be performed by the same individual/crew	

Moderate risk fire suppression incidents include commercial structure fires, commercial vehicle fires, grass fires, and minor/major in flight emergencies. These incidents require three to four fire suppression apparatus with between 7 to 14 personnel for an effective response force. The critical tasks for these incidents include scene safety, establishing command, initial attack, entry and search, ventilation, water supply, utilities, patient care, and salvage or overhaul. Major in flight emergencies have additional critical tasks.

FIRE SUPPRESSION	
MODERATE	
Code	**Description**
AC1, AC2	Minor and Major In Flight Emergencies
CS1, CS2	Commercial Structure Fire
S2	Structure Fire
VFC	Comm Vehicle Fire
OT2	Other Level Two
VFT	Tanker Fire
G, GL, GRF	Grass Fire/Grass Limited/Grass Red Flag
FGI	Flammable Gas Inside
CRITICAL TASK ANALYSIS/PERSONNEL**	
Scene Safety/Command	1
Investigate/Mitigate	6*
Communications	1*
Water Supply	1-2*
Extinguishment	6*
Initial Attack/Hose Lines	2-3*
Forcible Entry/Search	2-4
Ventilation	2
Utilities	1*
ALS/BLS Patient Care	1
Salvage/Overhaul	2-4*
EFFECTIVE RESPONSE FORCE	
PERSONNEL	7 to 14
APPARATUS	1- 3 Engines 1 Additional Engine or Truck 1 Battalion Chief 1 to 2 Water Tenders
*Tasks can be performed by the same individual/crew **Additional Critical Tasking for AC2: Designated Staging Areas, Monitor Aircraft Frequency, Maintain Rescue Corridor, Air Crew Extrication, and Notifications. All tasks can be performed by the same individual/crew.	

High risk fire suppression incidents include larger grass and structure fires, explosions, and aircraft accidents. These incidents require three to six fire suppression apparatus, one medic, and two battalion chiefs with between 21 to 25 personnel for an effective response force. The critical tasks for these incidents include scene safety, establishing command, initial and back-up attack, entry and search, ventilation, water supply, a rapid intervention crew, patient care, and salvage or overhaul.

FIRE SUPPRESSION	
HIGH	
Code	**Description**
GS	Grass/Structure
S3	Structure Fire
EXP	Explosion
AC3	Aircraft Accident
CRITICAL TASK ANALYSIS/PERSONNEL	
Scene Safety/Command	2
Communications	2*
Initial Attack/Hose Lines	5-6
Forcible Entry/Search	4
Egress/Ventilation	4
Back-up Attack/Hose Lines	2-3
Water Supply	1*-2
Rapid Intervention Crew	3
ALS/BLS Patient Care	1
Salvage/Overhaul	4*
EFFECTIVE RESPONSE FORCE	
PERSONNEL	21 to 25
APPARATUS	3 to 4 Engines
	2 Trucks
	1 Medic
	2 Battalion Chiefs
*Tasks can be performed by the same individual/crew	

Maximum risk fire suppression incidents include extensive commercial structure fires. These incidents require significant resources of at least eight fire suppression apparatus, one rescue apparatus, one to two medics, and two battalion chiefs with between 31 to 49 personnel for an effective response force. The critical tasks for these incidents include scene safety, establishing command, initial and back-up attack, entry and search, ventilation, primary and secondary water supply, a level I or II rapid intervention crew, utilities, patient care, salvage or overhaul, and notifications.

FIRE SUPPRESSION	
MAXIMUM	
Code	**Description**
CS3	Commercial Structure Fire
HR	High Rise
CRITICAL TASK ANALYSIS/PERSONNEL	
Scene Safety/Command	2
Communications	2*
Initial Attack/Hose Lines	8-12
Forcible Entry/Search	4-8
Egress/Ventilation	4-8
Back-up Attack/Hose Lines	6
Water Supply	1
Secondary Water Supply	1
Standpipe/Sprinklers	1
Level I or II RIC	3-8
Utilities	1*
ALS/BLS Patient Care	2
Salvage/Overhaul	4-8*
Notifications	1*
EFFECTIVE RESPONSE FORCE	
PERSONNEL	27 to 31
APPARATUS	5 Engines
	2 to 3 Trucks (CS3)
	1 Medic
	2 Battalion Chiefs
*Tasks can be performed by the same individual/crew	

Emergency Medical Services

EMD Codes	
1	Abdominal Pain
2	Allergies
3	Animal Bites
4	Assault
5	Back Pain
6	Breathing Problems
7	Burns
8	Carbon Monoxide/Inhalation/Hazmat
9	Cardiac or Respiratory Arrest/Death
10	Chest Pain
11	Choking
12	Convulsions/Seizures
13	Diabetic Problems
14	Drowning/ Near drowning
15	Electrocution
16	Eye Problems
17	Falls
18	Headache
19	Heart Problems
20	Heat/Cold Exposure
21	Hemorrhage/Laceration
22	Inaccessible Incident / Other Entrapments
23	Overdoes/ Poisoning
24	Pregnancy/Childbirth/Miscarriage
25	Psychiatric/Mental Health Conditions/Suicide Attempt/Abnormal Behavior
26	Sick Person
27	Stab/Gunshot/Penetrating Trauma
28	Stroke/TIA
29	Traffic Collision
30	Traumatic Injuries
31	Unconscious/ Fainting
32	Unknown Problem
33	Transfer/Interfacility
37	Transfer/Interfacility
39	Active Shooter

Low risk EMS incidents include Alpha and Omega EMD codes. These incidents require no more than one ALS apparatus with no more than two personnel, with at least one being a paramedic, for an effective response force. The critical tasks for these incidents include incident assessment, patient care, and follow-up.

EMERGENCY MEDICAL SERVICES	
LOW	
Code	**Description**
A	Alpha EMD Codes
Omega	Omega EMD Code
CRITICAL TASK ANALYSIS/PERSONNEL	
Assessment	1*
ALS/BLS Patient Care	1-2*
Follow-Up	1*
EFFECTIVE RESPONSE FORCE	
PERSONNEL:	2
APPARATUS:	1 Medic or Squad
*Tasks can be performed by the same individual/crew	

Moderate risk EMS incidents include Beta EMD codes. These incidents require one or two ALS apparatus, at least one being capable of transport, with no more than four personnel, with at least one being a paramedic, for an effective response force. The critical tasks for these incidents include scene safety, establishing command, incident assessment, patient care, and transport.

EMERGENCY MEDICAL SERVICES	
MODERATE	
Code	**Description**
B	Beta EMD Codes
CRITICAL TASK ANALYSIS/PERSONNEL	
Scene Safety/Command	1*
Assessment	1*
ALS/BLS Patient Care	2-4*
Transport	2
EFFECTIVE RESPONSE FORCE	
PERSONNEL:	2 to 4
APPARATUS:	1 Engine, Truck, or Squad 1 Medic (Transport)
*Tasks can be performed by the same individual/crew	

High risk EMS incidents include Charlie/Delta/Echo EMD codes, vehicle accidents with extrication, and vehicle accidents with rollover. These incidents require one or two engines/trucks, one ALS apparatus capable of transport, and one battalion chief, with no more than eleven personnel for an effective response force. The critical tasks for these incidents include scene safety, establishing command, incident assessment, patient care, transport, and extrication/victim removal.

EMERGENCY MEDICAL SERVICES	
HIGH	
Code	**Description**
C	Charlie EMD Codes
D	Delta EMD Codes
E	Echo EMD Codes
VAE*	Vehicle Accident w/ Extrication
CRITICAL TASK ANALYSIS/PERSONNEL	
Scene Safety/Command	1
Assessment	1-2*
ALS/BLS Patient Care	2-4*
Transport	2
Extrication/Victim Removal*	4
EFFECTIVE RESPONSE FORCE	
PERSONNEL:	4 to 11
APPARATUS:	1 Engine, Truck, or Squad
	1 Additional Eng/TR
	1 Medic (Transport)
	1 Battalion Chief
*Tasks can be performed by the same individual/crew	

Hazardous Materials

Low risk HazMat incidents include CO detector alarms, flammable gas outside, and HazMat Level 1 incidents. These incidents require one engine or truck with no more than four personnel for an effective response force. The critical tasks for these incidents include scene safety, establishing command, and incident investigation and mitigation.

HAZARDOUS MATERIALS	
LOW	
Code	**Description**
801	CO Detector Alarm
802	CO Detector Alarm
FGO	Flammable Gas Outside
HM1	HazMat Level 1
CRITICAL TASK ANALYSIS/PERSONNEL	
Scene Safety/Command	1
Investigate/Mitigate	3-4*
EFFECTIVE RESPONSE FORCE	
PERSONNEL	3 to 4
APPARATUS	1 Engine or 1 Truck
*Tasks can be performed by the same individual/crew	

Moderate risk HazMat incidents include HazMat Level 2 incidents. These incidents require two engines, one or two additional suppression apparatus, one HazMat Unit, one Medic, one EMS Officer, one Spec Op Captain, and a battalion chief, with 17 to 21 personnel for an effective response force. The critical tasks for these incidents include scene safety, establishing command, primary attack, water supply, securing of utilities, egress/ventilation, evacuations, patient care, and air monitoring.

HAZARDOUS MATERIALS	
MODERATE	
Code	**Description**
HM2	HazMat Level 2
CRITICAL TASK ANALYSIS/PERSONNEL	
Scene Safety/Command	2
Initial Size-up	1*
Establish Action Plan	2*
Isolate and Deny Entry	2
Establish Control Zones	1*
Identify Product	2-4
Notifications	1*
Rescue Team	4
Evacuations	2-3*
Safety Officer	1
Mitigate Release	2-4
Decontamination	4
EFFECTIVE RESPONSE FORCE	
PERSONNEL	17 to 21
APPARATUS	2 Engines 1 -2 Add. Engine and/or Truck 1 HazMat Unit 1 Medic 1 EMS Officer 1 Spec Op Captain 1 Battalion Chief
*Tasks can be performed by the same individual/crew	

High risk HazMat incidents include liquid spills and HazMat Level 3 incidents. These incidents require two engines, one truck, one to two HazMat Units, one medic, one EMS Officer, one Special Operations Captain, and two battalion chiefs, with no more than 24 personnel for an effective response force. The critical tasks for these incidents include scene safety, establishing command, initial incident size-up, establishing an action plan, isolating and denying entry, establishing control zones, identifying product, notification, rescue team, evacuations, safety officer, mitigating release, and decontamination.

HAZARDOUS MATERIALS	
HIGH	
Code	**Description**
HM3	HazMat Level 3
LQ	Liquid Spill
CRITICAL TASK ANALYSIS/PERSONNEL	
Scene Safety/Command	2-3
Initial Size-up	1*
Establish Action Plan	2*
Isolate and Deny Entry	2-4
Establish Control Zones	1*
Identify Product	2-4
Notifications	1*
Rescue Team	4
Evacuations	2-3*
Safety Officer	1
Mitigate Release	4
Decontamination	4
EFFECTIVE RESPONSE FORCE	
PERSONNEL	19 to 24
APPARATUS	2 Engines
	1 Truck
	1 to 2 HazMat Units
	1 Medic
	1 EMS Officer
	1 Special Ops Captain
	2 Battalion Chiefs
*Tasks can be performed by the same individual/crew	

Technical Rescue

Low risk technical rescue incidents include entrapments, animal rescues, elevator rescues, minor flooding, law enforcement assists, lock outs, and public assistance. These incidents require one engine or truck and potentially a medic, with no more than four personnel for an effective response force. The critical tasks for these incidents include scene safety, establishing command, incident investigation and mitigation, and patient care.

TECHNICAL RESCUE	
LOW	
Code	**Description**
22B	Inaccess Incident/Other Entrapment
22D1	Inaccess Incident/Other Entrapment
AN	Animal Rescue
ELV	Elevator Rescue
FL	Flooding
LAW	Law Enforcement Assist
LO	Lock Out
PA	Public Assistance
CRITICAL TASK ANALYSIS/PERSONNEL	
Scene Safety/Command	1*
Investigation/Mitigation	3-4*
ALS/BLS Patient Care	1*
EFFECTIVE RESPONSE FORCE	
PERSONNEL	3 to 4
APPARATUS	1 Engine or Truck 1 Medic (22D1)
*Tasks can be performed by the same individual/crew	

Moderate risk technical rescue incidents include out of or in the water rescues. These incidents require one engine, one truck, one medic, one rescue boat, and one battalion chief, with 13 personnel for an effective response force. The critical tasks for these incidents include scene safety, establishing command, identifying victims and locations, establishing victim profiles, downstream or upstream protection, a rescue team, providing victim egress, and patient care.

TECHNICAL RESCUE	
MODERATE	
Code	**Description**
WR1	Out of Water
WR2	In the Water
VCS	Vehicle into Commercial Structure
VRS	Vehicle into Residential Structure
CRITICAL TASK ANALYSIS/PERSONNEL	
Scene Safety/Command	1
Identifying Victims and Locations	2-4*
Victim Profile(s)	1-2*
Downstream/Upstream Protection	3-4
Rescue Team	2
Provide Victim Egress	2-3
ALS/BLS Patient Care	1-2
EFFECTIVE RESPONSE FORCE	
PERSONNEL	10-13
APPARATUS	1 Engine
	1 Truck
	1 Medic
	1 Rescue Boat (WR)
	1 Battalion Chief
*Tasks can be performed by the same individual/crew	

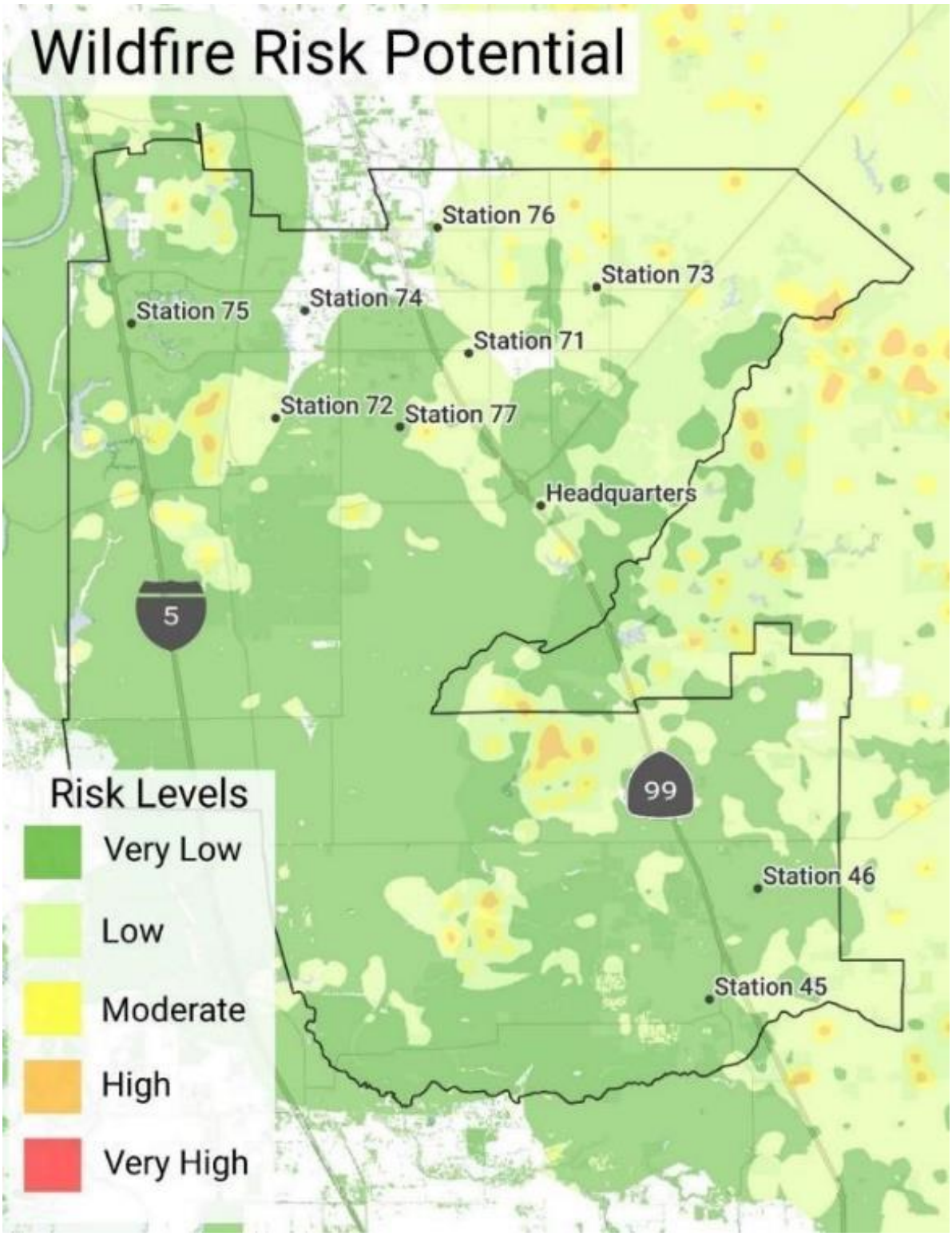
High risk technical rescue incidents include confined space and technical rescues. These incidents require one engine, one truck, one medic, two rescue units, one EMS Officer, and two battalion chiefs, with no more than 20 personnel for an effective response force. The critical tasks for these incidents include scene safety, establishing command, implementing site control, initiating contact with the victim(s), identifying hazards, atmospheric monitoring, increasing survivability profiles, lock out tag out utilities, safety briefings, rigging team, rescue team, edge attendance, and patient care.

TECHNICAL RESCUE	
HIGH	
Code	**Description**
CSP	Confined Space Rescue
TCR	Technical Rescue
CRITICAL TASK ANALYSIS/PERSONNEL	
Scene Safety/Command	2
Implement Site Control/Scene Management	1*
Initiate Contact w/ Victim(s)	2-3*
Recognize/Identify Hazards	2-3*
Atmospheric Monitoring	1-2
Increase Survivability Profile	1-2
Lock out Tag out Utilities	1-2*
Safety Briefings	1*
Rigging Team	2-4
Rescue Team	3-4
Edge Attendant	1
ALS/BLS Patient Care	1-2
EFFECTIVE RESPONSE FORCE	
PERSONNEL	12 to 20
APPARATUS	1 Engine
	1 Truck
	2 Rescue Units
	1 Medic
	1 EMS Officer
	2 Battalion Chiefs
*Tasks can be performed by the same individual/crew	

Wildland Fires

As the population grows and expands towards the forested and grassy areas, an interface between the urban setting and the wildlands is established. This can create a significant hazard to life and property due to wildland fires.

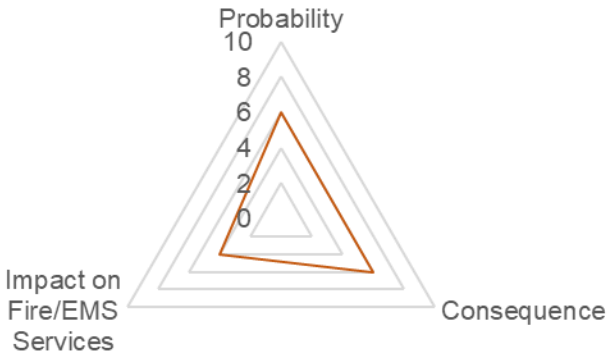
Primarily the wildfire risk in the District is ranked moderate to low and a few significant fires have occurred in recent history though the vulnerability is described as highly likely. Even so, the property valuation exposed could be significant and the need to evacuate civilians would be taxing to emergency services. In the last three years, the CFD has responded to an average of 5.5 calls per week that were categorized as Vegetation/Brush/Debris fires. These calls may be from unattended or mismanaged open burns, to field or roadway fires ignited by trains or discarded materials. There was a 43% increase in call volume for these calls from 2019 to 2020 but returned to near 2019 levels for 2021. The following map highlights the risk potential and areas within the District at risk of being impacted by wildland fire events.



The largest threat to the District is its eastern side and outside its eastern borders in the rural areas. It should be noted these areas are also included within the 100-year flood zone.

The probability of a significant incident of this type was determined to be an annual occurrence and likely will displace the general public for up to 24 hours. The initial response will have a minor effect on the CFD. The risk score for this type of incident is 35. The following graph highlights the components of the risk.

Wildland Fire



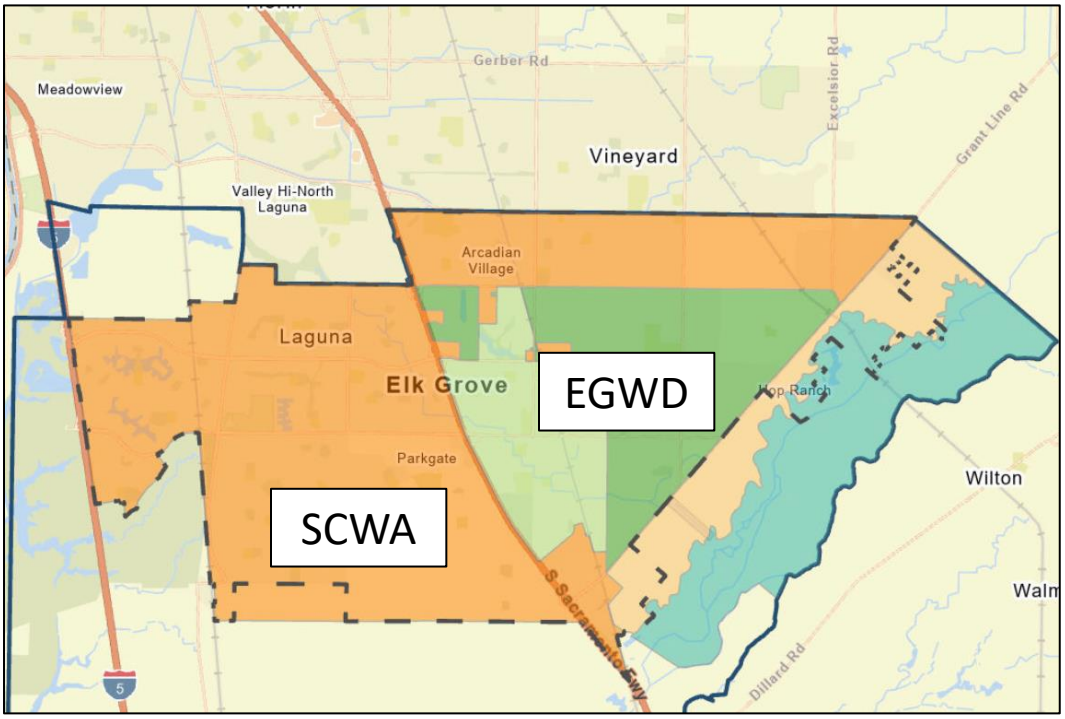
The impact on the CFD could be larger should the event spread to a larger area or begin to involve structures in the area. The CFD relies on real-time monitoring, strategic resource deployment, and proactive mitigation efforts to manage wildfire risks dynamically.

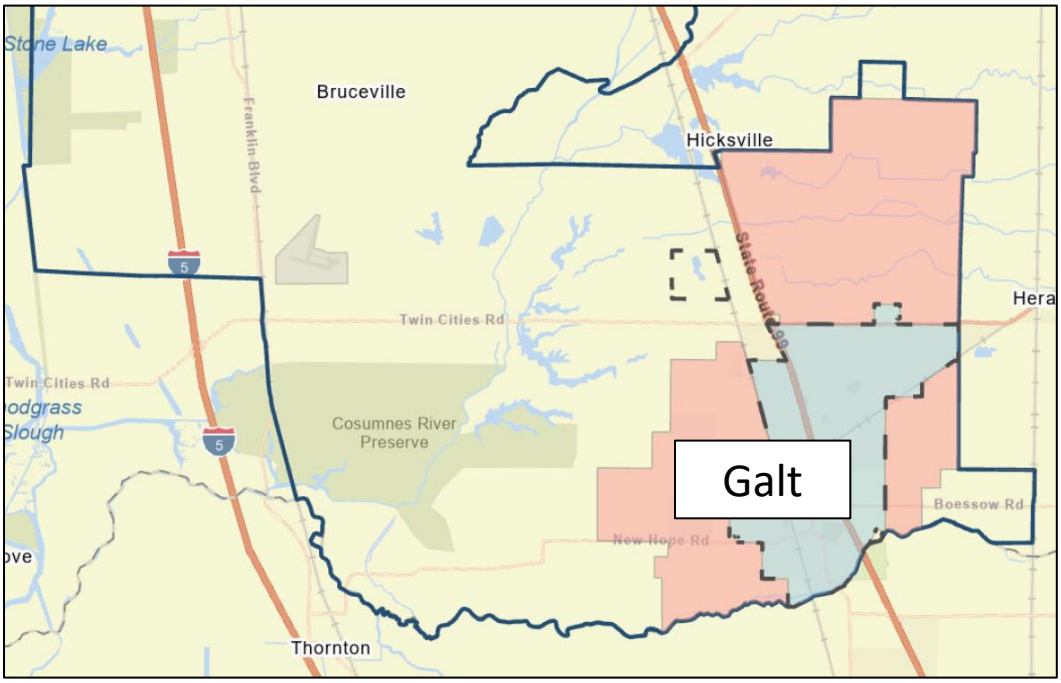
Red Flag Warnings

The Cosumnes Fire Department receives alerts through the National Weather Service Fire Weather Watch for the high potential for the development of a Red Flag event in a 12-to-72-hour time frame. Red Flag Warnings are dependent upon Relative Humidity and Sustained Wind.

Water Supply and Hydrant Access

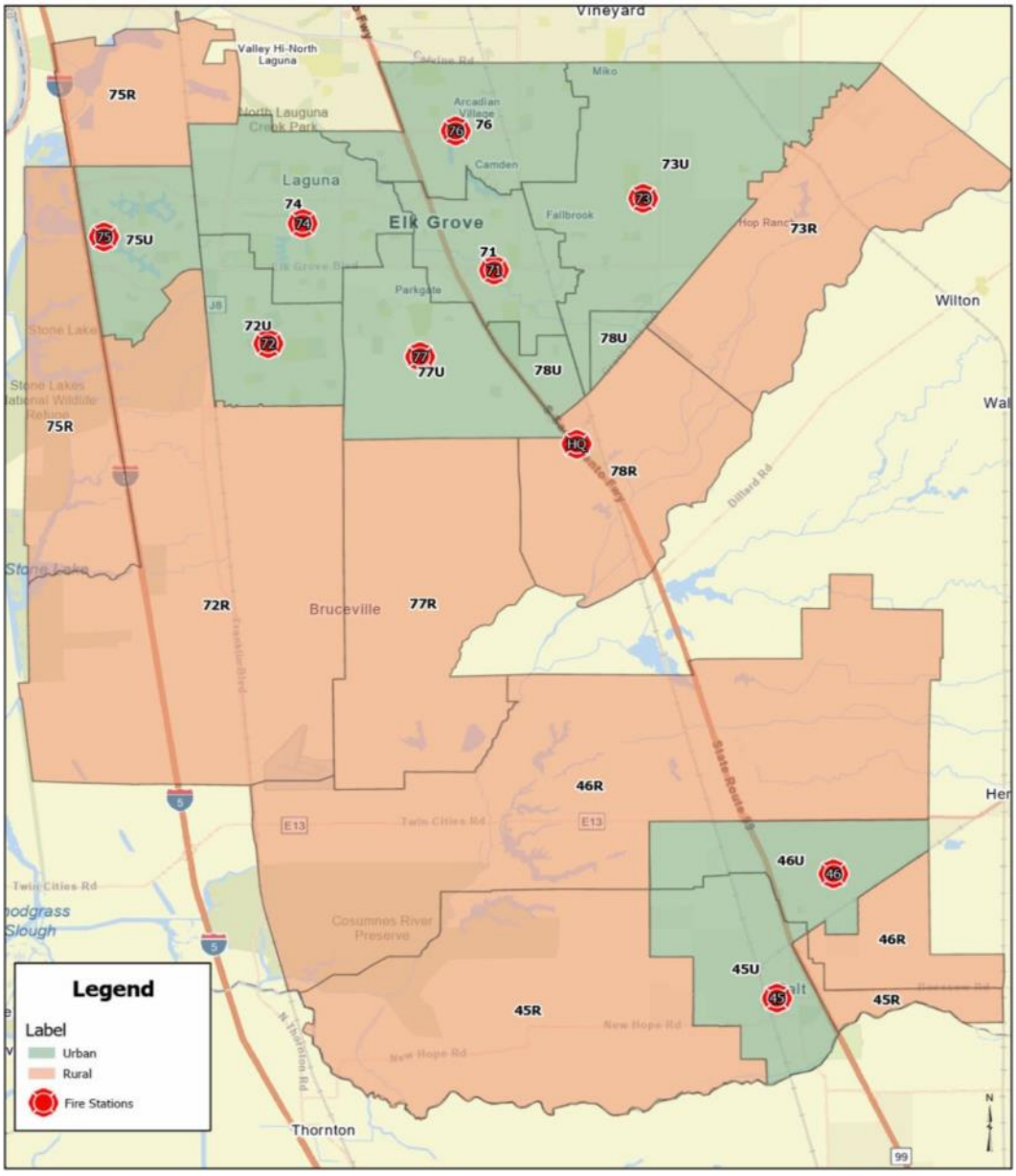
The Cosumnes Fire Department collaborates with multiple water purveyors, including the Elk Grove Water District (EGWD), Sacramento County Water Agency (SCWA), and City of Galt Water, to prioritize ensuring an adequate water supply. This collaboration works towards ensuring annual hydrant inspections, flow testing, and meeting Insurance Services Office (ISO) standards.





Planning and Assessment Zones

The use of planning zones allows the CFD to document various categories and classes of risk. These areas will also be used in the response analysis using baseline and benchmark performance objectives and to determine incident response distribution and resource allocations. As illustrated in the following map, there are eleven planning zones within the District.



These planning zones loosely follow the station response areas. Additionally, the zones also followed the population density to provide a mechanism for future planning related to the anticipated growth.

Based on the definitions contained in the NFPA 1710 document, the following designations are used to identify the service areas of the District.

- **Urban** – Population density of over 1,000 per square mile.
- **Suburban** – Population density between 500 and 1,000 per square mile.
- **Rural** – Population density of less than 500 per square mile.

This will permit the CFD to tailor services to the different planning zones in the District and assist with planning future needs of the District.

Table 14: Planning Zone Demographics

Planning Zone	Population Density	Demographic
45R	62.02	Rural
45U	3,114.94	Urban
46R	37.40	Rural
46U	2,860.19	Urban
71U	4,399.74	Urban
72R	131.64	Rural
72U	8,112.10	Urban
73R	82.97	Rural
73U	2,044.22	Urban
74U	5,830.43	Urban
75R	4.56	Rural
75U	6,069.77	Urban
76U	5,198.84	Urban
77R	31.05	Rural
77U	3,204.82	Urban
78R	8.04	Rural
78U	3,878.57	Urban

The following table provides an overview of the planning zones as they relate to the overall District.

Table 15: Planning Zones Overview

Planning Zone	Pct of Population	Pct of District Area
45R	0.47%	10.18%
45U	7.05%	3.04%
46R	0.51%	18.40%
46U	5.67%	2.66%
71U	7.87%	2.40%
72R	1.44%	14.69%
72U	14.18%	2.35%
73R	0.39%	6.33%
73U	10.29%	6.76%
74U	17.90%	3.54%
75R	0.02%	7.20%
75U	9.81%	2.17%
76U	12.63%	3.26%
77R	0.17%	7.35%
77U	8.75%	3.66%
78R	0.03%	5.02%
78U	2.81%	0.97%

Table 16: Planning Zone Calls for Service Overview (2021-2024)

Planning Zone	Pct of Calls for Service	Pct. of Medical and Auto Accident Calls	Pct of Fire Calls	Pct of HazMat Calls	Pct of Service Calls	Pct of Good Intent Calls	Pct of False Alarm Calls
45R	0.8%	0.7%	3.1%	1.6%	0.7%	1.2%	0.6%
45U	9.7%	9.3%	12.0%	10.3%	15.2%	8.8%	8.2%
46R	1.2%	1.0%	4.2%	2.4%	0.7%	2.3%	1.6%
46U	4.6%	4.5%	3.8%	4.9%	7.3%	3.8%	4.9%
71U	13.8%	14.1%	10.2%	12.6%	15.4%	11.8%	12.4%
72R	1.3%	1.3%	2.6%	1.9%	0.8%	1.6%	0.6%
72U	8.5%	9.0%	5.4%	9.4%	6.3%	6.0%	9.2%
73R	0.4%	0.4%	1.2%	0.5%	0.1%	0.5%	0.1%
73U	8.1%	8.3%	8.7%	7.4%	5.9%	7.6%	8.9%
74U	19.2%	19.7%	13.1%	20.5%	20.7%	15.8%	17.3%
75R	0.5%	0.4%	1.7%	0.3%	0.0%	1.7%	0.3%
75U	11.2%	10.7%	11.1%	9.3%	7.4%	19.0%	13.3%
76U	11.1%	11.2%	13.1%	10.9%	10.2%	10.5%	11.2%
77R	0.2%	0.2%	1.2%	0.8%	0.1%	0.3%	0.1%
77U	7.3%	7.4%	5.5%	5.5%	7.8%	6.6%	8.4%
78R	0.3%	0.2%	1.1%	0.1%	0.1%	0.6%	0.6%
78U	1.6%	1.7%	2.1%	1.6%	1.0%	1.7%	2.3%

Planning Zone 45R

Overview: This planning zone primarily encompasses the area west of the City of Galt, with a small section extending to the east. Predominantly rural, it includes a substantial portion within the designated flood zone.

Highest Risks: Cosumnes River, Cosumnes River Preserve, flood zones, New Hope Road

Population:	**1,001**	**Percentage of the District population:**	**0.47%**
Square Miles:	**16.14**	**Percentage of the District area:**	**10.18%**
Population Density:	**62.02**	**Percentage of the call volume:**	**0.8%**
Housing Units:	**332**		

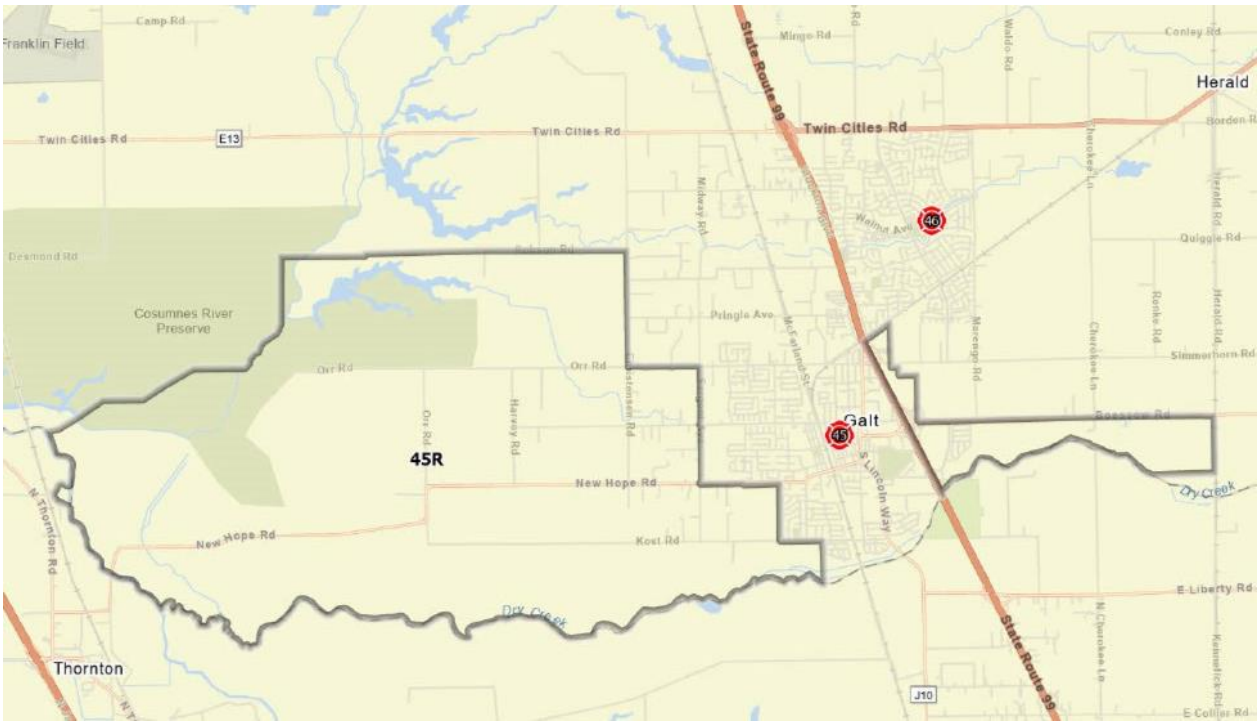
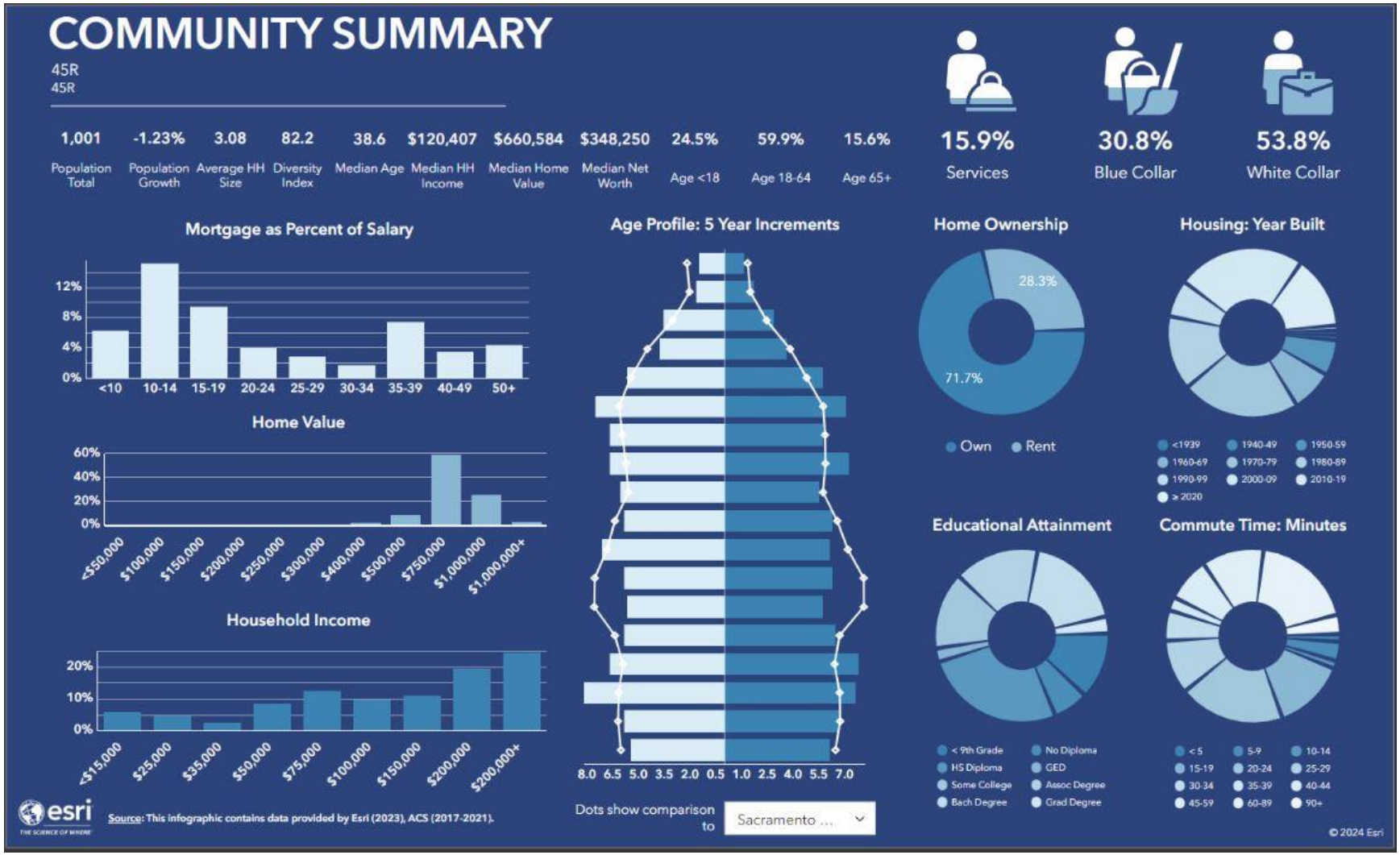


Table 17: 45R (Rural) - 90th Percentile Times of 1st Unit on Scene

Response Time Component	2020-2024	2024	2023	2022	2021	2020
Alarm Handling	3:26	3:37	3:03	3:36	2:58	3:15
Turnout Time	1:43	1:53	1:43	1:43	1:40	1:38
Travel Time	8:53	7:26	8:55	8:56	7:48	9:02
Total Response Time	12:31	11:47	12:33	12:31	11:09	13:35
	391	76	89	82	85	59

Planning Zone 45R Community Summary



Planning Zone 45U

Overview: This planning zone covers the central areas of the City of Galt, bounded by Highway 99 and Christensen Road to the East. It encompasses the city's most populated areas, including Galt City Hall and the downtown district. A major railroad line runs north-south through the zone, dividing it.

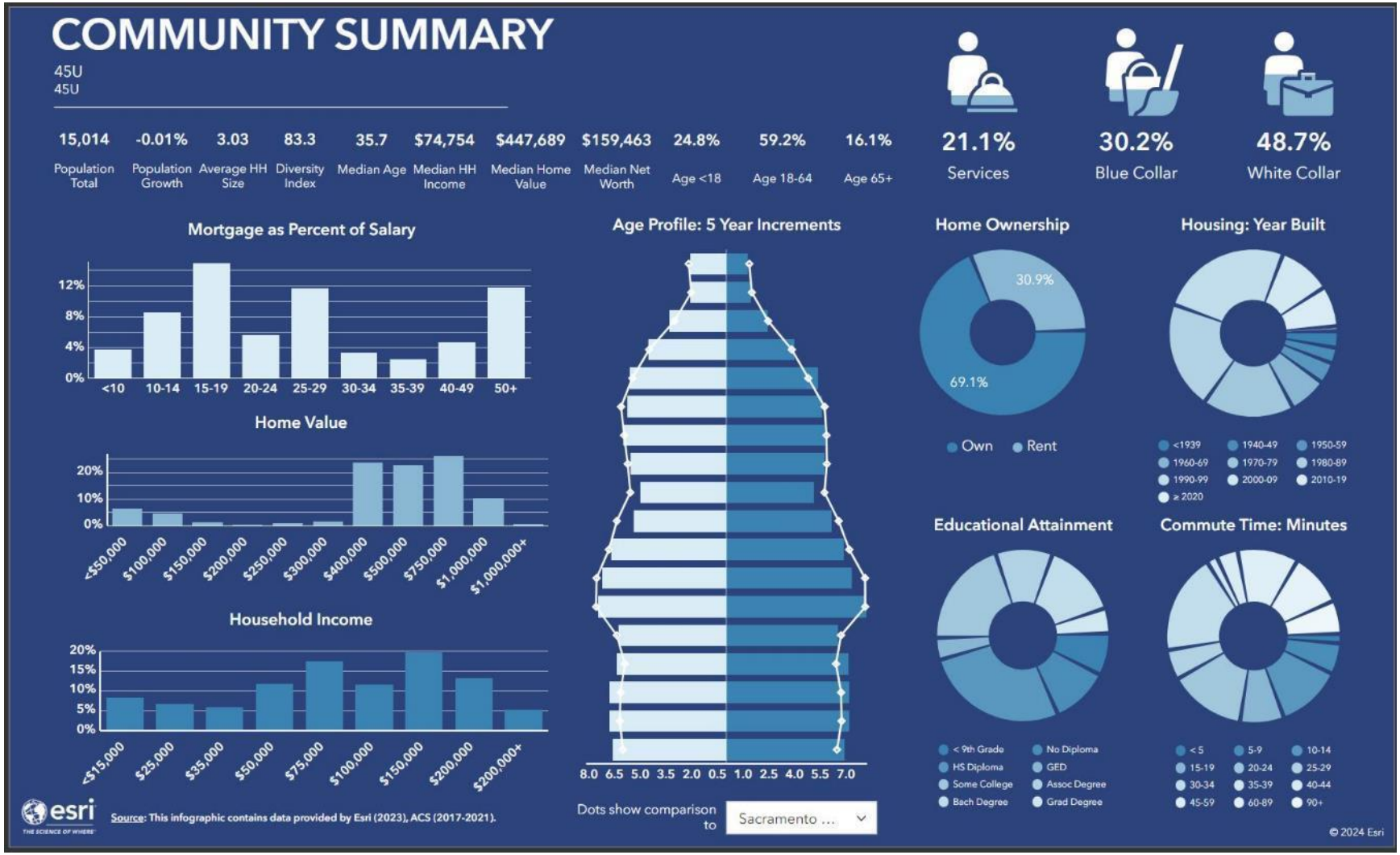
Highest Risks: Highway 99, Galt's industrial area, non-sprinkler commercial occupancies, railroad lines

Population:	**15,014**
Square Miles:	**4.82**
Population Density:	**3,114.94**
Housing Units:	**5,004**
Percentage of the District population:	**7.05%**
Percentage of the District area:	**3.04%**
Percentage of the call volume:	**9.7%**

Table 18: 45U (Urban) - 90th Percentile Times of 1st Unit on Scene

Response Time Component	2020-2024	2024	2023	2022	2021	2020
Alarm Handling	3:15	3:25	3:17	3:15	3:04	3:12
Turnout Time	1:43	1:49	1:41	1:40	1:39	1:40
Travel Time	5:30	5:16	5:30	5:52	5:28	5:23
Total Response Time	9:15	9:19	9:21	9:23	9"06	8:53
	5,018	1,056	1,079	1,137	930	816

Planning Zone 45U Community Summary



Planning Zone 46R

Overview: This planning zone primarily covers the area north of the City of Galt, with a small section extending southeast of the city. Predominantly rural, it includes a significant portion within the flood zone. Highway 99 runs north-south through the zone, dividing it.

Highest Risks: Cosumnes River, Cosumnes River Preserve, Highway 99, Twin Cities Road (Highway 104), railroad lines

Population:	**1,091**	**Percentage of the District population:**	**0.51%**
Square Miles:	**29.17**	**Percentage of the District area:**	**18.4%**
Population Density:	**37.40**	**Percentage of the call volume:**	**1.2%**
Housing Units:	**364**		

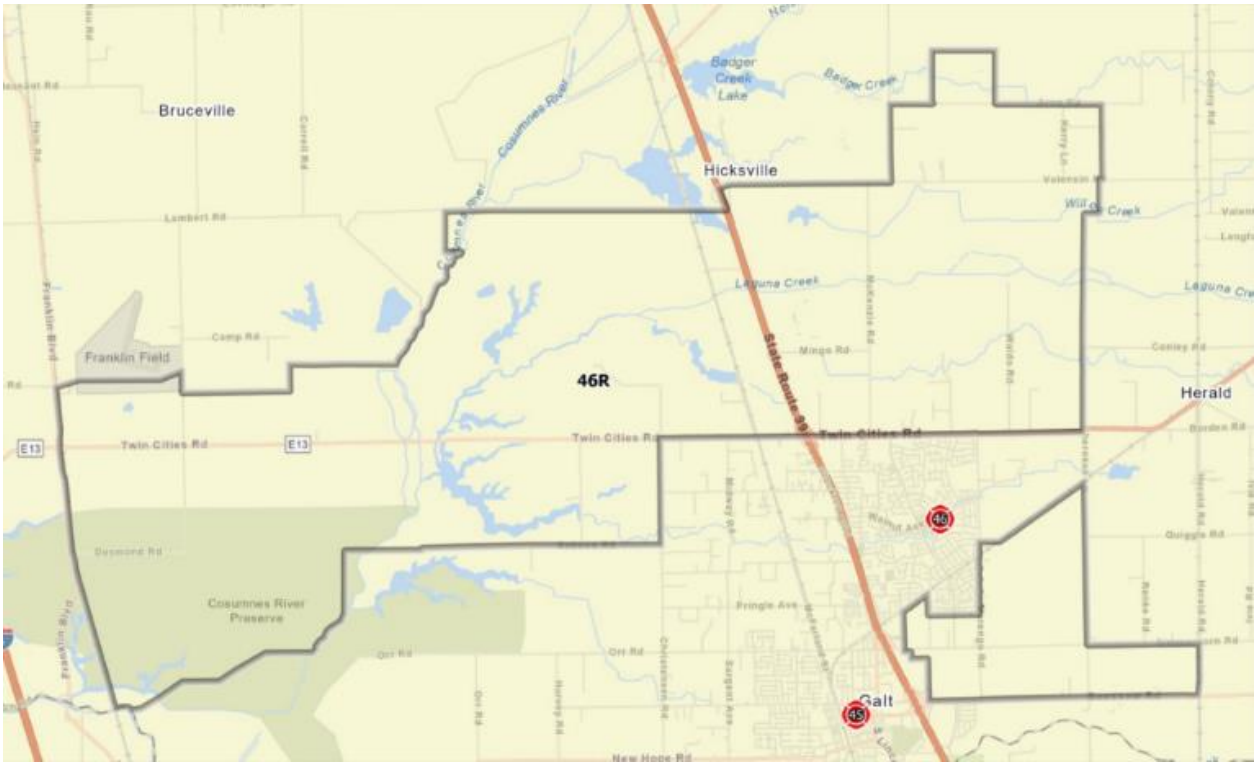
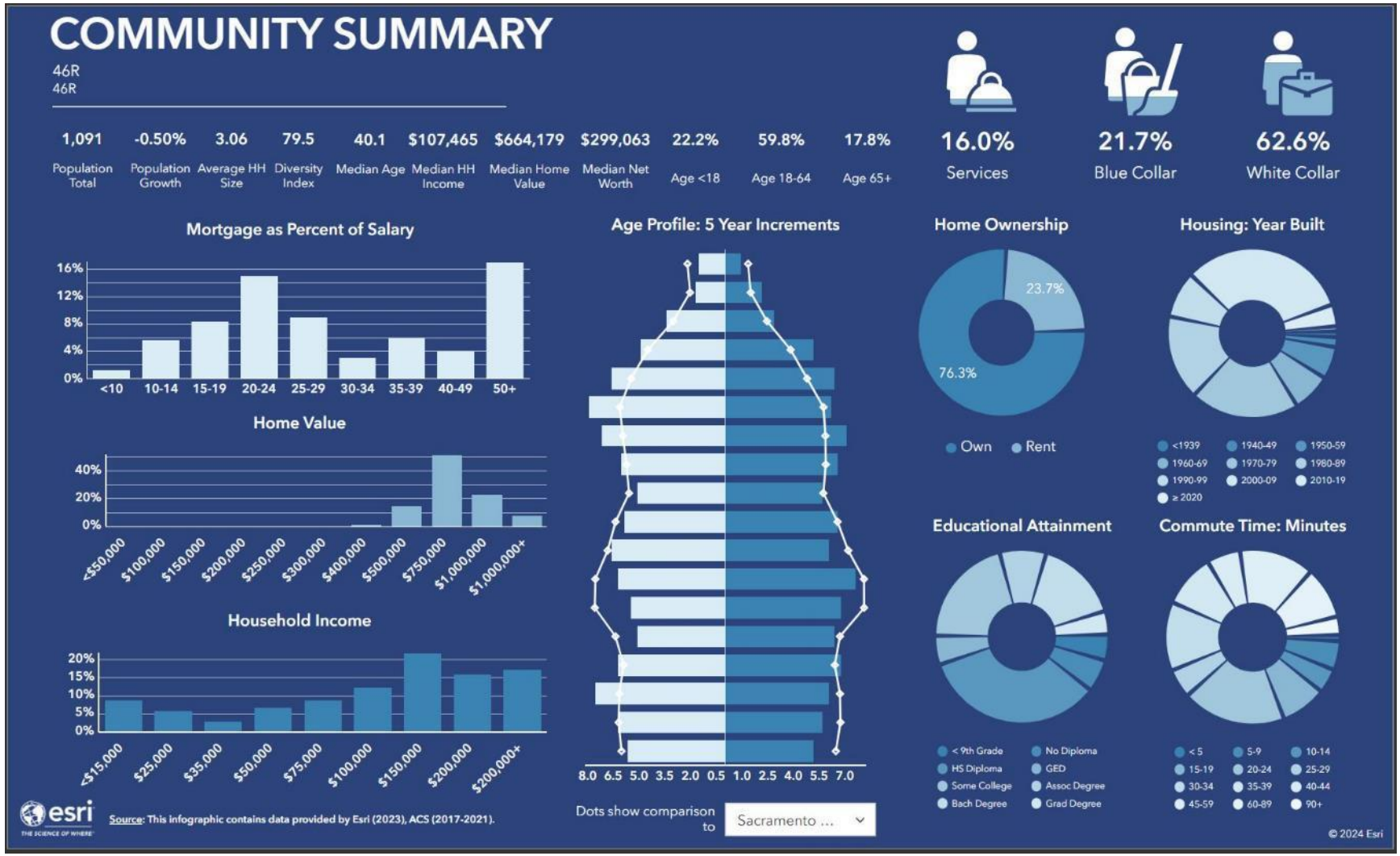


Table 19: 46R (Rural) - 90th Percentile Times of 1st Unit on Scene

Response Time Component	2020-2024	2024	2023	2022	2021	2020
Alarm Handling	3:34	3:35	3:51	3:28	3:18	3:33
Turnout Time	1:44	1:34	1:35	1:39	1:45	1:49
Travel Time	10:38	11:14	9:58	10:12	10:46	10:47
Total Response Time	14:14	14:53	12:49	14:17	14:14	14:57
	577	106	116	116	138	101

Planning Zone 46R Community Summary



Planning Zone 46U

Overview: This zone covers the north and west sides of the City of Galt, bordered by Twin Cities Road (Highway 104) to the north, Christensen Road to the west, Cherokee Lane to the east, and Amador Avenue to the south. Highway 99 runs north-south through the zone, dividing it. While the area includes a mix of commercial and residential properties, it is primarily residential.

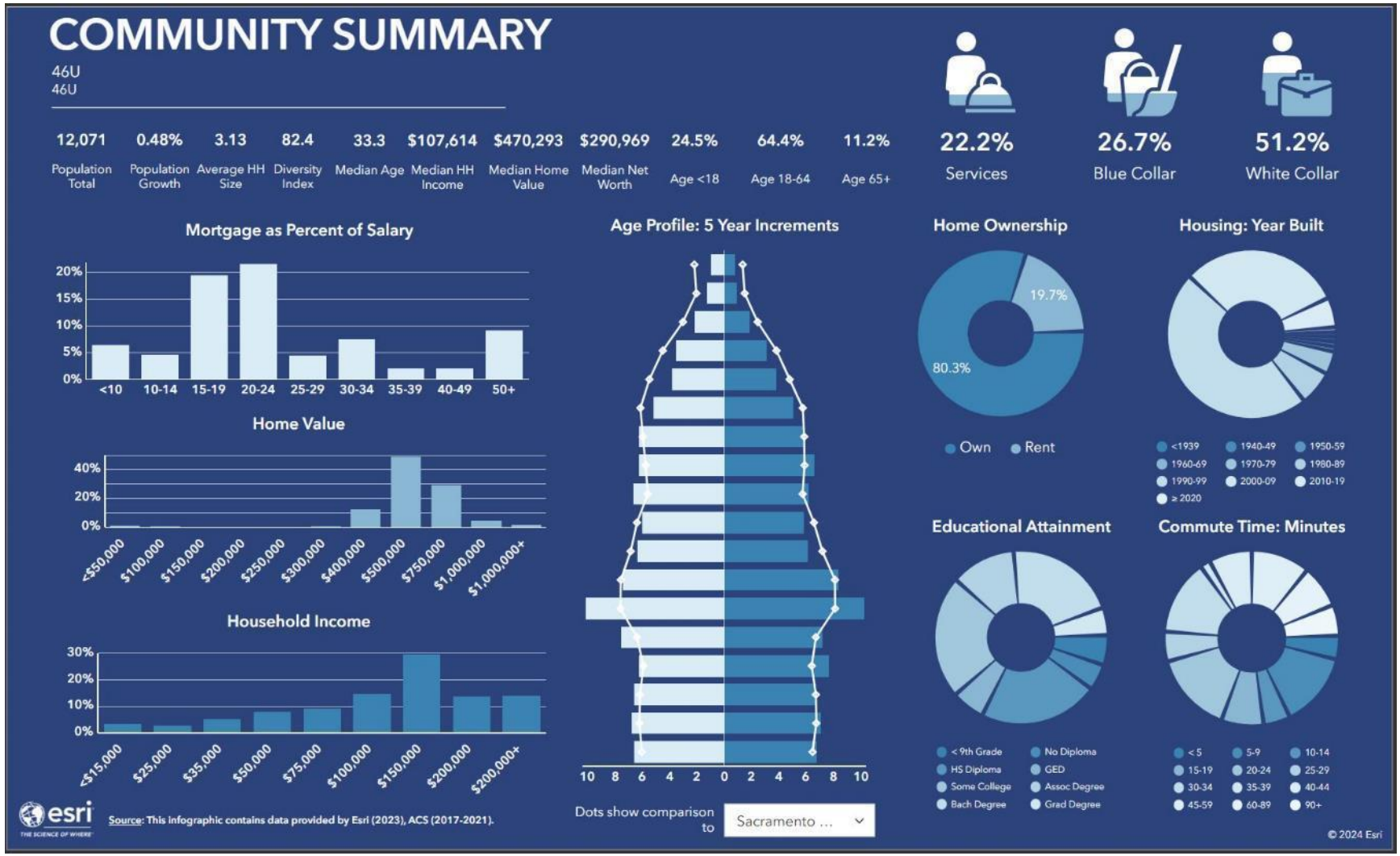
Highest Risks: Highway 99, Highway 104, railroad lines

Population:	**12,070**	**Percentage of the District population:**	**5.67%**
Square Miles:	**4.22**	**Percentage of the District area:**	**2.66%**
Population Density:	**2,860.19**	**Percentage of the call volume:**	**4.6%**
Housing Units:	**3,910**		

Table 20: 46U (Urban) - 90th Percentile Times of 1st Unit on Scene

Response Time Component	2020-2024	2024	2023	2022	2021	2020
Alarm Handling	3:08	3:17	3:09	3:02	2:59	3:10
Turnout Time	1:37	1:34	1:33	1:37	1:37	1:46
Travel Time	5:58	6:07	5:53	5:58	5:46	5:58
Total Response Time	5:58	6:07	5:53	5:58	5:46	5:58
	2,401	474	498	548	481	400

Planning Zone 46U Community Summary



Planning Zone 71U

Overview: Located in the central part of the district, this planning zone encompasses a significant portion of downtown Elk Grove. It includes some of the city's oldest neighborhoods and is bisected north-south by Highway 99.

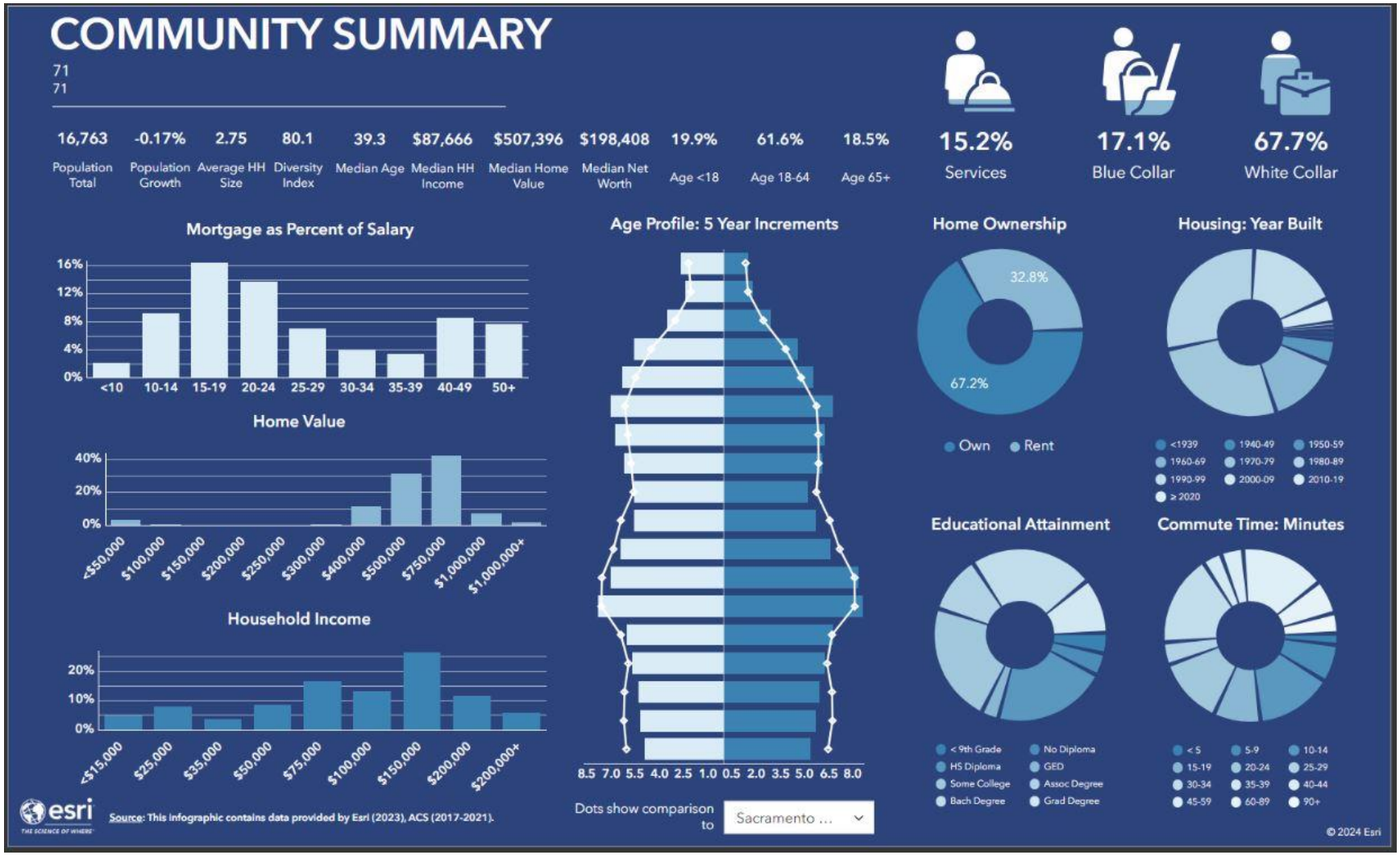
Highest Risks: Highway 99, Old Town Elk Grove (large non-sprinkler commercial occupancies), railroad lines, large residential care facilities

Population:	**16,763**
Square Miles:	**3.81**
Population Density:	**4,399.74**
Housing Units:	**6,129**
Percentage of the District population:	**7.87%**
Percentage of the District area:	**2.4%**
Percentage of the call volume:	**13.8%**

Table 21: 71U (Urban) - 90th Percentile Times of 1st Unit on Scene

Response Time Component	2020-2024	2024	2023	2022	2021	2020
Alarm Handling	3:12	3:16	3:17	3:04	3:08	3:08
Turnout Time	1:31	1:37	1:27	1:29	1:32	1:29
Travel Time	5:41	5:11	5:44	5:55	5:53	5:40
Total Response Time	9:10	8:57	9:16	9:21	9:18	8:56
	7,211	1,487	1,682	1,473	1,284	1,285

Planning Zone 71U Community Summary



Planning Zone 72R

Overview: Located in the south-central area of Elk Grove, this zone includes the Franklin and Point Pleasant areas. Predominantly rural, it is bisected north-south by Interstate 5. The zone is bordered by Bruceville Road to the east, Snodgrass Slough to the west, and Dierssen Road to the south. A significant portion of this area lies within the flood zone.

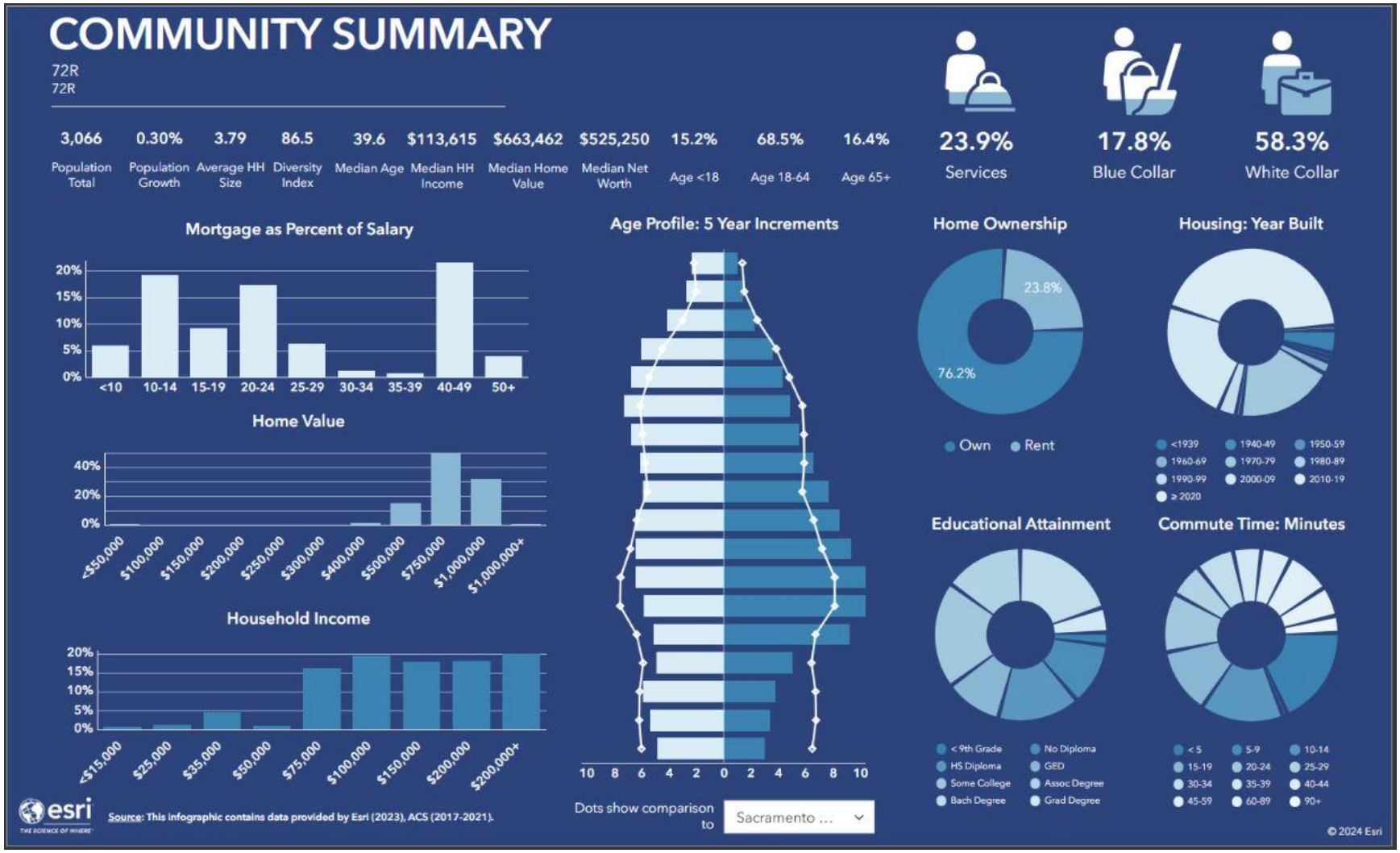
Highest Risks: Interstate 5, Old Town Franklin (non-sprinkler commercial occupancies), railroad lines, Stone Lake Preserve, Franklin Field, Rio Cosumnes Correction Center

Population:	**3,066**
Square Miles:	**23.29**
Population Density:	**131.64**
Housing Units:	**23.29**
Percentage of the District population:	**1.44%**
Percentage of the District area:	**14.69%**
Percentage of the call volume:	**1.3%**

Table 22: 72R (Rural) - 90th Percentile Times of 1st Unit on Scene

Response Time Component	2020-2024	2024	2023	2022	2021	2020
Alarm Handling	3:08	2:43	3:23	3:29	2:57	2:55
Turnout Time	1:41	1:49	1:41	1:41	1:42	1:32
Travel Time	12:13	11:30	12:37	12:04	12:28	11:38
Total Response Time	15:25	14:28	16:27	15:48	15:56	14:31
	660	143	121	149	154	93

Planning Zone 72R Community Summary



Planning Zone 72U

Overview: Located in the central section of the district within Elk Grove, this planning zone is bordered by the railroad line near Franklin Boulevard to the west, Bilby Road to the south, Bruceville Road to the east, and Elk Grove Boulevard to the north. The area features a diverse mix of modern, sprinklered residential and commercial properties. Whitelock Parkway runs east-west through the zone, serving as a key thoroughfare.

Highest Risks: Various educational facilities

Population:	**30,177**
Square Miles:	**3.72**
Population Density:	**8,112.10**
Housing Units:	**8,621**
Percentage of the District population:	**14.18%**
Percentage of the District area:	**2.35%**
Percentage of the call volume:	**8.5%**

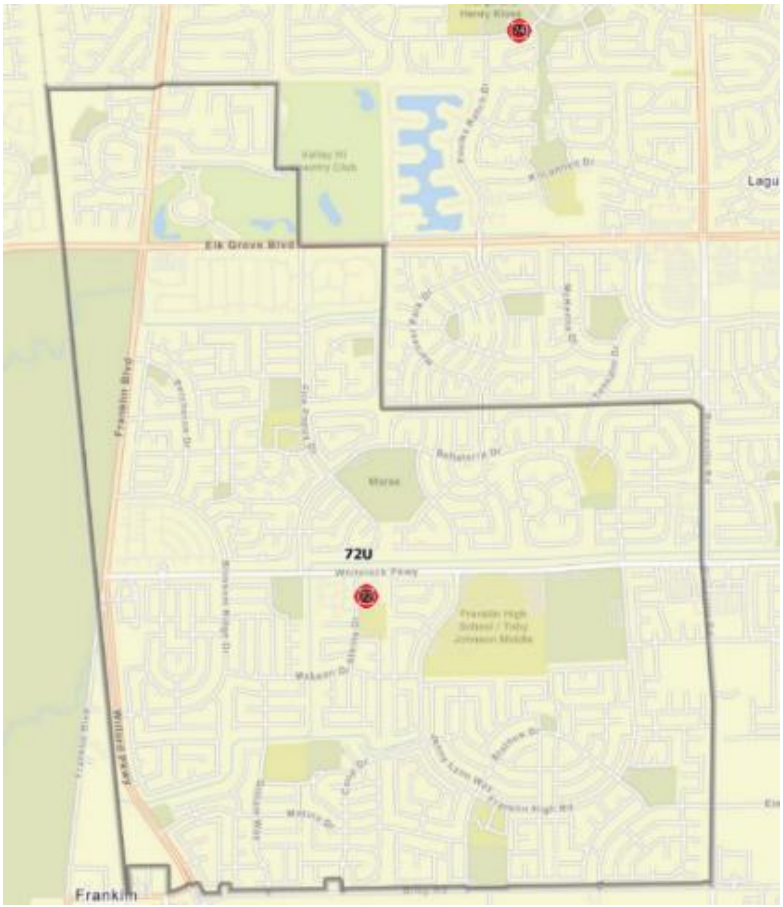
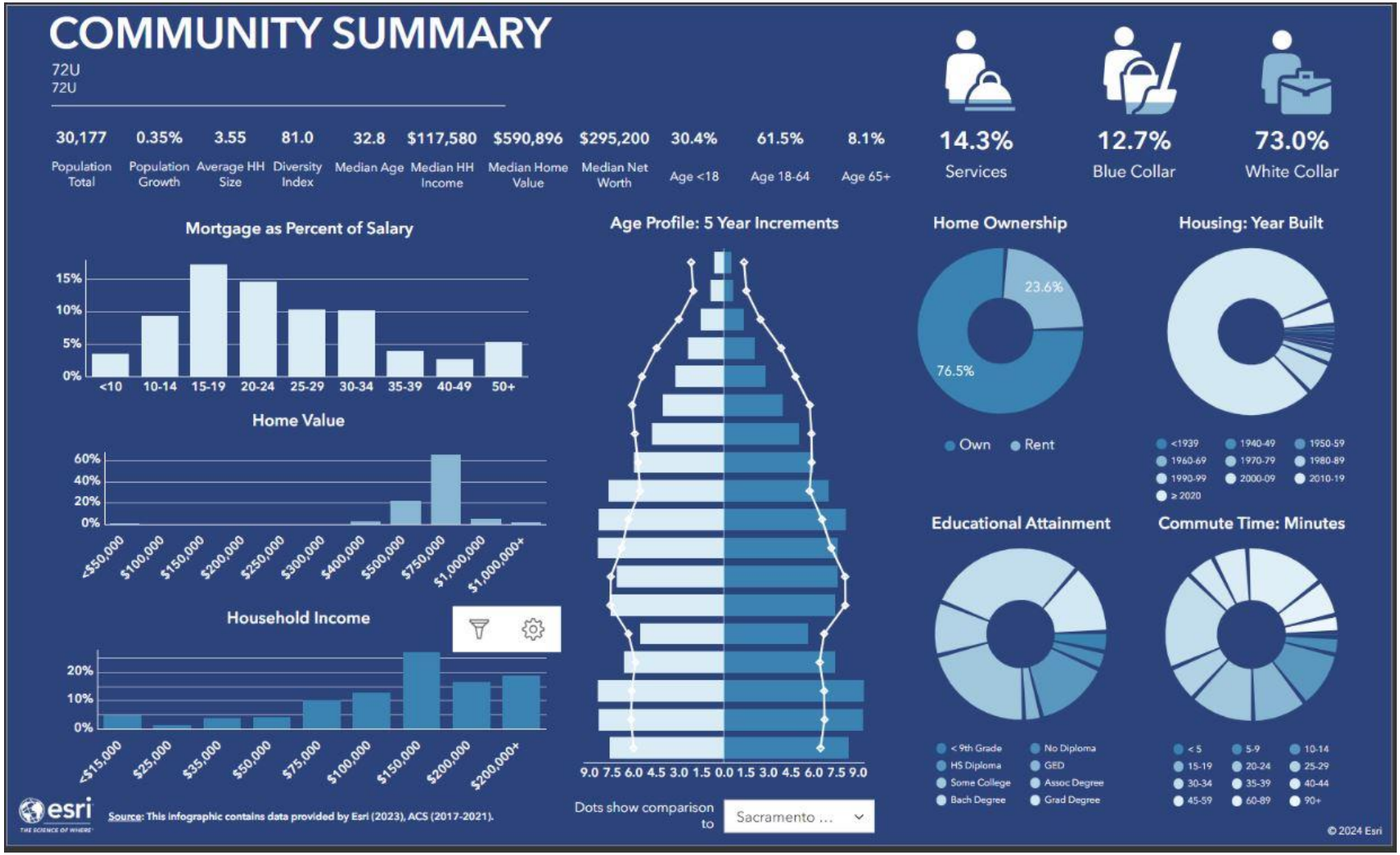


Table 23: 72U (Urban) - 90th Percentile Times of 1st Unit on Scene

Response Time Component	2020-2024	2024	2023	2022	2021	2020
Alarm Handling	3:08	3:10	3:14	3:05	3:02	3:09
Turnout Time	1:38	1:38	1:38	1:39	1:39	1:34
Travel Time	5:23	5:01	5:11	5:29	5:42	5:42
Total Response Time	9:00	8:48	9:06	9:07	9:10	9:00
	4,752	1,019	966	1,043	959	765

Planning Zone 72U Community Summary



Planning Zone 73R

Overview: This planning zone is located in eastern Elk Grove, bordered by the Wilton Fire Protection District to the east and Grant Line Road to the west. Predominantly rural, the area consists of large residential properties.

Highest Risks: Elk Grove Airport, Cosumnes River

Population:	**833**	**Percentage of the District population:**	**0.39%**
Square Miles:	**10.04**	**Percentage of the District area:**	**6.33%**
Population Density:	**82.97**	**Percentage of the call volume:**	**0.4%**
Housing Units:	**263**		

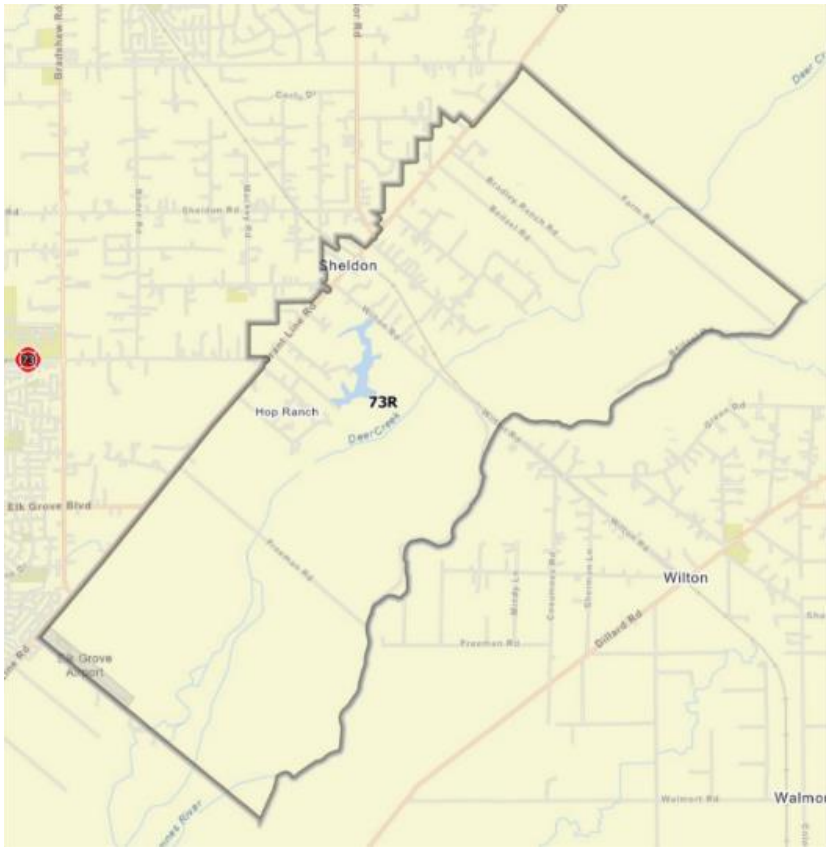
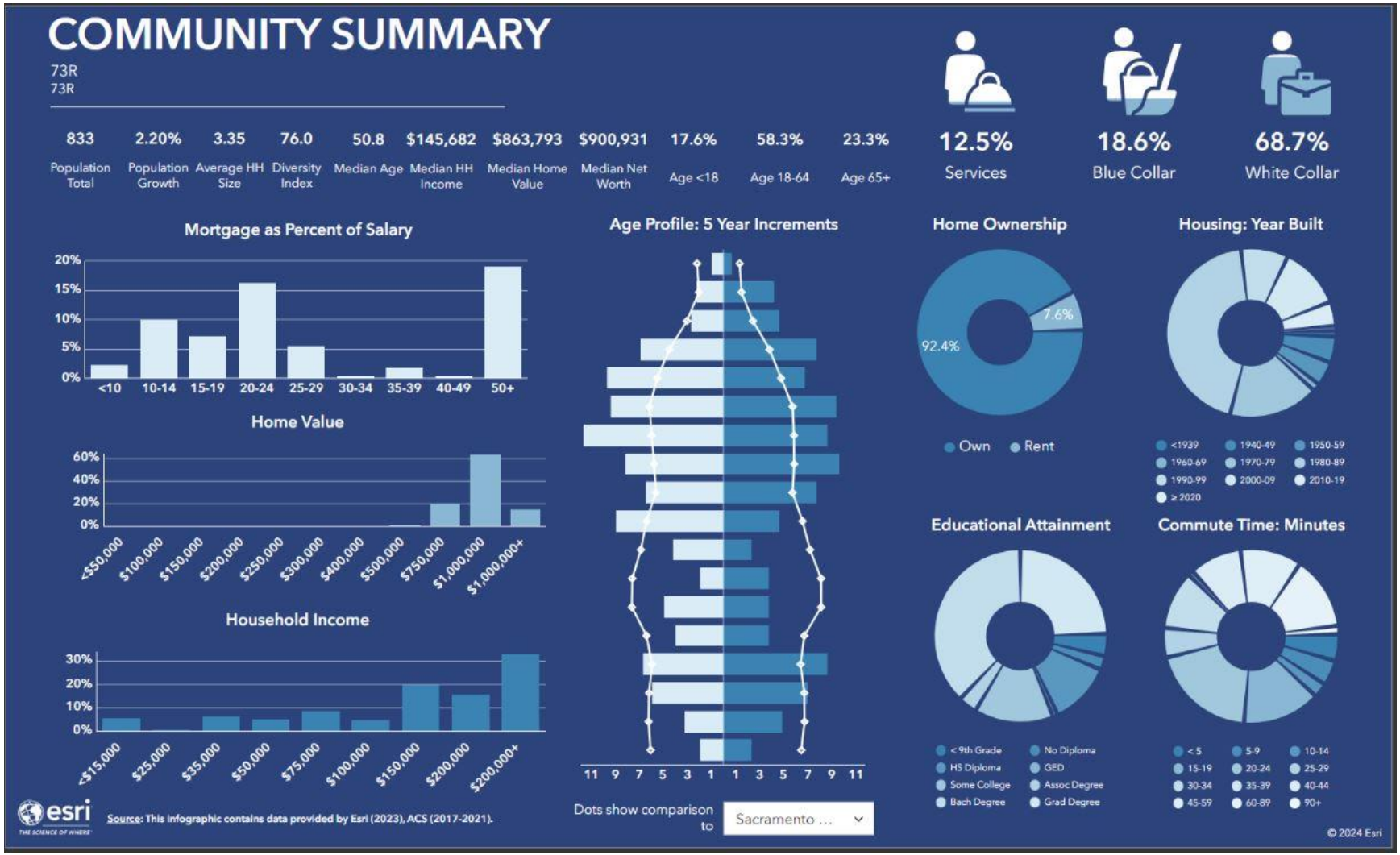


Table 24: 73R (Rural) - 90th Percentile Times of 1st Unit on Scene

Response Time Component	2020-2024	2024	2023	2022	2021	2020
Alarm Handling	2:55	3:29	3:22	2:35	2:51	2:55
Turnout Time	1:37	1:46	1:26	1:37	1:26	1:35
Travel Time	10:07	8:26	10:28	10:50	8:32	10:17
Total Response Time	13:21	11:56	13:16	14:50	11:47	13:43
	196	50	56	45	29	26

Planning Zone 73R Community Summary



Planning Zone 73U

Overview: This planning zone is located in the northeast section of the district, bordering the Sacramento Metro Fire District to the north and east along Calvine Road. Its southern and eastern boundary follows Grant Line Road. The western portion features urban residential and commercial development, while the eastern section consists of small rural ranchette properties.

Highest Risks: Asphalt plant, industrial businesses along Waterman Road, large paper production facility, several educational facilities

Population:	**21,914**	**Percentage of the District population:**	**10.29%**
Square Miles:	**10.72**	**Percentage of the District area:**	**6.76%**
Population Density:	**2,044.22**	**Percentage of the call volume:**	**8.1%**
Housing Units:	**6,421**		

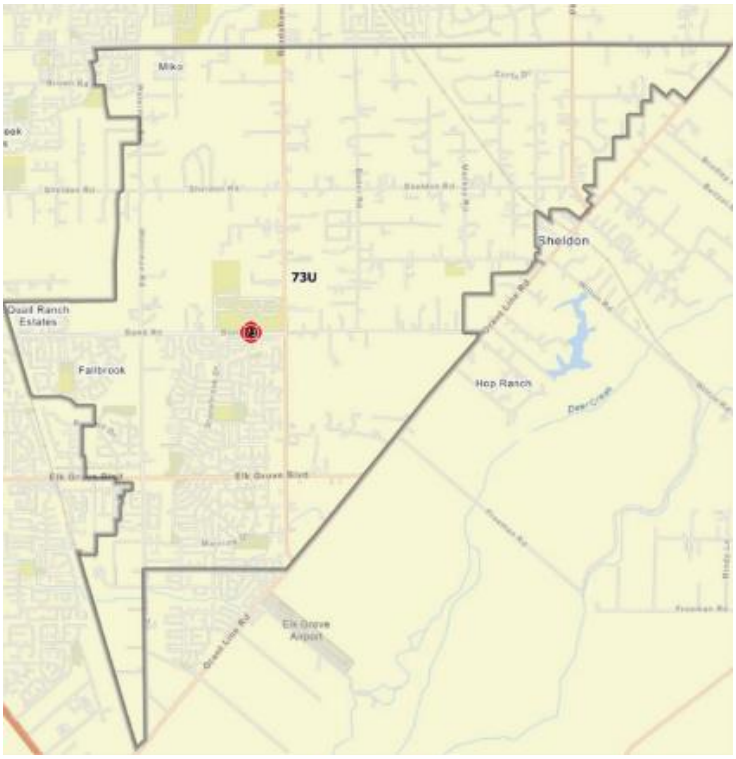
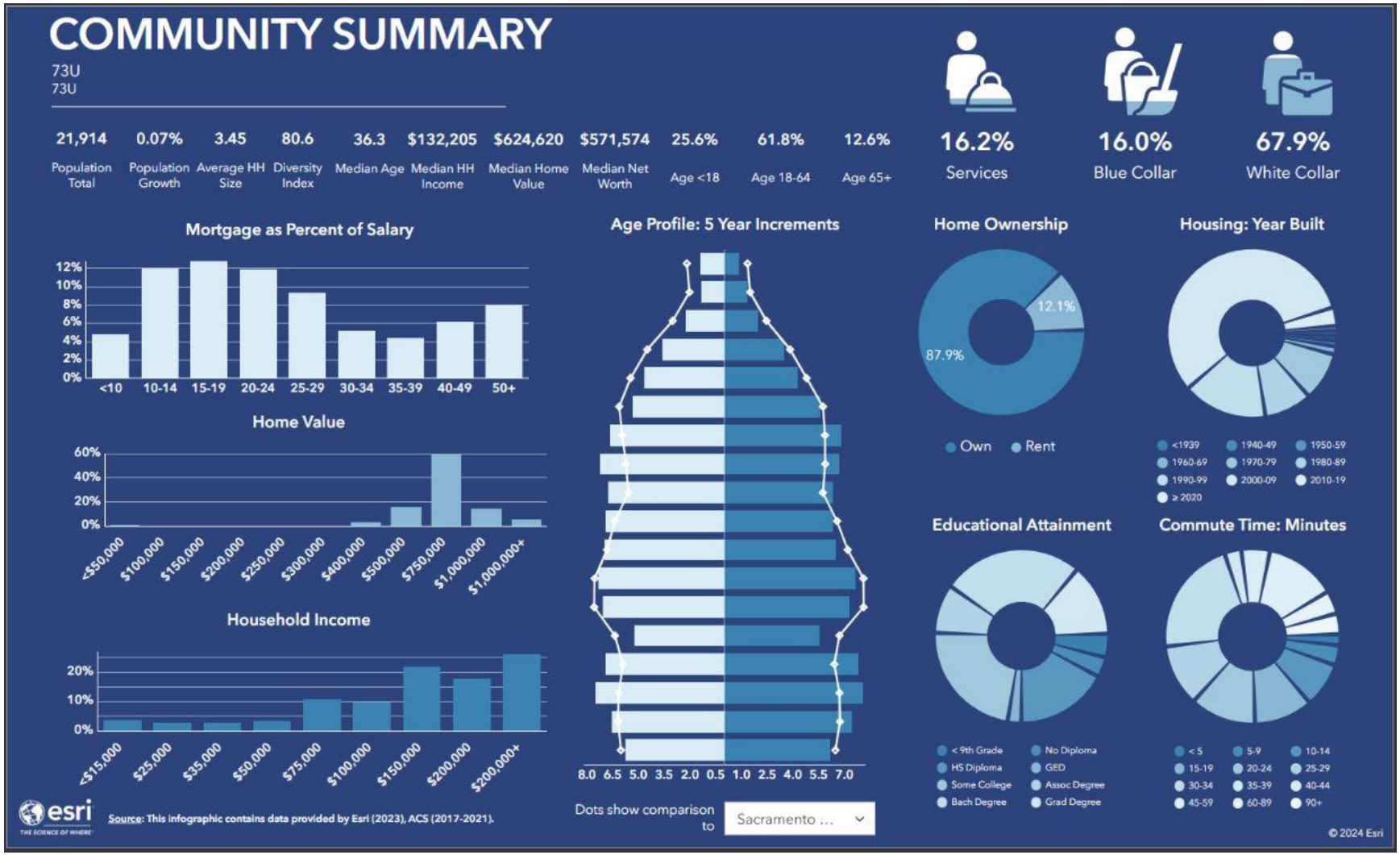


Table 25: 73U (Urban) - 90th Percentile Times of 1st Unit on Scene

Response Time Component	2020-2024	2024	2023	2022	2021	2020
Alarm Handling	3:07	3:13	3:10	3:05	2:56	3:07
Turnout Time	1:40	1:42	1:37	1:42	1:36	1:44
Travel Time	6:12	6:06	6:20	6:24	6:13	6:01
Total Response Time	9:48	9:49	9:56	10:04	9:41	9:31
	4,764	1,097	1,044	920	870	833

Planning Zone 73U Community Summary



Planning Zone 74U

Overview: Located in the north-central area of the district, this planning zone is predominantly residential. It borders the Sacramento Fire Department to the north and includes some of the district's busiest residential thoroughfares, such as Laguna Boulevard, Franklin Boulevard, and Elk Grove Boulevard.

Highest Risks: Sewer treatment plant, several educational facilities, large residential care facilities

Population:	**32,767**	**Percentage of the District population:**	**17.9%**
Square Miles:	**5.62**	**Percentage of the District area:**	**3.54%**
Population Density:	**5,830.43**	**Percentage of the call volume:**	**19.2%**
Housing Units:	**12,844**		

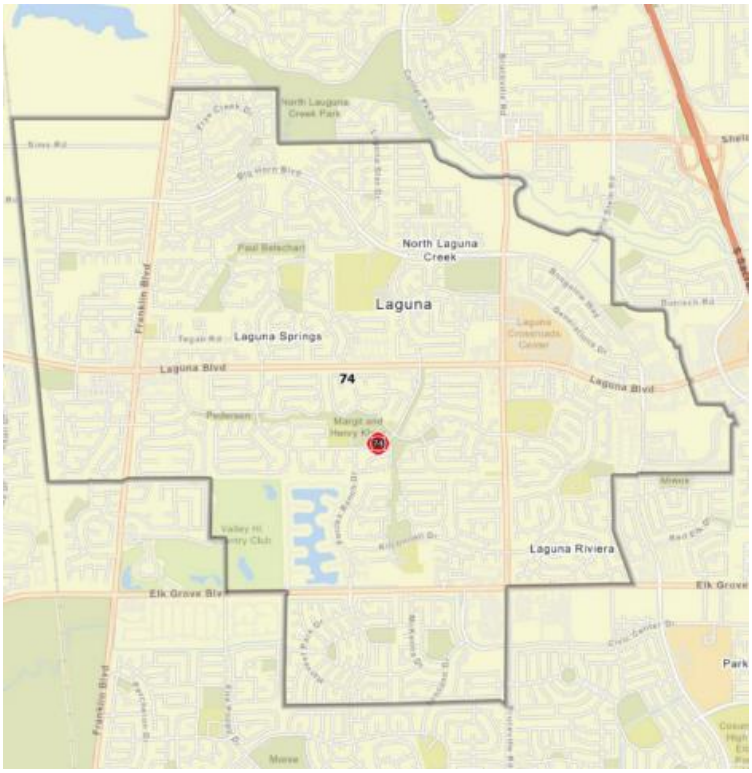
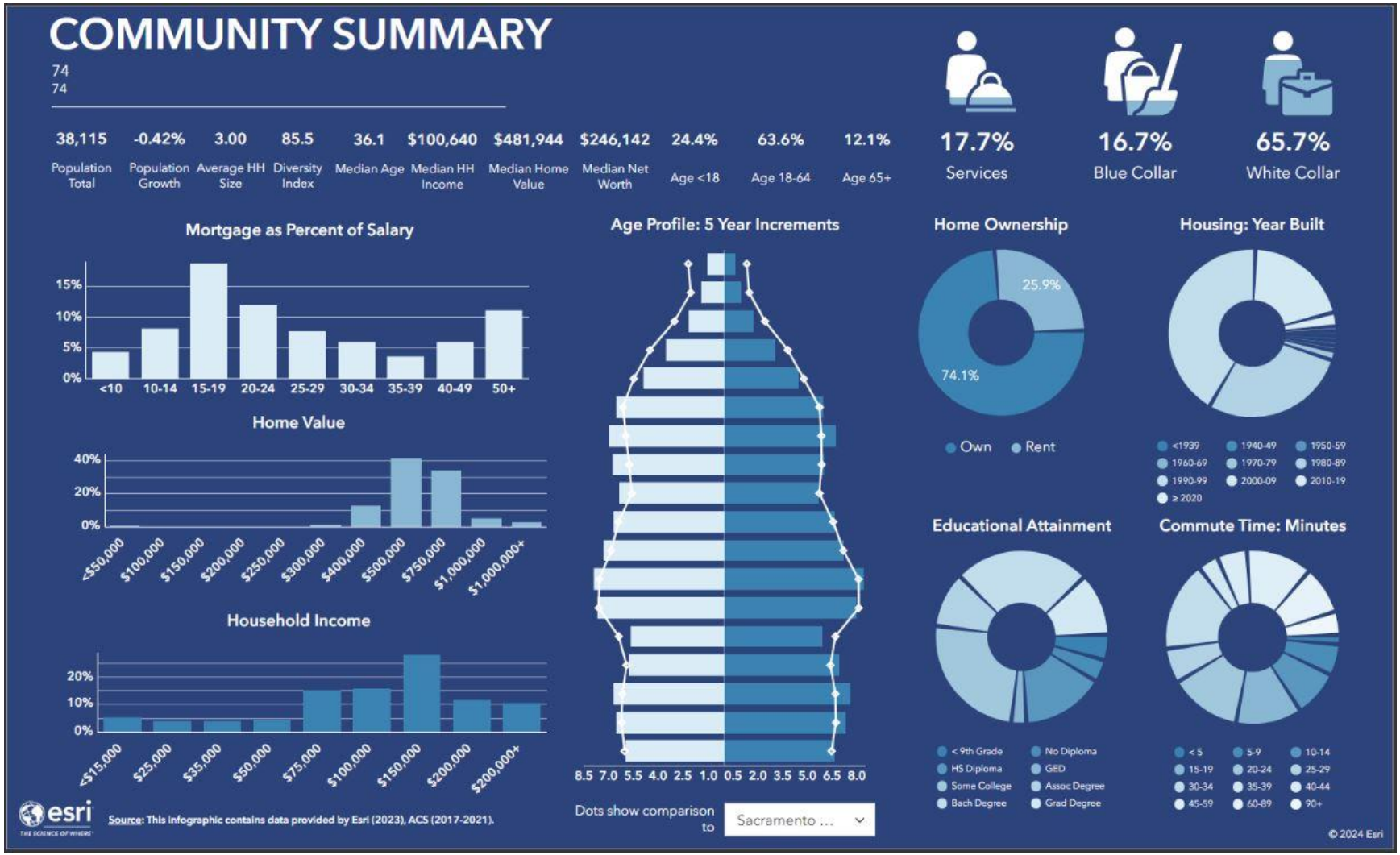


Table 26: 74U (Urban) - 90th Percentile Times of 1st Unit on Scene

Response Time Component	2020-2024	2024	2023	2022	2021	2020
Alarm Handling	3:09	3:15	3:18	3:05	3:01	3:07
Turnout Time	1:34	1:40	1:31	1:30	1:32	1:36
Travel Time	5:54	5:42	5:41	5:59	6:11	5:49
Total Response Time	9:22	9:22	9:10	9:26	9:34	9:15
	10,615	2,174	2,128	2,207	2,311	1,795

Planning Zone 74U Community Summary



Planning Zone 75R

Overview: This planning area is situated on the far northwestern edge of the district and is entirely rural. Bordered by Interstate 5 to the east, its largest feature is the Stone Lakes Preserve. The zone contains very few residential or commercial properties.

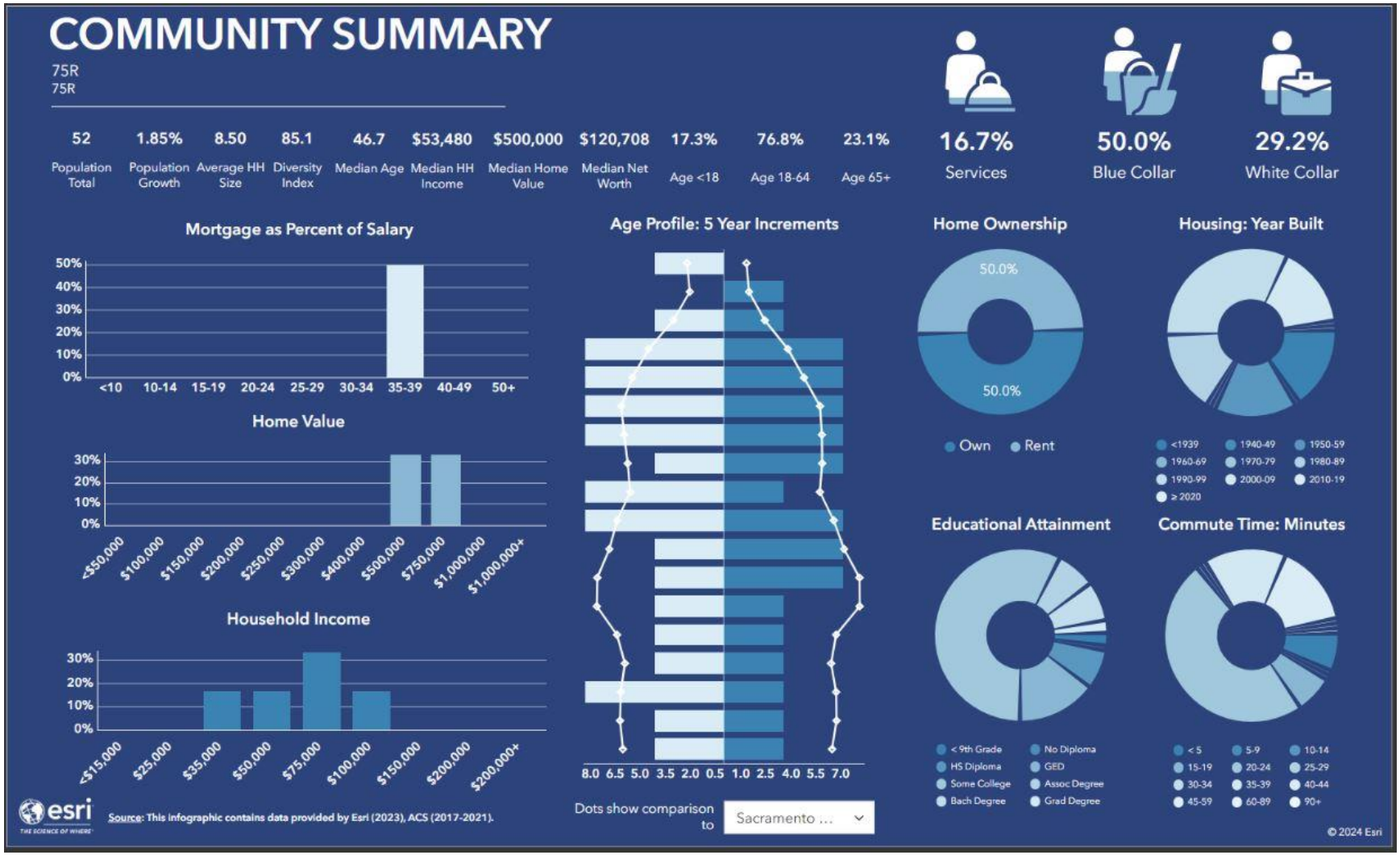
Highest Risks: Stone Lakes National Wildlife Refuge/Stone Lakes Preserve

Population:	**52**
Square Miles:	**11.41**
Population Density:	**4.56**
Housing Units:	**7**
Percentage of the District population:	**0.02%**
Percentage of the District area:	**7.2%**
Percentage of the call volume:	**0.5%**

Table 27: 75R (Rural) - 90th Percentile Times of 1st Unit on Scene

Response Time Component	2020-2024	2024	2023	2022	2021	2020
Alarm Handling	3:51	4:20	4:40	4:24	3:30	3:27
Turnout Time	1:46	1:57	1:39	1:43	1:45	1:37
Travel Time	12:22	12:19	12:11	13:39	12:17	10:34
Total Response Time	16:08	16:32	14:59	18:14	15:55	14:35
	208	35	32	39	58	44

Planning Zone 75R Community Summary



Planning Zone 75U

Overview: Located in the western section of the district, this planning zone is bordered by Interstate 5 to the west and a major railroad line to the east. Its southern boundary runs along the Stone Lakes National Wildlife Refuge, while the northern edge borders the Sacramento Fire Department. Primarily residential, the zone also includes several commercial properties.

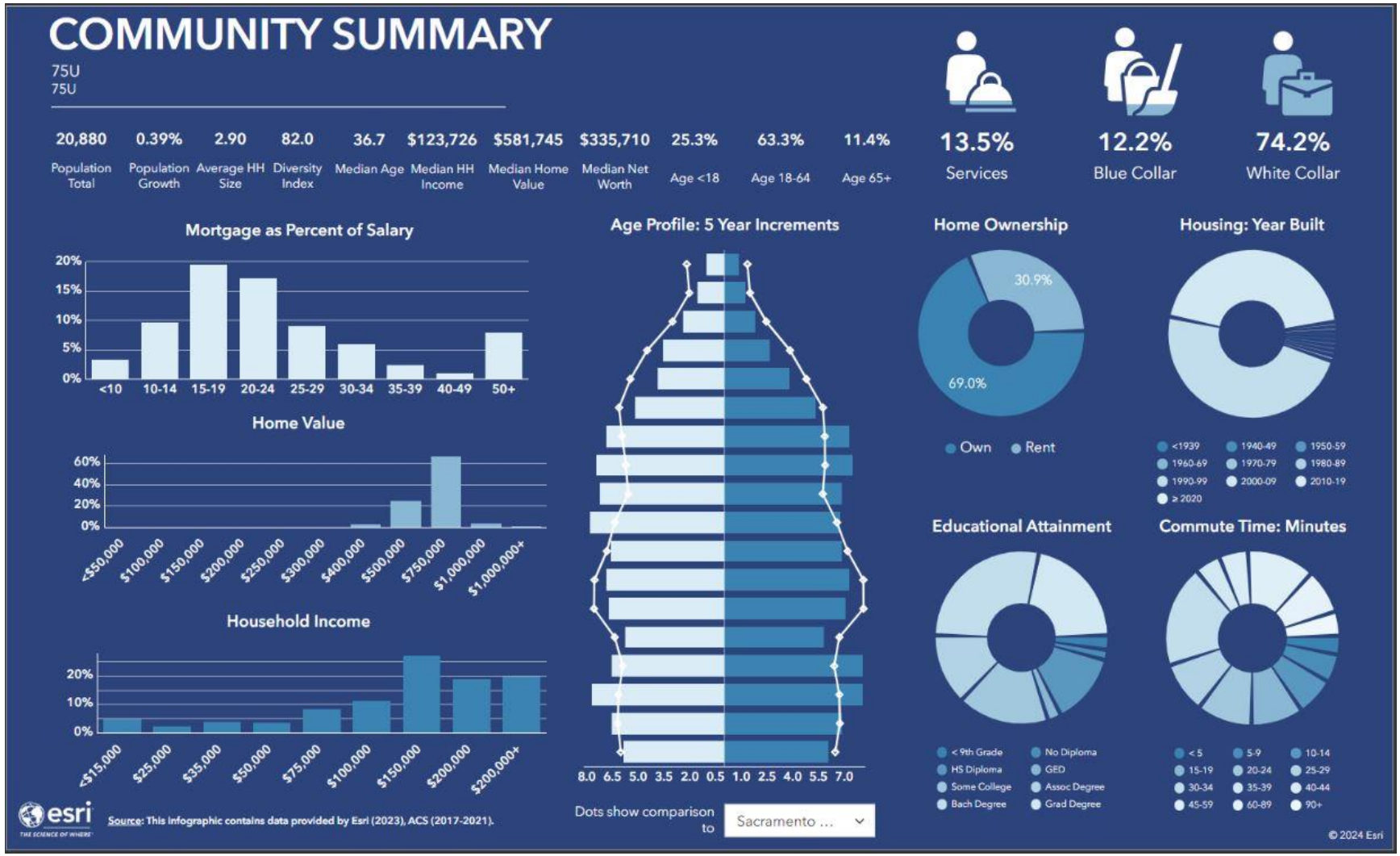
Highest Risks: Interstate 5, large Apple Computer manufacturing facility

Population:	**20,880**
Square Miles:	**3.44**
Population Density:	**6,069.77**
Housing Units:	**7,351**
Percentage of the District population:	**9.81%**
Percentage of the District area:	**2.17%**
Percentage of the call volume:	**11.2%**

Table 28: 75U (Urban) - 90th Percentile Times of 1st Unit on Scene

Response Time Component	2020-2024	2024	2023	2022	2021	2020
Alarm Handling	3:16	3:24	3:24	3:15	3:09	3:10
Turnout Time	1:35	1:43	1:33	1:30	1:34	1:35
Travel Time	6:08	5:35	5:47	6:19	6:26	6:20
Total Response Time	9:40	9:21	9:32	9:40	9:57	9:45
	3,803	772	766	847	777	641

Planning Zone 75U Community Summary



Planning Zone 76U

Overview: This planning zone is located in the north-central area of the district, bordered by Highway 99 to the west and Waterman Road to the east. The area is primarily residential, with retail and commercial developments concentrated along the Highway 99 corridor.

Highest Risks: Highway 99, large residential care facilities, several educational facilities

Population:	**26,878**	**Percentage of the District population:**	**12.63%**
Square Miles:	**5.17**	**Percentage of the District area:**	**3.26%**
Population Density:	**5,198.84**	**Percentage of the call volume:**	**11.1%**
Housing Units:	**7,930**		

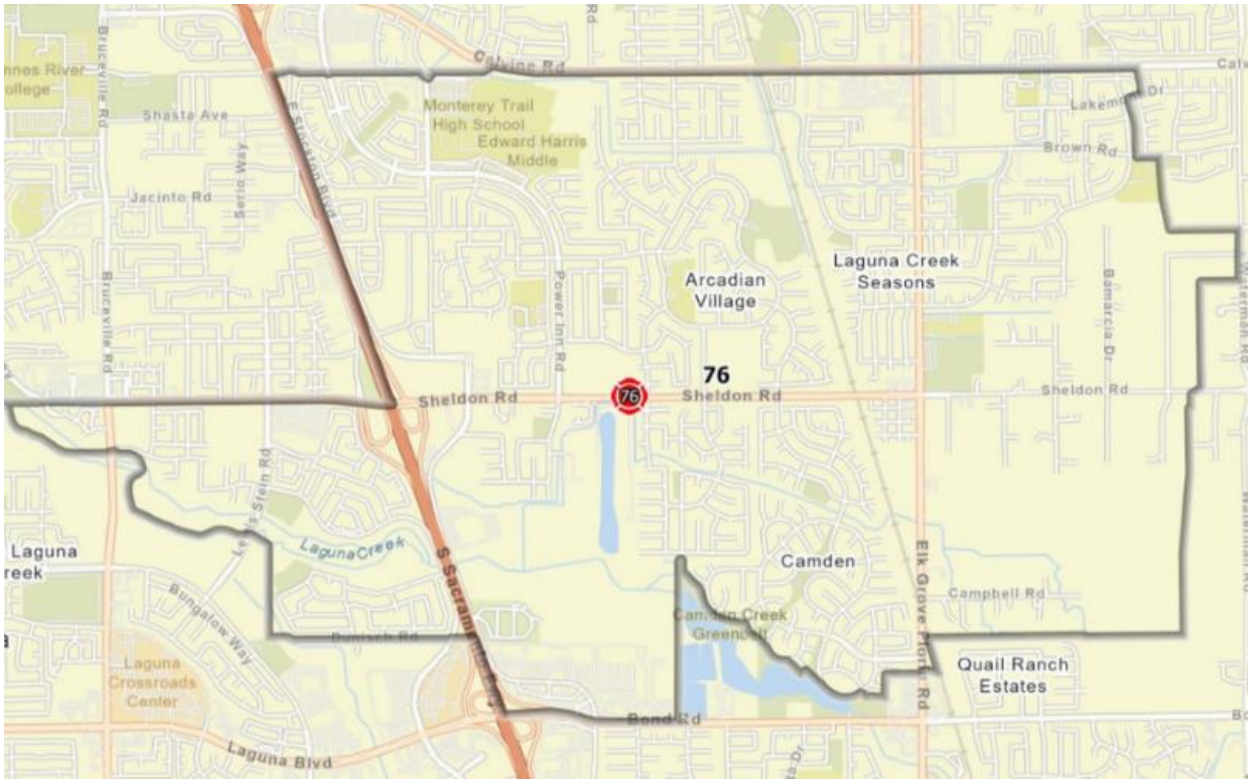
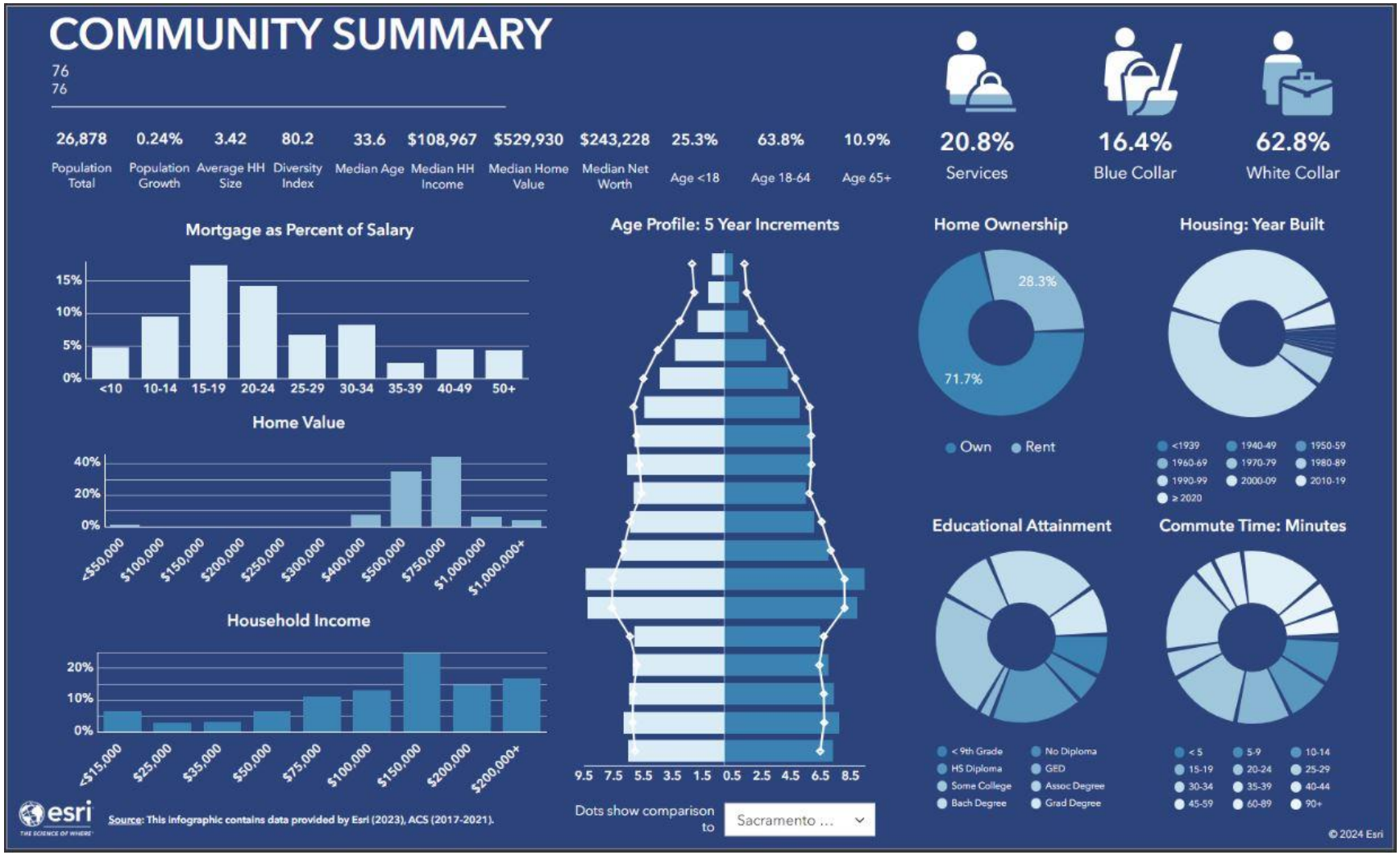


Table 29: 76U (Urban) - 90th Percentile Times of 1st Unit on Scene

Response Time Component	2020-2024	2024	2023	2022	2021	2020
Alarm Handling	3:16	3:25	3:20	3:11	3:09	3:09
Turnout Time	1:40	1:45	1:38	1:39	1:39	1:38
Travel Time	5:33	5:26	5:26	5:49	5:37	5:25
Total Response Time	9:18	9:19	9:19	9:23	9:13	9:04
	5,785	1,269	1,200	1,280	1,146	890

Planning Zone 76U Community Summary



Planning Zone 77R

Overview: This planning zone is located in the south-central area of the district, bordered by Bruceville Road to the west, the Cosumnes River to the east, and Kammerer Road to the north. Predominantly rural, the area features large ranches and small ranchettes.

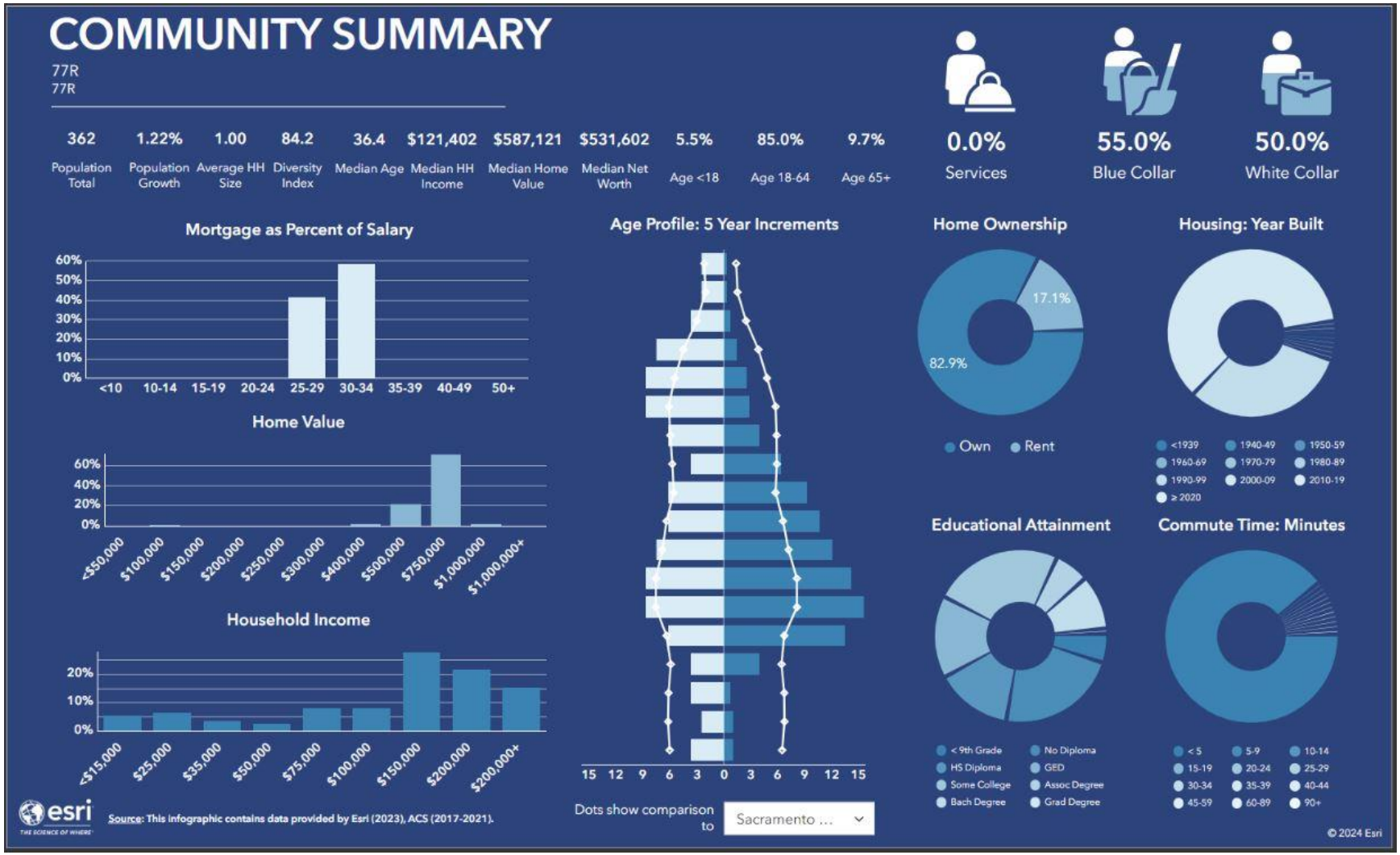
Highest Risks: Large mill, dairy farms, solar farms

Population:	**362**
Square Miles:	**11.66**
Population Density:	**31.05**
Housing Units:	**120**
Percentage of the District population:	**0.17%**
Percentage of the District area:	**7.35%**
Percentage of the call volume:	**0.2%**

Table 30: 77R (Rural) - 90th Percentile Times of 1st Unit on Scene

Response Time Component	2020-2024	2024	2023	2022	2021	2020
Alarm Handling	3:25	3:26	3:33	4:30	3:15	2:40
Turnout Time	1:51	1:57	1:57	1:47	1:44	1:25
Travel Time	12:57	11:47	13:55	13:21	11:43	14:42
Total Response Time	16:17	15:35	17:14	17:07	15:03	14:36
	145	29	23	25	35	33

Planning Zone 77R Community Summary



Planning Zone 77U

Overview: This planning zone is in the south-central section of the district, bordered by Highway 99 to the east and Kammerer Road to the south. It is a rapidly growing area with expanding residential developments and commercial properties. The zone includes Sky River Casino, which is expected to drive continued growth and development.

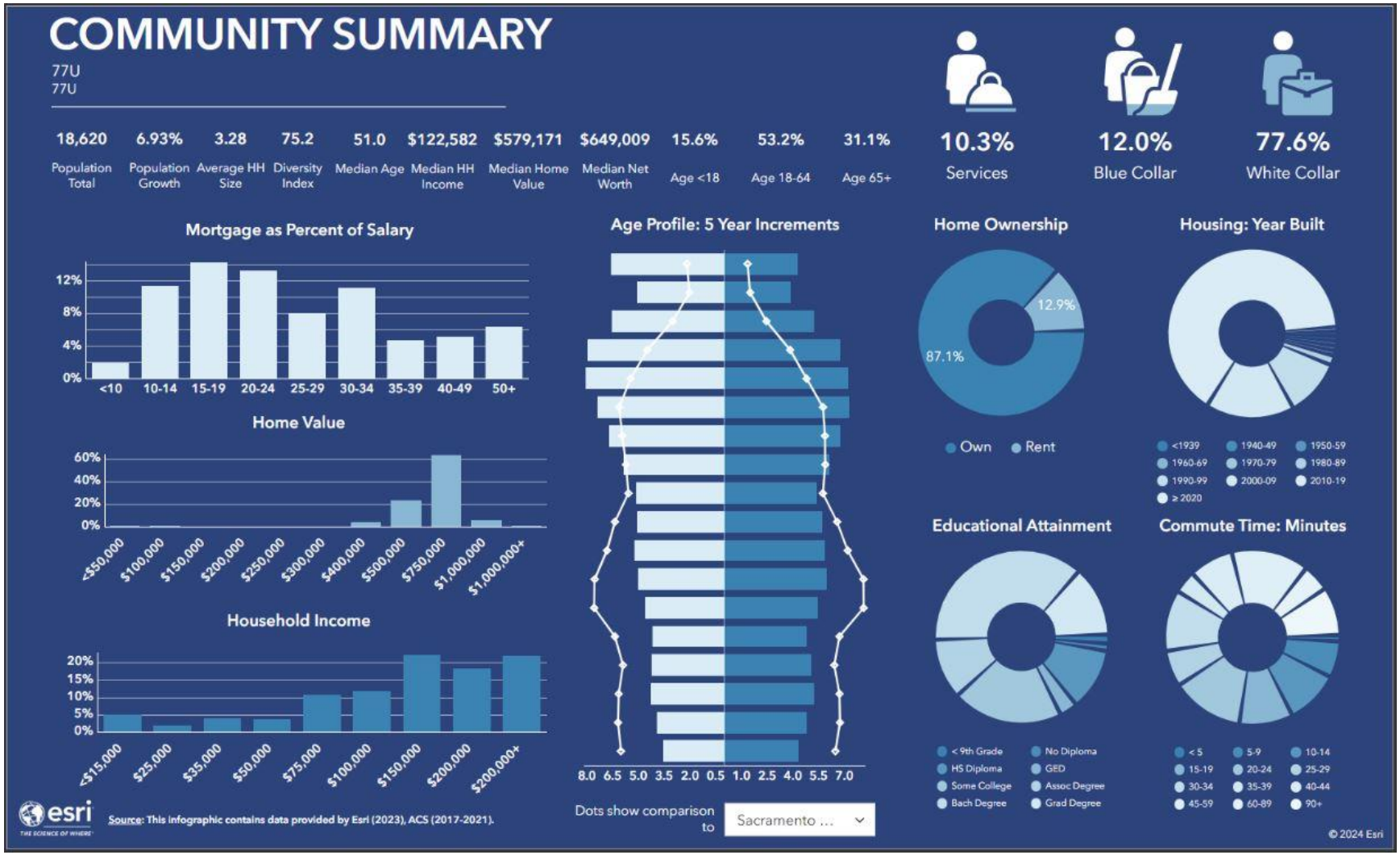
Highest Risks: Large casino, large high school, college facility

Population:	**18,620**	**Percentage of the District population:**	**8.75%**
Square Miles:	**5.81**	**Percentage of the District area:**	**3.66%**
Population Density:	**3,204.82**	**Percentage of the call volume:**	**7.3%**
Housing Units:	**5,985**		

Table 31: 77U (Urban) - 90th Percentile Times of 1st Unit on Scene

Response Time Component	2020-2024	2024	2023	2022	2021	2020
Alarm Handling	3:19	3:27	3:26	3:12	3:12	3:04
Turnout Time	1:39	1:47	1:36	1:35	1:34	1:35
Travel Time	6:46	6:19	7:05	7:02	6:41	6:38
Total Response Time	10:20	10:04	10:44	10:30	10:17	10:06
	3,821	1,006	877	781	602	555

Planning Zone 77U Community Summary



Planning Zone 78R

Overview: This planning zone is located in the southeastern section of the district, bordered by Grant Line Road to the north and the Cosumnes River to the south. It is bisected by both Highway 99 and a major railroad line. Predominantly rural, the zone includes a small commercial area along the Highway 99 corridor.

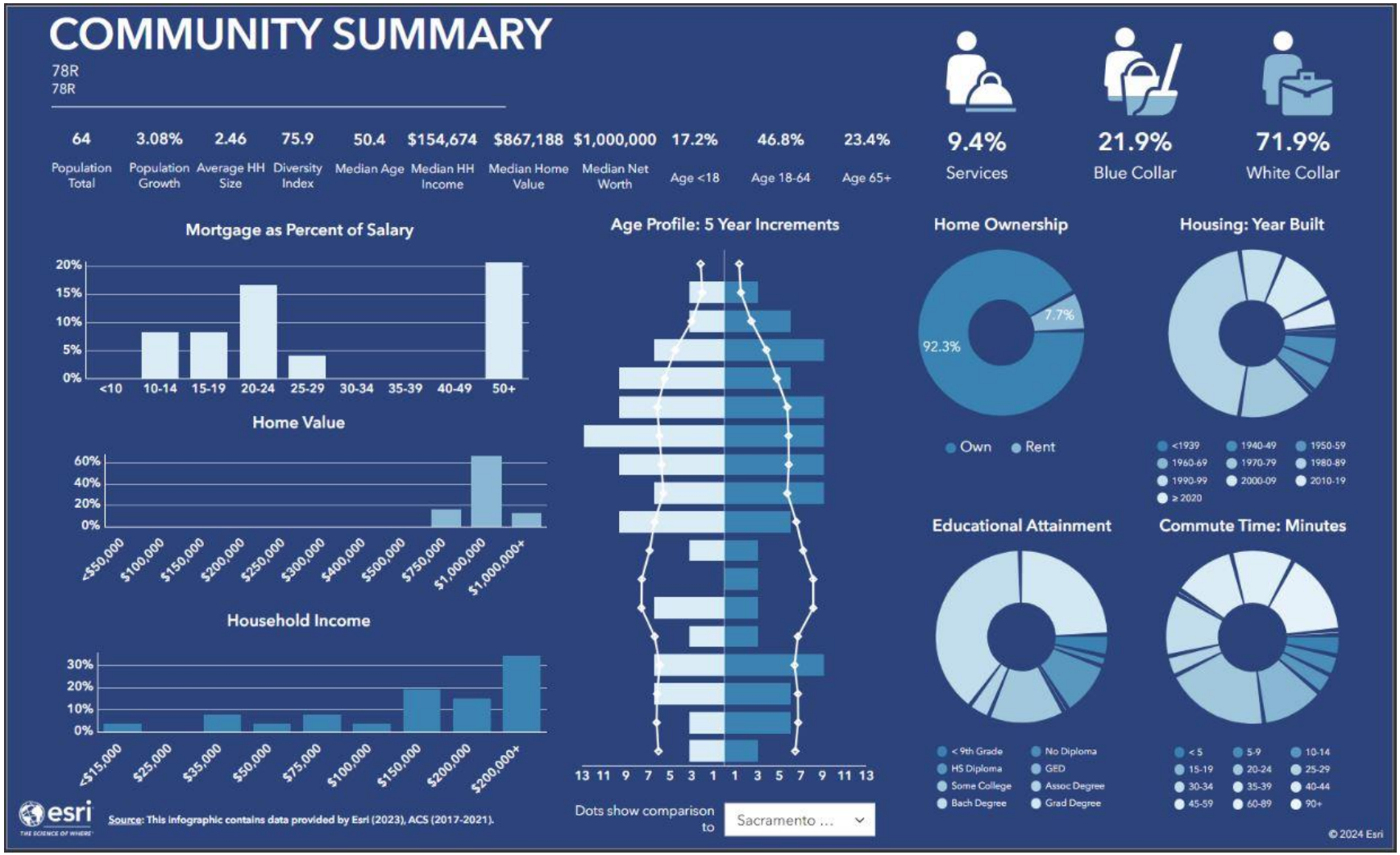
Highest Risks: Highway 99, railroad lines, Cosumnes River

Population:	**64**
Square Miles:	**7.96**
Population Density:	**8.04**
Housing Units:	**26**
Percentage of the District population:	**0.03%**
Percentage of the District area:	**5.02%**
Percentage of the call volume:	**0.3%**

Table 32: 78R (Rural) - 90th Percentile Times of 1st Unit on Scene

Response Time Component	2020-2024	2024	2023	2022	2021	2020
Alarm Handling	4:04	4:48	3:01	3:56	3:59	4:05
Turnout Time	1:44	1:48	2:24	1:31	1:21	1:42
Travel Time	11:59	9:19	9:38	11:23	15:02	10:16
Total Response Time	16:08	14:08	13:10	15:16	19:42	13:31
	96	21	14	18	21	22

Planning Zone 78R Community Summary



Planning Zone 78U

Overview: This planning zone is situated in the south-central area of the district and consists of two separate sections. Both are bordered to the south by Grant Line Road, with Highway 99 forming the western boundary. Primarily commercial, these zones also contain some surrounding residential areas.

Highest Risks: Large propane facility, Elk Grove Park, Highway 99

Population:	**5,973**	**Percentage of the District population:**	**2.81%**
Square Miles:	**1.54**	**Percentage of the District area:**	**0.97%**
Population Density:	**3,878.57**	**Percentage of the call volume:**	**1.6%**
Housing Units:	**1,933**		

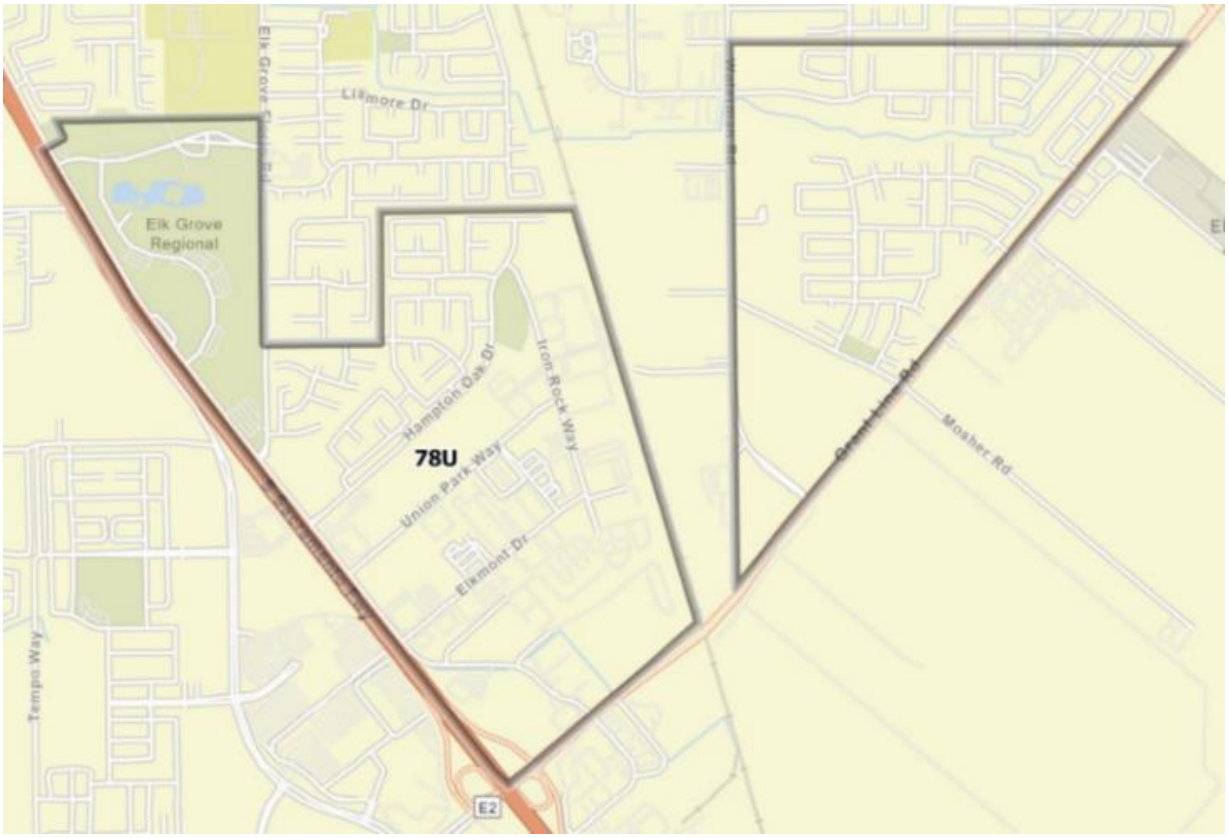
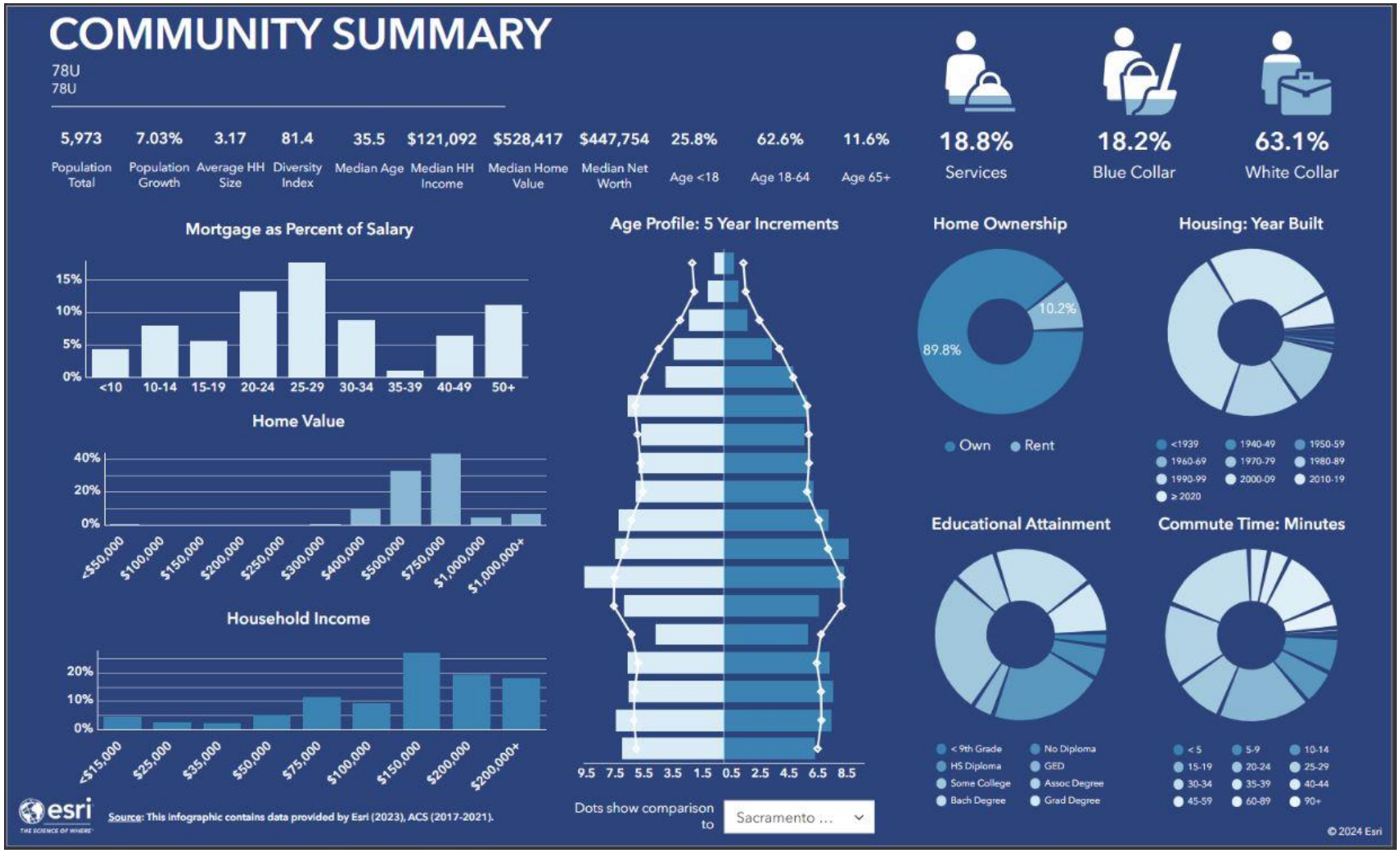


Table 33: 78U (Urban) - 90th Percentile Times of 1st Unit on Scene

Response Time Component	2020-2024	2024	2023	2022	2021	2020
Alarm Handling	3:16	3:19	3:22	3:12	3:18	3:11
Turnout Time	1:38	1:43	1:32	1:33	1:39	1:40
Travel Time	7:22	6:58	6:56	7:29	8:25	7:00
Total Response Time	11:02	10:55	10:38	11:04	11:44	10:45
	926	171	199	209	188	159

Planning Zone 78U Community Summary



Emergency Services System Dynamics

In making decisions about the emergency services system, it is important for the leadership and residents of the District to understand the science behind the location of resources, the deployment strategies of those resources, and other parts necessary to form an effective emergency services system. For many years, the Insurance Services Office (ISO) had set the standard for deployment through their Public Protection Classification system. This system was designed to provide insurers with 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 and residents to know while making decisions about the emergency services in the District.

Nationally, the National Fire Protection Association (NFPA), Center 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, rescue, and emergency medical services (EMS). 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:

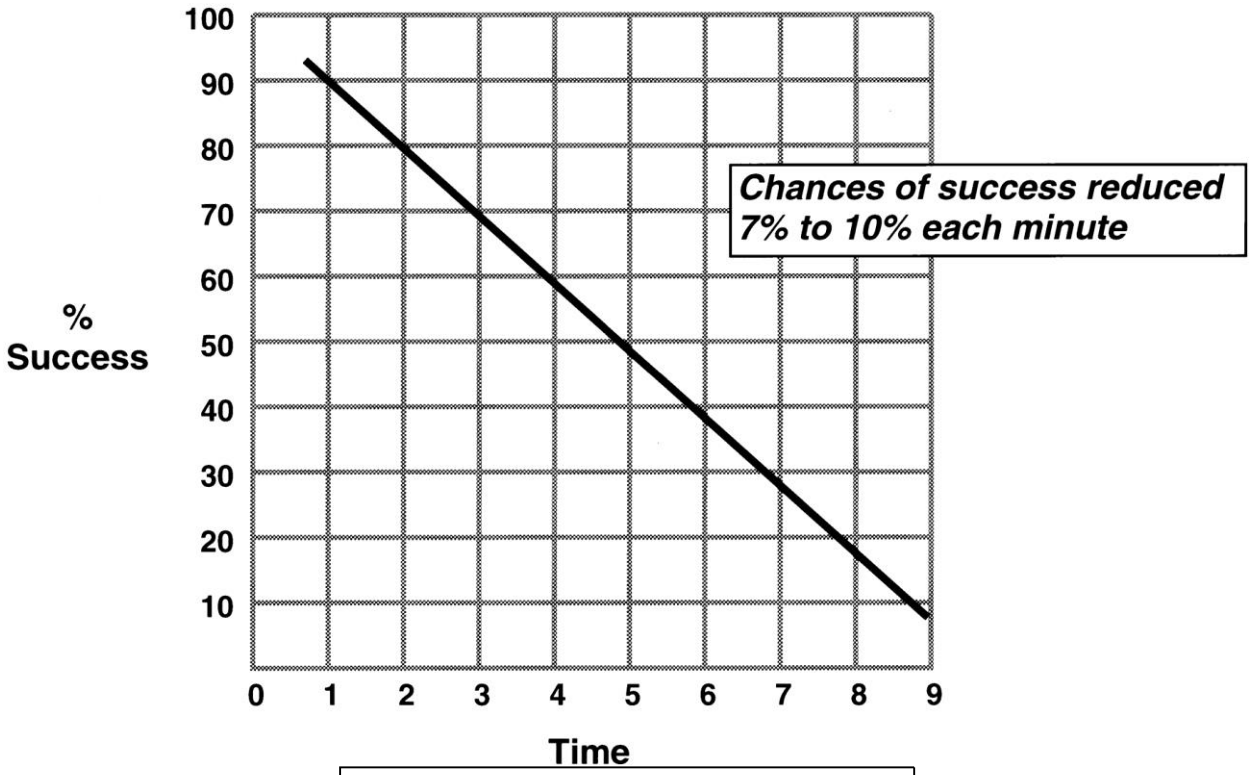
- What is the impact of the passage of time on survivability for victims of cardiac arrest?
- What is the key point in a fire's "life" for gaining control of the blaze while minimizing the impact on the structure of origin and on those structures around it?

The next sections describe the decision points for these factors.

Emergency Medical Services

Delivery of EMS is a function of the emergency services system to be considered. Emergency medical calls are rising within the CFD 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 high quality cardiopulmonary resuscitation (CPR) that emphasizes correct hand position, proper

depth and compression rate, full recoil, and minimization of pauses in combination with timely defibrillation to victims of cardiac arrest. The graph below demonstrates the survivability of cardiac arrest patients as related to time from onset:



This graph[6] 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

[6] The Automated External Defibrillator - Emergency Cardiovascular Care Systems and the AED

defibrillation. These dynamics are the result of extensive studies of the survivability of patients suffering from cardiac arrest. While the demand for EMS is wide ranging, the survival rates for cardiac 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 four minutes of notification and the provision of advanced life support (ALS) within eight minutes of notification.

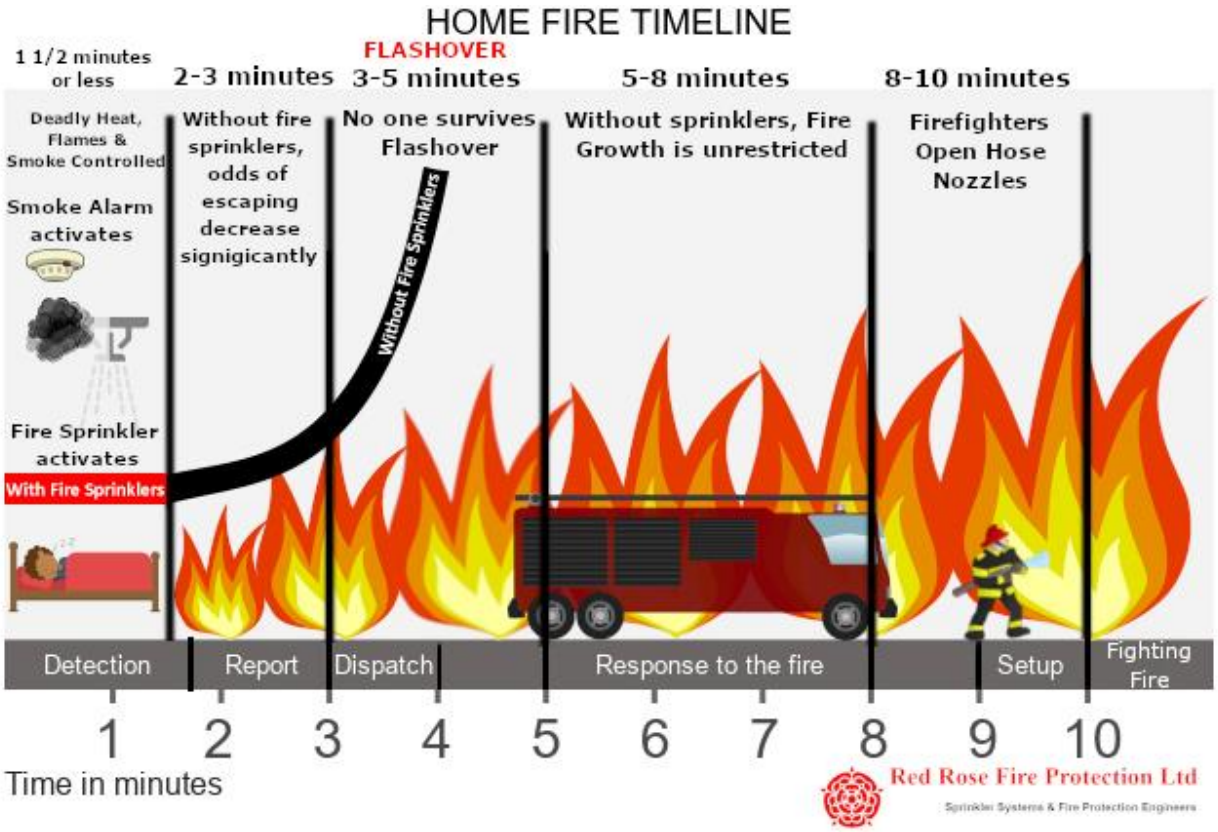
Considering the response time continuum, the response time goal for EMS is to provide BLS within 6 minutes of the onset of the incident (including detection, dispatch, turnout, and travel time) and ALS within 10 minutes. This is often used as the foundation for a two-tier system where fire resources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

Additionally, research has shown the impact and efficacy of rapid deployment of an automated external defibrillator (AED) to cardiac arrests. This research – conducted in King County (WA), Houston (TX), and as part of the Ontario Prehospital Advanced Life Support (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 managed by typical EMS systems – non-cardiac events make up most 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[7] that follows shows a typical flashover curve for interior structure fires based on data from NFPA, NIST, and ISO. 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.

[7] Home Fire Timeline



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 flashover 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 stage and has entered the fully developed stage. During the fully developed stage, 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 eight minute mark to reach flashover. A quickly responding fire crew can do things to prevent or delay the occurrence of flashovers. 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. The Occupational Safety and Health Administration (OSHA) and related industry standards require the presence of at least two firefighters on the exterior of a building before entry can be made to a structure in which the environment is "immediately dangerous to life or health (IDLH)" due to being contaminated by a fire, unless "life is in jeopardy". 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 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 NFPA promulgated a document entitled: "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." This document (NFPA 1710) was last published in 2020.
- The Commission on Fire Accreditation International (CFAI) in its "Community Risk Assessment: Standards of Cover" 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 AHA provides information on the response to cardiac events, the preferred methods of treatment, and the timing of the delivery of medical care and treatment.

The next section examines the issue of response time.

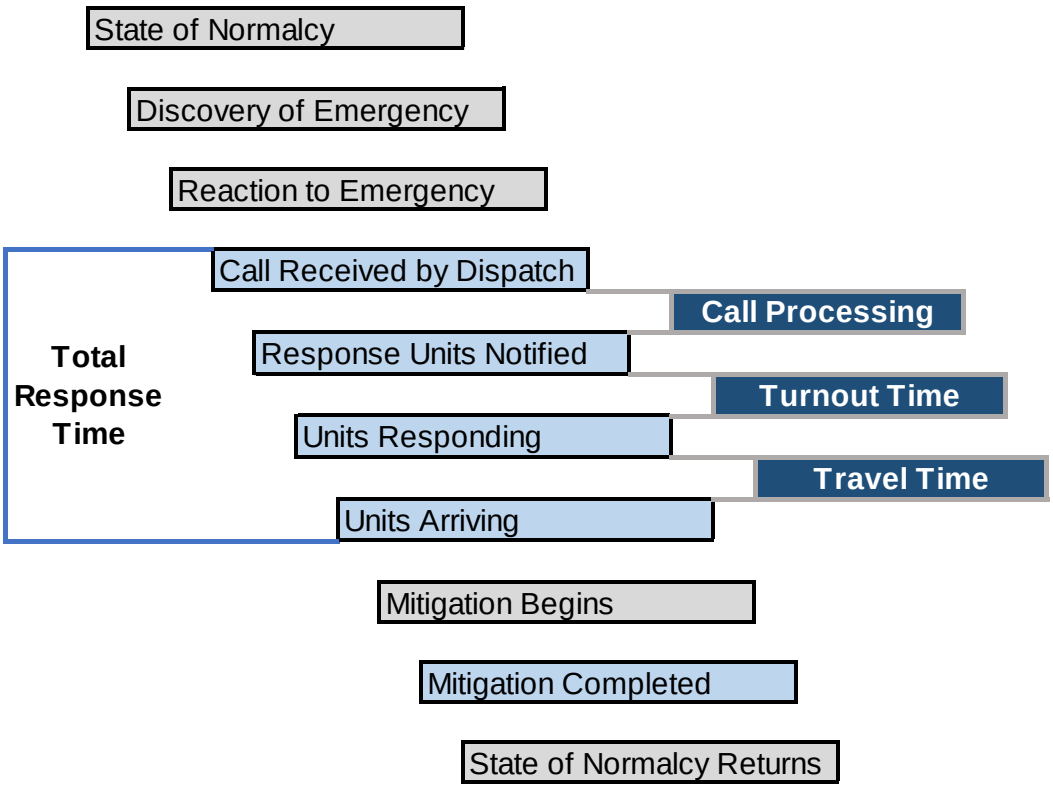
National Response Time Criteria

The expression of response time has changed. In years past, the measurement was expressed as an average of time. This essentially represents how the emergency services system or department is performing 50% of the time and is not a true reflection of how a fire department is performing the majority of the time. 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 percentage of calls) a department can perform within each response time component. The NFPA and CPSE use the 90th percentile as the standard to meet benchmark and baseline criteria. The definitions for baseline and benchmark performance follow.

- **Baseline performance** is what the agency is currently able to perform and is based on the performance of call processing, turnout time and travel time over the previous four years.
- **Benchmark performance** is the target level of performance for the agency and should show what the agency is striving to perform based on community risk and expectations.

Response time to an emergency or call for service 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 occur once an emergency starts or is recognized. The highlighted points represent hard data or that which is quantitative versus soft data or that which is subjective and unknown.

Response Time Continuum



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 represents 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 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 dispatch notification and ends when personnel are 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 NFPA, CPSE, and 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 and special operations 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."
- "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 states: "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 critical to note that Appendix A contained in the NFPA 1710 document provides additional information and background as it pertains to service delivery objectives for the jurisdiction as follows:

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

> AHJ for occupancies other than those identified within the standard for benchmark single-family dwellings. Factors to be considered include specific response areas (i.e., suburban, rural, and wilderness) and occupancy hazards."

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

Effective Response Force

There are several tasks, which must occur simultaneously, to adequately combat diverse 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 suppression, pump operations, ventilation, back up, and rapid intervention.

Critical tasks will vary depending on the size and nature of the incident.

Adding to the critical tasks and staffing issues is the OSHA 1910.134(g)(4) requirement of two in – two out. These regulations state that if entry into an 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 unless life is in jeopardy.

The concept of an ERF carries through for other response types by the fire department.

Evaluation of Current Deployment and Performance

This chapter assesses the current deployment and performance of the CFD as it relates to nationally accepted benchmark performance objectives described in the previous chapter.

Response Time

Record Management System (RMS) data for 2019, 2020, 2021, and 2022 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 CFD unit being dispatched to the call.
- Incidents that are missing data are not used in the computations for call processing, turnout time, travel time, or call duration.
- Incidents with unusually long times or times sorted incorrectly (arrived before dispatch time) were removed.
- Non-emergency responses are removed; only emergency responses are included.

After filtering the data using the methodology outlined above, the remaining incidents represent the response time for calls for service managed by the CFD. With the Covid-19 pandemic in 2020, many departments and agencies had different experiences from decreased call volumes, diverse types of calls, and deviations in call times. Many of these same departments and agencies are now reporting their call volumes have increased significantly over pre-pandemic times. While these differences will interfere with any trends, it is equally important to note the effect a global event can have on an emergency services system.

Call Processing

Performance Standards

Sacramento Regional Fire/EMS Communications Center (SRFECC) provides fire and emergency medical dispatch services to the CFD through a Joint Powers Agreement. The SRFECC provides dispatching services to 10 member agencies in Sacramento County. NFPA 1710 for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments establishes the call processing benchmarks as outlined in the chart below.

Table 34: NFPA 1710 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.	

ISO uses the 60 second call processing time benchmark performance objective as outlined in NFPA 1710 for their requirements.

System Performance

The table below summarizes the performance of the SRFECC.

Table 35: SRFECC Call Processing Performance Summary

All Emergency Calls – 90th Percentile Times	2019 – 2022	Performance Benchmark	Performance Baseline	Performance Gap	Number of Calls
Call Processing	Pick-up to Dispatch	1:00	3:01	2:01	86,011

As shown, the call processing performance for the past four years is over the performance benchmark by 2 minutes and 1 second. The following table provides a detailed view for the past four years.

Table 36: SRFECC Call Processing Performance Detail

All Emergency Calls – 90th Percentile Times		2019	2020	2021	2022	NFPA Benchmark
Call Processing	Pick-up to Dispatch	3:08	3:02	2:57	3:00	1:00

Call processing for the past four years is consistent at three minutes for 90% of qualifying emergency incidents.

Turnout Time

Performance Standards

Turnout time is a measurable time segment that begins when the emergency service unit receives the notification and is on the apparatus responding (wheels rolling) to the incident. NFPA 1710 provides two benchmark performance objectives, one for medical calls for service (60 seconds) and one for fire related calls for service (80 seconds). The CFD had previously established their own turnout time performance objective of two minutes 90% of the time for all emergency responses.

System Performance

The table below summarizes the CFD performance for turnout time as measured against the CFD benchmark performance objective.

Table 37: CFD Turnout Time Performance Summary – CFD Benchmark

All Emergency Calls – 90th Percentile Times		2019 – 2022	Performance Benchmark	Performance Baseline	Performance Gap	Number of Calls
Turnout Time	1st Unit	Medical Calls	2:00	1:21	0:39	62,608
		Fire Calls	2:00	1:34	0:26	18,629

As shown, both call types are under the CFD benchmark performance objective by 39 seconds and 26 seconds, respectively. The following table illustrates the same performance as measured against NFPA1710 benchmark performance objectives.

Table 38: CFD Turnout Time Performance Summary – NFPA 1710 Benchmarks

All Emergency Calls – 90th Percentile Times			Performance Benchmark	Performance Baseline	Performance Gap	Number of Calls
Turnout Time	1st Unit	Medical Calls	1:00	1:21	0:21	62,608
		Fire Calls	1:20	1:34	0:14	18,629

In this comparison, both call types are slightly over the NFPA 1710 performance benchmark by 21 seconds and 14 seconds, respectively. The following table provides a detailed view for the past four years.

Table 39: CFD Turnout Time Performance Detail

All Emergency Calls – 90th Percentile Times	2019 – 2022		2019	2020	2021	2022
Turnout Time	1st Unit	Medical Calls	1:24	1:21	1:20	1:21
		Fire Calls	1:39	1:32	1:34	1:30

Turnout time for the past four years for each call type is consistent with the four-year total previously shown. The following table illustrates the turnout time for each staffed response unit in the CFD.

Table 40: CFD Unit Turnout Time

All Emergency Calls – 90th Percentile Times	2019 - 2022
Unit	Medical Calls	Fire Related Calls
Engine 45	1:38	1:39
Engine 46	1:39	1:40
Engine 71	1:30	1:33
Engine 72	1:38	1:38
Engine 73	1:41	1:43
Engine 74	1:32	1:32
Engine 75	1:33	1:34
Engine 76	1:37	1:37
Engine 77	1:35	1:35
Medic 45	1:40	1:40
Medic 46	1:36	1:36
Medic 71	1:26	1:26
Medic 72	1:27	1:27
Medic 73	1:28	1:29
Medic 74	1:28	1:28
Medic 76	1:27	1:28
Medic 77	1:31	1:31
Truck 74	1:19	1:27

As illustrated, the turnout times for the individual units are consistent between medical calls and fire related calls for service.

Distribution of Resources

Distribution of resources 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 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 geographic information systems (GIS) technology and improved CAD systems, the use of actual travel time is another more accurate measure for the distribution of resources.

The CFD had previously established their own travel time performance objective of 4 minutes 90% of the time for all emergency responses which also mirrors the performance objectives of NFPA 1710.

System Performance

The table below summarizes the performance of the CFD.

Table 41: CFD Travel Time Performance Summary

All Emergency Calls – 90th Percentile Times	2019 – 2022	Performance Benchmark	Performance Baseline	Performance Gap	Number of Calls
Travel Time	1st Unit – Distribution	4:00	6:32	2:32	61,456

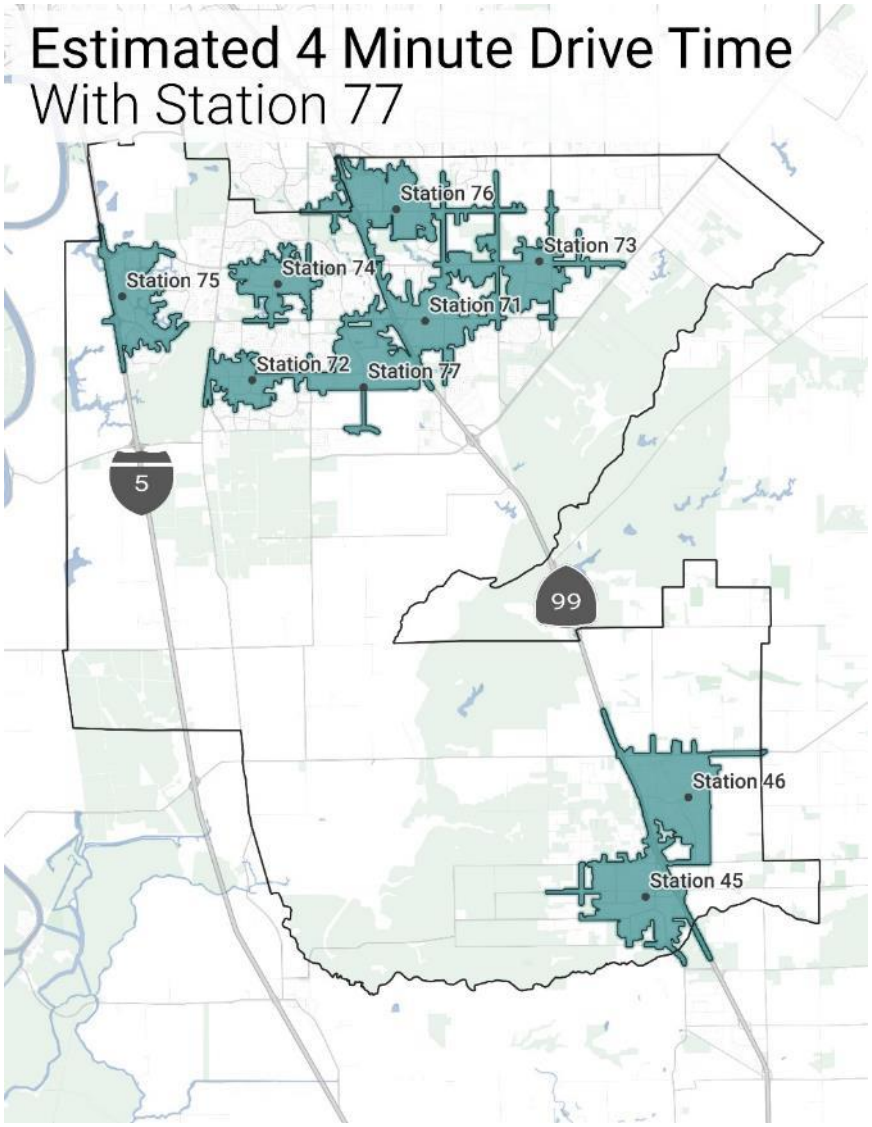
Both performance benchmarks use a four minute travel time measurement. Over the past four years the travel time for the CFD has been over the benchmark performance object by 2 minutes and 32 seconds. The following table illustrates a detailed view of the performance for the past four years.

Table 42: CFD Travel Time Performance Detail

All Emergency Calls – 90th Percentile Times		2019	2020	2021	2022
Travel Time	1st Unit – Distribution	6:26	6:24	6:40	6:36

All times shown is the 90th percentile time for each of the four years. Like call processing and turnout time, the travel time for each of the four years is consistent with the four-year total.

The following map illustrates the 4-minute travel time using each of the existing fire stations.



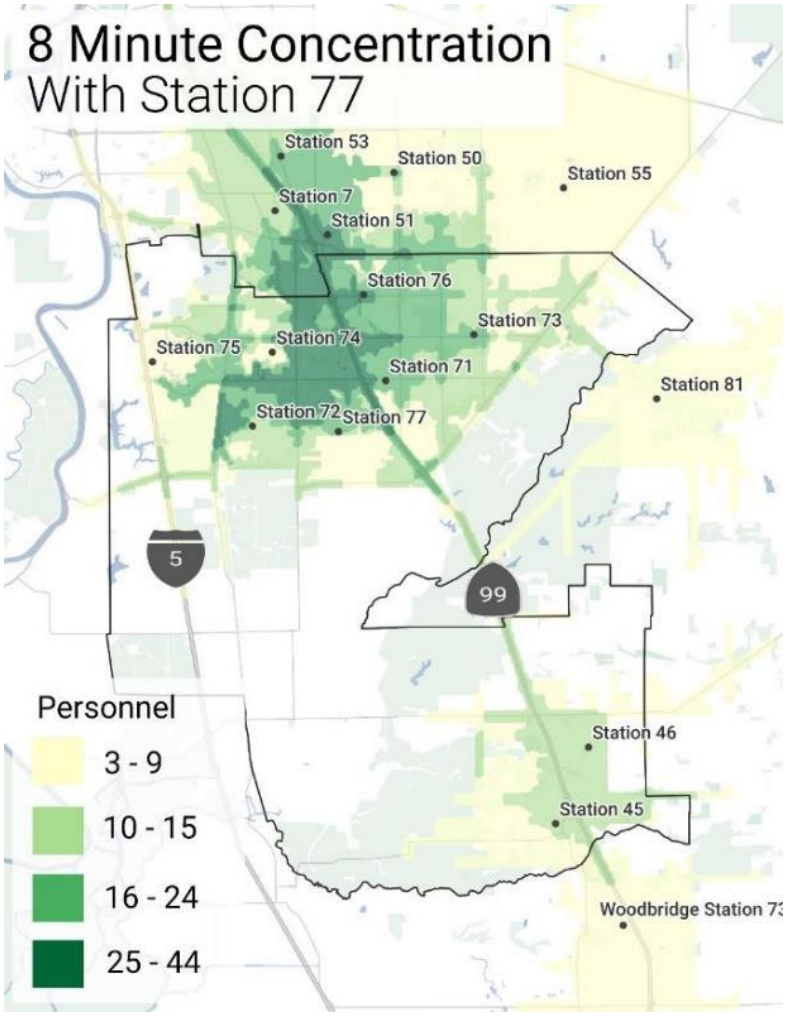
As shown, there is significant improvement in the central section of the District that is west of Highway 99.

Concentration of Resources

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

Performance Standards

The following map includes the automatic aid partners from Sacramento City and Sacramento Metro Fire Departments. The map is based on the staffing of each station, assumes all units are responding from the station, and that all units are available to respond. With Station 77 operational, there is an improvement to the central section of Elk Grove along Highway 99 north to the area of Station 74. To the south of Station 77, there are improvements noted extending to Kammerer Road.



Total Response Time

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

The following table illustrates the response time components for all emergency calls for service and the total response time for the first arriving resource and the effective response force for the past four years.

Table 43: CFD Total Response Time Performance Summary 2019 – 2022

All Emergency Calls – 90th Percentile Times			Performance Objective	Performance Baseline	Performance Gap	Number of Calls
Call Processing	Pick-up to Dispatch		1:00	3:01	2:01	86,011
Turnout Time	1st Unit	Medical Calls	2:00	1:21	0:39	62,608
		Fire Calls	2:00	1:34	0:26	18,629
Travel Time	1st Unit Distribution	Medical Calls	4:00	6:27	2:27	53,029
		Fire Calls	4:00	7:06	3:06	9,803
Total Response Time	1st Unit Distribution	Medical Calls	6:00	9:49	3:49	53,029
		Fire Calls	6:20	9:18	2:58	9,803
Total Response Time	Concentration – ERF	Structure Fire Calls	10:20	33:23	23:03	68

The total response time illustrated in the previous table is measured from the time the call is received by the SRFECC to the initial arrival of resources. For the past four years the total response time for the first arriving resource is within 9 minutes and 49 seconds for 90% of the medical calls for service and within 9 minutes and 18 seconds for 90% of the fire calls for service. The total response time for the concentration component for the past four years is 33 minutes and 23 seconds. The use of total response time represents what the customer experiences when services are requested.

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 Hour Utilization

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

The following table illustrates the unit hour utilization for the past four years for the medic units. This shows that in 2021, four of the medic units were at or above a commitment range of 30% and that trend continued into 2022 and two additional units were above a 25% commitment range.

Table 44: Unit Hour Utilization – Medic Units

Unit	2019			2020			2021			2022		
	Duration	Pct. of Time	Avg.	Duration	Pct. of Time	Avg.	Duration	Pct. of Time	Avg.	Duration	Pct. of Time	Avg.
Medic 74	3251:32:51	37.1%	0:59:52	3029:19:03	34.6%	0:57:26	3396:39:25	38.8%	1:01:16	3178:28:35	36.3%	1:04:51
Medic 71	2794:55:53	31.9%	1:02:02	2549:30:03	29.1%	0:59:37	3155:48:54	36.0%	1:04:36	3160:04:35	36.1%	1:06:37
Medic 76	2867:45:41	32.7%	0:54:21	2519:15:41	28.8%	0:50:56	3032:20:08	34.6%	0:57:33	3012:40:44	34.4%	0:59:19
Medic 72	2865:20:57	32.7%	1:07:14	2607:59:06	29.8%	1:04:02	3089:47:44	35.3%	1:08:09	2870:05:11	32.8%	1:12:43
Medic 73	2376:57:11	27.1%	1:05:13	2186:07:24	25.0%	1:02:33	2623:15:22	29.9%	1:06:55	2581:14:54	29.5%	1:08:03
Medic 77	0:00:00	0.0%	0:00:00	0:00:00	0.0%	0:00:00	993:07:33	11.3%	1:09:56	2307:49:02	26.3%	1:09:20
Medic 45	1673:36:37	19.1%	1:06:46	1574:15:40	18.0%	1:04:36	1811:17:40	20.7%	1:06:53	1861:28:29	21.2%	1:11:08
Medic 46	1607:55:32	18.4%	1:07:56	1548:21:12	17.7%	1:06:50	1766:33:56	20.2%	1:09:06	1758:24:43	20.1%	1:09:58

The following table illustrates the unit hour utilization for the past four years for the suppression units.

Table 45: Unit Hour Utilization – Suppression Units

Unit	2019			2020			2021			2022		
	Duration	Pct. of Time	Avg.	Duration	Pct. of Time	Avg.	Duration	Pct. of Time	Avg.	Duration	Pct. of Time	Avg.
Engine 74	1266:13:46	14.5%	0:21:13	1337:19:48	15.3%	0:22:59	1352:43:19	15.4%	0:22:07	1346:52:45	15.4%	0:22:18
Engine 71	1049:43:05	12.0%	0:21:45	990:06:23	11.3%	0:20:38	1122:42:09	12.8%	0:21:05	1272:08:38	14.5%	0:21:47
Engine 76	866:18:59	9.9%	0:20:50	830:09:38	9.5%	0:20:21	943:37:36	10.8%	0:20:33	1070:30:11	12.2%	0:20:59
Engine 73	655:27:40	7.5%	0:22:22	676:58:42	7.7%	0:23:26	746:40:13	8.5%	0:22:58	828:47:24	9.5%	0:23:04
Engine 72	946:04:46	10.8%	0:24:57	870:57:30	9.9%	0:23:58	937:46:08	10.7%	0:24:54	790:36:56	9.0%	0:25:04
Engine 45	610:15:41	7.0%	0:21:11	591:29:56	6.8%	0:20:09	659:15:04	7.5%	0:20:10	710:35:41	8.1%	0:20:08
Engine 77	2:01:49	0.0%	0:40:36	0:00:00	0.0%	0:00:00	243:27:16	2.8%	0:24:31	674:35:36	7.7%	0:24:54
Engine 75	658:06:27	7.5%	0:25:08	646:20:04	7.4%	0:27:01	656:51:54	7.5%	0:23:59	641:06:34	7.3%	0:23:12
Truck 74	622:17:49	7.1%	0:25:31	577:45:36	6.6%	0:26:34	629:07:49	7.2%	0:25:47	629:39:56	7.2%	0:23:50
Engine 46	476:38:23	5.4%	0:22:17	485:33:34	5.5%	0:24:08	557:00:20	6.4%	0:23:56	518:31:39	5.9%	0:21:09

Suppression units for the CFD are not above the commitment range of 16% and have remained reasonably close to the same commitment from year to year.

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. With the appropriate resources this can be managed efficiently. The following table summarizes the number of concurrent calls for the emergency services system for the past four years.

Table 46: Concurrent Calls by Year

Calls	2019	2020	2021	2022	Total	%
1	2,194	2,353	2,095	2,043	8,685	9.9%
2	3,693	3,897	3,583	3,693	14,866	17.0%
3	3,875	4,003	3,996	4,259	16,133	18.4%
4	3,328	3,202	3,616	3,920	14,066	16.1%
5	2,419	2,322	2,787	3,170	10,698	12.2%
6	1,770	1,480	1,989	2,250	7,489	8.6%
7	1,197	994	1,348	1,549	5,088	5.8%
8	721	592	964	1,033	3,310	3.8%
9	514	388	634	671	2,207	2.5%
10+	877	689	1,597	1,800	4,963	5.7%
Total	**20,588**	**19,920**	**22,609**	**24,388**	**87,505**	**100%**

Of the 24,388 calls for service in 2022, there were 3,693 instances where two calls for service are occurring simultaneously. Likewise, there were 4,259 instances where three calls were occurring simultaneously. Approximately 90% of the calls occurred with multiple calls occurring in the District. It should be noted that it is possible for two or three calls to occur at the same time in different areas of the District such as one in Galt and one in Elk Grove that may not influence the emergency services system. Another factor that is not captured is the back-to-back calls. For example, Engine 71 could respond to a call in the northern section of their response area and clear that call only to receive a second call in the southern section of their response area. This would not show up as a concurrent call, but it would extend the travel time for the second call. It should also be noted that a single call for service may require a significant number of resources that could impact the delivery of services.

Plan for Improving Response Capabilities

In the previous chapter several gaps in service levels were illustrated presenting opportunities to improve the deployment of services. Other factors are related to the changes in the community demographics, growth, and built upon area of the District. This chapter provides recommendations intended to provide improvements to the deployment of resources in the emergency services system within the District.

Call Processing

As noted previously, the SRFECC provides fire and emergency medical dispatch services to the CFD through a Joint Powers Agreement (JPA). Call processing is an integral part of the total response time that affects not only the CFD but also the other nine partners in the JPA. For the CFD, call processing is consistently at approximately three minutes for the four years evaluated, which is above the NFPA 1710 benchmark performance objective. The CFD should take the lead in reducing the call processing time by working with the other agencies and the SRFECC to improve performance.

In addition to the call processing performance, the CAD platform is an older system and is due to be replaced with an improved platform. The newer system may provide more detailed data and improve the recordkeeping for the performance measurements. The CFD should continue to support the acquisition and implementation of the newer platform. This will likely improve the accuracy of the data in the future.

Recommendations

Take a lead role in collaborating with the partner agencies and Sacramento Regional Fire/EMS Communications Center (SRFECC) to improve the call processing performance.

Continue to support the acquisition and implementation of an updated Computer Aided Dispatch (CAD) platform for the SRFECC.

Turnout Time

There are several factors that will influence the turnout time for emergency incident responses 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.

The CFD had previously established a turnout time performance objective of two minutes for all emergency calls for service. As noted, the CFD has met and exceeded this performance objective over the past four years. To continue the current performance and to promote improvement, the CFD should adopt a benchmark performance objective of 90 seconds for turnout.

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.

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

In keeping with previously established benchmark performance objectives, the CFD should establish a 90 second turnout time benchmark performance objective for 90% of the emergency calls.

Consider tools such as timers and standard operating procedure updates to promote improvements for turnout time to emergency calls for service.

Consider upgrading personnel and fire station alerting systems to ensure proper and prompt notification of an emergency call.

Resource Distribution Short Term Improvement Opportunities

Travel time is the response time component that provides the basis for the distribution of resources and is typically measured using a fixed location, a fire station, to the scene of the call for service.

Planning Zones

In the Community Risk Assessment, the District was divided into planning zones loosely following the station response zones and incorporating the population density as a

secondary measurement. Based on the population density, each planning zone can be identified as an urban or rural area allowing the CFD to tailor the response for each area. The following tables highlight the travel time for the urban and rural planning zones.

To customize the response to calls for service, the CFD will need to establish benchmark performance objectives based on the demographics of the area. The CFD has previously established a four minute travel time benchmark performance objective for the District based on NFPA 1710. Unfortunately, NFPA 1710 does not address any demographic data in its travel time requirements and NFPA 1720 does not address the initial response to calls for service. Previously the CPSE[8] had defined benchmark response times for travel time based on the demographics. 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 benchmark services should be for a community. Lacking guidance from the NFPA, the rural benchmark travel times from the CPSE can be used to provide that guidance. According to their guidance, the first arriving unit in a rural demographic will have a travel time of 10 minutes for 90% of the calls for service.

Recommendations

In keeping with the NFPA guidance, the CFD should establish a 4-minute travel time benchmark performance objective for 90% of the emergency calls for service in the urban planning zones.

Following the CPSE guidance, the CFD should establish a 10-minute travel time benchmark performance objective for 90% of the emergency calls for service in the rural planning zones.

Traffic Pre-Emption Systems

With travel time being used as the focal point for the distribution of resources and given the travel time is a function of time and distance from a fixed position, there are short term strategies that could reduce the travel time to emergency calls for service.

One such strategy is the use of traffic pre-emption systems. These systems are designed to control the flow of traffic through the prioritization of emergency vehicles. Modern systems use global positioning systems (GPS) to provide a location of the vehicle and its

[8] Fire and Emergency Service Self-Assessment Manual, 8th Edition

movement to control the traffic signals. The CFD currently uses a system that needs to be modernized with advanced technology.

Recommendation

Upgrade the current traffic signal pre-emption system to take advantage of newer technologies to reduce travel time and improve civilian and firefighter roadway safety.

EMS Distribution Short Term Improvement Opportunities

Emergency medical services are a significant part of the call volume for the CFD representing approximately 71% of the total call volume. In a previous chapter, system reliability issues were identified as a potential concern for the response to these calls for service.

Travel Time

Based on 2022 medical calls for service, the following table highlights travel times for each medic unit related to the fire station response area.

Table 47: Medic Unit Travel Time by Response District

Unit	Travel Time In-District	Pct of Calls In-District	Utilization Rate	Overall Travel Time for District
Medic 45	5:31	79.9%	21.2%	7:08
Medic 46	6:18	47.9%	20.1%	7:47
Medic 71	6:33	58.9%	36.1%	8:17
Medic 72	6:54	61.4%	32.8%	8:35
Medic 73	7:05	39.9%	29.5%	7:49
Medic 74	6:41	64.3%	36.3%	8:01
Medic 76	6:02	40.2%	34.4%	7:23
Medic 77 (75)	6:51	54.7%	26.3%	9:59
Fire Station 77				10:26

Medic 77 is currently housed at Station 75 until such time as Station 77 is constructed and operational. For purposes of this table, Medic 77 is considered the first due medic unit for Station 75's response district. The times shown for Station 77 include all medic units. The dynamics of this table will change once Station 77 becomes operational, likely shifting the medical responses to Medic 72 and Medic 74.

Medic 71 has a travel time of 6 minutes and 33 seconds for medical calls in their first in district and 58.9% of their responses were in their first in district. Their utilization rate for 2022 was 36.1%. The last column illustrates the travel time for all medical calls in the first

in district, in this instance the travel time for medical calls by a medic unit was 8 minutes and 17 seconds in 2022.

A medic unit should have the capability of responding to calls in the first-in district for at least 70% of the calls for service to maintain service levels. Medical calls for service are illustrated in the following table that identifies the location of the calls for service for the past four years and the medic unit that responded.

Table 48: Medical Calls Distribution

Fire Station District	M45	M46	M71	M72	M73	M74	M76	M77
45	76.6%	19.7%	1.8%	0.4%	1.7%	0.2%	0.7%	0.2%
46	9.4%	45.8%	1.0%	0.3%	1.0%	0.3%	0.2%	0.0%
71	1.1%	2.1%	55.5%	5.3%	16.1%	6.7%	8.8%	2.0%
72	0.8%	3.8%	6.5%	52.8%	1.5%	11.4%	3.3%	9.9%
73	0.2%	0.9%	6.3%	0.7%	39.1%	1.2%	4.1%	0.5%
74	1.0%	1.8%	11.5%	20.1%	3.5%	59.4%	11.8%	14.3%
75	7.0%	10.2%	2.9%	17.2%	8.3%	11.4%	2.9%	54.2%
76	0.4%	0.6%	5.4%	0.8%	6.1%	2.7%	36.6%	1.1%
77	3.4%	14.7%	5.0%	2.0%	16.3%	6.3%	30.7%	17.2%
Out of District	0.3%	0.4%	4.1%	0.4%	6.5%	0.4%	0.9%	0.4%

Approximately 39% of the medical calls for service that Medic 73 responded to are in Station 73's first alarm district. Over 32% of the medical calls are in the first alarm district for Stations 71 and 77 as Medic 71 is out of their first alarm district approximately 38% of the time.

Unit Hour Utilization

An influencing factor for the availability of resources is unit hour utilization or the amount of time a resource is not available for a response to a call for service. This is calculated by taking the total hours a resource is committed to an incident and dividing by the total hours the resource is available. 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[9] of unit hour utilization. Through their study, they developed a scale to identify the community impact on travel time and availability of their emergency medical units.

[9] Fire Engineering - How Busy is Busy?

Table 49: Unit Hour Utilization Impact

Factor	Indicator	Description
16% to 24%	Ideal Commitment Range	Personnel are able to maintain training requirements and physical fitness and can consistently achieve response time benchmarks. Units are available to the community more than 75 percent of the day. Units below 16 percent 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 30 percent may show signs of fatigue and burnout and may be at increased risk of errors. Required training and physical fitness sessions are not consistently completed.

The following table illustrates the unit hour utilization for the past four years for the medic units.

Table 50: Unit Hour Utilization Rates

Unit	2019	2020	2021	2022
	Pct. of Time	Pct. of Time	Pct. of Time	Pct. of Time
Medic 74	37.1%	34.6%	38.8%	36.3%
Medic 71	31.9%	29.1%	36.0%	36.1%
Medic 76	32.7%	28.8%	34.6%	34.4%
Medic 72	32.7%	29.8%	35.3%	32.8%
Medic 73	27.1%	25.0%	29.9%	29.5%
Medic 77	0.0%	0.0%	11.3%	26.3%
Medic 45	19.1%	18.0%	20.7%	21.2%
Medic 46	18.4%	17.7%	20.2%	20.1%

Another view of unit hour utilization is the difference between daytime and nighttime calls for service. The tables that follow illustrate unit hour utilization for 12-hour increments between the hours of 7 am and 7 pm that roughly match the busiest time of the day.

Table 51: Unit Hour Utilization in 12 Hour Increments

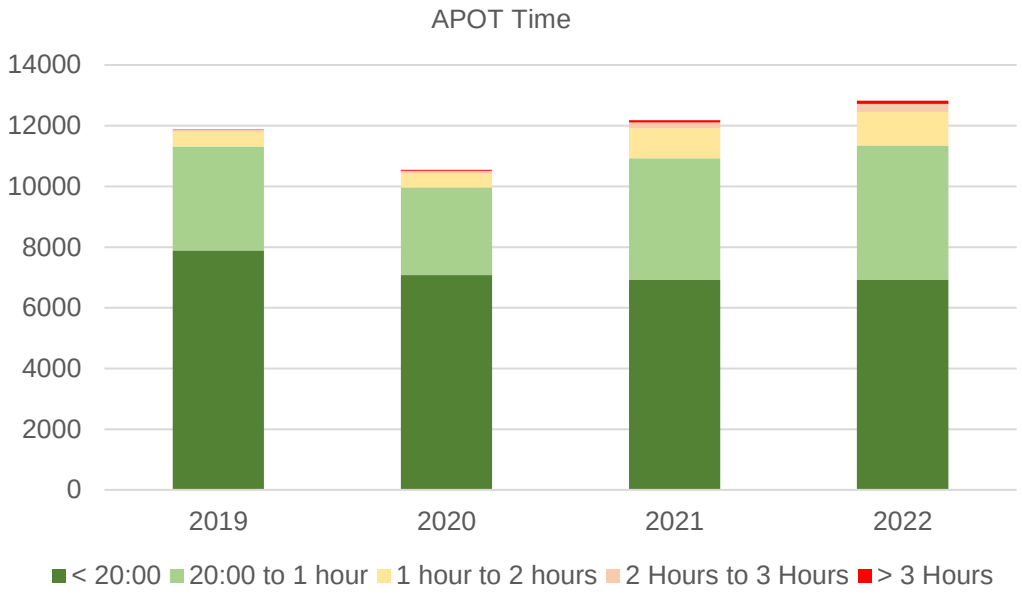
Unit	Average Daytime			Unit	Average Nighttime		
	Duration	Pct. of Time	Avg.		Duration	Pct. of Time	Avg.
Medic 74	2105:12:55	48.1%	1:03:44	Medic 74	1108:47:04	25.3%	0:56:02
Medic 71	1967:23:06	44.9%	1:05:26	Medic 72	1009:55:08	23.1%	1:03:19
Medic 76	1943:29:29	44.4%	0:57:32	Medic 71	947:41:45	21.6%	0:59:03
Medic 72	1848:23:06	42.2%	1:10:54	Medic 76	914:31:05	20.9%	0:51:45
Medic 73	1640:50:40	37.5%	1:07:45	Medic 73	801:03:03	18.3%	1:01:48
Medic 77	1141:44:33	26.1%	1:12:03	Medic 45	592:58:56	13.5%	1:01:55
Medic 45	1137:10:40	26.0%	1:10:37	Medic 46	549:41:07	12.5%	1:05:38
Medic 46	1120:37:43	25.6%	1:09:57	Medic 77	508:43:45	11.6%	1:04:45

The times used in the previous table represents an average of the past four years. As anticipated, the unit hour utilization during the daytime hours is significantly higher than the nighttime hours.

Ambulance Patient Offload Time (APOT)

Once the emergency medical unit arrives at the hospital, the medic crew must transfer care to another healthcare provider, typically a nurse, within the hospital. Once the care is transferred the medical crew will need to complete any written reports necessary and resupply the ambulance. The amount of time spent at the hospital by the emergency medical crew waiting to transfer care is known as Ambulance Patient Offload Time (APOT).

In 2015, the State of California EMS Commission adopted a 20-minute APOT standard, which became effective in 2016. Additionally, other APOT requirements depend on the region and hospital systems in the area. For the Sacramento Region, the goal is 20 minutes to transfer care and release the emergency medical crew. The following chart illustrates the APOT for the CFD for the past four years.



Time for the transfer of care has worsened over the past four years with calls taking 20 minutes or less decreasing and calls taking more than 3 hours increasing. In fact, calls taking 2 to 3 hours have increased by over 300% and calls taking over 3 hours have increased by over 800% in the past 4 years.

The following tables highlight the APOT between the daytime and nighttime calls for service using the same format as the unit hour utilization.

Table 52: Daytime APOT

Time	2019	2020	2021	2022	Trend
< 20:00	4,758	4,267	4,163	4,167	
20:00 to 1 hour	2,338	1,814	2,589	2,941	
1 hour to 2 hours	365	327	671	759	
2 Hours to 3 Hours	50	68	145	182	
> 3 Hours	8	23	59	81	

Table 53: Nighttime APOT

Time	2019	2020	2021	2022	Trend
< 20:00	3,134	2,812	2,766	2,759	
20:00 to 1 hour	1,085	1,071	1,408	1,481	
1 hour to 2 hours	126	140	323	343	
2 Hours to 3 Hours	15	18	46	86	
> 3 Hours	4	4	16	29	

The nighttime trend is more significant for the one to two hour APOT and the two to three hour APOT than the daytime.

In 2014, the California Hospital Association produced a report with strategies to reduce the APOT. The report cited a collaboration between the hospital association and the California Emergency Medical Services Authority to address the problem and provide an action plan to reduce the APOT. The trends over the past four years would indicate the action plan and related strategies have not reduced the time as it continues to increase. The increased time will continue to place a burden on local governments to either increase the number of available resources or reduce the levels of service.

There are concerns that the APOT is impacting the delivery of EMS to the community. Based on the previous data, the APOT are increasing, however, review of unit hour utilization metrics provides a slightly different view. The table that follows illustrates the impact the APOT is having on the overall unit hour utilization of medical units. Using the total APOT for each unit, the table modifies the APOT based on a 20-minute hospital transfer.

Table 54: APOT Adjusted Unit Hour Utilization

	M74	M71	M76	M72	M73	M77	M45	M46
2022 Duration	3178:28:35	3160:04:35	3012:40:44	2870:05:11	2581:14:54	2307:49:02	1861:28:29	1758:24:43
2022 APOT Total Time	1078:00:32	1041:26:32	983:46:10	887:05:24	798:19:29	690:52:46	422:43:01	415:43:05
Adjusted Duration	2100:28:03	2118:38:03	2028:54:34	1982:59:47	1782:55:25	1616:56:16	1438:45:28	1342:41:38
Number of Calls	2,084	2,017	1,995	1,724	1,554	1,227	1,168	1,012
Average APOT Time	0:20:00	0:20:00	0:20:00	0:20:00	0:20:00	0:20:00	0:20:00	0:20:00
Adjusted APOT Time	694:40:00	672:20:00	665:00:00	574:40:00	518:00:00	409:00:00	389:20:00	337:20:00
2022 Amended Duration	2795:08:03	2790:58:03	2693:54:34	2557:39:47	2300:55:25	2025:56:16	1828:05:28	1680:01:38
Modified Unit Hour Utilization	31.9%	31.9%	30.8%	29.2%	26.3%	23.1%	20.9%	19.2%
Unit Hour Utilization	36.3%	36.1%	34.4%	32.8%	29.5%	26.3%	21.2%	20.1%
Variance	-4.4%	-4.2%	-3.6%	-3.6%	-3.2%	-3.2%	-0.3%	-0.9%

The total duration was reduced by the actual APOT for the same time period. Then using the number of calls from the APOT data and multiply that by 20 minutes provides an adjusted APOT that is added to the adjusted duration time. This provides an amended duration time and then a modified unit hour utilization. For example, Medic 74 spent 1078:00:22 hours managing patient transfers at the hospital which is based on the 2,084 calls from the APOT data set. Using an average 20-minute transfer time, Medic 74 should have spent 694:40:00 hours managing patient transfers in 2022. Subtracting the actual APOT and adding the adjusted APOT provides an amended duration of 2795:08:03 hours. This translates to a modified unit hour utilization of 31.9%. If the APOT had been 20 minutes for all calls, in theory the unit hour utilization would be reduced by 4.4%.

This exercise does not take away the fact the APOT are excessive, in fact in 2022 46% of the calls were in excess of 20 minute benchmark established in 2015. This will need to be addressed by the healthcare community and the hospitals. This exercise does support the need for additional medical units to manage the workload, reduce the stress on the EMS system, and help reduce response times.

Concurrent Calls for Service

It was noted that concurrent calls for service can be managed efficiently with the appropriate resources. In terms of concurrent calls in the CFD system, approximately 90% of the calls occurred with multiple calls occurring in the District. The following table illustrates the concurrent calls for service by hour of the day.

Table 55: Concurrent Calls by Hour of the Day

	Number of Calls										90th Percentile Travel Time	
	1	2	3	4	5	6	7	8	9	10+	Urban	Rural
12 am	538	692	477	233	124	35	25	8	2	4	6:10	8:17
1 am	535	598	403	184	83	39	16	1	1	2	6:14	9:16
2 am	552	554	340	129	52	19	7	3	1	1	6:04	8:48
3 am	519	576	349	104	45	13	5	3	1	1	6:04	7:46
4 am	553	551	313	134	52	7	6	1	1	1	5:54	7:36
5 am	585	563	363	145	61	32	8	6	2	1	6:15	8:13
6 am	566	691	406	243	123	65	15	17	13	13	6:23	9:46
7 am	511	733	647	363	296	148	65	42	28	43	6:15	9:41
8 am	387	772	837	659	457	292	181	92	66	96	6:25	7:50
9 am	285	707	903	829	555	384	260	167	122	209	6:42	7:39
10 am	225	626	881	905	703	551	342	244	171	378	6:57	7:56
11 am	223	532	816	849	764	558	422	290	185	442	6:56	8:50
12 pm	233	563	827	865	729	569	386	269	174	495	6:45	9:01
1 pm	225	543	754	899	749	567	436	299	195	466	6:39	9:05
2 pm	209	578	781	862	701	564	431	306	197	538	6:40	9:42
3 pm	184	527	796	855	638	542	403	272	194	484	6:56	8:50
4 pm	190	530	728	839	745	616	430	289	203	515	6:40	9:03
5 pm	202	548	809	812	765	565	374	244	153	358	6:33	8:51
6 pm	235	587	905	833	714	497	350	216	160	331	6:32	9:08
7 pm	257	603	849	856	664	469	365	197	132	244	6:17	9:25
8 pm	290	635	862	761	577	381	234	180	95	176	6:06	9:15
9 pm	334	720	778	705	482	292	183	87	64	97	6:11	9:02
10 pm	384	704	722	567	381	183	104	52	34	50	6:19	8:47
11 pm	463	733	587	435	238	101	40	25	13	18	6:02	8:55

In the previous table, the far right two columns illustrate the travel time at the 90th percentile for the specific hour of the day. In the urban zones, the travel time increases as the number of concurrent calls rises. This increase in connection with adjusted unit hour utilization indicates a need for additional medical resources and a reduction in APOT.

Improvement Opportunities for the Emergency Medical Services

There are four medic units with unit hour utilization rates that exceed the 30% threshold identified in the Henrico County study as being non-sustainable. Two additional medic units are approaching the non-sustainable threshold. APOT is an issue and will need to be addressed by the medical community. However, adjusting for the excessive time there are still three medic units at or above the 30% threshold and two additional units approaching the same threshold. There is an organizational risk, related to inferior performance or lack of performance, for the District as highlighted in the following passage from the Henrico Study. Fatigue, burnout, and the increased risk of errors are noted.

- 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.

Travel time is also being affected by the medic unit's inability to respond within their own first alarm district. For example, Medic 71 has a travel time of 6 minutes and 33 seconds in their first alarm district, however, there is an overall travel time in that first alarm district of 8 minutes and 17 seconds for the medical units.

Recommendation

Based on the higher unit hour utilization during the daytime hours and the increased travel time indicated with the concurrent calls, the CFD should add at least three staffed medical units during the daytime hours, 7 a.m. to 7 p.m., to supplement the available resources.

Resource Options

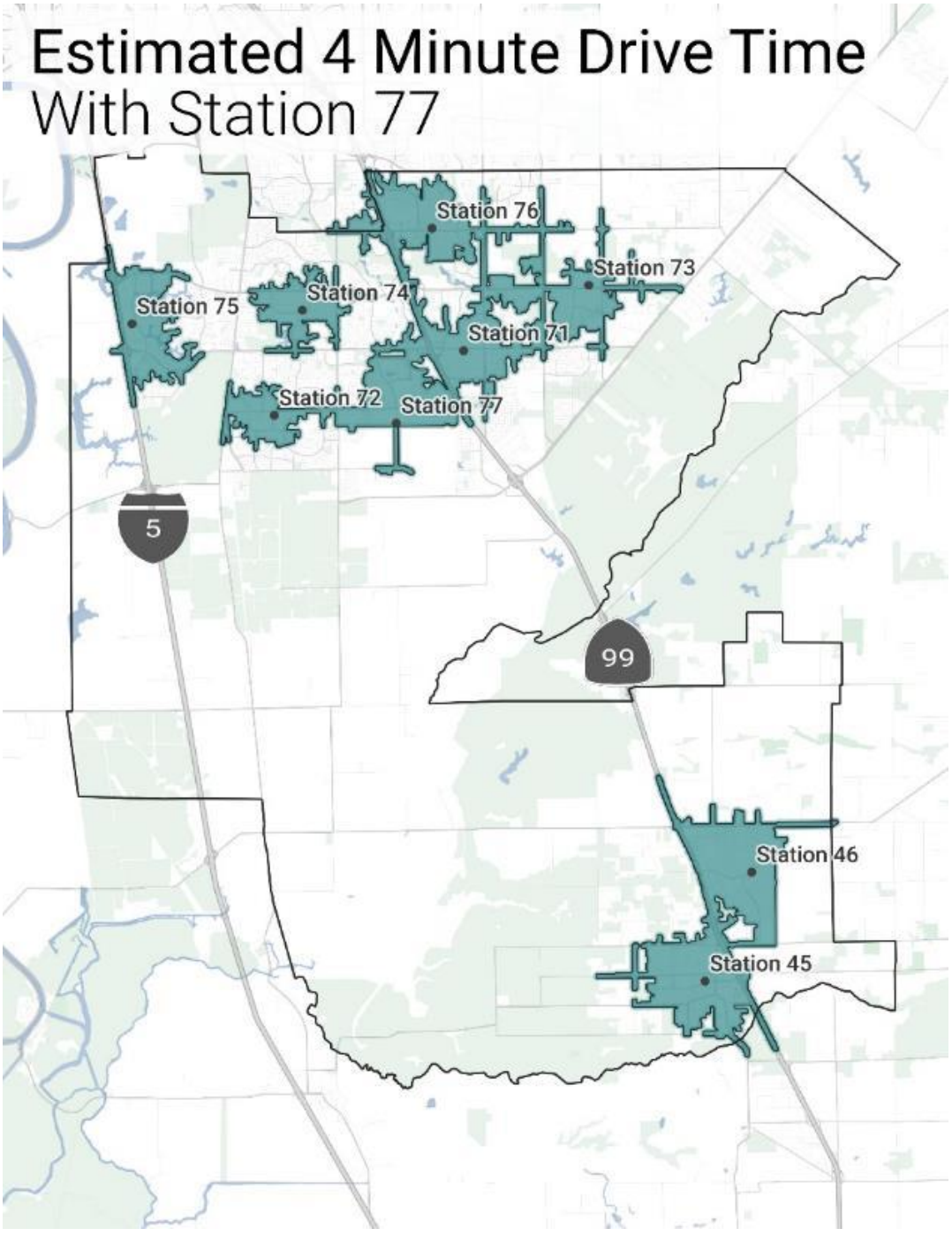
There are several options to provide additional medical resources into the CFD response system. These options are contingent on the availability of a workforce and physical resources such as vehicles and equipment.

- Create a squad type of unit staffed with two personnel, at least one being a paramedic, that would not have transport capability but could manage the low acuity medical calls that are likely ones that do not require transport. This unit would also be available to respond to other types of non-medical calls in place of a medical unit.

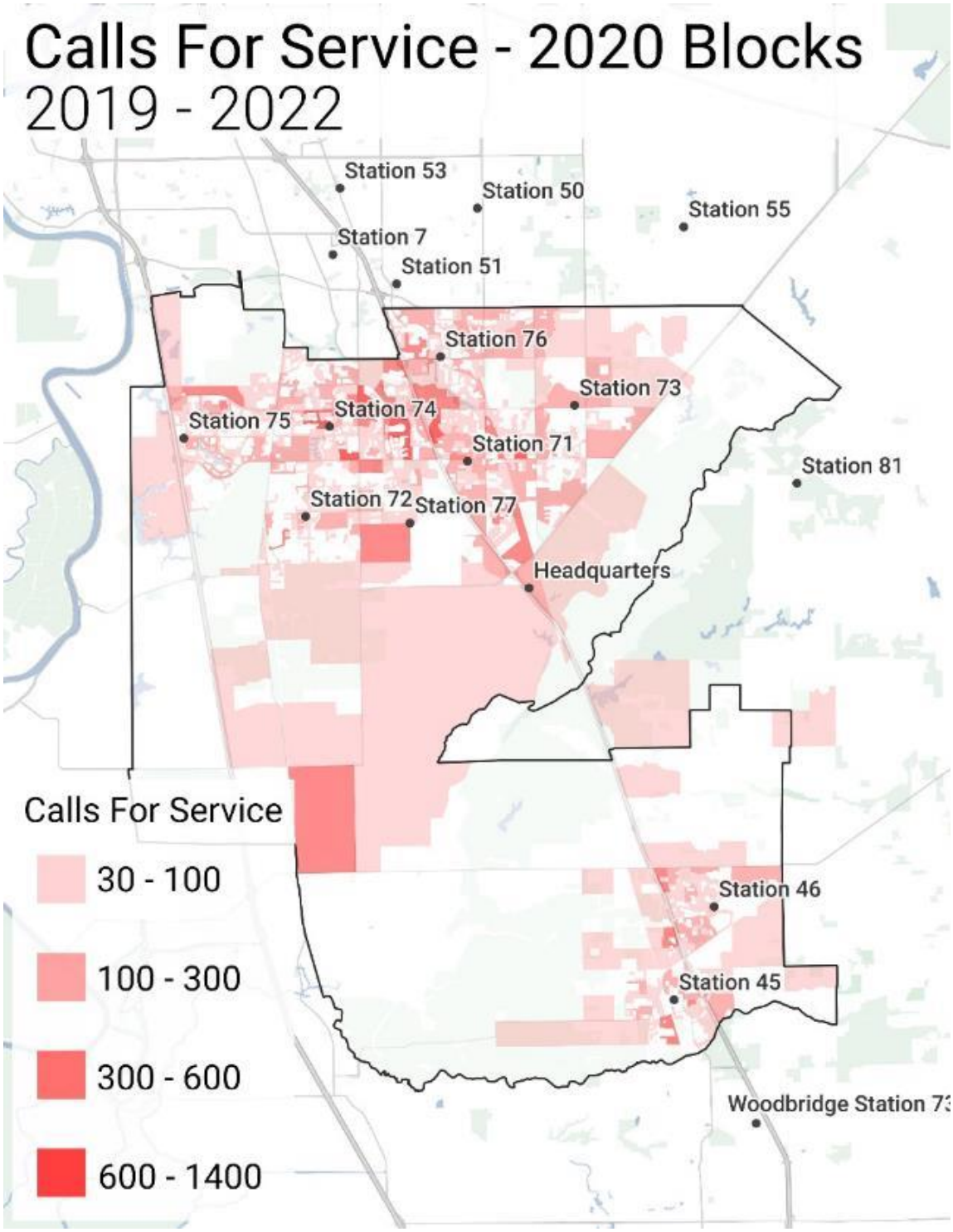
- Staff a transport ambulance with two personnel, at least one being a paramedic, to function as a medic unit with transport capability.
- Staff a transport ambulance with two personnel, at least one being a paramedic, that respond to medical calls only allowing the other medic units to be available for other non-medical calls.

Resource Distribution Long Term Improvement Strategies

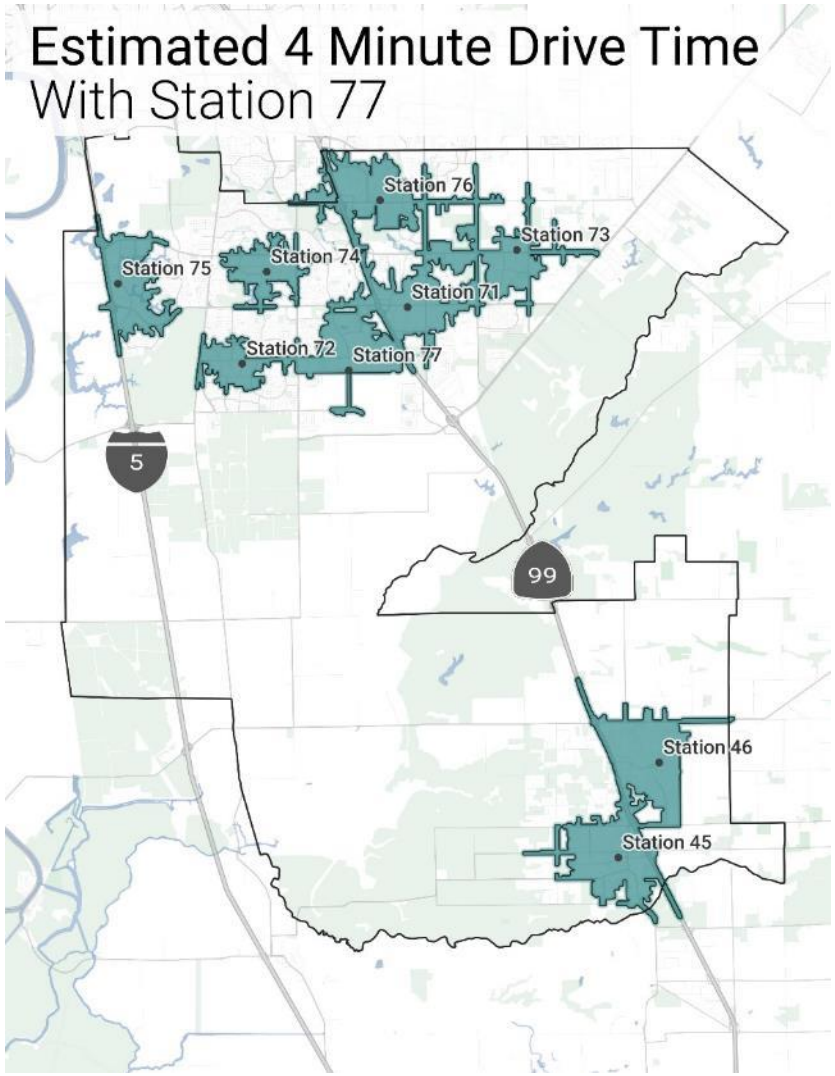
In the previous two sections, the recommendations will provide relief to the workload issues and a reduction of travel time. For the longer term, two additional fire stations may need to be constructed and staffed to meet the four minute travel time component. The following map illustrates a four minute travel time using the current station locations and includes the new Station 77.

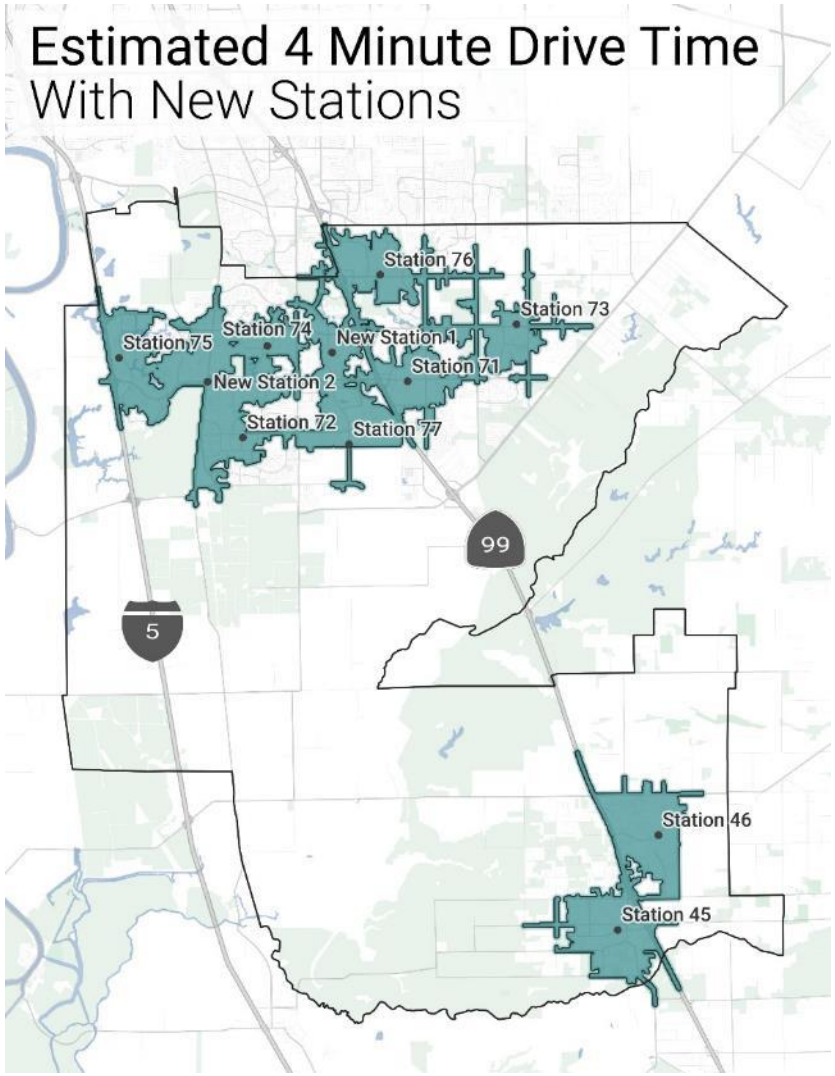


The travel time polygons are generated using HERE Technologies as a platform. Based on the estimated four minute travel time polygons, there are gaps in the central areas of Elk Grove. There is a significant number of calls in these areas as illustrated in the following map.



The gaps are in the middle of the triangle formed by Stations 71, 74, and 76. Highway 99 forms a barrier between Stations 71 and 74 with limited access points across the highway. The other gap area north of Station 71 is largely undeveloped land with Camden Park and Elk Grove Creek. A second gap is a triangle formed between Stations 72, 74, and 75. This area is largely residential with limited access points into the various subdivisions and neighborhoods. The following maps illustrate the distribution of resources with the addition of two new stations.


Estimated 4 Minute Drive Time
With Station 77
Station 76
Station 73
Station 75
Station 74
Station 71
Station 72
Station 77
5
99
Station 46
Station 45


Estimated 4 Minute Drive Time
With New Stations
Station 76
Station 73
Station 75
Station 74
New Station 1
Station 71
New Station 2
Station 72
Station 77
99
5
Station 46
Station 45

The first station is located in the area of 8200 Long Leaf Drive. This location will provide quicker access to an overpass for Highway 99 and into the area north of Station 71. It also fills the gap between Stations 72, 74, and the new Station 77.

The second station is located in the area of Elk Grove Blvd. and Franklin Blvd. This location will provide good east/west movement along Elk Grove Blvd. and north/south movement along Franklin Blvd. From this location the gap between Stations 74 and 75 is enhanced and also provides sufficient support to Station 72.

With the addition of two stations, the gap between Stations 72, 74, and 75 is largely covered with the new station. Likewise, the new station between Stations 71, 74, and 76 provides service to the area and is positioned to provide support to those stations.

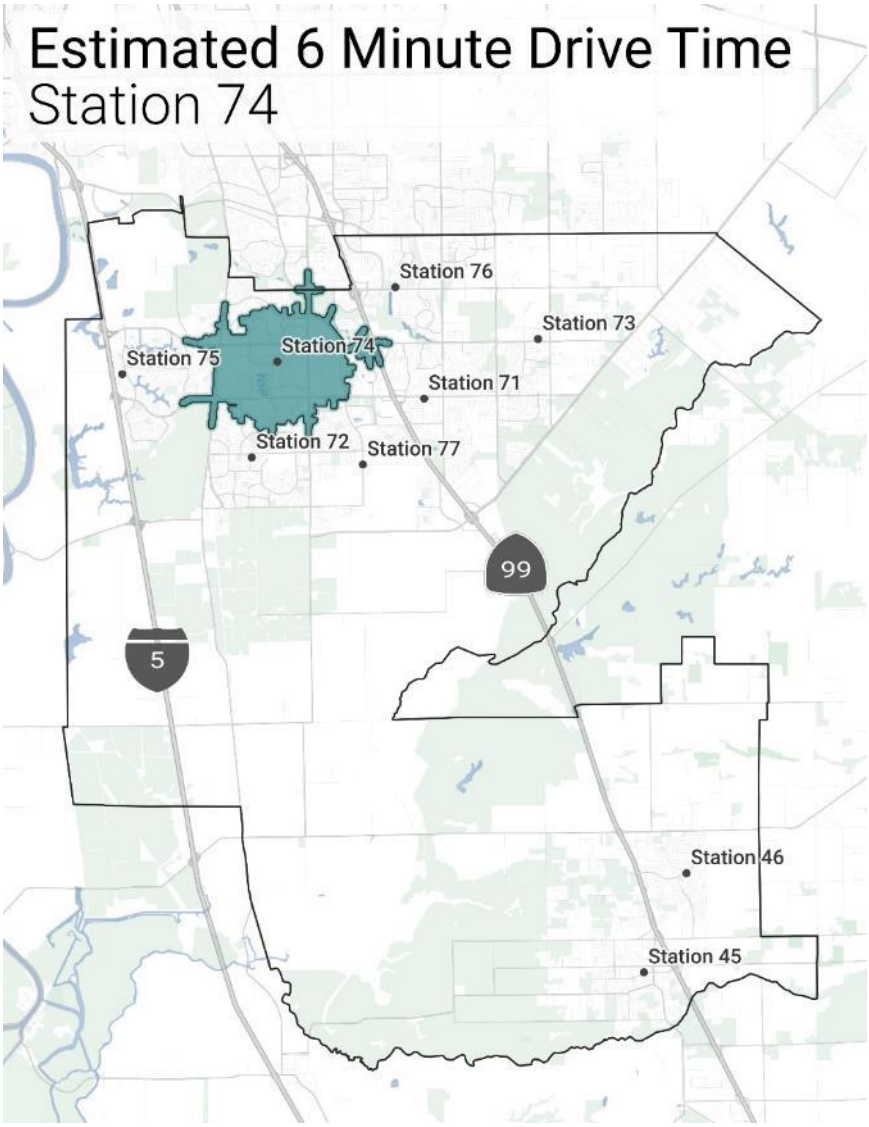
Recommendations

Consider constructing and staffing a new station in the 8200 block of Long Leaf Drive to enhance and support the level of service in the central section of Elk Grove.

Consider constructing and staffing a new station in the area of Elk Grove Blvd. and Franklin Blvd. to enhance and support the level of service in the western section of Elk Grove.

Additional Suppression Resources

As a part of the distribution process is the placement of ladder companies. NFPA and ISO address the issue of ladder company placement with ISO using a 2½ road mile measurement and NFPA 1710 using a six minute travel time component. The following map illustrates the existing ladder company in the District using the six minute travel time.



Ladder companies are a component of the response to a structure fire that not only provides elevated master streams but also provides a means of rescue in upper floors and other forcible entry equipment not normally carried on an engine company. Traditionally, the engine company provides fire suppression operations and the ladder company provides ventilation and rescue operations. In the fire service today, ladder companies are also used for fire suppression activities to maximize the use of staffing.

Ladder company resources are not limited to high-rise buildings. Many large warehouses and manufacturing facilities are single floor buildings and can benefit from a ladder company in the response to an incident. Higher density developments rely on multi-story structures such as apartment buildings, condominiums, and other similar types of residential areas such as the developments south of Station 77. There is considerable development in the area of Highway 99 and Kammerer Road. The Sky River Casino was recently completed and there are plans for additional buildings, including a hotel, to be built in the future.

Recommendation

Consider adding a second ladder company to a station with access to the southern section of Elk Grove.

Concentration of Resources

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

Data Issues

RMS data was used in the performance analysis of the CFD in developing an effective response force. The data had several issues that had to be addressed before the analysis could be completed.

There were numerous structure fire calls that did not have time stamps for some of the various response time components. There were 23 structure fire incidents identified as having extraordinarily long travel times. Seven of these incidents had information in the narrative that allowed for those units to be eliminated from consideration. For example, one call had an engine company with a two-hour travel time however, the narrative indicated that Engine Company initiated the fire attack. The remaining incidents did not have any definitive narrative to allow for changes or deletions to be made to the data.

The platform did not allow for any automatic aid or mutual aid companies to be included in the initial data. The analysis still produced a result that is credible, however, does not reflect the full picture and does open the door for errors. The new CAD platform should address these issues and make the process a seamless process.

Recommendation

Work with the SRFECC to identify process errors and create a plan to correct data errors.

Planning Zones

As noted in the distribution section, the District was divided into planning zones loosely following the station response zones and incorporating the population density as a secondary measurement. Based on the population density, each planning zone can be identified as an urban or rural area allowing the CFD to tailor the response for each area.

Recommendations

In keeping with the NFPA guidance, the CFD should establish an 8-minute travel time benchmark performance objective for 90% of the emergency calls for service in the urban planning zones for the arrival of an effective response force.

Following the CPSE guidance, the CFD should establish a 14-minute travel time benchmark performance objective for 90% of the emergency calls for service in the rural planning zones for the arrival of an effective response force.

Effective Response Force Development

In April 2010, the National Institute of Standards and Technology (NIST)[10] completed studies on the effectiveness and efficiencies of various crew sizes. Their work included numerous laboratory tests and actual field tests. For the field tests the study used the response of three engine companies, a truck company, and a command officer with an aide. They measured and timed twenty-two fire ground tasks using different crew sizes. The crews arrived at the scene in a staggered fashion much like what is common in communities across the country. The results of their sixty full-scale tests show that four-person crews were on average seven minutes faster than two-person crews at accomplishing the fireground tasks. Further, the four-person crews completed their tasks 5.1 minutes faster than three-person crews. The field tests and tasks were performed using a typical one to two family dwelling. The study concluded that adding a fifth person to the crews did not significantly impact the time on this type of occupancy. None of the tests performed used a one-person crew.

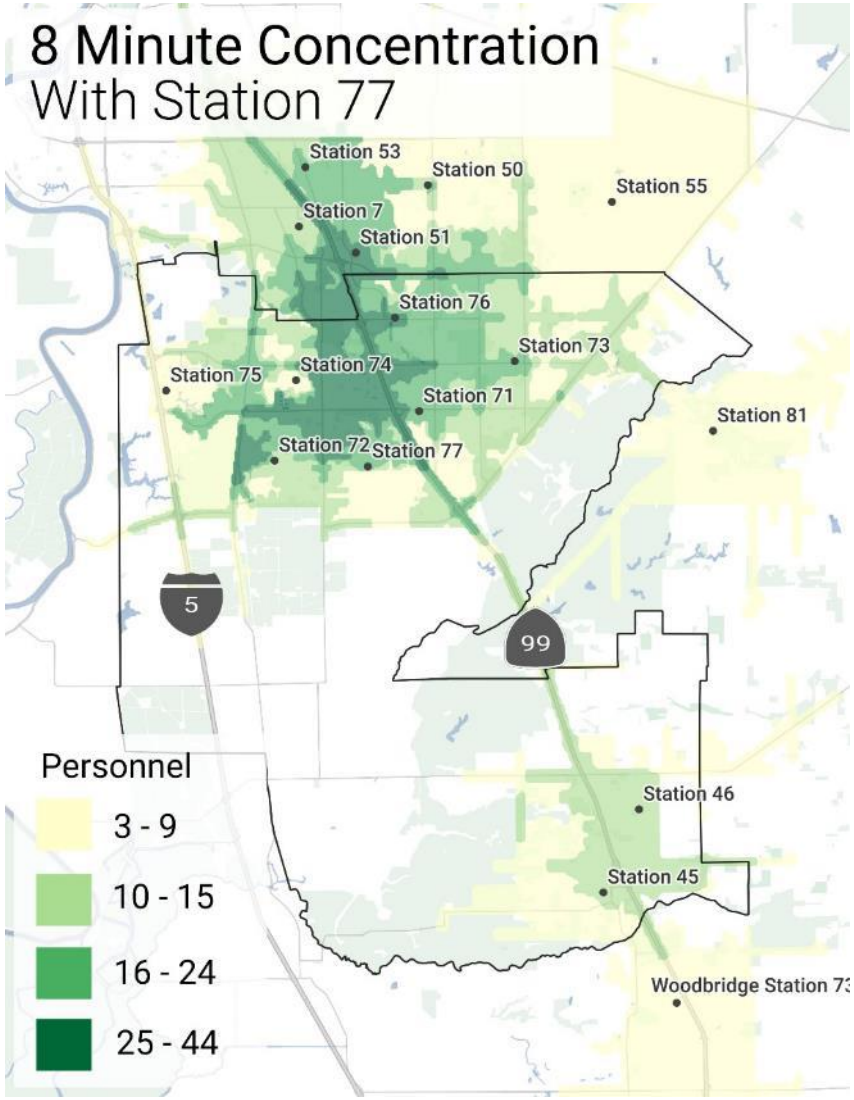
Another component of the above noted study was performed by Skidmore College on the physiological effects of crew size. The average peak heart rates for firefighters on the 1st engine were above 80% of age-predicted maximums when only two firefighters were

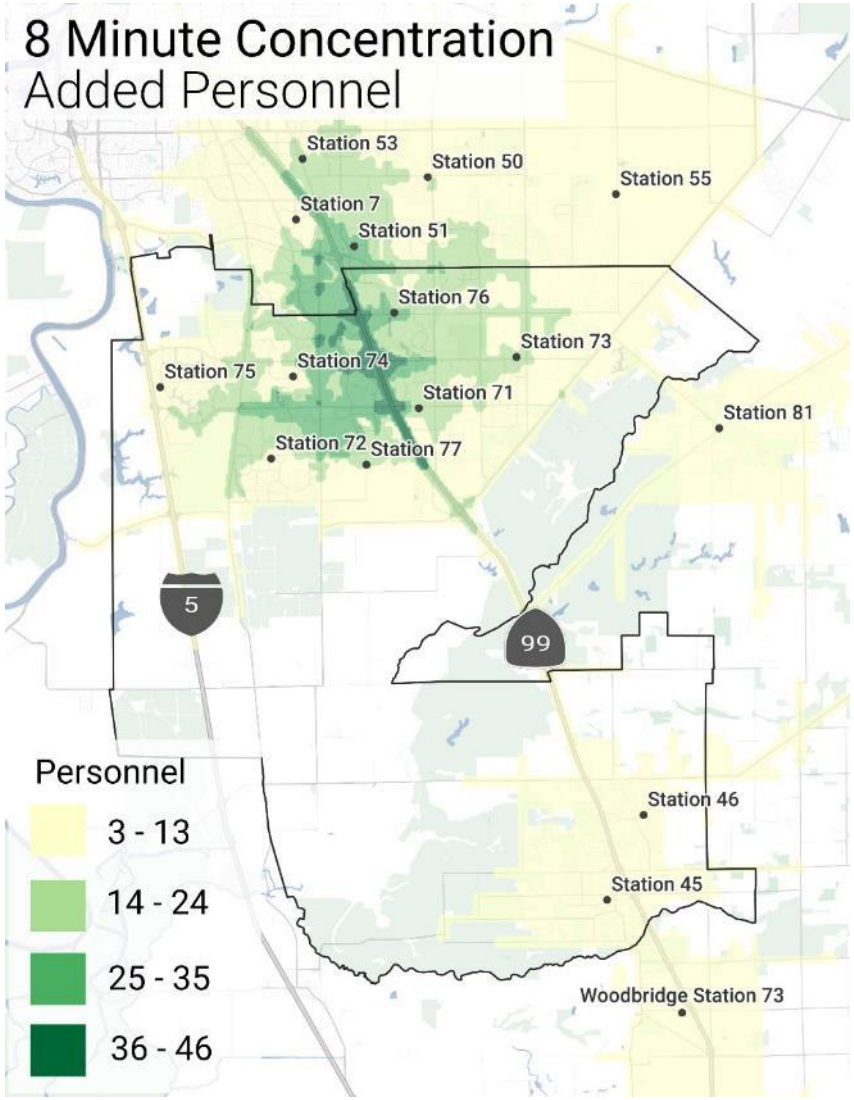
[10] Robertson, Bill. Report on Residential Fireground Field Experiments. National Institute of Standards and Technology. April 2010.

deployed. In fact, the driver had an average peak heart rate nearly 90% of age-predicted maximums when there were only 2 firefighters on the engine[11].

While the ultimate goal would be to increase the minimum staffing of engine companies from three personnel to four personnel, not all engine companies would need to be increased at once. Increasing the minimum staffing in the more critical areas would boost the effective response force. For example, adding a fourth person to Engine 71, Engine 74, and Engine 76 would increase the effective response force not only in the core area of the District but also to the outer edges of the northern section of the District as these engine companies are typically the second arriving suppression unit to those areas. The following maps illustrate the concentration of resources and the improved development of an ERF with the additional staffing of the three engine companies.

[11] Smith, Denise, Ph. D and Benedict, Ron. Effect of Deployment of Resources on Cardiovascular Strain of Firefighters. April 2010.


8 Minute Concentration
With Station 77
Station 53
Station 50
Station 55
Station 7
Station 51
Station 76
Station 73
Station 75
Station 74
Station 71
Station 81
Station 72
Station 77
5
99
Station 46
Station 45
Woodbridge Station 73
Personnel
3 - 9
10 - 15
16 - 24
25 - 44


8 Minute Concentration
Added Personnel
Station 53
Station 50
Station 55
Station 7
Station 51
Station 76
Station 73
Station 75
Station 74
Station 71
Station 81
Station 72
Station 77
5
99
Station 46
Station 45
Woodbridge Station 73
Personnel
3 - 13
14 - 24
25 - 35
36 - 46

Note the number of personnel scales change between the two maps. With the new personnel, the dark green areas are in the range of 36 to 46 personnel. The yellow areas range from 3 to 13 personnel with new personnel instead of 3 to 9 personnel. Overall, the addition of three personnel significantly improved the ability to provide an ERF in the central core of the District where there is a substantial number of large area buildings, some of the oldest buildings in the District, and a large number of smaller commercial buildings.

Recommendations

Increase the minimum staffing of Engine Companies 71, 74, and 76 from three personnel to four personnel to improve the development of an effective response force and provide additional support for the second arriving suppression unit.

Increase the minimum staffing of all engine companies from three personnel to four personnel to provide improved resources on the first arriving suppression unit and to improve the development of an effective response force.

Performance Statements

There are two types of performance statements. The benchmark performance statement identifies the goal or target for the delivery of emergency services. The baseline performance statement identifies the actual performance of the fire department. The difference, or gap, between the two provides the fire department with a measurable objective for improvement.

The CFD analyzes incident data based on specific criteria outlined in the Department Outlier Policy. Incidents must be within jurisdiction, emergent, not canceled en route, and meet response time thresholds. However, the CFD faces data shortcomings, including limited CAD system data and the lack of mutual/automatic aid response tracking. These shortcomings impact the precision of the data set and analysis for effective response force (ERF) for risk categories that require a higher ERF. To address these issues, CFD has enhanced its RMS data collection form and has plans to make configuration changes to its record management system to track mutual/automatic aid data.

Response Time Components

For purposes of evaluation and analysis the following times are used in establishing the performance benchmark objectives:

The CFD does not have direct control of the SRFECC and is not authorized to establish a benchmark performance objective for call processing. However, for this evaluation and analysis, one minute will be used in compliance with NFPA 1710.

For 90 percent of emergency incidents, the turnout time for responding units shall be 90 seconds.

For 90 percent of emergency incidents for service located in the urban area, the travel time for the first arriving unit shall be four minutes.

For 90 percent of emergency incidents for service located in the rural area, the travel time for the first arriving unit shall be 10 minutes.

For 90 percent of emergency incidents for service located in the urban area, the travel time for the effective response force shall be eight minutes.

For 90 percent of emergency incidents for service located in the rural area, the travel time for the effective response force shall be 14 minutes.

Fire Suppression Services

Benchmark Performance Objectives – Low Risk

For 90 percent of all low risk fire suppression incidents, the total response time for the arrival of the first unit on scene, staffed with three personnel, shall be: 6 minutes and 30 seconds in urban zones and 12 minutes and 30 seconds in rural zones. The first arriving unit shall be capable of maintaining scene safety, establishing command, investigating and mitigating, and extinguishment.

For 90 percent of all low risk fire suppression incidents, the total response time for the arrival of the effective response force, staffed with three personnel, shall be: 10 minutes and 30 seconds in urban zones and 16 minutes and 30 seconds in rural zones. The effective response force shall be capable of maintaining scene safety, establishing command, investigating and mitigating, and extinguishment.

Baseline Performance – Low Risk

Table 56: Low Risk Fire Suppression - 90th Percentile Times - Baseline Performance

Response Time Component			2022-2024	2024	2023	2022
Alarm Handling	Pick-up to Dispatch	Urban	2:58	2:51	3:01	3:01
		Rural	2:58	2:38	3:13	3:09
Turnout Time	Turnout Time 1st Unit	Urban	1:45	1:50	1:45	1:30
		Rural	1:53	1:57	1:55	1:32
Travel Time	Travel Time 1st Unit **Distribution**	Urban	6:58	6:53	6:54	7:05
		Rural	12:47	14:33	11:00	13:08
	Travel Time ERF **Concentration**	Urban	7:04	6:55	6:55	7:17
		Rural	13:00	14:33	12:01	12:54
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	10:21	10:02	10:06	10:31
			1014	284	300	430
		Rural	16:16	16:38	16:24	15:09
			122	36	35	51
	Total Response Time ERF **Concentration**	Urban	10:19	10:02	10:07	10:27
			1006	284	299	423
		Rural	16:19	16:38	16:27	15:09
			119	36	32	51

Benchmark Performance Objectives – Moderate Risk

For 90 percent of all moderate risk fire suppression incidents, the total response time for the arrival of the first unit on scene, staffed with three personnel, shall be: 6 minutes and 30 seconds in urban zones and 12 minutes and 30 seconds in rural zones. The first arriving unit shall be capable of maintaining scene safety, establishing command, investigating and mitigating, and extinguishment.

For 90 percent of all moderate risk fire suppression incidents, the total response time for the arrival of the effective response force, staffed with at least seven personnel, shall be: 10 minutes and 30 seconds in urban zones and 16 minutes and 30 seconds in rural zones. The effective response force shall be capable of maintaining scene safety, establishing command, communications, initial attack, entry and search, ventilation, water supply, utilities, patient care, and overhaul.

Baseline Performance – Moderate Risk

Table 57: Moderate Risk Fire Suppression - 90th Percentile Times - Baseline Performance

Response Time Component			2022-2024	2024	2023	2022
Alarm Handling	Pick-up to Dispatch	Urban	3:11	3:17	3:16	2:52
		Rural	2:54	2:48	2:53	2:57
Turnout Time	Turnout Time 1st Unit	Urban	1:47	2:02	1:40	1:46
		Rural	1:55	1:59	1:53	1:42
Travel Time	Travel Time 1st Unit **Distribution**	Urban	7:05	7:08	6:35	7:23
		Rural	12:25	11:26	11:56	13:46
	Travel Time ERF **Concentration**	Urban	15:30	16:22	13:26	16:45
		Rural	25:58	22:29	19:55	36:08
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	10:47	11:14	9:48	11:00
			691	137	245	309
		Rural	15:09	15:26	14:12	15:06
			91	24	31	36
	Total Response Time ERF **Concentration**	Urban	18:15	19:25	16:43	19:46
			188	65	54	69
		Rural	28:59	24:22	21:34	38:00
			22	10	6	6

Benchmark Performance Objectives – High Risk

For 90 percent of all high risk fire suppression incidents, the total response time for the arrival of the first unit on scene, staffed with three personnel, shall be: 6 minutes and 30 seconds in urban zones and 12 minutes and 30 seconds in rural zones. The first arriving unit shall be capable of maintaining scene safety, establishing command, investigating and mitigating, and extinguishment.

For 90 percent of all high risk fire suppression incidents, the total response time for the arrival of the effective response force, staffed with 21 personnel, shall be: 10 minutes and 30 seconds in urban zones and 16 minutes and 30 seconds in rural zones. The effective response force shall be capable of maintaining scene safety, establishing command, communications, initial and back-up attack, entry and search, ventilation, water supply, rapid intervention, patient care, and overhaul.

Baseline Performance – High Risk

Table 58: High Risk Fire Suppression - 90th Percentile Times - Baseline Performance

Response Time Component			2022-2024	2024	2023	2022
Alarm Handling	Pick-up to Dispatch	Urban	2:53	3:01	2:51	2:49
		Rural	3:34	2:06	5:54	3:45
Turnout Time	Turnout Time 1st Unit	Urban	1:42	1:47	1:38	1:45
		Rural	1:27	1:26	1:33	1:16
Travel Time	Travel Time 1st Unit **Distribution**	Urban	6:08	6:11	6:29	6:02
		Rural	13:22	20:49	7:29	10:25
	Travel Time ERF **Concentration**	Urban	0:00	0:00	0:00	0:00
		Rural	0:00	0:00	0:00	0:00
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	9:06	9:26	9:32	8:21
			235	40	73	122
		Rural	17:50	20:03	14:06	13:37
			28	7	6	15
	Total Response Time ERF **Concentration**	Urban	0:00	0:00	0:00	0:00
			0	0	0	0
		Rural	0:00	0:00	0:00	0:00
			0	0	0	0

Benchmark Performance Objectives – Maximum Risk

For 90 percent of all maximum risk fire suppression incidents, the total response time for the arrival of the first unit on scene, staffed with three personnel, shall be: 6 minutes and 30 seconds in urban zones and 12 minutes and 30 seconds in rural zones. The first arriving unit shall be capable of maintaining scene safety, establishing command, investigating and mitigating, and extinguishment.

For 90 percent of all maximum risk fire suppression incidents, the total response time for the arrival of the effective response force, staffed with 27 personnel, shall be: 10 minutes and 30 seconds in urban zones and 16 minutes and 30 seconds in rural zones. The effective response force shall be capable of maintaining scene safety, establishing command, communications, initial and back-up attack, entry and search, ventilation, water supply, secondary water supply, standpipe, level 1 or 2 rapid intervention, utilities, patient care, overhaul, and notifications.

Baseline Performance – Maximum Risk

Table 59: Max Risk Fire Suppression - 90th Percentile Times - Baseline Performance

Response Time Component			2022-2024	2024	2023	2022
Alarm Handling	Pick-up to Dispatch	Urban	2:52	3:11	2:50	3:07
		Rural	2:11	1:17	1:54	2:12
Turnout Time	Turnout Time 1st Unit	Urban	1:49	1:52	1:41	1:47
		Rural	1:01	0:37	1:03	0:57
Travel Time	Travel Time 1st Unit **Distribution**	Urban	6:03	5:49	6:29	5:43
		Rural	9:58	3:54	5:23	11:41
	Travel Time ERF **Concentration**	Urban	0:00	0:00	0:00	0:00
		Rural	0:00	0:00	0:00	0:00
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	9:12	9:57	9:17	8:02
			164	21	61	81
		Rural	12:50	5:48	7:51	13:51
			9	1	3	5
	Total Response Time ERF **Concentration**	Urban	0:00	0:00	0:00	0:00
			0	0	0	0
		Rural	0:00	0:00	0:00	0:00
			0	0	0	0

Emergency Medical Services

Benchmark Performance Objectives – Low Risk

For 90 percent of all low risk EMS incidents, the total response time for the arrival of the first unit on scene, staffed with two personnel, shall be: 6 minutes and 30 seconds in urban zones and 12 minutes and 30 seconds in rural zones. The first arriving unit shall be capable of patient assessment, care, and follow-up.

For 90 percent of all low risk EMS incidents, the total response time for the arrival of the effective response force, staffed with two personnel, shall be: 10 minutes and 30 seconds in urban zones and 16 minutes and 30 seconds in rural zones. The effective response force shall be capable of patient assessment, care, and follow-up.

Baseline Performance – Low Risk

Table 60: Low Risk EMS - 90th Percentile Times - Baseline Performance

Response Time Component			2022-2024	2024	2023	2022
Alarm Handling	Pick-up to Dispatch	Urban	3:13	3:15	3:17	3:06
		Rural	3:28	3:22	3:30	3:28
Turnout Time	Turnout Time 1st Unit	Urban	1:36	1:43	1:34	1:34
		Rural	1:39	1:40	1:38	1:38
Travel Time	Travel Time 1st Unit **Distribution**	Urban	5:57	5:52	5:53	6:02
		Rural	11:12	11:04	11:13	11:13
	Travel Time ERF **Concentration**	Urban	5:57	5:52	5:53	6:02
		Rural	11:12	11:04	11:13	11:13
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	9:32	9:32	9:31	9:32
			23,696	4,865	9,487	9,344
		Rural	14:34	14:28	14:25	14:45
			769	153	300	316
	Total Response Time ERF **Concentration**	Urban	9:32	9:32	9:31	9:32
			23,696	4,865	9,487	9,344
		Rural	14:34	14:28	14:25	14:45
			769	153	300	316

Benchmark Performance Objectives – Moderate Risk

For 90 percent of all moderate risk EMS incidents, the total response time for the arrival of the first unit on scene, staffed with two personnel, shall be: 6 minutes and 30 seconds in urban zones and 12 minutes and 30 seconds in rural zones. The first arriving unit shall be capable of patient assessment, care, and follow-up.

For 90 percent of all moderate risk EMS incidents, the total response time for the arrival of the effective response force, staffed with at least two personnel, shall be: 10 minutes and 30 seconds in urban zones and 16 minutes and 30 seconds in rural zones. The effective response force shall be capable of scene safety, establishing command, patient assessment, care, and transport.

Baseline Performance – Moderate Risk

Table 61: Moderate Risk EMS - 90th Percentile Times - Baseline Performance

Response Time Component			2022-2024	2024	2023	2022
Alarm Handling	Pick-up to Dispatch	Urban	3:13	3:16	3:17	3:06
		Rural	3:32	3:45	3:29	3:31
Turnout Time	Turnout Time 1st Unit	Urban	1:36	1:42	1:34	1:34
		Rural	1:41	1:41	1:40	1:42
Travel Time	Travel Time 1st Unit **Distribution**	Urban	5:56	5:43	5:54	6:03
		Rural	11:13	11:19	11:11	11:14
	Travel Time ERF **Concentration**	Urban	6:14	6:21	6:11	6:15
		Rural	11:34	11:48	11:24	11:27
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	9:31	9:25	9:33	9:32
			24,359	5,217	9,617	9,525
		Rural	14:42	14:38	14:25	15:00
			943	205	344	394
	Total Response Time ERF **Concentration**	Urban	9:47	9:58	9:42	9:44
			23,113	5,104	9,132	8,877
		Rural	14:48	15:00	14:37	15:00
			881	203	319	359

Benchmark Performance Objectives – High Risk

For 90 percent of all high risk EMS incidents, the total response time for the arrival of the first unit on scene, staffed with at least two personnel, shall be: 6 minutes and 30 seconds in urban zones and 12 minutes and 30 seconds in rural zones. The first arriving unit shall be capable of patient assessment, care, and follow-up.

For 90 percent of all high risk EMS incidents, the total response time for the arrival of the effective response force, staffed with at least four personnel, shall be: 10 minutes and 30 seconds in urban zones and 16 minutes and 30 seconds in rural zones. The effective response force shall be capable of scene safety, establishing command, incident assessment, patient care, transport, and extrication.

Baseline Performance – High Risk

Table 62: High Risk EMS - 90th Percentile Times - Baseline Performance

Response Time Component			2022-2024	2024	2023	2022
Alarm Handling	Pick-up to Dispatch	Urban	3:13	3:15	3:17	3:06
		Rural	3:28	3:24	3:29	3:29
Turnout Time	Turnout Time 1st Unit	Urban	1:36	1:41	1:34	1:34
		Rural	1:42	1:47	1:38	1:42
Travel Time	Travel Time 1st Unit **Distribution**	Urban	5:50	5:31	5:53	6:01
		Rural	11:08	10:46	11:10	11:13
	Travel Time ERF **Concentration**	Urban	20:26	21:22	16:16	17:52
		Rural	24:21	27:15	20:37	13:14
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	9:25	9:11	9:32	9:31
			27,148	8,380	9,426	9,342
		Rural	14:31	14:20	14:21	14:52
			965	271	327	367
	Total Response Time ERF **Concentration**	Urban	24:27	27:38	19:08	21:50
			14	6	6	2
		Rural	26:22	30:03	22:04	16:35
			7	3	1	3

Hazardous Materials

Benchmark Performance Objectives – Low Risk

For 90 percent of all low risk HazMat incidents, the total response time for the arrival of the first unit on scene, staffed with three personnel, shall be: 6 minutes and 30 seconds in urban zones and 12 minutes and 30 seconds in rural zones. The first arriving unit shall be capable of scene safety, establishing command, and investigating and mitigating.

For 90 percent of all low risk HazMat incidents, the total response time for the arrival of the effective response force, staffed with three personnel, shall be: 10 minutes and 30 seconds in urban zones and 16 minutes and 30 seconds in rural zones. The effective response force shall be capable of scene safety, establishing command, and investigating and mitigating.

Baseline Performance – Low Risk

Table 63: Low Risk Hazardous Material - 90th Percentile Times - Baseline Performance

Response Time Component			2022-2024	2024	2023	2022
Alarm Handling	Pick-up to Dispatch	Urban	3:17	3:04	3:33	3:10
		Rural	2:24	0:55	0:00	2:34
Turnout Time	Turnout Time 1st Unit	Urban	1:53	1:47	1:41	1:57
		Rural	1:20	1:25	0:00	0:37
Travel Time	Travel Time 1st Unit **Distribution**	Urban	6:01	5:51	6:03	6:08
		Rural	7:09	5:35	0:00	7:20
	Travel Time ERF **Concentration**	Urban	6:01	5:51	6:03	6:08
		Rural	7:09	5:35	0:00	7:20
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	9:52	9:48	9:21	10:01
			182	91	50	41
		Rural	10:15	7:55	0:00	10:31
			2	1	0	1
	Total Response Time ERF **Concentration**	Urban	9:52	9:48	9:21	10:01
			182	91	50	41
		Rural	10:15	7:55	0:00	10:31
			2	1	0	1

Benchmark Performance Objectives – Moderate Risk

For 90 percent of all moderate risk HazMat incidents, the total response time for the arrival of the first unit on scene, staffed with three personnel, shall be: 6 minutes and 30 seconds in urban zones and 12 minutes and 30 seconds in rural zones. The first arriving unit shall be capable of scene safety, establishing command, and investigating and mitigating.

For 90 percent of all moderate risk HazMat incidents, the total response time for the arrival of the effective response force, staffed with at least 17 personnel, shall be: 10 minutes and 30 seconds in urban zones and 16 minutes and 30 seconds in rural zones. The effective response force shall be capable of scene safety, establishing command, primary attack, water supply, securing utilities, ventilation, evacuations, patient care, and air monitoring.

Baseline Performance – Moderate Risk

There were no Moderate Risk HazMat incidents that met criteria for analysis.

Benchmark Performance Objectives – High Risk

For 90 percent of all high risk HazMat incidents, the total response time for the arrival of the first unit on scene, staffed with three personnel, shall be: 6 minutes and 30 seconds in urban zones and 12 minutes and 30 seconds in rural zones. The first arriving unit shall be capable of scene safety, establishing command, and investigating and mitigating.

For 90 percent of all high risk HazMat incidents, the total response time for the arrival of the effective response force, staffed with at least 19 personnel, shall be: 10 minutes and 30 seconds in urban zones and 16 minutes and 30 seconds in rural zones. The effective response force shall be capable of scene safety, establishing command, initial size-up, establishing an action plan, isolating and denying entry, establishing control zones, identifying products, notifications, rescue, evacuations, mitigating release, and decontamination.

Baseline Performance – High Risk

There were no High Risk HazMat incidents that met criteria for analysis.

Technical Rescue

Benchmark Performance Objectives – Low Risk

For 90 percent of all low risk technical rescue incidents, the total response time for the arrival of the first unit on scene, staffed with three personnel, shall be: 6 minutes and 30 seconds in urban zones and 12 minutes and 30 seconds in rural zones. The first arriving unit shall be capable of scene safety, establishing command, investigating and mitigating, and patient care.

For 90 percent of all low risk technical rescue incidents, the total response time for the arrival of the effective response force, staffed with three personnel, shall be: 10 minutes and 30 seconds in urban zones and 16 minutes and 30 seconds in rural zones. The effective response force shall be capable of scene safety, establishing command, investigating and mitigating, and patient care.

Baseline Performance – Low Risk

Table 64: Low Risk Technical Rescue - 90th Percentile Times - Baseline Performance

Response Time Component			2022-2024	2024	2023	2022
Alarm Handling	Pick-up to Dispatch	Urban	3:38	4:22	3:48	3:12
		Rural	3:10	2:45	2:34	3:36
Turnout Time	Turnout Time 1st Unit	Urban	1:31	1:33	1:41	1:26
		Rural	1:22	1:21	1:18	1:21
Travel Time	Travel Time 1st Unit **Distribution**	Urban	7:07	5:39	7:33	7:09
		Rural	10:15	8:33	7:46	11:39
	Travel Time ERF **Concentration**	Urban	7:07	5:39	7:33	7:09
		Rural	10:15	8:33	7:46	11:39
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	11:48	10:48	12:10	11:04
			135	18	54	63
		Rural	14:47	12:39	11:10	16:27
			7	1	3	3
	Total Response Time ERF **Concentration**	Urban	11:48	10:48	12:10	11:04
			135	18	54	63
		Rural	14:47	12:39	11:10	16:27
			7	1	3	3

Benchmark Performance Objectives – Moderate Risk

For 90 percent of all moderate risk technical rescue incidents, the total response time for the arrival of the first unit on scene, staffed with three personnel, shall be: 6 minutes and 30 seconds in urban zones and 12 minutes and 30 seconds in rural zones. The first arriving unit shall be capable of scene safety, establishing command, identifying victims and locations, and victim profiles.

For 90 percent of all moderate risk EMS incidents, the total response time for the arrival of the effective response force, staffed with 13 personnel, shall be: 10 minutes and 30 seconds in urban zones and 16 minutes and 30 seconds in rural zones. The effective response force shall be capable of scene safety, establishing command, identifying victims and locations, victim profiles, downstream/upstream protection, rescue, victim egress, and patient care.

Baseline Performance – Moderate Risk

Table 65: Moderate Risk Technical Rescue - 90th Percentile Times - Baseline Performance

Response Time Component			2022-2024	2024	2023	2022
Alarm Handling	Pick-up to Dispatch	Urban	0:00	0:00	0:00	0:00
		Rural	4:12	0:00	4:12	0:00
Turnout Time	Turnout Time 1st Unit	Urban	0:00	0:00	0:00	0:00
		Rural	1:47	0:00	1:47	0:00
Travel Time	Travel Time 1st Unit **Distribution**	Urban	0:00	0:00	0:00	0:00
		Rural	22:26	0:00	22:26	0:00
	Travel Time ERF **Concentration**	Urban	0:00	0:00	0:00	0:00
		Rural	0:00	0:00	0:00	0:00
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	0:00	0:00	0:00	0:00
			0	0	0	0
		Rural	20:16	0:00	20:16	0:00
			7	0	7	0
	Total Response Time ERF **Concentration**	Urban	0:00	0:00	0:00	0:00
			0	0	0	0
		Rural	0:00	0:00	0:00	0:00
			0	0	0	0

Benchmark Performance Objectives – High Risk

For 90 percent of all high risk technical rescue incidents, the total response time for the arrival of the first unit on scene, staffed with three personnel, shall be: 6 minutes and 30 seconds in urban zones and 12 minutes and 30 seconds in rural zones. The first arriving unit shall be capable of scene safety, establishing command, site control, initiating contact with victims, and identifying hazards.

For 90 percent of all high risk technical rescue incidents, the total response time for the arrival of the effective response force, staffed with at least 12 personnel, shall be: 10 minutes and 30 seconds in urban zones and 16 minutes and 30 seconds in rural zones. The effective response force shall be capable of scene safety, establishing command, site control, initiating contact with victims, identifying hazards, atmospheric monitoring, utilities, safety briefings, rigging, rescue, and patient care.

Baseline Performance – High Risk

Table 66: High Risk Technical Rescue - 90th Percentile Times - Baseline Performance

Response Time Component			2022-2024	2024	2023	2022
Alarm Handling	Pick-up to Dispatch	Urban	3:31	0:00	0:00	3:31
		Rural	3:01	0:00	3:01	0:00
Turnout Time	Turnout Time 1st Unit	Urban	1:16	0:00	0:00	1:16
		Rural	0:18	0:00	0:18	0:00
Travel Time	Travel Time 1st Unit **Distribution**	Urban	7:45	0:00	0:00	7:45
		Rural	12:27	0:00	12:27	0:00
	Travel Time ERF **Concentration**	Urban	0:00	0:00	0:00	0:00
		Rural	0:00	0:00	0:00	0:00
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	11:57	0:00	0:00	11:57
			4	0	0	4
		Rural	0:00	0:00	0:00	0:00
			0	0	0	0
	Total Response Time ERF **Concentration**	Urban	0:00	0:00	0:00	0:00
			0	0	0	0
		Rural	0:00	0:00	0:00	0:00
			0	0	0	0

Anticipated Growth and Expansion

As outlined in the community risk assessment chapter, future growth and expansion is expected in the northern section of Planning Zone 77B near the Sky River Casino and areas south of Kammerer Road. As this area begins to develop there is a potential for the planning zones to be adjusted to improve the risk assessment and response capabilities of the CFD. As the planning zones are adjusted in the future the CFD may need additional performance objectives based on the population density of the area. Urban and rural benchmark performance objectives are identified in previous sections. The following sections provide suggested benchmark performance objectives for the suburban population density demographic of 500 to 1,000 per square mile. These objectives as based on the same methodology as the rural objectives.

Response Time Components

For purposes of evaluation and analysis the following times are used in establishing the performance benchmark objectives:

The CFD does not have direct control of the SRFECC and is not authorized to establish a benchmark performance objective for call processing. However, for this evaluation and analysis, one minute will be used in compliance with NFPA 1710.

For 90 percent of emergency incidents, the turnout time for responding units shall be 90 seconds.

For 90 percent of emergency incidents for service located in the suburban area, the travel time for the first arriving unit shall be five minutes.

For 90 percent of emergency incidents for service located in the suburban area, the travel time for the effective response force shall be 10 minutes.

Emergency Medical Services Benchmark Performance Objectives

For 90 percent of all urgent emergency medical incidents located in the suburban zone, the total response time for the arrival of the first unit on scene, staffed with a minimum of two personnel, one being a paramedic shall be: 7 minutes and 30 seconds. The first arriving unit shall be capable of maintaining scene safety, establishing command, evaluating the need for additional resources, conducting initial patient assessment, and initiating advanced life support.

For 90 percent of all urgent emergency medical incidents located in the suburban zone, the total response time for the arrival of the effective response force of five personnel,

shall be: 12 minutes and 30 seconds. The effective response force shall be capable of conducting a comprehensive patient assessment, initiating, and maintaining advanced life support treatment, and transporting the patient to the appropriate medical facility.

Fire Suppression Services Benchmark Performance Objectives

For 90 percent of all urgent moderate risk structure fire incidents located in the suburban response zone, the total response time for the arrival of the first unit on scene, staffed with a minimum of three personnel, shall be: 7 minutes and 30 seconds. The first in unit shall be capable of: conducting an incident size-up, establishing command, requesting additional resources, assigning incoming resources, securing a water supply, providing 500 gallons of water and 1,500 gallons per minute (gpm) pumping capacity, and initiating rescue or fire attack.

For 90 percent of all urgent moderate risk structure fire incidents in the suburban zone, the total response time for the arrival of the effective response force of 16 personnel, shall be: 12 minutes and 30 seconds. The effective response force shall be capable of providing 4,500 gpm pumping capability, advancing an attack line and a backup line for fire control, establishing a rapid intervention crew, completing forcible entry, searching, and removing victims from harm, providing medical care for the injured, ventilating the structure, securing utilities, and performing salvage/overhaul.

Administrative Structure

The primary purpose of the CFD is to respond to and mitigate fire, rescue, and emergency medical services incidents within the District. To support these responses, there are a variety of other functions and responsibilities such as fire prevention, administration, and other support services. Historically the fire service has been tasked only with fire suppression. However, the CFD is an all-risk organization meeting the needs of the community well beyond traditional fire suppression.

Organizational Structure

The design of an organizational structure to best meet the needs of an agency is not only predicated on the traditional command and control within an emergency services organization, but also established to help define job duties and responsibilities, ensure efficient and effective workflow, establish a reporting hierarchy, and ultimately determine appropriate lines of authority and accountability. To accomplish this, the design of an organizational structure and placement of employees within the organization should be established on key principles that provide the organizational cohesion necessary to accomplish the mission of the Department. These principles include:

- **Accountability and responsibility are clearly identified:** The organizational structure must be consistent with the concept that clear lines of authority and decision making are essential for any organization to achieve excellence. Areas of responsibility are clearly delineated, and points of accountability are readily identifiable.
- **Span of control or communication is optimal:** Effective organizations are structured so that lines of communication are identifiable and where there are multiple reporting relationships; responsibilities for communication and control are clearly identified and understood.
- **Coordination of work efforts:** The organizational structure should facilitate communication and working relationships among staff and work units. Many functions need close or indirect alignment to maximize efficiency and effectiveness. The structure should also provide easy identification of job functions to people outside the Department, including other governmental organizations and outside stakeholders.
- **Degree of Organizational Risk:** This relates to how much risk a function incurs if an activity is not performed or is performed poorly. Risk might involve tactical,

financial, or political concerns. Generally, higher risk functions have closer management oversight.

- **Supervisor and Management Span of Control:** This relates to whether supervisors are fully devoted to overseeing a select few primary activities or a broader set of duties and responsibilities. Appropriate spans of control are related to both the number of staff directly supervised as well as the complexity of activities overseen.

The nationally recognized best practice for span of control in highly technical and professional positions is to limit direct reports typically to five or six positions, with nine direct reports considered the maximum to mitigate organizational risk[12].

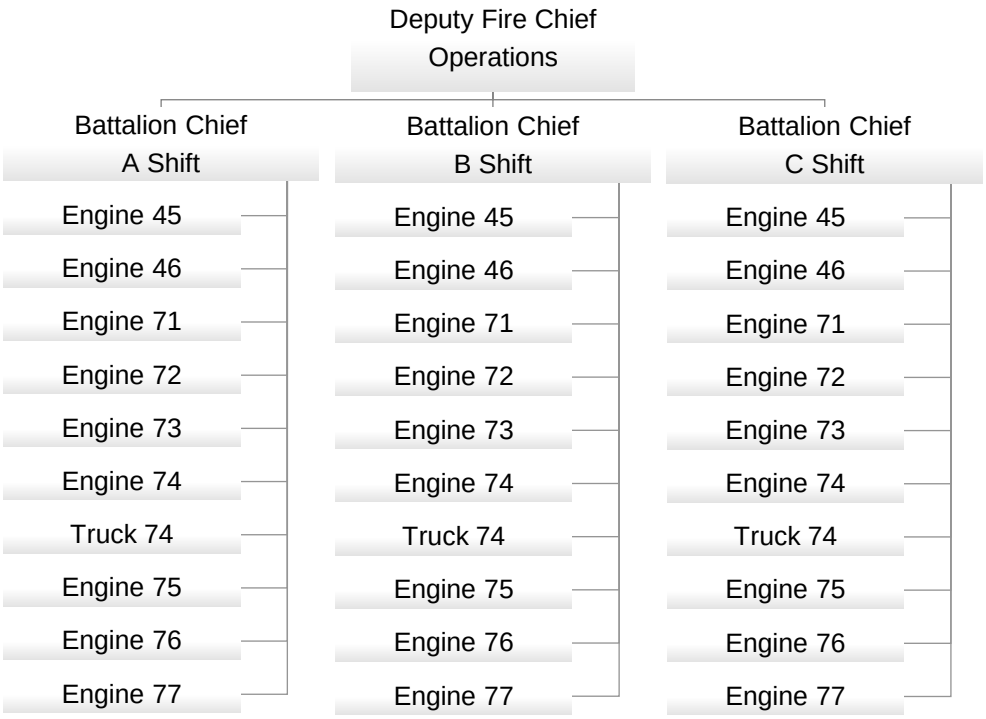
Emergency Operations

The CFD currently operates from eight fire stations with a ninth fire station to become operational in the near future. Operational staffing has a single Battalion Chief assigned to manage both emergency and non-emergency operations. The size of the district, the increasing population, increasing calls for service, and the expansion of the CFD all combine to create the need for a second Battalion Chief on each shift. Most of the Standard Operating Guidelines in Sacramento County require the response of a second Battalion Chief to complex emergency incidents. The CFD currently relies on other agencies to provide the second Battalion Chief for these incidents. Additionally, the span of control for 10 resources exceeds the incident command system standard of three to seven, with an optimal number of five. This is not only important for the mitigation of emergency incidents, but also for the effective mentoring and development of supervisory personnel and succession planning.

There are ten Captains that are direct reports to the Battalion Chief as illustrated in the following organizational chart.

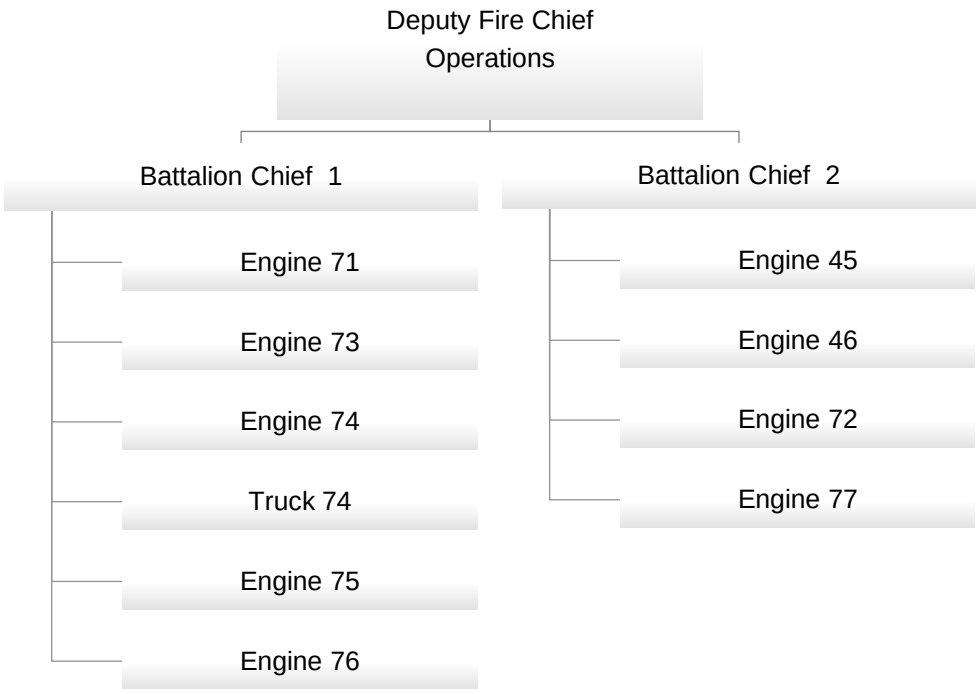
[12] Managing Fire Services. Washington, D.C. ICMA

Current Shift Command Structure



With this configuration there are issues with the span of the control, communications, and to some degree the coordination of work efforts. The issues are not with the individuals in the position but more with the overall workload for both emergency and non-emergency activities. Along the same lines is the newly promoted Captain that will require more attention and oversight than one that is well tenured. For emergency operations the response matrix is for a second Battalion Chief to respond to a reported structure fire, for the District this comes from an automatic aid agency. Also, once the current Battalion Chief is committed to an incident, the remaining units of the shift are left without a chief officer to have command of the shift. These factors may permit an essential function to either not be performed or performed poorly, increasing the level of organizational risk.

To correct this issue, a second Battalion Chief should be added to shift operations. The following illustrative organizational chart provides a view of a shift with two Battalion Chiefs.



This layout creates two battalions dividing the District into two halves and allows for limited expansion in the southern part of the District which is where the new development is anticipated to occur.

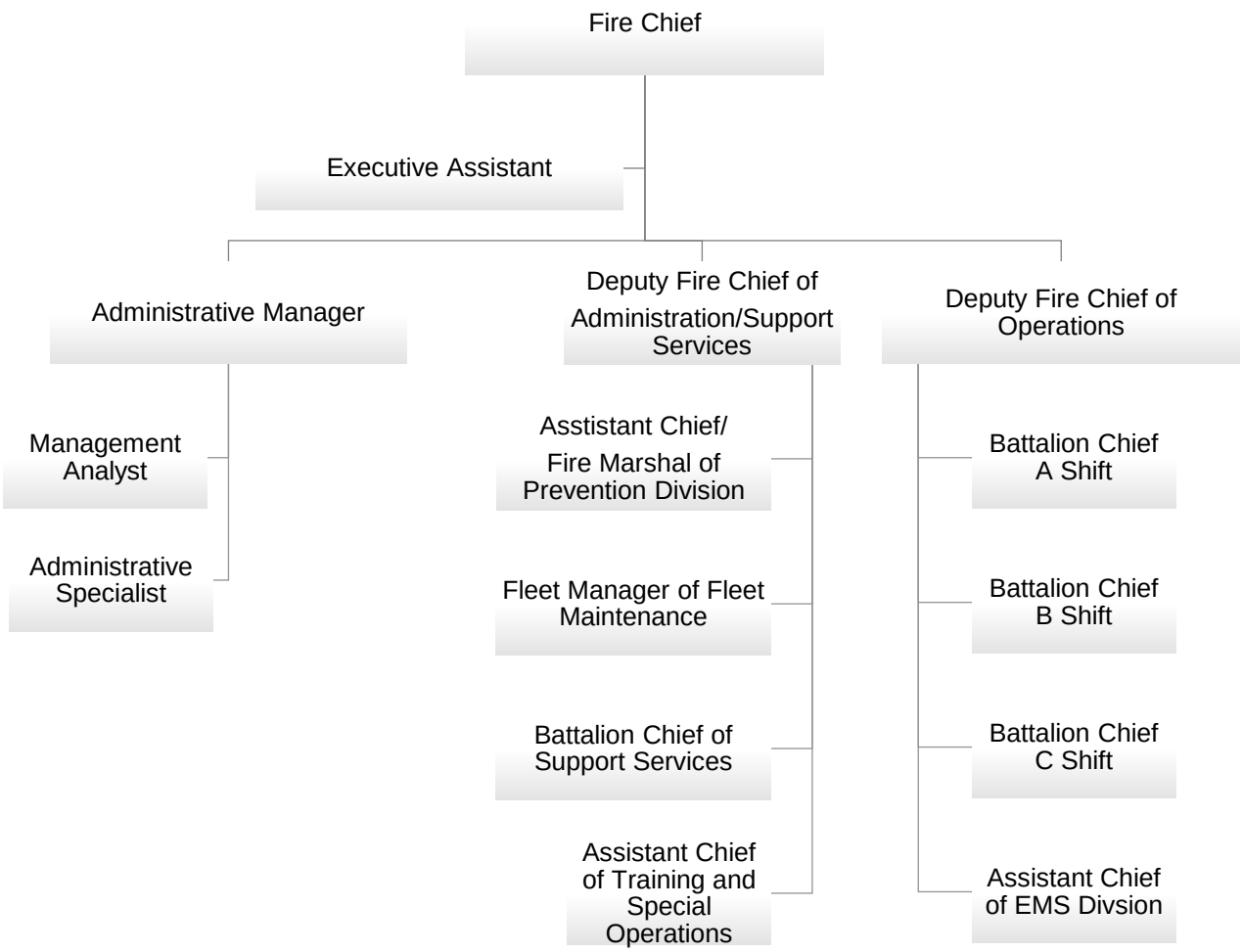
Recommendation

Add a second Shift Battalion Chief to operations to improve the supervision, support, and development of personnel as well as command and control of multiple company emergency responses.

Administrative Operations

The addition of a second Shift Battalion Chief also creates an imbalance at the administrative level. The following organizational chart highlights the current administrative structure.

Current Administrative Organization Structure



The addition of a second Shift Battalion Chief to each operational shift increases the direct reports from four to seven for the Deputy Fire Chief of Operations. This has the potential to increase organizational risk due to the operations and may have an effect on accountability and responsibility. To reduce the number of direct reports to the Deputy

Chief of Operations, there is an opportunity to address several needs within the organization at the administrative level.

Community Risk Reduction

Community Risk Reduction (CRR) is a proactive approach to identify and mitigate potential hazards and risks in a community. It involves working collaboratively with various stakeholders, including fire department personnel, local government officials, community leaders, and the public, to reduce the likelihood and impact of emergencies, disasters, and other adverse events.

The goal of CRR is to build resilience in the community by identifying and addressing the root causes of risk and vulnerability. This can involve a range of activities, such as:

- **Risk Assessments:** Conducting assessments to identify potential risks and vulnerabilities in the community and developing plans to mitigate them.
- **Public Education and Outreach:** Providing educational programs and outreach initiatives to increase public awareness of potential hazards, how to prepare for them, and what to do during and after an emergency.
- **Code Enforcement:** Ensuring that building codes and standards are followed and enforced to minimize potential risks from construction or other activities.
- **Community Planning and Development:** Working with local government officials and other stakeholders to develop plans for land use, infrastructure development, and emergency management.
- **Fire Prevention and Safety:** Educating the public on fire prevention and safety measures, conducting fire inspections, and enforcing fire codes.

By implementing CRR strategies, communities can better prepare for, respond to, and recover from disasters and other emergencies. This approach can help reduce the loss of life and property damage while also enhancing the overall resilience and wellbeing of the community.

The concept of CRR is not new to the fire service and the CFD already has a Fire Prevention Division within the organization that is well situated to transition to the Community Risk Reduction model. Many of the functions of the Fire Prevention Division fall into the roles of CRR such as public education and fire prevention inspections. This transition may cause some expansion of the Fire Prevention Division into areas such as wildland fires, wildland urban interface, and the mitigation activities. As this transition progresses, there will likely be a cultural shift within the CFD towards a reduction and

mitigation of risks mindset. As the activities continue to grow, the CRR becomes a larger part of the community and the organization to become its own branch within the CFD.

Recommendations

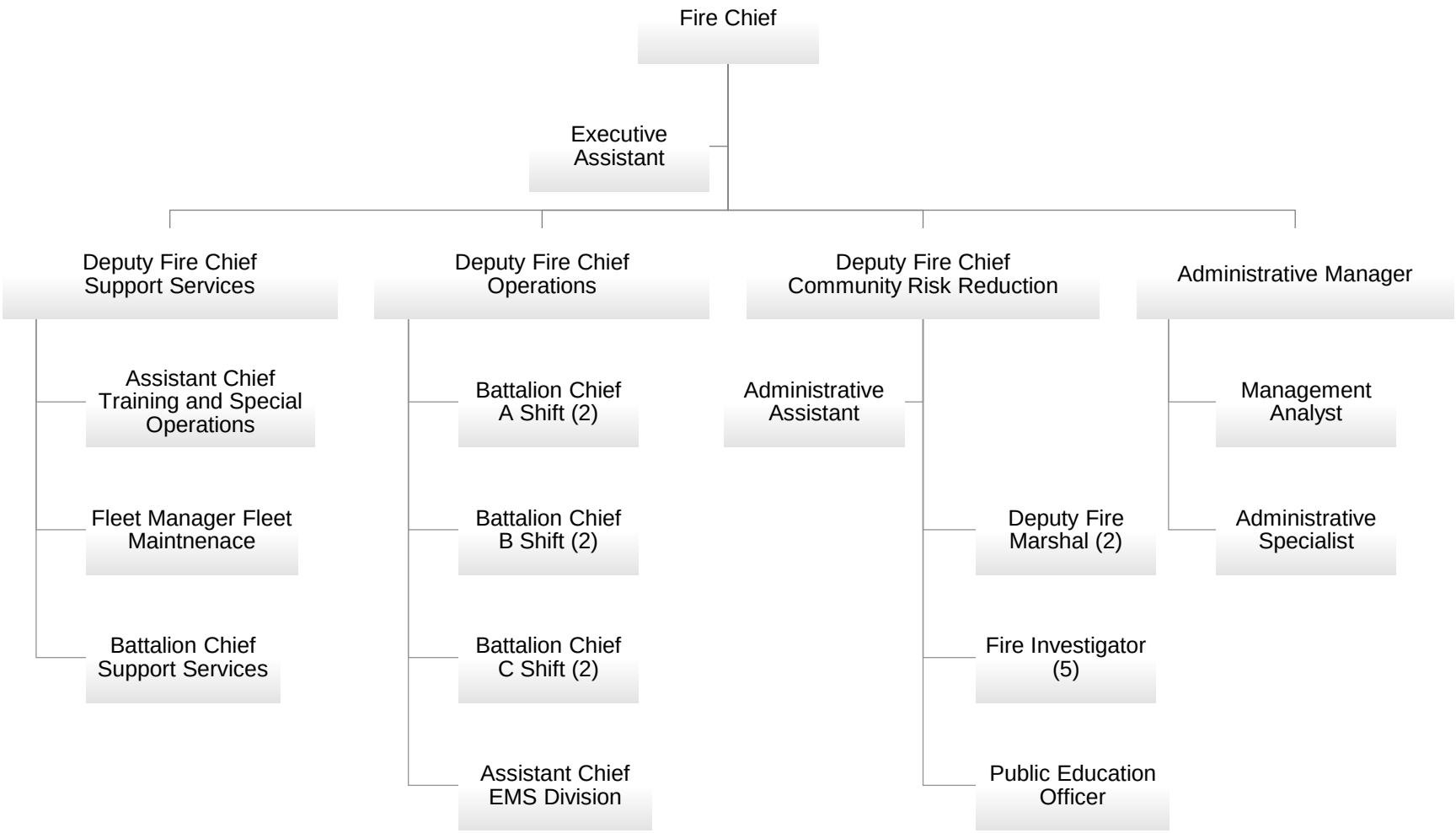
Create a new branch for Community Risk Reduction. This new branch would house the current Fire Prevention Division and all its individual parts. With the new designation, additional duties could fall into the branch such as targeted public education based on the identified fire problem in the community and wildland mitigation activities and education.

Create a new Deputy Chief of Community Risk Reduction to manage the newly formed Community Risk Reduction branch.

Reimagine the Administration and Support Services branch as the Support Services branch maintaining the current Fleet Maintenance, Logistics, Staffing, and Training and Special Operations.

The following revised organizational chart provides a view of the new organization.

Revised Administrative Organization Structure



This allows all the support services to be within one branch, operations to be in their own branch, the community risk reduction in its own branch.

Physical Resources

Facilities

Facilities used by the CFD were toured on November 8, 2022, and a "walk through" assessment of the exterior, interior, and technical systems for each fire station was completed. The evaluation is not based on a detailed analysis, but rather as a broad index of each facility's relative physical condition and viability to serve the current and future needs of the CFD. Conditions were rated on a scale of Excellent, Good, Fair, or Poor, as defined below.

- Excellent – conditions are newly renovated or constructed, basic standards are met or exceeded.
- Good – conditions meet basic standards and potential exists for expansion or redevelopment at low expense.
- Fair – conditions may be reasonable for improvement or redevelopment at substantial expense.
- Poor – conditions do not meet basic standards and have little potential for improvement without significant effort and resources.

The following sections provide detailed assessments for each of the fire stations.

Fire Station 45

This station is located in Galt, providing service to the southern sections of the city. Apparatus at this station includes a Type 1 Engine, a Type 3 Engine, a Water Tender, and a Medic Unit. The daily minimum staffing is five personnel. The facility has three long drive through apparatus bays and has living quarters for seven personnel.

Table 67: Galt Fire Station 45 Assessment

Galt Fire Station 45
229 Fifth Street, Galt, CA

Year Constructed	1997		
Building Size	BGSF: 8,200 (+/-)	#Floors:	1
Site Conditions	Parking Spaces:	5 Public, 8 Staff	
	ADA parking spaces:	1	
	Parking Lot:	Good	
	Signage:	Poor	
	Access/ADA Issues:	Good	
	Expansion Capability:	Poor	
	Security:	Good	
Building Exterior	Exterior Wall:	Good (Metal)	
	Roof:	Good (Bays), Good (Staff / Admin areas)	
	Apparatus Accessibility	Good	
Building Interior	Structure:	Fair	
	Access/ADA Issues:	Fair	
	Code Compliance Issues:	None	
	Layout:	Fair	
	Renovation Suitability:	Fair	
	Staff Quarters Capacity:	8 Single Rooms	
	Storage Capacity:	Fair	
Technical Systems	Plumbing:	Fair	
	Mechanical (HVAC):	Fair	
	Electrical:	Fair	
	Lighting:	Good (Bay), Good (Staff / Admin areas)	
	Apparatus Exhaust System:	Plymovent System	

The site is not suitable for any expansion of the facility as there are buildings on either side and streets on the other two sides. There are opportunities to renovate the interior of the existing building as needed. The visibility exiting the fire station is good with enough space on the apron to clear the building when exiting.

Fire Station 46

Located in the northern section of Galt, this station provides service to the northeastern section of the city primarily east of Highway 99. This station houses a Type 1 Engine, a Type 3 Engine, and a Medic Unit. Minimum daily staffing is five personnel. The facility has two short drive through bays.

Table 68: Galt Fire Station 46 Assessment

Galt Fire Station 46
1050 Walnut Avenue, Galt, CA

Year Constructed	1996	
Building Size	BGSF: 4,400 (+/-)	#Floors: 1
Site Conditions	Parking Spaces:	3 Public, 5 Staff
	ADA parking spaces:	1
	Parking Lot:	Good
	Signage:	Fair
	Access/ADA Issues:	Good
	Expansion Capability:	Good
	Security:	Good
Building Exterior	Exterior Wall:	Good (Brick, Stucco)
	Roof:	fair (Bays), fair(Staff / Admin areas)
	Apparatus Accessibility	Fair
Building Interior	Structure:	Fair
	Access/ADA Issues:	Fair
	Code Compliance Issues:	None
	Layout:	Fair
	Renovation Suitability:	Poor
	Staff Quarters Capacity:	5 single spaces in open dormitory
	Storage Capacity:	Poor
Technical Systems	Plumbing:	good
	Mechanical (HVAC):	Fair
	Electrical:	Fair
	Lighting:	Good (Bay), Good (Staff / Admin areas)
	Apparatus Exhaust System:	Plymovent system

This station does not have sufficient space for the operations of the CFD. The Type 3 Engine is housed behind the station under a metal storage canopy. The fitness area is located in the apparatus bays behind the Medic Unit and there are two Conex boxes used for storage. There is a small area to the south of the station that adjoins a walk path for the park that could be used to enlarge the station, but this area may not provide sufficient space to expand the fire station to meet the apparatus and equipment storage needs.

Fire Station 71

This station is centrally located in the District's southern Elk Grove area, serving the south and southeast sections. It houses a Type 1 Engine, a Type 5 Engine, a Water Tender, a Medic Unit, and a Command Unit for the Battalion Chief. The State Office of Emergency Services (OES) has provided a Type 1 Engine and a Type 3 Engine that are housed at this facility as well. The minimum daily staffing is six personnel.

Table 69: Frank Everson Fire Station 71 Assessment

Frank Everson Fire Station 71
8760 Elk Grove Blvd, Elk Grove, CA

Year Constructed	1975	
Building Size	BGSF: 11,745 (+/-)	#Floors: 1
Site Conditions	Parking Spaces:	10 Public, 13 Staff
	ADA parking spaces:	2
	Parking Lot:	Good
	Signage:	Good
	Access/ADA Issues:	Good
	Expansion Capability:	Fair
	Security:	Good
Building Exterior	Exterior Wall:	Good (Metal)
	Roof:	Good
	Apparatus Accessibility	Good
Building Interior	Structure:	Fair
	Access/ADA Issues:	Fair
	Code Compliance Issues:	None
	Layout:	Good
	Renovation Suitability:	Good
	Staff Quarters Capacity:	10 spaces - murphy beds
	Storage Capacity:	Fair
Technical Systems	Plumbing:	Poor
	Mechanical (HVAC):	Fair
	Electrical:	Fair
	Lighting:	Good (Bay), Good (Staff / Admin areas)
	Apparatus Exhaust System:	Plymovent system

Expansion capabilities are limited to the front and rear, with further constraints to the west by Elk Grove Creek and to the east by a nearby office building. There are opportunities to renovate the interior of the existing building, the age of the building may warrant a complete replacement. There is good visibility from the apron for apparatus exiting the station but there are access issues with the volume of traffic on the roadway especially during the morning and evening commutes.

Fire Station 72

The southern section of Elk Grove receives service from this station, located in the southwest section of the city. The service area is east of the I-5 corridor in a predominately residential area. The current apparatus includes two Type 1 Engines, two Type 3 Engines, a Medic Unit, and a boat with trailer. A new station is being constructed scheduled to open in 2023. This station currently houses one apparatus and three staff for that station which will move once construction is complete. The minimum daily staffing for Station 72 is eight personnel.

Table 70: Otto Hanson Fire Station 72 Assessment

Otto Hanson Fire Station 72
10035 Atkins Drive, Elk Grove, CA

Year Constructed	2005	
Building Size	BGSF: 12,400 (+/-)	#Floors: 1
Site Conditions	Parking Spaces:	2 Public, 13 Staff
	ADA parking spaces:	1
	Parking Lot:	Good
	Signage:	Good
	Access/ADA Issues:	Good
	Expansion Capability:	Good
	Security:	Good
Building Exterior	Exterior Wall:	Good (Brick/Stucco)
	Roof:	Poor
	Apparatus Accessibility	Good
Building Interior	Structure:	Good
	Access/ADA Issues:	Good
	Code Compliance Issues:	None
	Layout:	Good
	Renovation Suitability:	Good
	Staff Quarters Capacity:	9 single spaces in open dormitory
	Storage Capacity:	Good (Storage Building at the rear of the Station)
Technical Systems	Plumbing:	Good
	Mechanical (HVAC):	Good
	Electrical:	Good
	Lighting:	Good (Bay), Good (Staff / Admin areas)
	Apparatus Exhaust System:	Plymovent system

There is land adjacent to the station that would allow for expansion of the facility, however, if that land should be developed or used for another purpose expansion would become limited. In addition, there is a six-bay storage building in the rear area used to house various smaller and reserve apparatus.

Fire Station 73

This station is located in the eastern section of Elk Grove and the District. Service is provided to the east area of the city southward to Grant Line Road. Automatic aid to Wilton and other areas to the east is provided from this station. This station houses a Type 1 Engine, a Type 3 Engine, and a Medic Unit. The minimum daily staffing at Station 73 is five personnel.

Table 71: George D. Beitzel Fire Station 73 Assessment

George D. Beitzel Fire Station 73
9607 Bond Road, Elk Grove, CA

Year Constructed	1999	
Building Size	BGSF: 10,010 (+/-)	#Floors: 1
Site Conditions	Parking Spaces:	5 Public, 10 Staff
	ADA parking spaces:	1
	Parking Lot:	Fair
	Signage:	Good
	Access/ADA Issues:	Good
	Expansion Capability:	Fair
	Security:	Good
Building Exterior	Exterior Wall:	Good (Brick/Stucco)
	Roof:	Good
	Apparatus Accessibility	Good
Building Interior	Structure:	Good
	Access/ADA Issues:	Good
	Code Compliance Issues:	None
	Layout:	Good
	Renovation Suitability:	Good
	Staff Quarters Capacity:	6 Single Rooms
	Storage Capacity:	Good
Technical Systems	Plumbing:	Good
	Mechanical (HVAC):	Fair
	Electrical:	Good
	Lighting:	Good (Bay), Good (Staff / Admin areas)
	Apparatus Exhaust System:	Plymovent system

The station is bordered by a joint high school and middle school campus with very little room to expand without infringing on the school areas. There is a significant issue with the roadway in front of the station that will need repair.

Fire Station 74

Located in the north central section of Elk Grove, this station provides service to the central sections of the city. The CFD's only ladder truck is housed at this station along with a Type 1 Engine, a Heavy Rescue, a Rescue Tender, and a Medic Unit. The minimum daily staffing is Station 74 is nine personnel.

Table 72: M. B. "Bud" Jones Fire Station 74 Assessment

M. B. "Bud" Jones Fire Station 74
6501 Laguna Park Drive, Elk Grove, CA

Year Constructed	Early 1990s Remodel 2005	
Building Size	BGSF: 11,000 (+/-)	#Floors: 1
Site Conditions	Parking Spaces:	5 Public, 14 Staff
	ADA parking spaces:	1
	Parking Lot:	Good
	Signage:	Good
	Access/ADA Issues:	Good
	Expansion Capability:	Fair
	Security:	Good
Building Exterior	Exterior Wall:	Good (Brick)
	Roof:	Fair
	Apparatus Accessibility	Good
Building Interior	Structure:	Good
	Access/ADA Issues:	Good
	Code Compliance Issues:	None
	Layout:	Good
	Renovation Suitability:	Good
	Staff Quarters Capacity:	12 Single Rooms
	Storage Capacity:	Good
Technical Systems	Plumbing:	good
	Mechanical (HVAC):	Fair
	Electrical:	good
	Lighting:	Good (Bay), Good (Staff / Admin areas)
	Apparatus Exhaust System:	Plymovent system

The expandability of this station is limited as it is in a park area with baseball fields and walking trails in close proximity to the station. The facility has reasonably good access to the commercial and business development along the Highway 99 corridor.

Fire Station 75

This station provides service to the far western area of Elk Grove as it is located near the I-5 corridor in the western area of the District. Apparatus housed at this station includes a Type 1 Engine, a Type 3 Engine, a Foam Unit, an Air Unit, and a Medic Unit. The minimum daily staffing at Station 75 is five personnel.

Table 73: Gerald H. Derr Fire Station 75 Assessment

Gerald H. Derr Fire Station 75
2300 Maritime Drive, Elk Grove, CA

Year Constructed	1999	
Building Size	BGSF: 10,480 (+/-)	#Floors: 1
Site Conditions	Parking Spaces:	5 Public, 15 Staff
	ADA parking spaces:	1
	Parking Lot:	Good
	Signage:	Good
	Access/ADA Issues:	Good
	Expansion Capability:	Poor
	Security:	Good
Building Exterior	Exterior Wall:	Good (Stucco)
	Roof:	Good
	Apparatus Accessibility	Good
Building Interior	Structure:	Good
	Access/ADA Issues:	Good
	Code Compliance Issues:	None
	Layout:	Good
	Renovation Suitability:	Good
	Staff Quarters Capacity:	9 Single Rooms
	Storage Capacity:	Good
Technical Systems	Plumbing:	good
	Mechanical (HVAC):	Fair
	Electrical:	good
	Lighting:	Good (Bay), Good (Staff / Admin areas)
	Apparatus Exhaust System:	Plymovent system

The station does not have any capability to expand as there is a water treatment facility on the east side and a public storage facility on the west side. The station does have good access to the I-5 corridor.

Fire Station 76

The northern most station in the District provides service to a largely residential area with good access to Highway 99. A Type 1 Engine, a Type 5 Engine, and Medic Unit are housed at this station as well as a reserve Ladder Truck. The minimum daily staffing at Station 76 is five personnel.

Table 74: Charles B. Angell Fire Station 76 Assessment

Charles B. Angell Fire Station 76
8545 Sheldon Road, Elk Grove, CA

Year Constructed	2001		
Building Size	BGSF: 10,880 (+/-)	#Floors:	1
Site Conditions	Parking Spaces:	5 Public, 15 Staff	
	ADA parking spaces:	1	
	Parking Lot:	Good	
	Signage:	Good	
	Access/ADA Issues:	Good	
	Expansion Capability:	Fair	
	Security:	Good	
Building Exterior	Exterior Wall:	Good (Brick/Stucco)	
	Roof:	Good	
	Apparatus Accessibility	Good	
Building Interior	Structure:	Good	
	Access/ADA Issues:	Good	
	Code Compliance Issues:	None	
	Layout:	Good	
	Renovation Suitability:	Good	
	Staff Quarters Capacity:	8 Single Rooms	
	Storage Capacity:	Good	
Technical Systems	Plumbing:	good	
	Mechanical (HVAC):	Fair	
	Electrical:	good	
	Lighting:	Good (Bay), Good (Staff / Admin areas)	
	Apparatus Exhaust System:	Plymovent system	

Good access to Highway 99 allows the station to provide support to Station 71.

Fire Training Center

This facility is located in the center section of the District and provides space for a variety of services including fire prevention, training and education, and fleet maintenance And Building Maintenance. There is space for storage of reserve apparatus that is indoors and secured.

In the rear sections of the property is a Class A and Class B burn facility to include other props used for training new recruits and existing staff. There are wide open spaces for apparatus movement and access to the various props. Classroom space for training is a group of modular office buildings connected by raised platforms and decks.

At the front of the property are two buildings with one building serving as the offices for the Fire Prevention Division, Training Division, and Special Operations Division. This space has offices along the exterior walls with an open office space in the middle that is subdivided into smaller office cubicles.

The second building is used for Fleet Maintenance and Logistics. There is a garage area large enough to house apparatus for repairs and storage areas for reserve apparatus to include ambulances. Additionally, there is space to house small equipment and supplies for the operation of the CFD.

There are limited opportunities to expand the facility. Any expansion will likely infringe upon the open training facilities in the rear area of the property or in the parking lot areas. The use of modular office buildings provides a flexible use of space; however, those units are not easily renovated and will likely need to be replaced sooner rather than later.

Capital Improvement Plan

In 2021, the Board of Directors adopted a Capital Improvement Plan (CIP) for the District in line with the 2021 Cosumnes CSD Strategic Plan. It is a five-year plan that provides a comprehensive overview of the capital needs for the District to include the CFD, Parks and Recreation Department, and Administrative Services Department. Within this plan there are several improvements identified for the next five years and beyond. Funding for the improvements is primarily from the general fund with some of the funding from the fire impact fees. The following table illustrates the planned improvements and the planned budget year for completion of the project.

Table 75: Capital Improvement Plan and Budget Year

Project	Budget Year
Fire Station 46 Patio Cover	2021/2022
Fire Station 72 Roof Repairs	2022/2023
Fire Station 44 Sonitrol System Upgrade	2022/2023
Fire Station 77	2023/2024
Fire Station 74 Roof Repairs	2023/2024
Fire Station 73 Asphalt Repairs	2023/2024
Fire EMS Fire Headquarters Parking Lot Improvements	2023/2024
Fire Station 45 HVAC Replacement	2023/2024
Fire Station 72 Water Damage Remediation	2023/2024
Fire Station 75 Dorm Remodel	2023/2024
Fire Station Water Softener Upgrade and Replacement Project	2023/2024
Fire Station 46 HVAC Replacement	2023/2024
Fire Logistics Facility HVAC Replacement	2023/2024
Fire EMS Logistics Backup Generator	2023/2024
Fire Station 71 Dorm Remodel	2023/2024
Fire Headquarters HVAC Replacement	2023/2024
Fire EMS Electric Gate Install	2024/2025
Fire Smart Station Alerting System	2024/2025
Fire Station 46 Kitchen	2024/2025
Fire Station 74 Training Enhancements	2024/2025
Fire Station 46 Expansion / Renovation	2025/2026
Fire Station 71 Remodel	2025/2026
Fire Station 78	2025/2026
Fire Headquarters Remodel / Expansion	2026/2027
Fire Station 79	2026/2027
Fire Training Office and Classrooms	2026/2027
Fire Training Scenario Village Facility Improvements	2026/2027
Fire Station 70	Future
Fire Station 80	Future

Recommendations

Develop a long-term funding plan for CFD facilities that identifies specific building systems, their life expectancy, and the anticipated cost for repair or replacement to allow the District to properly plan and appropriate adequate reserve funding to relieve the stress on the general fund when capital replacement needs arise.

Consider a complete replacement of Fire Station 71 to incorporate modern technologies and space requirements that address industry related health issues, fitness, and appropriate gender facilities.

Apparatus and Vehicles

During the facility assessment, the apparatus was also reviewed. All apparatus appeared to be in good condition and in reasonably good mechanical condition. In terms of apparatus types, each station has the type of apparatus necessary to provide appropriate service related to the risks in the area of the station. With the apparatus in good condition, the focus becomes the replacement of apparatus and equipment.

Apparatus Replacement

One of the more difficult tasks facing a community is the replacement of fire apparatus due in large part to available funding, the timing of when to replace and the cost associated with replacing the apparatus. As the apparatus ages, it becomes more difficult to maintain, less parts are available for replacement and the pumps begin to fail their annual testing. Like the distribution and concentration of resources, a one size fits all approach does not work well with apparatus. Some vehicles and apparatus do not last as long as others. This could be due to higher call volumes, extreme wear and tear and varied preventive maintenance measures.

A customary practice in the fire service for the replacement of apparatus is based on the age of the unit. The NFPA does not provide a replacement frequency for apparatus. They do recommend that any apparatus over 15 years old to be upgraded with new safety features and apparatus over 25 years old to be replaced.

The replacement frequency will vary between fire departments. For an engine, it could be used as a front-line unit for the first 10 to 15 years then move to reserve status for the remaining service time expectancy. The following table illustrates the current apparatus used by the CFD and the age of each.

Table 76: Cosumnes Fire Department Apparatus by Age

Unit ID	Year	Description	Age
Ambulances			
Medic 73	2017	Dodge 4500	5
Medic 76	2017	Dodge 4500	5
Medic 77	2017	Dodge 4500	5
Medic 72	2018	Dodge	4
Medic 74	2018	Dodge	4
Medic 71	2019	Ram 4500	3
Medic 45	2020	Dodge 4500	2
Medic 46	2020	Dodge 4500	2
Type 1 Engines			
Engine 77	2006	Pierce	16
Engine 45	2022	Pierce	1
Engine 46	2008	Pierce	14
Engine 71	2022	Pierce	1
Engine 74	2014	Pierce	8
Engine 72	2016	Pierce	6
Engine 76	2016	Pierce	6
Engine 73	2018	Pierce	4
Engine 75	2018	Pierce	4
Type 3 Engines			
Engine 373	2006	West-Mark	16
Engine 375	2006	West-Mark	16
Engine 345	2007	West-Mark	15
Engine 346	2007	West-Mark	15
Engine 372	2009	West-Mark	13
Engine 377	2009	West-Mark	13
Type 5 Engines			
Engine 571	2019	Dodge 4500 4x4	3
Engine 576	2019	Dodge 4500 4x4	3
Aerial Ladders			
Truck 74	2008	Pierce Aerial	14
Ladder Truck	2006	Pierce Aerial	16
Water Tenders			
Tender 71	2005	Pierce Kenworth	17
Tender 45	2007	Pierce/Kenworth	15
Specialty Units			
Foam 75	2001	Ford F550	21
RT 74	2005	Ford E350	17
Rescue 74	2008	Pierce	14
Boat 72	2009	Achilles	13
Air 75	2020	Ram	2

As illustrated, there are several units that are approaching the twenty-year mark, including a Type 1 Engine and two Type 3 Engines.

An effective apparatus replacement program will have benchmarks established to drive the replacement schedule. These benchmarks should establish a replacement guideline to categorize the various units and their target replacement date, definitions for the determination of the condition of the vehicle and other criteria to be used in the evaluation of the vehicle.

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

Table 77: Suggested Replacement Guidelines

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

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

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

Table 78: Suggested Replacement Guideline Scoring

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

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

Further consideration for an apparatus replacement program is the amount of time needed to acquire apparatus. Apparatus manufacturers are reporting issues with the supplies needed to build apparatus that include basic materials such as steel but also computer components. These same manufacturers are quoting as much as 30 months from the time an order is placed to the delivery of the apparatus. As such, replacement planning is more important than ever.

Recommendations

Consider using an apparatus replacement system that accounts for maintenance costs, operating costs, and general reliability and condition assessments to provide benchmarks for the planned replacement of apparatus.

Develop a long-term funding plan for the CFD for fire apparatus and other vehicles that identifies the benchmarks established by the apparatus replacement system to allow the District to properly plan and appropriate adequate reserve funding to relieve the stress on the general fund when capital replacement needs arise.

Improvement and Maintenance Plan

This chapter provides a synopsis of the recommendations developed for the CFD through the analysis conducted during this study. The timelines shown are defined as follows:

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

Short Term Improvement Opportunities

Performance Objectives

- In keeping with previously established benchmark performance objectives, the CFD should establish a 90 second turnout time benchmark performance objective for 90% of the emergency calls.
- In keeping with the NFPA guidance, the CFD should establish a 4-minute travel time performance objective for 90% of the emergency calls in the urban planning zones.
- Following the CPSE guidance, the CFD should establish a 10-minute travel time performance objective for 90% of the emergency calls in the rural planning zones.
- In keeping with the NFPA guidance, the CFD should establish an 8-minute travel time benchmark performance objective for 90% of the emergency calls in the urban planning zones for the arrival of an effective response force.
- Following the CPSE guidance, the CFD should establish a 14-minute travel time benchmark performance objective for 90% of the emergency calls in the rural planning zones for the arrival of an effective response force.

Communications and Call Processing

- Take a lead role in collaborating with the partner agencies and Sacramento Regional Fire/EMS Communications Center (SRFECC) to improve the call processing performance.
- Continue to support the acquisition and implementation of an updated Computer Aided Dispatch (CAD) platform for the SRFECC.
- Work with the SRFECC to identify process errors and create a plan to correct data errors.

Turnout Time

- Consider tools such as timers and standard operating procedure updates to promote improvements for turnout time to emergency calls for service.
- Consider upgrading personnel and fire station alerting systems to ensure proper and prompt notification of an emergency call.

Distribution of Resources

- Based on the higher unit hour utilization during the daytime hours and the increased travel time indicated with the concurrent calls, add at least three medical units during the daytime hours, 7 a.m. to 7 p.m., to supplement the available resources.
- Upgrade the current traffic signal pre-emption system to take advantage of newer technologies to improve travel time and improve civilian and firefighter roadway safety.

Administrative Operations

- Add a second Shift Battalion Chief to operations to improve the supervision, support, and development of personnel as well as command and control of the multiple company emergency responses.

Intermediate Term Improvement Opportunities

Concentration of Resources

- Increase the minimum staffing of Engine Companies 71, 74, and 76 from three personnel to four personnel to improve the development of an effective response force and provide additional support for the second arriving suppression unit.

Long Term Improvement Opportunities

Distribution of Resources

- Consider constructing and staffing a new station in the 8200 block of Long Leaf Drive to enhance and support the level of service in the central section of Elk Grove.
- Consider constructing and staffing a new station in the area of Elk Grove Blvd. and Franklin Blvd. to enhance and support the level of service in the western section of Elk Grove.

- Consider adding a second ladder company to a station with access to the southern section of Elk Grove.

Concentration of Resources

- Increase the minimum staffing of all engine companies from three personnel to four personnel to provide improved resources on the first arriving suppression unit and to improve the development of an effective response force.

Administrative Operations

- Create a new branch for Community Risk Reduction. This new branch would house the current Fire Prevention Division and all its individual parts. With the new designation, additional duties could fall into the branch such as targeted public education based on the identified fire problem in the community and wildland mitigation activities and education.
- Create a new Deputy Chief of Community Risk Reduction position to manage the newly formed Community Risk Reduction branch.
- Reimagine the Administration and Support Services branch as the Support Services branch maintaining the current Fleet Maintenance, Logistics, Staffing, and Training and Special Operations.

Physical Resources

- Develop a long-term funding plan for the CFD facilities that identifies specific building systems, their life expectancy, and the anticipated cost for repair or replacement to allow the District to properly plan and appropriate adequate reserve funding to relieve the stress on the general fund when capital replacement needs arise.
- Consider a complete replacement of Fire Station 71 to incorporate modern technologies and space requirements that address industry related health issues, fitness, and appropriate gender facilities.
- Consider using an apparatus replacement system that accounts for maintenance costs, operating costs, and general reliability and condition assessments to provide benchmarks for the planned replacement of apparatus.
- Develop a long-term funding plan for the CFD for fire apparatus and other vehicles that identifies the benchmarks established by the apparatus replacement system to allow the District to properly plan and appropriate adequate reserve funding to relieve the stress on the general fund when capital replacement needs arise.

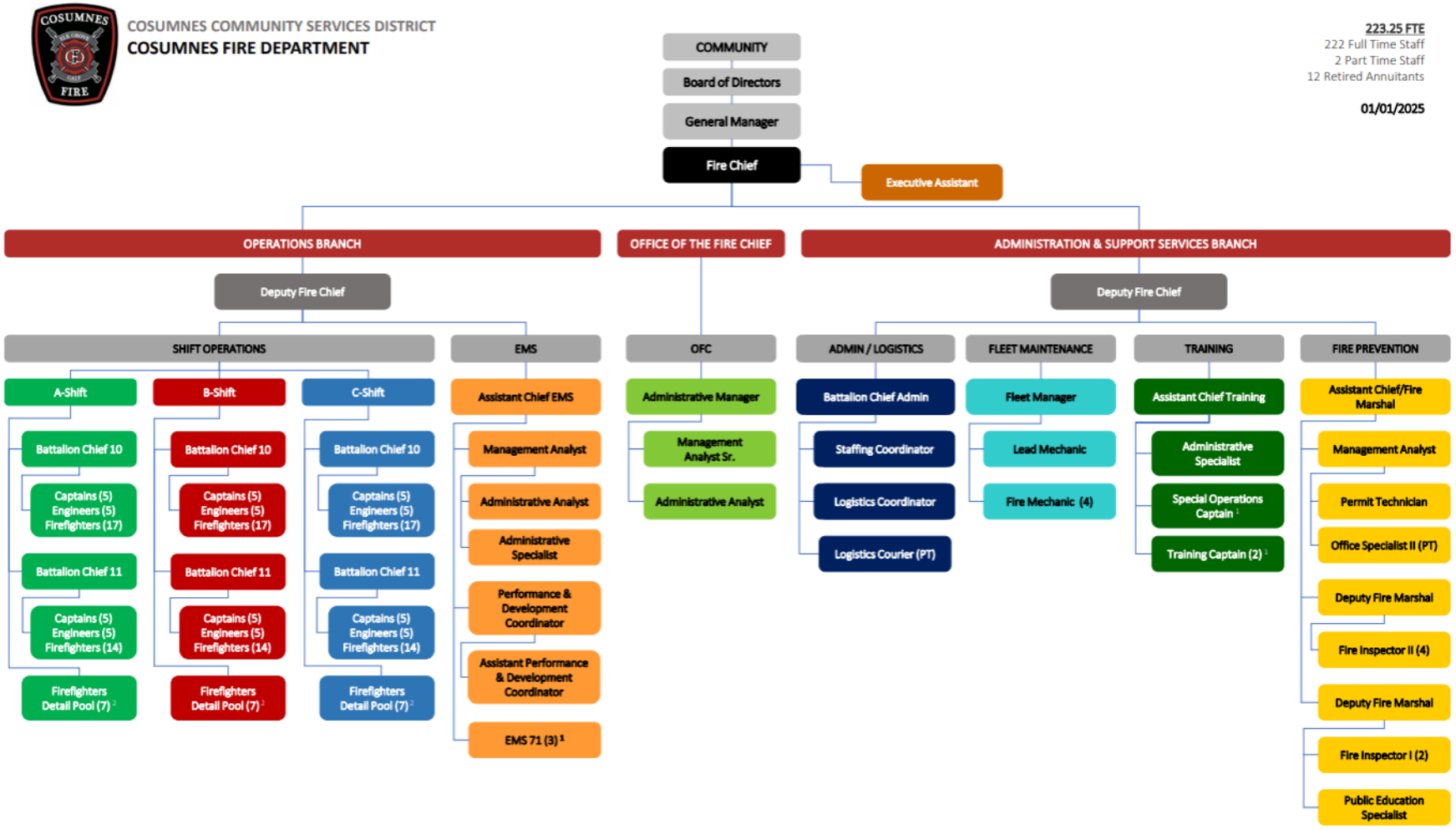
Response Capability Maintenance

Continuous improvement requires development of a methodology to ensure planning occurs, problems are addressed, results are evaluated, and adjustments are made. The process is best illustrated by the Plan, Do, Check, Act (PDCA) method also known as the Deming Cycle[13]. Within the Standards of Cover document there are numerous improvement opportunities identified in this chapter and throughout the document. Listed below are additional recommendations for the CFD to provide additional support and create a mechanism for the improvement and maintenance of the response capability.

- Create a working group designed to meet at the end of the first quarter of the calendar year to review the past year performance and provide recommendations for improvement to the response system.
- Begin a process of training and educating personnel on incident reporting to ensure accuracy and complete RMS data. Continue reviewing and analyzing response data and performance on a monthly basis to ensure the data is accurate for analysis.
- Creation of the Community Risk Reduction branch will place all fire prevention, public education, and mitigation efforts within one branch. By design, this allows for more inclusion of mitigation and risk reduction methodologies into the response model and planning of future programs.

[13] PDSA Cycle

Appendix A: Organizational Chart



1. Rotational Positions
2. Detail Pool Firefighters report to either BC 10 or BC 11 based upon assigned station.

Appendix B: Accreditation Model Correlation

The accreditation model uses categories, criteria, and performance indicators to identify those activities a fire department should address to ensure the public needs are being met. The accreditation process is a mechanism to provide for the continuous improvement of the fire and emergency services.

The following table highlights the performance indicators and core competencies that are essential to the Community Risk Assessment and Standard of Cover document. These performance indicators and core competencies are based on the Fire and Emergency Service Self-Assessment Manual (FESSAM) tenth edition as published by the Center for Public Safety Excellence. Included in the table is a link to the location in the report that addresses the performance indicators and core competencies.

Performance Indicator/Core Competency	Performance Indicator/Core Competency Text	CRA-SOC Location Page/Section/Area
1A.1 CC	The agency is legally established.	Page: 11
1A.3	The governing body of the agency periodically reviews and approves services and programs.	Page: 11
1A.5	The governing body or designated authority approves the organizational structure that carries out the agency mission.	Page: 11
1A.7	A communication process is in place between the governing body and the administrative structure of the agency.	Page: 11
1B.2 CC	The administrative structure and allocation of financial, equipment, and personnel resources reflect the agency's mission, goals, objectives, size, and complexity.	Page: 11
2A.1	Service area boundaries for the agency are identified, documented, and legally adopted by the authority having jurisdiction.	Page: 28
2A.2	Boundaries for other service responsibility areas, such as automatic aid, mutual aid, and contract areas, are identified, documented, and appropriately approved by the authority having jurisdiction.	Page: 29
2A.3 CC	The agency has a documented and adopted methodology for organizing the response area(s) into geographical planning zones.	Page: 79
2A.4 CC	The agency assesses the community by planning zone and considers the population density within planning zones and	Page: 79

Performance Indicator/Core Competency	Performance Indicator/Core Competency Text	CRA-SOC Location Page/Section/Area
	population areas, as applicable, for the purpose of developing total response time standards.	
2A.5	Data that includes property, life, injury, environmental, and other associated losses, as well as the human and physical assets preserved and/or saved, are recorded for a minimum of three (initial accreditation agencies) to five(currently accredited agencies) immediately previous years.	Page: 27
2A.6	The agency utilizes its adopted planning zone methodology to identify response area characteristics such as population, transportation systems, area land use, topography, geography, geology, physiography, climate, hazards and risks, and service provisions capability demands.	Page: 23
2A.7	Significant socio-economic and demographic characteristics for the response area are identified, such as employment types and centers, assessed values, blighted areas, and population characteristics.	Page: 48
2A.8	The agency identifies and documents all safety and remediation programs, such as fire prevention, public education, injury prevention, public health, and other similar programs, currently active within the response area.	Page: 17
2A.9	The agency identifies critical infrastructure within the planning zones.	Page: 34
2B.1 CC	The agency has a documented and adopted methodology for identifying, assessing, categorizing, and classifying risks (fire and non-fire) throughout the community or areas of responsibility.	Page: 42
2B.2	The historical emergency and non-emergency service demands frequency for a minimum of three immediately previous years and the future probability of emergency and non-emergency service demands, by service type, have been identified and documented by planning zone.	Page: 26 Page: 52-57
2B.3	Event outputs and outcomes are assessed for three (initial accrediting agencies) to five (currently accredited agencies) immediately previous years.	Page: 52
2B.4 CC	The agency's risk identification, analysis, categorization, and classification methodology has been utilized to determine and document the different categories and classes of risks within each planning zone.	Page: 61

Performance Indicator/Core Competency	Performance Indicator/Core Competency Text	CRA-SOC Location Page/Section/Area
2B.5	Fire protection and detection systems are incorporated into the risk analysis.	NA
2B.6	The agency assesses critical infrastructure within the planning zones for capabilities and capacities to meet the demands posed by the risks.	Page: 37
2C.1 CC	Given the level of risks, area of responsibility, demographics, and socio-economic factors, the agency has determined, documented, and adopted a methodology for the consistent provision of service levels in all service program areas through response coverage strategies.	Page: 162
2C.2 CC	The agency has a documented and adopted methodology for monitoring its quality of emergency response performance for each service type within each planning zone and total response area.	Page: 200
2C.3	Fire protection systems and detection systems are identified and considered in the development of appropriate response strategies.	NA
2C.4 CC	A critical task analysis of each risk category and risk class has been conducted to determine the first-due and effective response force capabilities, and a process is in place to validate and document the results.	Page: 61
2C.5 CC	The agency has identified the total response time components for delivery of services in each service program area and found those services consistent and reliable within the entire response area.	Page: 162
2C.6	The agency identifies outcomes for its programs and ties them to the community risk assessment during updates and adjustments of its programs, as needed.	Page: 137
2C.7	The agency has identified the total response time components for delivery of services in each service program area and assessed those services in each planning zone.	Page: 161
2C.8 CC	The agency has identified efforts to maintain and improve its performance in the delivery of its emergency services for the past three (initial accreditation agencies) to five (currently accredited agencies) immediately previous years.	Page: 11
2C.9	The agency's resiliency has been assessed through its deployment policies, procedures, and practices.	Page: 131

Performance Indicator/Core Competency	Performance Indicator/Core Competency Text	CRA-SOC Location Page/Section/Area
2D.1 CC	The agency has documented and adopted methodology for assessing performance adequacy, consistency, reliability, resiliency, and opportunities for improvement for the total response area.	Page: 124
2D.2	The agency continuously monitors, assesses, and internally reports, at least quarterly, on the ability of the existing delivery system to meet expected outcomes and identifies and prioritizes remedial actions.	Page: 203
2D.3 CC	The performance monitoring methodology identifies, at least annually, future external influences, altering conditions, growth, and development trends, and new or changing risks, for purpose of analyzing the balance of service capabilities with new conditions or demands.	Page: 200
2D.4	The performance monitoring methodology supports the annual assessment of the efficiency and effectiveness of each service program at least annually in relation to industry research.	Page: 162
2D.5	Impacts of incident mitigation program efforts, such as community risk reduction, public education, and community service programs, are considered and assessed in the monitoring process.	Page: 203
2D.6 CC	Performance gaps for the total response area, such as inadequacies, inconsistencies, and negative trends, are determined at least annually.	Page: 124
2D.7 CC	The agency has systematically developed a continuous improvement plan that details actions to be taken within an identified timeframe to address existing gaps and variations.	Page: 200
2D.8	The agency seeks approval of its standard of cover by the authority having jurisdiction (AHJ)	NA
2D.9	On at least an annual basis, the agency formally notifies the AHJ of any gaps in current capabilities, capacity, and the level of service within its delivery system to mitigate the identified risks within its service area, as identified in its community risk assessment/standards of cover.	Page: 11
2D.10	The agency interacts with external stakeholders and the AHJ at least once every three years, to determine the stakeholders and AHJ's expectations for types and levels of services provided by the agency.	NA

Index of Tables

Update Tracking

Version	Publication Date	Updates
Edition 2	May 2025	• Reorganized content to align with the *Center for Public Safety Excellence Community Risk Assessment: Standards of Cover* 6th Edition recommended structure. • Updated data tables, charts, and maps to reflect revised Planning and Assessment Zones and the most current data analysis. • Incorporated modifications to account for the opening of Station 77. • Expanded report to include detailed program descriptions. • Refined Planning and Assessment Zones for improved accuracy and applicability. • Integrated comprehensive Critical Infrastructure information. • Developed Planning and Assessment Zones Community Summaries to enhance localized risk assessment. • Strengthened risk classification and categorization methodologies. • Enhanced critical task analysis for improved operational planning. • Introduced Performance Statements for Technical Rescue and Hazardous Materials response.