SALINAS
California

COMMUNITY RISK ASSESSMENT: STANDARDS OF COVER

Final Report

August 2019

ESCI Emergency Services Consulting International
Providing Expertise and Guidance that Enhances Community Safety

INTRODUCTION

The following report serves as the Salinas Fire Department Community Risk Assessment: Standards of Cover. It follows closely the Center for Fire Public Safety Excellence (CPSE) 6th Edition Community Risk Assessment: Standards of Cover model that develops written procedures to determine the distribution and concentration of a fire and emergency service agency's fixed and mobile resources. The purpose for completing such a document is to assist the agency in ensuring a safe and effective response force for fire suppression, emergency medical services, and specialty response situations.

Creating a Community Risk Assessment: Standards of Cover document requires that a number of areas be researched, studied, and evaluated. This report will begin with an overview of both the community and the agency. Following this overview, the plan will discuss areas such as risk assessment, critical task analysis, agency service-level objectives, and distribution and concentration measures. The report will provide analysis of historical performance and will conclude with policy and operational recommendations.

ESCI extends its appreciation to the elected officials, business members, and community members of the City of Salinas, the Salinas Fire Department, and all others who contributed to this plan.

TABLE OF CONTENTS

TABLE OF FIGURES

EXECUTIVE SUMMARY

The City of Salinas Fire Department (SFD) contracted with Emergency Services Consulting International in 2019 to conduct a Center for Public Safety Excellence 6th Edition compliant Community Risk Assessment: Standards of Cover report. This *Community Risk Assessment: Standards of Cover* report that follows quantifies community risks and recommends standards of service.

Using data provided by SFD, Monterey County Emergency Communications Department (ECD), and others, ESCI conducted an analysis to determine the current levels of response performance. From this analysis, ESCI also identified factors influencing risk, response performance, and has identified opportunities for delivery system improvement. This document establishes response time objectives, standards for measuring the effectiveness of department resources, and the deployment of those resources. The document is divided into sections generally based on the format recommended by the Center for Public Safety Excellence, *Community Risk Assessment: Standards of Cover 6th Edition*.

SFD serves a resident population of approximately 161,784 people and protects an area of approximately 23 square miles. SFD operates from six fire stations. It utilizes eight response apparatus not including reserve apparatus. Emergency 9-1-1 calls are answered by the Monterey County Emergency Communications Department, the primary public safety answering point, and by California Highway Patrol.

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

- Total response workload has increased 29.8 percent over the past seven years. EMS workload increased 40.3 percent over the same time period.
- The current fire department utilization rate is 82.7 incidents per 1,000 population. This is comparable to similar communities.
- Requests for emergency medical service are 68.7 percent of all responses.
- Response workload is greatest around Fire Station 1.
- Engine 1 and 2 exceed 10 percent Unit Hour Utilization.
- The amount of time ECD takes to dispatch fire department response units exceeds national standards.
- The amount of time that response personnel take to assemble on apparatus and initiate response significantly exceeds national standards.
- The amount of time response that units spend traveling to an incident exceeds standards.
- SFD provided an effective response force to 40 building fires within the time listed in national standards.
- Much of the SFD service area cannot be provided an effective response force using only its resources. Neighboring agency resources are too distant to provide response within the targeted eight minutes' travel time.
- Based on risk and challenges with effective response force deployment, both truck companies should remain fully staffed and in service.

- Per discussion with SFD staff, all traffic pre-emption devices are outdated and non-operational.
- ESCI made numerous inquiries as to how many times on average the private ambulance provider did not have units available within city limits. Responses were varied from no answer from the LEMSA Director to "that information is not tracked." SFD should pursue discussions with the County as to the importance of tracking and making this information available.
- There are plans to locate a seventh fire station in the north central part of Salinas. This area is scheduled for significant development. This additional staffed station will be necessary to ensure prompt response.
- Due to the at-risk populations (age and non-English speaking), Salinas will likely need to continue to provide for an emergency response force that is more robust than a community that has an at-risk population closer to the national average.
- Salinas will need to monitor the housing of agricultural workers on a seasonal basis. Considerations should include increasing staffing on apparatus during the agricultural season or adding a peak-hour apparatus to ensure emergencies are mitigated quickly before extensive collateral damage can occur.
- Salinas experiences a much higher incidents of fires, 9.1 fires per 1,000 population versus 2.3 fires per 1,000 population in the Western United States. Fire is a real concern in Salinas.
- The level of administrative support appears to be inadequate for an organization the size and complexity of SFD.
- Current span of control for the shift Battalion Chief is 8:1.
- Effective Response Force coverage is limited in part due to having a single Battalion Chief per shift.

The analysis conducted during the evaluation phase of this process identified a number of opportunities to improve service (improvement goals). The following improvement goals are offered for consideration. These goals and specific recommendations for each are described in more detail at the end of this report in the Conclusions section.

Recommendations

Recommendation A: Adopt Response Performance Goals that are Achievable

A community's desired level of service is a uniquely individual decision. No two communities are exactly alike. Performance goals must be tailored to match community expectations, community conditions, and the ability to pay for the resources necessary to attain the desired level of service.

Recommendation B: Improve the Collection and Analysis of Incident Data

Much can be revealed by collecting and evaluating incident data accurately and regularly. Challenges to quick response can be identified and solutions proposed. Trends can be discovered allowing the fire department to prepare for changes and or increases in response workload. Frequent incident types can be identified, and steps taken to reduce their occurrence such as public safety education or building engineering.

Recommendation C: Implement Community Risk Reduction Strategies

An emerging trend in the fire service nationally is a concept called Integrated Community Risk Reduction (CRR). CRR is an integrated approach to risk management that marries emergency operations and prevention strategies into a more cohesive approach to reducing risks in any community. It includes the fire department partnering with the community, non-profit organizations, and any private sector agencies with a nexus to an identified community risk.

Recommendation D: Improve SFD Response Unit Turnout Times

SFD response crew turnout time performance is currently within 2 minutes, 17 seconds, 90 percent of the time for fire and special operations incidents and within 1 minute, 50 seconds for EMS incidents. National guidance suggest turnout time should be within 80 seconds, 90 percent of the time for fire and special operations incidents and within 60 seconds, 90 percent of the time for all other priority incidents.

Recommendation E: Limit the Use of Traffic "Calming" and Other Measures that Increase Travel Time

Speed humps, hard medians, curb extensions, and other measures can slow traffic and improve highway safety. However, these also slow emergency response vehicles.

Recommendation F: Update Traffic Signal Pre-Emption Equipment

Traffic signal pre-emption equipment allows responding fire personnel to control traffic signals, turning the signal green in their direction and red in all other directions. Utilization of this equipment helps to provide a clear path through a controlled intersection minimizing the delays these intersections can create. Further, it greatly improves safety for both responders and the motoring public.

Recommendation G: Add Additional Response Units During Periods of High Incident Activity

Fire stations should be located, staffed, and equipped to provide response resources using two primary considerations:

1. Provide response times that ensure unit(s) arrive in time to effectively mitigate an emergency.
2. Provide sufficient resources to ensure a reliable response to predictable emergency service requests.

Recommendation H: Improve the Efficiency of Response to Emergency Medical Incidents

SFD's current practice is to send a fire engine to all emergency medical incidents regardless of severity. Some responses are undoubtedly nonemergent but are not recognized as such until arrival of an ambulance or the SFD responding unit.

Recommendation I: Explore Opportunities to Reduce Response Workload

Response workload has grown by 29.8 percent over the past 14 years. Most of this has been the growth in requests for emergency medical services (40.3 percent).

Recommendation J: Address Administrative and Support Staff Needs

Conduct a workload analysis at the administrative and support staffing levels to quantify needs and gaps.

Recommendation K: Plan for the addition of a staffed fire station as the North of Boronda Future Growth area develops

Additional resources will be needed as this area develops. These resources should be provided to ensure residents of the new development have effective fire and emergency services from the onset.

Recommendation L: Add a Second Battalion Chief per Shift for a Total of Three Additional Battalion Chiefs.

SFD currently staffs each operational shift with one Battalion Chief. The Battalion Chief's duties include coordination of all on-shift response personnel and supervision of response crews, ensuring coverage is balanced across the city and assuming command of larger incidents. Typically, agencies staff with one Battalion Chief for every five response units. The SFD's single on-shift Battalion Chief is managing 8 response units.

DESCRIPTION OF COMMUNITY SERVED

Organization Overview

Salinas is the County seat and largest municipality of Monterey County, California. Salinas is an urban area located just outside the southern portion of the Greater Bay Area and 10 miles east-southeast of the mouth of the Salinas River. The population was 161,784 as of 2018. The city is located at the mouth of the Salinas Valley roughly eight miles from the Pacific Ocean and has a climate more influenced by the ocean than the hot-summer interior. The majority of residents live in single-unit detached homes, built between 1950 and 2000, while one-third of the housing stock has three or more units per structure. Salinas serves as the main business, governmental, and industrial center of the region. The marine climate is ideal for the floral industry, grape vineyards, and vegetable growers. Salinas is known for its vibrant and large agriculture industry and being "The Salad Bowl of the World."

The City Council is responsible for hiring a City Manager to manage the day-to-day affairs of the City through various departments including the fire department. Each department is managed by a department director or, in the case of the police and fire departments, a chief. The City is governed by a seven-member City Council. The Mayor is elected at large with the six other members being elected by district. The City Council is responsible for "the enactment of local laws/ordinances, the adoption of the annual City budget and capital improvement program, and other policy-level responsibilities."

Financial Overview

Organizational Finance

Establishment of financial policy for the Salinas Fire Department (SFD) is the responsibility of the Council with the City Manager, City Finance Director, and Fire Chief responsible for fiscal administration.

The City of Salinas has an assessed valuation of approximately $11,460 billion before the redevelopment increment.

The city uses a one-year budget cycle to prepare the operating budget and the capital improvement plan based on a July through June fiscal year. The general fund budget for all divisions of the fire department for 2018–19 is $24,234,130

The fire department's operating funds are provided by the City of Salinas General Fund and are generated primarily from sales taxes and property taxes. SFD also generates additional revenue through billings for service, permit fees, and grants.

The following figure lists the actual revenue for SFD for fiscal year 2015 through the adopted budget for FY 2019.

Figure 1: SFD Revenue, FY 2015–Budgeted FY 2019

	Actual 2014–2015	Actual 2015–2016	Actual 2016–2017	Actual 2017–2018	Budget 2018–2019
Total Revenues	**$2,731,879**	**$4,598,443**	**$4,222,252**	**$3,806,284**	**$5,199,559**

The next figure shows the general operating expenditure history for the previous four fiscal years and the current year budget. During the five-year period, the department's overall expenditures and budgeted expenditures increased approximately 24 percent.

Figure 2: Budget/Expenditures by Year, FY 2015–Budgeted FY 2019

Description	Actual 2014–2015	Actual 2015–2016	Actual 2016–2017	Actual 2017–2018	Budget 2018–2019
Operating expenses	19,455,050	21,439,614	23,068,139	23,682,823	24,057,130
Capital expenditures	84,071	726,176	166,082	270,542	177,000
Total expenditures	**$19,539,121**	**$22,165,790**	**$23,234,221**	**$23,953,365**	**$24,234,130**

A comprehensive capital improvement and replacement program is important to the long-term financial and operational stability of any fire and emergency medical service organization. Such programs provide systematic development and renewal of the physical assets and rolling stock of the agency. A capital program must link with the planning process to anticipate and time capital expenditures in a manner that does not adversely influence the operation of the agency or otherwise place the agency in a negative financial position. Items usually included in capital improvement and replacement programs are facilities, apparatus, land acquisition, and other major capital projects. SFD requests capital improvement funds for facilities and major equipment each budget year.

A City of Salinas Transactions and Use Tax, Measure G ballot question, was on the November 4, 2014, election ballot for voters in the city of Salinas in Monterey County, California. It was approved.

Upon approval, Measure G enacted a one cent sales tax. The revenue from the tax was designated to maintain and enhance city services including police, fire, and paramedic services; street and sidewalk maintenance; and recreation programs. The projected Measure G revenue in FY 18/19 is $24,943,000.

Measure G funds 14 sworn personnel and one non-sworn employee in FY 17/18 and FY 18/19.

It became effective April 2015, lasts for 15 years, and sunsets in 2030.

An additional 0.5 percent transaction and use tax, titled Measure E, was originally approved in November 2006 and extended with no sunset provision on November 6, 2012. Revenue from this tax was designated for several city initiatives including the library, public works projects, parks and recreation, youth services and community engagement, police, code enforcement, finance, fire marshal, insurance for energy debt service, paramedic specialty pay, and legal costs. Revenue from Measure E was budgeted at $12,555,000 for FY 18/19, an increase of approximately 2.2 percent over the prior year.

Service Area Overview

Founded in the 1820s, Salinas is the county seat of Monterey County. Salinas is located in central California about 20 minutes from the coast. It is an hour south of San Jose, an hour and 45 minutes south of San Francisco, and 25 minutes northeast of Monterey. Salinas is in a very rich farming region that produces fruit and vegetables. It is known as the "Salad Bowl of America" because over 80 percent of the lettuce grown in the United States is grown in the Salinas area.

Figure 3: Location of Salinas, CA

Salinas Fire Department's service area population has grown moderately with an average annual growth rate of 0.7 between 2000 and 2018. The 2018 service area population is estimated at 161,784. The city covers approximately 23 square miles. Greater analysis of the Salinas population is discussed later in this report.

Salinas weather can be characterized as cool and moderate. September is the warmest month of the year with an average daily temperature of 75 degrees. December and January are the coolest months with an average daily temperature of 63 degrees. Salinas receives a little over 14 inches of rain a year.

REVIEW OF SERVICES PROVIDED

Salinas Fire Department's service area includes the jurisdictional boundaries of the City of Salinas. SFD also provides and receives mutual aid to other agencies within the region when requested. The Fire Department provides a variety of response services, including structural and wildland fire suppression, advanced life support (paramedic) level emergency medical care, entrapment/extrication, and hazardous materials response at the technician level. SFD also provides non-emergent response services such as public assists.

Emergency (9-1-1) answering is provided by Monterey County Emergency Communications Department (ECD). At the time of this study, ECD was not utilizing Medical Priority Dispatch to prioritize requests for emergency Medical Services.

Staffing Information

There are 75 full-time shift personnel involved in delivering services to the jurisdiction. Staffing coverage for emergency response is through career firefighters on 48-hour shifts. For immediate response, no less than 24 personnel are on-duty at all times. One of the 24 personnel on each shift is a battalion chief, who is responsible for commanding incidents and relieving company officers of that responsibility on multi-company emergency operations and more complex incidents.

SFD currently operates with a limited number of administrative support staff. The positions assigned to administration are one full-time Office Technician and two part-time Office Technicians. These positions provide critical support to the Department's command staff functions. In addition, during extreme emergency situations, administrative staff are typically called upon to staff numerous duties in support of operations and logistics. One cannot overstate the value of administrative support as these staff members free up command personnel to concentrate on other areas of operation. The level of administrative support appears to be inadequate for an organization the size and complexity of SFD.

The following figure illustrates administrative and staffing support for the Salinas Fire Department:

Figure 4: Administrative and Support Staff

Position	Number
Fire Chief	1
Deputy Chief	1
Fire Marshal	1
Fire Inspectors	3
Office Technicians	1 FT, 2 PT
Fleet Mechanic/Cross-Trained FFs	6

The following figure illustrates response personnel by rank in the organization.

Figure 5: Response Personnel by Rank

Position	Number
Deputy Chief	1
Battalion Chief	4
Fire Captain	24
Fire Apparatus Operator	24
Firefighter—Career	24

Resources as Currently Deployed

The following figure provides basic information on each of the District's core services, its general resource capability, and information regarding staff resources for each service.

Figure 6: Resource Staffing and Capabilities

Service	General Resource/Asset Capability	Basic Staffing Capability per Shift
Fire Suppression	6 Staffed Engines 2 Staffed Ladder Trucks 1 Command Response Unit (Additional automatic and mutual aid engines, aerials, and support units available)	23 Suppression-Trained Personnel (Additional automatic and mutual aid firefighters available)
Emergency Medical Services	6 Engines, ALS equipped 2 Ladder Trucks, ALS equipped (Ladder truck ALS capability dependent on Medic staffing levels)	17 Certified Emergency Medical Technicians 6 Paramedics
Vehicle Extrication	1 Ladder Truck (1 additional ladder truck if needed) 2 Engines 1 Battalion Chief (2 trucks equipped with hydraulic rescue tools, hand tools, air bags, circular saws, stabilization cribbing, and combination cutter-spreader hydraulic rescue tool)	All Firefighters vehicle extrication/rescue trained
High-Angle Rescue	1 Ladder Truck (1 additional ladder truck if needed) 2 Engines 1 Battalion Chief	All personnel trained to the operations level in high-angle rope rescue.

Service	General Resource/Asset Capability	Basic Staffing Capability per Shift
Trench and Collapse Rescue	1 Ladder Truck (1 additional ladder truck if needed) 2 Engines 1 Battalion Chief (Mutual Aid Monterey County USAR team)	Not all personnel trained in trench and collapse rescue.
Swift-Water Rescue	1 Ladder Truck (1 additional ladder truck if needed) 2 Engines 1 Battalion Chief (All engines and trucks equipped with throw bags, PFDs, and helmets)	All personnel trained to the awareness level.
Confined Space Rescue	1 Ladder Truck (1 additional ladder truck if needed) 2 Engines 1 Battalion Chief (Ladder trucks equipped with air monitoring equipment, basket stretchers, rescue-rated rope)	Not all personnel trained; Mutual Aid Monterey County USAR Team
Hazardous Materials Response	2 Ladder Truck (1 additional ladder truck if needed) 4 Engines 1 Battalion Chief Type 1 Hazardous Materials Response Vehicle equipped with personal protective equipment, gas and radiation monitoring equipment, containment supplies, and non-sparking tools	6 personnel trained to the Technician level or above; 2 personnel automatic aid from Seaside Fire Department

Apparatus

Response vehicles are an important resource of the emergency response system. If emergency personnel cannot consistently arrive quickly due to unreliable transport, or if the equipment does not function properly, the delivery of emergency service is likely compromised. Fire apparatus are unique and expensive pieces of equipment, customized to operate efficiently for a specifically defined mission. The following figure lists apparatus assigned to each of the six SFD fire stations.

Figure 7: SFD Fire Stations and Apparatus

Station 1							
Apparatus Designation	Type	Year	Make/Model	Condition	Seating Capacity	Pump Capacity	Tank Capacity
Battalion 1	SUV	2016	Chevy/Tahoe	Good	2	N/A	N/A
Engine 1	Type 1 Engine	2011	Pierce Quantum	Fair	5	1500	500
Truck 1	Tiller Truck	2014	Pierce Quantum	Good	5	N/A	N/A
Truck 4	Truck Reserve	2005	Pierce Dash	Good	5	N/A	N/A
Engine 101	Type 1 Reserve	2007	Pierce Quantum	Fair	5	1500	690
Engine 104	Type 1 Reserve	2007	Pierce Quantum	Fair	5	1500	690
Battalion 101	SUV/Reserve	2016	Chevy Tahoe	Good	2	N/A	N/A
Admin 1	Sedan	2007	Ford Crown Victoria	Fair	4	N/A	N/A
Utility 101	SUV	2007	Ford Expedition	Fair	5	N/A	N/A
MSQ3	Mini UV	2012	Kubota	Good	2	N/A	N/A
Command 5	Command Unit	2011	SVI/Spartan	Good		N/A	N/A

Station 2							
Apparatus Designation	Type	Year	Make/Model	Condition	Seating Capacity	Pump Capacity	Tank Capacity
Engine 2	Type 1 Engine	2016	Pierce Quantum	Good	5	1500	500
Utility 2	Utility	2007	Ford Expedition	Fair	5	N/A	N/A
Engine 102	Type 1 Reserve	2001	HME	Fair/Poor	5	1500	750

Station 3							
Apparatus Designation	Type	Year	Make/Model	Condition	Seating Capacity	Pump Capacity	Tank Capacity
Engine 3	Type 1 Engine	2014	Pierce Quantum	Good	5	1500	500
Engine 103	Type 1 Reserve	2002	HME	Poor	5	1500	750
Truck 3	Training Tiller	1988	Duplex	Poor	4	N/A	N/A

Station 4							
Apparatus Designation	Type	Year	Make/Model	Condition	Seating Capacity	Pump Capacity	Tank Capacity
Engine 4	Type 1 Engine	2018	Pierce Enforcer	Excellent	5	1500	500
Crash 4	ARFF	2015	Rosenbauer	Good	4	500	750
OES 323	Type 1 Engine		HME	Good	4		

Station 5							
Apparatus Designation	Type	Year	Make/Model	Condition	Seating Capacity	Pump Capacity	Tank Capacity
Engine 5	Type 1 Engine	2015	Pierce Quantum	Good	5	1500	500
Brush 5	Type 3 Wildland	2007	Pierce International	Good/Fair	4	500	500
Truck 2	Tiller	2015	Pierce Quantum	Good	5	N/A	N/A
Hazmat 1	Hazmat Truck	2017	SVI Spartan	Excellent	5	N/A	N/A
Hazmat 2	Utility	2004	Ford F550	Fair	4	N/A	N/A
MSQ3	SWAT Van	2000	Ford Van	Fair	2	N/A	N/A

Station 6							
Apparatus Designation	Type	Year	Make/Model	Condition	Seating Capacity	Pump Capacity	Tank Capacity
Engine 6	Type 1 Engine	2011	Pierce Quantum	Fair	5	1500	500
Utility 6	SUV	2002	Chevy Tahoe	Fair	4	N/A	N/A
Other Admin/Utility Vehicles							
Prevention 1	Sedan	2016	Ford Fusion Hybrid	Good	4	N/A	N/A
Prevention 2	Sedan	2016	Ford Fusion Hybrid	Good	4	N/A	N/A
Prevention 3	Sedan	2016	Ford Fusion Hybrid	Good	3	N/A	N/A
Prevention 4	Sedan	2017	Ford Fusion Hybrid	Good	4	N/A	N/A
Prevention 5	Sedan	2017	Ford Fusion Hybrid	Good	4	N/A	N/A
Prevention 6	Sedan	2017	Ford Fusion Hybrid	Good	4	N/A	N/A
Engine 10	Parade Engine	1972	Ward La France	Fair		N/A	N/A

These are the types of apparatus shown in the preceding table:

- Engine—Primary response unit from each station for most types of service requests equipped with a pump and ability to carry water.
- Truck—A specialized apparatus used for structure fires, rescues, and other service requests equipped with long ladders, salvage, overhaul equipment, and rescue tools.
- Tender—A vehicle used for fires in areas without fire hydrants that is designed to carry large quantities of water to a fire incident.
- Wildland Engine—A smaller vehicle with pump and water tank designed to be used for brush and grass fires in wildland areas.
- HazMat—A vehicle that carries specialized equipment for use on hazardous materials emergencies.
- Fire Investigation Van—A vehicle that carries specialized equipment for use on hazardous materials and fire investigation incidents.

REVIEW OF COMMUNITY EXPECTATIONS

The ultimate goal of any emergency service delivery system is to provide sufficient resources (personnel, apparatus, and equipment) to the scene of an emergency in time to take effective action to minimize the impacts of the emergency. This need applies to fires, medical emergencies, and other emergency situations to which the fire department responds. Obtaining and understanding the desires and expectations of community stakeholders is an important first step. SFD is committed to incorporating the needs and expectations of residents and policy makers in the service delivery planning process.

It is important to note that the information solicited and provided during this process was provided in the form of "individual inputs," some of which are perceptions as reported by stakeholders. All information was accepted at face value without an in-depth investigation of its origination or reliability. The project team reviewed the information for consistency and frequency of comment to identify specific patterns and/or trends. The observations included in this report were confirmed by multiple sources, or the information provided was significant enough to be included. Based on the information review, the team was able to identify a series of observations, recommendations, and needs which are included in this report.

Stakeholder Input

Community attitudes about the Salinas Fire Department and the services it delivers were gathered by direct interviews of stakeholders. Twenty-nine stakeholders were scheduled for interviews that were completed over a two-day period. Of the 29 interviewees, these stakeholders represented the City Council, City Administration, Community Members, Business Community, SFD Labor, Administrative Staff Members, Chief Officers and the Fire Prevention Bureau.

The stakeholder responses are summarized next:

Citizen and Business Community Members

Describe your expectations of the Fire Department.

- Respond rapidly to all activities that citizens request their response.
- Stay within their budget; take steps to find ways to do so.
- The Public Employees Retirement System is haunting the City; owe it to the citizens to stay within the budget.
- Decrease overtime.
- Manage expenses.
- Manage responses; fender-benders should not require a fire truck to respond.
- Firefighters should be properly trained and certified.
- Respond in an appropriate time frame; collaborate with other agencies.
- Analyze call volume.
- Research geographically and population trends; review the national average when compared to SFD's average.
- To fight fires but it provides Paramedic services; we don't need both: a fire engine and the ambulance.

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

- Redundancy in regard to fire apparatus and ambulance responding together.
- Communication gap.
- Why respond to a medical aid call with the Hook-and-Ladder truck?
- Lack of communication.
- When asking questions of the Firefighters, it is not uncommon to not receive a response or to receive a complete answer.
- If anything, they are doing too much.

What do you think the Fire Department is doing particularly well?

- Respond to structure fires quickly with appropriate reactions; have not heard of any complaints.
- What they should be doing fighting fires.

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

- Raising the awareness of the danger of a fire. Reach out to the local television stations, radio, and initiate a community outreach and education program.
- Why can't someone else do the paramedic activities and reduce the Fire Department's liability?

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

- Fire engine responding to a fender bender; consider a different approach as well as apparatus.
- Salaries and Retirement negotiations—consider a holistic approach; a different angle.
- Should they be responding to medical responses?

When you dial 9-1-1 to report an emergency, how long should it take for help to arrive?

- Five to 8 minutes; they will arrive as soon as they can.
- Business request for services: 5 minutes. Responding to a fire: 5 minutes.

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

- Yes… access and overpopulated streets; crime may be an element as well.
- Yes… in the congested areas downtown and/or on the fringe of the City.

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

- Definitely; however, it is a difficult question to answer.
- Citizens expect them to be prepared for a fire.

We have reviewed previous studies that recommend eliminating the Fire Department's Paramedic Program. Do you believe a recommendation of this type is consistent with voter-approved Measure G?

- Where is the money going?
- Eliminating the paramedic services would not be consistent with the Measure.
- Realign, reorganize – the discussion regarding paramedic services in Salinas does not have to be fire department-based.
- This is a personal opinion debate. Some business members believe Measure G was a scheme to pay pension / health benefits.

Please share any other thoughts or comments you may have.

- Would like to know more information regarding fire inspections.
- Look into a registry—rental of a room within a home/AirBnB.
- If something needs to be repaired, it should be.
- Paramount in the development of the budget is efficient and effective methodology.
- Sixty-five percent of the City's budget is allocated to public safety.
- The Fire Department should not say, "understaffed" or "under-equipped" (equipment).
- t would be great to see this information provided in pie charts, graphics, or linked to a source document.

City Council—City Administration

Describe your expectations of the Fire Department.

- The Fire Department should look ahead and avoid being stymied by "old issues"; focus on the future by looking for innovative models for service delivery such as community paramedicine, smaller emergency medical service response vehicles, etc.
- Study different staffing models in order to validate that the current staffing model is more efficient when compared to staffing for peak activity.
- Conduct a study of the existing fire station locations and total number of stations in order to determine whether or not they are providing the most efficient service; deciding as to whether the station(s) should be moved or be better centralized.
- Evaluate the current Paramedic EMS model to determine if it is more effective than an Advanced EMT model.
- Increase the existing Community Outreach Program and continue with the current Paramedic Program.
- In order to mitigate a response to an incident, triage requests for service, and consider eliminating Station #2 (West Laurel) and #3 (Abbott Place).

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

- Expectations are currently being met however; as the City grows and financial resources become scarcer, having the information just provided will make available the opportunity to review other models to assure that the Department is providing the best possible service within the current budget.
- Community involvement. Streamlining the permit and inspection process, etc., with the builders and the business community.
- Increase participation in community events and increase training for the Prevention Bureau.
- Firefighters residing in this area.
- Provide the same level of service throughout the response area; every person treated equally.

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

- Concentrate on their prevention efforts in order to reduce call volume. This would include integration of Fire Inspectors with Building Inspectors to streamline the Safety Inspection Program.
- Consider triaging response to incidents.
- Educate the public, i.e., the importance and care of smoke and carbon monoxide alarms, etc. Work with the local schools, teach first aid classes at the junior high school, etc.

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

- Upon review of reports, there is indication that the current model of providing Paramedics on each engine company may not be needed. Is there a more-efficient model such as Advanced EMT or peak activity staffing of Paramedics?
- Discontinue responding with both the Fire Engine and the Medic Unit.
- Purchasing meals while on duty.
- Become more visible in the community.
- Providing service outside of the County limits.

When you dial 9-1-1 to report an emergency, how long should it take for help to arrive?

- Without knowing the severity of the need, this question is difficult to answer. A question that may need to be considered is, "are there incidents that do not require a fire response?" The Dispatcher should be able to determine the need and send the appropriate resources.
- Three to six minutes.

Does that expectation change depending on where in the system's service area you are located?

- Yes. If you are in a less populated area, you should not expect as fast of service as a more populated or commercial area.
- Heavy traffic can cause a delay in responding to the incident.

There are two deployment strategies for fire service resources. The first suggests that all residents of the Department should receive generally the same level of service (i.e., fire stations are spaced uniformly to equalize response time throughout the community). The second strategy suggests that resources should be deployed to serve the next most likely emergency to occur (the more populated an area the more likely an emergency will occur). One choice tries to create as much equity in the delivery of service to all residents. The other concentrates resources in areas with higher incident activity, leaving other areas with slower service. Which strategy do you think makes the most sense for the community?

- Staffing according to the "need" makes more sense than staffing "to make response times more equitable".

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

- Yes, the first-arriving units should be equipped to take the appropriate actions given the emergency; however, the Fire Department should know what they need and send the appropriate level of resources.

We have reviewed previous studies that recommend eliminating the Fire department's Paramedic Program. Do you believe a recommendation of this type is consistent with voter-approved Measure G?

- The verbiage contained within Measure G is not meant to be as specific as it seems; the voters may not fully understand what is meant by the wording. For example, the difference between Paramedic and Advanced EMT versus EMT.
- No. We are satisfied with the existing Paramedic Program.
- Some interviewees believe the Department does not need as many Paramedics as they have now.

Please share any other thoughts or comments you may have.

- There needs to be more collaboration and cooperation among neighboring fire departments and districts with regard to the provision of EMS, Fire Prevention, etc.
- The Fire Department should look for ways to share resources in order to be more efficient.
- The Fire Department should strive to have personnel that better represent the community's make-up, with regard to gender and/or race.
- The community financially supports the Fire Department, paying their salaries. There could be some uneasiness that they are not engrained in our community because they do not live here.

Chief Officers, Labor Leaders, and Rank and File

What strengths contribute to the success of the Fire Department; what do they do well?

- The employees, "members," of the Salinas Fire Department are holding the Department together.
- Does well due to the Initiative (Measure G)? and the energy the personnel have.
- Many personnel engage in collateral duties such as hazmat, rescue, etc. in order to provide the best possible service.
- The Department provides a very high level of prehospital care.
- Working together as a team has made the Department what it is today.
- Run calls, make it work, and do more with less.
- The degree of dedication and tradition is amazing.
- The Fire Department continues to be able to do more with less.
- Firefighters are open to changes and new ways; carry out the same functions with a new type of vision.

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

- The EMS Division is very good at what it does, but it could be further developed with additional personnel.
- The Fire Department should improve communication with the City Management as to how effective the Paramedic Program is and recognize how low the costs of this program are.
- Improving the relationship between the Fire Department and City Management is possible once a permanent Fire Chief is hired.
- Improve the existing line of communication; when the Fire Marshal is unavailable due to various reasons, "everything stops."
- Fire Prevention personnel are no longer sworn/safety employees. This has resulted in a division between emergency operations and prevention; the gap needs to be addressed so that these Department members are a part of the Fire Department as a whole.

What opportunities, from your viewpoint, are available in order to improve the Department's service and capabilities?

- The ambulance Request for Proposal is currently open; the Department should take advantage of this opportunity to create a contractual relationship with a private ambulance provider in order to create an improved, more cohesive response system.
- The formation of a Joint Powers Authority "JPA" operated communication center to streamline the County's communication system.
- Consolidating the various communication centers would be effective in implementing programs such as Priority Dispatch, etc.
- Union leadership and fire management appear to be open to union involvement in decision making, which would provide a more cohesive environment than in the past.
- Increase Fire Prevention staffing, including mid-management in the Prevention Division.
- Development of a Policy and Procedure Manual for Fire Prevention.

- Replace the existing software program for Fire Prevention.
- Increase involvement with the community, i.e., attend community and neighborhood events and increase public relations.

What challenges do you see in making these improvements?

- The local EMS agency is not favorable to other fire-based response models (Contra Costa) or for the fire department and/or districts taking more control of the existing EMS system.
- Biggest challenge is budget reductions.
- There exists a perception—due to the lack of a consistent Fire Chief—that top City Management does not understand the needs of the Fire Department.
- Increasing community involvement.
- The existing perception of feeling that it is "us" versus "them" (i.e., "Fire" versus "City).
- Unstaffed positions.

What do you see as the top three critical issues faced by the Fire Department?

- Lack of City Management's understanding of the EMS Program.
- Budget.
- Increase in call volume versus reduction in budget.
- Budget reductions.
- Firefighters being two-years out of contract.
- Relationship between the Fire Department and City Management.
- Inadequate staffing within the Prevention Division; incapable of completing State-mandated Inspections.
- The Training Division does not address training needs of the Fire Prevention Division.
- The addition of a position added between the Fire Inspector and Fire Marshal in order to provide a career ladder for current employees.
- Community perception.
- Quality staffing.
- Future growth (westside).

What don't you have control over that can threaten your operation?

- The lack of understanding by City Management regarding how important the Department's Paramedic Program is.
- Recognition by City Management that Salinas City has the highest number of "Priority 1" calls within the County.
- Acknowledge that the current system has a very high number of resuscitation success rate.
- Lack of City Management's understanding as to what the Fire Department does and what their needs are.
- A concern exists that the City wants to eliminate a ladder truck and the Paramedic Program.

- CalPERS
- Disability retirement.
- Adequate staffing in order to back-fill vacant positions, i.e., Workers' Compensation injury(s), sick leave, vacation, etc.

Administrative Support (At the of the time of the interviews.)

What strengths contribute to the success of the Fire Department?

- The Administration Division is staffed with two full-time members and one part-time member.
- The Administrative Secretary has worked for the Fire Department for 40 years, works directly for the Fire Chief and supervises the other two administrative staff members.
- These positions are responsible for supporting the Chief Officers, Prevention Division, Payroll/Accounts Payable, Custodian of Records, follow-up support for a variety of meetings as well as processing paperwork for special events, etc.

What does the Department do well?

- Taking into consideration that the Fire Department has had significant turnover at the positing of Fire Chief, these stakeholders believe they are doing well.
- The administrative staff believe that the Fire Department provides exceptional service to the public.

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

- Members agree that more full-time staffing is needed.
- The members additionally indicated that transparency does not exist. Using the hiring of a Fire Chief as an example.

What opportunities, from your viewpoint, are available in order to improve the Department's service and capabilities?

- Re-implement EMS cost recovery program.
- Update Fire Prevention fees to include accounting for administration overhead.

What challenges do you see in making those improvements?

- There is difficulty in working with someone who has no interest in change.
- Fire Prevention tracks fees; there is no cost recovery for the EMS program; no structure.
- Fire Prevention prefers charging "per hour"; however, there is no recovery fee for "administrative" charges.
- When asked if the Fire Department supports updating the fee structure, the response is "there is resistance to change."
- There has been no growth within the Fire Prevention position.

What do you see as the top three critical issues faced by the Fire Department today?

- Admin/Clerical Staffing, Prevention, and Line Personnel.
- Money.
- Lack of support from other City Staff.

COMMUNITY RISK ASSESSMENT

There are numerous risk factors that can influence the types of services a community requires.

Hazard identification is the process of recognizing the range of natural or human-caused events that threaten an area. Natural hazards result from uncontrollable, naturally occurring events such as flooding, windstorms, and earthquakes whereas human-caused hazards result from human activity and technological hazards. (An example of a technical hazard is an accidental hazardous materials release).

Community risk is assessed based on several factors; service area population, population density, demographics of the population served, local land use and development, and the geography and natural risks present within the community. These factors affect the number and type of resources—both personnel and apparatus—necessary to mitigate an emergency.

- Population density is a risk factor; the seasonal migration of agricultural workers presents its own unique challenges to this factor. Population demographics presents another unique risk. Over 30% of the population is under the age of 18 years of age, and over 70% of the population speak languages other than English at home.
- The physical characteristics of the area and the resultant natural hazards are risk factors. Salinas lies in a valley and is at risk of earthquake and flash floods. The wildfire risk within Salinas is low; however, the city is surrounded by high wildfire risk throughout the local mountains and hills.
- Land use and zoning can also affect risk. Risk can be characterized as low (e.g., agricultural or low-density housing); moderate (e.g., small commercial and office); or high (e.g., large commercial, industrial, and high-density residential).

Risk Classification

Based on the narrative descriptions of the various hazards found throughout the Salinas response area, ESCI has developed a numerical ranking of community hazards using historical incident data, as well an assessment of the community and its vulnerabilities. Community hazards were grouped into broad categories as follows:

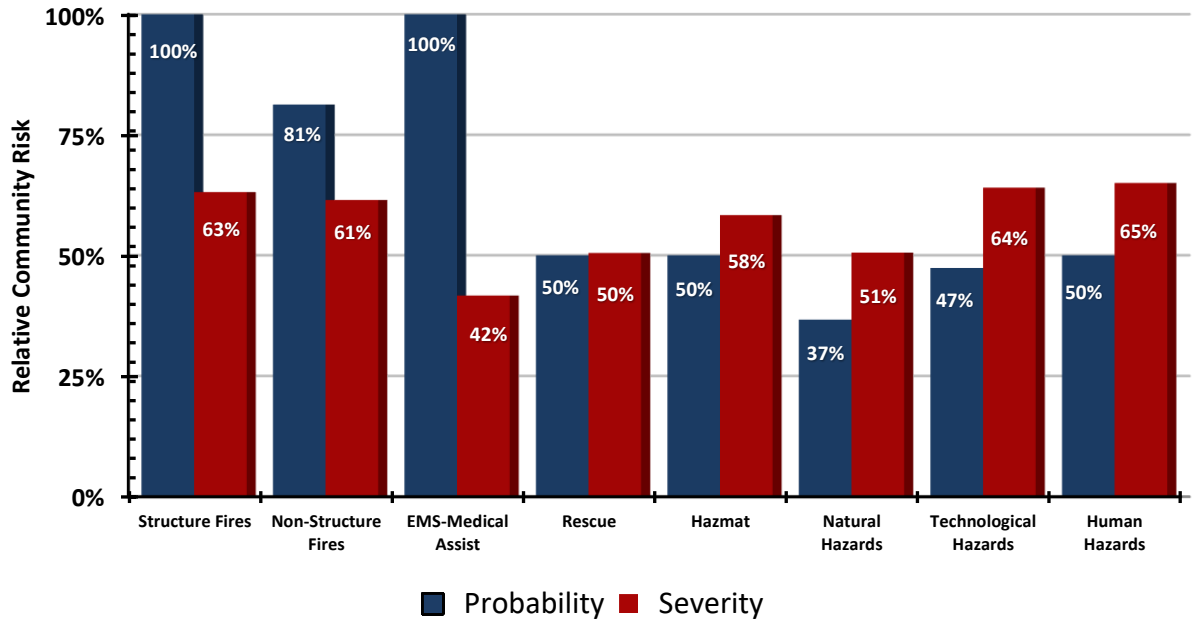
- Structure Fires
- Hazardous Materials
- Non-structure Fires
- Natural Hazards
- EMS-Medical Assist
- Technological Hazards
- Rescue
- Human Hazards

Within each category, specific hazards were identified, and a probability (likelihood) score between zero (representing "Not Applicable") and four (representing "Catastrophic") was assigned to each of the categories. A severity score was then developed for each of the subcategories using the same scale for impact and a reverse scale for preparedness and response. The overall scores were then used to generate a relative risk score as it applies to the City of Salinas. Documentation of categorical scoring can be found in the appendices of this report. The completed hazard vulnerability analysis, including relative community risk, is shown in the following figures.[1] Details of each risk category are in Appendix A.

Figure 8: Hazard Risk Summary

	Structure Fires	Non-Structure Fires	EMS	Rescue	Hazmat	Natural Hazards	Technological Hazards	Human Hazards	Total
Probability	100%	81%	100%	50%	50%	37%	47%	50%	**55%**
Severity	63%	61%	42%	50%	58%	51%	64%	65%	**57%**
Relative Risk	63%	50%	42%	25%	29%	19%	30%	33%	**31%**

Figure 9: Relative Community Risk



1 Based on reported NFIRS data January 01, 2016, to December 31, 2018, the Monterey Community Wildfire Plan, the Monterey County Multi-Jurisdictional Hazard Mitigation Plan, and others.

ESCI also identified the following vulnerabilities specific to fire operations. Each is discussed in greater detail on the following pages.

- Population Density
- Physical Hazards
- At-Risk Populations
- Human-Caused Hazards

Population Density

According to the United States Census Bureau, Salinas is classified as an urban city, just over 23 square miles in area. The 2018 estimated population is 161,784, with an estimated population density of about 7,034 per square mile, compared to an average of 239 people per square mile for California.

The population in Salinas tends to be concentrated in the central and eastern parts of the community, in neighborhoods and planned development communities, surrounded by less densely populated areas in the northeast and southeast parts of the city. Much of the population density is defined by areas used for agricultural use or flood plain areas where lower population density exists. The areas displaying the highest population density correspond to the areas with the highest service demand illustrated in the Service Demand analysis. In addition, seasonal agricultural workers increase the population in many areas of the City with at times overcrowding conditions occurring.

Figure 10: Study Area Population Density

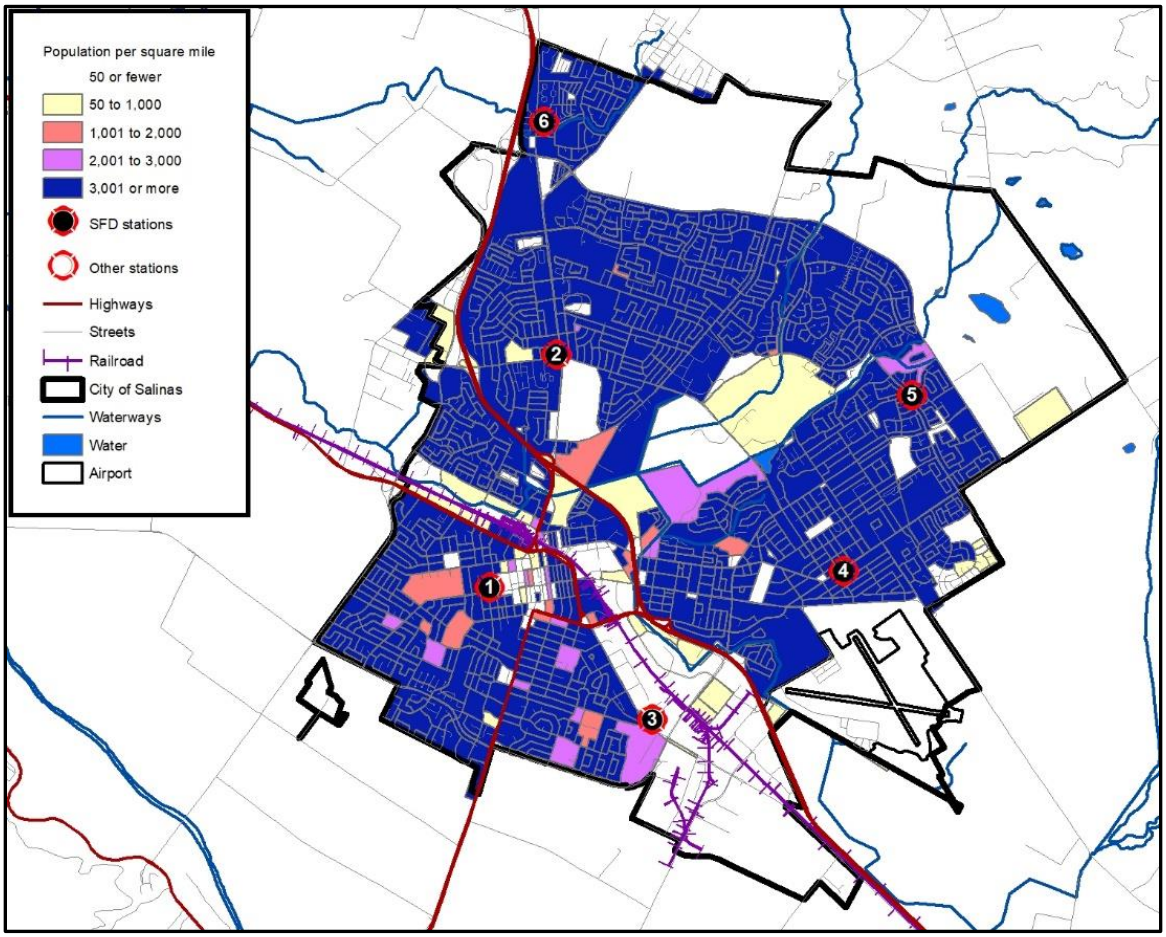


Figure 11: Population History, 1990–2018

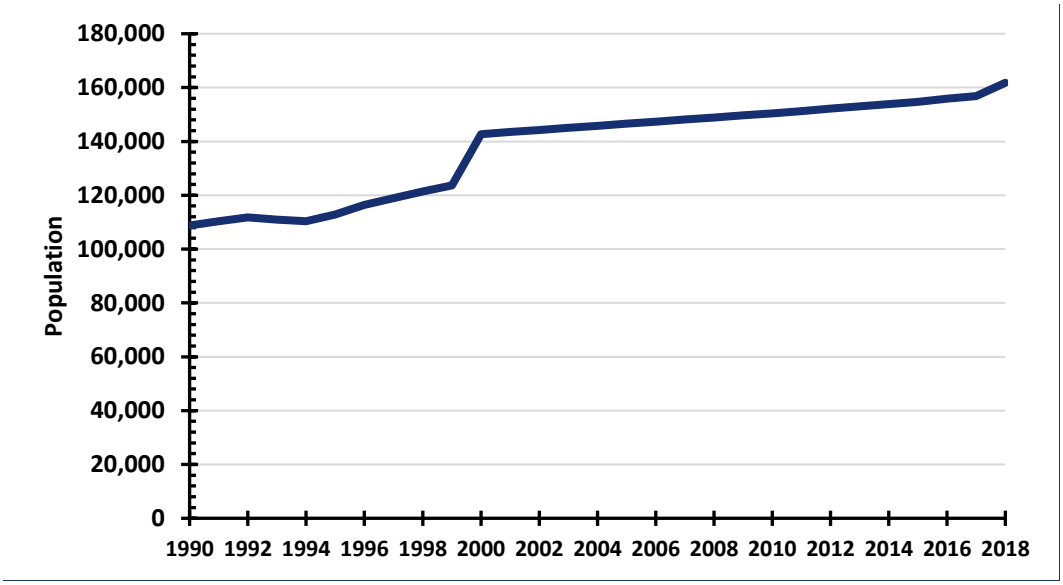


Figure 12: Demographics for the SFD Service Area, 2017

Category	Number/%
Population	
Population estimates, July 1, 2017	157,596
Population estimates base, April 1, 2010	150,498
Population, percent change—April 1, 2010 (estimates base)–July 1, 2017	4.7%
Geography	
Population per square mile, 2017 (estimate)	6,798.8
Population per square mile, 2010	6,490.4
Land area in square miles, 2010	23.18
Age and Sex	
Persons under 5 years, 2017 (estimate)	9%
Persons under 18 years, 2017 (estimate)	30.8
Persons 65 years and over, 2017 (estimate)	8.4%
Male persons, 2017 (estimate)	49.9%
Female persons, 2017 (estimate)	50.1%
Race	
Hispanic or Latino	77.2%
White alone	14.1%
Other Races or "two or more races"	8.7%
Population Characteristics	
Veterans, 2013–2017	3,349
Foreign born persons, 2012–2017	37.8%
Housing	
Housing units, April 1, 2010	
Owner-occupied housing unit rate, 2013–2017	44.5%
Median value of owner-occupied housing units, 2013–2017	$342,100
Median selected monthly owner costs—with a mortgage, 2013–2017	$1,887
Median selected monthly owner costs—without a mortgage, 2013–2017	$441.00
Median gross rent, 2013–2017	$1,232.00
Families and Living Arrangements	
Households, 2013–2017	40,572
Persons per household, 2013–2017	3.82
Living in same house 1 year ago, persons age 1 year+, 2013–2017	91.3%
Language other than English spoken at home, persons age 5 years+, 2013–2017	70.2%
Education	
High school graduate or higher, persons age 25 years+, 2013–2017	59.9%
Bachelor's degree or higher, persons age 25 years+, 2013–2017	12.9%
Health	
With a disability, under age 65 years, 2012–2016	4.7%
Persons without health insurance, under age 65 years	17.4%

Category	Number/%
Economy	
In civilian labor force, total, population age 16 years+, 2013–2017	63.6%
In civilian labor force, female, population age 16 years+, 2013–2017	55.9%
Total health care and social assistance receipts/revenue, 2012 ($1,000)	$1,002,105
Total manufacturers' shipments, 2012 ($1,000)	$903,116
Total merchant wholesaler sales, 2012 ($1,000)	$1,717,380
Total retail sales, 2012 ($1,000)	$1,928,267
Total retail sales per capita, 2012	$12,482
Transportation	
Mean travel time to work (minutes), workers age 16 years+, 2013–2017	23.2
Income and Poverty	
Median household income (in 2017 dollars), 2013–2017	$54,864
Per capita income in past 12 months (in 2017 dollars), 2013–2017	$19,268
Persons in poverty	17.2%
Businesses	
All firms, 2012	9,163
Women-owned firms, 2012	3,488
Men-owned firms, 2012	4,209
Minority-owned firms, 2012	5,356
Nonminority-owned firms, 2012	3,144
Veteran-owned firms, 2012	727
Nonveteran-owned firms, 2012	7,762

At-Risk Populations

In addition to the distribution of the population, the demographics of the population can affect the amount of service demand and the nature of risk within a community. In urban cities, several factors that place groups of people at risk have been identified. An NFPA report has identified the groups that face a higher risk of being injured or killed in a fire as follows:[2]

- Children under 5 years of age
- Older adults over 65 years of age
- People with disabilities
- Language barrier
- People in low-income communities

According to the 2017 Census Bureau estimate, a number of the residents of Salinas are in one or more at-risk population groups. This segment of the population is more likely to use fire department services, especially EMS, than other population groups.

Age

The percentage of young children in Salinas is a factor that increases service demand and hence community risk in the service area. The median age of the population is 30 years old. This compares to an average age for the population of California of 36 years old and 37.2 years old for the U.S.[3] Of concern is the number of children under 5 years of age and adults over 65 years of age, representing almost 18 percent of the population. Comparatively, Salinas has a much younger population under 5 years of age than the national average; this population requires a higher level of pre-hospital care than other age groups.

Disabilities

People under 65 years of age with disabilities make up 4.7 percent of the population. These people may have difficulty or be incapable of self-preservation during an emergency. Likewise, people under 65 years of age with no health insurance are more prone to chronic illness or exhibit poor physical condition simply because they do not seek treatment promptly. Almost 18 percent of the population is under 65 and has no health insurance; thus, they may require a higher level of fire-rescue response.

Low-income

Likewise, low-income people are more at risk from fire or medical condition; almost one in five residents of Salinas live below the poverty level. Low income is often combined with other factors such as education, disability, and work status, as shown in the following figure.[4]

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[2] National Fire Protection Association, 2007; Urban Fire Safety Project, Emmitsburg, MD; retrieved from http://www.nfpa.org/public-education/by-topic/people-at-risk/urban-fire-safety/reports-and-presentations.

[3] The U.S. Census Bureau.

[4] "The U.S. Census Bureau 2016 poverty threshold is defined as $12,228 for an individual, $24,563 for a family of four." Retrieved from https://www.census.gov/data/tables/time-series/demo/income-poverty/historical-poverty-thresholds.html.

Seasonal (Agricultural) Workers

Annually, Salinas experiences an increase in agricultural workers. Various studies indicate that the housing of these workers is an ongoing concern. Stakeholder interviews indicate that often several (3–5 families) will be found sharing a single-family residence and at times a language barrier exists that hampers emergency mitigation efforts. This population and over-crowding of households contributes to a high community risk that Salinas Fire must be prepared to meet.

Figure 13: Salinas Household Incomes, 2017

Subject	Households' Estimate	Families' Estimate	Married-Couple Families' Estimate	Nonfamily Households' Estimate
Total	40,570	32,140	20,923	8,430
Less than $10,000	4.50%	3.60%	1.40%	12.60%
$10,000 to $14,999	3.90%	3.00%	0.80%	12.40%
$15,000 to $24,999	10.50%	10.80%	7.20%	16.20%
$25,000 to $34,999	9.40%	9.90%	7.90%	9.10%
$35,000 to $49,999	16.80%	15.70%	15.70%	16.10%
$50,000 to $74,999	20.30%	20.60%	21.10%	15.70%
$75,000 to $99,999	13.70%	13.90%	16.60%	7.70%
$100,000 to $149,999	13.30%	14.50%	18.50%	6.70%
$150,000 to $199,999	5.00%	5.10%	6.80%	2.40%
$200,000 or more	2.60%	2.80%	3.90%	1.20%
Median income	$54,864	$57,117	$70,029	$34,547
Mean income	$69,026	$71,246	$83,785	$45,388

Physical Hazards

Since 1965, the number of federally declared disasters in Monterey County (20) is near average when compared to both the state (19) and national (16) averages.[5] The cause for each of these declarations is shown in the next figure. Although most of these declarations did not affect Salinas directly, they are an indication of the hazards present throughout the county.

Figure 14: Federally Declared Disasters, Jan. 1965–Mar. 2018

Type	Type, Number	Type, Percent
Fire	3	15%
Flood	3	20%
Severe Storms	7	35%
Coastal Storm, Hurricane[a]	2	10%
Freezing	2	10%
Earthquake	1	5%
Drought	1	5%
Tsunami	1	5%
Total	**20**	**100.0%**

Note: [a]Includes Hurricane Katrina evacuees.

Earthquakes

Earthquakes occur throughout California, but certain areas, including Salinas, have a higher probability of experiencing damaging ground motions caused by seismic activity. Salinas has an earthquake index of 50.79. Almost 100 percent of the Salinas planning area's population is located in a high shaking hazard area. A high-shaking hazard area is derived from the U.S. Geological Survey (USGS) seismic hazard map, which shows the distribution of earthquake shaking levels that have a certain probability of occurring.

There are several active faults in the Salinas area including the San Andreas and Calaveras fault lines, but no known faults are within the City limits. According to one source, the risk of earthquake activity in Salinas is 2.3 times higher than the state average and over 28 times higher than the national average.[6] Thus, the risk of earth movement, or ground shaking, ranges from high to extremely high within Salinas.

Another source states that Salinas, CA, has a very high earthquake risk, with a total of 6,451 earthquakes since 1931.[8] The source references the USGS database that shows that there is a 99.98 percent chance of a major earthquake within 50 km of Salinas, CA, within the next 50 years. The largest earthquake to date within 30 miles of Salinas, CA, was a 6.9 magnitude in 1989.

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[5] *FEMA Disaster Declarations Summary—Open Government Dataset, U.S. Department of Homeland Security, last updated March 5, 2018. Retrieved from: https://www.fema.gov/media-library/assets/documents/28318.*

[6] *Salinas, CA, Natural Disasters and Weather Extremes, USA.com, 2019. Retrieved from: http://www.usa.com/salinas-ca-natural-disasters-extremes.htm#EarthquakeIn; https://www.homefacts.com/earthquakes/California/Monterey-County/Salinas.html.*

Most loss of life and injuries resulting from an earthquake occur in or near structures. The potential for damage to and collapse of structures is greatest in the downtown area due to the high number of masonry buildings.

Given the history of seismic activity, Salinas has adopted several state and local regulations and codes to reduce seismic risk. As examples, Salinas has identified unreinforced masonry structures in the downtown area and adopted standards to ensure each will be brought up to current standards as building permits are requested for improvements. Approximately 80 percent of the unreinforced masonry buildings in the City of Salinas have been retrofitted in this manner.

Historical Earthquake Events

A total of 251 historical earthquake events that had recorded magnitudes of 3.5 or above were found in or near Salinas, CA. Those measuring 5.0 or greater on the Richter scale are shown here.[7]

Figure 15: Earthquakes Measuring 6.0 or Greater Within 50 Miles

Distance (miles)	Date	Magnitude	Depth (km)	Latitude	Longitude
1.1	1918-04-21	6.8	N/A	33.75	- 117
39.4	1948-12-04	6.5	16	33.88	- 116.33
23.4	1923-07-23	6.2	N/A	34	- 117.25
30.1	1937-03-25	6	N/A	33.47	- 116.58
33.3	1910-05-15	6	N/A	33.5	- 117.5

[7] *Earthquakes that measure 6.0–6.9 on the Richter scale are considered to be strong earthquakes (VIII to X on the Mercalli intensity scale) and are expected to result in damage to a moderate number of well-built structures in populated areas. Earthquake-resistant structures survive with slight to moderate damage. Poorly designed structures receive moderate to severe damage. Strong to violent shaking in the epicenter, felt in wider areas, up to hundreds of miles/kilometers away.*

Wildfires

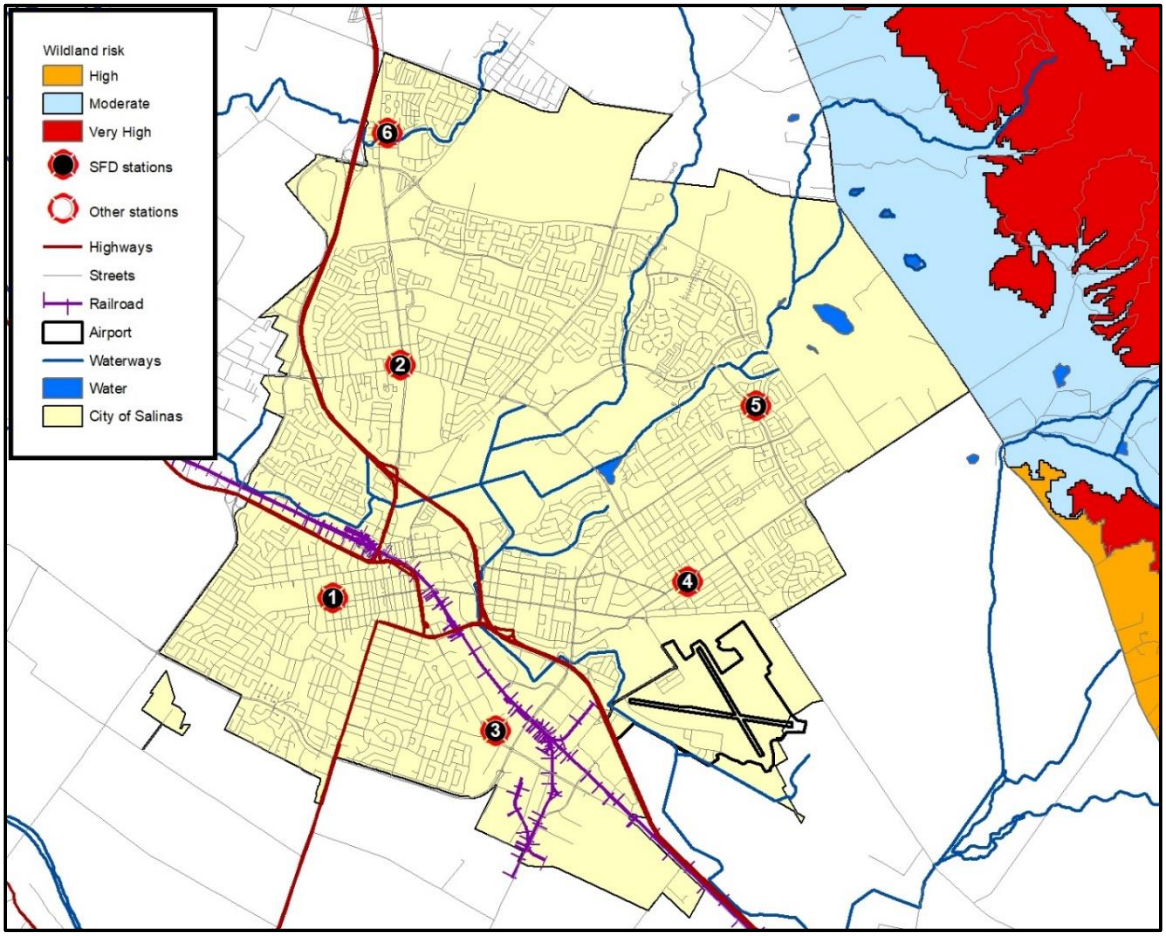
Like many fire jurisdictions in the Western United States, especially California, wildland fire risk is a factor in the SFD service area. The following figure uses CAL FIRE GIS data to examine wildland fire risk in and around Salinas. This model produced by CAL FIRE considers vegetation, topography, weather, crown fire potential, and ember production and movement to summarize fire hazard zones as moderate, high, or very high. This figure demonstrates that most of the City of Salinas has a very low to low risk of wildfire due to urbanization, and the City is surrounded by areas of high to extreme wildfire risk on the south and west sides of the City; some areas classified as a high to extreme hazard zone extend into the City as shown.

Although Salinas does meet the definition of an at-risk community in the Healthy Forests Restoration Act (HFRA) (i.e., they are on the list published in the Federal Register), per 16 USC 6511(A)(i), and although it is listed as a community at risk on the list maintained by the California Fire Alliance, it is not believed that the moderate wildland fire risk zone is not an accurate reflection of risk for the city. Less than 1 percent of the Salinas planning area population is located in a high wildland fire hazard area.

The vast majority of Salinas is an urbanized community surrounded by agricultural lands. The greatest fire risk is that from within the community's buildings in the urban area. Structural and automobile fires are the most common fire risks for residents of Salinas. The risk of vegetation fires listed in the HFRA is associated with the rangelands on the hillsides surrounding the community. As development starts to move towards these rangeland areas, the risk of vegetation fires will need to be evaluated.

The Salinas Fire Department participates in State and County-level mutual aid agreements, which provide additional resources to deal with wildland fire incidents. CAL FIRE aircraft are stationed at the Hollister Airport to provide a rapid response both in the region and elsewhere.

Figure 16: SFD Study Area Wildland Fire Risk



Severe Weather

Tornados are created when warm, moist air near the ground interacts with cooler air above and rapidly increasing winds that change direction. Tornados are rare in California and even more so in Salinas: The expectation of a tornado in Salinas is almost 19 times lower than the U.S. average.

Since 1965, only 11 tornados have been recorded within 30 miles of Salinas (interestingly half of these occurred in the month of December). Only one of these events caused injuries when two individuals were injured after 75-mph winds shattered glass near the east/northeast section of Monterey and adjoining seaside area on December 6, 1992.[8]

[8] *Summary of the December 1992 Weather on the Monterey Peninsula, California. Retrieved from: https://met.nps.edu/~ldm/renard_wx/dec92wx.pdf.*

Figure 17: Tornado Intensity, Enhanced Fujita Scale

Designation	Wind Speed, mph	Typical Damage[9]
EF-0	65–85	Minor or no damage. Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over. Confirmed tornadoes with no reported damage (i.e., those that remain in open fields) are always rated EF0.
EF-1	86–110	Moderate damage. Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF-2	111–135	Considerable damage. Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
EF-3	136–165	Severe damage. Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations are badly damaged.
EF-4	166–200	Devastating damage. Well-constructed and whole frame houses completely leveled; cars and other large objects thrown and small missiles generated.
EF-5	> 200	Extreme damage. Strong-framed, well-built houses leveled off foundations are swept away; steel-reinforced concrete structures are critically damaged; tall buildings collapse or have severe structural deformations; some cars, trucks, and train cars can be thrown approximately 1 mile (1.6 km).

Microbursts can cause devastation similar to that caused by a tornado, but the mechanism is different. A microburst is a strong, small-scale downdraft of wind that hits the ground and spreads out; there is no rotation as there is with a tornado. Microbursts are frequently associated with strong thunderstorms.

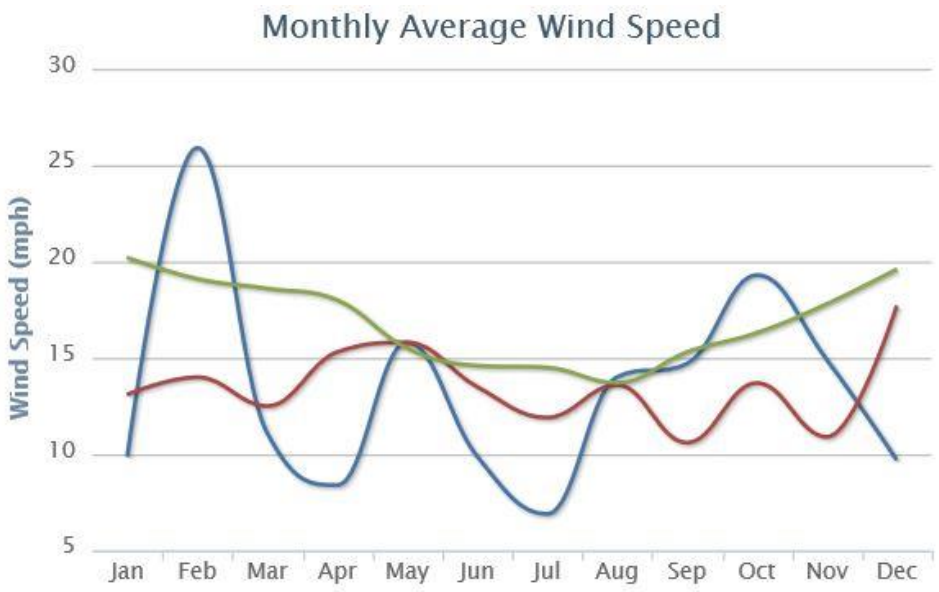
A **macroburst** is another form of straight-line wind, similar to a microburst but spread out over a larger area. These damaging downdrafts do not occur very often in and around Salinas unless associated with significant and violent thunderstorms.

[9] *Wikipedia. https://en.wikipedia.org/wiki/Enhanced_Fujita_scale.*

Seasonal Winds

Generally, Salinas has mild winds with the month of February having a sharp increase in wind speeds (averaging up to 26 mph). [10]

Figure 18: Salinas Average Monthly Wind Speeds[11]



Flood

Flooding in Salinas is a yearly activity due to its geographic location—in a valley, surrounded by hills and mountains. Flooding is generally caused from stormwater runoff from the Gabilan Mountains and overflows of the Reclamation Ditch, Gabilan Creek and tributaries, the Santa Rita Creek, Carr Lake, and the Salinas River. There are approximately 619 acres (1 square mile) of cropland in the City of Salinas that intersect with the 100-year floodplain. Exposed within this hazard area is a significant amount of the City's population and infrastructure, but when flooding occurs, it will first flood the agricultural fields before impacting the low-areas of the City.

Salinas has a large area of the city in a 100-year flood zone. Streets likely to be impacted when the flood control channels become inundated include Market Street, Kern Street, Merced Street, and Williams Road. The Monterey County Resources Agency acknowledges in the Floodplain Management Plan that the Salinas reclamation ditch (Monterey County Water Resources Agency Reclamation Ditch 1665) is known to lack the hydraulic capacity necessary to provide even minimum levels of flood protection.[12, 13]

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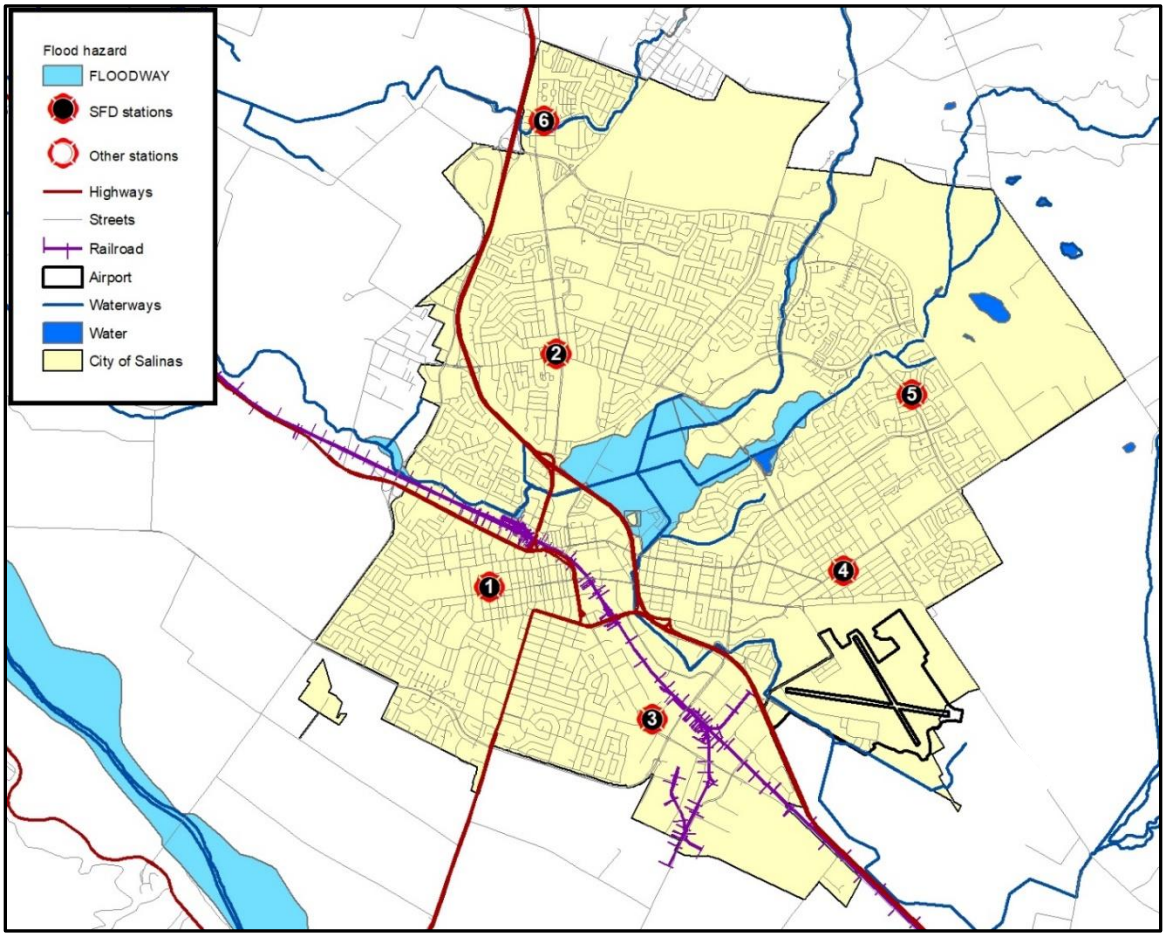
[10] *http://www.usa.com/salinas-ca-weather.htm.*
[11] *http://www.usa.com/salinas-ca-weather.htm.*
[12] *Monterey County Resources Agency Flood Management Plan Retrieved from http://www.co.monterey.ca.us/Home/ShowDocument?id=22597.*
[13] *Monterey County, 2016 Multi-Jurisdictional Hazard Mitigation Plan, Appendix-Q Salinas Retrieved from http://www.co.monterey.ca.us/home/showdocument?id=13709.*

Dam Failure

Failure of the San Antonio and Nacimiento dams could cause significant flooding within Salinas. Dam failure is a structural collapse of a dam that releases the water stored in the reservoir behind the dam. A dam failure is usually the result of the age of the structure, inadequate spillway capacity, earthquakes, erosion, design flaws, or water overflow during large storms. Major failure of this dam would only allow 24 hours for Salinas to prepare for the potential flooding. As required by the California Office of Emergency Services (OES), the City has previously adopted emergency procedures to deal with a catastrophic failure of the dams, and per SFD staff, this plan is in the process of being updated.

Exposed within the inundation zones along the central, western, and southwestern portions of the city is almost a third of the City's population and includes significant threat to critical buildings and transportation infrastructure with an estimated potential loss of over four billion dollars.

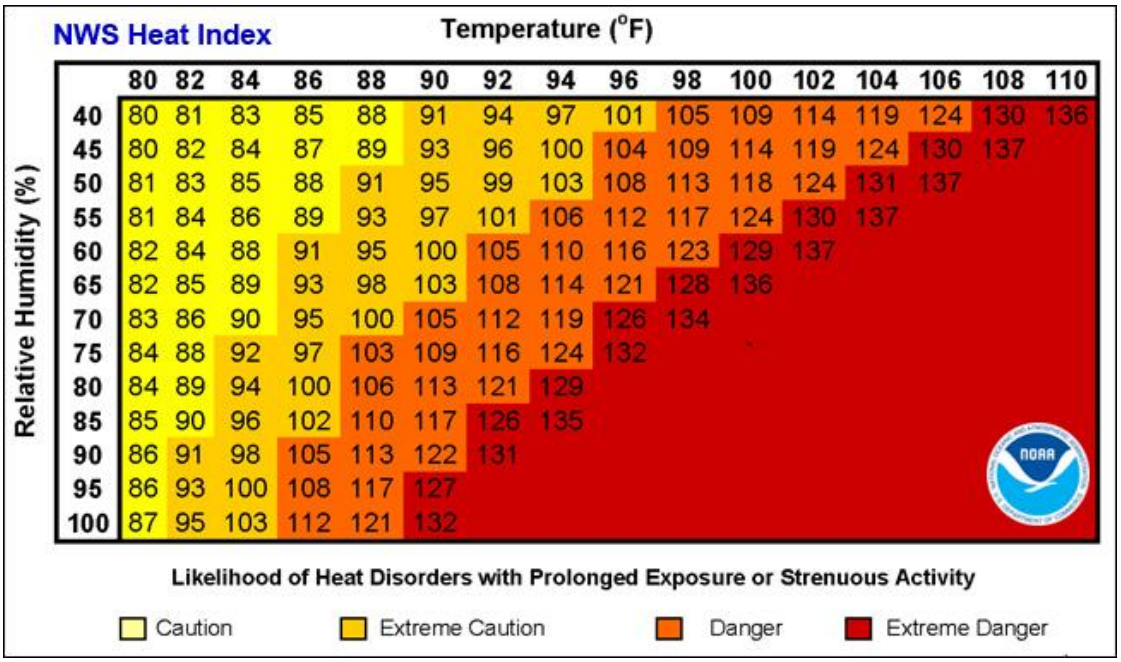
Figure 19: Flood Zones



Extreme Heat

Extreme heat is any period when the temperature is high enough that overexposure can cause distress, including injury, heat-related illness, or death to humans and animals. Related to temperature is the heat index—an indicator of how hot it feels based on actual temperature and relative humidity. The higher the humidity, the hotter it feels due to the body's inability to cool itself. The National Weather Service (NWS) publishes a Heat Index, shown in the next figure, to help local planners prepare for and mitigate the effects of extreme temperatures.[14]

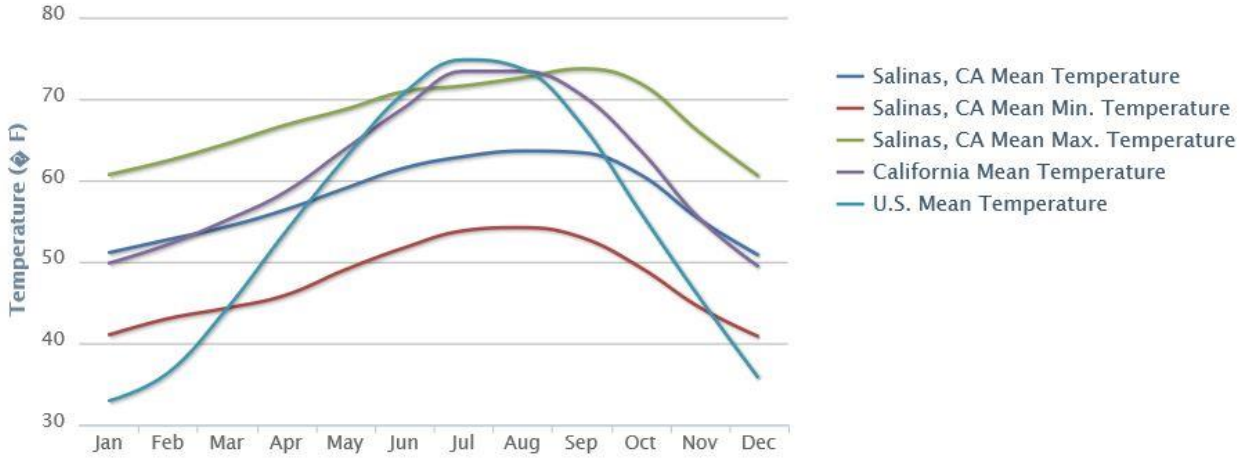
Figure 20: NWS Heat Index



While extreme temperatures are known to occur, prolonged heat waves in Salinas are rare with a historical average of only four extreme heats days per year. Salinas has relatively mild temperatures with a very low seasonal variation in seasonal monthly temperatures.

[14] *U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service. http://www.nws.noaa.gov/om/heat/heat-images/heatindexchart.png.*

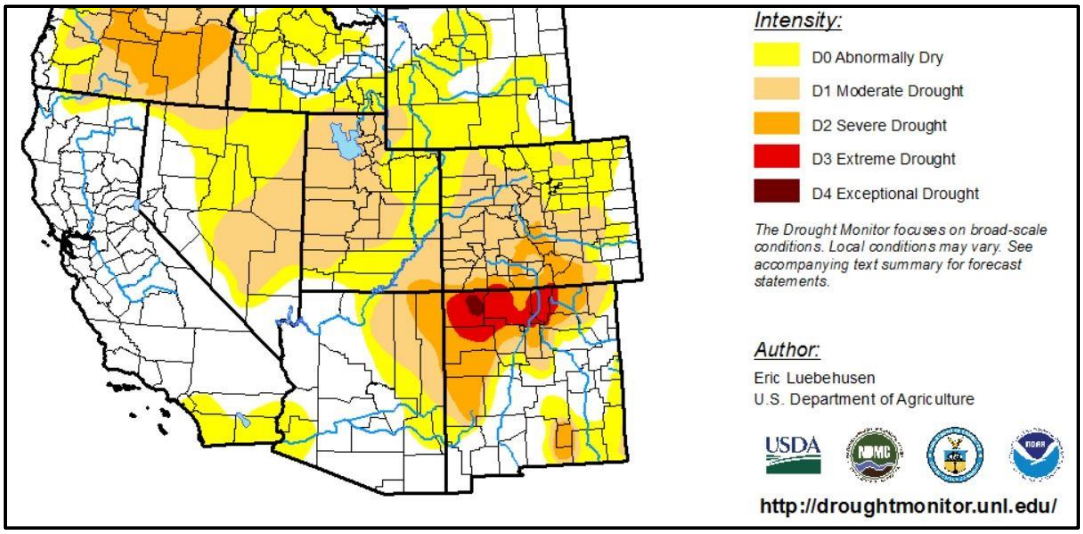
Figure 21: Salinas Average Monthly Temperatures[15]



Drought

Drought is any period of dry weather, characterized by insufficient rain to grow crops or replenish surface water supplies. Droughts are gradual and persistent with secondary impacts on wildfire, crop production, oil and gas production, and socio-economic impact. Currently, outside of a few locales in the southern San Joaquin Valley and in the far north, most of California is now reporting precipitation surpluses for the water year. To further illustrate, California's disappearing Moderate Drought (D1) was limited to small portions in the far north whereas Abnormal Dryness (Do) was confined to relatively small sections in northern and southern portions of the state. The absence of drought is not a normal condition for California, and it should be remembered that this figure represents California after an abnormally wet year.

Figure 22: U.S. Drought Conditions, March 2019



[15] *http://www.usa.com/salinas-ca-weather.htm.*

Technological (Human-Caused) Hazards

The most prominent technological, or human-caused, hazards faced by residents of Salinas are transportation emergencies, structural fires, long-time power outage, and hazardous material releases.

Transportation

Transportation corridors provide necessary access and egress for the department. The configuration of transportation systems can also affect the response capability of emergency services. Limited access freeways and rail lines can interrupt street connectivity, forcing apparatus to negotiate a circuitous route to reach an emergency scene.

Roads

Surface streets dominate the SFD service area. California State Route 101 is primarily a north-south highway. Primary risk is related to over-the-road shipments of combustible and hazardous materials and vehicle accidents.

The balance of the department's service has a mix of relatively well-interconnected street networks and disconnected neighborhoods characterized by meandering streets and cul-de-sacs. City-owned traffic signals within the service area are equipped with signal pre-emption equipment; however, none are operational. The signal pre-emption can provide a significant response time performance advantage as well as improved safety to motorists.

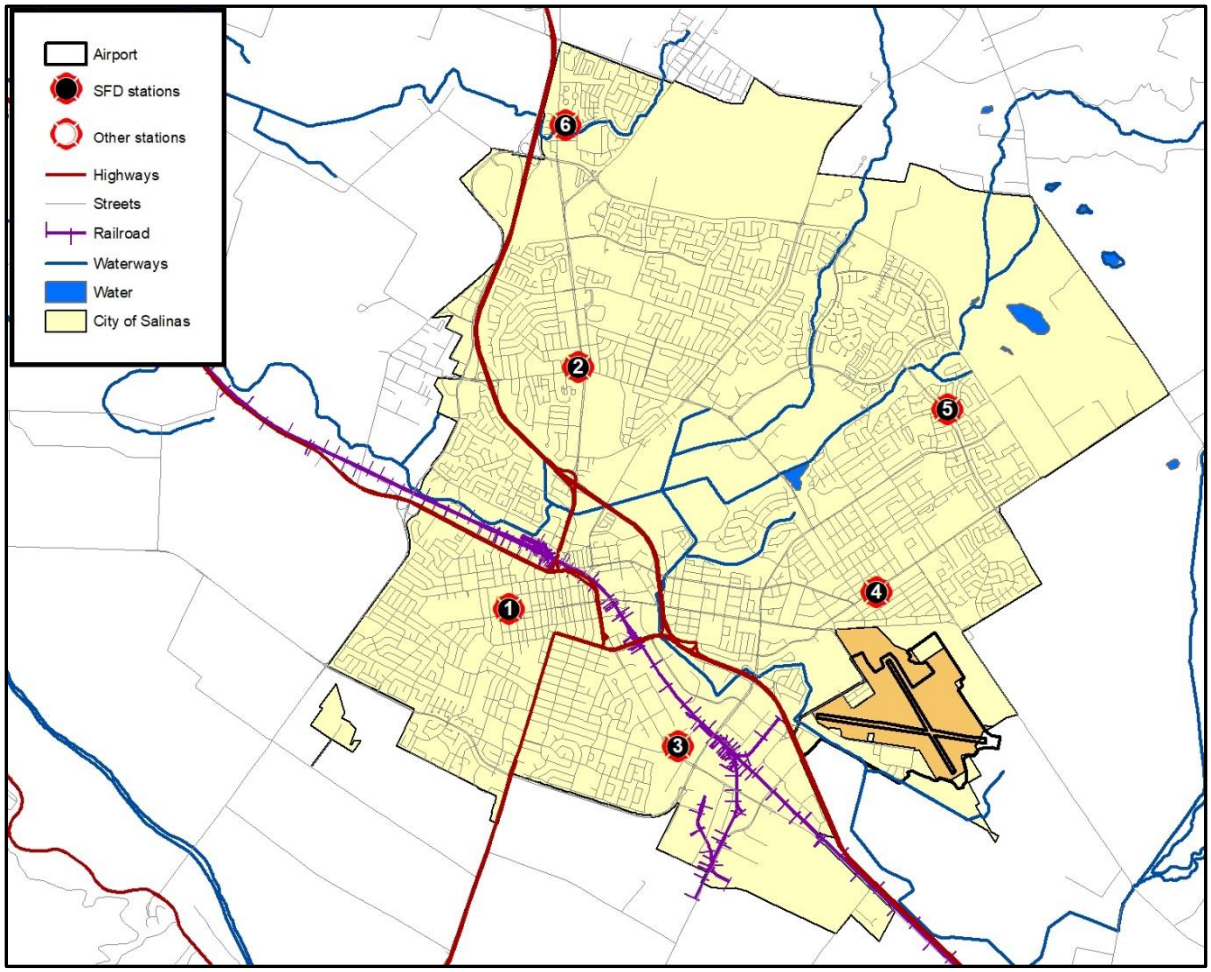
Railroads

Rail lines often pass through urban areas. This can create risks for train/vehicle collisions and for mass casualty incidents in the event of a collision or derailment. Freight lines carry large quantities of hazardous materials each year. Commercial and passenger rail service to Salinas is via Union Pacific and Amtrak. Amtrak maintains a passenger depot within the City and serves commercial and agricultural needs via main and spur lines.

Airport

The Salinas Municipal Airport is equipped with landing and navigation systems for all-weather conditions, restaurant and catering amenities, conference and business meeting facilities, airframe, powerplant, and refinishing services. The Salinas Municipal Airport is a first-class destination that is handling the rapidly growing business aviation demands of the region.

Figure 23: Salinas Municipal Airport

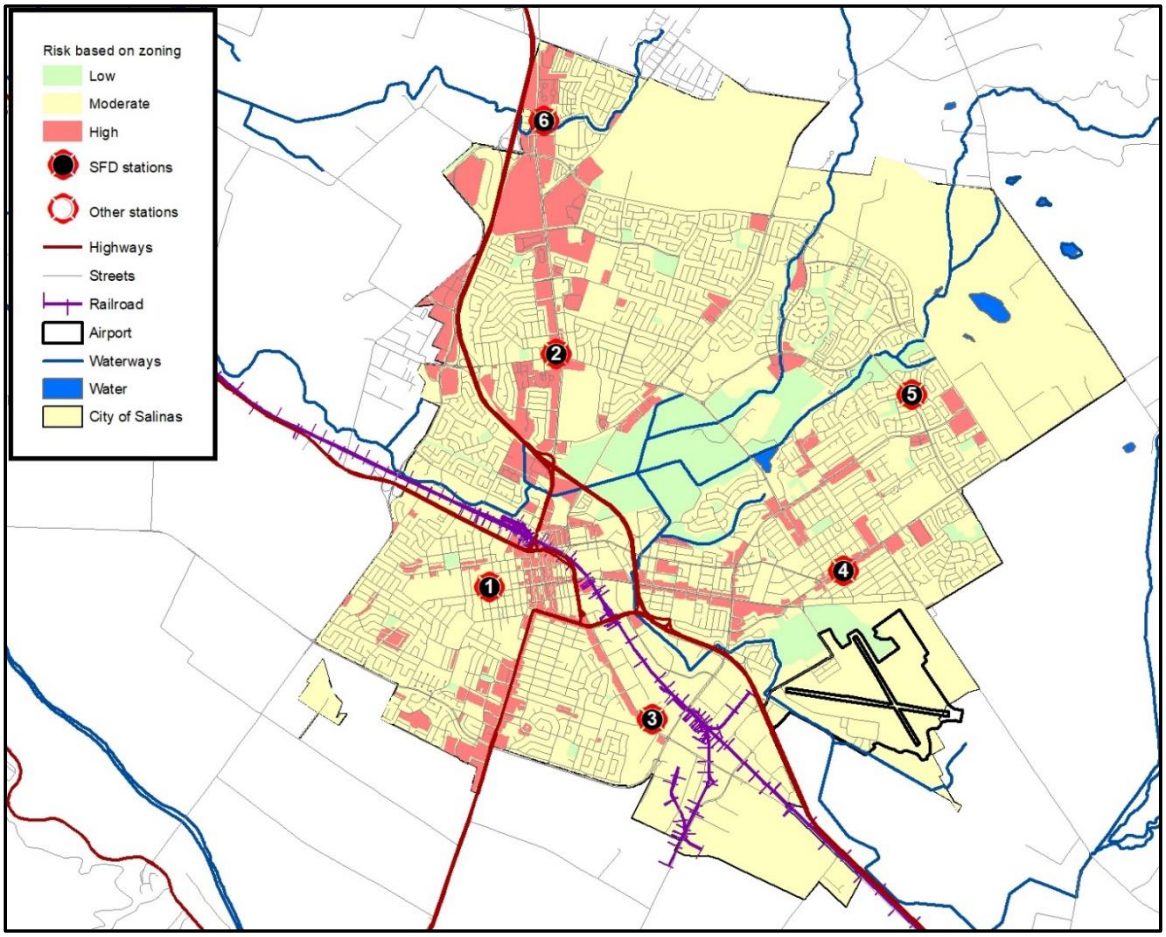


Land Use

ESCI used GIS software and zoning classifications for the City of Salinas to examine current land use. Risk is assigned to the zoning classifications to present a view of relative community risk. The Salinas service area is a mix of low-, moderate-, and high-risk properties.

- **Low Risk**: Areas zoned for agricultural purposes, open space, low-density residential, and other low-intensity uses.
- **Moderate Risk**: Areas zoned for medium-density single-family properties, small commercial and office uses, low-intensity retail sales, and equivalently sized business activities.
- **High Risk**: Higher-intensity business districts, mixed-use areas, high-density residential, industrial, warehousing, and large mercantile centers.

Figure 24: Community Risk by Zoning and Land Use



Physical Assets Protected

Many buildings in the service area are used for purposes that create more significant risk than others. High-occupancy buildings, facilities providing care to vulnerable populations, and others may require greater numbers of emergency response resources during an emergency. This section draws on information from Salinas's records and other sources.

Target Hazards/Critical Infrastructure and Key Resources (CIKR)

The definition of target hazards varies among jurisdictions. For continuity, ESCI uses the FEMA definition of target hazards as "facilities in either the public or private sector that provide essential products and services to the general public, are otherwise necessary to preserve the welfare and quality of life in the community, or fulfill important public safety, emergency response, and/or disaster recovery functions."[16]

Other buildings to consider listing as target hazards could include buildings with a potential for large loss of life—such as places of public assembly, schools and child care centers, medical and congregate care facilities, residential care facilities, multifamily dwellings, and high-rise office buildings—or those with substantial value to the community—economic loss, replacement cost, or historic significance—that, if damaged or destroyed, would have a significant negative impact. Responses to target hazards are expected to require a significant number of SFD resources during an incident. The following figure lists the inventory of critical facilities as provided by the City. ESCI purposely did not identify the location of these facilities in the interest of homeland security. Detailed information about critical facilities is kept in the Emergency Operations Center.

Figure 25: Critical Facilities

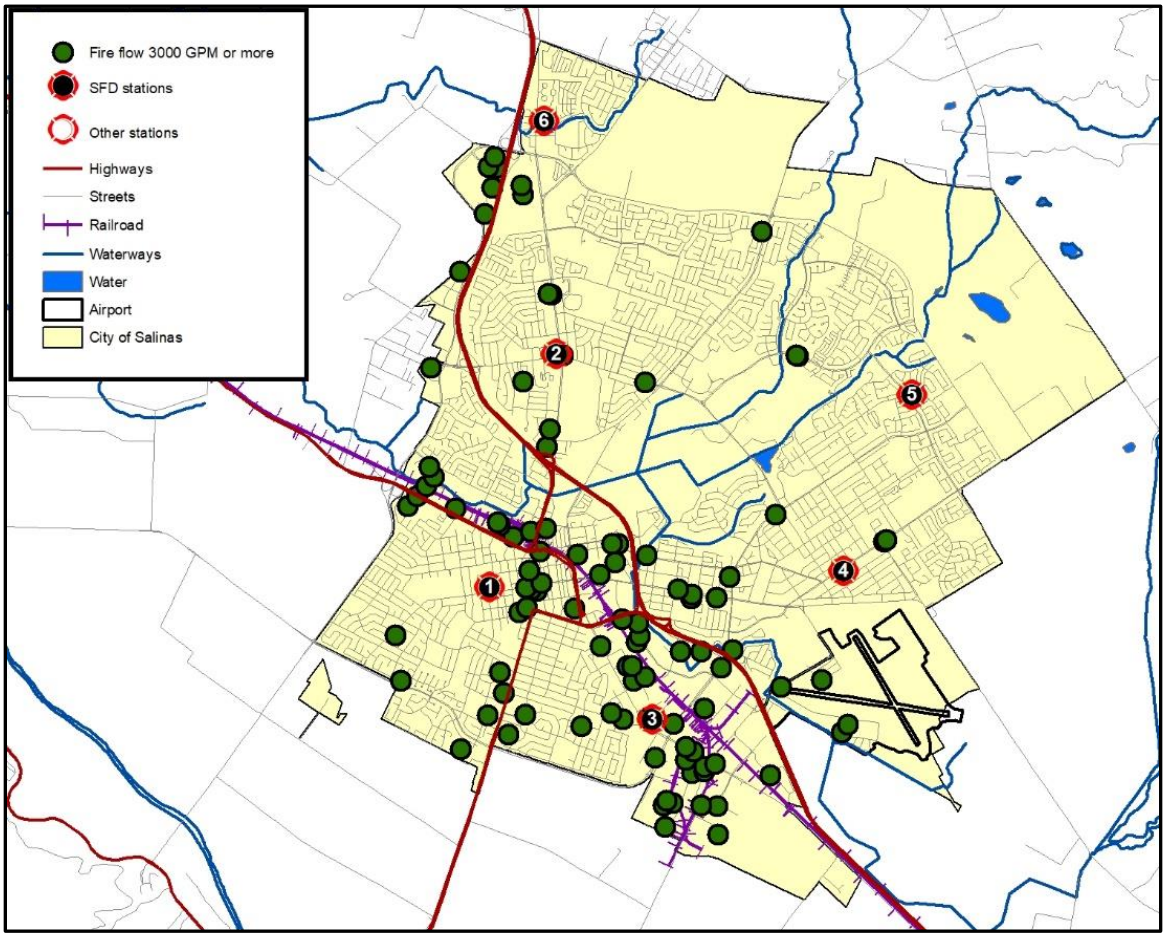
Type	Number
Airport	1
Communication Center	1
Detention Center	3
Fire Department Stations	6
Health Care Facilities	2
Law Enforcement Facilities	1
Maintenance Yards	1
Residential Elderly Facilities	26
Library	6
Schools	155
Public Utilities	1
Total	**203**

[16] *Community Risk Assessment: A Guide for Conducting a Community Risk Assessment, Version 1.5, John Stouffer for Vison 20/20, 2016, page 12.*

Occupancies can be classified according to the risk level; low, medium, or high-risk with factors used in assigning a risk classification to an individual occupancy to include the size of the building(s), construction type, the presence or absence of fire suppression features such as sprinklers and standpipes, the needed fire flow, the risk to life, the presence of chemicals and/or hazardous processes, and the amount of water available in relation to the needed fire flow.

The ISO batch report lists the needed fire flow (the amount of water required to extinguish a fire if the building was fully involved) for every occupancy in Salinas. The following figure lists the properties in Salinas with needed fire flows of 3,000 gallons per minute or greater.

Figure 26: Buildings Requiring Fire Flow over 3,000 GPM or More

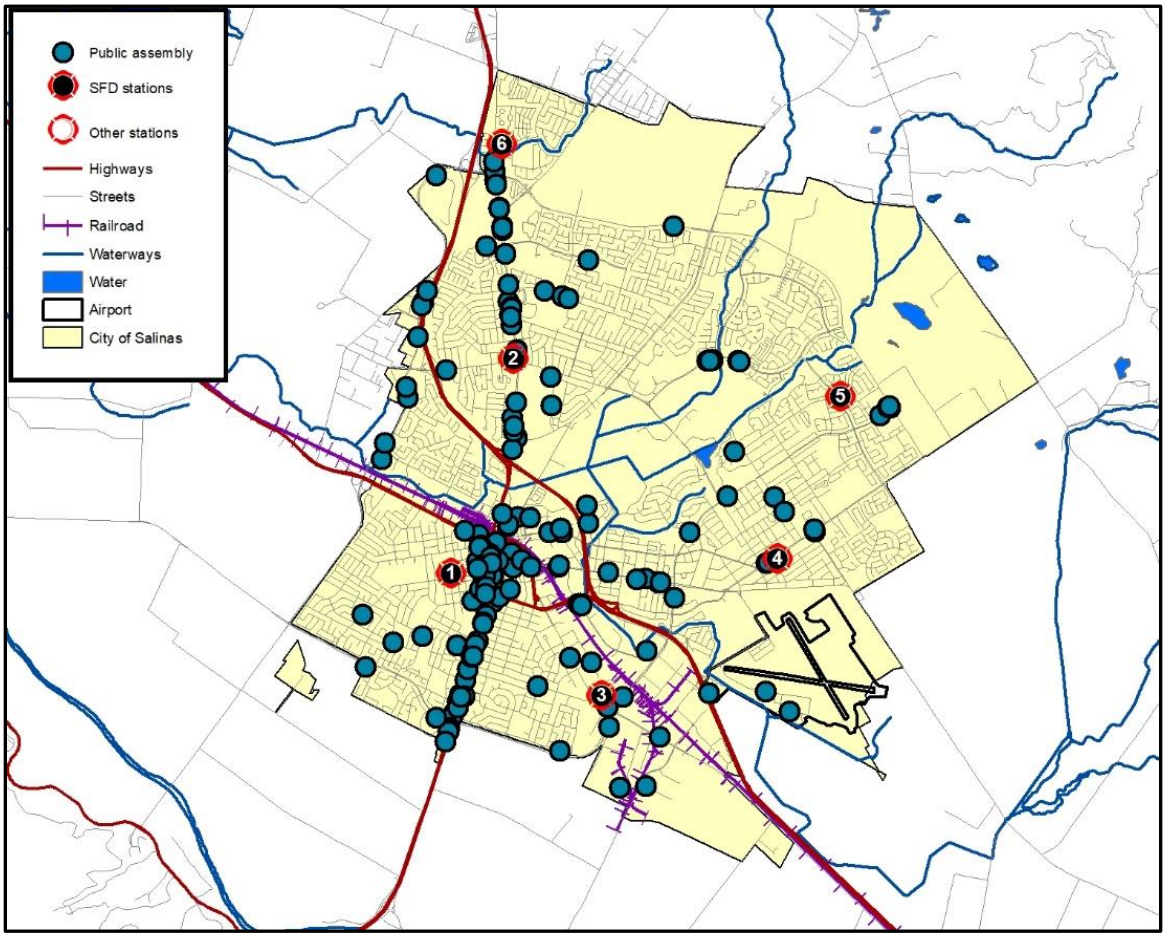


Public Assembly

Numerous buildings lie within the cities in which large numbers of people gather for entertainment, worship, and such. A variety of nightclubs, theaters, and other entertainment venues exist.

These facilities present additional risk, primarily for mass casualty incidents. Fire, criminal mischief, and potentially terrorism could cause a major medical emergency requiring significant emergency service resources. The following figure shows the locations of buildings identified as public assembly facilities within the city.

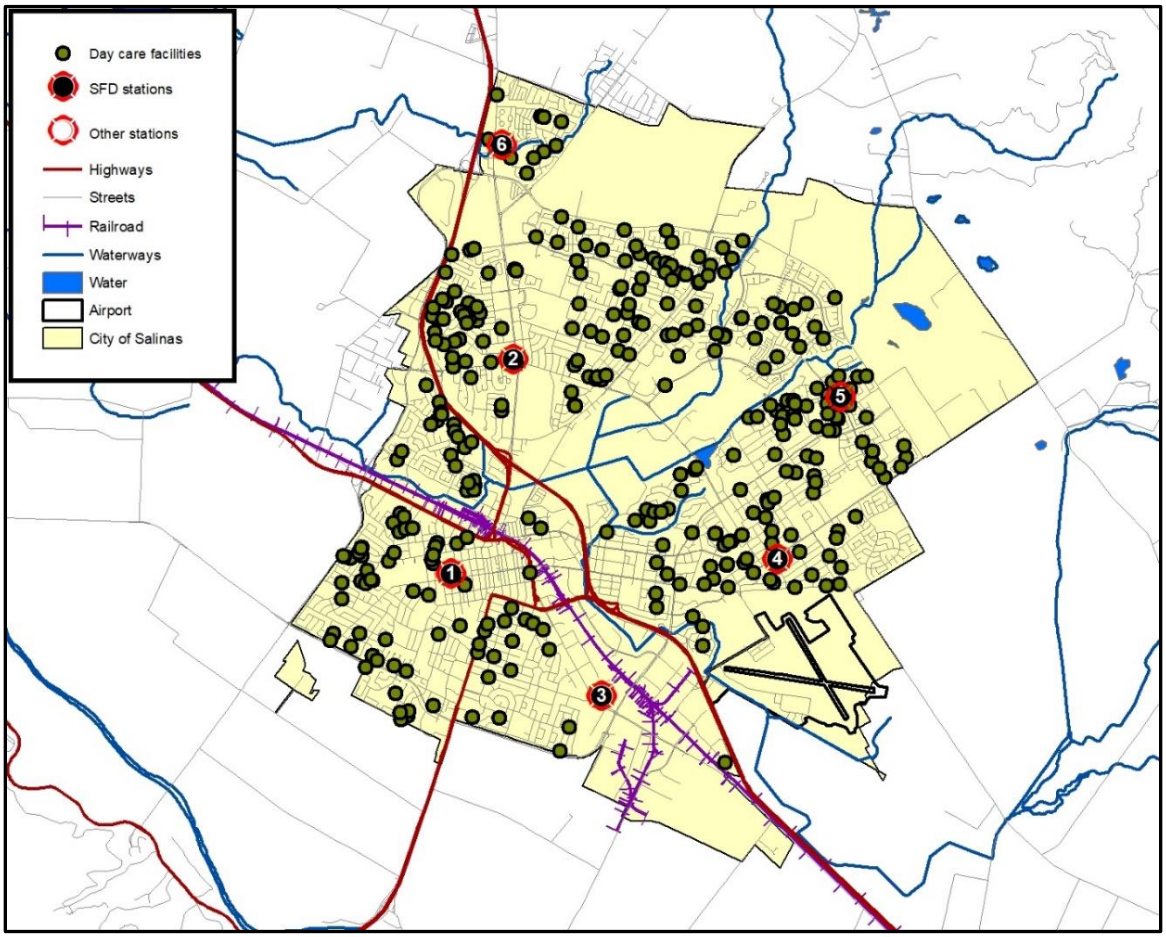
Figure 27: Public Assembly Facilities



Child Care Facilities

Numerous childcare facilities exist in Salinas. Childcare facilities are of special concern due to the hazards associated with very young children during emergencies. Many childcare facilities are clustered near existing fire stations, with the exception being a large number of facilities existing almost directly in-between fire stations 2, 5, and 6.

Figure 28: Child Care Facilities



Schools

The Salinas City Elementary School District, Salinas Union High School District, Alisal Union School District, Santa Rita School District, and several charter and private schools serve the City of Salinas.

The City Elementary School District serves almost 9,000 students and 800 staff members at 14 elementary schools throughout the city. The Salinas Union High School District is one of the largest high school districts in Northern California. The district provides education to almost 16,000 students in grades 7 to 12 at 12 school sites and another 2,000 adult students at our adult education center.

The following figures shows the locations of public and private school facilities inside or nearby the city limits of Salinas.

Figure 29: Public School Locations

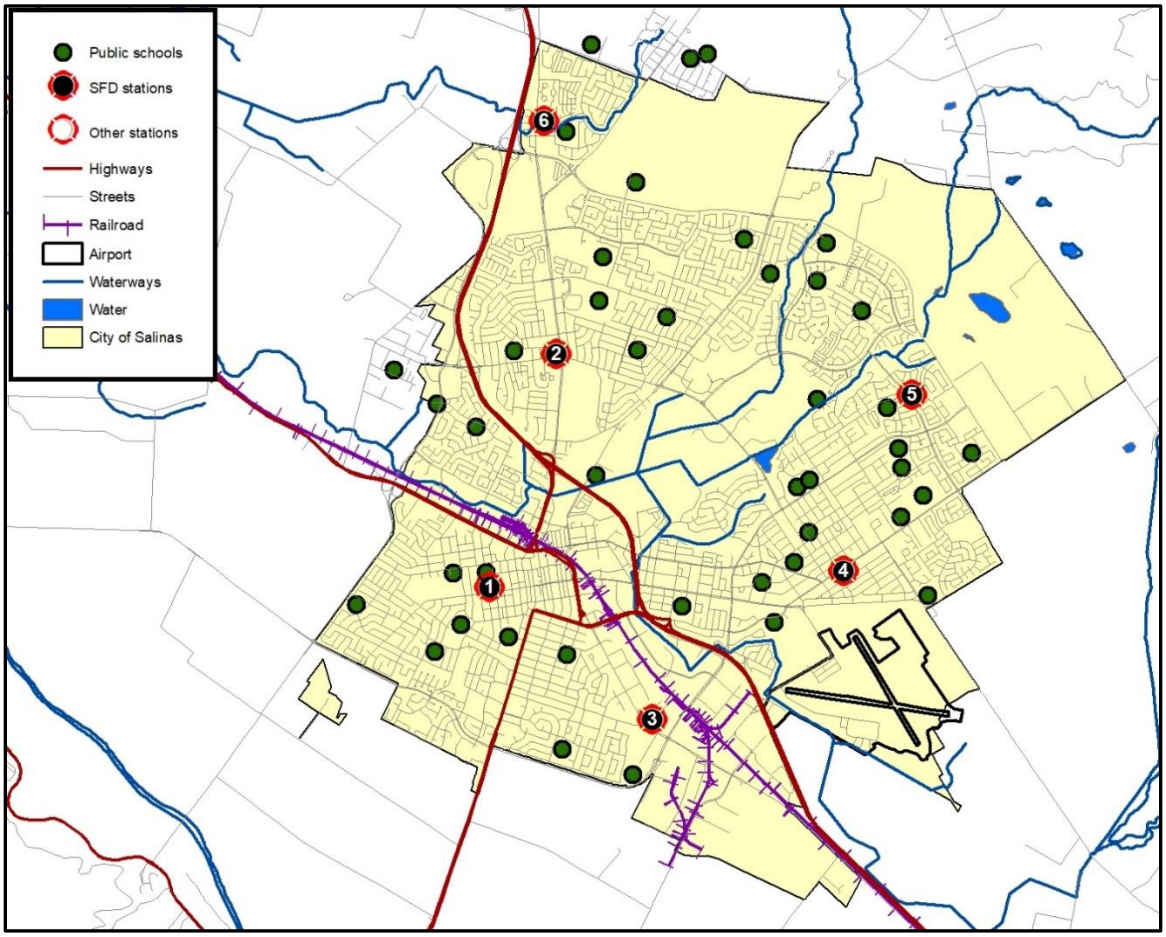
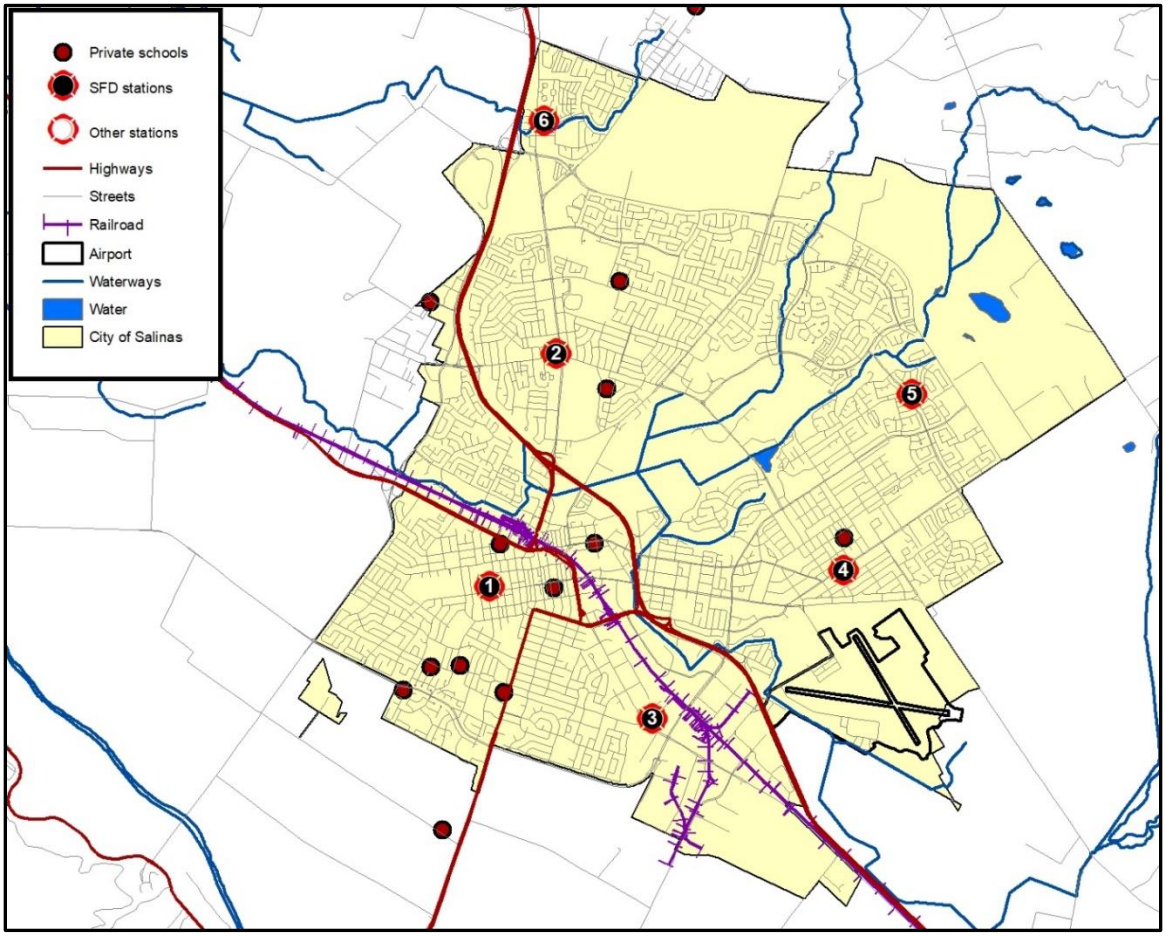


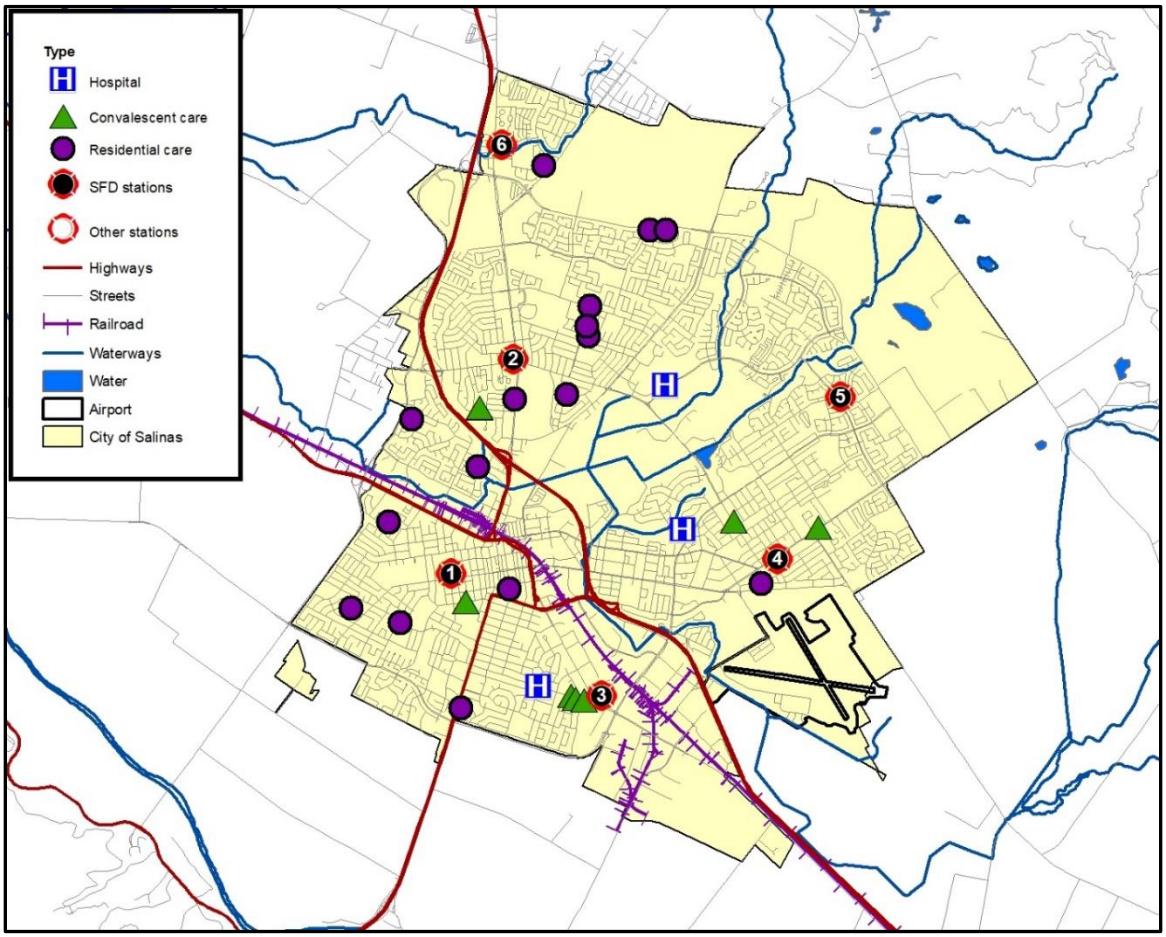
Figure 30: Private School Locations



Hospital and Medical Care Facilities

Medical care facilities—particularly hospitals—house vulnerable populations. Although these facilities are generally built of highly fire-resistive construction with built-in fire suppression, emergencies can occur that require the quick movement of patients away from the hazard. The following figure shows the location of hospitals.

Figure 31: Hospitals and Care Facilities[17]



[17] *As reported by SFD, April 2019.*

Other Critical Infrastructure

In this section, other types of infrastructure critical to a community are discussed in general terms. It is important the fire department plan for emergencies at any of these facilities.

Communications

Emergency communication centers and the associated transmitting and receiving equipment are essential facilities for emergency response. The Salinas Fire Department is dispatched by the Monterey Counties Consolidated Emergency Fire Dispatch Center. This communication center is equipped with a state-of-the-art computer-aided-dispatch system and has the primary responsibility to receive and process 9-1-1 calls for service and coordinate the response of emergency equipment and personnel.

The communication center is staffed by full-time dispatchers and supplemented by professional fire-fighters. It provides emergency fire and medical dispatch service for the entire County, dispatching for 17 agencies (21 fire districts) and one paramedic ambulance provider as well as coordinating dispatch services for 16 other agencies.

The communication center is well prepared to answer calls from callers who speak various worldwide languages. The State of California provides transfer numbers for translation services for 9-1-1 telephone calls in foreign languages (Spanish, Vietnamese, and Mandarin Chinese) or via telecommunications devices for the deaf. In addition, the Monterey County Dispatch Center subscribes to AT&T Language Line Service, a commercial service providing telephone translation in over 140 languages.

Of concern is the lack of a back-up dispatch facility or known back-up plan in the event that Monterey County Emergency Communications Center experiences an incident that disrupts dispatch services. Salinas does possess a mobile command unit in its fleet that is capable of receiving 9-1-1 call diversions but lacks funding or support from Monterey County.

There are other communication facilities and equipment that are equally important to the community and government operations. These are the telephone company central offices and the transmission lines of local telephone service providers. Internet service providers along with wireless cellular communication providers provide essential communication capabilities for the community as well as emergency personnel through their facilities and equipment.

Energy

Previously discussed community services, from communications to traffic signals to normal operations, require the use of energy. Whether it is electricity generation and transmission systems, fuel distribution and storage tanks, or natural gas pipelines and regulator stations, the community is dependent upon energy sources.

Water Distribution

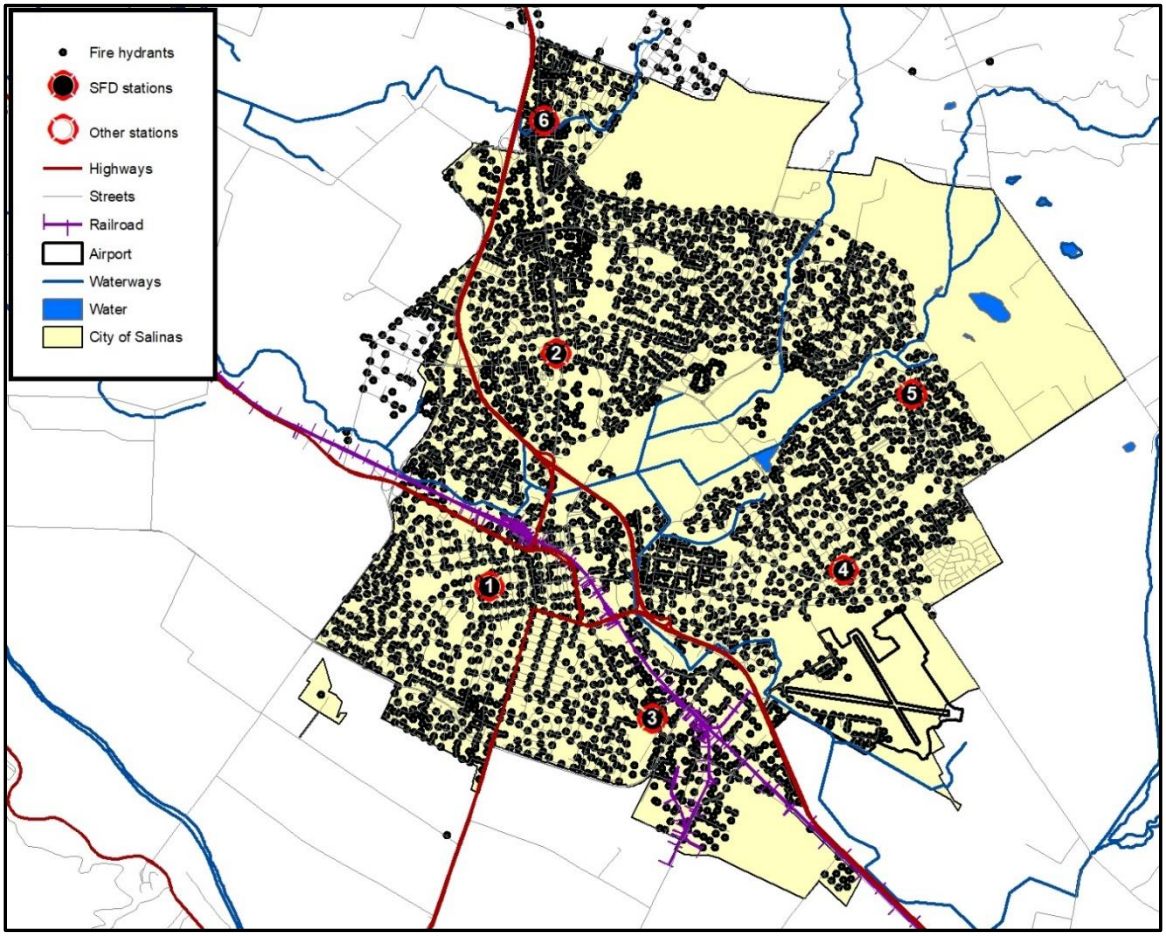
The most obvious concern to the fire department is the water reservoir, water main, and fire hydrant system. Providing sufficient storage, distribution, and access to this valuable firefighting resource through well-distributed fire hydrants is very important. As shown in the next figure, hydrants are well-distributed through portions of the city; however, there appear to be many areas where additional hydrants may be warranted for new development or to provide supplementary coverage.

Two suppliers of water, the California Water Service Corporation (Cal Water) and the Alisal Water Corporation (Alco), provide water to the City of Salinas. Alco serves approximately one-third of the City with a service area primarily in the east and southeast portions of the City. Of concern, is the age of the hydrants in the Alco water system. The Salinas Fire Department budget is responsible for the repair/replacement of damaged and unserviceable hydrants. SFD currently spends $30–$40K per year in repair and replacement of Alco hydrants. Additionally, the fire department has found the Alco main system to be unreliable, and the fire department has damaged water mains during moderate fire flow events on several occasions.

Cal Water services the majority of the urbanized planning area including Vista Del Oro, Las Palmas, Toro Park, Oak Hills, Bolsa Knolls, and Las Lomas areas.[18]

[18] *City Housing 2015–23 Housing Element, https://www.cityofsalinas.org/sites/default/files/Departments_Files/Community_Development_Files/General_Plan_Files/Adopted_Salinas_HE_2015-2023_1.pdf.*

Figure 32: Fire Hydrants



Structural Risks

Certain buildings, their contents, functions, and size present a greater firefighting challenge and require special equipment, operations, and training. Information for this section has been drawn from SFD records and the Insurance Services Office (ISO) database.

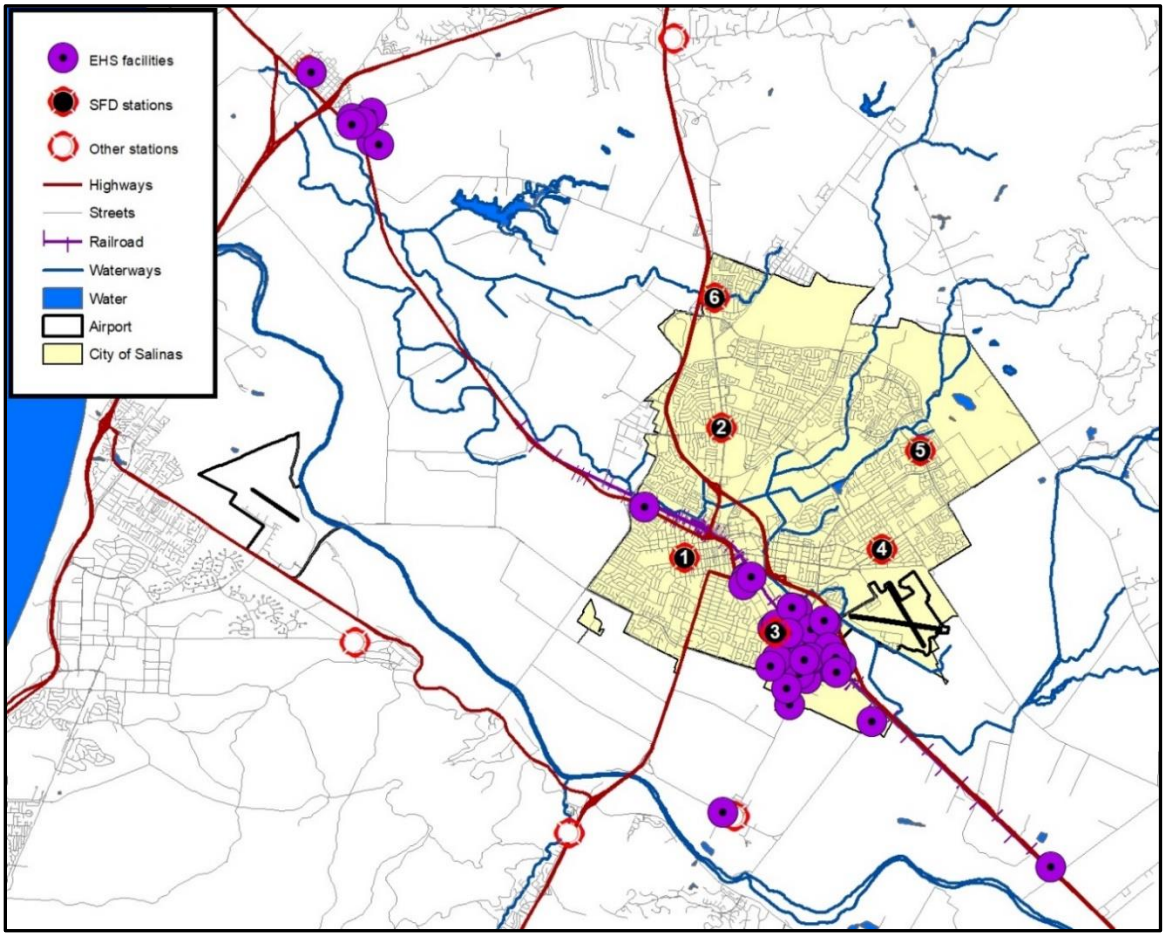
Hazardous Materials

Buildings that have been identified as containing hazardous materials can create a dangerous environment to the community as well as the firefighters during a spill or fire. Special equipment such as protective clothing and sensors, along with specialized training, is necessary to successfully mitigate a hazardous materials incident. Any location that has on site, for any one day in a calendar year, an amount of a hazardous chemical equal to or greater than the following threshold limits established by the EPA must file information, known as Tier II reports, about each material and the on-site amount with local authorities, planning committees, and the State's Emergency Response Commission under the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), commonly known as SARA Title III:

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

According to the Monterey County Hazardous Materials Department of Health, there are 32 facilities in Salinas (and several others just outside the incorporated boundaries) with Extremely Hazardous Substances (EHS); these EHS include only the 356 chemicals listed under Section 302 of the Emergency Planning and Community Right-to-Know Act. Most of these facilities store large amounts of ammonia; the following figure shows the location of those facilities. In addition to facilities with EHS, many Tier II facilities exist (not shown in the figure) that are required to have Safety Data Sheets (SDS) for products stored on site. Most of these facilities store crop management products—fertilizers, insecticides, and weed control. Normally, SDS are available both on site and on the company's website.

Figure 33: Hazardous Material Tier II Locations



Buildings Three or More Stories in Height

The Insurance Services Office calls for a ladder truck within 2.5 miles of developed areas containing buildings three or more stories in height. Accessing the upper floors and roof of buildings this tall typically requires ladder truck capability as ground ladders may not provide access. The following figure shows the locations of buildings that are three or more stories in height.

Figure 34: Buildings Three or Four Stories in Height

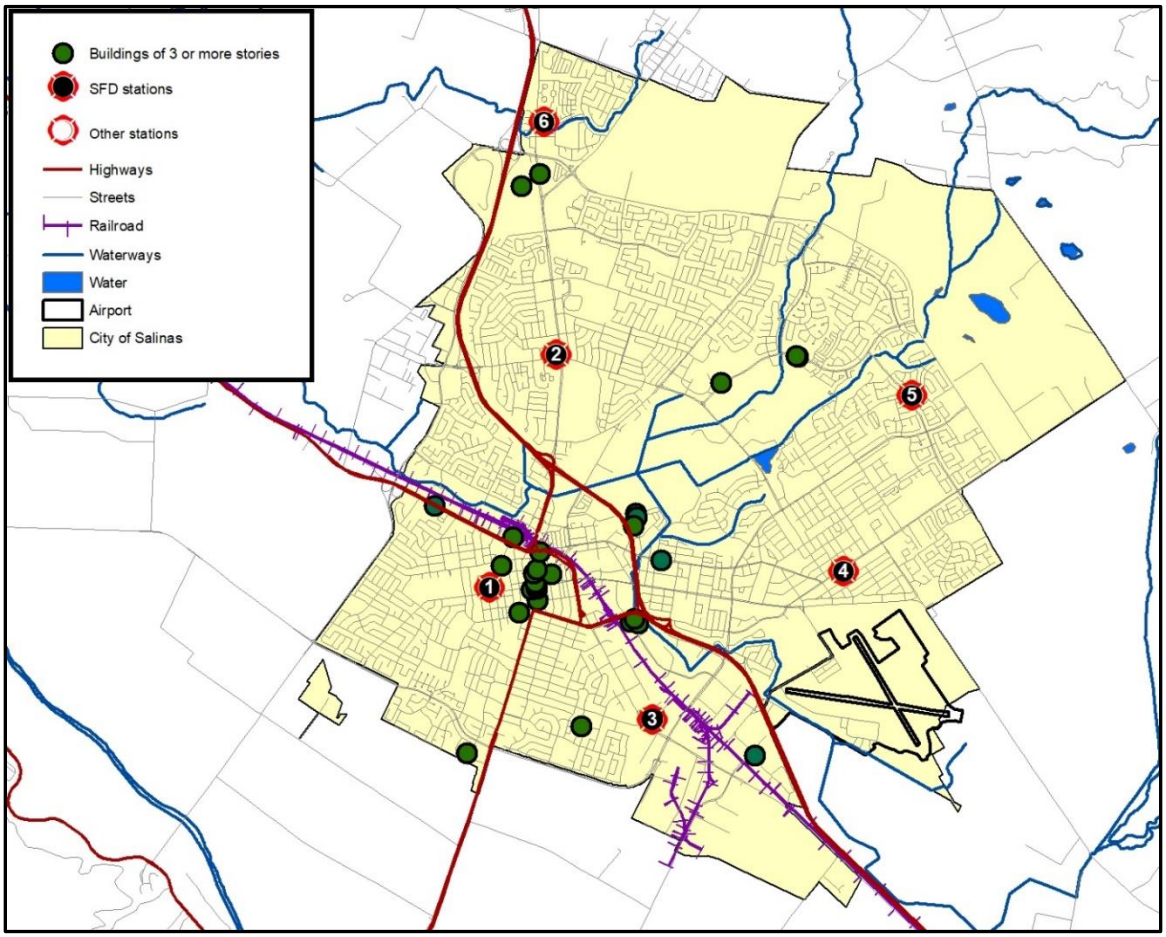
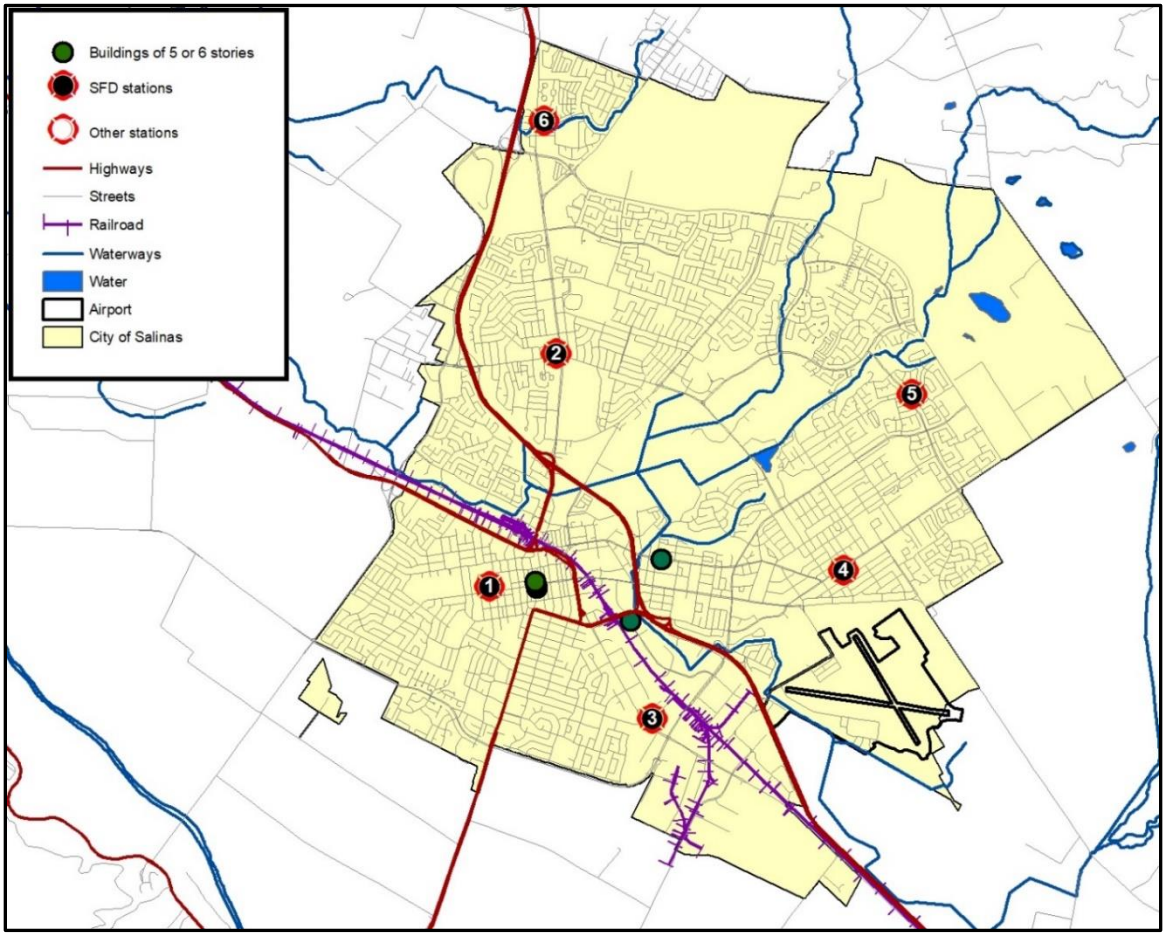


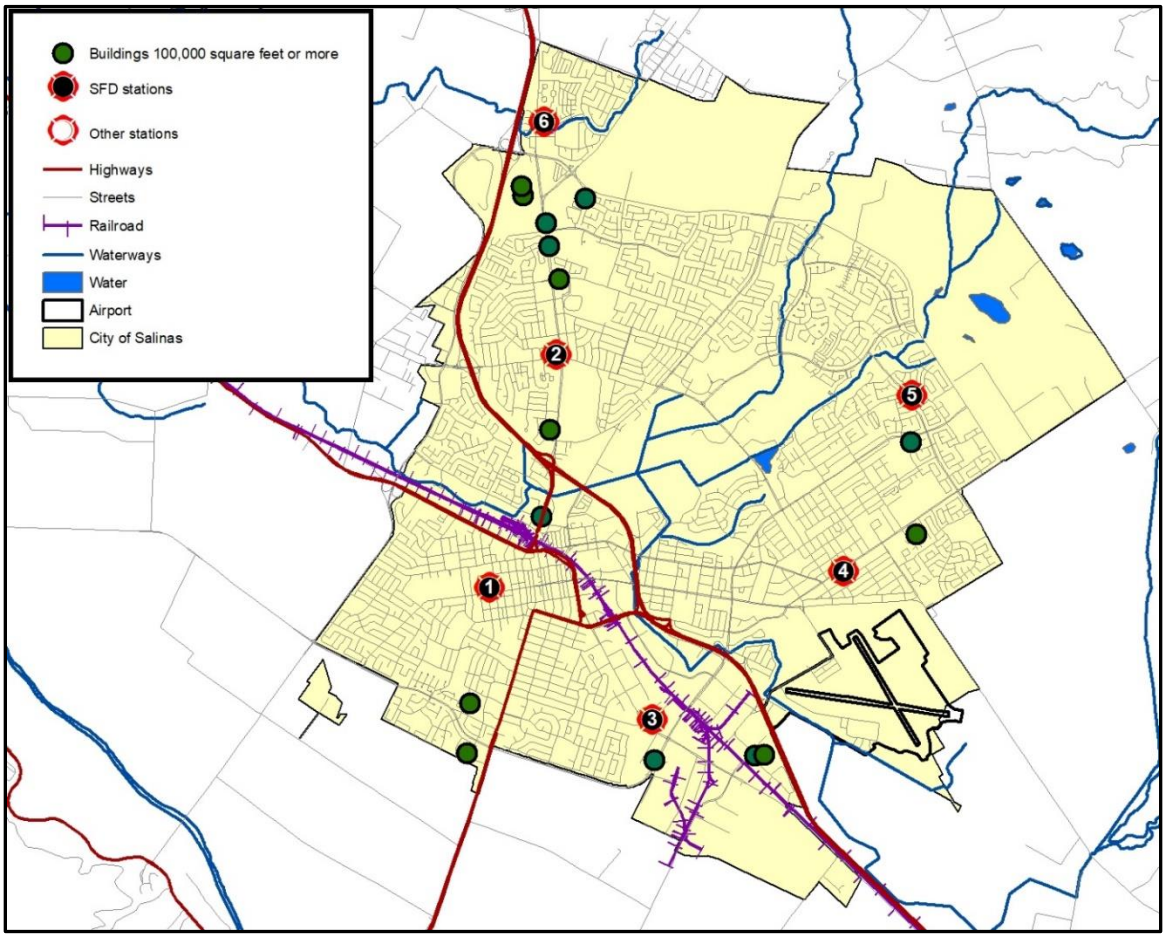
Figure 35: Buildings Five or Six Stories in Height



Large Square Footage Buildings

Large buildings, such as warehouses, malls, and large "box" stores, require greater volumes of water for firefighting and require more firefighters to advance hose lines long distances into the building. The following figure is based on data from ISO and shows the locations for buildings 100,000 square feet and larger.

Figure 36: Buildings 100,000 Square Feet and Larger



Comparison of Fire Risk in Other Communities

Using information provided by SFD, recent NFPA reports, and other sources, ESCI compared fire risk in Salinas with fire risk of communities of comparable population across the U.S. and in the Western Region. The information contained in this section is based on the latest data reported to the NFPA and other sources. As such, the information **does not reflect recommended rates or some defined fire protection standard,** and is provided for illustrative, benchmark purposes only.

For additional context, United States fire departments responded to an estimated 1,319,500 fires in 2017. These fires resulted in 3,400 civilian fire fatalities, 14,670 civilian fire injuries, and an estimated $23 billion in direct property loss (this figure includes a $10 billion loss in Northern California wildfires). There was a civilian fire death every 2 hours and 34 minutes, and a civilian fire injury every 36 minutes in 2017. Home fires caused 2,630, or 77 percent, of the civilian fire deaths.

Fire Loss

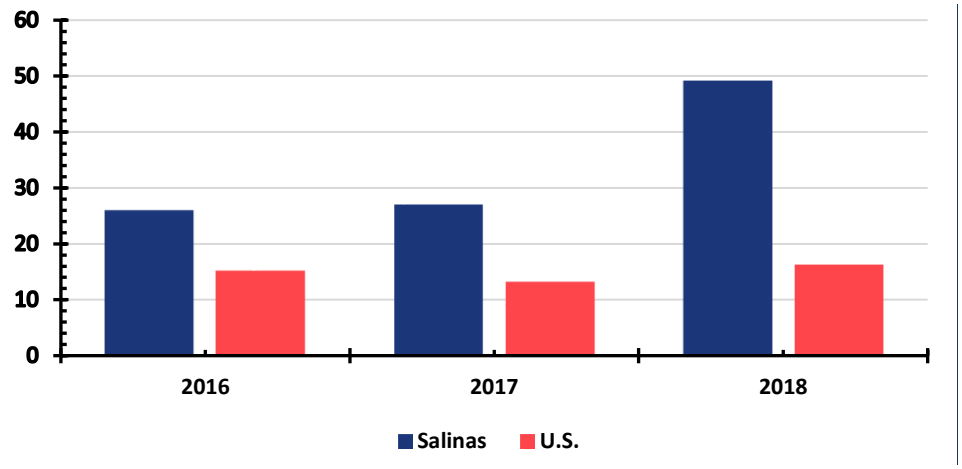
Figure 37: Fire Losses by Region and Size of Community, 2017

Community Size 150,000–199,999	Number of Fires Per Thousand Population	Property Loss Per Capita
Salinas	9.1	$51.01[19]
West	2.3	$46.90[20]
U.S.	3.1	$42.20

In smaller communities, even a single fire death can greatly affect the number of deaths per million population. Therefore, this large number should be considered in that context. Salinas far exceeds the national average in number of fires per thousand population.

Arson

Figure 38: Arson Rate per 100,000 Population



[19] *Determined from SFD reported "2018 Fire Loss Versus Saved."*
[20] *West and U.S. data retrieved from "Fire Loss in the United States" October 2018, NFA.*

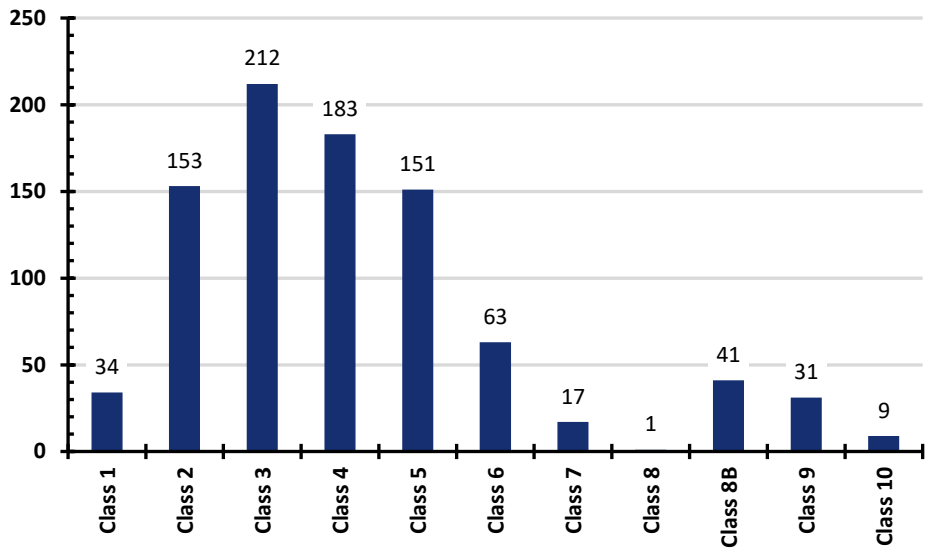
ISO Fire Protection Class Rating

The Insurance Services Office, Inc. (ISO©) is an independent company that collects and analyzes data about municipal fire suppression efforts in communities throughout the United States. According to their report, the ISO's Public Protection Classification program, or PPC, "is a proven and reliable predictor of future fire losses." All other factors being equal, commercial property insurance rates are expected to be lower in areas with lower (better) ISO PPC Class rating.

At the time of the most recent ISO survey, the ISO Fire Suppression Rating Schedule (FSRS) measured three primary elements of a community's fire protection system: **Emergency Communications** (max 10 points); **Fire Department** (max 50 points); and **Water Supply** (max 40 points), for maximum possible total of 100.0 points.[21] The ISO then assigns a grade using a scale of 1 to 10, with Class 1 representing the highest level of fire protection, and Class 10 is a fire suppression program that does not meet ISO's minimum criteria.

In 2014, the City of Salinas was assigned an ISO classification of Group 3/3X. Salinas is one of 212 communities out of 895 communities surveyed across the State to achieve a Class 3 rating and ranks in the third quartile of all communities surveyed, as shown in the following figure.

Figure 39: Comparison of ISO Class Ratings, California



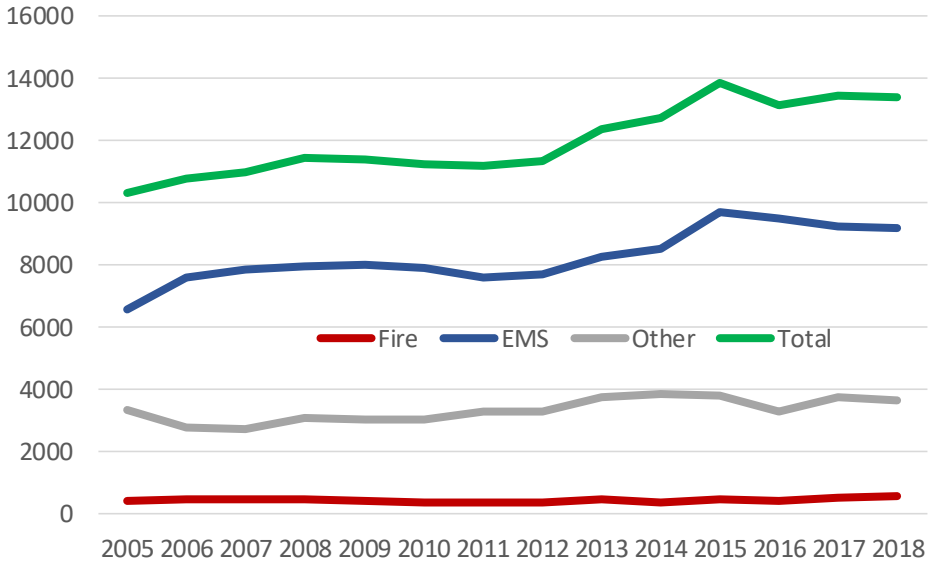
[21] *In 2012, ISO added a fifth category: community risk reduction (max 5.5 points), for maximum possible total of 105.5 points.*

HISTORIC SYSTEM RESPONSE WORKLOAD

Before a full response-time analysis is conducted, it is important to first examine the level of workload (service demand) that the fire department has experienced. Higher service demands can strain the resources of a department and can result in a negative effect on response-time performance.

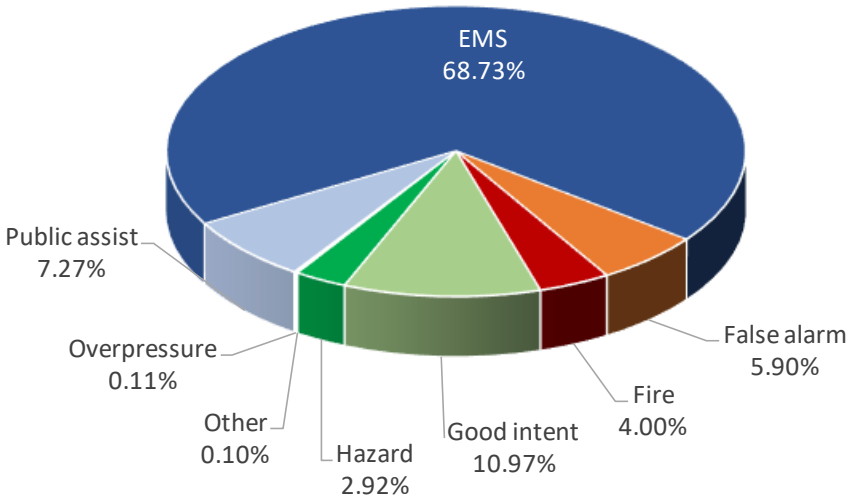
The following figure shows response workload for 14 years. Total response workload has increased 29.8 percent over the 14 years, primarily driven by the increase in emergency medical responses (40.3 percent increase since 2005). Salinas has a population as of 2018 of 161,784. The community utilization rate of fire department services was 82.7 incidents per 1,000 population. This is at the lower range for urban communities. Urban communities typically range between 70 and 120 incidents per 1,000 population.

Figure 40: Response Workload History, 2005–2018



Incident data used for the evaluation of current performance were all responses made during 2016 through 2018. During 2018, SFD responded to 13,379 incidents. The next figure shows responses by type of incident during 2018. Emergency medical type responses (EMS and motor vehicle accidents) are the most common at 68.73 percent of total responses.

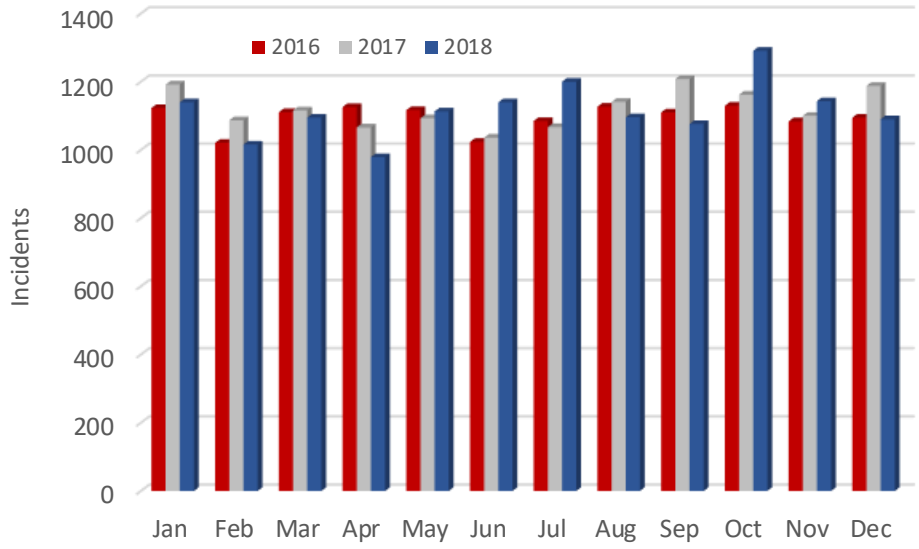
Figure 41: Responses by Type of Incident



Temporal Analysis

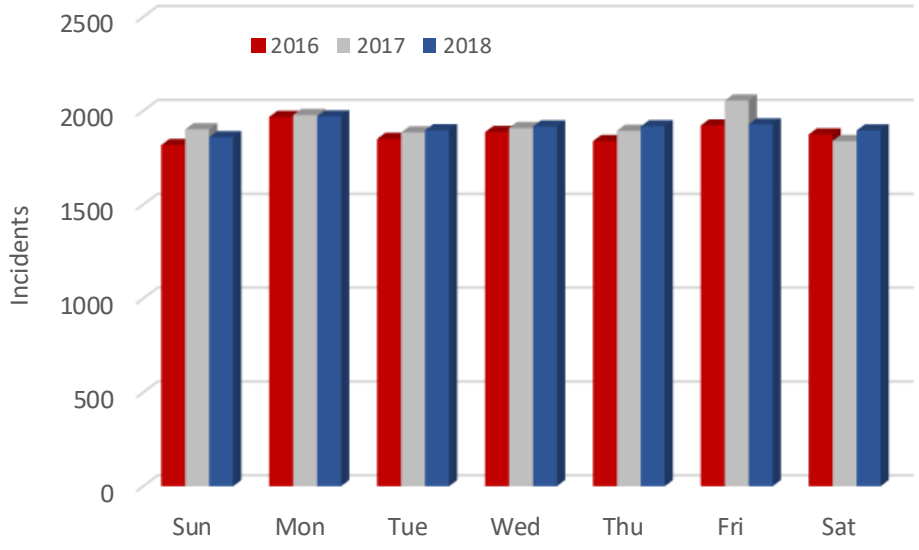
A review of incidents by time of occurrence also reveals when the greatest response demand is occurring. The following figures show how activity and demand change for SFD based on various measures of time. The following figure shows response activity during the study period by month. There is little variation by month.

Figure 42: Monthly Response Workload



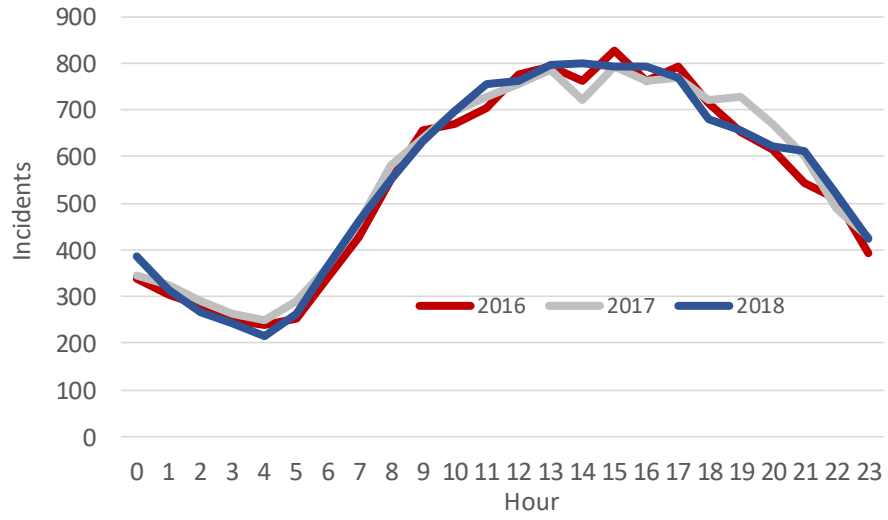
Next, response workload is compared by day of week. Again, there is little variation in response workload by weekday.

Figure 43: Daily Response Workload



The time analysis that always shows significant variation is response activity by hour of day. Response workload directly correlates with the activity of people, with workload increasing during daytime hours and decreasing during nighttime hours as shown in the following figure. Incident activity is at its highest between 9:00AM and 8:00PM.

Figure 44: Hourly Response Workload

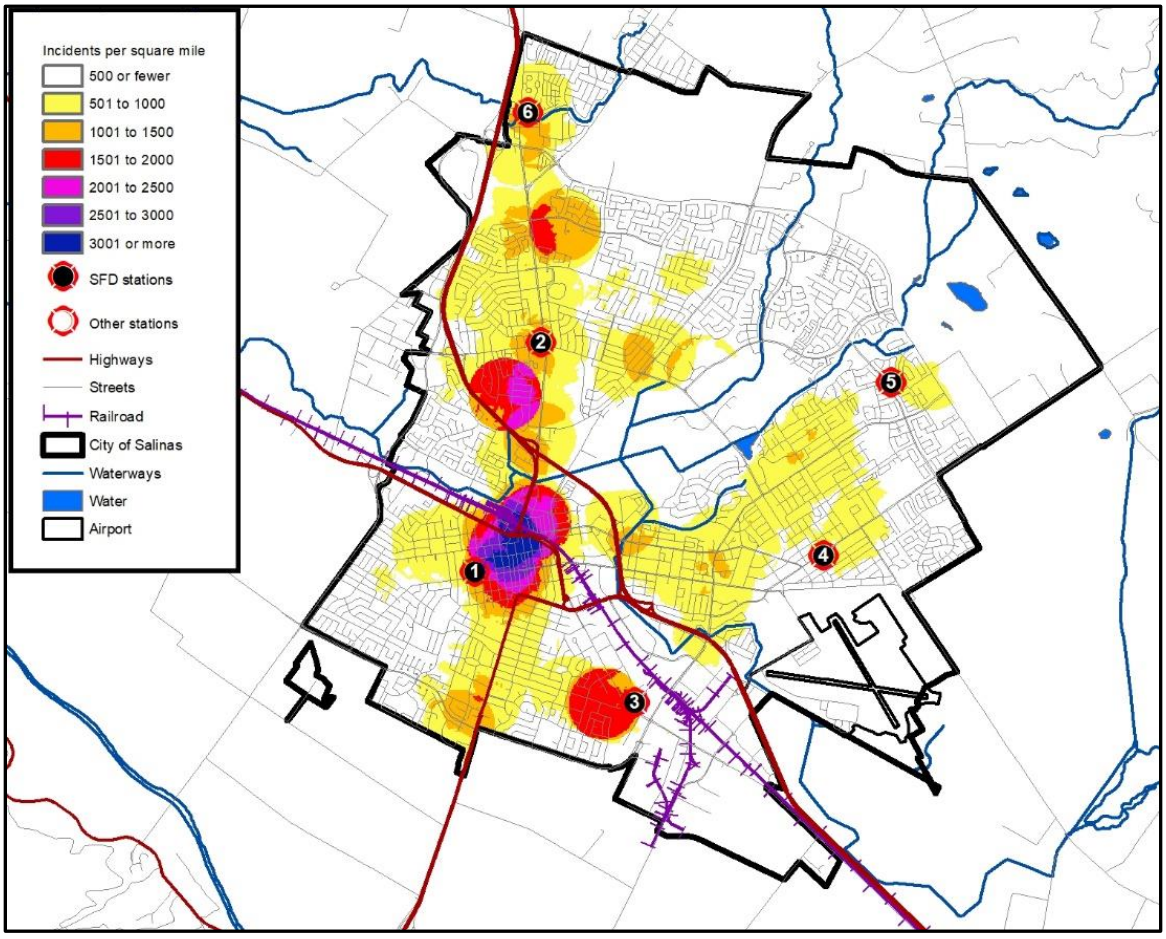


Spatial Analysis

In addition to the temporal analysis of the current service demand, it is useful to examine geographic distribution of service demand. The following figures indicate the distribution of emergency incidents in SFD during 2018.

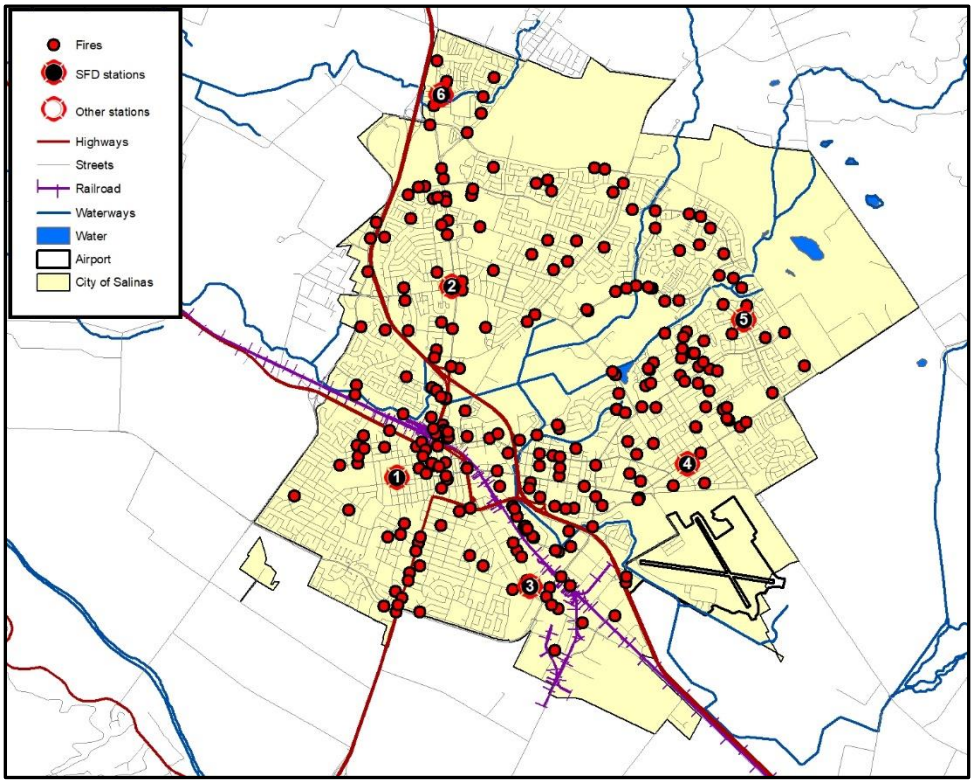
The first figure displays the number of incidents per square mile within various parts of the City. The greatest service demand is the area around Fire Station 1.

Figure 45: Service Demand Density, 2018



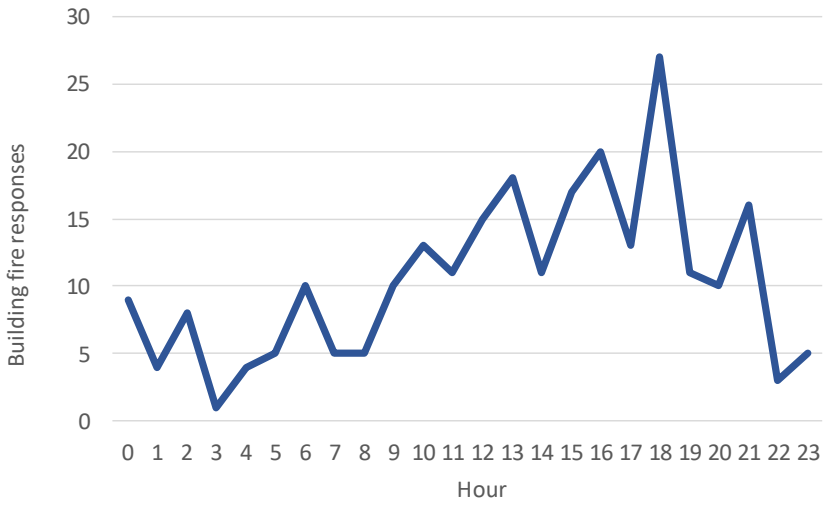
The preceding figure reflects all calls within the City served by SFD. Service demand can vary by area based on incident type. The following figure displays the location of fires occurring within the SFD service area during 2018. This illustrates that fire incidents are distributed throughout the City but mostly in the area of Fire Station 1.

Figure 46: Fires, 2018



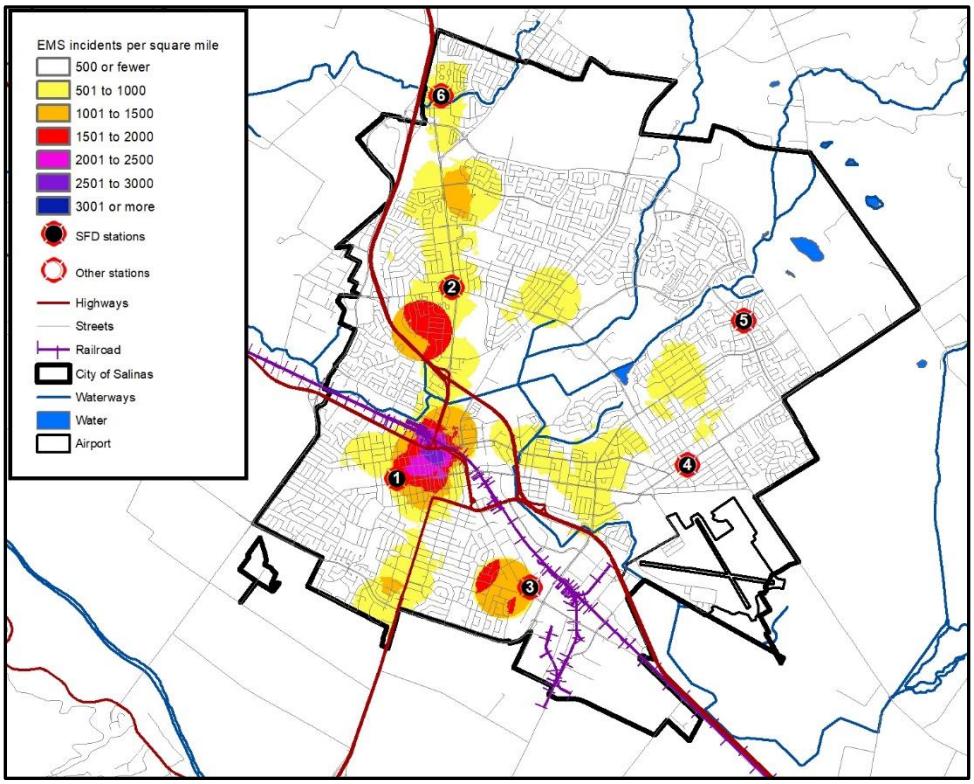
The following figure illustrates building fires by hour of day during 2018. Building fires occur more frequently during the late afternoon and evening hours.

Figure 47: Building Fires by Hour of Day



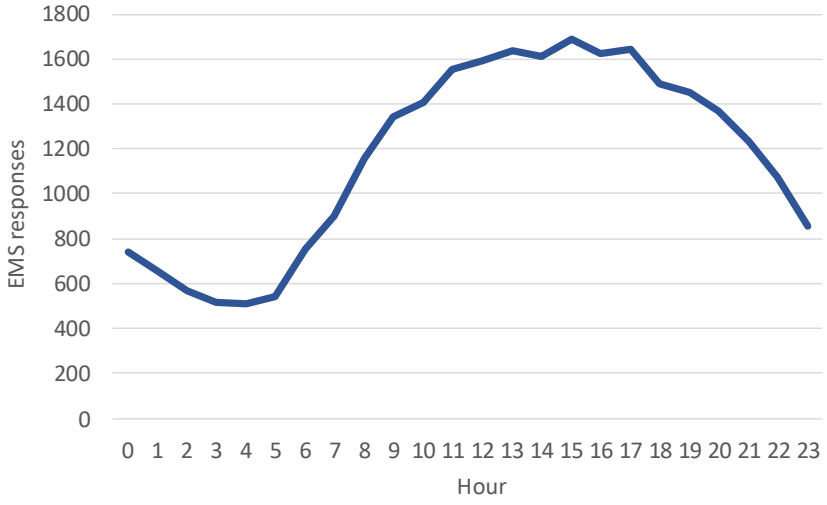
Similarly, emergency medical incidents also occur in greater concentration in areas of higher population density. The following figure displays emergency medical incidents per square mile during 2018. Incident concentration follows population density.

Figure 48: Emergency Medical Incidents per Square Mile, 2018



EMS response workload also varies by hour of day. The following figure illustrates EMS incidents by hour during 2018. It closely follows total workload by hour of day.

Figure 49: EMS Responses by Hour of Day



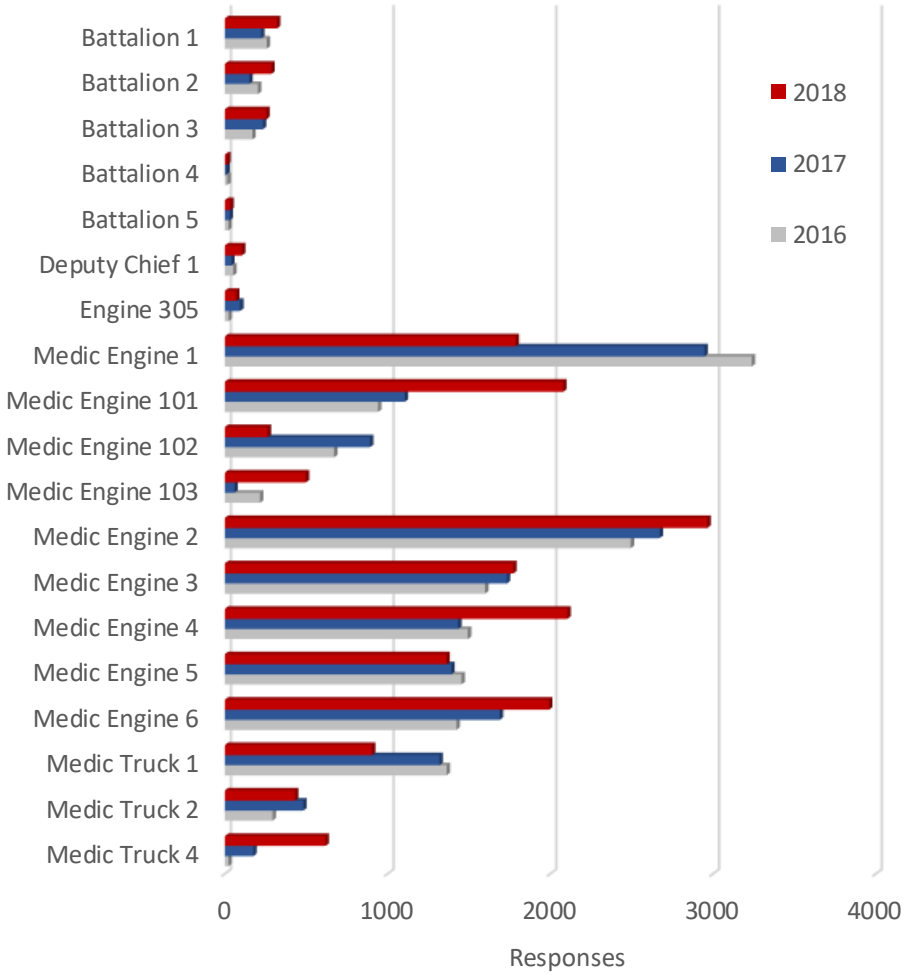
Unit Workload Analysis

A review of workload by response unit can reveal much about response-time performance. Although fire stations and response units may be distributed in a manner to provide quick response, that level of performance can only be obtained when the response unit is available in its primary service area. If a response unit is already on an incident and a concurrent request for service is received, a more distant response unit will need to be dispatched. This will increase response times.

Response Unit Workload

The workload on individual response units during the study period is shown in the following figure. Individual response unit workload can be greater than the workload in its home station area. Many incidents, such as structure fires, require more than one response unit. Medic Engine 1's responses for 2018 are understated. This first out fire engine was out of service for much of the year. Reserve Medic Engine 101 was used in its place. However, Medic Engine 101 was also used in place of other engines, as were reserve Medic Engines 102 and 103. No detailed records are available to quantify the number of times each reserve engine was used in place of first out engines.

Figure 50: Response Unit Workload



The amount of time a given unit is committed to an incident is also an important workload factor. The following figure illustrates the average time each unit was committed to an incident, from initial dispatch until it was available for another incident. Note that Battalions 1, 2, and 3 are the shift Battalion Chiefs. Battalions 4 and 5 are 40-hour personnel.

Figure 51: Average Time Committed to an Incident by Unit

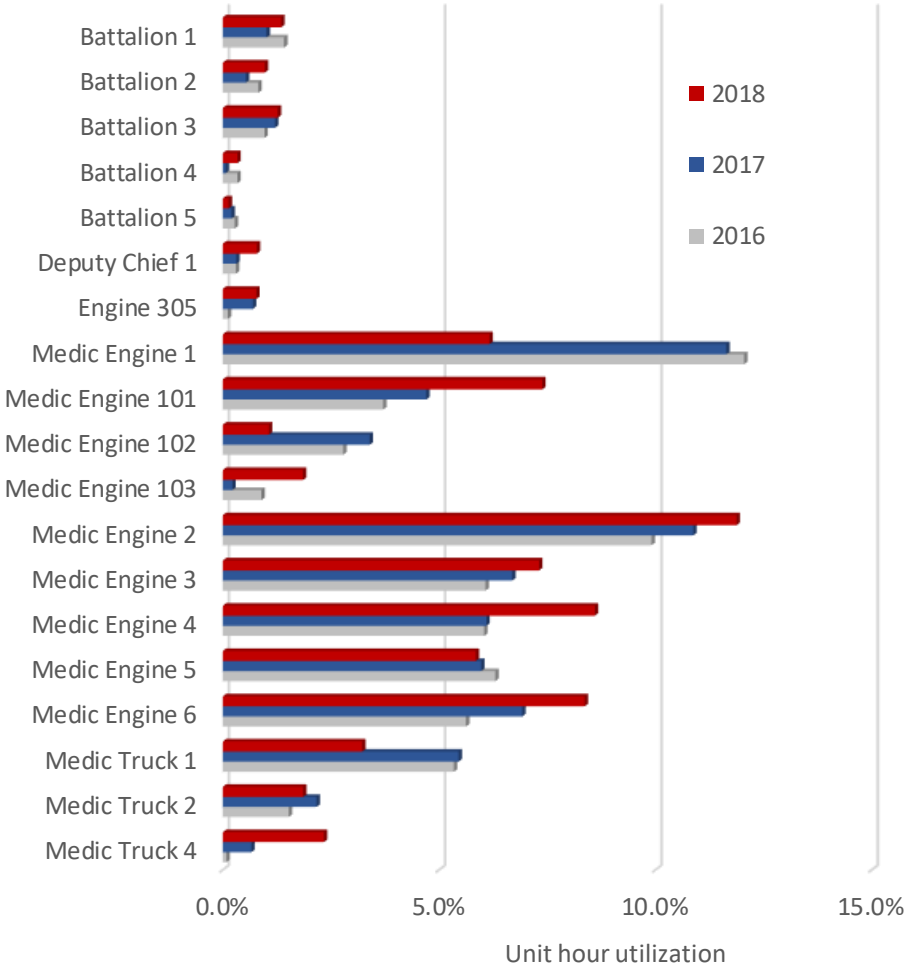
Unit	2016	2017	2018
Battalion 1	109.86	23.83	22.14
Battalion 2	65.68	18.66	17.85
Battalion 3	31.14	27.11	26.15
Battalion 4	29.88	36.96	125.81
Battalion 5	28.96	36.54	20.72
Deputy Chief 1	27.34	41.93	39.41
Engine 305	26.62	38.86	59.88
Medic Engine 1	22.77	20.76	18.12
Medic Engine 101	21.79	22.36	18.66
Medic Engine 102	21.76	19.98	21.27
Medic Engine 103	21.26	19.66	19.60
Medic Engine 2	21.24	21.39	21.05
Medic Engine 3	20.88	20.29	21.68
Medic Engine 4	20.77	22.33	21.47
Medic Engine 5	20.71	22.56	22.56
Medic Engine 6	20.59	21.53	22.06
Medic Truck 1	19.96	21.71	18.74
Medic Truck 2	19.74	23.62	22.64
Medic Truck 4	19.56	19.78	19.84

Unit-hour utilization (UHU) is an important workload indicator. It is calculated by dividing the total time a unit is committed to all incidents during a year divided by the total time in a year. Expressed as a percentage, it describes the amount of time a unit is not available for response because it is already committed to an incident. The larger the percentage, the greater a unit's utilization and the less available it is for assignment to an incident.

UHU is an important statistic to monitor for those fire agencies using percentile-based performance standards, as does SFD. In SFD's case, where performance is measured at the 90th percentile, a response unit with greater than 10 percent utilization will not be able to provide on-time response to its 90 percent target even if response is its only activity.

Engine 2 already exceeds 10 percent UHU. Engines 4 and 6 are approaching that level of workload. Engine 1, based on previous years, also exceeds 10 percent UHU.

Figure 52: Unit-Hour Utilization



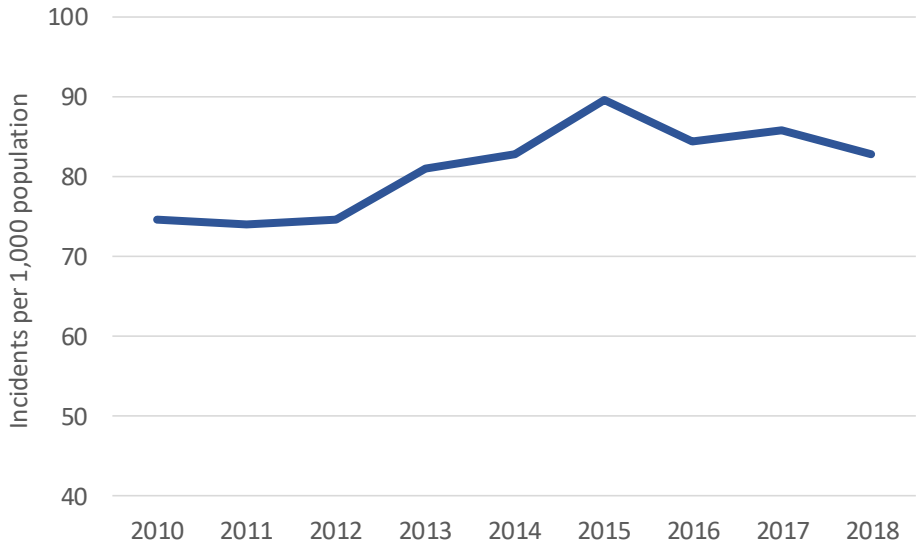
Population and Incident Workload Projection

The most significant predictor of future incident workload is population; 100 percent of requests for emergency medical service are people-driven. The National Fire Protection Association reports that approximately 70 percent of all fires are the result of people either doing something they should not have (i.e., misuse of ignition source) or not doing something they should have (i.e., failure to maintain equipment). It is reasonable to use forecast population growth to predict future fire department response workload.

A population forecast developed by the Association of Monterey Bay Area Governments was provided by the City. Population growth for Salinas is forecast to average 0.06 percent per year through 2040. Using this estimate, the city's population could reach 184,599 by 2040.

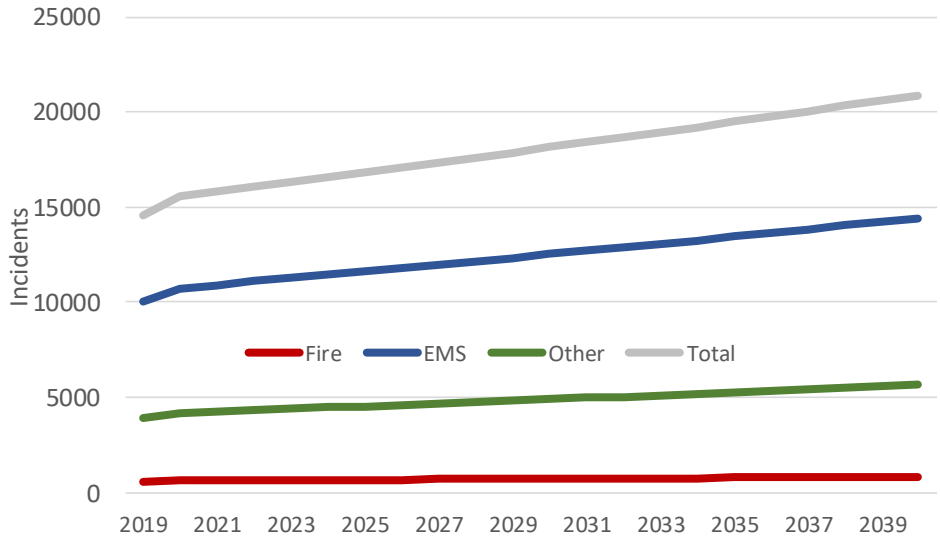
The current fire department services' utilization rate is 82.7 incidents per 1,000 population. This is comparable to similar sized communities. The total utilization rate has increased 1.07 percent per year over the past 10 years. The following figure illustrates that growth.

Figure 53: Utilization Growth



If the utilization growth rate of the past 10 years continues, the total utilization rate could reach 113 incidents per 1,000 population by 2040. The increased utilization rate, plus expected population growth, will increase the SFD's workload as shown in the following figure. Response workload could reach over 20,800 incidents per year by 2040 driven primarily by requests for emergency medical services.

Figure 54: Response Forecast, 2019–2040



CRITICAL TASKING AND ALARM ASSIGNMENTS

The SFD service area is a highly populated urban environment and, as such, contains an elevated number, density, and distribution of risk. Further, its suburban and undeveloped areas present unique challenges such as wildland fires. As the actual or potential risk increases, the need for higher numbers of personnel and apparatus also increases. With each type of incident and corresponding risk, specific critical tasks need to be accomplished, and certain numbers and types of apparatus should be dispatched.

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

The number and types of tasks needing simultaneous action will dictate the minimum number of firefighters required to combat different types of fires. In the absence of adequate personnel to perform concurrent action, the command officer must prioritize the tasks and complete some in chronological order, rather than concurrently. These tasks include the following:

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

Critical task analyses also apply to non-fire-type emergencies including medical, technical rescue, and hazardous materials emergencies. Numerous simultaneous tasks must be completed to effectively control an emergency. The department's ability to muster needed numbers of trained personnel quickly enough to make a difference is critical to successful incident outcomes.

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

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

Figure 55: Staffing Recommendations Based on Risk

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

The SFD has developed the following Critical Task Analysis using the risk matrices included in the Critical Task Section for various incident types. Further, it has defined, based on current unit staffing levels, the number and type of apparatus needed to deliver sufficient numbers of personnel to meet the critical tasking identified. ESCI's review of the Critical Task Analysis concludes that all are generally in keeping with industry standards and provide the minimum number of personnel needed for effective incident operations.

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

Critical Tasking

Critical tasks are those activities that must be conducted early on and in a timely manner by firefighters at emergency incidents in order to control the situation, to stop loss, and to perform necessary tasks required for a medical emergency. SFD is responsible for assuring that responding companies are capable of performing all of the described tasks in a prompt, efficient, and safe manner. These are the minimum number of personnel needed by incident type. More personnel will be needed for incidents of increased complexity or size.

Figure 56: Low-Rise Structure Fire

Task	Number of Personnel
Command/Safety	1
Pump Operations	1
Attack Line	2
Search and Rescue	2
Ventilation	2
RIC	3
Backup Line	3
Total	**14**

Figure 57: High-Rise Structure Fire (75+ Feet in Height)

Task	Number of Personnel
Command/Safety	3
Pump Operations	2
Attack Line	4
Search and Rescue	4
Ventilation	4
RIC	4
Backup Line	4
Total	**25**

Figure 58: Moderate-Risk Commercial Structure Fire

Task	Number of Personnel
Command/Safety	2
Pump Operations	2
Attack Line	4
Search and Rescue	4
Ventilation	4
RIC	4
Backup Line	4
Total	**24**

Figure 59: High-Risk Commercial Structure Fire

Task	Number of Personnel
Command/Safety	3
Pump Operations	2
Attack Line	4
Search and Rescue	4
Ventilation	4
RIC	4
Backup Line	4
Total	**25**

Figure 60: Wildland Fire—Low Risk

Task	Number of Personnel
Command/Safety	1
Attack Line	2
Total	**3**

Figure 61: Wildland Fire—High Risk

Task	Number of Personnel
Command/Safety	1
Pump Operations/Lookout	3
Attack Line	2
Structure Protection	4
Water Supply	1
Total	**11**

Figure 62: Aircraft Emergency

Task	Number of Personnel
Command/Safety	1
Aircraft Fire Suppression	2
Pump Operations	2
Attack Line	2
Backup Line	2
Rescue	2
Emergency Medical Care	2
Water Supply	1
Total	**14**

Figure 63: Hazardous Materials—Low Risk

Task	Number of Personnel
Command	1
Safety	1
Decontamination	3
Research/Support	1
Entry Team and Backup Team	6
Total	**12**

Figure 64: Hazardous Materials—High Risk

Task	Number of Personnel
Command	1
Safety	1
Decontamination	3
Research Support	2
Team Leader, Safety, Entry Team, and Backup Team	6
Total	**13**

Figure 65: Emergency Medical Aid (Life Threatening)

Task	Number of Personnel
Patient Management	1
Patient Care	1
Documentation	1
Total	**3**

Figure 66: Major Medical Response (10+ Patients)

Task	Number of Personnel
Incident Command/Safety	1
Triage	1
Treatment Manager	1
Patient Care	10
Transportation Manager	1
Total	**14**

Figure 67: Motor Vehicle Accident (Non-Trapped)

Task	Number of Personnel
Scene Management/Documentation	1
Patient Care/Extrication	2
Total	**3**

Figure 68: Motor Vehicle Accident (Trapped)

Task	Number of Personnel
Command/Safety	1
Scene Management	1
Patient Care	2
Extrication/Vehicle Stabilization	6
Pump Operator/Suppression Line	2
Total	**12**

Figure 69: Technical Rescue—Water

Task	Number of Personnel
Command/Safety	1
Rescue Team	3
Backup Team	2
Patient Care	2
Rope Tender	2
Upstream Spotter	2
Downstream Safety	2
Total: SFD is Awareness Level. Operations requires Mutual aid.	**14**

Figure 70: Technical Rescue—Rope

Task	Number of Personnel
Command/Safety	1
Rescue Team	2
Backup/Support Team	2
Patient Care	2
Rigger	1
Attendant	1
Ground Support	4
Edge Person	1
Total	**14**

Figure 71: Technical Rescue—Confined Space

Task	Number of Personnel
Command/Safety	1
Rescue Team	2
Backup/Support Team	2
Patient Care	2
Attendant	1
Rigger	1
Ground Support	4
Total: SFD is Awareness Level. Operations requires Mutual aid	**13**

Alarm Assignments

To ensure sufficient personnel and apparatus are dispatched to an emergency event, the following first alarm response assignments have been established. "Total Staffing Needed" is the number identified in the previous Critical Tasking Analysis. The number of personnel and apparatus required to mitigate an active and complex working incident will require additional resources above and beyond the numbers listed next. With currently available resources, SFD is able to staff a number of incident types in accordance with its Critical Tasking Analysis.

Figure 72: Low-Rise Structure Fire

Unit Type	Number of Units	Total Personnel
Engine	4	12
Truck	1	4
Air Supply	0	0
Battalion Chief	1	1
Total Staffing Provided		**17**
Total Staffing Needed		**17**

Figure 73: High-Rise Structure Fire (75+ Feet)

Unit Type	Number of Units	Total Personnel
Engine	6	18
Truck	2	6
Air Supply	0	0
Battalion Chief	1	1
Total Staffing Provided		**25**
Total Staffing Needed		**25**

Figure 74: Moderate-Risk Commercial Structure Fire

Unit Type	Number of Units	Total Personnel
Engine	4	12
Truck	2	6
Air Supply	0	0
Battalion Chief	1	1
Total Staffing Provided		**20**
Total Staffing Needed		**23**

Figure 75: High-Risk Commercial Structure Fire

Unit Type	Number of Units	Total Personnel
Engine	6	18
Truck	2	6
Air Supply	0	0
Battalion Chief	1	1
Total Staffing Provided		**25**
Total Staffing Needed		**24**

Figure 76: Wildland Fire—Low Risk

Unit Type	Number of Units	Total Personnel
Engine	1	3
Battalion Chief	0	0
Total Staffing Provided		**3**
Total Staffing Needed		**3**

Figure 77: Wildland Fire—High Risk

Unit Type	Number of Units	Total Personnel
Engine	2	6
Brush Engine Type 3	1	3
Battalion Chief	1	1
Total Staffing Provided		**10**
Total Staffing Needed		**11**

Figure 78: Aircraft Emergency

Unit Type	Number of Units	Total Personnel
Engine	3	9
Truck	1	3
ARRF	1	3
Battalion Chief	1	1
Total Staffing Provided		**16**
Total Staffing Needed		**14**

Figure 79: Hazardous Materials—Low or High Risk

Unit Type	Number of Units	Total Personnel
Engine with HM 1 Cross Staffed	4	12
Truck	1	3
Battalion Chief	1	1
Hazardous Materials Unit	CS	CS
Total Staffing Provided		**16**
Total Staffing Needed		**22**

Figure 80: Emergency Medical Service (Life Threatening)

Unit Type	Number of Units	Total Personnel
Engine or Truck	1	3
Total Staffing Provided		**3**
Total Staffing Needed		**3**

Figure 81: Major Medical Response (10+ Patients)

Unit Type	Number of Units	Total Personnel
Engine/Paramedic	3	9
Battalion Chief	1	1
Truck	1	3
Total Staffing Provided		**13**
Total Staffing Needed		**14**

Figure 82: Motor Vehicle Accident (Non-Trapped)

Unit Type	Number of Units	Total Personnel
Engine or Truck	1	3
Battalion Chief	0	0
Total Staffing Provided		**3**
Total Staffing Needed		**3**

Figure 83: Motor Vehicle Accident (Trapped)

Unit Type	Number of Units	Total Personnel
Engine	2	6
Truck	1	3
Battalion Chief	1	1
Total Staffing Provided		**10**
Total Staffing Needed		**11**

Figure 84: Technical Rescue—Water

Unit Type	Number of Units	Total Personnel
Engine	2	6
Truck	2	6
Battalion Chief	1	1
Mutual Aid, if Warranted	2	3
Total Staffing Provided		**16**
Total Staffing Needed		**14**

Figure 85: Technical Rescue—Rope

Unit Type	Number of Units	Total Personnel
Engine	2	6
Truck	1	3
Battalion Chief	1	1
Total Staffing Provided		**10**
Total Staffing Needed		**14**

Figure 86: Technical Rescue—Confined Space

Unit Type	Number of Units	Total Personnel
Engine	2	6
Truck	1	3
Battalion Chief	1	1
Total Staffing Provided		**10**
Total Staffing Needed		**14**

Figure 87: Technical Rescue—Trench

Unit Type	Number of Units	Total Personnel
Engine	2	6
Truck	1	3
Battalion Chief	1	1
Total Staffing Provided		**10**
Total Staffing Needed		**14**

REVIEW OF HISTORIC SYSTEM PERFORMANCE

Incident data for the period between January 1, 2016, and December 31, 2018, were evaluated in detail to determine SFD's current performance. Data were obtained from SFD incident reports and the dispatch center's computer-aided dispatch system.

Only priority incidents occurring within the SFD service area are included in the analysis. Priority incidents involve emergencies to which the fire department initiated a "code 3" (using warning lights and sirens) response (10,857 incidents during 2016; 11,034 during 2017; and 10,955 incidents during 2018). Non-emergency public assistance requests were excluded. Performance is reported based on the initial type of incident as dispatched. Three categories are used to report performance:

- Fire—Responses to a report of fire
- Emergency medical—All emergency medical incidents
- Other—Any other incident to which the fire department responded with lights and sirens

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

The total incident response-time continuum consists of several steps, beginning with initiation of the incident and concluding with the appropriate mitigation of the incident. The time required for each of the components varies. The policies and practices of the fire department directly influence some of the steps.

SFD's response performance was compared to the national consensus standard for response performance found in the National Fire Protection Association Standard 1710—Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments, 2016 Edition. The dispatch center's performance was compared to the SFD's goals as well as standards found in the National Fire Protection Association Standard 1221—Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems, 2016 Edition.

The following figure summarizes the performance standards found in the National Fire Protection Association (NFPA) documents.

Figure 88: Summary of SFD Performance Goals

Incident Interval	Performance Goal
9-1-1 call answer time (time from first ring to answer)	Within 15 seconds, 95% of the time
Call process time (time from acceptance at the dispatch center until notification of response units)	Within 64 seconds, 90% of the time
Turnout time (time from notification of response personnel until the initiation of movement towards the incident) Fire incidents Emergency medical incidents Other emergency incidents	 Within 80 seconds, 90% of the time Within 60 seconds, 90% of the time Within 80 seconds, 90% of the time
First unit travel time (time from initiation of response until arrival of the first unit at the incident)	Within 4 minutes, 90% of the time
First unit response time (time from dispatch until arrival of the first unit at the incident) Fire incidents Emergency medical incidents Other emergency incidents	 Within 5 minutes, 20 seconds, 90% of the time Within 5 minutes, 90% of the time Within 5 minutes, 20 seconds, 90% of the time
Full effective response force travel time (Time from dispatch until all units initially dispatched arrive at the incident. Response resources needed for a moderate risk building fire are used for the evaluation.)	Within 9 minutes, 20 seconds, 90% of the time

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

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

What follows is a detailed description and review of each phase of the response-time continuum. All phases will be compared to SFD's performance goals.

Detection

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

Call Processing

Most emergency incidents are reported by telephone to the 9-1-1 center. Call takers must quickly elicit accurate information about the nature and location of the incident from persons who are apt to be excited. A citizen well trained in how to report emergencies can reduce the time required for this phase. The dispatcher must identify the correct units based on incident type and location, dispatch them to the emergency, and continue to update information about the emergency while the units respond. This phase begins when the 9-1-1 call is answered at the primary public safety answer point (PSAP) and ends when response personnel are notified of the emergency. This phase, which has two parts, is labeled "call processing time."

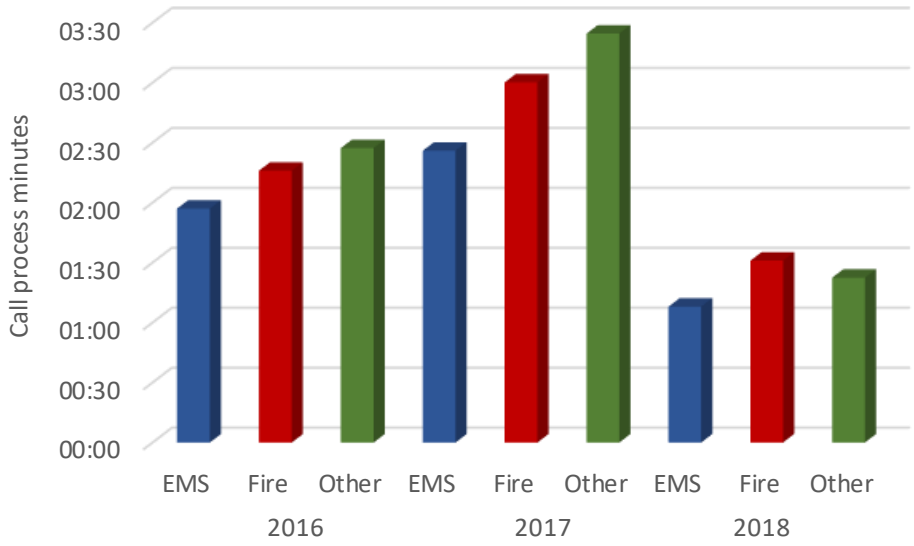
Monterey County Emergency Communications Department (ECD) is the PSAP and dispatch service provider for the City of Salinas. It answers the call, processes the information, and dispatches SFD response units.

National Fire Protection Association Standard 1221 recommends that 9-1-1 calls be answered within 15 seconds, 95 percent of the time (within 40 seconds, 99 percent of the time). ESCI was unable to measure call answer time due to failure of ECD to provide the requested data.

The second part of call processing time, dispatch time, begins when the call is received at the dispatch center (ECD) and ends when response units are notified of the incident. National standards prescribe that this phase should occur within 64 seconds, 90 percent of the time.

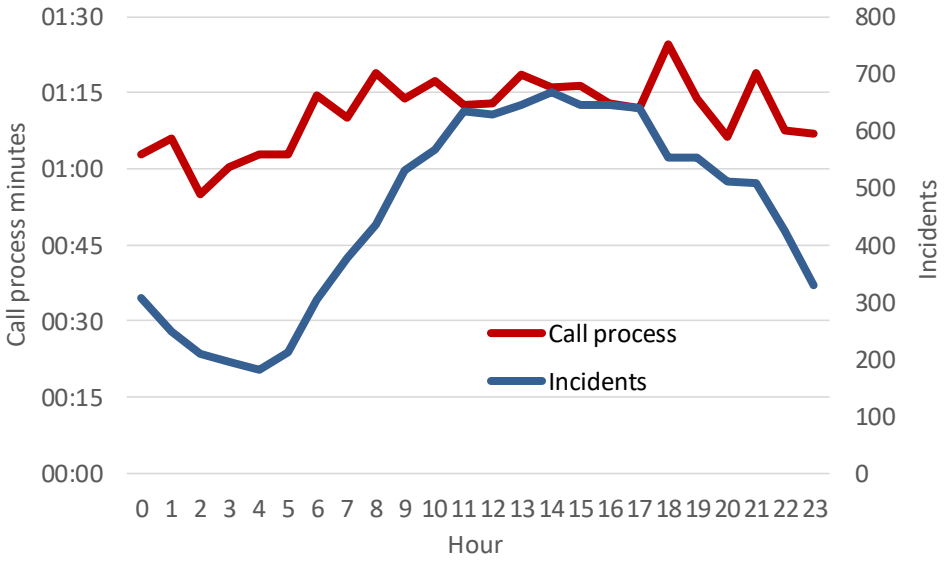
The following figure illustrates performance by ECD from the time it receives the call until it notifies response units. Overall performance during 2018 was within 1 minute 13 seconds, 90 percent of the time, a significant improvement over the prior two years.

Figure 89: ECD Dispatch Time Performance



Workload at the dispatch center can influence call processing performance. The following figure illustrates performance at different times of the day compared to the fire department's response workload. Given that call process time appears to increase with higher call volume and decrease during periods of lower call volume, it appears that workload may be impacting dispatch center performance.

Figure 90: Call Processing Time by Hour of Day, 2018

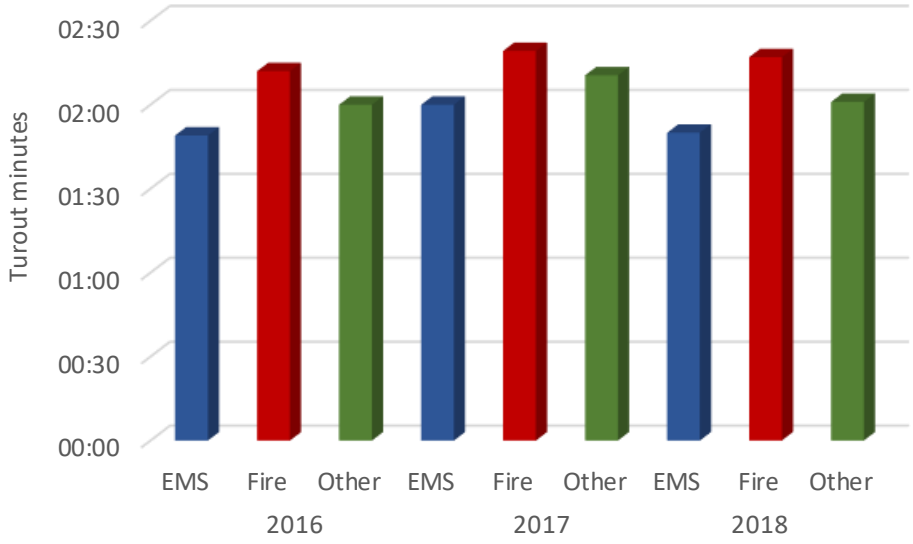


Turnout Time

Turnout time is a response phase controllable by the fire department. This phase begins at notification of an emergency in progress by the dispatch center and ends when personnel and apparatus begin movement towards the incident location. Personnel must don appropriate equipment, assemble on the response vehicle, and begin travel to the incident. Good training and proper fire station design can minimize the time required for this step.

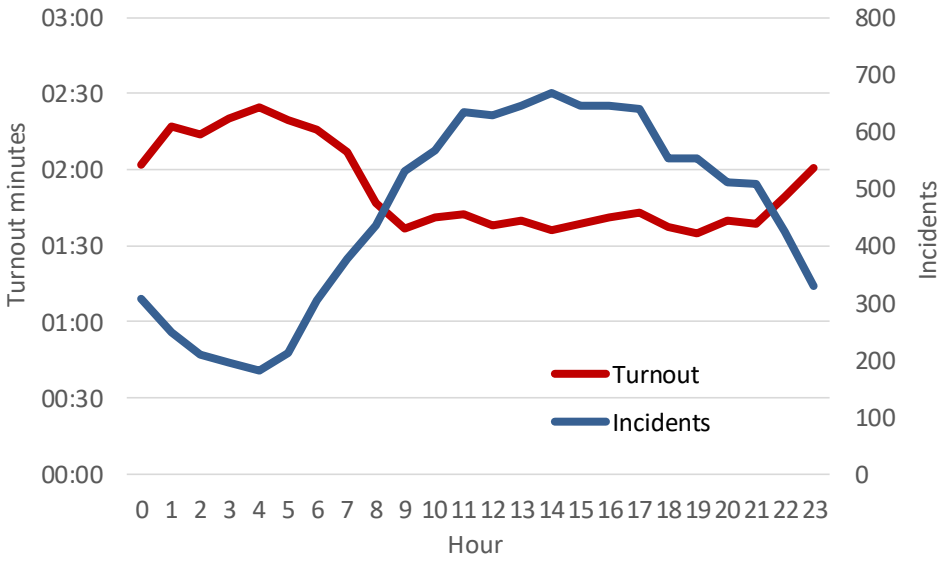
The performance goal for turnout time is within 80 seconds, 90 percent of the time for fire incidents; within 60 seconds, 90 percent of the time for emergency medical incidents; and within 80 seconds, 90 percent of the time for all other priority incidents. The following figure lists turnout time for all incidents as well as specific incident types. Turnout times for all incident types exceed standards. During 2018, turnout time for fire incidents was within 2 minutes, 17 seconds, 90 percent of the time; within 1 minute, 50 seconds, 90 percent of the time for EMS incidents; and within 2 minutes, 1 second, 90 percent of the time for other incidents.

Figure 91: Turnout Time Performance



Turnout time can vary by hour of day. In this case, turnout time varied by 49 seconds between the early morning hours and daytime hours.

Figure 92: Turnout Time by Hour of Day, 2017



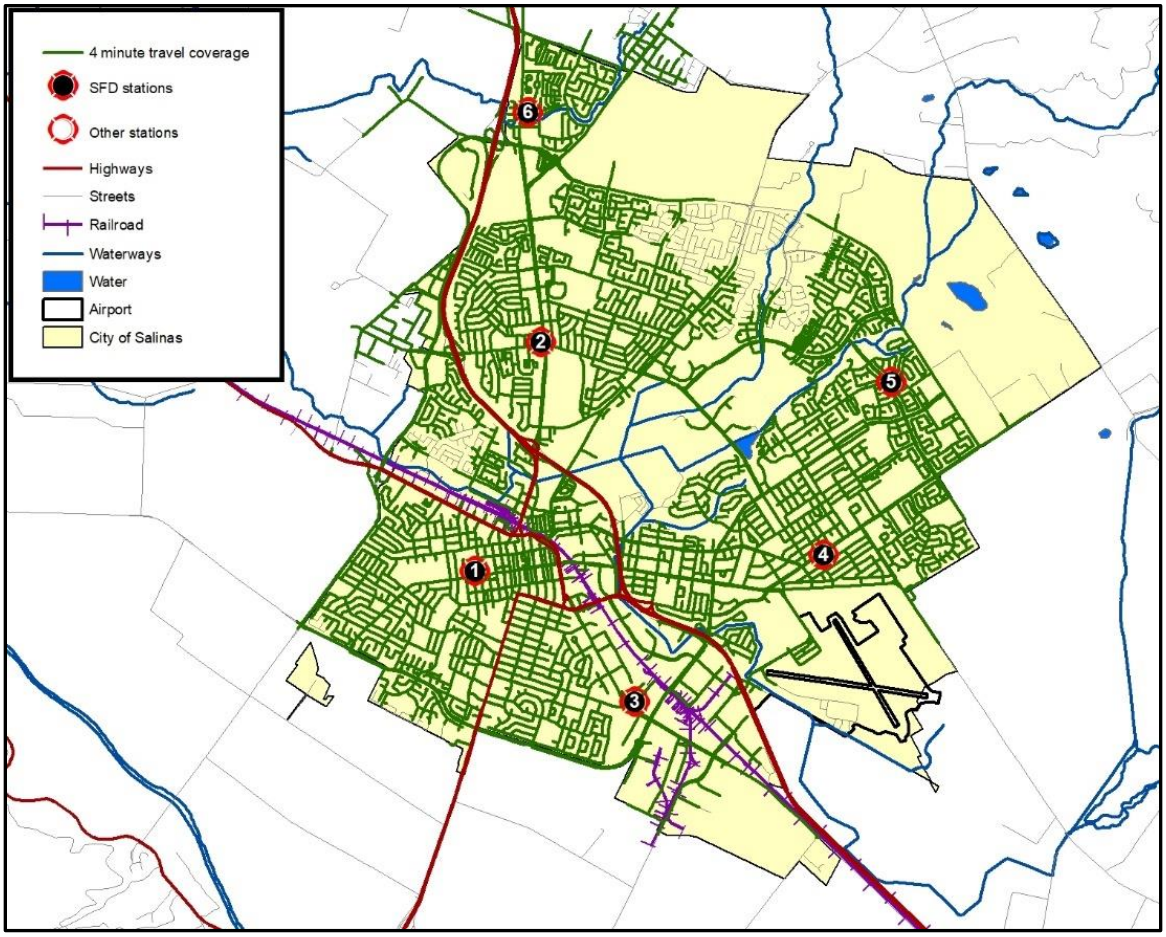
Distribution and Initial Arriving Unit Travel Time

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

SFD units are selected for response to an incident based on which unit is calculated to be closest to the incident by the computer aided dispatch system.

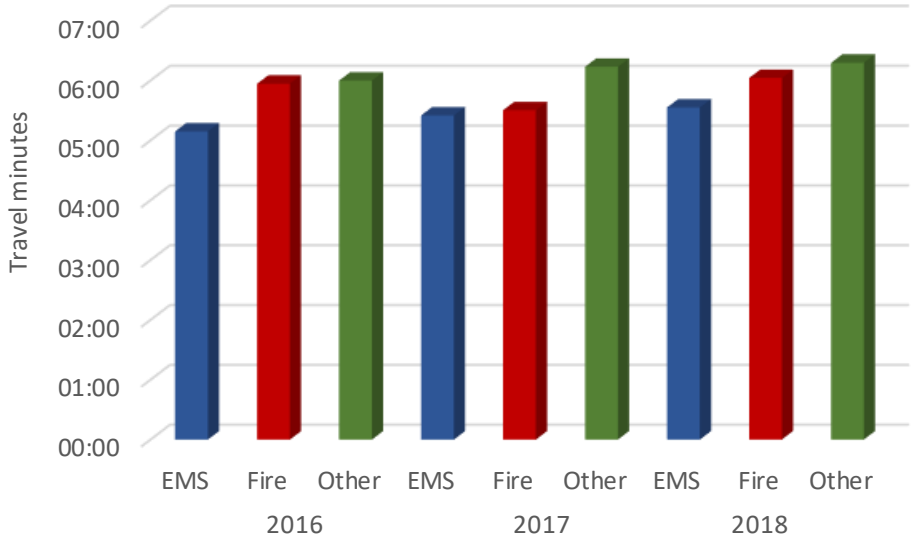
The following figure illustrates the street sections that can be reached from all SFD fire stations in four minutes of travel time. It is based on posted road speeds modified to account for turning, stops, and acceleration. Only small portions of Salinas are beyond four travel minutes of a fire station. No adjacent agency fire stations provide coverage within Salinas in four minutes or less.

Figure 93: SFD Initial Unit Travel Time Capability



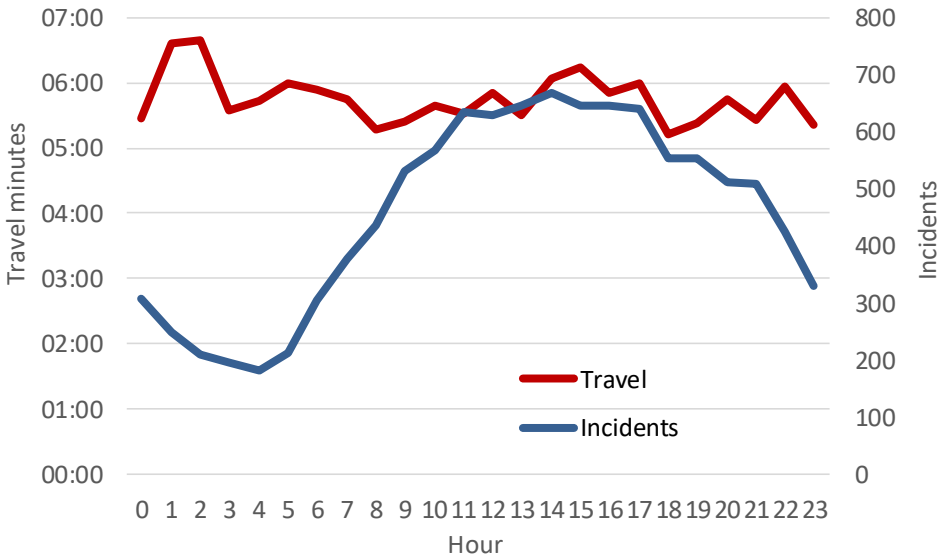
The following figure lists travel time for all priority incidents as well as specific incident types. SFD's travel times exceed its goal in all incident types. Travel time for all incidents during 2018 was within 5 minutes, 44 seconds, 90 percent of the time. Travel times are trending upward over the three-year study period.

Figure 94: Travel-Time Performance—First Arriving Unit



Travel time can vary considerably by time of day. Heavy traffic at morning and evening rush hours can slow fire department response. Concurrent incidents can also increase travel time because units from more distant stations would need to respond. Traffic does not appear to be a factor here as daytime travel was generally similar to nighttime travel.

Figure 95: Overall Travel Time and Incidents by Hour of Day—First Arriving Unit, 2018



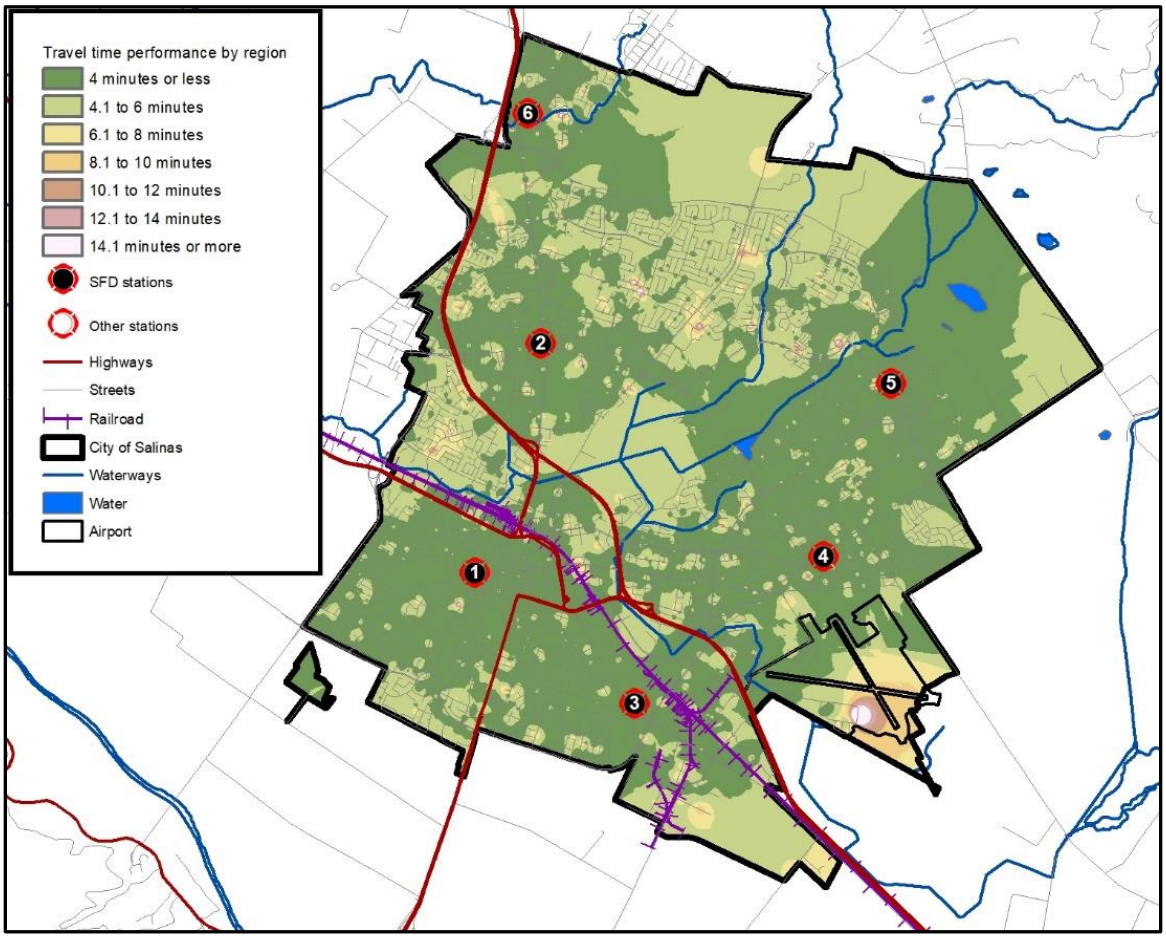
In order to provide on-time response, a response unit must be within four travel minutes of the incident. Incidents were reviewed to identify how many occurred within four travel minutes of a fire station. During 2017, 10,045 of the 10,612 incidents inside the city (94.6 percent) occurred within four travel minutes of a fire station.

Travel-Time Performance by Region

Travel-time performance by region is variable and influenced by a number of factors including individual station area workload and the number of times a station must cover another station's area. Additional factors include the size of the station area and the street system serving it. More highly connected, grid-patterned, street systems contribute to faster response times than do areas with meandering streets with numerous dead ends.

The following figure evaluates travel-time performance by sub-area using inverse distance weighting analysis (IDW). This process uses travel time for known points (actual incidents) to predict travel time for the area surrounding the actual incident. Better performance is generally noted near fire stations with progressively longer response times for those incidents more distant from the stations.

Figure 96: Travel-Time Performance by Region

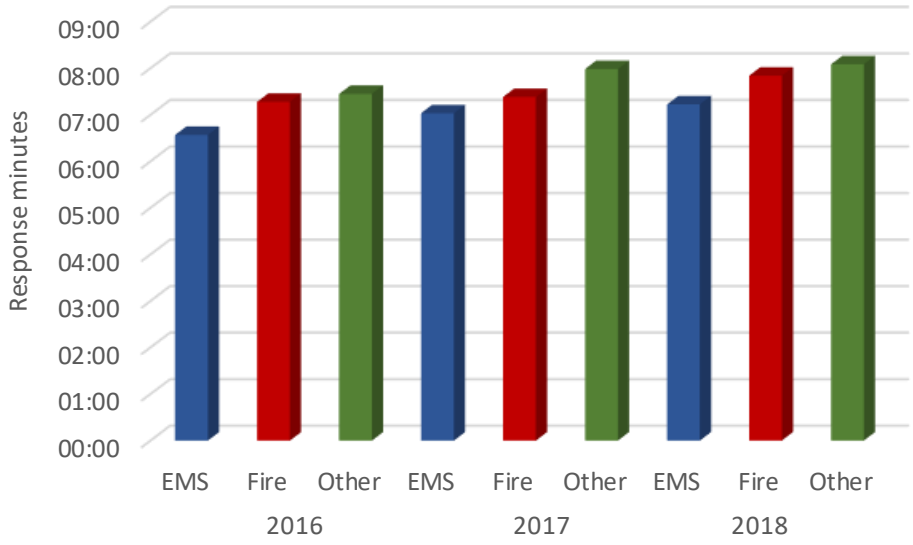


First Arriving Unit Response Time

Response time is defined as that period between the notification of response personnel by the dispatch center that an emergency is in progress until arrival of the first fire department response unit at the emergency. When turnout time and travel time are combined, the performance goal for response time is within 5 minutes, 20 seconds, 90 percent of the time for fire incidents and within 5 minutes, 90 percent of the time for emergency medical incidents, and within 5 minutes, 20 seconds, 90 percent of the time for all other priority incidents.

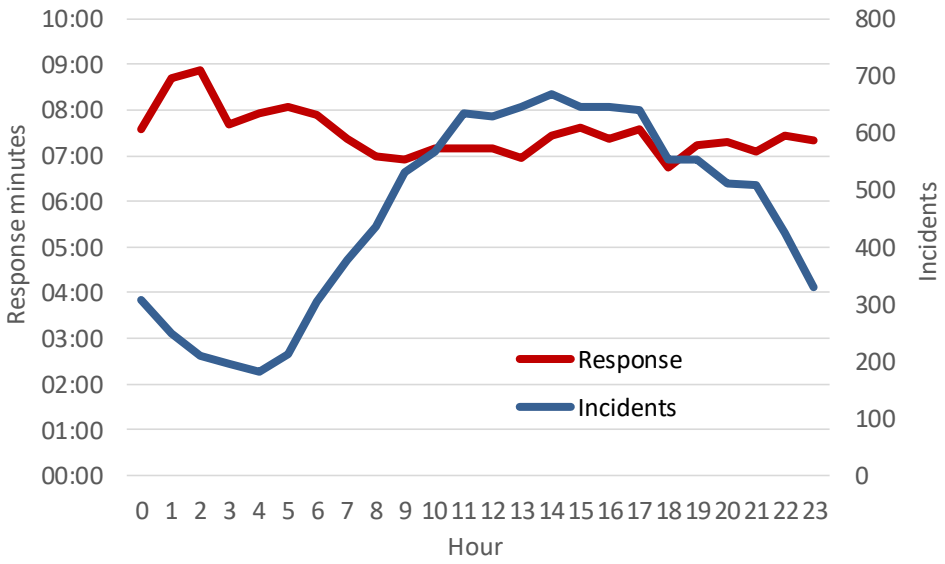
The following figure illustrates response time for all priority incidents as well as specific incident types. Overall, response time for all priority incidents was within 7 minutes, 23 seconds, 90 percent of the time during 2018.

Figure 97: Response-Time Performance—First Arriving Unit



The next figure shows response time and number of incidents by hour of day for all incidents. Response time is slowest during the nighttime hours and fastest during the day. Generally, SFD's best response times occur during the period of the day when response activity is at its highest.

Figure 98: Hourly Response-Time Performance, 2018

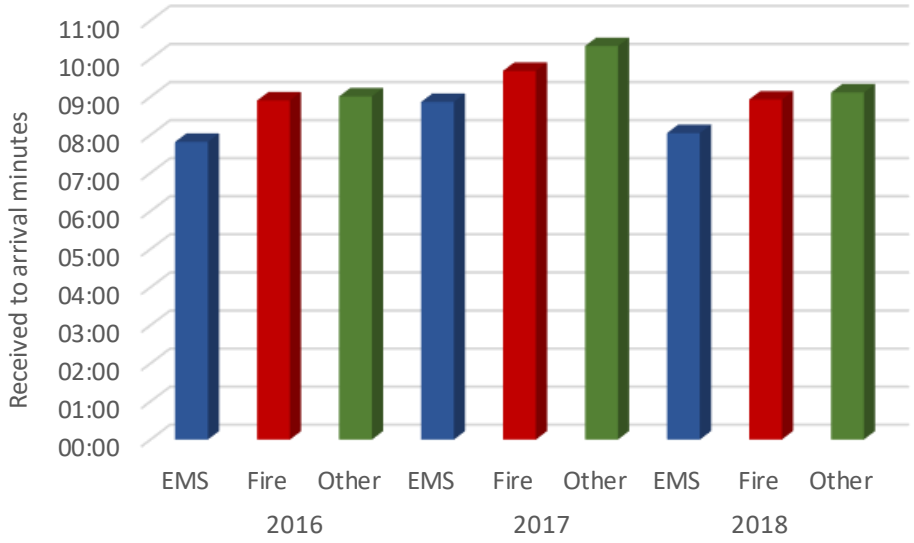


First Arriving Unit Received to Arrival Time

From the customer's standpoint, response time begins when the emergency occurs. Their first contact with emergency services is when they call for help, usually by dialing 9-1-1. Received to arrival time combines answer/transfer, call processing, turnout, and travel time. When the performance goals are combined, received to arrival time should be within 6 minutes, 24 seconds, 90 percent of the time for fire incidents, within 6 minutes, 4 seconds, 90 percent of the time for emergency medical incidents, and within 6 minutes, 24 seconds for all other incidents.

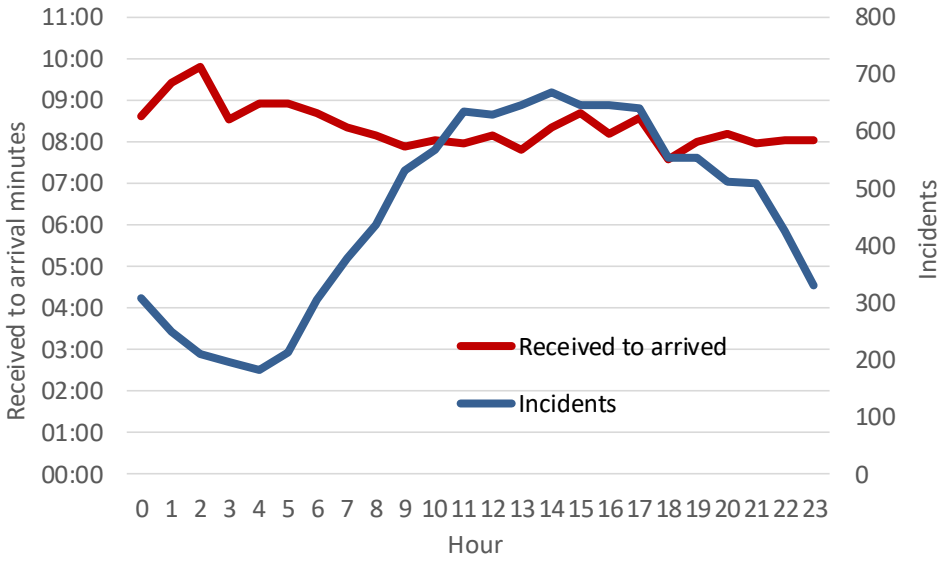
The next figure shows received to arrival performance for priority incidents within the SFD service area. Overall, received to arrival time was within 8 minutes, 14 seconds, 90 percent of the time during 2018.

Figure 99: Received to Arrival Time—First Arriving Unit



The next figure shows received to arrival performance by time of day also compared to incident activity by time of day. Received to arrival, from the customer's standpoint, is quickest during the day and slowest during the early morning hours.

Figure 100: Hourly Received to Arrival Performance, 2018



Concentration and Effective Response Force Capability Analysis

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

The response-time goal for the delivery of the full ERF to a moderate-risk building fire is within 9 minutes, 20 seconds, 90 percent of the time. SFD has defined the minimum full effective response force for low-rise building fires as four fire engines, one truck, and one battalion chief with a total of 17 firefighters. For high-risk commercial building fires, the minimum force is six fire engines, two trucks, two battalion chiefs, and 24 firefighters. The apparatus and staffing complement for this response type is all that is immediately available to SFD without using mutual or automatic aid.

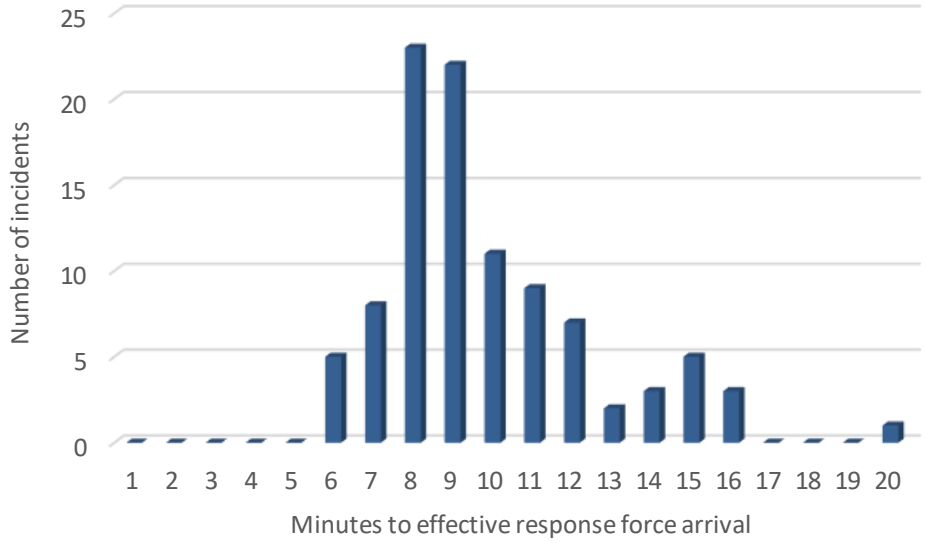
No data are available to identify building fires by type of risk (low rise, high risk commercial, etc.). All building fires have been evaluated using the low-rise effective response force criteria. The following figure illustrates effective response performance during the study period. The effective response force was delivered to 79 building fires during the study period.

Figure 101: Effective Response Force Performance

	2016	2017	2018
Number of fires with full ERF	29	23	27
Time to deliver the full ERF	15:00	11:24	13:09

The following figure illustrates the frequency distribution of the response times experienced during the study period. The percent of those building fires that received the full effective response force was 74.7 with response times between 8 and 13 minutes. Forty building fires (50.6 percent) received the full effective response force within the 9 minutes, 20 seconds goal.

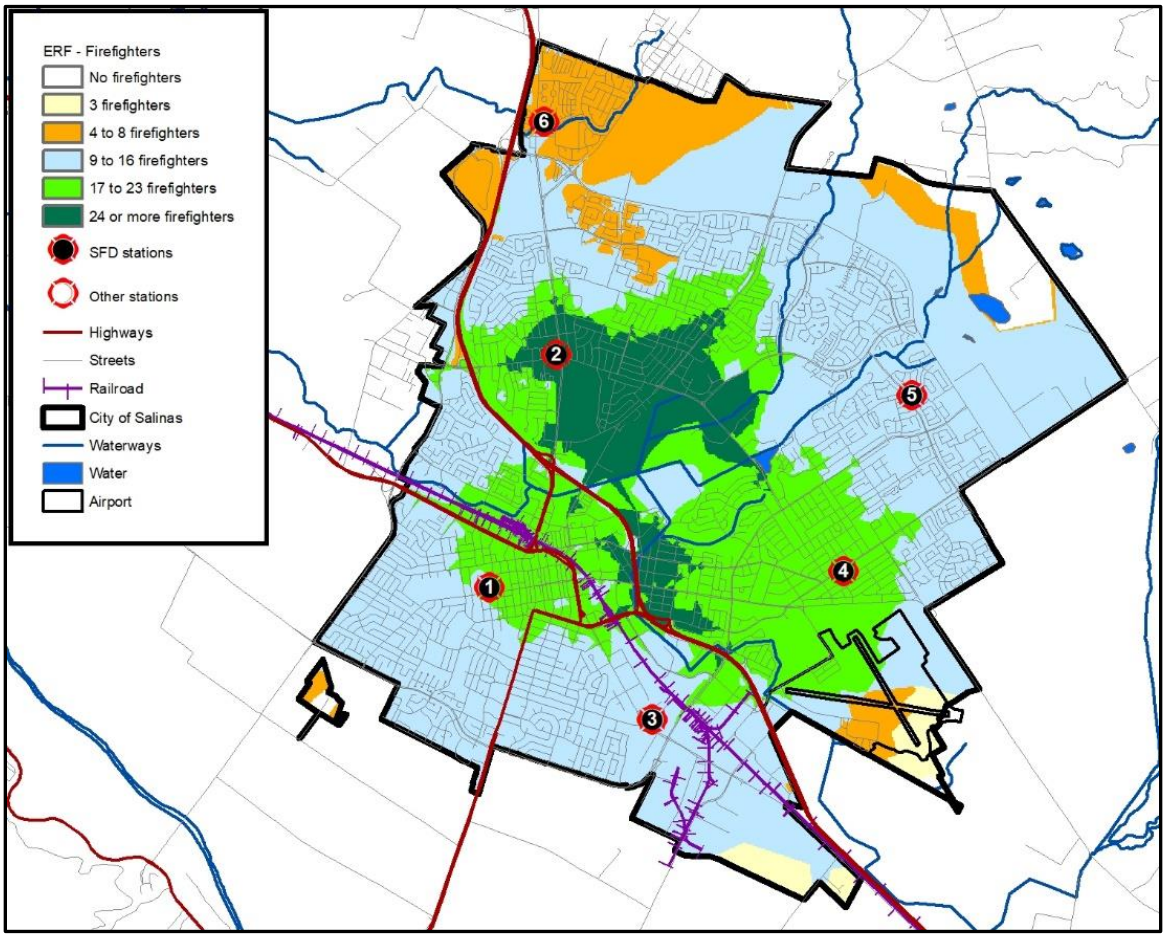
Figure 102: Frequency Distribution of Response Time for Full ERF Arrival



Concentration analysis reviews the physical capability of SFD's resources to achieve its target ERF travel time to its service area. The following figures depict the physical capability of SFD to assemble apparatus and firefighters by area within an eight-minute travel time. The modeled analysis shown assumes that all response units are available.

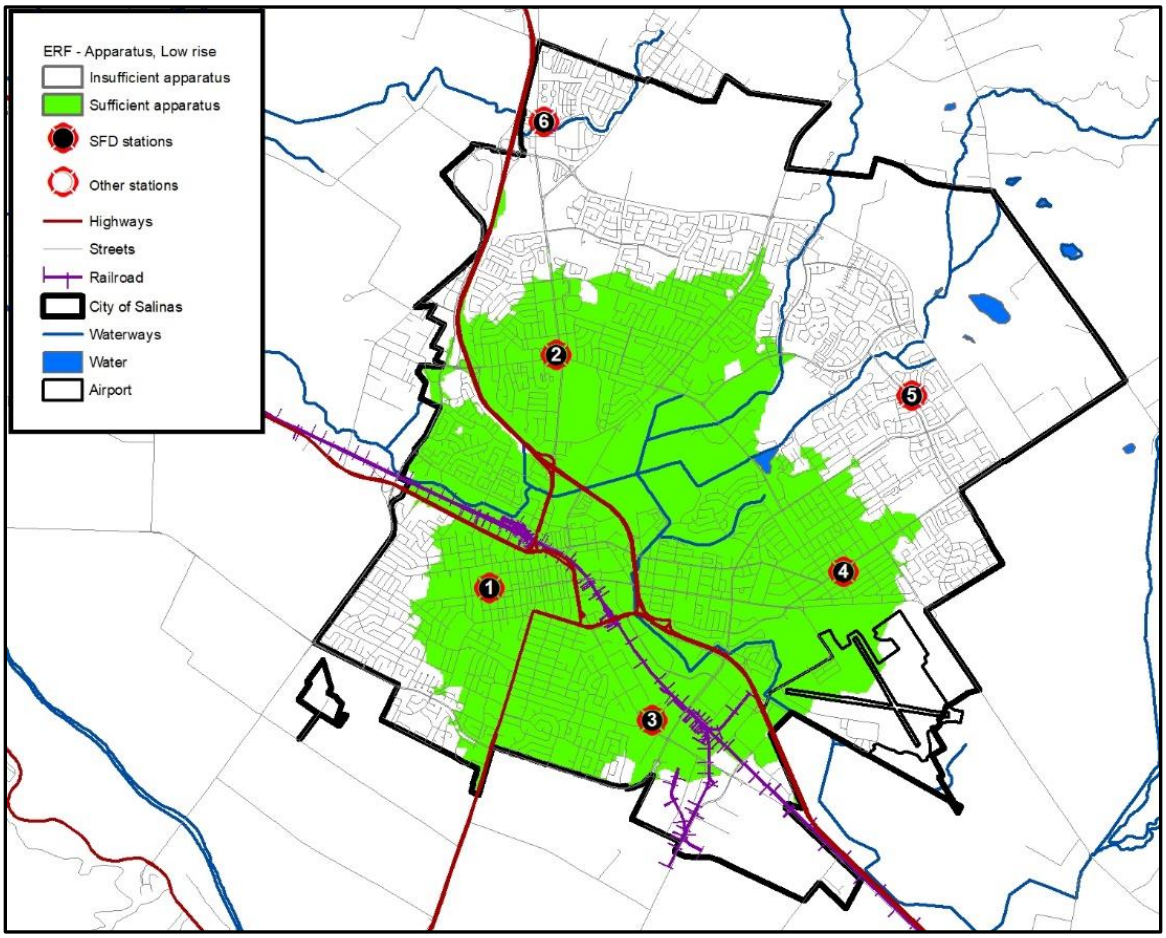
The first figure shows the area that can be reached by the various numbers of firefighters. Eight minutes of travel time is allowed to assemble the defined full effective response force on scene. Because automatic aid resources are farther than eight travel minutes from the city, this figure does not include the resources of adjacent agency stations. The minimum complement of 17 firefighters needed for a low-rise residential fire can only be provided in the area between Stations 1, 2, and 4. To only a small part of the city can SFD provide the 24 firefighters needed for a high-risk commercial fire.

Figure 103: Effective Response Force, Firefighters



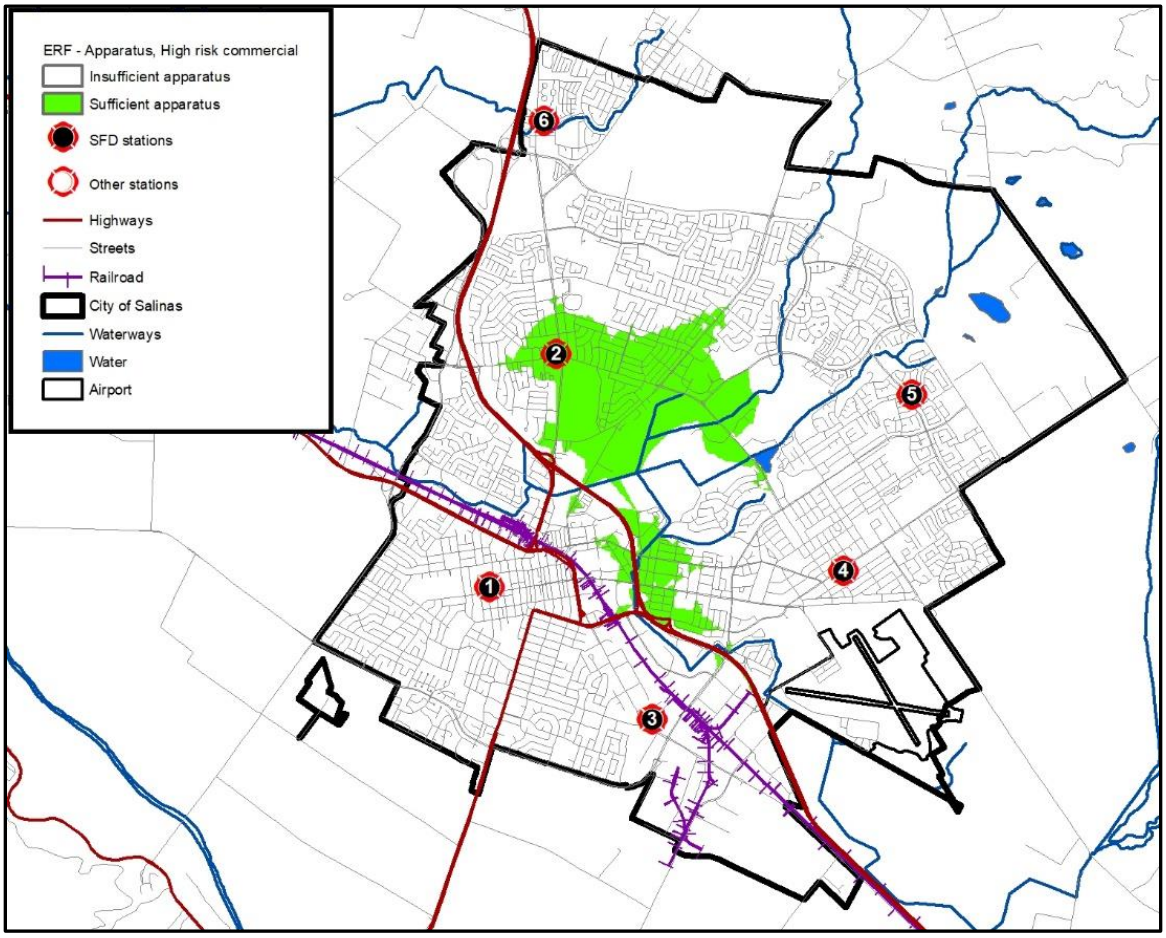
The next figure shows the area to which four fire engines, one ladder truck, and a battalion chief can respond within eight minutes' travel time. The model indicates these resources can be delivered within eight minutes' travel only to the south-central area.

Figure 104: Effective Response Force—Apparatus, Low-Rise Fire



The next figure shows the area to which six fire engines, two ladder trucks, and two battalion chiefs can respond within eight minutes' travel time. SFD has only one battalion chief on duty. This model assumes the second battalion chief position will be filled as needed by a staff chief officer. The model indicates these resources can be delivered within eight minutes' travel only to a small area.

Figure 105: Effective Response Force—Apparatus, High-Risk Commercial Fire



Second Unit Arrival Time

SFD fire engines are staffed with three personnel. Ladder trucks are also staffed with three personnel. Safety regulations require that at least four firefighters be on scene before firefighters can enter a burning building. The only exception is if it is known that a person is inside the building and needs rescue. Current staffing levels on engines require the arrival of a second response unit before non-rescue interior firefighting activities can be initiated.

Incident data for building fires during the study period were reviewed to determine the time the second response unit arrived on the scene. According to the data, the second unit arrived on scene of a structure fire within 2 minutes, 58 seconds, 90 percent of the time after the arrival of the first unit (1 minute, 10 seconds on average).

Emergency Medical Services

SFD provides first response emergency medical service normally at the advanced life support level. American Medical Response (AMR), a private ambulance company, provides patient transportation and en-route care to a medical facility. All SFD engines and ladders are usually advanced life support capable.

SFD units arrive at an emergency medical incident within 7 minutes, 7 seconds, 90 percent of the time from time of dispatch. AMR arrives within 8 minutes, 10 seconds, 90 percent of the time from the time of dispatch.

A review of EMS incidents was conducted to determine the number of times each entity arrived first at an EMS incident. SFD arrived first 63 percent of the time, and the ambulance arrived first 37 percent of the time.

SFD's overall response time for incidents to which it arrived first was within 6 minutes, 37 seconds, 90 percent of the time. AMR's overall response time for incidents to which it arrived first was within 7 minutes, 1 second, 90 percent of the time.

Incident Concurrency and Reliability

When evaluating the effectiveness of any resource deployment plan, it is necessary to evaluate the workload of the individual response units to determine to what extent their availability for dispatch is affecting the response-time performance. In simplest terms, a response unit cannot make it to an incident across the street from its own station in four minutes if it is unavailable to be dispatched to that incident because it is committed to another call.

Concurrency

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

The following figure shows the number of times during the study period that one or more incidents occurred concurrently. This shows that 6,979 times during 2018 only one incident was in progress at a time. However, 4,401 times there were two incidents in progress at the same time; 1,523 times there were three incidents in progress at the same time; and three times there were seven incidents in progress at the same time.

Figure 106: Incident Concurrency

Concurrent Incidents	2016	2017	2018
1	6,824	6,573	6,979
2	4,205	4,352	4,401
3	1,560	1,606	1,523
4	435	435	368
5	90	112	69
6	25	35	13
7	8	9	3
8	3	3	0
9	1	0	0

It is also useful to review the number of times one or more response units are committed to incidents at the same time. The following figure shows the number of times one or more SFD response units were committed to incidents. It is more common than not for multiple response units to be simultaneously committed to incidents, with two to four concurrent responses occurring in significant numbers and trending up year over year.

Figure 107: Response Unit Concurrency

Concurrent Unit Responses	2016	2017	2018
1	7,392	7,583	7,728
2	4,712	4,841	5,199
3	2,136	2,108	2,632
4	1,032	1,035	1,447
5	523	542	747
6	285	295	399
7	159	134	227
8	75	74	101
9	39	38	47
10	24	12	19
11	7	4	12

Reliability

The ability of a fire station's first-due unit(s) to respond to an incident within its assigned response area is known as unit *reliability*. The reliability analysis is normally done by measuring the number of times response units assigned to a given fire station were available to respond to a request for service within that fire station's primary service area. SFD does not capture the data needed to complete this analysis.

PERFORMANCE OBJECTIVES AND PERFORMANCE MEASURES

Dynamics of Fire in Buildings

Most fires within buildings develop in a predictable fashion unless influenced by highly flammable material. Ignition, or the beginning of a fire, starts the sequence of events. It may take several minutes or even hours from the time of ignition until a flame is visible. This smoldering stage is very dangerous, especially during times when people are sleeping, because large amounts of highly toxic smoke may be generated during this phase.

Once flames do appear, the sequence continues rapidly. Combustible material adjacent to the flame heat and ignite, which, in turn, heats and ignites other adjacent materials if sufficient oxygen is present. As the objects burn, heated gases accumulate at the ceiling of the room. Some of the gases are flammable and highly toxic.

The spread of the fire from this point continues quickly. Soon, the flammable gases at the ceiling as well as other combustible material in the room of origin reach ignition temperature. At that point, an event termed "flashover" occurs; the gases and other material ignite, which, in turn, ignites everything in the room. Once flashover occurs, damage caused by the fire is significant, and the environment within the room can no longer support human life. Flashover usually occurs about five to eight minutes from the appearance of flame in typically furnished and ventilated buildings. Because flashover has such a dramatic influence on the outcome of a fire event, the goal of any fire agency is to apply water to a fire before flashover occurs.

Although modern codes tend to make fires in newer structures more infrequent, today's energy-efficient construction (designed to hold heat during the winter) also tends to confine the heat of a hostile fire. In addition, research has shown that modern furnishings generally ignite more quickly and burn hotter (due to synthetics). In the 1970s, scientists at the National Institute of Standards and Technology found that after a fire broke out, building occupants had about 17 minutes to escape before being overcome by heat and smoke. Today, that estimate is as short as three minutes.[22] The necessity of effective early warning (smoke alarms), early suppression (fire sprinklers), and firefighters arriving on the scene of a fire in the shortest span of time is more critical now than ever.

The prompt arrival of at least four personnel is critical for structure fires. Federal regulations (CFR 1910.120) require that personnel entering a building involved in fire must be in groups of two. Further, before personnel can enter a building to extinguish a fire, at least two personnel must be on scene and assigned to conduct search and rescue in case the fire attack crew becomes trapped. This is referred to as the two-in, two-out rule.

[22] *National Institute of Standards and Technology, Performance of Home Smoke Alarms, Analysis of the Response of Several Available Technologies in Residential Fire Settings, Bukowski, Richard, et al.*

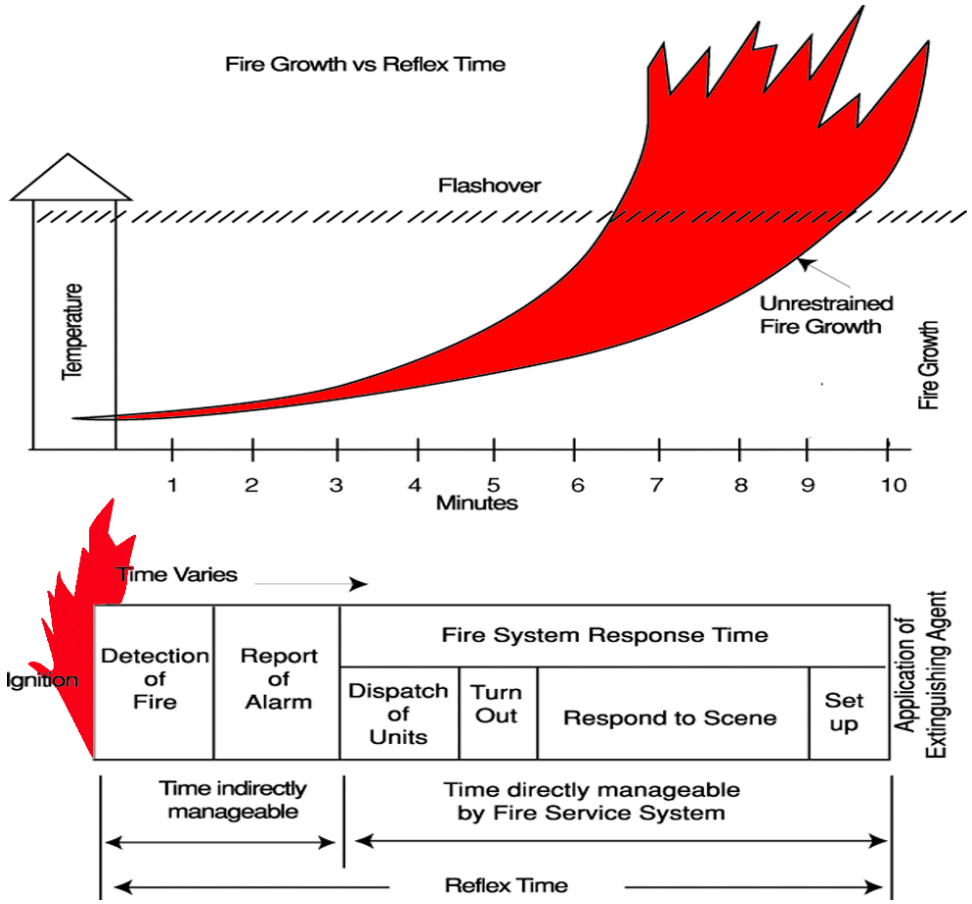
However, if it is *known* that victims are trapped inside the building, a rescue attempt can be performed without additional personnel ready to intervene outside the structure. Further, there is no requirement that all four arrive on the same response vehicle. Many fire departments rely on more than one unit arriving to initiate interior fire attack.

Perhaps as important as preventing flashover is the need to control a fire before it does damage to the structural framing of a building. Materials used to construct buildings today are often less fire resistive than the heavy structural skeletons of older frame buildings. Roof trusses and floor joists are commonly made with lighter materials that are more easily weakened by the effects of fire. "Lightweight" roof trusses fail after five to seven minutes of direct flame impingement. Plywood I-beam joists can fail after as little as three minutes of flame contact. This creates a dangerous environment for firefighters.

In addition, the contents of buildings today have a much greater potential for heat production than in the past. The widespread use of plastics in furnishings and other building contents rapidly accelerates fire spread and increases the amount of water needed to effectively control a fire. All of these factors make the need for early application of water essential to a successful fire outcome.

The following figure illustrates the sequence of events during the growth of a structure fire over time.

Figure 108: Fire Growth versus Reflex Time



As is apparent by this description of the sequence of events, application of water in time to prevent flashover is a serious challenge for any fire department. It is critical, though, as studies of historical fire losses can demonstrate.

The National Fire Protection Association found that fires contained to the room of origin (typically extinguished prior to or immediately following flashover) had significantly lower rates of death, injury, and property loss when compared to fires that had an opportunity to spread beyond the room of origin (typically extinguished post-flashover). As evidenced in the following figure, fire losses, casualties, and deaths rise significantly as the extent of fire damage increases.

Figure 109: Fire Extension in Residential Structures—United States

Consequence of Fire Extension in Residential Structures 2011–2015			
	Rates per 1,000 Fires		
Extension	Civilian Deaths	Civilian Injuries	Average Dollar Loss Per Fire
Confined to room of origin or smaller	1.8	24.8	$4,200
Confined to floor of origin	15.8	81.4	$36,300
Confined to building of origin or larger	24.0	57.6	$67,600

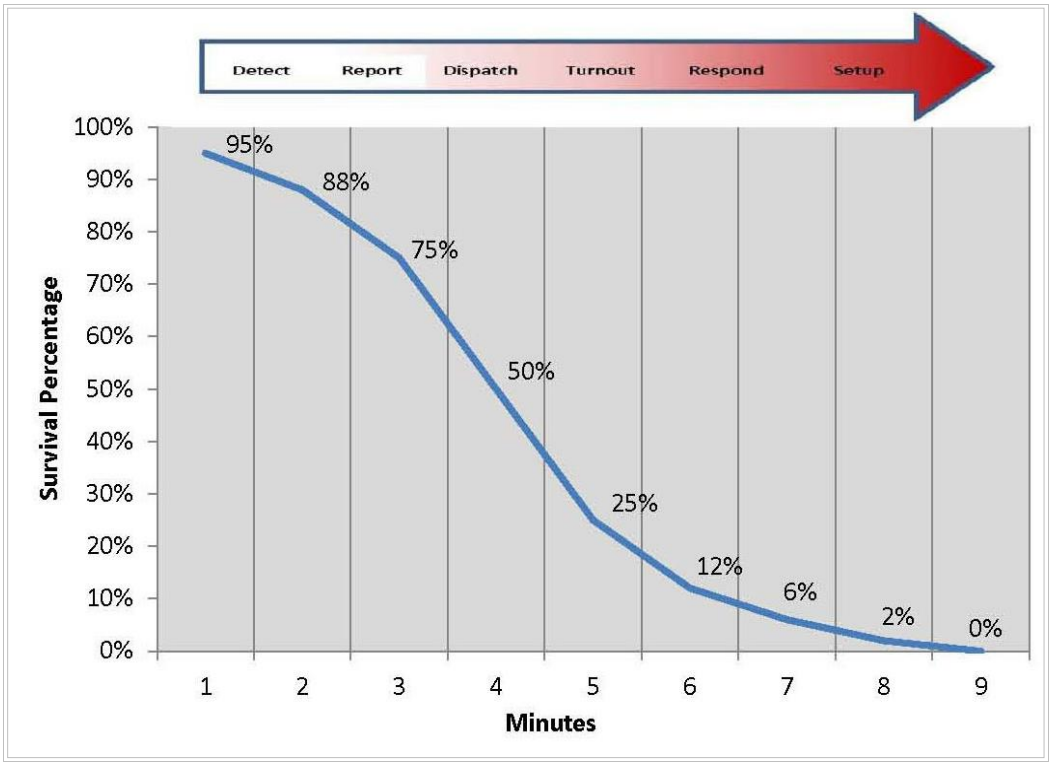
Source: National Fire Protection Association

Emergency Medical Event Sequence

Cardiac arrest is the most significant life-threatening medical event in emergency medicine today. A victim of cardiac arrest has mere minutes in which to receive lifesaving care if there is to be any hope for resuscitation. The American Heart Association (AHA) issued a set of cardiopulmonary resuscitation guidelines designed to streamline emergency procedures for heart attack victims and to increase the likelihood of survival. The AHA guidelines include goals for the application of cardiac defibrillation to cardiac arrest victims. Cardiac arrest survival chances fall by 7 to 10 percent for every minute between collapse and defibrillation. Consequently, the AHA recommends cardiac defibrillation within five minutes of cardiac arrest.

As with fires, the sequence of events that lead to emergency cardiac care can be graphically illustrated, as in the following figure.

Figure 110: Cardiac Arrest Event Sequence



The percentage of opportunity for recovery from cardiac arrest drops quickly as time progresses. The stages of medical response are very similar to the components described for a fire response. Recent research stresses the importance of rapid cardiac defibrillation and administration of certain medications as a means of improving the opportunity for successful resuscitation and survival.

People, Tools, and Time

Time matters a great deal in the achievement of an effective outcome to an emergency event. Time, however, is not the only factor. Delivering sufficient numbers of properly trained, appropriately equipped personnel within the critical time period completes the equation.

For medical emergencies this can vary based on the nature of the emergency. Many medical emergencies are not time critical. However, for serious trauma, cardiac arrest, or conditions that may lead to cardiac arrest, a rapid response is essential.

Equally critical is delivering enough personnel to the scene to perform all of the concurrent tasks required to deliver quality emergency care. For a cardiac arrest, this can be up to six personnel; two to perform CPR, two to set up and operate advanced medical equipment, one to record the actions taken by emergency care workers, and one to direct patient care.

Thus, for a medical emergency, the real test of performance is the time it takes to provide the personnel and equipment needed to deal effectively with the patient's condition, not necessarily the time it takes for the first person to arrive.

Fire emergencies are even more resource critical. Again, the true test of performance is the time it takes to deliver sufficient personnel to initiate application of water to a fire. This is the only practical method to reverse the continuing internal temperature increases and ultimately prevent flashover. The arrival of one person with a portable radio does not provide fire intervention capability and should not be counted as "arrival" by the fire department.

OVERVIEW OF COMPLIANCE METHODOLOGY

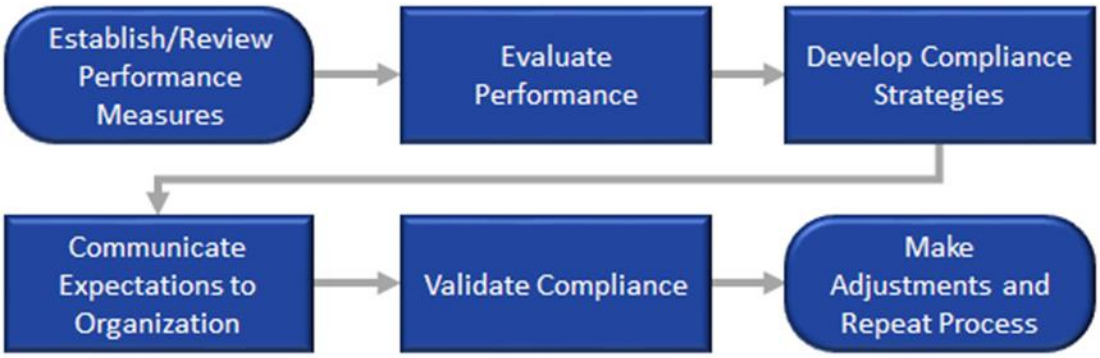
The preceding sections of this report provide a detailed analysis of the historical performance of the Salinas Fire Department. For this analysis to prove beneficial to department and City policy makers, continued analysis should be performed on a routine basis. The data provided to the project team for analysis proved to be difficult to analyze from the standpoint of consistency and completeness. Future efforts to measure performance will also be hindered by these issues without significant improvement in the data collection process.

SFD is committed to a continual process of analyzing and evaluating actual performance against the adopted standards of cover and will enhance the data collection procedures of field operations personnel. Periodic review of the department's records management system reports will be necessary to ensure compliance and reliability of data.

Compliance Model

Compliance is best achieved through a systematic approach. Salinas Fire Department has identified the following six-step compliance model.

Figure 111: Six-Step Compliance Model



Phase 1—Establish/Review Performance Measures

Complete the initial Standards of Cover process. Conduct a full review of the performance measures every five years:

- Identify services provided.
- Define levels of service.
- Categorize levels of risk.
- Develop performance objectives and measures:
  - By incident type
  - By geographic demand zone
  - Distribution (first on scene)
  - Concentration (arrival of full first alarm)

Phase 2—Evaluate Performance

Performance measures are applied to actual service provided:

- System level
- First due area level
- Unit level
- Full effective response force (ERF)

Phase 3—Develop Compliance Strategies

Determine issues and opportunities:

- Determine what needs to be done to close the gaps.
- Determine if resources can/should be reallocated.
- Seek alternative methods to provide service at desired level.
- Develop budget estimates as necessary.
- Seek additional funding commitment as necessary.

Phase 4—Communicate Expectations to Organizations

Communicate expectations:

- Explain method of measuring compliance to personnel who are expected to perform services.
- Provide feedback mechanisms.
- Define consequences of noncompliance.

Train personnel:

- Provide appropriate levels of training/direction for all affected personnel.
- Communicate consequences of noncompliance.
- Modify (remediate) business processes, business application systems, and technical infrastructure as necessary to comply.

Phase 5—Validate Compliance

Develop and deploy verification tools and/or techniques that can be used by subsections of the organization on an ongoing basis to verify that they are meeting the requirements:

- Monthly evaluation:
  - Performance by unit
  - Overall performance
  - Review of performance by division/section management
- Quarterly evaluation:
  - Performance by unit
  - Performance by first due
  - Overall performance
  - Review of performance by executive management

Phase 6—Make Adjustments/Repeat Process

Review changes to ensure that service levels have been maintained or improved. Develop and implement a review program to ensure ongoing compliance:

- Annual review and evaluation:
  - Performance by unit
  - Performance by first due
  - Overall performance
  - Review of performance by governing body
  - Adjustment of performance standards by governing body as necessary
- Five-year update of Standards of Cover:
  - Performance by unit
  - Performance by first due
  - Full effective response force
  - Overall performance
  - Adoption of performance measures by governing body
- Establish management processes to deal with future changes in the SFD service area.

OVERALL EVALUATION, CONCLUSIONS, AND RECOMMENDATIONS

Overall Evaluation

This Community Risk Assessment: Standards of Cover is based on the *CFAI Standards of Cover, 6th Edition.* It required the completion of an intensive analysis on all aspects of the SFD deployment policies. The analysis used various tools to review historical performance, evaluate risk, validate response coverage, and define critical tasking and alarm assignments. The analysis relied on the experience of staff officers and their historical perspective combined with historical incident data captured by both the dispatch center and SFD's in-house records management system.

The Description of Community Served Section provided a general overview of the organization, including governance, lines of authority, finance, and capital and human resources, as well as an overview of the service area including population and geography served. The Review of Services Provided Section detailed the core services the organization provides based on general resource/asset capability and basic staffing complements.

An overview of community risk was provided to identify the risks and challenges faced by the fire department. Geospatial characteristics, topographic and weather risks, transportation network risks, physical assets, and critical infrastructure were reviewed and then identified as medical incidents, structure fires, and rescues as the primary risks within the community. As a factor of risk, community populations and demographics were evaluated against historic and projected service demand. Population and service demand has increased over the past decade and will continue to increase in the future.

Evaluating risk using advanced geographic information systems (GIS) provided an increased understanding of community risk factors and led to an improved deployment policy.

During the analysis of service level goals, critical tasking assignments were completed for incident types ranging from a basic medical emergency to a high-rise structure fire. Critical tasking required a review of on-scene staffing requirements to mitigate the effects of an emergency. These tasks ultimately determine the resource allocation necessary to achieve a successful operation. The results of the analysis indicate that a low-rise building fire required a minimum of 17 personnel.

The review of historical system performance evaluated each component of the emergency incident sequence. These included call processing, turnout, and travel time. Beyond the response time of the initial arriving units, the additional components of concentration and effective response force, reliability, and call concurrency were evaluated.

The analysis completed during this study revealed a number of important findings. These include the following:

- Total response workload has increased 29.8 percent over the past seven years. EMS workload increased 40.3 percent over the same time period.
- The current fire department utilization rate is 82.7 incidents per 1,000 population. This is comparable to similar communities.
- Requests for emergency medical service are 68.7 percent of all responses.
- Response workload is greatest around Fire Station 1.
- Engine 1 and 2 exceed 10 percent UHU.
- The amount of time ECD takes to dispatch fire department response units exceeds national standards.
- The amount of time that response personnel take to assemble on apparatus and initiate response significantly exceeds national standards.
- The amount of time response that units spend traveling to an incident exceeds standards.
- SFD provided an effective response force to 40 building fires within the time listed in national standards.
- Much of the SFD service area cannot be provided an effective response force using only its resources. Neighboring agency resources are too distant to provide response within the targeted eight minutes' travel time.
- Based on risk and challenges with effective response force deployment, both truck companies should remain fully staffed and in service.
- Per discussion with SFD staff, all traffic pre-emption devices are outdated and non-operational.
- ESCI made numerous inquiries as to how many times on average the private ambulance provider did not have units available within city limits. Responses were varied from no answer from the LEMSA Director to "that information is not tracked." SFD should pursue discussions with the County as to the importance of tracking and making this information available
- There are plans to locate a seventh fire station in the north-central part of Salinas. This area is scheduled for significant development. This additional staffed station will be necessary to ensure prompt response.
- Due to the at-risk populations (age and non-English speaking), Salinas will likely need to continue to provide for an emergency response force that is more robust than a community that has an at-risk population closer to the national average.
- Salinas will need to monitor the housing of agricultural workers on a seasonal basis. Considerations should include increasing staffing on apparatus during the agricultural season or adding a peak-hour apparatus to ensure emergencies are mitigated quickly before extensive collateral damage can occur.
- Salinas experiences a much higher incidents of fires, 9.1 fires per 1,000 population versus 2.3 fires per 1,000 population in the Western United States. Fire is a real concern in Salinas.
- Current span of control for the shift Battalion Chief is 8:1.
- Effective Response Force coverage is limited in part due to having a single Battalion Chief per shift.
- The level of administrative support appears to be inadequate for an organization the size and complexity of SFD.

Based on the analysis and considering community expectations, recommendations are offered to improve the delivery of fire and emergency services to the community by SFD. It is not expected that all will be implemented in the short term. Some may wait until economic conditions allow their implementation. However, all of the recommendations offered to chart a course to improved capability and service.

Recommendations

The recommendations that follow are described as goals and should be implemented as funding allows. Each will improve SFD's ability to provide effective service to the community. No single recommendation contained in this report alone will bring SFD into compliance with response-time objectives. However, taken together, they collectively represent opportunities to substantially improve the timeliness of the services provided by SFD.

Recommendation A: Adopt Response Performance Goals that are Achievable

A community's desired level of service is a uniquely individual decision. No two communities are exactly alike. Performance goals must be tailored to match community expectations, community conditions, and the ability to pay for the resources necessary to attain the desired level of service.

Levels of service and resource allocation decisions are the responsibility of the community's elected officials, in this case the Salinas City Council. The policymaking body must carefully balance the needs and expectations of its citizenry when deciding how to allocate money to all the services it provides.

The following are recommended as SFD fire and life safety response performance goals. Adoption of goals allows SFD management to regularly report progress on achievement of these goals, conditions that are impeding progress, and resources needed to improve service.

Call-Processing Performance Goal

The first phase of overall response time is call processing time. This phase begins when the call is received at the PSAP center and ends when response resources are notified of an emergency. There are two components: answer time and dispatch time.

Recommended Call-Processing Goal:

- 911 calls will be answered at the primary PSAP within 15 seconds, 95 percent of the time.
- Response resources shall be notified of a priority incident within 64 seconds from receipt of the call at the dispatch center, 90 percent of the time.

Turnout Time Performance Goal

Turnout time is one area over which the fire department has total control and is not affected by outside influences. Turnout time, or the time between when the call is received by the response units (dispatched) and when the unit is enroute to the incident location (responding), affects overall response times. Reducing this time component reduces total response time.

National Fire Protection Association Standard 1710 recommends turnout time performance of 80 seconds or less for fire and special operations response and 60 seconds or less for all other priority responses.

Recommended Turnout Goal:

- Response personnel shall initiate the response of a unit capable of mitigating an incident to a priority fire and special operations incident 80 seconds from notification, 90 percent of the time.
- Response personnel shall initiate response to all other priority incidents within 60 seconds from notification, 90 percent of the time.

Response Time for the First-Due Unit Goal

The time required to deliver the first response unit capable of intervening in the emergency includes both turnout time and travel time but not call processing time. Based on current performance and implementation of operational improvements, the following are recommended.

Recommended First-Due Response Time Goal:

- The first response unit capable of initiating effective incident intervention shall arrive at a priority fire or special operations incident within 5 minutes, 20 seconds from notification of response personnel, 90 percent of the time.
- The first response unit capable of initiating effective incident intervention shall arrive at all other priority incidents within 5 minutes from notification of response personnel, 90 percent of the time.

Effective Response Force Performance Goal

A fire department's resource *concentration* is the spacing of multiple resources close enough together so that an initial "Effective Response Force" (ERF) for a given risk can be assembled on the scene of an emergency within the specific time frame identified in the community's performance goals for that risk type. An initial effective response force is defined as that which will be most likely to stop the escalation of the emergency.

The minimum ERF for a low-rise structure fire is identified as the arrival of at least four fire engines, one ladder truck, and one Battalion Chief (17 personnel total). This initial ERF does not necessarily represent the entire alarm assignment, as additional units may be assigned based on long-term incident needs and risks. Additional engines, ladders, or other specialty companies are assigned to higher risk responses to accomplish additional critical tasks that are necessary beyond the initial attack and containment.

Recommended Effective Response Force Goal:

- The full effective response force shall arrive at a moderate risk structure fire within 9 minutes, 20 seconds of notification of response personnel, 90 percent of the time.

Estimated Cost: None

Recommendation B: Improve the Collection and Analysis of Incident Data

Much can be revealed by collecting and evaluating incident data accurately and regularly. Challenges to quick response can be identified and solutions proposed. Trends can be discovered allowing the fire department to prepare for changes and or increases in response workload. Frequent incident types can be identified, and steps taken to reduce their occurrence such as public safety education or building engineering.

SFD collects data for every incident to which it responds. The ECD (the dispatch center) also collects data for these incidents. Combined, this information can provide insight into the department's response strengths and weaknesses as were completed in this report.

Drawing data from these systems was a significant challenge during the development of this report. SFD staff were challenged to extract all needed information from the computerized records management system in a usable form and format. Additionally, collection practices, such as maintaining consistent unit identification made detailed analysis of some elements impossible.

Use of geographic information systems (GIS) software can also be useful to provide a spatial view of incident activity and challenges. Examples are also included in this report.

SFD should ensure it is capturing sufficient data to fully evaluate its response system. Frequent quality control reviews should be conducted to ensure data is collected and reported accurately. Regular analysis of this data should be conducted so that system performance is understood. Performance reports, along with a discussion of challenges and potential solutions, should be provided to policy makers to support decision making.

SFD should enhance its use of public safety GIS analysis. City staff are available but may need additional training. Computer hardware, software, and training for the GIS Analyst will be required if done in-house.

Estimated Cost: Staff time for improved collection and utilization of data. Approximately $10,000 for acquisition of GIS hardware, software, and training.

Recommendation C: Implement Community Risk Reduction Strategies

An emerging trend in the fire service nationally is a concept called Integrated Community Risk Reduction (CRR). CRR is an integrated approach to risk management that marries emergency operations and prevention strategies into a more cohesive approach to reducing risks in any community. It includes the fire department partnering with the community, non-profit organizations, and any private sector agencies with a nexus to an identified community risk.

The concept starts with the fire department mining data to quantify community risk. Once the community risks have been identified, they are prioritized based on frequency of emergency service demand or consequence (to the victim, to the community, to the local economy). Upon prioritizing the risks, strategies are developed to mitigate the risks. These strategies are incorporated into a CRR plan, which integrates resources across the fire department, partner agencies, and the community to implement the various strategies in a cohesive manner. After plan implementation, the results are reviewed to determine the impact on the risks. Adjustments are made, as necessary, based on the results and the process is refined and continuously re-implemented.

The risks are not limited to structure fires. They can include falls, drowning, interface exposure, disasters, or any risk requiring fire department response. Risk can also be localized by station area. Operations personnel, in collaboration with fire prevention staff and community groups, can develop and manage a station area specific CRR plan as a subset of the fire department's plan. CRR lends itself well to a volunteer supported effort, led by competent professional leadership. CRR also includes public education for risk reduction. A prepared and informed community is a safer community.

Estimated Cost: Staff time to interpret response data and determine the high frequency risks and staff time to develop and implement an education program.

Recommendation D: Improve SFD Response Unit Turnout Times

SFD response crew turnout time performance is currently within 2 minutes, 17 seconds, 90 percent of the time for fire and special operations incidents and within 1 minute, 50 seconds for EMS incidents. National guidance suggest turnout time should be within 80 seconds, 90 percent of the time for fire and special operations incidents and within 60 seconds, 90 percent of the time for all other priority incidents.

A review of station configuration, alerting systems, and other factors should be conducted to identify and remove any obstacles to prompt initiation of response.

Crew performance must also be addressed. Personnel should be provided regular reports of turnout time performance. Performance standards should be adopted and enforced.

Estimated Cost: Dependent on changes needed.

Recommendation E: Limit the Use of Traffic "Calming" and Other Measures that Increase Travel Time

Speed humps, hard medians, curb extensions, and other measures can slow traffic and improve highway safety. However, these also slow emergency response vehicles.

Great care should be taken when considering the installation of these features. The impact on emergency response should be a strong consideration.

SFD and the City street authorities should develop a plan that defines where these features can be installed without undue impact on emergency response times and where these features should not be installed. The design of the features should also be considered. For example, some street humps can be negotiated without significant slowing while other designs cause much slowing and also great discomfort to patients being transported by ambulance.

This plan should include a street by street identification of primary response routes (arterials, collectors, and local streets connecting neighborhoods). Primary response routes should not be candidates for traffic calming measures.

Estimated Cost: Staff time to develop the plan.

Recommendation F: Update Traffic Signal Pre-Emption Equipment

Traffic signal pre-emption equipment allows responding fire personnel to control traffic signals, turning the signal green in their direction and red in all other directions. Utilization of this equipment helps to provide a clear path through a controlled intersection minimizing the delays these intersections can create. Further, it greatly improves safety for both responders and the motoring public.

Estimated Cost: This technology is not inexpensive. Each traffic signal-controlled intersection may cost $10,000 or more depending on the age of the controller and the vendor selected. Each apparatus will require equipment costing approximately $2,000. However, the benefits to response performance and safety far outweigh the cost.

Recommendation G: Add Additional Response Units During Periods of High Incident Activity

Fire stations should be located, staffed, and equipped to provide response resources using two primary considerations:

1. Provide response times that ensure unit(s) arrive in time to effectively mitigate an emergency.
2. Provide sufficient resources to ensure a reliable response to predictable emergency service requests.

The first consideration suggests that stations and response units should be located to minimize travel time to emergencies. The second consideration suggests that during periods of higher incident activity, additional resources should be available to respond. The additional resources should be of the type necessary for predictable requests for service. Emergency medical incidents are the most common.

The second consideration is a dynamic approach to deployment and provides two benefits. First, additional response resources can be made available during times each are predictably needed. Second, because these resources are not needed or assigned during slower workload periods, the organization is maximizing its ability to match resources with system demand.

Peak workload periods occur every day of the week. The following figure illustrates workload by station and by time of day during the study period. Workload is based on responses made by each unit assigned to the station.

Figure 112: Incidents by Station and by Period of Day, 2018

Station	Incidents 9:00 a.m.–8:59 p.m.	Incidents 9:00 p.m.–8:59 a.m.	Incidents per hour 9:00 a.m.–8:59 p.m.	Incidents per hour 9:00 p.m.–8:59 a.m.
1	2,814	1,566	0.64	0.36
2	1,839	1,114	0.42	0.25
3	1,054	541	0.24	0.12
4	1,296	717	0.30	0.16
5	1,054	522	0.24	0.12
6	1,394	742	0.32	0.17

A process called "queuing analysis" has been used to determine the number of units needed in each station area by time of day. This process utilizes probability analysis to determine the number of units needed in each station area to reduce the likelihood that a response unit would not be available to serve an incident to 10 percent or less. It uses the variables incidents per hour, number of available response units, and average time committed per incident.

Though very useful to this effort, queuing analysis has some limitations. It assumes that customers (incidents) arrive at a constant rate. This is not always true in emergency services. It also assumes that each customer requires an equal amount of time from servers (response units). While the average time committed to an incident was used for service time, some incidents require less or substantially more than the average.

The following figure illustrates the current deployment and proposed deployment plan for both daytime (8:00 a.m. to 7:59 p.m.) and nighttime (8:00 p.m. to 7:59 a.m.) based on current station locations. The figure includes the current and proposed probability of wait analysis based on the current number of stations. Three stations exceed 10 percent probability of wait during the day. One station is slightly over 10 percent at night.

Figure 113: Current and Proposed Response Units

Station	Current Units Day	Current Units Night	Current Probability of Wait—Day	Current Probability of Wait—Night	Proposed Units Day	Proposed Units Night	Proposed Probability of Wait—Day	Proposed Probability of Wait—Night
1	2	2	2.9%	1.0%	2	2	2.9%	1.0%
2	1	1	16.8%	10.2%	2	1	1.3%	10.2%
3	1	1	9.6%	4.9%	1	1	9.6%	4.9%
4	1	1	11.8%	6.5%	2	1	0.7%	6.5%
5	2	2	0.4%	0.1%	2	2	0.4%	0.1%
6	1	1	12.7%	6.8%	2	1	0.8%	6.8%
Total	**8**	**8**		**Total**	**11**	**8**		

An additional three response units are needed during the day to reduce the probability of wait time to 10 percent or below. The recommended type of vehicle is a Type 6 engine or similar. Staffing for these units should be two personnel, one of whom is a paramedic. These units should be used in place of engines for most all medical calls. They can also be used for other minor incidents not requiring a full-sized fire engine.

Figure 114: Projected Costs of Adding Three Type VI Engines and Crews for Additional Daytime Medical Responses

Expenditures	Projections				
	FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25
Engineer	84,492	88,716	93,156	97,812	102,708
Paramedic	72,984	76,632	80,460	84,492	88,716
Subtotal Salaries Per Unit	**157,476**	**165,348**	**173,616**	**182,304**	**191,424**
Pension – Current	20,944	21,991	23,091	24,246	25,459
Pension – UAL	11,000	17,200	24,000	30,000	32,000
Taxes	2,283	2,398	2,517	2,643	2,776
Insurance and Other Benefits	58,266	61,179	64,238	67,452	70,827
Total Benefits	**92,494**	**102,768**	**113,846**	**124,342**	**131,062**
Salaries and Benefits Per Unit	**249,970**	**268,116**	**287,462**	**306,646**	**322,486**
Annual uniform allowance	1,000	1,000	1,000	1,000	1,000
Tuition allowance	1,000	1,000	1,000	1,000	1,000
Physical fitness incentive	1,000	1,000	1,000	1,000	1,000
Annual Personnel Cost Per Unit	**252,970**	**271,116**	**290,462**	**309,646**	**325,486**
Proposed Units	3	3	3	3	3
Total Annual Personnel Costs	**758,909**	**813,347**	**871,387**	**928,939**	**976,458**
Initial Costs					
Type VI Engine	150,000				
Medical Equipment	50,000				
Turnout Gear	6,400				
Per Unit	**206,400**				
Proposed Units	3				
Initial Costs	**619,200**				

Recommendation H: Improve the Efficiency of Response to Emergency Medical Incidents

SFD's current practice is to send a fire engine to all emergency medical incidents regardless of severity. Some responses are undoubtedly nonemergent but are not recognized as such until arrival of an ambulance or the SFD responding unit.

Many dispatch centers will query the caller with a standardized list of questions that can differentiate between a life-threatening incident and a non-life-threatening incident, or between emergent and nonemergent. The response (or other alternative) to a medical incident is based on the results of this query.

ECD does not currently offer this service but should. Serious attention should be given to this because the resulting reduction in unit utilization and improvement in system reliability would be valuable. Further, it better matches resource to need keeping critical resources available for other, higher priority calls, thus, potentially reducing response time.

ESCI recommends SFD Coordinate with County EMS the implementation of Emergency Medical Dispatch protocols. The final decision as to number and type of apparatus and staff dispatched to be determined by SFD consistent with the Department and City's 201 rights.

Estimated Cost: Staff training and some cost to acquire a qualified emergency medical dispatch triage system are needed.

Recommendation I: Explore Opportunities to Reduce Response Workload

Response workload has grown by 29.8 percent over the past 14 years. Most of this has been the growth in requests for emergency medical services (40.3 percent).

At this rate of growth, SFD will be unable to maintain service levels without new resources. Response workload is expected to increase to over 20,000 incidents per year by 2040. The City's ability to fund new resources to maintain service levels is limited.

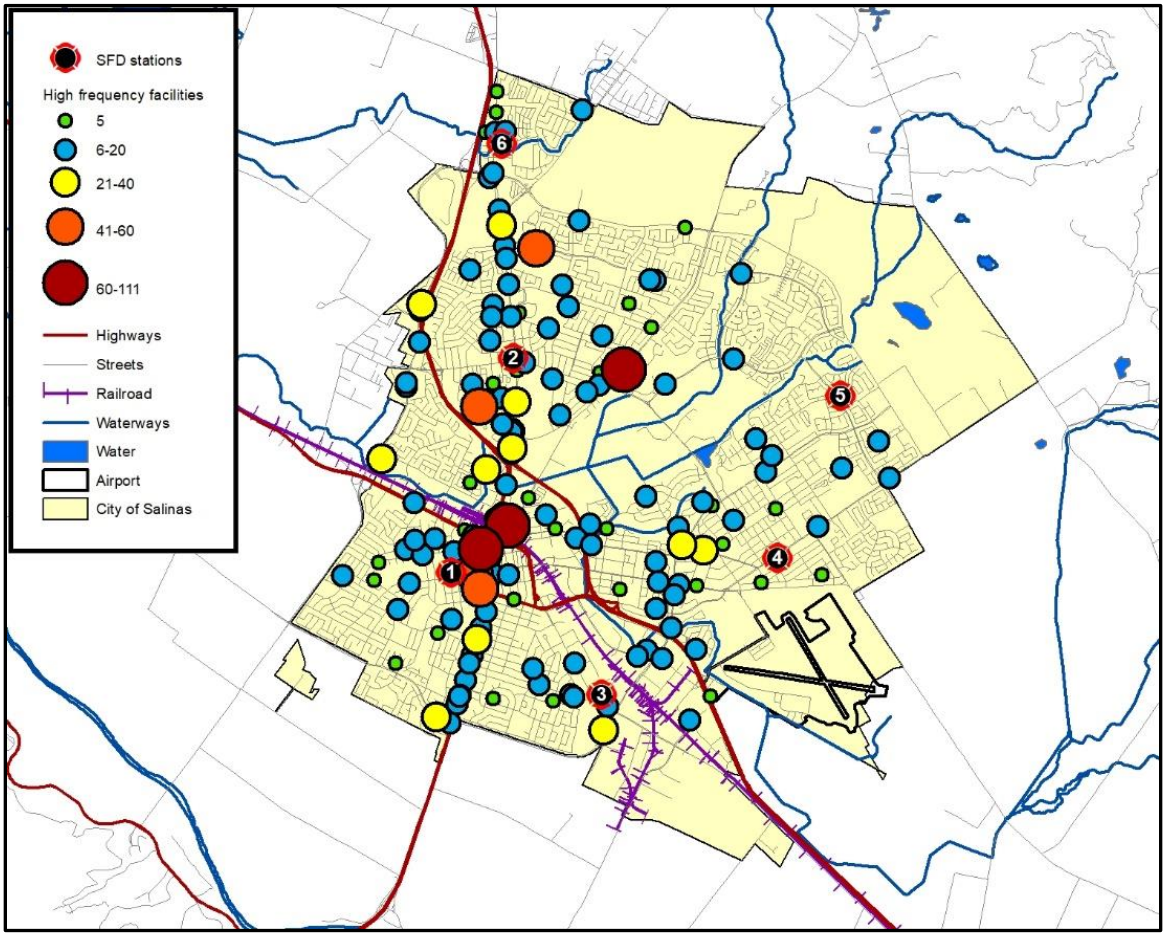
Work with Frequent Users of EMS Services to Reduce Utilization

Most fire service agencies have patients and facilities who routinely call multiple times for a response from the local fire department. While some of these patients undoubtedly have acute medical challenges that require a response and assessment, many others have chronic illnesses and have become reliant upon first responders as their primary care provider. Still others are living alone but struggling to live independently, relying instead on first responders to address their routine challenges. A smaller subset may be relying upon first responders for social needs or may have mental health challenges that cause them to call inappropriately for first responders.

Fire agencies can also have significant response workload at single facilities such as nursing homes, assisted living, and mobility-impaired resident facilities. Many calls for service are legitimate medical emergencies, while some are lift-assists that occur when a mobility-impaired resident falls from bed and needs assistance getting back into bed. First responders in these cases perform a quick assessment of the latter group and place them back into bed. While this may seem to be an appropriate service to provide to the residents of such facilities, in many cases it is a liability shift and/or a staffing shift from a fee-for-service facility to the taxpayer-provided emergency responders. Further, it misuses critical emergency response resources to address decidedly non-emergent problems.

The following figure illustrates the locations of facilities that used fire department services five or more times for emergency medical service or assistance to a person such as moving a bed-ridden patient.

Figure 115: **Number of EMS and Person Assist Incidents by Location**



There are different approaches available to fire departments that experience the high frequency individual and the high frequency facility. These approaches are explained more fully in the two following subsections.

Responses to High Frequency Patients

A growing concept nationally is the community paramedicine program. The concept of this approach is to better support high frequency EMS system users. Community paramedicine is intended to decrease 9-1-1 over-users or abusers, decrease on-scene time for response units, and provide a higher level of service to customers.

There are a variety of models in use throughout the country. Some employ a single paramedic in a vehicle who conducts follow-up visits of patients recently released from the hospital. The purpose is to ensure the patient is taking appropriate medications, following up with their primary care physician, and to check the patient's overall well-being. These single paramedic units can also be dispatched to incidents known to be non-life threatening.

Other models team a paramedic with community social service workers who can also address other needs such as food, housing, mental health care, and the like.

Agencies that have successfully implemented a community paramedicine type program include Mesa, Arizona, which developed the concept; Spokane, Washington, and Bellevue, Washington.

Responses to High Frequency Facilities

There are a number of locations within Salinas that generate frequent requests for emergency medical assistance. Some of these facilities have medical professionals on site; others may not. Below are the top 11 facilities listed in order of response frequency.

Figure 116: Responses to High Frequency Facilities

Response Facility	Responses
Dorothy's Place	111
1320 Padre Dr	102
Monterey County Jail	101
Monterey-Salinas Transit Station	81
Shelter	59
Windsor The Ridge	59
Brookdale Salinas	44
First United Methodist Church	41
Private residence	37
Salinas Police Department	37
Windsor Skyline Care Center	34
Total	**706**

These 11 locations account for over 9 percent of the total EMS response demand SFD handled in 2018. For facilities with qualified medical professionals, the dispatch center has the ability to send only an ambulance when all that is needed is transportation of the patient to a medical facility. SFD should review this practice to ensure it is working as effectively as it should be.

For facilities without qualified medical professionals, a full response is typically sent to a request for emergency medical assistance. However, many of these requests can turn out to be lift-assists, or other minor problems.

SFD should work with managers of high frequency facilities to ensure fire department resources are not overused. This may involve providing training to facility staff, modifying EMS system regulations to allow alternative response practices, or other creative solutions.

Cost to implement: Unknown at this time.

Recommendation J: Address Administrative and Support Staff Needs

Conduct a workload analysis at the administrative and support staffing levels to quantify needs and gaps.

ESCI recognizes organizational goals, regulatory environment, and workload are the actual drivers that determine the number of administrative personnel required to deliver support services. A detailed workload analysis is advised, during which SFD can identify critical tasks, duties, expectations, and gaps that exist to determine current and future needs. A workload analysis falls beyond the scope of this study. However, ESCI has observed that SFD is lightly staffed in this regard.

Recommendation K: Plan for the Addition of a Staffed Fire Station as the North of Boronda Future Growth Area Develops

The City of Salinas has a significant area at its north that is currently undeveloped. There are plans for development in the near future. SFD has suggested as part of the planning that an additional fire station and response crew will be needed to provide service to these areas.

ESCI has reviewed this future need and concurs. In order to provide response times in keeping with the City's goals, additional resources are needed. There is a site already designated for a new fire station that will provide very good response coverage of the newly developed areas.

Between Stations 5 and 6, and the new station, response coverage to the North of Boronda area will be keeping with the City's goals.

The timing of the addition of the station and crew is important. The station should be constructed early, along with all the other infrastructure required for the development (roads, utility lines, etc.). The station should be staffed when properties begin to be occupied. This will ensure that residents of the new development will have adequate fire and emergency services from the onset.

Recommendation L: Add a Second Battalion Chief per Shift for a Total of Three Additional Battalion Chiefs

SFD currently staffs each operational shift with one Battalion Chief. The Battalion Chief's duties include coordination of all on-shift response personnel and supervision of response crews, ensuring coverage is balanced across the city and assuming command of larger incidents. Typically, agencies staff with one Battalion Chief for every five response units. The SFD's single on-shift Battalion Chief is managing 8 response units.

Adding a second Battalion Chief will improve overall shift management. Greater attention can be given to the needs of response crews, including training, communications, and the like. In addition, a second Battalion Chief will improve effective response force coverage.

Cost to Implement

Figure 117: Projected Costs of Adding a Second Battalion Chief per Shift for a Total of Three Additional Battalion Chiefs

Expenditures	Projections				
	FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25
Battalion Chief	140,690	147,725	155,111	162,866	171,010
Pension – Current	18,712	19,647	20,630	21,661	22,744
Pension – UAL	5,500	8,600	12,000	15,000	16,000
Taxes	2,040	2,142	2,249	2,362	2,480
Insurance and Other Benefits	52,055	54,658	57,391	60,261	63,274
Total Benefits	**78,307**	**85,047**	**92,270**	**99,283**	**104,497**
Salaries and Benefits Per Person	**218,997**	**232,772**	**247,381**	**262,150**	**275,507**
Annual uniform allowance	1,000	1,000	1,000	1,000	1,000
Tuition allowance	1,000	1,000	1,000	1,000	1,000
Physical fitness incentive	1,000	1,000	1,000	1,000	1,000
Annual Personnel Cost Per Person	**221,997**	**235,772**	**250,381**	**265,150**	**278,507**
Proposed Units	3	3	3	3	3
Total Annual Personnel Costs	**665,991**	**707,316**	**751,143**	**795,450**	**835,521**

APPENDIX A—HAZARD VULNERABILITY RISK TABLES

ESCI HAZARD AND VULNERABILITY ASSESSMENT TOOL

STRUCTURE FIRES

EVENT	PROBABILITY	SEVERITY = IMPACT - MITIGATION)						RISK
		COMMUNITY IMPACT			MITIGATION CAPACITY			
	Likelihood this will occur	HUMAN IMPACT	PROPERTY IMPACT	BUSINESS IMPACT	PREPARED-NESS	INTERNAL RESPONSE	EXTERNAL RESPONSE	*Relative threat**
SCORE	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Very High	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	*0 - 100%*
Moderate Risk Urban	4	3	3	3	3	2	2	**67%**
High Risk Urban	4	4	4	3	3	2	2	**75%**
Moderate Risk Suburban	4	3	3	2	3	2	2	**63%**
High Risk Suburban	4	3	3	3	3	2	2	**67%**
Moderate Risk Rural	4	2	2	2	3	2	2	**54%**
High Risk Rural	4	3	3	3	3	2	2	**67%**
Low Risk Rural	4	2	2	2	2	2	2	**50%**
AVERAGE SCORE	4.00	2.86	2.86	2.57	2.86	2.00	2.00	**63%**

ESCI HAZARD AND VULNERABILITY ASSESSMENT TOOL

NON-STRUCTURE FIRES

EVENT	PROBABILITY	SEVERITY = IMPACT - MITIGATION)						RISK
		COMMUNITY IMPACT			MITIGATION CAPACITY			
	Likelihood this will occur	HUMAN IMPACT	PROPERTY IMPACT	BUSINESS IMPACT	PREPARED-NESS	INTERNAL RESPONSE	EXTERNAL RESPONSE	*Relative threat**
SCORE	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Very High	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	*0 - 100%*
High Risk Urban	4	3	3	3	2	2	3	**67%**
Moderate Risk Urban	4	3	3	2	2	2	3	**63%**
Low Risk Urban	4	3	3	2	2	2	3	**63%**
Urban/Wildland Interface	1	3	1	1	2	3	3	**14%**
AVERAGE SCORE	3.25	3.00	2.50	2.00	2.00	2.25	3.00	**50%**

ESCI HAZARD AND VULNERABILITY ASSESSMENT TOOL EMS-MEDICAL ASSISTS								
EVENT	PROBABILITY	SEVERITY = IMPACT - MITIGATION)						RISK
		COMMUNITY IMPACT			MITIGATION CAPACITY			
	Likelihood this will occur	HUMAN IMPACT	PROPERTY IMPACT	BUSINESS IMPACT	PREPARED-NESS	INTERNAL RESPONSE	EXTERNAL RESPONSE	*Relative threat**
SCORE	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Very High	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	*0 - 100%*
High Risk	4	3	1	1	1	1	3	**42%**
Moderate Risk	4	3	1	1	1	1	3	**42%**
Low Risk	4	3	1	1	1	1	3	**42%**
AVERAGE SCORE	**1.71**	**1.29**	**0.43**	**0.43**	**0.43**	**0.43**	**1.29**	**42%**

ESCI HAZARD AND VULNERABILITY ASSESSMENT TOOL RESCUE								
EVENT	PROBABILITY	SEVERITY = IMPACT - MITIGATION)						RISK
		COMMUNITY IMPACT			MITIGATION CAPACITY			
	Likelihood this will occur	HUMAN IMPACT	PROPERTY IMPACT	BUSINESS IMPACT	PREPARED-NESS	INTERNAL RESPONSE	EXTERNAL RESPONSE	*Relative threat**
SCORE	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Very High	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	*0 - 100%*
Rescue - MVA	4	3	1	0	2	1	3	**42%**
Rescue - Structural Collapse	2	3	3	3	3	2	3	**35%**
Rescue - Trench	2	3	1	1	4	2	3	**29%**
Rescue - Low/High Angle	2	3	1	1	4	2	3	**29%**
Rescue - Confined Space	2	3	1	1	4	2	3	**29%**
Rescue - Swiftwater	2	3	1	1	4	2	3	**29%**
Rescue - Stillwater	2	3	1	1	3	2	3	**27%**
Rescue - Ice	0	0	0	0	0	0	0	**0%**
Rescue - Other	2	3	2	1	2	2	3	**27%**
AVERAGE SCORE	**1.71**	**2.57**	**1.00**	**0.86**	**3.00**	**1.71**	**2.57**	**25%**

ESCI HAZARD AND VULNERABILITY ASSESSMENT TOOL								
HAZARDOUS MATERIALS								
EVENT	PROBABILITY	SEVERITY = IMPACT - MITIGATION)						RISK
		COMMUNITY IMPACT			MITIGATION CAPACITY			
	Likelihood this will occur	HUMAN IMPACT	PROPERTY IMPACT	BUSINESS IMPACT	PREPARED-NESS	INTERNAL RESPONSE	EXTERNAL RESPONSE	*Relative threat**
SCORE	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Very High	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	*0 - 100%*
High Risk Hazmat - Urban	2	4	4	4	2	2	2	**38%**
Moderate Risk Hazmat - Urban	2	3	3	3	2	2	2	**31%**
Low Risk Hazmat - Urban	2	2	2	2	2	2	2	**25%**
High Risk Hazmat - Suburban	2	3	4	4	2	2	2	**35%**
Moderate Risk Hazmat - Suburban	2	2	3	3	2	2	2	**29%**
Low Risk Hazmat - Suburban	2	1	2	2	2	2	2	**23%**
High Risk Hazmat - Rural	2	3	4	3	2	2	2	**33%**
Moderate Risk Hazmat - Rural	2	2	3	2	2	2	2	**27%**
Low Risk Hazmat - Rural	2	1	2	1	2	2	2	**21%**
AVERAGE SCORE	2.00	2.00	2.86	2.43	2.00	2.00	2.00	**29%**

ESCI HAZARD AND VULNERABILITY ASSESSMENT TOOL								
NATURALLY OCCURRING EVENTS								
EVENT	PROBABILITY	SEVERITY = IMPACT - MITIGATION)						RISK
		COMMUNITY IMPACT			MITIGATION CAPACITY			
	Likelihood this will occur	HUMAN IMPACT	PROPERTY IMPACT	BUSINESS IMPACT	PREPARED-NESS	INTERNAL RESPONSE	EXTERNAL RESPONSE	*Relative threat*
SCORE	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Very High	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	*0 - 100%*
Tornado	1	2	4	4	2	2	2	**17%**
Severe Thunderstorm	2	2	4	4	2	2	2	**33%**
Snow Fall	0	0	0	0	2	2	2	**0%**
Blizzard	0	0	0	0	2	2	2	**0%**
Ice Storm	0	0	0	0	2	2	2	**0%**
Earthquake	2	3	3	3	2	2	2	**31%**
Tidal Wave	0	0	0	0	2	2	2	**0%**
Temperature Extremes	3	2	3	3	2	2	2	**44%**
Drought	3	2	3	3	2	2	2	**44%**
Flood, External	3	4	4	3	2	2	2	**53%**
Wild Fire	2	1	1	1	2	2	2	**19%**
Landslide	2	2	2	2	2	2	2	**25%**
Dam Inundation	2	4	4	4	2	2	2	**38%**
Volcano	0	0	0	0	3	3	3	**0%**
Epidemic	2	4	4	4	2	2	2	**38%**
AVERAGE SCORE	2.00	2.43	2.57	2.43	2.14	2.14	2.14	**19%**

ESCI HAZARD AND VULNERABILITY ASSESSMENT TOOL								
TECHNOLOGIC EVENTS								
EVENT	PROBABILITY	SEVERITY = IMPACT - MITIGATION)						RISK
		COMMUNITY IMPACT			MITIGATION CAPACITY			
	Likelihood this will occur	HUMAN IMPACT	PROPERTY IMPACT	BUSINESS IMPACT	PREPARED-NESS	INTERNAL RESPONSE	EXTERNAL RESPONSE	*Relative threat**
SCORE	0 - N/A 1 - Low 2 - Moderate 3 - High 4 - Very High	0 - N/A 1 - Low 2 - Moderate 3 - High 4 - Catastrophic	0 - N/A 1 - Low 2 - Moderate 3 - High 4 - Catastrophic	0 - N/A 1 - Low 2 - Moderate 3 - High 4 - Catastrophic	0 - Very High 1 - High 2 - Moderate 3 - Low 4 - None	0 - Very High 1 - High 2 - Moderate 3 - Low 4 - None	0 - Very High 1 - High 2 - Moderate 3 - Low 4 - None	*0 - 100%*
Electrical Failure	2	2	2	3	1	3	3	29%
Generator Failure	2	2	2	2	2	3	3	29%
Transportation Failure	2	2	2	3	2	2	2	27%
Fuel Shortage	2	3	1	4	3	3	3	35%
Natural Gas Failure	2	3	2	4	3	3	3	38%
Water Failure	2	4	4	4	3	3	3	44%
Sewer Failure	2	3	2	4	3	3	3	38%
Steam Failure	0	0	0	0	0	0	0	0%
Fire Alarm Failure	2	2	2	2	2	2	2	25%
Communications Failure	2	3	2	2	2	2	2	27%
Medical Gas Failure	2	4	1	3	3	3	3	35%
Medical Vacuum Failure	2	4	1	2	3	3	3	33%
HVAC Failure	2	2	2	2	3	3	3	31%
Information Systems Failure	2	3	2	4	3	3	3	38%
Fire, Internal	2	3	4	4	2	2	2	35%
Flood, Internal	2	3	4	4	2	2	2	35%
Hazmat Exposure, Internal	2	3	4	4	2	2	2	35%
Supply Shortage	2	3	2	4	3	3	3	38%
Structural Damage	2	3	4	4	2	2	2	35%
AVERAGE SCORE	2.00	2.86	3.14	3.71	2.43	2.43	2.43	30%

ESCI HAZARD AND VULNERABILITY ASSESSMENT TOOL								
HUMAN RELATED EVENTS								
EVENT	PROBABILITY	SEVERITY = IMPACT - MITIGATION)						RISK
		COMMUNITY IMPACT			MITIGATION CAPACITY			
	Likelihood this will occur	HUMAN IMPACT	PROPERTY IMPACT	BUSINESS IMPACT	PREPARED-NESS	INTERNAL RESPONSE	EXTERNAL RESPONSE	*Relative threat**
SCORE	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Very High	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	*0 - 100%*
Mass Casualty Incident (trauma)	2	3	1	1	2	2	2	**23%**
Mass Casualty Incident (medical/infectious)	2	3	1	1	2	2	2	**23%**
Terrorism	2	4	3	3	2	2	2	**33%**
VIP Situation	2	3	4	4	2	2	2	**35%**
Infant Abduction	2	3	1	2	3	3	3	**31%**
Hostage Situation	2	4	2	3	3	3	3	**38%**
Civil Disturbance	2	4	4	4	3	3	3	**44%**
Labor Action	2	4	3	4	3	3	3	**42%**
Forensic Admission	2	2	2	2	3	3	3	**31%**
Bomb Threat	2	2	2	2	2	2	2	**25%**
AVERAGE SCORE	2.00	3.14	2.57	3.00	2.71	2.71	3.57	**33%**

APPENDIX B—FIRE STATIONS/CAPITAL ASSETS

Capital Assets and Improvements

Three basic resources are required to successfully carry out the mission of a fire department—trained personnel, firefighting equipment, and fire stations. No matter how competent or numerous the firefighters, if appropriate capital equipment is not available for use by responders, it is impossible for a fire department to deliver services effectively. The capital assets that are most essential to the provision of emergency response are facilities and apparatus (response vehicles). The following figures summarize the fire stations and fire and EMS apparatus operated by the Salinas Fire Department.

Fixed Facilities

Fire stations play an integral role in the delivery of emergency services for several reasons. A station's location will dictate, to a large degree, response times to emergencies. A poorly located station can mean the difference between confining a fire to a single room and losing the structure. Fire stations also need to be designed to adequately house equipment and apparatus, as well as meet the needs of the organization, its workers, and/or its members.

Consideration should be given to a fire station's ability to support the jurisdiction's mission as it exists today and into the future. The activities that take place within the fire station should be closely examined to ensure the structure is adequate in both size and function.

ESCI associates conducted walk-through inspections of the Salinas Fire Department's Administrative Headquarters, fire stations, and fleet maintenance facility. ESCI utilized a standard check list at each facility inspection.

Special attention was made to the building's location, future use viability in terms of serving the community, and capability of accommodating an increase in staffing levels and emergency response apparatuses in the future.

Figure 118: Fire Station Condition Definitions

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

The following figures depict the results of ESCI's inspections:

Figure 119: Salinas Fire Department Administrative Offices

Station Name/Number:	**Fire Administration/Prevention Bureau Offices**					
Address/Physical Location:	65 W. Alisal Street, Unit 210					
	**General Description:** This two-story office building houses several city departments. Upstairs is a partitioned space for Fire Administration: Ops Div. Chief, EMS and Training Captains, and the Fire Chief's office. Downstairs is a partitioned space for the Fire Prevention Asst. Chief and staff, Planning, and Community Development staff. Permit centers are operated on both floors for issuance of fire and building permits. The building appears well cared for with no noteworthy structural problems. Plans to consolidate Fire Dept. staff upstairs will improve Fire Admin. workflow, economy of space, and customer service. Consolidating planning functions downstairs will benefit those services.					
Structure						
Construction Type	Masonry Brick					
Date of Construction	1984					
Seismic Protection	Yes					
Auxiliary Power	No					
General Condition	Good					
Number of Apparatus Bays	0	Drive-through bays		0	Back-in bays	
Special Considerations (ADA, etc.)	ADA					
Square Footage	400 sq. ft.					
Facilities Available						
Separate Rooms/Dormitory/Other	0	Bedrooms	0	Beds	0	Beds in dormitory
Maximum Station Staffing Capability	7					
Exercise/Workout Facilities	No					
Kitchen Facilities	No					
Individual Lockers/Storage Assigned	No					
Shower Facilities	No					
Training/Meeting Rooms	No					
Washer/Dryer	No					
Safety & Security						
Sprinklers	Yes					
Smoke Detection	Yes					
Decontamination/Biohazard Disposal	No					
Security	No					
Apparatus Exhaust System	No					
Assigned Apparatus/Vehicles						

Office/Staff	Minimum Staffing*	Comments
Administrative Staff	6	Upstairs office, 400 sq. ft.
Prevention Staff	8	Downstairs office, 300 sq. ft.

Figure 120: Salinas Fire Department Station #1

Fire Station Name/Number	**Salinas Fire Department Station #1**					
Address/Physical Location	216 West Alisal Street, Salinas, CA					
	**General Description:** This station houses E1, T1, and BC1 and also serves as the Fleet Maintenance Facility. It is a large, two-story station that has been kept up as well as possible by employees. It is easy to identify many major repairs that are needed including a new roof (multiple interior leaks), new flooring, new parking lot surface, and bathroom upgrades.					
Structure						
Construction Type	2-story, reinforced masonry/wood frame					
Date of Construction	1982					
Seismic Protection	Yes					
Auxiliary Power	Yes					
General Condition	Poor					
Number of Apparatus Bays	3	Drive-through bays			3	Back-in bays
Special Considerations (ADA, etc.)	Non-ADA					
Square Footage	Approximately 3,500 sq. ft living space					
Facilities Available						
Separate Rooms/Dormitory/Other	4	Bedroom		Beds	17	Beds in dormitory
Maximum Station Staffing Capability	17					
Exercise/Workout Facilities	Yes					
Kitchen Facilities	Yes					
Individual Lockers/Storage Assigned	Yes					
Shower Facilities	Yes; 2 gender specific					
Training/Meeting Rooms	2					
Washer/Dryer	Yes, only personal protective equipment and turnouts					
Safety & Security						
Sprinklers	No					
Smoke Detection	Yes					
Decontamination/Biohazard Disposal	No					
Security	Minimal—Manual keypads at 1 of 3 entry points. No fencing.					
Apparatus Exhaust System	Yes					
Assigned Apparatus/Vehicles						

Apparatus Call Sign	Minimum Staffing*	Comments
Engine 1	3	Type 1
Truck 1	3	105’ Aerial Ladder Truck
CMD-5	0	Command Unit
BC	1	Duty Battalion Chief
Engine 101	0	Reserve Engine
Engine 102	0	Reserve Engine
Truck 4	0	Reserve Truck

Figure 121: Salinas Fire Department Station #2

Fire Station Name/Number	**Salinas Fire Department Station #2**					
Address/Physical Location	10 West Laurel Drive Salinas, CA					
	**General Description:** Station #2 is a very small and old station; it is obvious that the crews take pride in maintaining its condition as much as possible. Station #2 is in a bad location, situated on a corner lot, making egress in and out difficult. The parking area is very limited and difficult to navigate. The workout room is in the apparatus bay, exposed to exhaust emissions and contamination. The kitchen is in significant need of a remodel.					
Structure						
Construction Type	Ordinary wood-framed, single-story structure					
Date of Construction	1951					
Seismic Protection	No					
Auxiliary Power	Yes					
General Condition	Fair–Poor					
Number of Apparatus Bays	0	Drive-through bays			0	Back-in bays
Special Considerations (ADA, etc.)	Non-ADA					
Square Footage	Approximately 1,400 sq. ft living space					
Facilities Available						
Separate Rooms/Dormitory/Other	1	Bedroom		Beds	4	Beds in dormitory
Maximum Station Staffing Capability	4					
Exercise/Workout Facilities	Yes					
Kitchen Facilities	Yes					
Individual Lockers/Storage Assigned	Yes					
Shower Facilities	Yes, Only one for both genders					
Training/Meeting Rooms	No					
Washer/Dryer	No					
Safety & Security						
Sprinklers	Modified					
Smoke Detection	Yes					
Decontamination/Biohazard Disposal	No					
Security	Rear-yard fencing					
Apparatus Exhaust System	Yes					
Assigned Apparatus/Vehicles						
Apparatus Call Sign	**Minimum Staffing***	**Comments**				
Engine 2	3	Type 1				
Engine 104	0	Type 1 Reserve Engine				

Figure 122: Salinas Fire Department Station #3

Fire Station Name/Number	**Salinas Fire Department Station #3**				
Address/Physical Location	827 Abbott Place, Salinas, CA				
	**General Description:** Station #3 is old and in need of significant repair and upgrade. This station also serves as the Department's Training facility. The workout area is in the apparatus room, exposed to diesel exhaust emissions and contamination. The dormitory is directly connected to the apparatus room, exposing it to diesel exhaust emissions and contamination. There is no co-ed bathroom, and the shower is small with two shower heads. The dormitory has no privacy areas, and some of the cabinetry was noted to either be broken or nonfunctional. There are reportedly sewer and drain issues. Floor coverings need replacing, and the station is cooled with window AC units, some of which are not in working order.				
Structure					
Construction Type	1-story, masonry block				
Date of Construction	1957				
Seismic Protection	No				
Auxiliary Power	Yes				
General Condition	Fair–Poor				
Number of Apparatus Bays	0	Drive-through		2	Back-in bays
Special Considerations (ADA, etc.)	Non-compliant				
Square Footage	Approximately 1,300 sq. ft				
Facilities Available					
Separate Rooms/Dormitory/Other	2	Bedroom		4	Beds in dormitory
Maximum Station Staffing Capability	4				
Exercise/Workout Facilities	Yes				
Kitchen Facilities	Yes				
Individual Lockers/Storage Assigned	Yes				
Shower Facilities	Yes; Only 1 for both genders				
Training/Meeting Rooms	No				
Washer/Dryer	No				
Safety & Security					
Sprinklers	No				
Smoke Detection	Yes				
Decontamination/Biohazard Disposal	No				
Security	Rear fencing				
Apparatus Exhaust System	Yes				
Assigned Apparatus/Vehicles					
Apparatus Call Sign	**Minimum Staffing***	**Comments**			
Engine 3	3	Type 1			
Engine 105	0	Type 1 Reserve Engine			

Figure 123: Salinas Fire Department Station #4

Fire Station Name/Number	**Salinas Fire Department Station #4**					
Address/Physical Location	308 Williams Road, Salinas, CA					
	**General Description:** Station #4 is in need of repair, and it was evident that the crews clearly take pride in keeping it well maintained. The floors need to be replaced, many windows leak, and there is a need for general upgrades. The parking lot needs to be resurfaced. There are four (4) apparatus located in the apparatus bay, making it difficult to move around the station.					
Structure						
Construction Type	1-story, ordinary wood construction					
Date of Construction	1966					
Seismic Protection	No					
Auxiliary Power	Yes					
General Condition	Fair–Poor					
Number of Apparatus Bays	0	Drive-through bays			2	Back-in bays
Special Considerations (ADA, etc.)	Non-compliant					
Square Footage	Approximately 1,400 sq. ft					
Facilities Available						
Separate Rooms/Dormitory/Other	2	Bedroom		Beds	4	Beds in dormitory
Maximum Station Staffing Capability	4					
Exercise/Workout Facilities	Yes					
Kitchen Facilities	Yes					
Individual Lockers/Storage Assigned	Yes					
Shower Facilities	Yes 2/Separate for both genders					
Training/Meeting Rooms	No					
Washer/Dryer	No					
Safety & Security						
Sprinklers	No					
Smoke Detection	Yes					
Decontamination/Biohazard Disposal	No					
Security	Rear-yard fencing					
Apparatus Exhaust System	Yes					
Assigned Apparatus/Vehicles						
Apparatus Call Sign	**Minimum Staffing***	**Comments**				
Engine 4	3	Type 1				
CR-4	3-CS	ARFF				
OES 323	0	State Engine only staffed by request				

Figure 124: Salinas Fire Department Station #5

Fire Station Name/Number	**Salinas Fire Department Station #5**					
Address/Physical Location	1400 Rider Avenue, Salinas, CA					
	**General Description:** Station # 5 is the newest of the Salinas Fire Stations and houses two 3-person companies. Unfortunately, it was only built for a single company, and the apparatus bay was expanded recently to accommodate the second company. The crew quarters were not expanded, and there are not enough lockers for all 18 assigned personnel. The workout room is in the apparatus bay exposed to diesel exhaust emissions and contamination. There are not enough exhaust hoses for the apparatus, and all apparatus have to back into the fire station due to the new angle of departure created by the expansion.					
Structure						
Construction Type	1-story, ordinary wood construction					
Date of Construction	2000					
Seismic Protection	Yes					
Auxiliary Power	Yes					
General Condition	Good–Fair					
Number of Apparatus Bays	0	Drive-through bays		2	Back-in bays	
Special Considerations (ADA, etc.)	Yes					
Square Footage	Approximately 2,000					
Facilities Available						
Separate Rooms/Dormitory/Other	4	Bedroom		Beds	8	Beds in dormitory
Maximum Station Staffing Capability	8					
Exercise/Workout Facilities	Yes					
Kitchen Facilities	Yes					
Individual Lockers/Storage Assigned	Yes					
Shower Facilities	Yes 2/Separate for both genders					
Training/Meeting Rooms	No					
Washer/Dryer	Yes—only for personal protection equipment and turnouts					
Safety & Security						
Sprinklers	Yes					
Smoke Detection	Yes					
Decontamination/Biohazard Disposal	No					
Security	Rear fencing					
Apparatus Exhaust System	Yes					
Assigned Apparatus/Vehicles						
Apparatus Call Sign	**Minimum Staffing***	**Comments**				
Engine 5	3	Type 1				
Truck-2	3	105’ Aerial				
BR-5	3–CS	Type 3				
Hazmat 1	0	Staffed as needed				

Figure 125: Salinas Fire Department Station #6

Fire Station Name/Number	**Salinas Fire Department Station #6**					
Address/Physical Location	45 East Bolivar Street, Salinas, CA					
	**General Description:** Station #6 is older but generally in good condition. Again, it is obvious the crews take a lot of pride and keep it well maintained. There are no co-ed facilities in the fire station and only one bathroom with one shower. It is a small structure but appears to accommodate the crews adequately.					
Structure						
Construction Type	1-story, Masonry block					
Date of Construction	Unknown					
Seismic Protection	No					
Auxiliary Power	Yes					
General Condition	Fair–Poor					
Number of Apparatus Bays	0	Drive-through bays			2	Back-in bays
Special Considerations (ADA, etc.)	Non-compliant					
Square Footage	Approximately 1,300					
Facilities Available						
Separate Rooms/Dormitory/Other	1	Bedroom	Type 2	Beds	3	Beds in dormitory
Maximum Station Staffing Capability	3					
Exercise/Workout Facilities	Yes					
Kitchen Facilities	Yes					
Individual Lockers/Storage Assigned	Yes					
Shower Facilities	Yes, Only 1 for both genders					
Training/Meeting Rooms	No					
Washer/Dryer	No					
Safety & Security						
Sprinklers	Modified					
Smoke Detection	Yes					
Decontamination/Biohazard Disposal	No					
Security	Rear fencing					
Apparatus Exhaust System	Yes					
Assigned Apparatus/Vehicles						
Apparatus Call Sign	**Minimum Staffing***	**Comments**				
Engine 6	3	Type 1				

Facilities Summary

The five facilities range in age from 18 to 64 years old. Several have undergone varying levels of remodel/upgrades since their construction date, but most, if not all, need significant repair and/ or upgrade.

Although all structures require routine maintenance, fire stations require even more because they are staffed with three or more adults operating 24 hours per day. Because much of the routine maintenance has been deferred, many repairs are beginning to accumulate and becoming more urgent than "routine."

For example, many of the stations need parking lot resurfacing. They accumulate standing water pools during inclement weather and pose an uneven trip hazard for the public and employees. Some fire stations need roof replacements or repairs to stop water from leaking into the building. Water leaks that are allowed to accumulate pose a mold and mildew hazard that could affect the health of the occupants.

In addition to the routine maintenance needs, there are safety standards that are being overlooked. For example, there are diesel emission removal systems that are not functioning, there are sleeping and eating areas that are immediately adjacent to the apparatus rooms, several of the stations have their workout areas within areas contaminated by diesel emissions, and most stations do not have adequate shower facilities for all personnel to shower simultaneously should they become contaminated.

Lastly, most of the stations are not suitable for co-ed occupancy. Sleeping areas have no provision for privacy, there are no designated male/ female bathrooms, and some showers are still designed for use by more than one person.

The one positive note is that despite many of the stations being aged and in need of repair, personnel show a true sense of pride in what they have. In many stations, employees have completed repairs at their personal expense and have worked both on and off duty to complete repairs and maintenance.

In summary, maintenance on the fire facilities can no longer be deferred. Needed maintenance and repairs are accumulating to the point where potential liability is beginning to outweigh the savings achieved through deferral. A detailed assessment of all fire facilities should be made as soon as possible, and from that survey a list of priorities should be used to develop a master facility maintenance plan for the City.