



## **A G E N D A**

CITY OF SEASIDE  
SUCCESSOR AGENCY TO THE  
REDEVELOPMENT AGENCY  
OF THE CITY OF SEASIDE

JOINT SPECIAL MEETING  
VIRTUAL ONLY  
Thursday, July 16, 2020  
5:30 PM

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This meeting is compliant with Governor Newsom's Executive Order N-29-20 which allows local legislative bodies to hold public meetings electronically only, without a physical location for public participation, accessible only telephonically or otherwise electronically (video conferencing) to all members of the public seeking to observe and address the local legislative body, in order to avoid public gatherings, and until further notice.

**REMOTE PUBLIC COMMENTS** To make a public comment, the following options are available:

- Before the Meeting via Email: Written comments can be emailed to [CityClerk@ci.seaside.ca.us](mailto:CityClerk@ci.seaside.ca.us) Include the following subject line: "Public Comment Item # (insert the agenda item number relevant to your comment). Written comments must be received by 5:00 p.m. on the day of the meeting. All submitted comments will be provided to the City Council or the Board for consideration, compiled as part of the record, and may be read into the record.
- During the Meeting via Oral Comments: When the Chair calls for public comment, attendees can queue to speak with the "Raise Hand" feature. On the Zoom application, click the "Raise Hand" button. On the phone, press \*9. The Secretary to the Board will call speaker names and unmute speaker microphones. You will have up to 2 minutes to provide your comments, with time set by the discretion of the Mayor. Please note, if you chose to make comments orally, your written comments will not be read but will be included in the final record.

In an effort to ensure the virtual process closely follows our normal process, public comment will be accepted in writing during the meeting, but may not be read into the record during the meeting, but will be included as part of the final administrative record. Please do not plan to use the chat or Q&A features to put a comment on record. These resources are for tech support only.

### **1. CALL TO ORDER & VIRTUAL MEETING INFORMATION**

This meeting can be watched via the City of Seaside You Tube channel  
[https://www.youtube.com/channel/UC1Cu7854Ohtjpr\\_XV1tDvRg](https://www.youtube.com/channel/UC1Cu7854Ohtjpr_XV1tDvRg)

Or by joining the Zoom webinar link

<https://us02web.zoom.us/j/87011986334?pwd=eUw3VzN5SHNTOUR2ZHkvVTRwaFNyUT09>

Meeting Id 870 1198 6334  
Password: 206622

**2. CITY COUNCIL/SUCCESSOR AGENCY TO REDEVELOPMENT AGENCY OF THE CITY OF SEASIDE**

|                  |                          |
|------------------|--------------------------|
| Ian N. Oglesby   | Mayor/Chair              |
| David R. Pacheco | Mayor Pro Tem/Vice Chair |
| Jason Campbell   | Council/Agency Member    |
| Jon Wizard       | Council/Agency Member    |
| Alissa Kispersky | Council/Agency Member    |

**3. PLEDGE OF ALLEGIANCE**

**4. PUBLIC COMMENT**

*Members of the public wishing to address the City Council on matters within the jurisdiction of the City of Seaside, but not on this agenda, may do so during the Public Comment period for up to three minutes. Public Comments on specific agenda items are heard under that item. For the public record, please state your name.*

**5. CONSENT AGENDA**

**A. APPROVE AND FILE SUCCESSOR AGENCY CHECKS**

**RECOMMENDATION:** Approve and file the accounts payable and wired payments made during the period of June 20, 2020 through July 3, 2020 including the payroll and benefits checks, direct deposits and wired payments related to the pay period ending July 3, 2020. Total Accounts Payable and Payroll for the above referenced period is \$207.72.

**6. PRESENTATIONS**

**A. RECEIVE PRESENTATION BY EMERGENCY SERVICES CONSULTING INTERNATIONAL OUTLINING THE FINDINGS OF THE CITY OF SEASIDE FIRE DEPARTMENT COMMUNITY RISK ASSESSMENT/STANDARDS OF COVER REPORT.**

**RECOMMENDATION:** Receive report.

**B. RECEIVE PRESENTATION FROM MONTEREY ONE WATER REGARDING POTENTIAL RATE INCREASE**

**RECOMMENDATION:** Receive presentation and ask questions as necessary.

**7. CLOSED SESSION**

**A. CONFERENCE WITH LEGAL COUNSEL - EXISTING LITIGATION PURSUANT TO GOVERNMENT CODE SECTION 54956.9**

Committee for Sound Water and Land Development of Fort Ord v. City of Seaside, et al, real parties in interest; Monterey County Superior Court Case No. 20 CV 001203.

**8. ADJOURNMENT**

Next Regularly Scheduled Meeting:  
August 6, 2020  
Seaside City Hall  
5:30 PM

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The City of Seaside is committed to providing accessible facilities and accommodating people with disabilities in all of its services programs and activities. If special considerations are needed by any person to fully participate in this meeting, contact the City Clerk at 899-6707 no fewer than two business days prior to the meeting to allow reasonable arrangements. Agendas are posted at:  
<http://www.ci.seaside.ca.us/129/City-Council-Committee-Agendas>

Agenda-related writings or documents provided during public meetings are available for public inspection during the meeting or from the office of the City Clerk. This agenda is posted in compliance with California Governor Newsom's Executive Orders N-29-20 and N-33-20.



**CITY OF SEASIDE  
STAFF REPORT**

**Item No.: 5.A.**

**TO:** Successor Agency to the Redevelopment Agency of the City of Seaside

**FROM:** Craig Malin, City Manager

**BY:** Jessica Riley, Accounting Assistant  
Kimberly Drabner, Finance Director

**DATE:** July 16, 2020

**SUBJECT: APPROVE AND FILE SUCCESSOR AGENCY CHECKS**

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**PURPOSE & RECOMMENDATION**

Approve and file the accounts payable and wired payments made during the period of June 20, 2020 through July 3, 2020 including the payroll and benefits checks, direct deposits and wired payments related to the pay period ending July 3, 2020. Total Accounts Payable and Payroll for the above referenced period is \$207.72.

**BACKGROUND**

In accordance with Government Code Section 37208, at each City Council meeting the Council is provided a listing of the payroll and general checks issued since the last report so that it can inspect and confirm these checks. Each purchase has been reviewed and approved by the department making the purchase at the time of procurement. The invoice has been reviewed by the Finance Department prior to payment to ensure that it conforms to the approved budget.

Therefore, in accordance with Government Code Section 37208, the above referenced, and linked list of checks conforms to the approved budget and has been paid. These checks are submitted to the City Council for inspection and confirmation.

A description of the checks and wires exceeding \$10,000 are as follows:

- No checks exceeded \$10,000.

The Checks report is available on the City's website here:  
<https://www.ci.seaside.ca.us/354/Check-Draft-Register>

### **FISCAL IMPACT**

There are no additional fiscal impacts.

### **ATTACHMENTS**

None

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## **CITY OF SEASIDE STAFF REPORT**

**Item No.: 6.A.**

**TO:** Successor Agency to the Redevelopment Agency of the City of Seaside

**FROM:** Craig Malin, City Manager

**BY:** Brian Dempsey, Fire Chief

**DATE:** July 16, 2020

**SUBJECT: RECEIVE PRESENTATION BY EMERGENCY SERVICES  
CONSULTING INTERNATIONAL OUTLINING THE FINDINGS OF  
THE CITY OF SEASIDE FIRE DEPARTMENT COMMUNITY RISK  
ASSESSMENT/STANDARDS OF COVER REPORT.**

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### **PURPOSE & RECOMMENDATION**

Receive report.

### **BACKGROUND**

On August 1st 2019 City Council approved an agreement with Emergency Services Consulting International to craft a Community Risk Assessment/Standards of Cover Report. The CRA/SOC is a component of the process of accreditation through the Center for Public Safety Excellence (CPSE). Accreditation is a comprehensive self-assessment and quality improvement model that will allow the department to analyze past, present, and future service levels and internal performance factors and compare them to current research and fire service industry best practices. The purpose of this process is to develop a more efficient and effective emergency service organization.

Accreditation is a three-step process including a Community Driven Strategic Plan, a Community Risk Assessment/Standard of Cover (CRA/SOC) and a Department Self-Assessment.

The CRA/SOC study is both labor intensive as well as technology and data driven and we believed bringing on an expert with an outside perspective was of great benefit to

the City.

Emergency Services Consulting International is the consulting firm of the International Association of Fire Chiefs, Emergency Services Consulting International has reliably met the needs of emergency services agencies for over 40 years and is a national leader in fire, EMS, communications, and law enforcement consulting.

### **FISCAL IMPACT**

None

### **ATTACHMENTS**

1. Final Community Risk Assessment/Standards of Cover Document
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Reviewed for Submission to the  
City Council by:



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Craig Malin, City Manager



# City of Seaside Fire Department

*California*

## COMMUNITY RISK ASSESSMENT: STANDARDS OF COVER

## INTRODUCTION

The following report serves as the Seaside Fire Department *Community Risk Assessment: Standards of Cover*. It follows closely the Center for Fire Public Safety Excellence (CPSE) 6<sup>th</sup> 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 of 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 many 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 goals, and distribution and concentration measures. The report will provide an 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 Seaside, the Seaside Fire Department, and all others who contributed to this study.

**Ian Oglesby**  
*Mayor*

**Dave Pacheco**  
*Mayor Pro Tem*

**Jason Campbell**  
*Council Member*

**Jon Wizard**  
*Council Member*

**Alissa Kispersky**  
*Council Member*



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## EXECUTIVE SUMMARY

The City of Seaside Fire Department (SFD) contracted with Emergency Services Consulting International to conduct a Center for Public Safety Excellence, 6<sup>th</sup> Edition-compliant, Community Risk Assessment: Standards of Cover report. This *Community Risk Assessment: Standards of Cover* report quantifies community risks and recommends standards of service.

ESCI analyzed the data provided by SFD and others 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 identified 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, 6<sup>th</sup> Edition*.

SFD serves a resident population of approximately 35,267 people and protects an area of roughly 10 square miles. SFD operates from one fire station. The department currently utilizes two response apparatus, not including cross-staffed or reserve apparatus. Emergency (9-1-1) answering is provided by Monterey County Emergency Communications Department (ECD). Monterey County's Consolidated Emergency Fire Dispatch Center.

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

- Pre-incident planning is not being conducted on a regular basis.
- Buildings needing retrofitting for seismic protection have not been fully identified for operations personnel.
- The department lacks the staffing necessary to implement a coordinated Community Risk Reduction program.
- The department does not maintain a schedule to inspect all occupancies not required by the State of California.
- All operational permits required by the California Fire Code are not being issued, nor are fees collected for the occupancies.
- The level of administrative support appears to be inadequate for an organization the size and complexity of SFD.
- The total fire department response workload has increased by 36.1% over the last 10 years.
- The department's greatest demand for service is in the southernmost corner of the city.
- Engine 6211 is nearing 10% utilization, indicating its ability to achieve an on-time response is compromised.
- SFD is not able to staff a number of incident types in accordance with its Critical Tasking Analysis without the assistance of outside agencies.
- Overall, MCEC's call processing performance during 2019 exceeded SFD's goals.
- The workload at MCEC appears to be impacting the dispatch center's performance.

- At the time of this study, ECD was not utilizing Medical Priority Dispatch to prioritize requests for triaging the dispatch of fire units to emergency medical incidents.
- Turnout times for all incident types exceed SFD's goals.
- SFD's travel times exceed its goals for all incident types.
- Fire station workspaces are cramped, and demand has outstripped available accommodations.
- The City's General Fund Reserve Balance is a respectable 54% of General Fund Annual Recurring Expenditures allowing the City to take advantage of opportunities or to weather financial downturns.

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 to guide service delivery improvement.**

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: Reduce the time required to dispatch a fire incident.**

Currently, it takes well over 2 minutes for MCEC to dispatch a fire incident. Performance for other incident types is at or near national recommendations.

### **Recommendation C: Update traffic signal pre-emption equipment to include all signal-controlled intersections.**

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 D: Improve SFD response unit turnout times.**

National guidance suggests turnout time should be within 80 seconds, 90% of the time for fire and special operations incidents, and within 60 seconds, 90% of the time for all other priority incidents. SFD response crew turnout times currently are longer.

### **Recommendation E: 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 non-emergent but are not recognized as such until the ambulance response has been downgraded or the arrival of the SFD responding unit.

**Recommendation F: Develop a fire and life safety inspection program.**

Inspections of commercial properties reduce risks to the public from fire and life safety hazards and allow SFD an opportunity to educate the business owner on proper prevention or mitigation efforts. The California Fire Code requires permits for certain operational processes or storage of products to maintain a safe environment.

**Recommendation G: Formalize and update Pre-Incident Planning for operations personnel.**

Pre-incident planning is designed to provide information for responding personnel to assist with strategies and tactics during an event and provides building familiarization to operations staff. SFD should institute pre-incident planning as soon as possible for operations personnel and develop a system to access the plans during an event. This process can also identify buildings not seismically protected from earthquakes.

**Recommendation H: Address administrative and support staff needs.**

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

**Recommendation I: Closely monitor the impact of new development on fire department workload.**

There exists much developable land within the City of Seaside. During the Stakeholder Interviews, ESCI was advised that plans had been approved for a development referred to as Campus Town.

**Recommendation J: 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 K: Explore cooperative services and consolidation opportunities.**

SFD is highly dependent on neighboring fire agencies for the delivery of effective response services to the City of Seaside. Although many incidents can be handled with one or both of the SFD response units, all building fires and other large incidents require support from outside agencies.

## DESCRIPTION OF COMMUNITY SERVED

### Organization Overview

Seaside is a city in Monterey County. The city is an ocean-side community that overlooks the beautiful Monterey Bay on the Central Coast of California, approximately 115 miles south of San Francisco. Founded in 1887 and incorporated in 1954, this 10 square-mile city continues to grow while holding on to the values upon which it was established. The estimated population of the city is 35,267. Seaside is located 8 miles west of Salinas, and is connected to Monterey, California, by California State Route 1.

The city includes part of the California State University, Monterey Bay (CSUMB), the Monterey College of Law and the Bayonet and Black Horse golf courses.

The City Council is responsible for hiring a City Manager to oversee the day-to-day affairs of the City through various departments, including the fire department. A Department Director manages each City department or, in the case of the police and fire departments, a Chief. A five-member City Council governs the City. City Council elections are held every two years in a general election in November of even-numbered years. The Mayor serves two-year terms, and the four members of the City Council have rotating 4-year terms.

## Financial Overview

### Organizational Finance

The City of Seaside has an assessed valuation of \$2,430,238,504 as of June 30, 2019.<sup>1</sup> This represents an increase in taxable value of approximately 6.2% from 2018. The City prepares a one-year operating budget and related other various capital improvement plans based on a July through June fiscal year. In conjunction with the budget preparation, the City produces a financial forecast for the following year.

As with most municipalities, the City of Seaside operates through numerous funds with the General Fund recording revenues and expenses for most governmental activities. General Fund revenues have increased from \$27,451,213 in FY 15/16 to \$33,227,726 in FY 18/19. General Fund revenues consist of property taxes and assessments (11%), sales taxes (32%), transaction taxes (13%), other taxes (37%), licenses, permits and fees (2%), charges for services (2%), and other types of revenues (3%). The City anticipates, through its budget adoption, the General Fund revenues will continue to increase. The City's operating expenditures provide for the majority of services provided. These expenditures include general government (4%), public safety (70%), economic development (8%), recreation (10%), public works (7%), and debt service (1%). The City is projected to sell real estate in the FY 19/20 budget cycle which should serve to strengthen the City's financial picture.

Municipalities, unlike a for-profit business, do not have the ability to immediately respond to changing economic conditions and require reasonable reserves to continue to provide service levels. The City's General Fund reserve balance is in excess of 50% as of June 30, 2019, a healthy balance.

**Figure 1: City of Seaside General Fund Resources,  
FY 15/16–18/19 Actual and Budgets for FY 19/20 and 20/21**

|                                    | Actual<br>15/16   | Actual<br>16/17   | Actual<br>17/18   | Actual<br>18/19   | Budget<br>19/20   | Forecast<br>20/21 |
|------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| <b>Revenues</b>                    | 27,451,213        | 28,582,387        | 31,210,943        | 33,227,726        | 32,596,187        | 32,924,696        |
| <b>Operating Expenditures</b>      | (24,192,383)      | (26,141,782)      | (26,352,188)      | (29,646,368)      | (35,317,976)      | (35,190,961)      |
| <b>Capital Lease/Debt Proceeds</b> | 28,477            | 1,127,047         | 1,014,649         | -                 |                   |                   |
| <b>Sale of Capital Assets</b>      | -                 | -                 | 1,075,080         | -                 | 3,308,508         |                   |
| <b>Transfers In (Out), Net</b>     | (1,725,062)       | (2,848,303)       | (863,139)         | (3,495,592)       | (585,719)         | 2,266,266         |
| <b>Net Change</b>                  | 1,562,245         | 729,349           | 6,085,345         | 85,766            | -                 | -                 |
| <b>Beginning Balance</b>           | 10,512,096        | 12,074,341        | 12,803,690        | 18,889,035        | 18,974,801        | 18,974,801        |
| <b>Ending Balance</b>              | <b>12,074,341</b> | <b>12,803,690</b> | <b>18,889,035</b> | <b>18,974,801</b> | <b>18,974,801</b> | <b>18,974,801</b> |

<sup>1</sup> City of Seaside Comprehensive Annual Financial Report, June 30, 2019.

## City of Seaside Fire Department

The Seaside Fire Department provides some funding support to defray the cost of its services to the residents of the City. The Department charges for certain services it provides, receives compensation from the State for responses to wildfire incidents, and continuously seeks grant funding for new or replacement capital resources. The Department received an award under the federal government's Staffing for Adequate Fire & Emergency Response (SAFER) to fund the recruitment, training, and retention of additional volunteer firefighters. The 2019 grant will provide \$139,000 divided over a three-year period. This funding was not included in the adopted FY 19/20 budget or the FY 20/21 forecast amounts.

**Figure 2: City of Seaside Fire Department FY 15/16–18/19 Actual and Budgets for FY 19/20 and 20/21**

|                                           | Actual<br>15/16 | Actual<br>16/17 | Actual<br>17/18 | Actual<br>18/19 | Budget<br>19/20 | Forecast<br>20/21 |
|-------------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-------------------|
| Grant Revenues                            | 168,468         | 324,324         | 1,388,178       | 145,995         | 46,333          | 46,333            |
| Reimbursements – Fire Response            | 242,024         | 505,423         | 273,285         | 178,862         | 147,241         | 147,241           |
| Fire Contracts                            | 195,000         | 146,250         | 195,000         | 237,168         | 200,850         | 206,876           |
| Other receipts                            | 63,616          | 41,956          | 52,034          | 69,017          | 68,000          | 68,000            |
| Operating Expenditures                    | 6,417,321       | 7,060,385       | 8,283,835       | 8,023,178       | 8,036,399       | 8,406,806         |
| Required General Fund Tax Revenue Subsidy | 5,748,213       | 6,042,432       | 6,375,338       | 7,392,136       | 7,573,975       | 7,938,356         |

The next figure shows the general operating expenditure history for the previous four fiscal years and the current adopted budget. During the five-year period, the Department's overall budget increased by 25%. Driving these costs were significant increases in Fire Administration and Fire Operations with substantial increases in salaries and benefits.

**Figure 3: Fire Department Expenditures by Year, Actual FY 15/16–FY 18/19 and Budget FY 19/20**

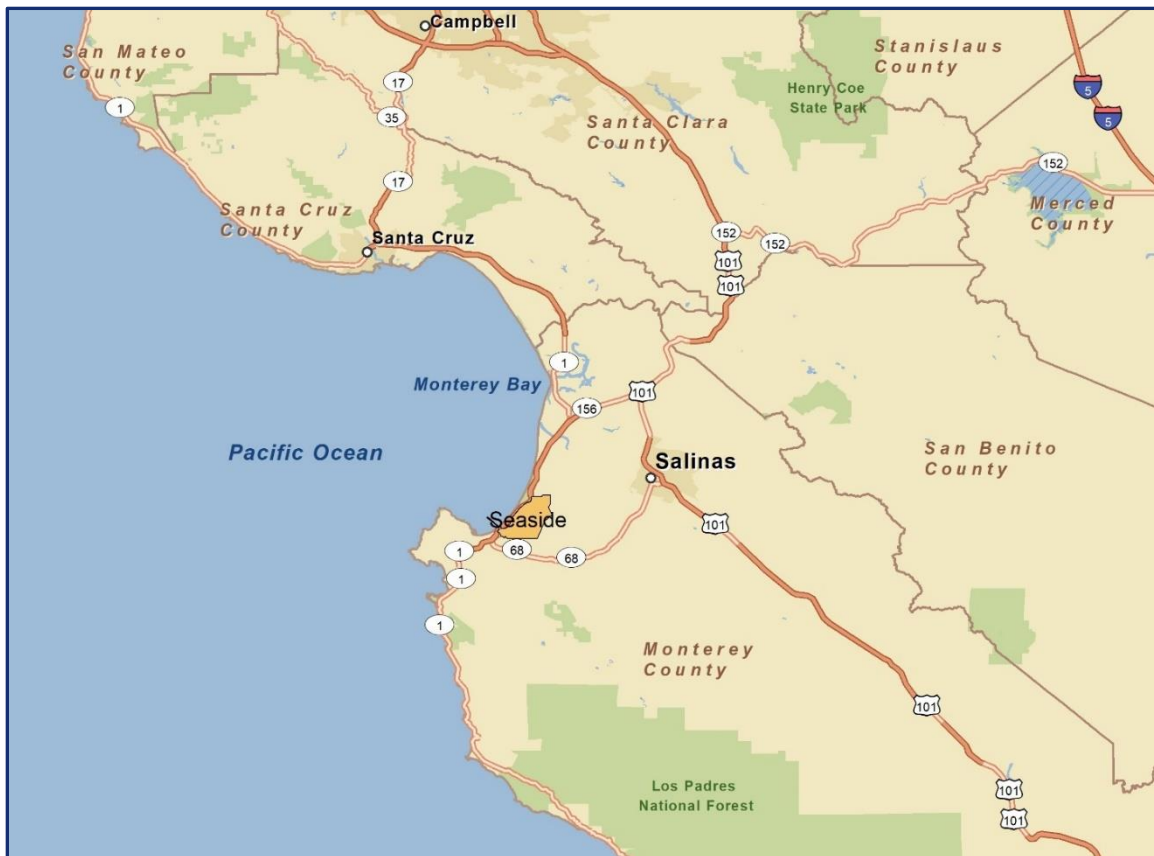
|                     | Actual<br>15/16  | Actual<br>16/17  | Actual<br>17/18  | Actual<br>18/19  | Budget<br>19/20  | Forecast<br>20/21 |
|---------------------|------------------|------------------|------------------|------------------|------------------|-------------------|
| Administration      | 670,756          | 942,298          | 1,653,578        | 1,003,650        | 1,016,943        | 1,011,711         |
| Prevention          | 6,483            | 4,194            | 11,153           | 7,590            | 2,200            | 2,200             |
| Training            | 15,895           | 16,319           | 11,836           | 19,563           | 17,600           | 17,605            |
| Operations          | 5,528,807        | 5,864,952        | 6,042,848        | 6,768,475        | 6,829,646        | 7,225,484         |
| Public Education    | 762              | 2,334            | 2,450            | 3,888            | 5,000            | 5,000             |
| Reserves            | 30,622           | 7,664            | 15,903           | 70,938           | 38,717           | 18,513            |
| Hazardous Materials | 478              | 770              | 384,133          | 15,934           | 500              | 500               |
| Emergency Services  | 7,898            | 5,754            | 11,119           | 10,918           | 8,000            | 8,000             |
| Fire – OES          | 155,620          | 216,100          | 150,815          | 122,222          | 117,793          | 117,793           |
| <b>Total</b>        | <b>6,417,321</b> | <b>7,060,385</b> | <b>8,283,835</b> | <b>8,023,178</b> | <b>8,036,399</b> | <b>8,406,806</b>  |

A comprehensive capital improvement and replacement program is important to the long-term financial and operational stability of any fire and/or 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. At the time of this writing, the City of Seaside does not have an adopted multi-year capital improvement plan for facilities and major equipment inclusive of fire apparatus.

### Service Area Overview

Incorporated in 1954, Seaside is located along the Central Coast of California and is the most populous city on the Monterey Peninsula. Seaside shares common boundaries with the cities of Monterey, Marina, Sand City, and the City of Del Rey Oaks. Portions of Seaside also have borders with the County of Monterey. In addition, the City provides fire protection services via contract to the City of Del Rey Oaks.

**Figure 4: Location of Seaside, CA**



The City of Seaside is the 229<sup>th</sup> largest city in California, with a population density of 3,672.04 people per square mile. Seaside Fire Department's service area population has grown by 5% between 2000 and 2019. The 2019 service area population is estimated at 35,599. The service covers approximately 10 square miles inclusive of Del Rey Oaks. A more thorough analysis of the Seaside population is discussed later in this report.

Seaside weather can be characterized as comfortable, dry, and mostly clear, and the winters are short, cold, wet, and partly cloudy. Over the course of the year, the temperature typically varies from 44°F to 70°F and is rarely below 36°F or above 80°F.

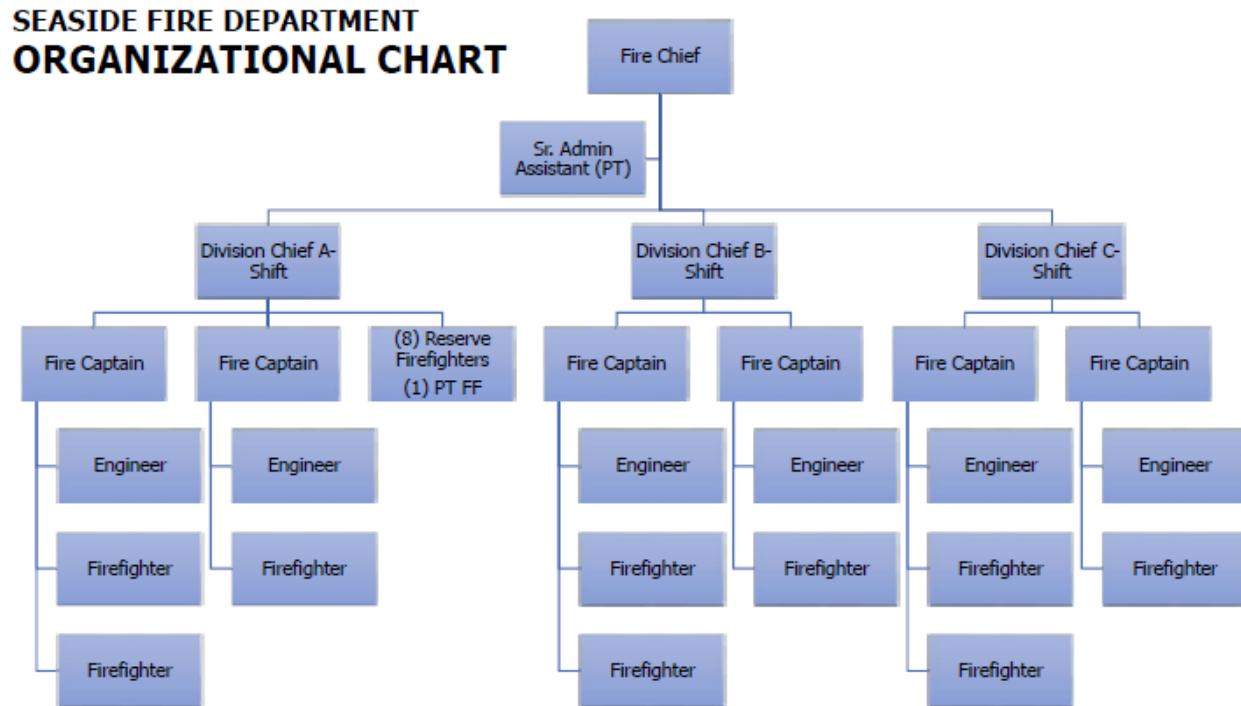
## REVIEW OF SERVICES PROVIDED

Seaside Fire Department's (SFD) service area includes all of the City of Seaside and Del Rey Oaks (via contract) and shares a common border with the Cities of Monterey, Sand City, Marina, and areas of the County of Monterey. SFD also provides and receives mutual aid to other agencies within the region when requested. The Fire Department provides a variety of all-risk response services, including structural firefighting and wildland fire suppression, basic life support (BLS) level emergency medical care, entrapment/extrication, technical rescue, and hazardous materials response at the technician level. Seaside Fire Department also provides non-emergent response services, such as public assists. The Seaside Fire Department provides other non-emergent services, such as building plan checks, business inspections, and special event permitting.

Emergency (9-1-1) answering is provided by Monterey County Emergency Communications Department (ECD). The ECD is staffed by full-time dispatchers and supplemented by professional firefighters. At the time of this study, ECD was only utilizing Medical Priority Dispatch to prioritize ambulance response services.

### Staffing Information

There are 24 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 7 personnel are on-duty at all times. One of the 24 personnel on each shift is a Division Chief, who is responsible for commanding incidents and relieving company officers of that responsibility on multi-company emergency operations and more complex incidents.

**Figure 5: Seaside Fire Department Organization Chart**

SFD currently operates with a limited number of administrative support staff. One part-time Administrative Assistant is assigned to administration support and shared with the City Manager's office. This position provides critical support to the Department's command staff functions. 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 Seaside Fire Department.

**Figure 6: Administrative and Support Staff**

| Position                 | Number   |
|--------------------------|----------|
| Fire Chief               | 1        |
| Administrative Assistant | 1        |
| Fire Marshal             | 0        |
| Fire Inspectors          | 0        |
| <b>Total</b>             | <b>2</b> |

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

**Figure 7: Response Personnel by Rank**

| Position                | Number    |
|-------------------------|-----------|
| Division Chief          | 3         |
| Fire Captain            | 6         |
| Fire Apparatus Operator | 6         |
| Firefighter—Career      | 9         |
| Firefighter Reserve     | 9         |
| <b>Total</b>            | <b>33</b> |

## Resources as Currently Deployed

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

**Figure 8: Resource Staffing and Capabilities**

| Service                           | General Resource/Asset Capability                                                                                                                                                                                                                                                    | Basic Staffing Capability per Shift                                                              |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| <b>Fire Suppression</b>           | 1 Staffed Engine<br>1 Staffed Ladder Truck<br>1 Division Chief<br>(Additional automatic and mutual aid engines, aerials, and support units available.)                                                                                                                               | 7 Suppression-Trained Personnel<br>(Additional automatic and mutual aid firefighters available.) |
| <b>Emergency Medical Services</b> | 1 Engine, BLS equipped<br>1 Ladder Truck, BLS equipped<br>1 Command Vehicle, BLS equipped                                                                                                                                                                                            | 7 Certified Emergency Medical Technicians                                                        |
| <b>Vehicle Extrication</b>        | 1 Truck equipped with hydraulic rescue tools, cribbing, and hand tools.<br>1 Engine equipped with hydraulic rescue tools, cribbing, and hand tools.<br>1 Medium Rescue (cross-staffed) equipped with hydraulic rescue tools, cribbing, stabilization jacks, airbags, and hand tools. | All firefighters are vehicle extrication/rescue trained.                                         |

| Service                             | General Resource/Asset Capability                                                                                                                                              | Basic Staffing Capability per Shift                                                                                                               |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>High-Angle Rescue</b>            | 1 Truck equipped with rescue-rated rope and associated hardware.<br><br>1 Medium Rescue (cross-staffed) equipped with rescue-rated rope and associated hardware.               | 7 personnel trained to the operations level in high-angle rope rescue.                                                                            |
| <b>Trench and Collapse Rescue</b>   | Mutual Aid Monterey County USAR Team                                                                                                                                           | Personnel do not have special training in trench and collapse rescue.                                                                             |
| <b>Swift-Water Rescue</b>           | All front-line apparatus are equipped with throw bags, PFDs, and helmets.                                                                                                      | All personnel trained to the awareness level.                                                                                                     |
| <b>Confined Space Rescue</b>        | 1 Medium Rescue (cross-staffed) equipped with a tripod, cribbing, air monitoring equipment, basket stretchers, rescue rated rope.                                              | 7 personnel trained to the operations level.                                                                                                      |
| <b>Hazardous Materials Response</b> | Type 2 Hazardous Materials Response Vehicle equipped with personal protective equipment, gas and radiation monitoring equipment, containment supplies, and non-sparking tools. | All personnel trained to the operations level. Several personnel per shift trained to the specialist level. Automatic aid available from Salinas. |

## 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 the apparatus assigned to the SFD fire station.

**Figure 9: SFD Fire Stations and Apparatus**

| Station 1             |                          |      |               |           |                  |               |               |
|-----------------------|--------------------------|------|---------------|-----------|------------------|---------------|---------------|
| Apparatus Designation | Type                     | Year | Make/Model    | Condition | Seating Capacity | Pump Capacity | Tank Capacity |
| 6200                  | SUV                      | 2015 | Chevy/Tahoe   | Good      | 2                | N/A           | N/A           |
| 6204                  | SUV                      | 2015 | Chevy Tahoe   | Good      | 2                | N/A           | N/A           |
| 6211                  | Type I Engine            | 2007 | Pierce        | Good      | 4                | 1500          | 500           |
| 6271                  | Quint 75-foot Ariel      | 2019 | E One         | Good      | 4                | 1500          | 500           |
| 6231                  | Type III                 | 2004 | Pierce        | Good      | 4                | 500           | 500           |
| 6261                  | Med. Duty Rescue         | 2009 | International | Good      | 2                | N/A           | N/A           |
| HM-22                 | OES Type II Haz Mat Unit | 2017 | HME           | Good      | 4                | N/A           | N/A           |
| 6212                  | Type 1 Engine            | 2007 | Pierce        | Good      | 4                | 1500          | 500           |
| 6272                  | Quint 75-foot Aerial     | 2003 | E One         | Good      | 4                | 1500          | 500           |

SFD also uses the resources of other area fire agencies. The resources available to SFD are shown in the following figure.

**Figure 10: Mutual Aid Resources**

| Department                             | Resources |                |                                             | Total Available Staffing |
|----------------------------------------|-----------|----------------|---------------------------------------------|--------------------------|
|                                        | Engines   | Ladders Trucks | Other                                       |                          |
| Monterey Fire Department               | 2         | 1              | USAR                                        | 9                        |
| Presidio of Monterey Fire Dept.        | 1         | 1              | Haz Mat, Water Tender                       | 6                        |
| Marina Fire Department                 | 1         | —              |                                             | 3                        |
| Monterey County Regional Fire District | 2         | —              | Breathing Support, Water Tender             | 8                        |
| CAL FIRE Battalion 2                   | 2         | 1              | Air Tankers, Helicopter, Dozers, Hand Crews | 9                        |
| <b>Totals</b>                          | <b>8</b>  | <b>3</b>       |                                             | <b>35</b>                |

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

- Engine—Primary response unit from each station for most types of service requests equipped with a pump and ability to carry water.
- Truck/Quint—A specialized apparatus used for structure fires, rescues, and other service requests equipped with long ladders, salvage, overhaul equipment, and rescue tools.
- Type III Wildland Engine—A smaller vehicle with a 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.

## 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 policymakers 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 that are included in this report.

### Stakeholder Input

Community attitudes about the Seaside Fire Department and its services were gathered by direct and phone interviews. Twenty-one stakeholders were scheduled for interviews that were completed over a multi-day period. These stakeholders represented the City Council, City Administration, Community Members, Business Community, SFD Labor, administrative staff members, and Chief Officers.

The stakeholder responses are summarized as follows:

#### ***BUSINESS, COMMUNITY GROUPS, AND CITIZENS***

##### ***Describe your expectations of the Fire Department.***

- Be accessible to the community.
- Respond to emergencies.
- The Firefighters should arrive on the scene within a stated time period.
- Community involvement, open houses, and visibility within the community.
- The Fire Department goes above and beyond expectations.
- They are proactive and support other organizations such as the Red Cross, Breast Cancer Awareness.
- Communication and outreach for non-emergency situations.
- Diversity.

##### ***Which of these expectations is not being met to your satisfaction?***

- My expectations are being met.

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

- Community involvement.
- They are positive fire safety advocates.
- Work well together and are passionate about service to the community.
- Community outreach—more particularly, their visibility within the community.

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

- Not certain if they still provide First Aid and CPR training, if they are not, then they should consider providing the training to our community.
- Provide information on carbon monoxide detectors.
- Offer classes to the public on emergency preparedness.

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

- Disaster preparedness: it is important that we are prepared.
- Offer the Red Cross “Sound the Alarm” program.

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

- Not sure—5 minutes?
- 5 to 7 minutes
- 3 to 5 minutes due to close proximity to the Fire Department.

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

- Doesn’t believe it changes; people expect them to respond as quickly as possible.
- It’s obvious that new development will stress the current response system; a plan to mitigate the impact is needed.
- The Fire Department should have a system in place that provides back-up services from another source.

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

- Definitely. They need to be highly qualified and prepared for everything and perform the duties that are necessary.
- No.
- Absolutely.

## ***ELECTED OFFICIALS, CITY MANAGEMENT, AND DEPARTMENT HEADS***

### ***What strengths contribute to the success of the Fire Department?***

- Seaside Fire Department is more than just a fire department; it is a vital component of the City.
- The Fire Department's public outreach is incredible; it ranges from replacing smoke detectors in homes to cleaning our parks, handing out sandbags—to attending events promoting fire safety.
- Community engagement is their strength!
- Taking care of their responsibilities, i.e., fires, medical responses, any request for emergency services.
- The Seaside Firefighters are loved, respected, and admired.

### ***What do they do well?***

- Fire Prevention activities within the City.
- Our Firefighters are very respectful to the public.
- The current Fire Chief is great!
- Plan Check turn-around time is good.

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

- They do a good job and they need a new station.
- Questions why the fire station isn't painted.

### ***What opportunities, in your view, are available to improve the service and capabilities of the Fire Department?***

- The Fire Department does receive requests for Mutual Aid. Additional training and exposure to wildland fires, large disasters, etc., would be beneficial.
- Probably just the equipment; have never heard a negative word about this Fire Department.

### ***Please share your thoughts with us regarding staffing, utilizing 12-hour shifts, and peak hour units.***

- The community is comfortable with the 24-hour shift.
- Could be difficult due to cross-training at the public swimming pool, CPR classes presented to the public, etc.
- With fire and police, you never know if something particular will happen. Fear of the unknown is difficult, i.e., the waiting time.

### ***What do you see as the critical issues faced by the Fire Department today?***

- Additional staffing.
- Additional fire station(s) and adequate staffing.
- Updating their equipment (fire apparatus).
- Being prepared for a major disaster including training not only for the Fire Department, but for the entire City.
- Planning for growth.

***If you could change one thing in the Fire Department, what would it be?***

- Would not change anything; they do a wonderful job with the resources they have!
- Nothing negative regarding the Fire Department.
- Everything about the Fire Department is positive due to visibility and their on-going public outreach programs.

***How would you describe the level of services provided by the Fire Department?***

- Excellent and their response times are good.
- The public's opinion of the Fire Department is "excellent," as is their coordination with outside services.
- High; rarely is there a complaint.

***What opportunities, in your view, are available to improve the service and capabilities within the region?***

- There is a possibility to share the Presidio of Monterey "POM" facility, with Seaside and Marina Fire Departments, which potentially could be a regional fire resource.
- Development is either occurring or coming, and we need to be prepared.
- Cross-training with other agencies, i.e., Marina Fire. It would enhance communication and interaction between the Departments.
- It does not make any sense that there are so many fire entities.

***CHIEF OFFICERS, LABOR LEADERS, RANK & FILE, AND ADMINISTRATION******What strengths contribute to the success of the fire department, and what do you do well?***

- Our leadership.
- We encourage forward movement within the Department and encourage training.
- This Department's interactions with the public are always positive; they receive positive comments from the citizens.
- Survey cards are sent out asking for input on the services they provide; results are typically positive at 99.5%.
- Operationally, having the ability to adapt to achieving success with minimal resources.
- Operationally, we maintain our standards and work well together at emergencies.
- We have a great relationship with the community.
- The entire Department is community-driven.
- Customer service is second to none.
- We follow our core values and Mission Statement.
- We are very good at adapting to the situation at hand.

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

- Fire Prevention—we do the best we can and need to improve our fire prevention capabilities.
- All three shifts have collateral duties and never get caught up.
- We are stretched thin when it comes to Chief Officers.
- We are doing more with less, i.e., taking on inspections, CPR Instruction, Drone Program, etc.
- Our fire station is old, we have outgrown it, and we have no training facility to utilize nor any type of live fire training.
- Enhance training—add a training facility.
- Communicate better between all ranks.
- Educate our community leaders, i.e., City Council on Disaster Preparedness, Child Car Safety Seat Program, etc.

***What opportunities, in your view, are available to improve the service and capabilities of the fire department?***

- Hiring a Fire Inspector.
- In the future, hire a Hydrant Inspector.
- Adding a Training Officer and Fire Marshal.

***What do you see as critical issues faced by the fire department today?***

- Lack of having a Fire Prevention/Fire Marshal.
- Budget
- Impact of Development.
- Staffing
- Training

***Please share your thoughts/ideas regarding alternative staffing and dynamic deployment.***

- A 2-person rescue unit would be beneficial.
- Not very familiar with it, understand the concept and is not totally closed to the idea.

***If you could change one thing in the fire department, what would it be?***

- Upgrade the fire station.
- Increase in staffing.
- Better relationship with the Chief Officers.
- Respect and common courtesy go a long way.

***How would you describe the level of emergency services provided by the fire department?***

- Very high level of service, especially with the staffing model currently in place.
- Excellent service to the community.
- High level of service compared to 10 years ago.
- We are making do with what we have; our services are adequate.
- Utilizing staffing levels; our services are good; no matter what is going on, we always put our best foot forward.

## ***SURROUNDING AREA CHIEFS***

***What strengths contribute to the success of the Seaside and Marina fire departments? What do the departments do well?***

- Auto aid.
- Support one another.
- The level of service both Fire Departments provide is outstanding.
- Enjoys working with both Fire Departments.
- Seaside covers day to day requests for services without heavy reliance on their neighbors.
- Good leadership is in place.
- Work well with surrounding agencies.

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

- Training, including high-rise.
- Closest resource dispatch regardless of where the incident is and who's jurisdiction it is in.
- Succession planning.
- Deployment and staffing.
- Reduce reliance on Presidio of Monterey.

***What opportunities, in your view, are available to improve the service and capabilities within the region?***

- A collaborative approach to addressing the impact of development.
- Enhanced EMS, such as Firefighter Paramedics.
- Standardize training throughout the region.
- Regional training, recruitment academy, etc.
- Enhanced command/Chief Officer response to incidents.
- Good job on communication/shared dispatch.

***What are the critical issues facing the region over the next 5 years?***

- Community risk reduction.
- Regional Communication is working, however, enhanced staffing.
- Training.
- Response times.
- Availability of firefighters.
- Upcoming development.
- Succession planning.
- Tightening of finances
- Boundary drop.

## COMMUNITY RISK ASSESSMENT

Numerous risk factors 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, while demographics present another unique risk. In Seaside, over 24% of the population is under the age of 18 years of age; and over 47% of the population speak languages other than English at home in Seaside and only 14% in Del Rey Oaks.
- The physical characteristics of the area and the resultant natural hazards are risk factors. Seaside and Del Rey Oaks both lie along the coast and are at risk for earthquakes. The wildfire risk within Seaside is low; however, the city is bordered by wildfire risks, primarily to the east, while Del Rey Oaks contains the highest risk.
- 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 Seaside response area, ESCI has developed a numerical ranking of community hazards using historical incident data, as well as an assessment of the community and its vulnerabilities. Community hazards were grouped into broad categories, as follows:

- |                       |                         |
|-----------------------|-------------------------|
| • Structure Fires     | • EMS-Medical Assist    |
| • Hazardous Materials | • Technological Hazards |
| • Non-structure Fires | • Rescue                |
| • Natural Hazards     | • 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.

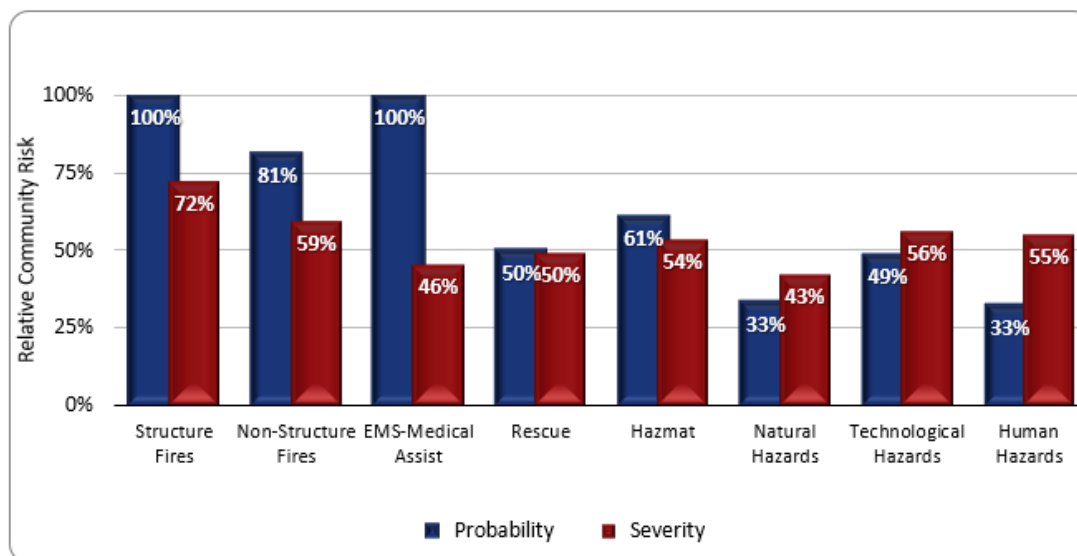
A severity score is developed by reviewing an incident's impact in the community and the ability to mitigate the event. Community Impact scores the effect of an incident on humans, property, and businesses. As the score increases the impact in the community expands. Mitigation Capacity rates how well a community responds to an event based on preparedness and, internal and external response. The lower the mitigation score indicates the community is prepared for an event.

The overall scores are used to generate a relative risk score as it applies to the City of Seaside. 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.<sup>2</sup> Details of each risk category are in Appendix A.

**Figure 11: Hazard Risk Summary**

|               | Structure Fires | Non-Structure Fires | EMS-Medical Assist | Rescue | Hazmat | Natural Hazards | Technological Hazards | Human Hazards | Total for Community |
|---------------|-----------------|---------------------|--------------------|--------|--------|-----------------|-----------------------|---------------|---------------------|
| Probability   | 100.00%         | 81.25%              | 100.00%            | 50.00% | 61.11% | 33.33%          | 48.68%                | 32.50%        | 53%                 |
| Severity      | 72.22%          | 59.38%              | 45.83%             | 49.54% | 53.70% | 42.50%          | 56.14%                | 55.00%        | 54%                 |
| Relative Risk | 72%             | 48%                 | 46%                | 25%    | 33%    | 14%             | 27%                   | 18%           | 29%                 |

**Figure 12: Relative Community Risk**



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

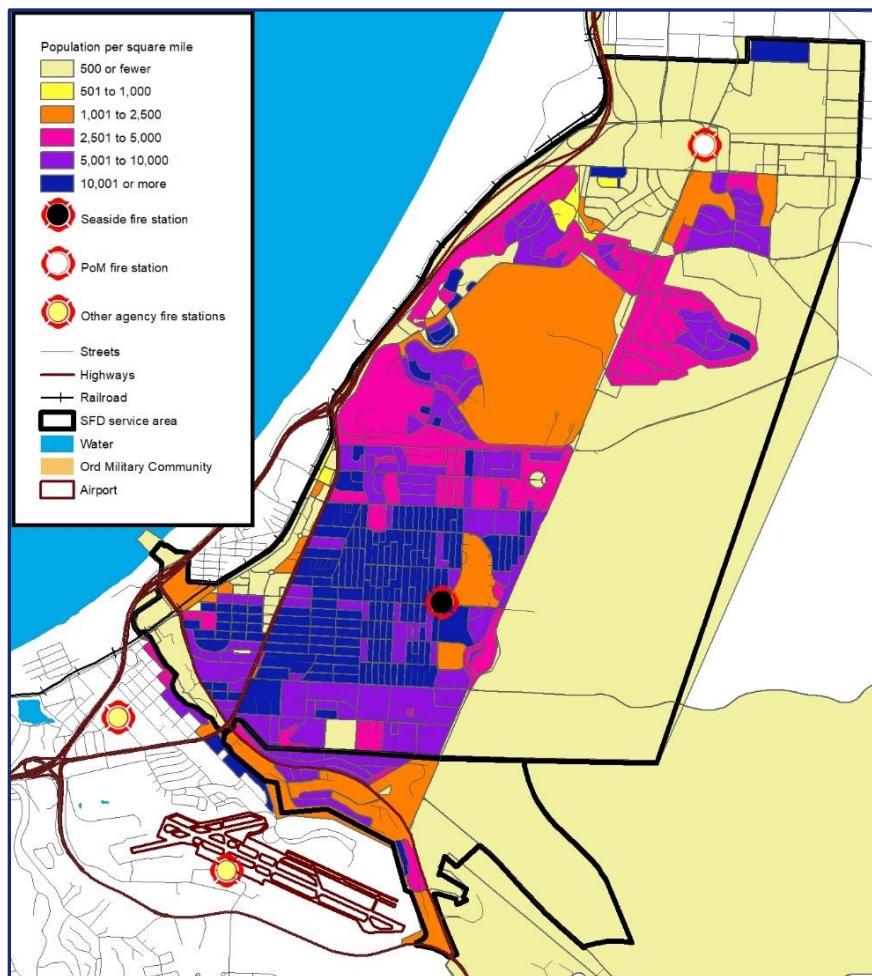
<sup>2</sup> Based on reported NFIRS data January 01, 2016, to December 31, 2019, the Monterey Community Wildfire Plan, the Monterey County Multi-Jurisdictional Hazard Mitigation Plan, and others.

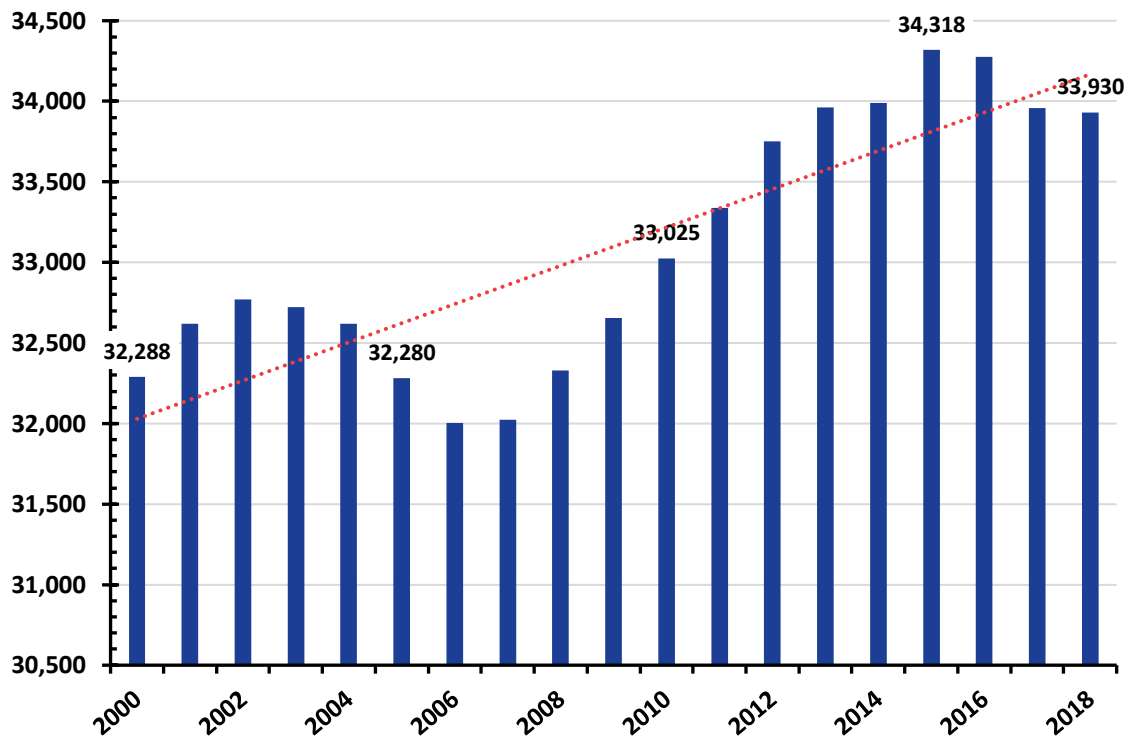
## Population Density

According to the United States Census Bureau, Seaside is classified as an urban city at 9.24 square miles in area. The 2018 estimated population is 33,930, with an estimated population density of about 3,448 per square mile, compared to an average of 239 people per square mile for California. The service includes Del Rey Oaks with a population of 1,669 in 2018 and a density similar to Seaside.

The population in Seaside tends to be concentrated in the southern, central and western portions of the community, in neighborhoods and planned development communities, surrounded by less densely populated areas in the northeast and southeast parts of the city. The areas displaying the highest population density correspond to the areas with the highest service demand illustrated in the Service Demand Analysis.

**Figure 13: Study Area Population Density**



**Figure 14: Population History, 1990–2018<sup>3,4</sup>**

<sup>3</sup> Retrieved from: <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF>.

<sup>4</sup> Retrieved from: <https://www.census.gov/data/datasets/time-series/demo/popest/intercensal-2000-2010-cities-and-towns.html>.

**Figure 15: Demographics for the SFD Service Area**

| Category                                                          | Seaside   | Del Rey Oaks |
|-------------------------------------------------------------------|-----------|--------------|
| <b>Population</b>                                                 |           |              |
| Population estimates, July 1, 2018                                | 34,077    | 1,596        |
| Population estimates base, April 1, 2010                          | 33,025    | 1,774        |
| Population, percent change, April 1, 2010 (estimates base)–2018   | 2.70%     | -10%         |
| <b>Geography</b>                                                  |           |              |
| Population per square mile, 2018 (estimate)                       | 3,672.1   | 3,325        |
| Population per square mile, 2010                                  | 3,575.3   | 3,695.8      |
| Land area in square miles, 2010                                   | 9.24      | 0.48         |
| <b>Age and Sex</b>                                                |           |              |
| Persons under 5 years, 2017 (estimate)                            | 8.9%      | 6.1%         |
| Persons under 18 years, 2017 (estimate)                           | 24.9%     | 18%          |
| Persons 65 years and over, 2017 (estimate)                        | 10.5%     | 22.4%        |
| Male persons, 2017 (estimate)                                     | 49.4%     | 47%          |
| Female persons, 2017 (estimate)                                   | 50.6%     | 53%          |
| <b>Race</b>                                                       |           |              |
| Hispanic or Latino                                                | 43.4%     | 14.1%        |
| White alone                                                       | 30.9%     | 74.1%        |
| Other Races or "two or more races"                                | 25.7%     | 3.9%         |
| <b>Population Characteristics</b>                                 |           |              |
| Veterans, 2014–2018                                               | 1,705     | 157          |
| Foreign born persons, 2012–2017                                   | 28.2%     | 11.10%       |
| <b>Housing</b>                                                    |           |              |
| Housing units, 2014–2018                                          | 11,333    | 741          |
| Owner-occupied housing unit rate, 2014–2018                       | 40.7%     | 71.7%        |
| Median value of owner-occupied housing units, 2014–2018           | \$445,000 | \$577,500    |
| Median selected monthly owner costs—with a mortgage, 2014–2018    | \$2,069   | \$2,586      |
| Median selected monthly owner costs—without a mortgage, 2014–2018 | \$378     | \$440        |
| Median gross rent, 2014–2018                                      | \$1,638   | \$2,228      |
| <b>Families and Living Arrangements</b>                           |           |              |
| Households, 2014–2018                                             | 10,458    | 642          |
| Persons per household, 2014–2014                                  | 3.13      | 2.49         |
| Living in same house 1 year ago, persons age 1 year+, 2014–2018   | 82.2%     | 79.5%        |
| English only spoken at home, persons age 5 years+, 2014–2018      | 52.2%     | 85.9%        |
| <b>Education</b>                                                  |           |              |
| High school graduate or higher, persons age 25 years+, 2014–2018  | 80.1%     | 95.6%        |
| Bachelor's degree or higher, persons age 25 years+, 2014–2018     | 23%       | 46.6%        |
| <b>Health</b>                                                     |           |              |
| With a disability, under age 65 years, 2014–2018                  | 5.6%      | 8%           |
| Persons without health insurance                                  | 13%       | 3.9%         |

| Category                                                                 | Seaside   | Del Rey Oaks |
|--------------------------------------------------------------------------|-----------|--------------|
| <b>Economy</b>                                                           |           |              |
| In civilian labor force, total, population age 16 years+, 2014–2018      | 66.3%     | 65%          |
| In civilian labor force, female, population age 16 years+, 2014–2018     | 61.3%     | 64.4%        |
| Total health care and social assistance receipts/revenue, 2012 (\$1,000) | \$3,723   | *            |
| Total manufacturers' shipments, 2012 (\$1,000)                           | \$903,116 | *            |
| Total retail sales, 2012 (\$1,000)                                       | \$526,338 | *            |
| Total retail sales per capita, 2012                                      | \$15,536  | *            |
| <b>Transportation</b>                                                    |           |              |
| Mean travel time to work (minutes), workers age 16 years+, 2013–2017     | 20.5      | 19.5         |
| <b>Income and Poverty</b>                                                |           |              |
| Median household income (in 2017 dollars), 2014–2018                     | \$61,434  | \$90,795     |
| Per capita income in past 12 months (in 2017 dollars), 2014–2018         | \$24,726  | *            |
| Persons in poverty                                                       | 14.7%     | 6.2%         |
| <b>Businesses</b>                                                        |           |              |
| All firms, 2012                                                          | 1,985     | *            |
| Women-owned firms, 2012                                                  | 987       | *            |
| Men-owned firms, 2012                                                    | 855       | *            |
| Minority-owned firms, 2012                                               | 849       | *            |
| Nonminority-owned firms, 2012                                            | 1,083     | *            |
| Veteran-owned firms, 2012                                                | 167       | *            |
| Nonveteran-owned firms, 2012                                             | 1,738     | *            |

### 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:<sup>5</sup>

- 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 2019 Census Bureau estimate, several groups fall in these categories and are more likely to use fire department services, especially EMS, than other population groups.

<sup>5</sup> 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>.

## Age

The percentage of young children in Seaside is a factor that increases service demand and community risk in the service area. The median age of the population is 31.9 years old in Seaside and much higher in Del Rey Oaks at 46.5. This compares to an average age for the population of California of 36.5 years old and 38.1 years old for the U.S.<sup>6</sup> Of concern is the number of children under 5 years of age and adults over 65 years of age, representing 19.4% of the population in Seaside and 28.5% in Del Rey Oaks. The higher number in Del Rey Oaks is attributed to the population (22.4%) of those over 65 years of age.

## Disabilities

People under 65 years of age with disabilities make up 5.6% of the population in Seaside and 8% in Del Rey Oaks compared to California at 6.8%. 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 13% of the population has no health insurance in Seaside, while Del Rey Oaks is lower at 3.9%; thus, may require a higher level of fire-rescue response and increased call volume in Seaside.

## Low-Income

Likewise, low-income people are more at risk from fire or medical condition; almost one in five households (17%) in Seaside live below the poverty level, but in Del Rey Oaks, it is lower at 9%. Low income is often combined with other factors such as education, disability, and work status, as shown in the following figure.<sup>7</sup> Understanding the locations where lower-income residents live provides an opportunity for SFD to interact with the community to reduce risks.

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<sup>6</sup> The U.S. Census Bureau.

<sup>7</sup> "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>.

**Figure 16: Seaside Household Incomes, 2018<sup>8</sup>**

| Subject                | Households' Estimate | Families' Estimate | Married-Couple Families' Estimate | Nonfamily Households' Estimate |
|------------------------|----------------------|--------------------|-----------------------------------|--------------------------------|
| Total                  | 10,458               | 7,194              | 4,976                             | 3,264                          |
| Less than \$10,000     | 4.1%                 | 2.2%               | 0.5%                              | 10.1%                          |
| \$10,000 to \$14,999   | 2.9%                 | 1.9                | 0.2%                              | 6.8%                           |
| \$15,000 to \$24,999   | 10.5%                | 8.3%               | 5.4%                              | 16.0%                          |
| \$25,000 to \$34,999   | 10.1%                | 6.6%               | 5.6%                              | 16.3%                          |
| \$35,000 to \$49,999   | 13.1%                | 14.4%              | 13.7%                             | 12.1%                          |
| \$50,000 to \$74,999   | 20.2%                | 22.2%              | 21.3%                             | 15.3%                          |
| \$75,000 to \$99,999   | 13.3%                | 14.7%              | 16.7%                             | 12.3%                          |
| \$100,000 to \$149,999 | 16.4%                | 17.3%              | 21.2%                             | 7.5%                           |
| \$150,000 to \$199,999 | 5.7%                 | 7.0%               | 8.80%                             | 1.8%                           |
| \$200,000 or more      | 4.2%                 | 5.1%               | 6.6%                              | 1.7%                           |
| Median Income          | \$61,434             | \$67,357           | \$81,464                          | \$35,744                       |
| Mean Income            | \$75,928             | \$82,390           | *                                 | \$53,329                       |

**Figure 17: Del Rey Oaks Household Incomes, 2018<sup>9</sup>**

| Subject                | Households' Estimate | Families' Estimate | Married-Couple Families' Estimate | Nonfamily Households' Estimate |
|------------------------|----------------------|--------------------|-----------------------------------|--------------------------------|
| Total                  | 642                  | 401                | 342                               | 241                            |
| Less than \$10,000     | 4.00%                | 1.0%               | 1.20%                             | 9.10%                          |
| \$10,000 to \$14,999   | 1.20%                | 0.0%               | 0.00%                             | 3.30%                          |
| \$15,000 to \$24,999   | 4.20%                | 1.5%               | 1.80%                             | 8.70%                          |
| \$25,000 to \$34,999   | 5.10%                | 3.5%               | 0.60%                             | 12.90%                         |
| \$35,000 to \$49,999   | 6.10%                | 3.2%               | 2.00%                             | 10.80%                         |
| \$50,000 to \$74,999   | 14.80%               | 12.0%              | 12.00%                            | 19.50%                         |
| \$75,000 to \$99,999   | 19.50%               | 19.7%              | 19.90%                            | 14.90%                         |
| \$100,000 to \$149,999 | 20.70%               | 25.7%              | 27.20%                            | 13.70%                         |
| \$150,000 to \$199,999 | 12.00%               | 17.0%              | 17.30%                            | 4.60%                          |
| \$200,000 or more      | 12.30%               | 16.5%              | 18.10%                            | 2.50%                          |
| Median Income          | \$90,795             | \$111,354          | \$120,750                         | \$60,536                       |
| Mean Income            | \$121,445            | \$151,103          | *                                 | \$65,836                       |

<sup>8</sup> <https://data.census.gov/cedsci>.<sup>9</sup> <https://data.census.gov/cedsci>.

## 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.<sup>10</sup> The cause for each of these declarations is shown in the next figure. Although most of these declarations did not affect Seaside directly, they are an indication of the hazards present throughout the county.

**Figure 18: Federally Declared Disasters, Jan. 1965–Mar. 2018**

| Type          | Type, Number | Type, Percent |
|---------------|--------------|---------------|
| Fire          | 3            | 15%           |
| Flood         | 5            | 25%           |
| Severe Storms | 5            | 25%           |
| Freezing      | 3            | 15%           |
| Earthquake    | 1            | 5%            |
| Drought       | 1            | 5%            |
| Coastal Storm | 1            | 5%            |
| Tsunami       | 1            | 5%            |
| <b>Total</b>  | <b>20</b>    | <b>100.0%</b> |

## Earthquakes

Earthquakes occur throughout California, but certain areas, including Seaside, have a higher probability of experiencing damaging ground motions caused by seismic activity. Seaside has an earthquake index of 15.44, and Del Rey Oaks' index 14.89. This is more than eight times higher than in the United States as a whole. There are no residential buildings or critical facilities located in extreme or moderate shaking hazard areas. One source predicts the risk of an earthquake of 5.0 or greater and within 50 miles of Seaside at 99.62%.<sup>11</sup>

Approximately 93% of Seaside's population is in a high-shaking hazard area, while Del Rey Oaks only has approximately 40% in this hazard type. 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. This includes more than 6,000 residential buildings, 967 nonresidential buildings, 27 critical facilities, 7.5 miles of highways, and five bridges.

There are three sections of the Chupines fault zones within Seaside and extend southeast from the Pacific shoreline. Soil liquefaction areas considered moderate or high are located along the Pacific coastline and Canyon Del Rey Blvd.

<sup>10</sup> 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>.

<sup>11</sup> 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 losses of life and injuries resulting from an earthquake occur in or near structures. The potential for damage includes government buildings, schools, and the Embassy Suites, which have not been retrofitted. ESCI recommends all facilities that need to be retrofitted for seismic protection to be identified by SFD personnel when developing pre-incident plans to alert them of potential hazards.

### Historical Earthquake Events

A total of 237 historical earthquake events have been recorded with magnitudes of 3.5 or above were noted near Seaside. Those measuring 5.5 or greater on the Richter scale are shown in Figure 19.<sup>12</sup>

**Figure 19: Earthquakes Measuring 6.0 or Greater Within 50 Miles**

| Distance (miles) | Date       | Magnitude | Depth (km) | Latitude | Longitude |
|------------------|------------|-----------|------------|----------|-----------|
| <b>43.3</b>      | 1911-07-01 | 6.6       | N/A        | 37.25    | - 121.75  |
| <b>48.5</b>      | 1984-04-24 | 6.2       | 8          | 37.32    | - 121.7   |
| <b>13.0</b>      | 1923-10-22 | 6.1       | N/A        | 36.75    | - 122     |
| <b>37.3</b>      | 1979-08-06 | 5.9       | 6          | 37.1     | - 121.5   |
| <b>29.2</b>      | 1961-04-09 | 5.6       | 10         | 36.68    | - 121.3   |

<sup>12</sup> 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

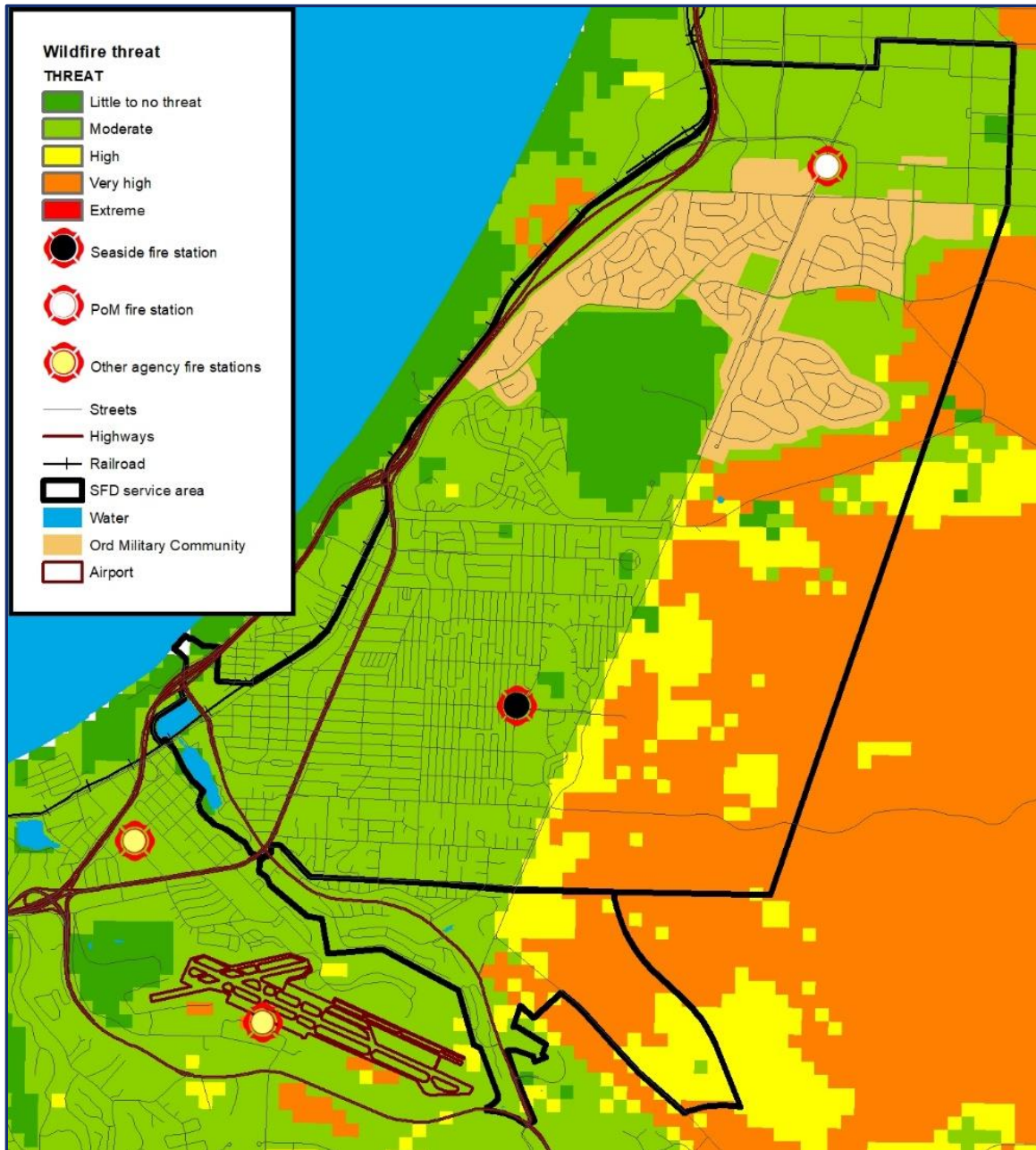
Like many fire jurisdictions in the Western United States, especially California, wildland fire risk is a factor in the SFD service area. The following figure uses CAL FIRE GIS data to examine wildland fire risk in and around Seaside and Del Rey Oaks. This model produced by CAL FIRE considers vegetation, topography, weather, crown fire potential, and ember production and movement to summarize fire hazard zones as moderate, high, or very high.

Figure 20 demonstrates that most of the City of Seaside (91% of the population) has a moderate risk of wildfire due to urbanization. Seaside is surrounded by the Pacific Ocean to the west, Marina to the north, and Monterey and Del Rey Oaks to the south. The primary wildland-urban interface (WUI) area considered high hazard is in Del Rey Oaks near General James Moore Blvd. and S. Boundary Rd. The eastern side of Seaside is primarily undeveloped and is a moderate risk. WUI areas also encompass portions of the Ft. Ord National Monument, California State University, Monterey Bay, and several subdivisions.

The greatest fire risk is from the community's structures in the urban area. Structural and automobile fires are the most common fire risks for residents of Seaside. The risk of vegetation fires is associated with rangelands on hillsides surrounding Seaside to the east. As development continues to move towards these rangeland areas, the risk of vegetation fires will need to be evaluated.

The Seaside Fire Department participates in State and County-level mutual aid agreements, which provide additional resources to deal with wildland fire incidents.

Figure 20: SFD Study Area Wildland Fire Risk



## Severe Weather

**Tornadoes** are rare occurrences in Seaside and California. The risk of a tornado in Seaside is almost 13 times lower than the U.S. average.

Since 1950, only 11 tornadoes have been recorded within 30 miles of Seaside and the majority occurring in December. Two individuals were injured after 75-mph winds shattered glass near the east/northeast section of Monterey and the adjoining Seaside area on December 6, 1992.<sup>13</sup>

**Figure 21: Tornado Intensity, Enhanced Fujita Scale**

| Designation | Wind Speed, mph | Typical Damage <sup>14</sup>                                                                                                                                                                                                                                                                         |
|-------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 the 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.

<sup>13</sup> Summary of the December 1992 Weather on the Monterey Peninsula, California. Retrieved from: [https://met.nps.edu/~ldm/renard\\_wx/dec92wx.pdf](https://met.nps.edu/~ldm/renard_wx/dec92wx.pdf).

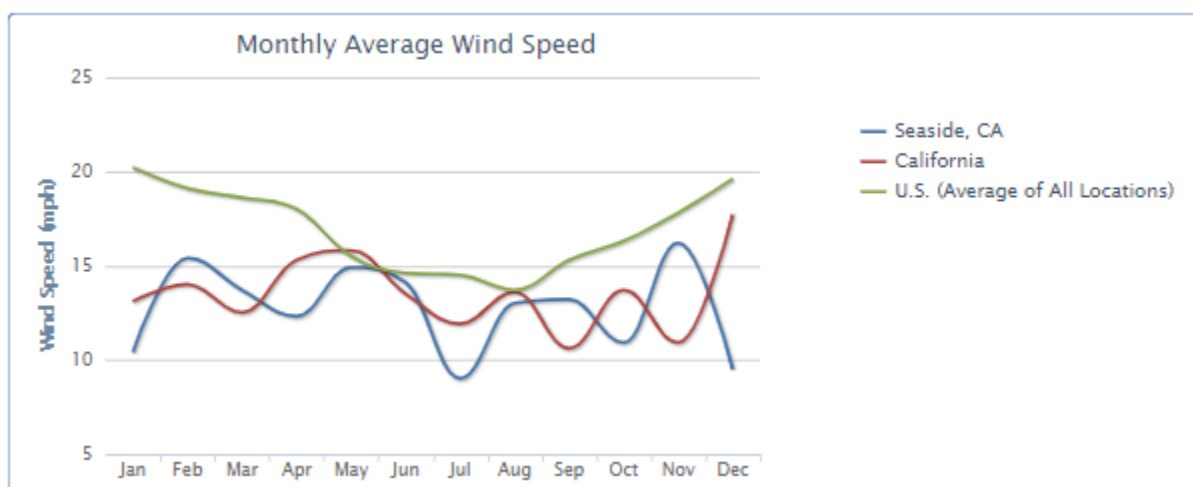
<sup>14</sup> Wikipedia. [https://en.wikipedia.org/wiki/Enhanced\\_Fujita\\_scale](https://en.wikipedia.org/wiki/Enhanced_Fujita_scale).

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 Seaside unless associated with significant and violent thunderstorms.

### Seasonal Winds

Seaside has mild winds most of the year with spikes in February, May, August and September, and November. The average wind speed is approximately 13 mph and typically peaks near 16 mph during November. Prevailing winds are normally out of the west.

**Figure 22: Seaside Average Monthly Wind Speeds<sup>15</sup>**



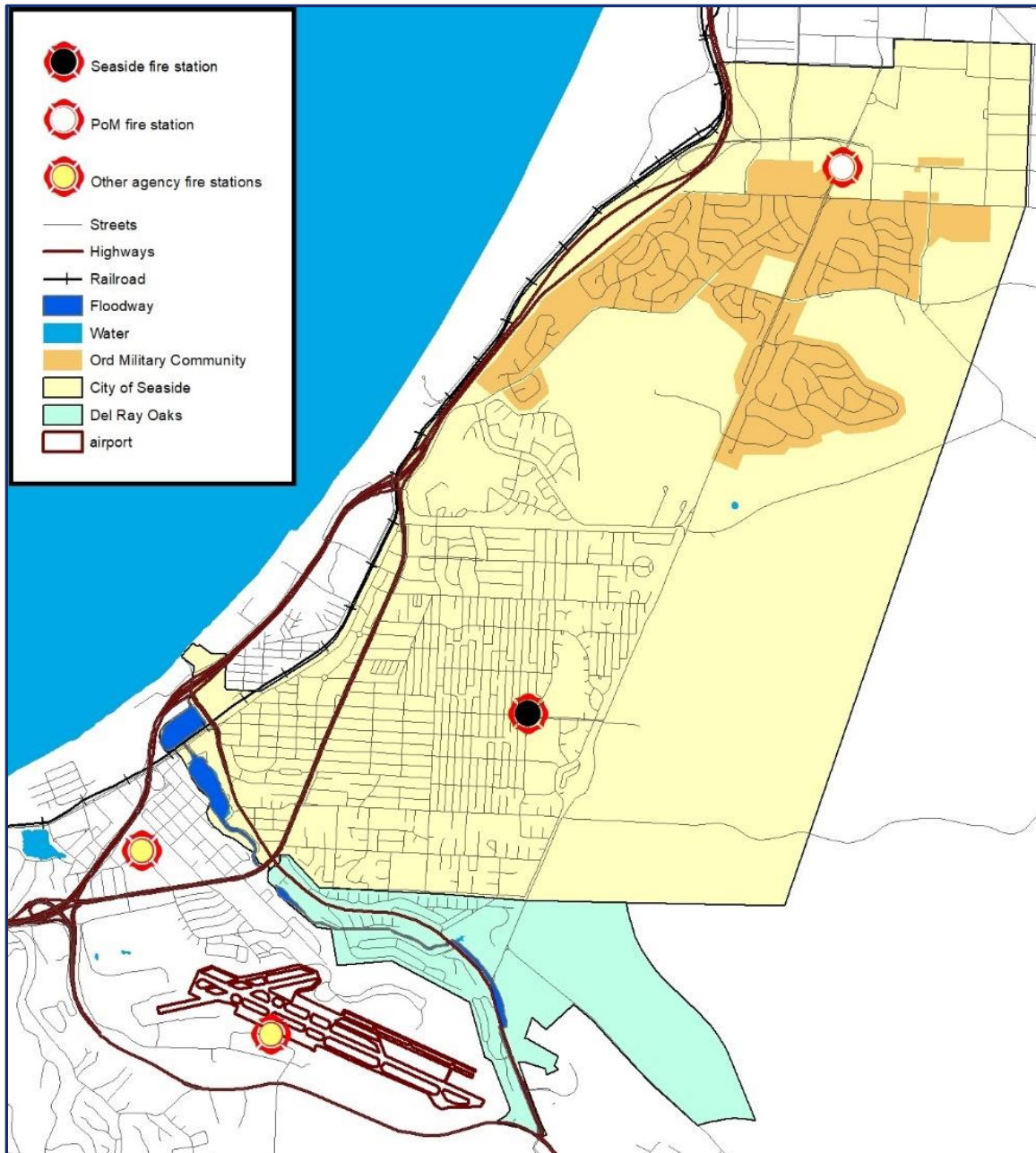
### Tsunami

A tsunami is a threat to Monterey County and resulted in wave run-ups of one meter or less and were primarily caused by earthquakes. Tsunamis are a minimal threat to Seaside, affecting few people and non-residential buildings. Del Rey Oaks is not in a hazard zone.

### Flood

Flooding in Seaside can be categorized as localized. There are only a few areas along the southern border within the 100-year flood plain and includes Laguna Grande Park and Roberts Lake. There are an estimated 17 people within this area.

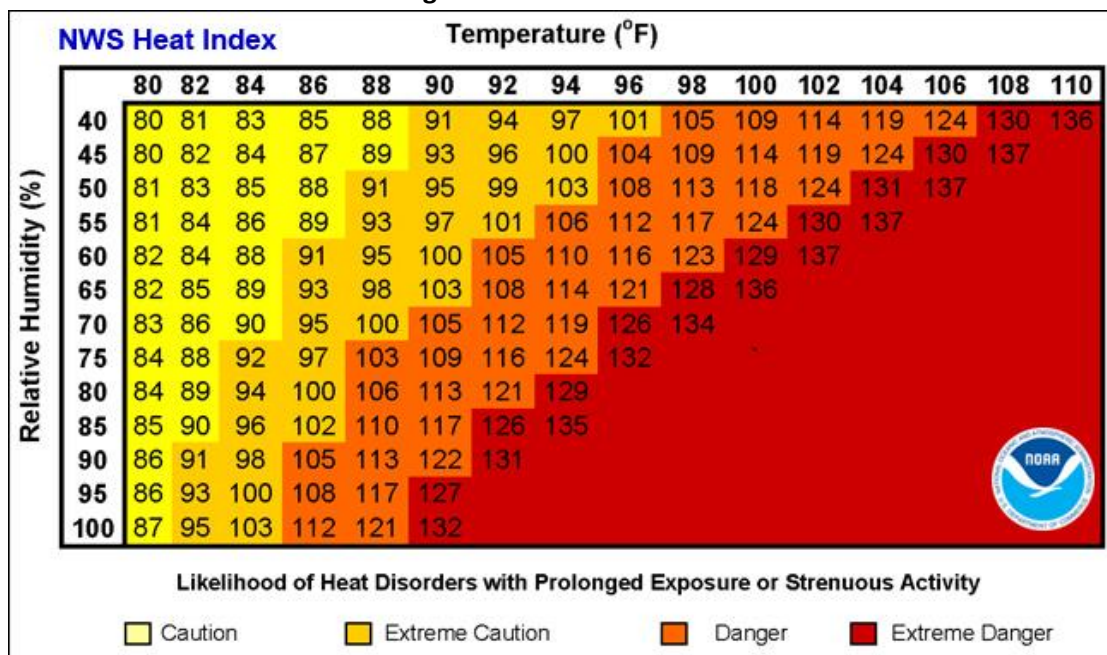
<sup>15</sup> <http://www.usa.com/seaside-ca-weather.htm>.

**Figure 23: 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.<sup>16</sup>

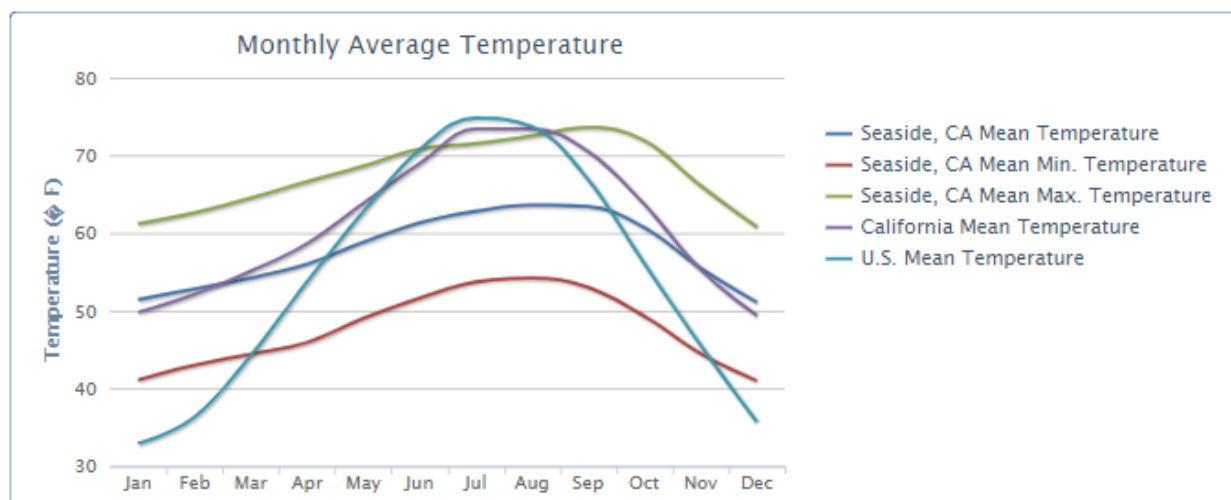
Figure 24: NWS Heat Index



While extreme temperatures are known to occur, prolonged heatwaves in Seaside are rare. The hottest recorded temperature at the Monterey Peninsula AP weather station located near the Monterey Regional Airport was 103°F in September 2017. The coldest extremes typically occur during December and January with the lowest temperature recorded is 25°F.<sup>17</sup> Overall, Seaside has relatively mild temperatures with a very low seasonal variation in monthly temperatures.

<sup>16</sup> U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service. <http://www.nws.noaa.gov/om/heat/heat-images/heatindexchart.png>.

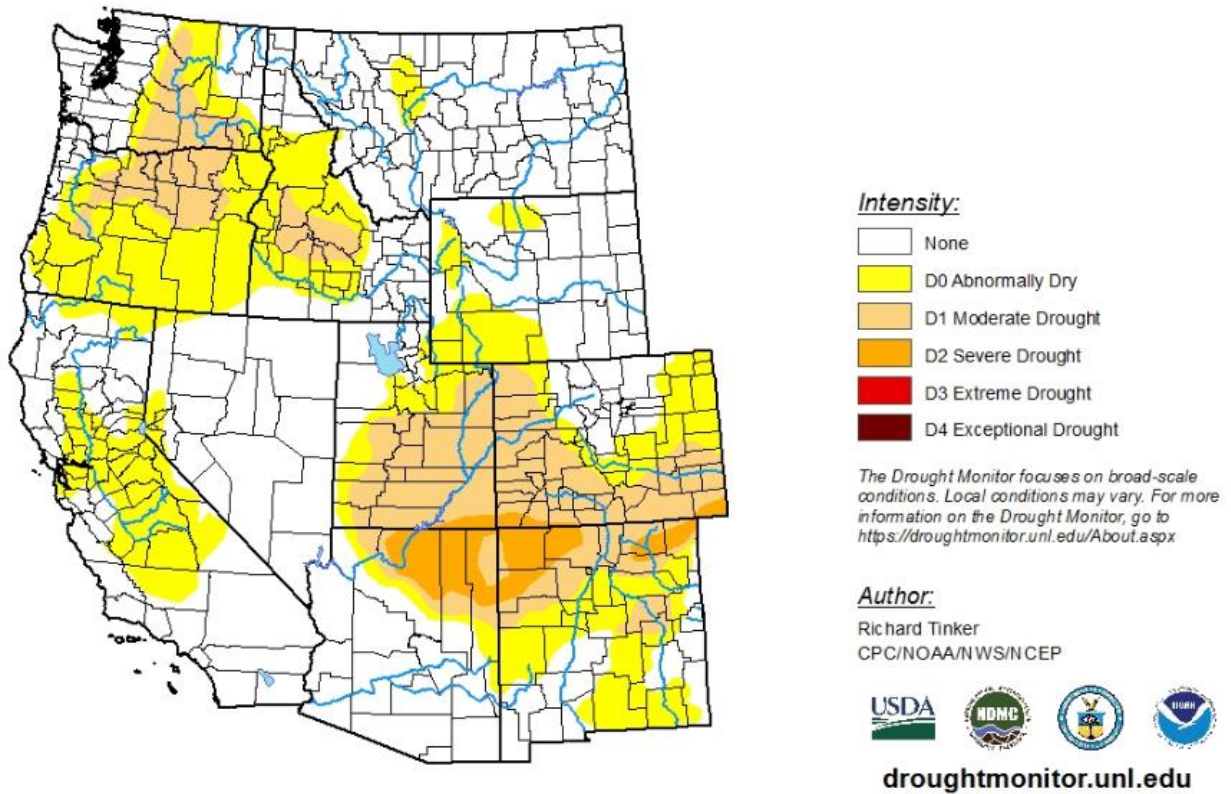
<sup>17</sup> <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca5796>.

**Figure 25: Seaside Average Monthly Temperatures<sup>18</sup>**

## 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. As of February 2020, portions of the West are reporting moderate and severe drought conditions. Abnormally dry conditions are only observed in central California. Although Monterey County is currently not in drought conditions, as little as three years ago, the area was experiencing a moderate to severe drought year.

<sup>18</sup> <http://www.usa.com/salinas-ca-weather.htm>.

**Figure 26: U.S. Drought Conditions, February 2020**

## Technological (Human-Caused) Hazards

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

### Transportation

Transportation corridors provide necessary access and egress for the department. The configuration of transportation systems can also affect response capability of emergency services. Limited access highways can interrupt street connectivity, requiring responders to travel an indirect route to reach an emergency scene.

### Roads

Surface streets dominate the SFD service area. California State Route 1 is primarily a north-south highway with controlled access intersections. The southern area of the city has a grid system of residential streets, with collector and arterial roadways accessing other parts of the community. There are some cul-de-sacs throughout the district that may present access issues during a response and are primarily in the southern portion in and near Del Rey Oaks. The northern area consists of winding subdivision streets and the California State University, Monterey Bay. The primary risk is related to over-the-road shipments of combustible and hazardous materials and motor vehicle accidents.

There are some intersections with traffic signal preemption and use the older infrared technology. The signal pre-emption can provide a significant response time performance advantage, as well as improved safety to motorists. Funding for additional locations is potentially available from Monterey Bay Air Resources District through the AB2722 program. More information can be provided by Monterey-Salinas Transit and other funding.

### Airport

Although the Monterey Regional Airport is not located within Seaside, it does pose a minor risk for flights departing over the city. It is equipped with landing and navigation systems for all-weather conditions, food services, and averages 200 flight operations a day. There are two fixed based operators on airport property providing services to private aircraft and includes fueling operations. Commercial flights are provided by major airlines from hubs such as Dallas-Fort Worth, Los Angeles, and Phoenix.

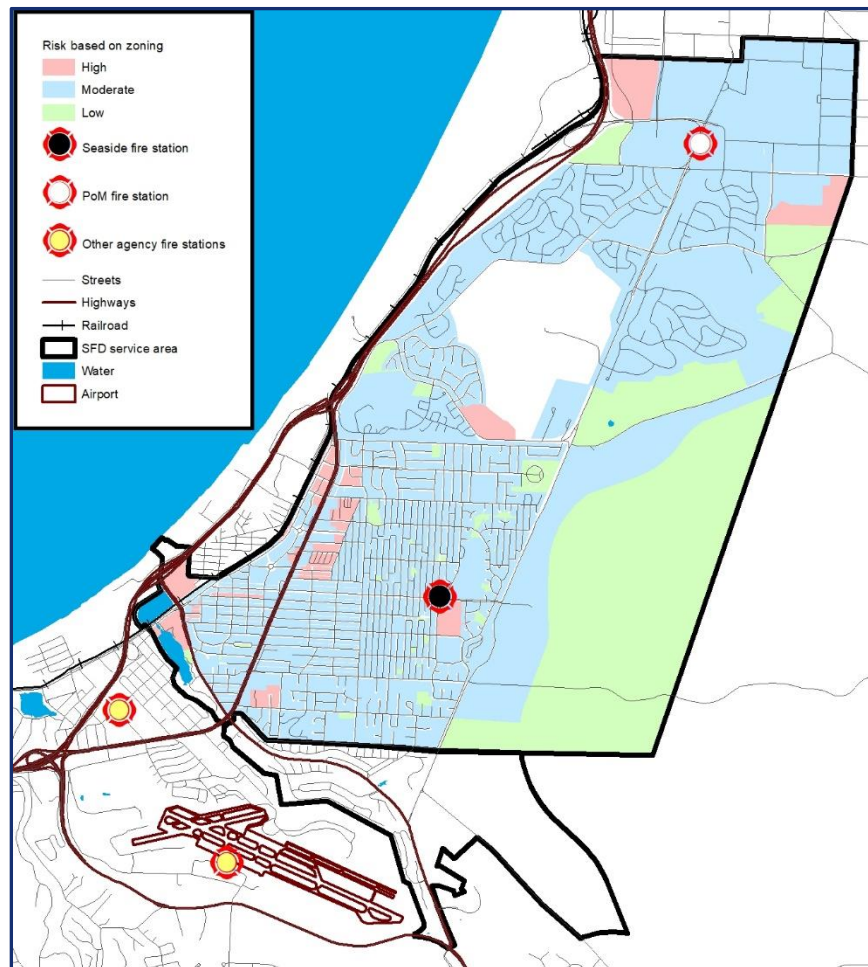
## Land Use

ESCI used GIS software and zoning classifications for the City of Seaside to examine current land use. Risk is assigned to zoning classifications as a method to present a view of relative community hazards. The Seaside 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.

Land use regulations are designed to establish a planning document to manage growth in a community and are defined by local appointed and/or elected officials. Where land use regulations exist, it provides a method to determine if a development is suitable for that area. Regulation may require minimum street widths, landscaping, and proper turning radius, which all potentially impact fire service responses.

**Figure 27: Community Risk by Zoning and Land Use**



## Physical Assets Protected

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

## Target Hazards/Critical Infrastructure and Key Resources (CIKR)

The definition of target hazards varies among jurisdictions; thus, every department must determine what is important in their community and must define and identify those special target hazards. 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."<sup>19</sup>

## Critical Infrastructure and Key Resources

Critical infrastructure and key resources (CIKR) explain what is crucial for a community to function in a modern economy. Critical infrastructure is defined as a sector "whose assets, systems, and networks, whether physical or virtual, are considered so vital to the United States that their incapacitation or destruction would have a debilitating effect on security, national economic security, national public health or safety, or any combination thereof." There are sixteen defined Critical Infrastructure Sectors (CIS):<sup>20</sup>

- Chemical Sector
- Commercial Facilities Sector
- Communications Sector
- Critical Manufacturing Sector
- Dams Sector
- Defense Industrial Base Sector
- Emergency Services Sector
- Energy Sector
- Financial Services Sector
- Food and Agriculture Sector
- Government Facilities Sector
- Healthcare and Public Health Sector
- Information Technology Sector
- Nuclear Reactors, Materials, and Waste Sector
- Transportation Systems Sector
- Water and Wastewater Systems Sector

Although some of these types of sectors may not be in Seaside, the goal is for each community to determine where critical infrastructure is located and develop pre-incident plans for responding personnel.

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<sup>19</sup> *Community Risk Assessment: A Guide for Conducting a Community Risk Assessment, Version 1.5, John Stouffer for Vison 20/20, 2016, page 12.*

<sup>20</sup> *Infrastructure Security, Department of Homeland Security.*

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 a substantial value to the community—economic loss, replacement cost, or historic significance—that, if damaged or destroyed, would have a significant negative impact.

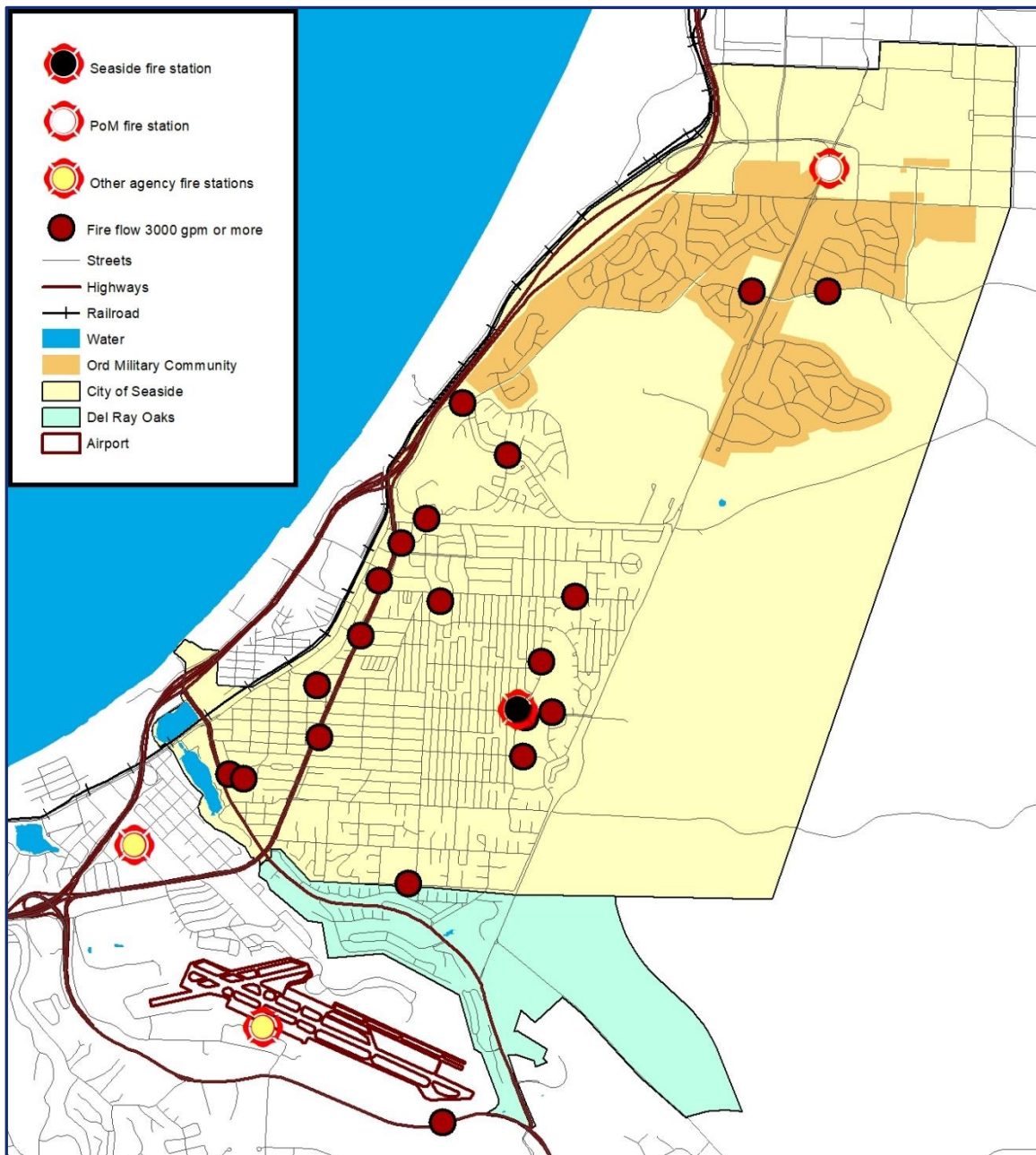
Responses to target hazards are expected to require a significant number of SFD resources and automatic aid during an incident. Pre-incident plans completed by SFD should include the resources needed to provide an ERF for each type of incident. The following figure lists the inventory of critical facilities as provided by the City. ESCI purposely did not identify the location of these facilities in the interest of homeland security. SFD should maintain detailed information about critical facilities. Although Monterey Municipal Airport is not in its response area, SFD does respond to Alert 2 and 3.

**Figure 28: Critical Facilities**

| Type                           | Number    |
|--------------------------------|-----------|
| Communication Center           | 1         |
| Detention Center               | 1         |
| Fire Department Stations       | 1         |
| Health Care Facilities         | 4         |
| Law Enforcement Facilities     | 1         |
| Maintenance Yards              | 1         |
| Residential Elderly Facilities | 9         |
| Library                        | 1         |
| Schools                        | 13        |
| Public Utilities               | 4         |
| <b>Total</b>                   | <b>36</b> |

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, standpipes, alarm system, 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. This risk factor can assist in determining an effective response force in the event of an emergency.

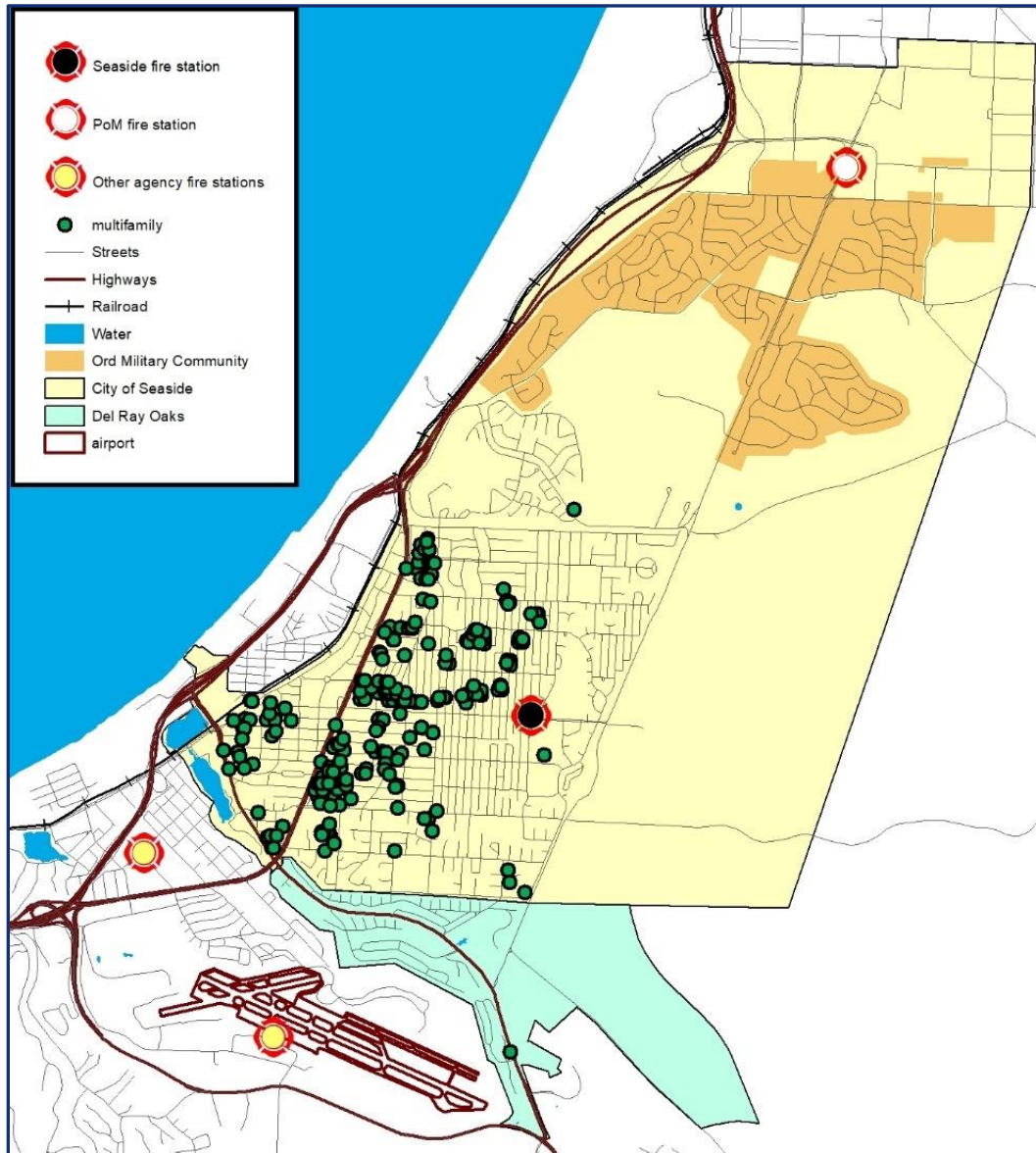
The ISO batch report lists the needed fire flow (the amount of water required to extinguish a fire if the building was fully involved) for commercial occupancies in Seaside. The following figure lists the properties in Seaside with needed fire flows of 3,000 gallons per minute or greater.

**Figure 29: Buildings Requiring Fire Flow over 3,000 GPM or More**

## Multi-Family Housing

The greatest risk of a fire fatality occurs on residential properties. Multi-family apartments provide housing for many of those living in the community and pose a risk to residents and first responders. Many apartments are multi-story and may present accessibility issues or are without built-in fire protection features such as fire sprinklers. Older buildings may have been built prior to smoke alarm requirements and only electrically powered, or battery-operated devices, are available. These buildings should be inspected annually to ensure fire code compliance.

Figure 30: Multi-Family Occupancies

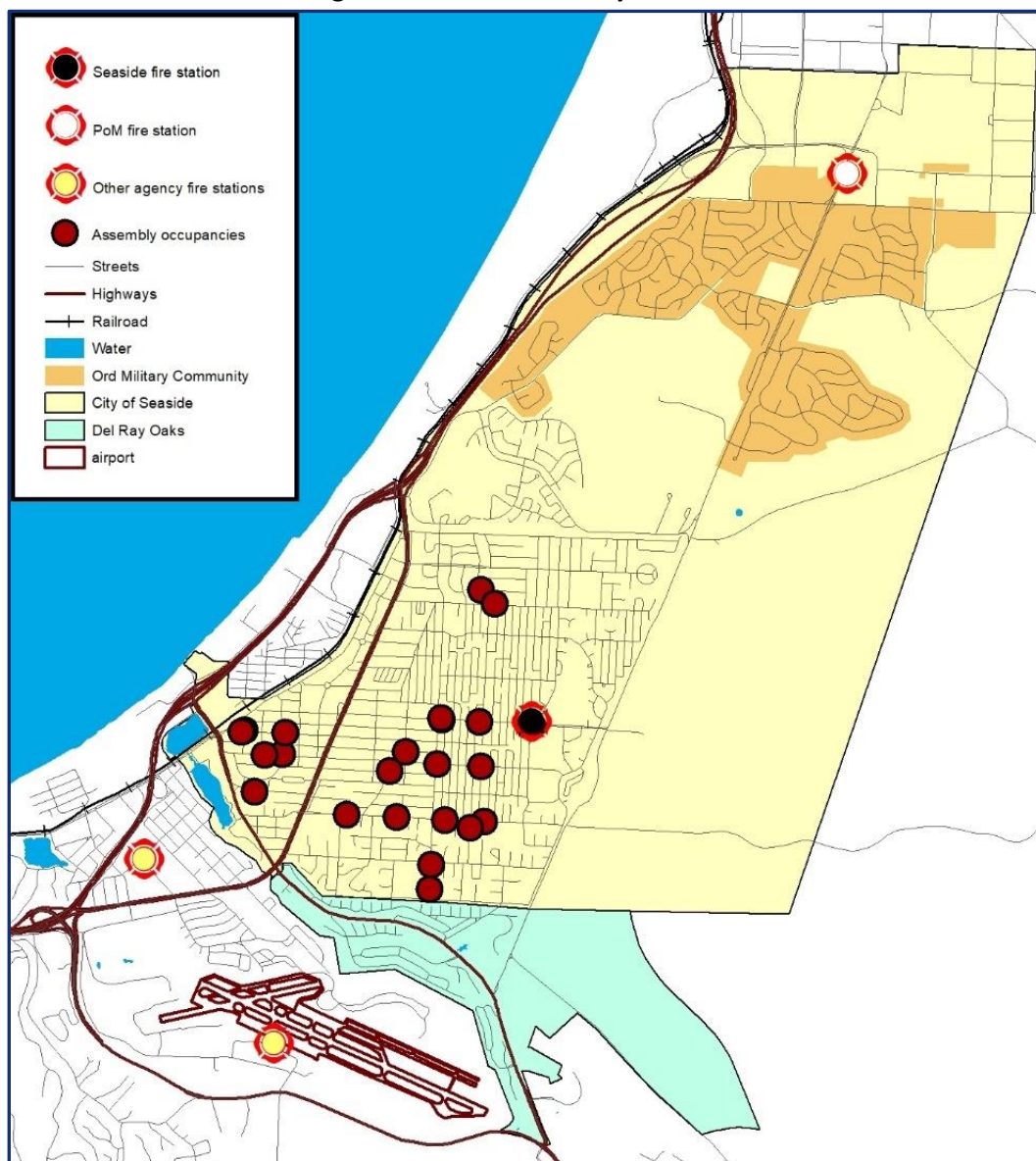


## Public Assembly

Locations within cities where large numbers of people meet for entertainment and worship should be considered a target hazard. These assembly occupancies include restaurants, nightclubs, theaters, and large outside festivals or sporting events.

These facilities and locations present additional risks, specifically for mass casualty incidents. Fire, criminal activities, and terrorism could cause a major medical emergency requiring significant emergency service resources. Pre-incident plans should be completed for these buildings. Figure 31 shows the locations of buildings identified as public assembly facilities within the city.

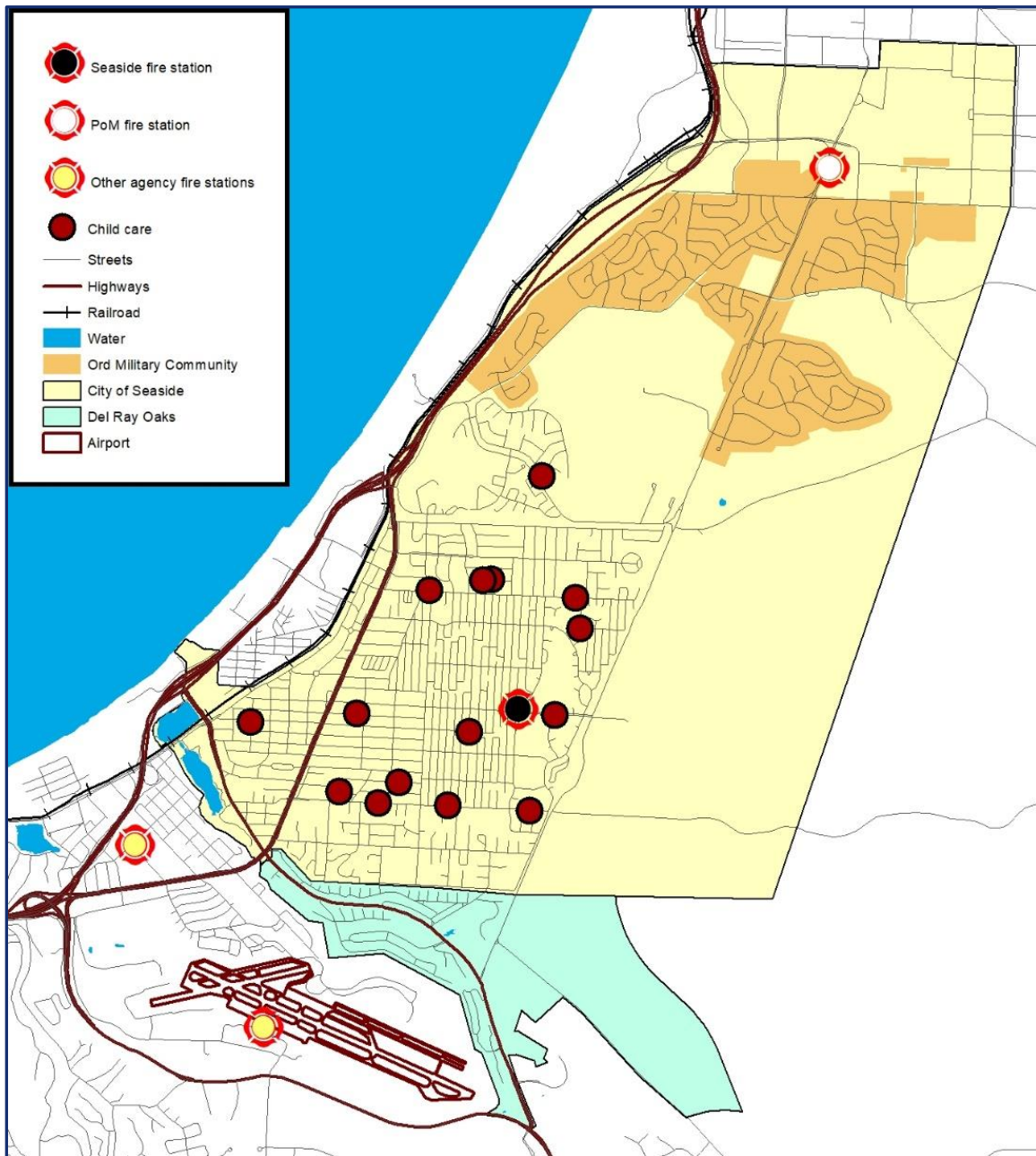
**Figure 31: Public Assembly Facilities**



## Childcare Facilities

Several childcare facilities exist in Seaside and are of special concern due to the hazards associated with very young children during emergencies. These occupancies will require childcare workers to physically move small children or infants unable to evacuate by themselves. Evacuation planning is necessary to meet code requirements and for employees to become familiar with the plan. Figure 32 displays the location of childcare facilities.

**Figure 32: Childcare Facilities**



## Schools

The Monterey Peninsula United School District (MPUSD) serves more than 10,000 students in 24 schools throughout the system. There are several public and private schools in Seaside and should be considered target hazards because of the number of students and adults in a single location. Pre-incident planning is necessary to properly prepare for emergencies and allow fire service personnel to become familiar with the building(s).

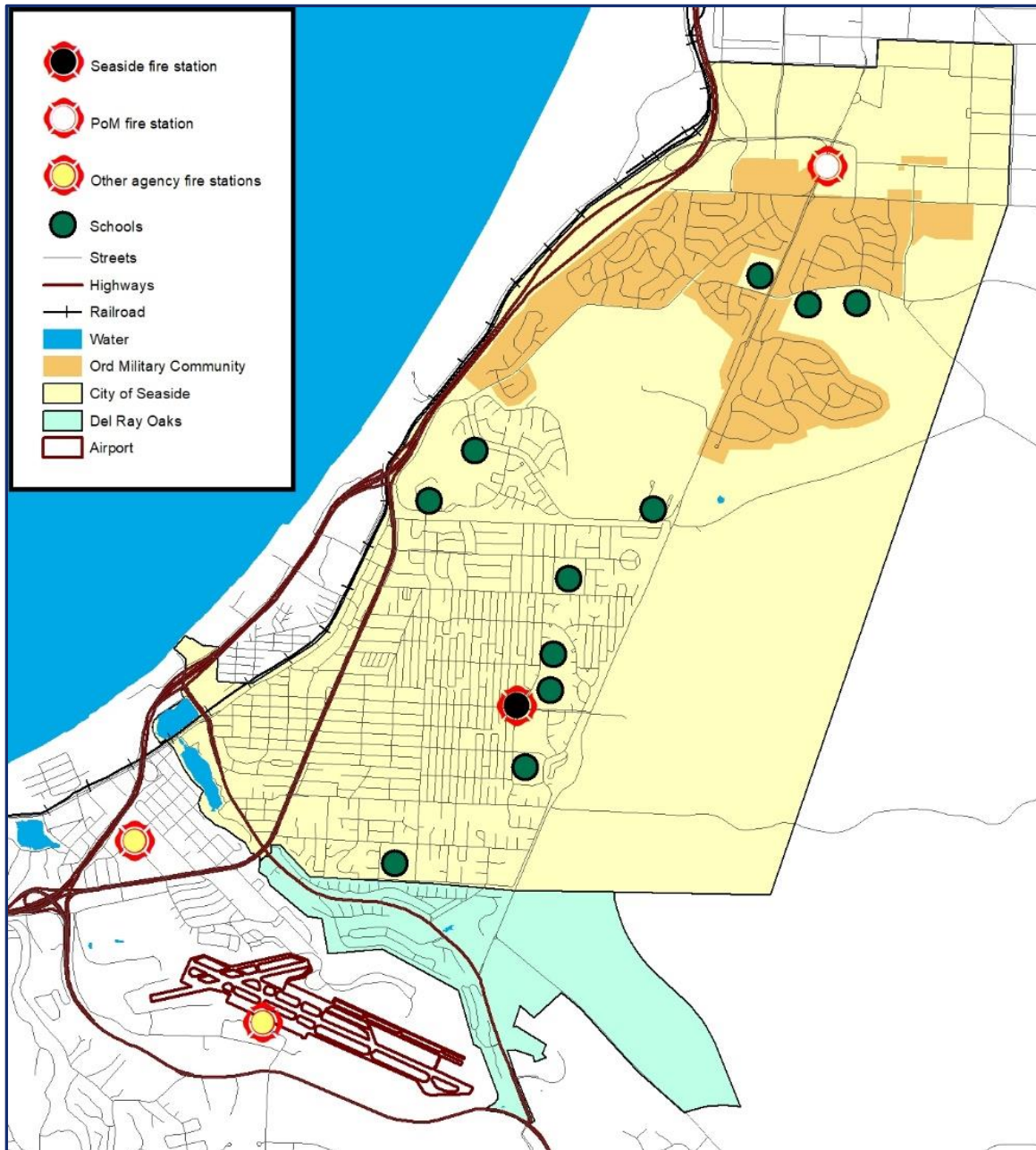
Student demographics from MPUSD include 66% considered socioeconomically disadvantaged, 28% learning the English language, and 10% special education students.<sup>21</sup> These demographics can be considered risk factors because of low-income, which translates to less health care access, thus an increase in medical responses.

Seaside is the home of the California State University, Monterey Bay, located along the northern border of the city and includes residential housing for students. On-campus housing presents issues, including additional alarm activations and EMS responses. There are approximately 7,500 students enrolled at the University. The number of responses to the university increased substantially in 2019 compared to 2017 or 2018.

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

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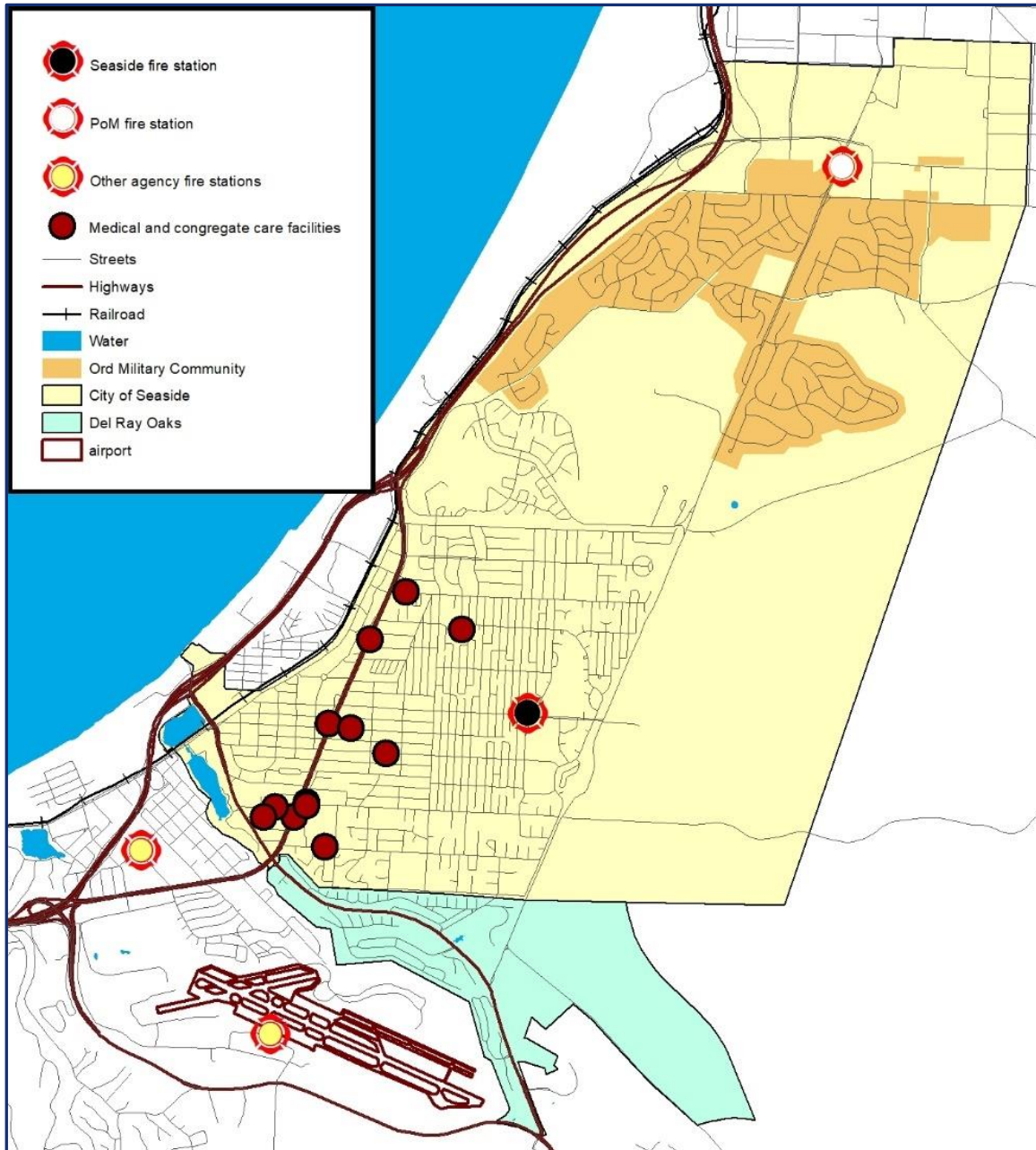
<sup>21</sup> Monterey Peninsula Unified School District <https://www.mpusd.net/>.

**Figure 33: Public and Private School Locations**

## Hospital and Medical Care Facilities

Medical care facilities—particularly hospitals—house vulnerable populations. Although there is not a hospital in Seaside, there are several medical care facilities in the city. The following figure shows the location of medical facilities.

**Figure 34: Hospitals and Care Facilities**



## Other Critical Infrastructure

In this section, other types of infrastructure critical to a community are discussed in general terms. It is important that 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 Seaside Fire Department is dispatched by Monterey County Department of Emergency Communications (ECD) and accounts for 6.18% of fire incidents in the County. 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 firefighters. It provides emergency fire and law enforcement dispatch service for the entire County, dispatching for 26 agencies (13 fire and 13 law enforcement).

The communication center utilizes call-takers, and there are peak times for staffing based on the center's call volume. Peak times are generally 1400–2000, and up to five call-takers are in the center during these hours. The center is staffed by two eight-hour and two 12-hour rotating shifts. 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, ECD subscribes to Voiance Language Line Service, a commercial service providing telephone translation in over 140 languages. EMS incidents are sent to fire telecommunicators and AMR concurrently for dispatch. Emergency Medical Dispatch (EMD), a method used to prioritize responses, is provided by AMR for approximately 60% of their incidents. The remaining incidents not using EMD are received from other public safety agencies such as California Highway Patrol.

There is not a back-up dispatch facility or known back-up plan if ECD experiences an incident that disrupts dispatch services. Salinas previously had a mobile command unit in its fleet that can receive 9-1-1 call diversions and has been transferred to Monterey County Sheriff's Department.

There are other communication facilities and equipment equally important to the community and government operations. Telephone company central offices and transmission lines of local service providers are necessary to support the community. Many businesses and residential customers now use internet providers for telephone services. 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 everyday activities, require the use of electrical power. Other sources of energy include fuel distribution and storage tanks, or natural gas pipelines, mains, and service lines. Seaside is served by Pacific Gas and Electrical (PGE). PGE has both a natural gas pipeline and high voltage transmission lines traversing the City without these energy sources, day-to-day operations and communications would be difficult, and a contingency plan is necessary in the event of a failure.

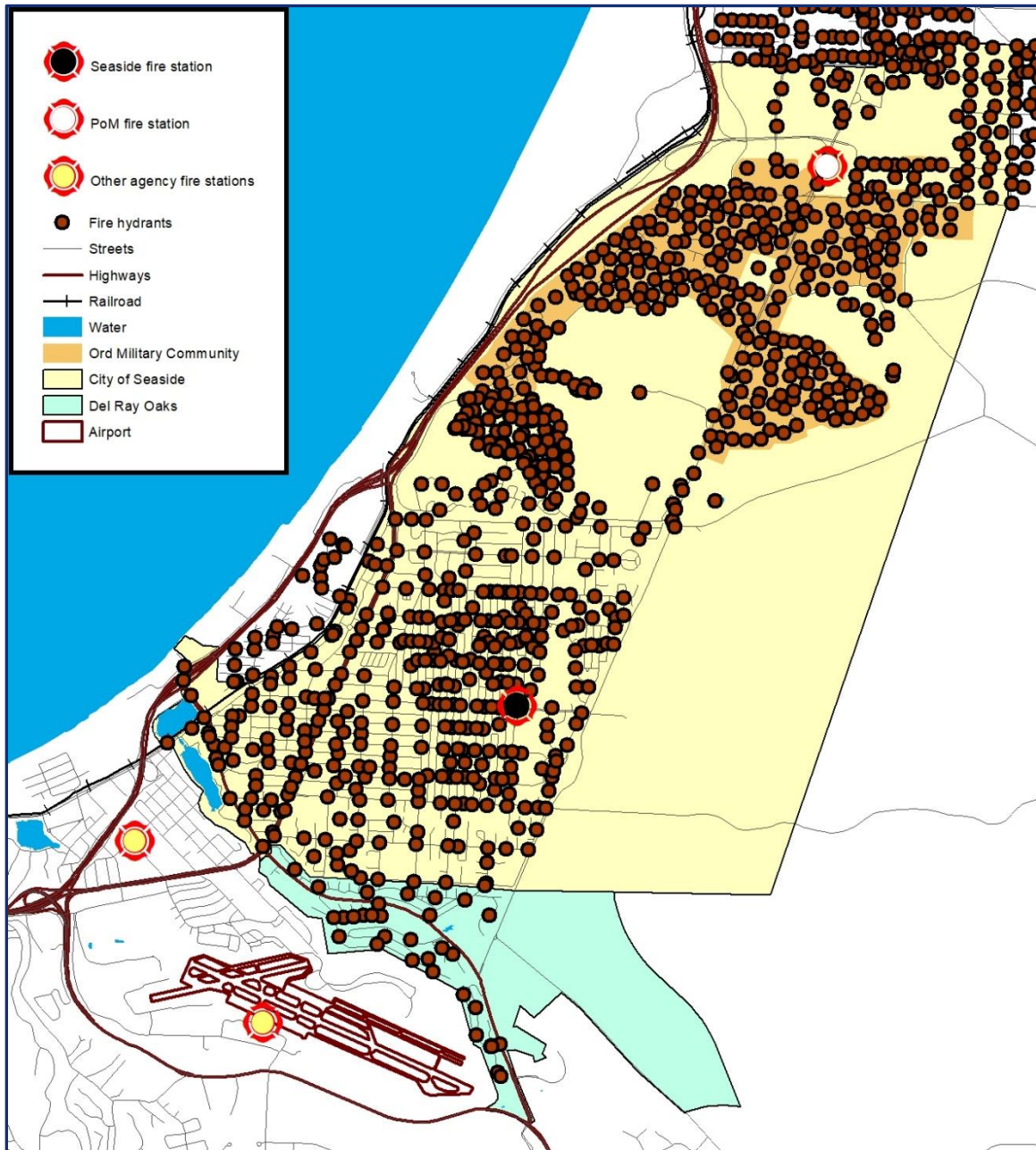
## Water Distribution

The most obvious concern to the fire department is water storage, water main, and fire hydrant system. Without sufficient storage, distribution, and access to an adequate water source, it would be difficult to extinguish a fire. The system of well-distributed fire hydrants enhances fire protection services. As shown in the next figure, hydrants are well-distributed through portions of the city.

Water services are provided to Seaside by three companies: Marina Coast Water District, Seaside Municipal Water District, and California-American Water Company. The Marina Coast Water District supplies water in the former Ft. Ord from three wells. The water district has a desalination plant for additional capacity but is currently not in use. Seaside Municipal Water System, the smallest of the three companies, pumps water from two wells (only one in service) and utilizes two 500,000-gallon tanks for storage. California-American Water Company (CAWC) receives water from both wells and surface water. CAWC operates a reverse osmosis desalination plant that connects to the company's regional distribution system.

Each of the three companies provides maintenance for hydrants, and SFD personnel inspect the hydrants annually. California-American Water Company is beginning the process to flow test hydrants. This is normally kept to a minimum because of drought conditions and water conservation measures.

Figure 35: 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.

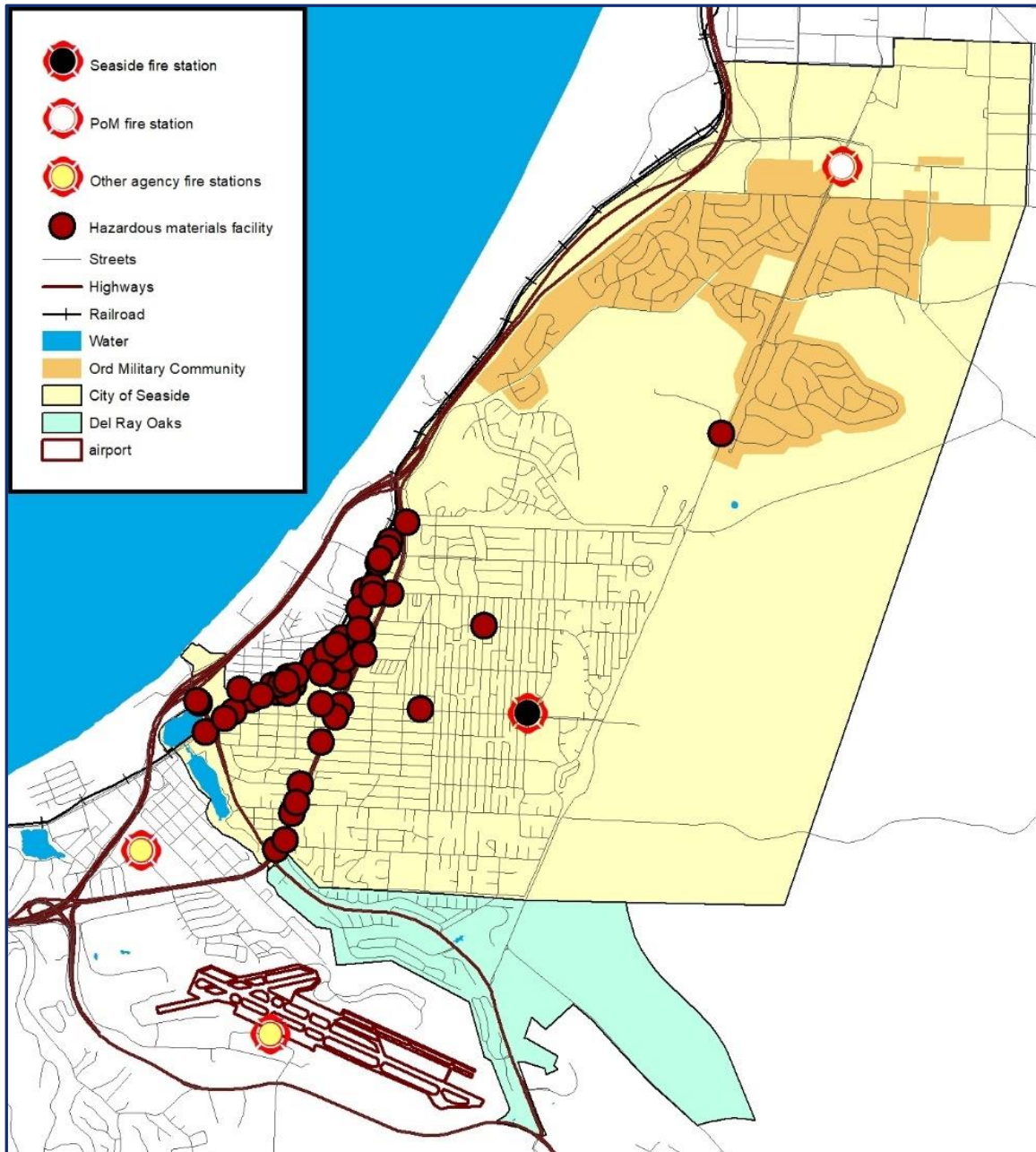
## Hazardous Materials

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 mitigate a hazardous materials incident successfully. 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

There are no facilities in Seaside that store extremely hazardous substances; however, other occupancies within the city store and sell products considered hazardous. These products range from oil in a repair garage to paints in a hardware store. These businesses should receive a pre-incident plan showing the storage and quantities of products at these locations.

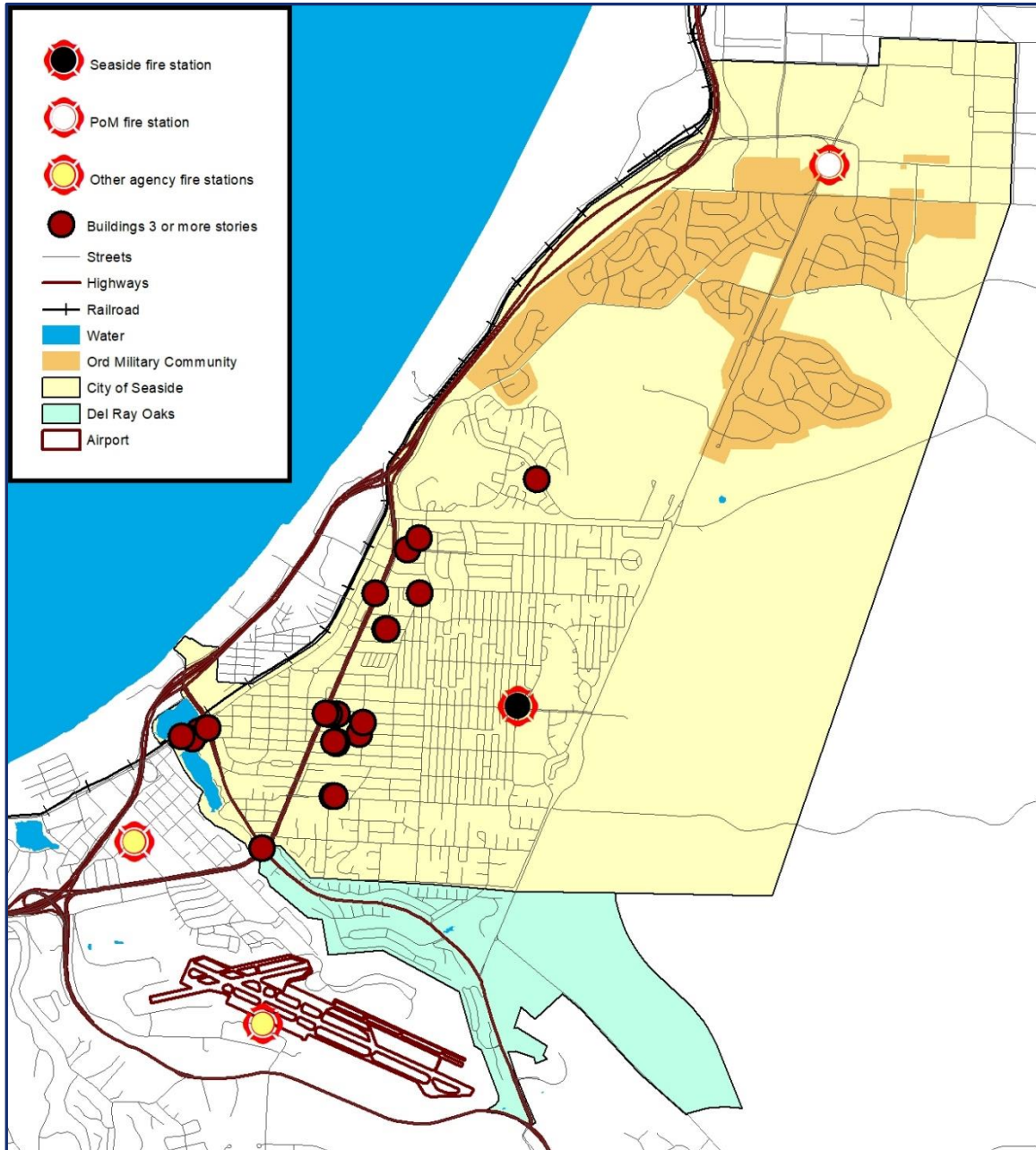
**Figure 36: Hazardous Materials Locations**



### 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.

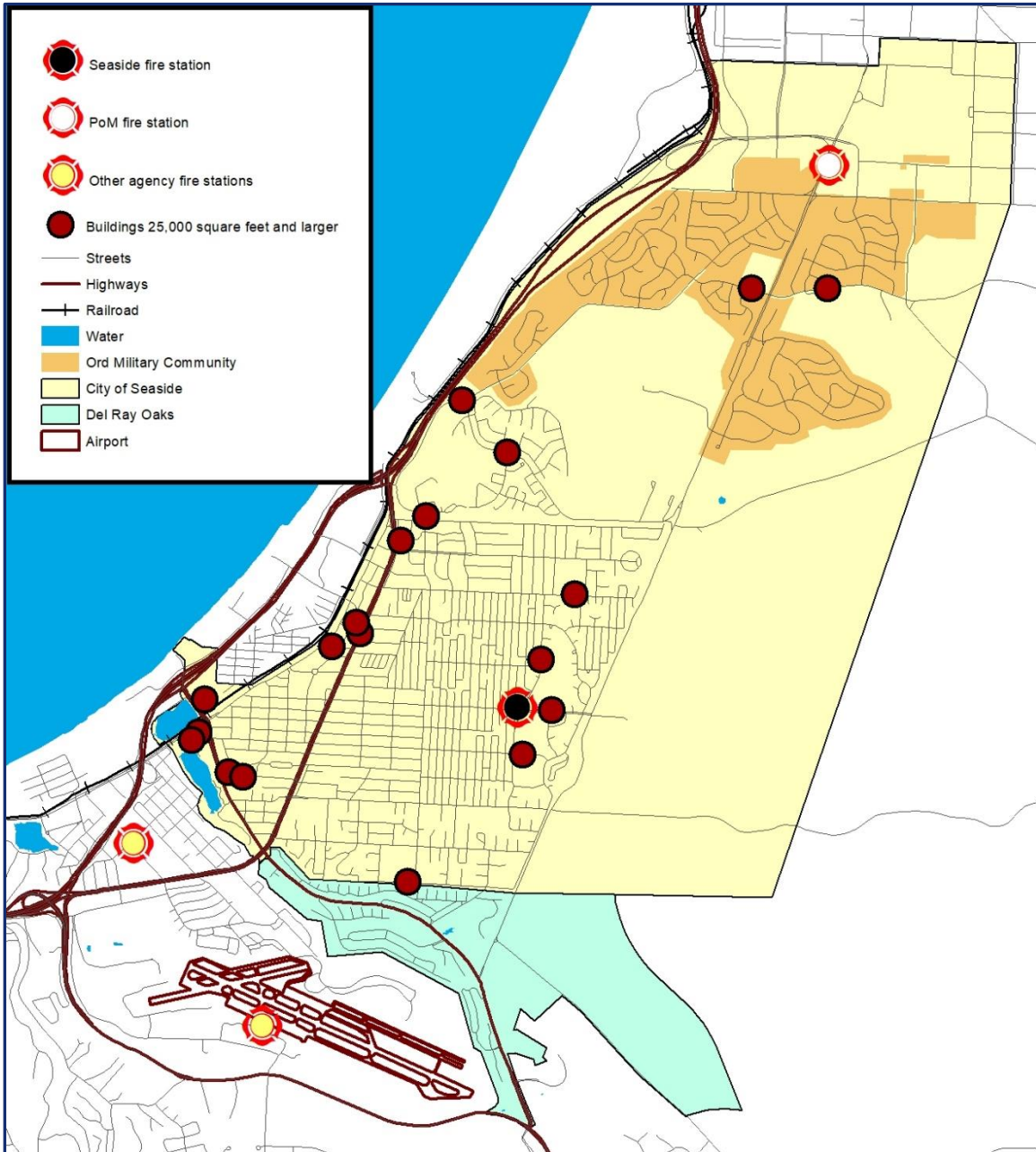
**Figure 37: Buildings Three or More Stories in Height**



## Large Square Footage Buildings

Large buildings, such as warehouses, strip shopping centers, 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 25,000 square feet and larger.

**Figure 38: Buildings 25,000 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 Seaside and other communities of comparable population across the U.S. 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.

### Fire Loss

United States fire departments responded to an estimated 1,318,500 fires in 2018. These fires resulted in 3,655 civilian fire fatalities, 15,200 civilian fire injuries, and an estimated \$25.6 billion in direct property loss (this figure includes a \$12 billion loss in Northern California wildfires). Home fires caused 2,720, or 74%, of the civilian fire deaths.

**Figure 39: Fire Losses by Region and Size of Community, 2017**

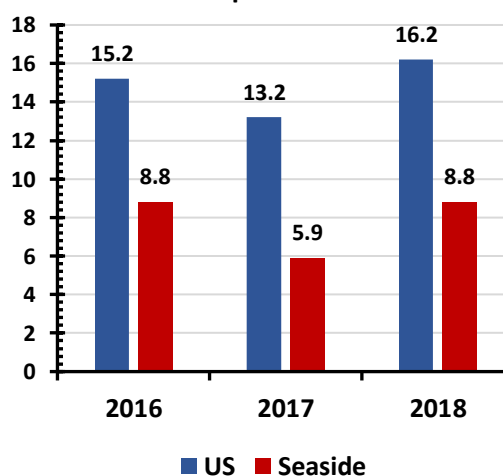
| Community Size<br>150,000–199,999 | Number of Fires<br>Per Thousand Population | Property Loss<br>Per Capita |
|-----------------------------------|--------------------------------------------|-----------------------------|
| Seaside                           | 3.4                                        | \$51.01 <sup>22</sup>       |
| The U.S.                          | 3.7                                        | \$78.25                     |

In smaller communities, even a single large fire loss can greatly affect the per capita loss per thousand population. Therefore, this large number should be considered in that context. Seaside is slightly below the national average in number of fires per thousand population, but property loss per capita was considerably less.

### Arson

Arson is defined as “any willful or malicious burning or attempt to burn, with or without intent to defraud, a dwelling house, public building, motor vehicle or aircraft, personal property of another.”<sup>23</sup> Intentionally set fires should be investigated and tracked to determine if a problem exists. Data from Seaside indicates these types of fires are well below the national averages for all years reviewed.

**Figure 40: Arson Rate per 100,000 Population**



<sup>22</sup> Determined from SFD reported “2018 Fire Loss Versus Saved.”

<sup>23</sup> <https://www.ucrdatatool.gov/offenses.cfm>.

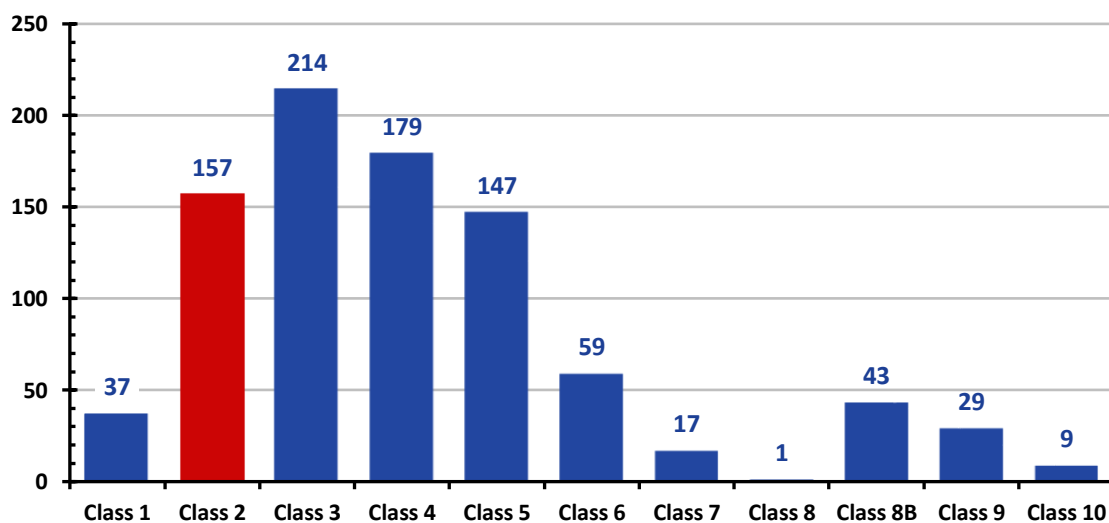
## ISO Fire Protection Class Rating

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 its 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); **Water Supply** (max 40 points); and in 2012 **Community Risk Reduction** was added and provided an additional 5.5 points for a maximum score of 105.5. 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 February 2020, the City of Seaside was assigned an ISO classification of Group 2/2X. Seaside is one of 157 communities out of 892 communities surveyed across the State to achieve a Class 2 rating, as shown in the following figure.

**Figure 41: Comparison of ISO Class Ratings, California**



## Community Risk Reduction

Developing a community risk reduction (CRR) should be a goal of every organization. The completion of an assessment provides basic information about risks in a community. Every department should continue to review their data to determine if specific risks are increasing or decreasing based on incident responses. Risks may change as new development occurs in a community and impacts service delivery.

CRR can be defined as, “The identification and prioritization of risks followed by the integrated application of resources to improve public safety and reduce increasing call volumes.”<sup>24</sup> The goal is to begin the integration of emergency operations with prevention efforts at the fire station level, where operations personnel are involved in the process of developing a risk reduction program. The station-level approach is preferred because risks vary from one station to another and can even vary within a station’s district. Simply put, CRR is examining problems and developing prevention or mitigation strategies to reduce the risk.

Figure 42 is a basic methodology offered by Vision 20/20 to identify and analyze risks within a community.<sup>25</sup> Vision 20/20’s website ([www.strategicfire.org](http://www.strategicfire.org)) provides substantial information on how to create a community risk reduction plan.

**Figure 42: The Community Risk Assessment Process**



SFD offers numerous risk reduction programs, and information is available on its website. Programs include babysitter safety, child passenger safety seat education, CPR, fire extinguisher demonstrations, holiday safety, and smoke alarm installation programs. The department received a grant and installed more than 2,000 smoke alarms in homes and continues the program upon request.

Each of these risk-reduction programs is intended to improve the health and safety of the citizens of Seaside. What is missing is an evaluation to determine if the programs are meeting their intended goal(s). Any CRR program should have goals with clear timelines and milestones. Using the Vision 20/20 model, SFD can enhance these programs through additional partnerships based on the risks identified in this assessment. It is recommended that shift personnel, with input from staff, begin discussions as a group to identify risks based on their response experience and data from this report. This process will allow them to develop risk reduction programs that focus on the problems they face on a day-to-day basis and specific to Seaside. This conversation will allow them to decide the best program to implement and how it should be accomplished.

<sup>24</sup> Vision 20/20.

<sup>25</sup> Retrieved from <http://strategicfire.org/wp-content/uploads/2016/04/Community-Risk-Assessment-Guide-v1.5.pdf>.

## Fire Inspections

Inspections of commercial properties provide the fire department opportunities to access a building for not only code violations but allow personnel to become familiar with the occupancy.

Inspections of all commercial occupancies provide a greater level of safety in a community by enforcing existing fire code requirements. The NFPA recommends inspections of high-risk occupancies annually, moderate risk occupancies every two years, and low risks at a three-year interval. Figure 43 is an example from the International Building Code (IBC) listing building occupancy types and their risk. The IBC list and recommended inspection schedule provide Seaside a pathway to ensure all commercial occupancies are inspected.

**Figure 43: IBC Occupancy Classifications**

| PRI Risk | IBC Group                                                                                                                                | Examples                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| High     | A-1, A-2<br>A-3, A-4, A-5<br>H-1, H-2, H-3, H-4, H-5<br>B<br>E<br>I-1, I-2, I-3, I-4<br>M<br>R-1, R-2<br>Special Risk<br>(Target hazard) | Nightclub, restaurant, theater, airport/cruise ship terminal<br>Arenas, museums, religious<br>Hazardous materials sites (Tier II)<br>All government & public buildings, other office buildings over 2 stories<br>Schools, daycare centers<br>Hospitals, assisted living centers, correctional<br>Strip centers, closed-air shopping malls, big box stores<br>Hotels, motels, dormitories, apartments, board & care<br>Railroads, Interstate highways, airports<br>Any building with life safety risk beyond the reach of preconnected hose lines > 200 feet such as a high-rise |
| Moderate | B<br>F-1<br>M<br>I-2, R-4<br>S-1                                                                                                         | Outpatient clinics, general business, offices < 3 stories<br>Fabrication or manufacturing of combustible materials<br>Mercantile, free-standing<br>Foster group homes, assisted living homes<br>Storage of combustible materials, car repair, hangars                                                                                                                                                                                                                                                                                                                           |
| Low      | F-2<br>R-1<br>S-2<br>U                                                                                                                   | Fabrication or manufacturing of non-combustible materials<br>1- and 2-family dwellings, foster homes<br>Storage of combustible materials<br>Barns, silos, other unclassified                                                                                                                                                                                                                                                                                                                                                                                                    |

Currently, SFD conducts inspections of hotels, multi-family apartments, and schools, but there is not a process to visit all commercial occupancies. Plan reviews for new construction are tracked in software provided by Seaside's Community Development Department. This software follows the project from conception until it is occupied and includes all permits for the property.

The department is transitioning to a new cloud-based record management system, and the software allows tracking of parcels, buildings, and occupancies. This provides an opportunity to determine how many commercial occupancies are in its jurisdiction and begins a process to inspect all buildings.

The ability to track buildings and occupancies allows SFD to maintain a history of inspections, permits, construction type, and other building information that can be utilized for pre-incident planning. Information collected during inspections or pre-incident plans can be accessed by operations personnel during an incident via their mobile computers on their apparatus and used during incident operations.

As the community grows, the number of commercial occupancies will continue to increase. The Campus Town project is a prime example of community growth. The estimated \$500 million mixed-use development would include 1,500 homes and 200,000 square feet of commercial space for offices, entertainment, shopping, and light industrial. As the development is built, SFD has an opportunity to establish a new process for tracking inspections and collecting information for pre-incident plans.

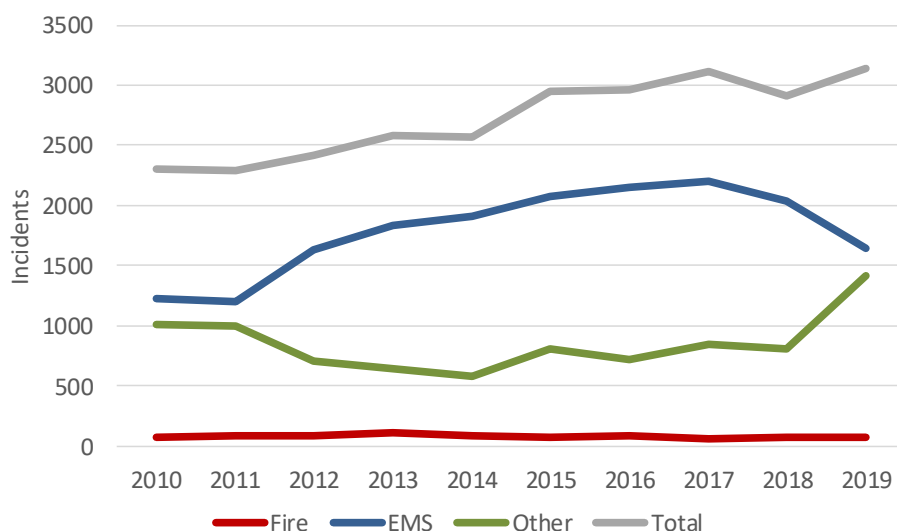
SFD should consider hiring a dedicated employee to manage inspections of buildings and the department community risk reduction programs. The ability to prevent or mitigate an incident from occurring is the proactive approach needed to reduce risks in Seaside.

## HISTORICAL SYSTEM RESPONSE WORKLOAD

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

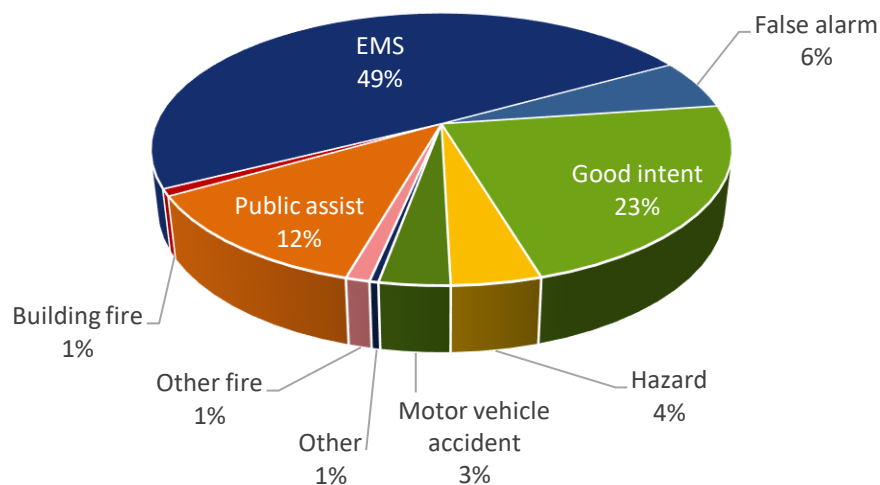
The following figure shows response workload for the last 10 years. The total response workload has increased by 36.1% over the past 10 years. The community utilization rate of fire department services was 87.7 incidents per 1,000 population. This is comparable to other urban areas.

**Figure 44: Response Workload History, 2010–2019**



During 2019, SFD responded to 3,141 incidents. Figure 45 shows responses by type of incident during 2019. Emergency medical type responses are the most common at 49% of total responses.

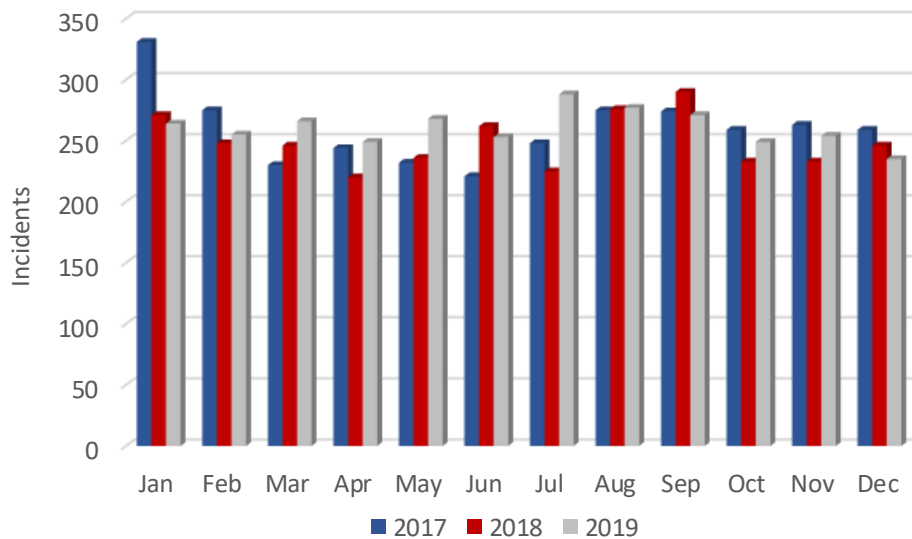
**Figure 45: Responses by Type of Incident**



## Temporal Analysis

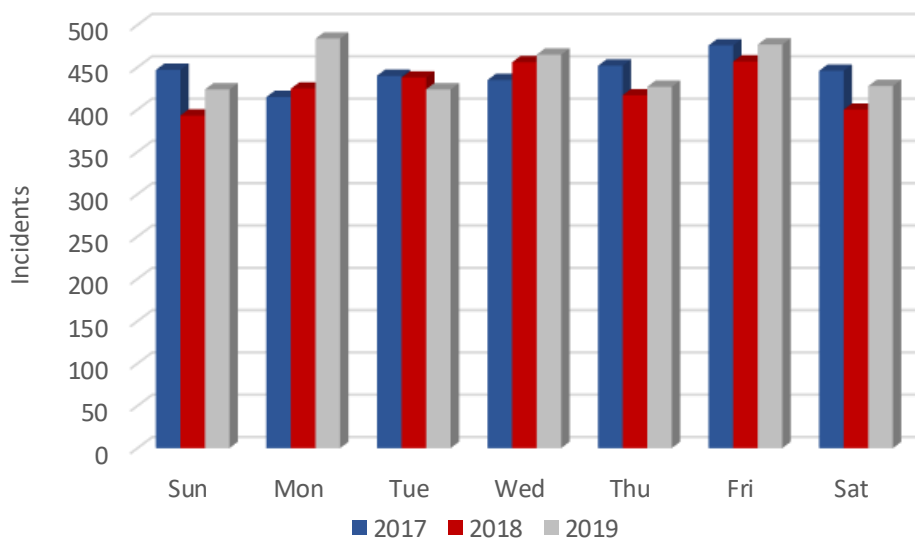
A review of incidents by time of occurrence also reveals when the greatest response demand is occurring. The following figures show how activity and demand change for SFD based on various measures of time. Figure 46 shows response activity during 2017, 2018, and 2019 (study period) by month. There is little variation by month.

**Figure 46: Monthly Response Workload**



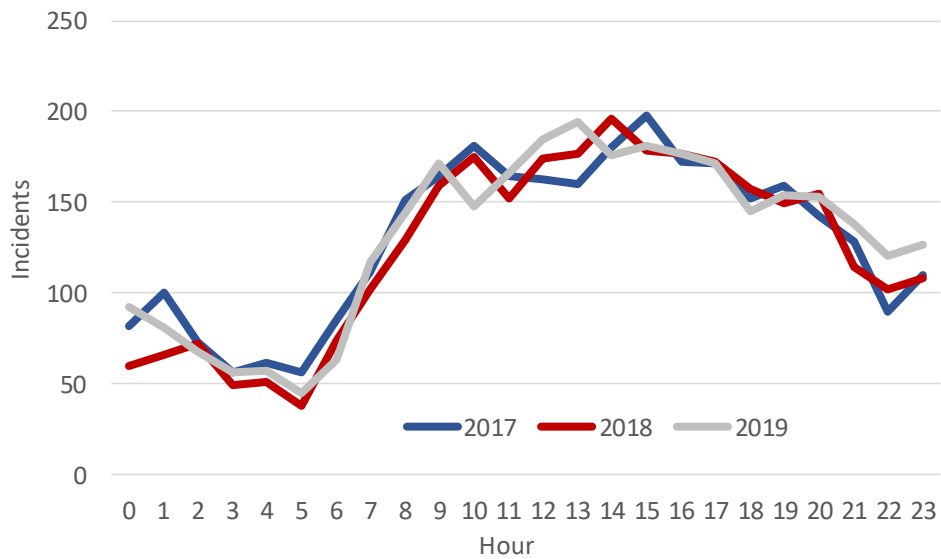
Next, response workload is compared by the day of the week. Again, there is little variation in response workload by weekday.

**Figure 47: Daily Response Workload**



The time analysis that always shows significant variation is response activity by the hour of the 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 9:00 a.m. and 9:00 p.m.

**Figure 48: Hourly Response Workload**



## Spatial Analysis

In addition to the temporal analysis, it is useful to examine the geographic distribution of service demand. The following figures indicate the distribution of emergency incidents in SFD during 2019.

The first figure displays the number of incidents per square mile within various parts of the city. The greatest service demand is the southernmost corner.

**Figure 49: Service Demand Density, 2019**

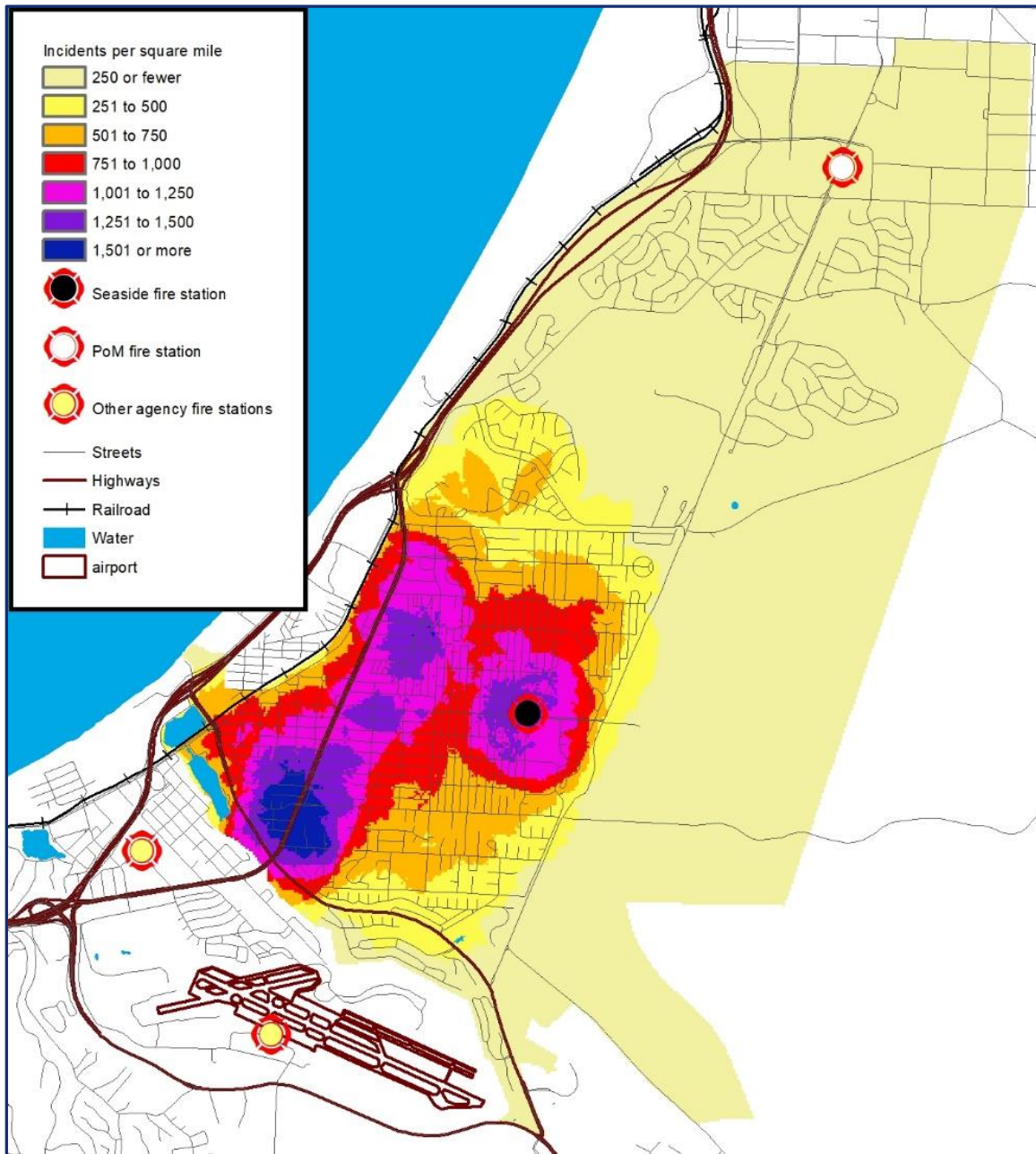
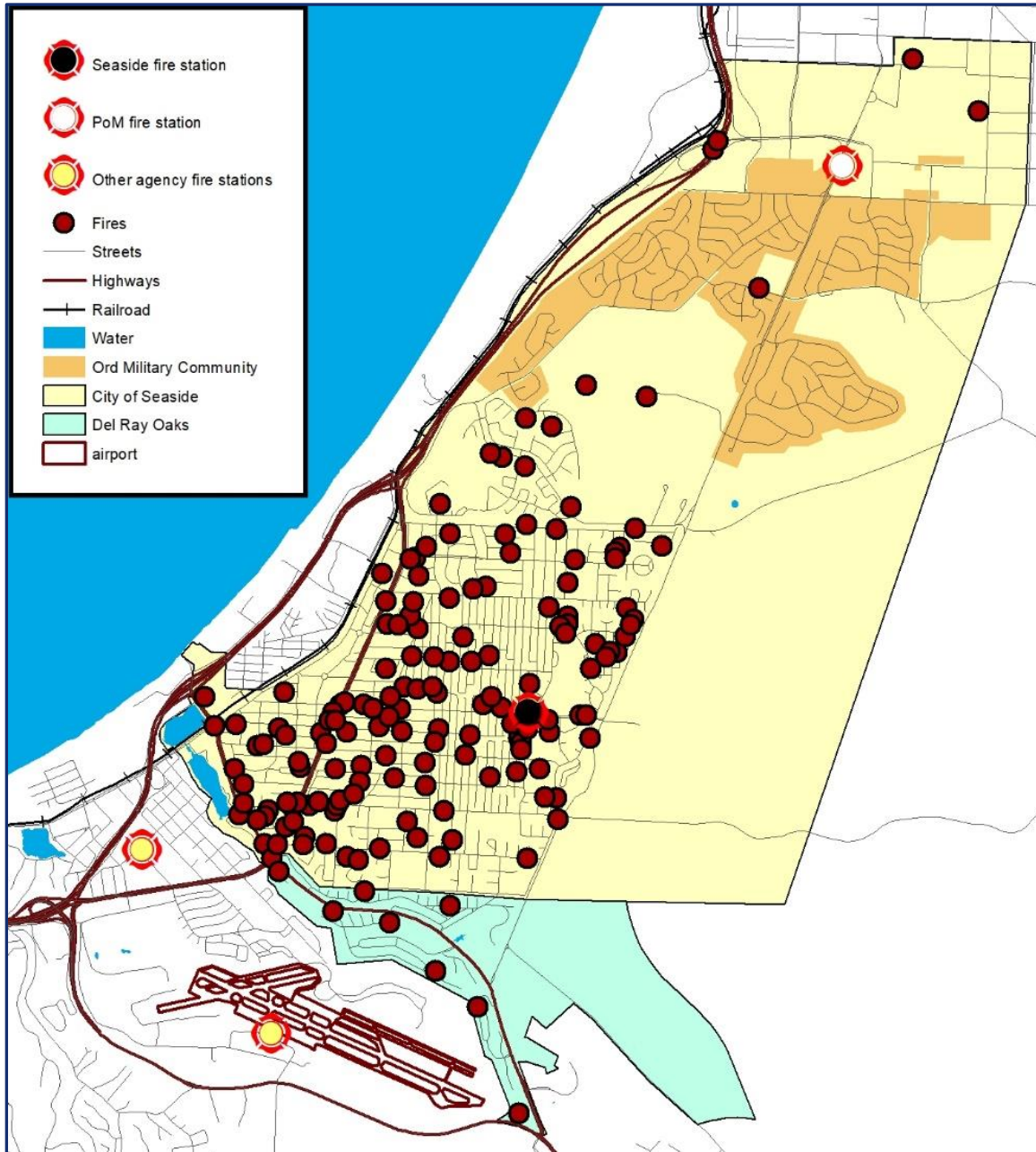


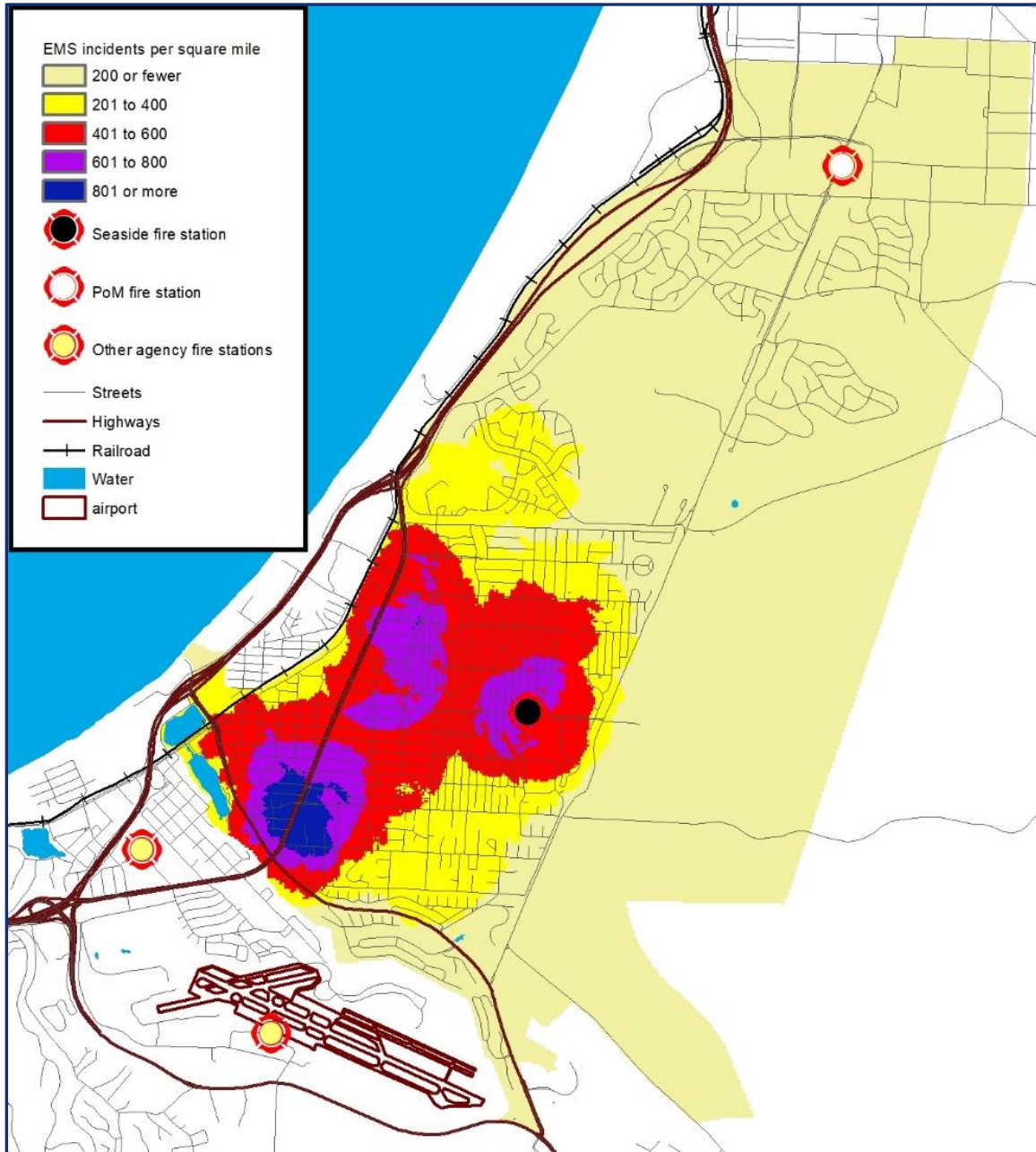
Figure 49 reflects all calls within the city served by SFD. Service demand can vary by area based on incident type. Figure 50 displays the location of fires occurring within the SFD service area during 2019. This illustrates that fire incidents are distributed throughout the developed area of the city.

**Figure 50: Fires, 2019**



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 2019. Incident concentration follows population density.

**Figure 51: Emergency Medical Incidents per Square Mile, 2019**



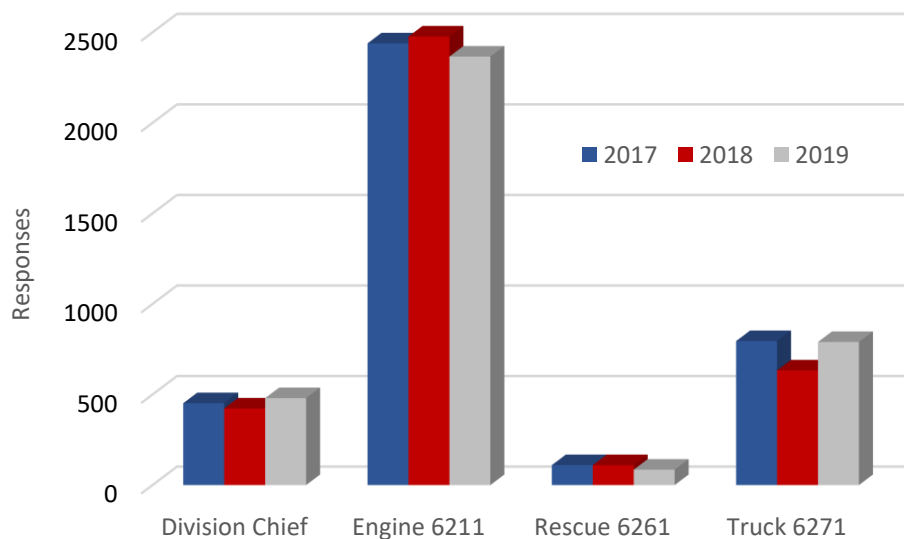
## Unit Workload Analysis

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 Figure 52. The 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.

**Figure 52: Response Unit Workload**



The amount of time a given unit is committed to an incident is also an important workload factor. Figure 53 illustrates the average time each unit was committed to an incident, from initial dispatch until it was available for another incident.

**Figure 53: Average Time Committed to an Incident by Unit**

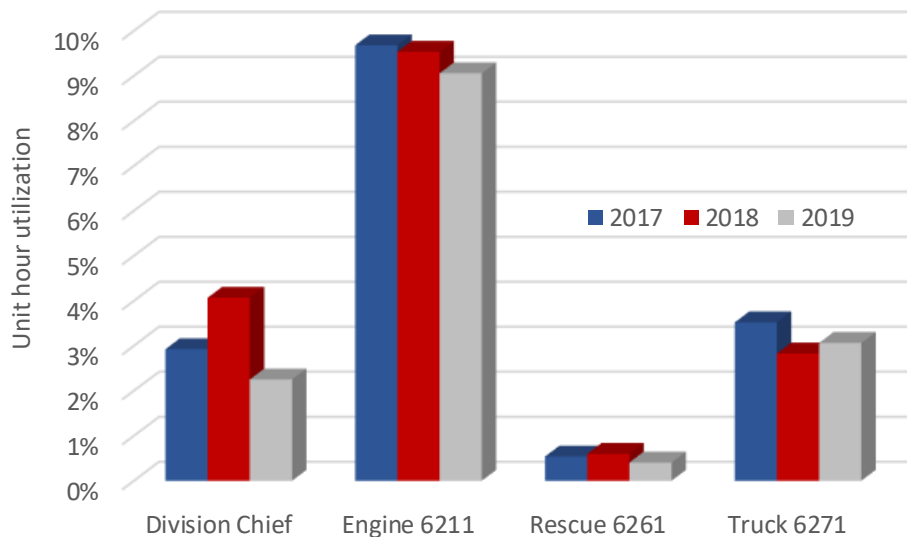
| Unit           | 2017 | 2018 | 2019 |
|----------------|------|------|------|
| Division Chief | 34.0 | 50.6 | 24.6 |
| Engine 6211    | 20.9 | 20.2 | 20.1 |
| Rescue 6261    | 25.8 | 28.6 | 25.0 |
| Truck 6271     | 23.3 | 23.5 | 20.4 |

Unit hour utilization 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 since 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.

Unit hour utilization 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 90<sup>th</sup> percentile, a response unit with greater than 10% utilization will not be able to provide an on-time response to its 90% target even if the response is its only activity.

Engine 6211 is nearing 10% utilization.

**Figure 54: Unit Hour Utilization**



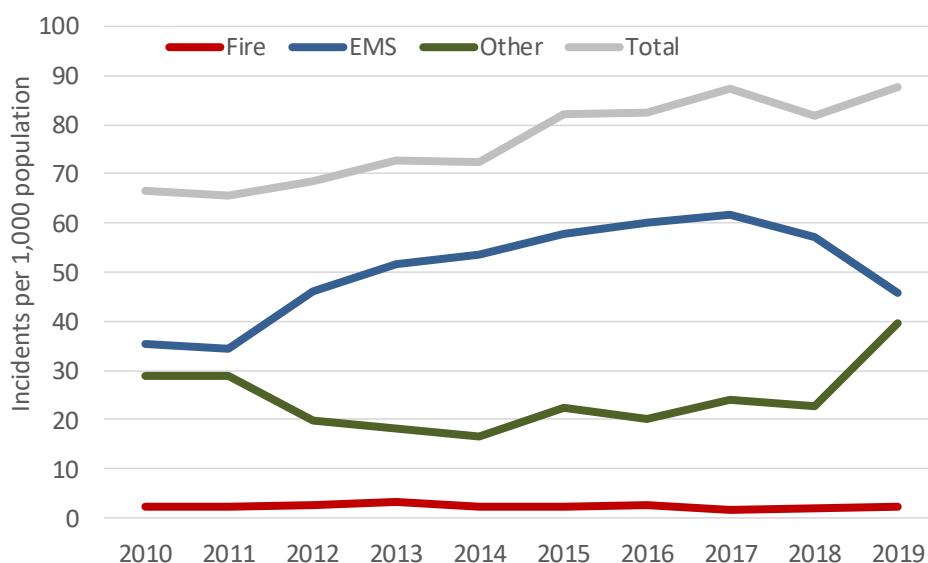
## Population and Incident Workload Projection

The most significant predictor of future incident workload is population; 100% of requests for emergency medical services are people-driven. The National Fire Protection Association reports that approximately 70% of all fires are the result of people either doing something they should not have (i.e., misuse of an 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.

The current population of Seaside and Del Ray Oaks combined is 35,800. The City provided a population forecast. Seaside's population is forecast to grow to 40,789 by 2040.

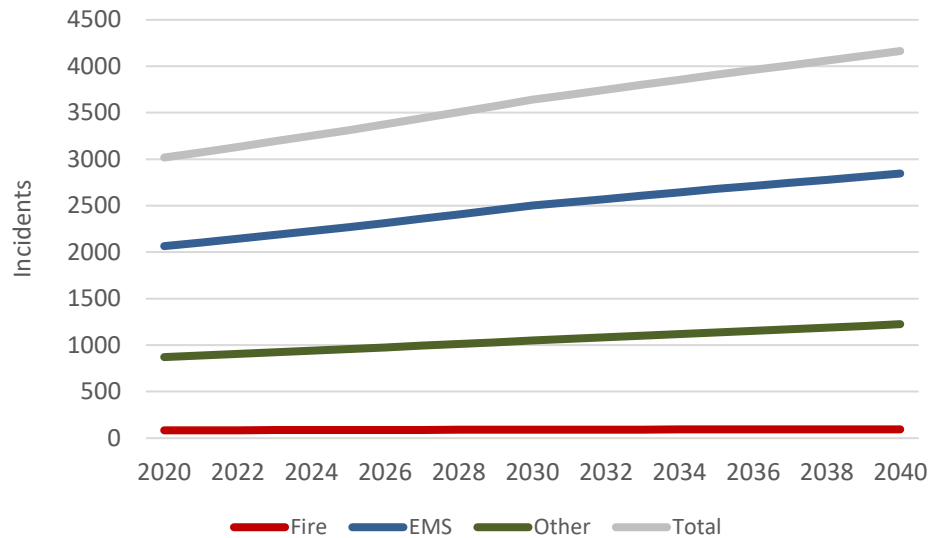
The current fire department services utilization rate is 87.7 incidents per 1,000 population. The total utilization rate has increased by 31.5% over the last nine years. Figure 55 illustrates that growth.

**Figure 55: Utilization Growth**



If the utilization growth rate of the past 10 years continues, the total utilization rate could reach 102 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 4,200 incidents per year by 2040, driven primarily by requests for emergency medical services.

**Figure 56: Response Workload Forecast, 2020–2040**





## 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. 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 commanding 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 control an emergency effectively. The department's ability to muster needed numbers of trained personnel quickly enough to make a difference is critical to successful incident outcomes.

Figure 57 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 a 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 57: 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 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 buildings 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 ensuring 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 58: Low-Rise Structure Fire**

| Task                | Number of Personnel |
|---------------------|---------------------|
| Command/Safety      | 1                   |
| Pump Operations     | 2                   |
| Attack Line         | 3                   |
| Search and Rescue   | 3                   |
| Ventilation         | 3                   |
| RIC                 | 3                   |
| Backup Line/Hydrant | 1                   |
| <b>Total</b>        | <b>16</b>           |

**Figure 59: High-Rise Structure Fire (75+ Feet in Height)**

| Task              | Number of Personnel |
|-------------------|---------------------|
| Command/Safety    | 3                   |
| Pump Operations   | 2                   |
| Attack Line       | 8                   |
| Search and Rescue | 8                   |
| Ventilation       | 6                   |
| RIC               | 4                   |
| Backup Line       | 2                   |
| <b>Total</b>      | <b>33</b>           |

**Figure 60: Moderate-Risk Commercial Structure Fire**

| Task                | Number of Personnel |
|---------------------|---------------------|
| Command/Safety      | 1                   |
| Pump Operations     | 2                   |
| Attack Line         | 3                   |
| Search and Rescue   | 3                   |
| Ventilation         | 3                   |
| RIC                 | 3                   |
| Backup Line/Hydrant | 1                   |
| <b>Total</b>        | <b>16</b>           |

**Figure 61: High-Risk Commercial Structure Fire**

| Task                | Number of Personnel |
|---------------------|---------------------|
| Command/Safety      | 2                   |
| Pump Operations     | 3                   |
| Attack Line         | 6                   |
| Search and Rescue   | 6                   |
| Ventilation         | 6                   |
| RIC                 | 5                   |
| Backup Line/Hydrant | 1                   |
| <b>Total</b>        | <b>29</b>           |

**Figure 62: Wildland Fire—Low Risk**

| Task            | Number of Personnel |
|-----------------|---------------------|
| Command/Safety  | 1                   |
| Pump Operations | 1                   |
| Attack Line     | 2                   |
| <b>Total</b>    | <b>4</b>            |

**Figure 63: Wildland Fire—High Risk**

| Task                    | Number of Personnel |
|-------------------------|---------------------|
| Command/Safety          | 3                   |
| Pump Operations/Lookout | 3                   |
| Attack Line             | 15                  |
| Structure Protection    | 15                  |
| Water Supply            | 2                   |
| <b>Total</b>            | <b>38</b>           |

**Figure 64: Aircraft Emergency**

| Task                      | Number of Personnel |
|---------------------------|---------------------|
| Command/Safety            | 1                   |
| Aircraft Fire Suppression | 1                   |
| Pump Operations           | 2                   |
| Attack Line               | 6                   |
| Backup Line               | 4                   |
| Rescue                    | 6                   |
| Emergency Medical Care    | 6                   |
| Water Supply              | 1                   |
| <b>Total</b>              | <b>27</b>           |

**Figure 65: Hazardous Materials—Low Risk**

| Task                       | Number of Personnel |
|----------------------------|---------------------|
| Command                    | 1                   |
| Safety                     | 1                   |
| Decontamination            | 4                   |
| Entry Team and Backup Team | 6                   |
| <b>Total</b>               | <b>12</b>           |

**Figure 66: Hazardous Materials—High Risk**

| Task                                             | Number of Personnel |
|--------------------------------------------------|---------------------|
| Command                                          | 2                   |
| Liaison                                          | 1                   |
| Decontamination                                  | 5                   |
| Research/Support                                 | 2                   |
| Team Leader, Safety, Entry Team, and Backup Team | 6                   |
| <b>Total</b>                                     | <b>16</b>           |

**Figure 67: Emergency Medical Aid (Life Threatening)**

| Task          | Number of Personnel |
|---------------|---------------------|
| Patient Care  | 2                   |
| Documentation | 1                   |
| <b>Total</b>  | <b>3</b>            |

**Figure 68: Major Medical Response (10+ Patients)**

| Task                    | Number of Personnel |
|-------------------------|---------------------|
| Incident Command/Safety | 2                   |
| Triage                  | 4                   |
| Patient Care            | 6                   |
| Ambulance (Private)     | 12                  |
| <b>Total</b>            | <b>24</b>           |

**Figure 69: Motor Vehicle Accident (Non-Trapped)**

| Task                     | Number of Personnel |
|--------------------------|---------------------|
| Incident Command/safety  | 1                   |
| Patient Care/Extrication | 3                   |
| <b>Total</b>             | <b>4</b>            |

**Figure 70: Motor Vehicle Accident (Trapped)**

| Task                              | Number of Personnel |
|-----------------------------------|---------------------|
| Command/Safety                    | 1                   |
| Patient Care                      | 2                   |
| Extrication/Vehicle Stabilization | 2                   |
| Pump Operator/Suppression Line    | 2                   |
| <b>Total</b>                      | <b>7</b>            |

**Figure 71: Technical Rescue—Water**

| Task           | Number of Personnel |
|----------------|---------------------|
| Command/Safety | 2                   |
| Rescue Team    | 5                   |
| Backup Team    | 4                   |
| Patient Care   | 3                   |
| <b>Total:</b>  | <b>14</b>           |

**Figure 72: Technical Rescue—Rope**

| Task                | Number of Personnel |
|---------------------|---------------------|
| Command/Safety      | 1                   |
| Rescue Team         | 2                   |
| Backup/Support Team | 2                   |
| Patient Care        | 2                   |
| Rigger              | 4                   |
| Attendant           | 1                   |
| Edge Person         | 1                   |
| <b>Total</b>        | <b>13</b>           |

**Figure 73: Technical Rescue—Confined Space**

| Task                | Number of Personnel |
|---------------------|---------------------|
| Command/Safety      | 1                   |
| Rescue Team         | 2                   |
| Backup/Support Team | 2                   |
| Patient Care        | 2                   |
| Attendant           | 1                   |
| Rigger              | 2                   |
| Ground Support      | 2                   |
| <b>Total:</b>       | <b>12</b>           |

**Figure 74: Technical Rescue—Trench**

| Task                | Number of Personnel |
|---------------------|---------------------|
| Command/Safety      | 1                   |
| Rescue Team         | 2                   |
| Backup/Support Team | 2                   |
| Shoring             | 6                   |
| Patient Care        | 2                   |
| <b>Total:</b>       | <b>13</b>           |

## 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 not able to staff a number of incident types in accordance with its Critical Tasking Analysis without the assistance of outside agencies.

**Figure 75: Low-Rise Structure Fire**

| Unit Type                      | Number of Units | Total Personnel |
|--------------------------------|-----------------|-----------------|
| Engine                         | 4               | 12              |
| Truck                          | 1               | 3               |
| Division Chief                 | 1               | 1               |
| <b>Total Staffing Provided</b> |                 | <b>16</b>       |
| <b>Total Staffing Needed</b>   |                 | <b>14</b>       |

**Figure 76: High-Rise Structure Fire (75+ Feet)**

| Unit Type                      | Number of Units | Total Personnel |
|--------------------------------|-----------------|-----------------|
| Engine                         | 4               | 12              |
| Truck                          | 1               | 3               |
| Division Chief                 | 1               | 1               |
| <b>Total Staffing Provided</b> |                 | <b>16</b>       |
| <b>Total Staffing Needed</b>   |                 | <b>25</b>       |

**Figure 77: Moderate-Risk Commercial Structure Fire**

| Unit Type                      | Number of Units | Total Personnel |
|--------------------------------|-----------------|-----------------|
| Engine                         | 4               | 12              |
| Truck                          | 1               | 3               |
| Division Chief                 | 1               | 1               |
| <b>Total Staffing Provided</b> |                 | <b>16</b>       |
| <b>Total Staffing Needed</b>   |                 | <b>23</b>       |

**Figure 78: High-Risk Commercial Structure Fire**

| Unit Type                      | Number of Units | Total Personnel |
|--------------------------------|-----------------|-----------------|
| Engine                         | 4               | 12              |
| Truck                          | 1               | 3               |
| Division Chief                 | 1               | 1               |
| <b>Total Staffing Provided</b> |                 | <b>16</b>       |
| <b>Total Staffing Needed</b>   |                 | <b>25</b>       |

**Figure 79: Wildland Fire—Low Risk**

| Unit Type                      | Number of Units | Total Personnel |
|--------------------------------|-----------------|-----------------|
| Engine                         | 1               | 3               |
| Division Chief                 | 1               | 1               |
| <b>Total Staffing Provided</b> |                 | <b>4</b>        |
| <b>Total Staffing Needed</b>   |                 | <b>7</b>        |

**Figure 80: Wildland Fire—High Risk**

| Unit Type                      | Number of Units | Total Personnel |
|--------------------------------|-----------------|-----------------|
| Engine                         | 1               | 6               |
| Brush Engine Type 3            | 2               | 6               |
| Division Chief                 | 1               | 1               |
| <b>Total Staffing Provided</b> |                 | <b>13</b>       |
| <b>Total Staffing Needed</b>   |                 | <b>7</b>        |

**Figure 81: Aircraft Emergency**

| Unit Type                      | Number of Units | Total Personnel |
|--------------------------------|-----------------|-----------------|
| Engine                         | 1               | 3               |
| Truck                          | 1               | 3               |
| Division Chief                 | 1               | 1               |
| <b>Total Staffing Provided</b> |                 | <b>7</b>        |
| <b>Total Staffing Needed</b>   |                 | <b>14</b>       |

**Figure 82: Hazardous Materials—Low or High Risk**

| Unit Type                      | Number of Units | Total Personnel |
|--------------------------------|-----------------|-----------------|
| Engine                         | 1               | 3               |
| Truck                          | 1               | 3               |
| Division Chief                 | 1               | 1               |
| Hazardous Materials Unit       | 2               | 4               |
| <b>Total Staffing Provided</b> |                 | <b>11</b>       |
| <b>Total Staffing Needed</b>   |                 | <b>15</b>       |

**Figure 83: Emergency Medical Service (Life Threatening)**

| Unit Type                      | Number of Units | Total Personnel |
|--------------------------------|-----------------|-----------------|
| Engine or Truck                | 1               | 3               |
| <b>Total Staffing Provided</b> |                 | <b>3</b>        |
| <b>Total Staffing Needed</b>   |                 | <b>3</b>        |

**Figure 84: Major Medical Response (10+ Patients)**

| Unit Type                      | Number of Units | Total Personnel |
|--------------------------------|-----------------|-----------------|
| Engine                         | 1               | 3               |
| Division Chief                 | 1               | 1               |
| Truck                          | 1               | 3               |
| Ambulance ALS (Private)        | 6               | 12              |
| <b>Total Staffing Provided</b> |                 | <b>19</b>       |
| <b>Total Staffing Needed</b>   |                 | <b>12</b>       |

**Figure 85: Motor Vehicle Accident (Non-Trapped)**

| Unit Type                      | Number of Units | Total Personnel |
|--------------------------------|-----------------|-----------------|
| Engine or Truck                | 1               | 3               |
| Division Chief                 | 1               | 1               |
| <b>Total Staffing Provided</b> |                 | <b>4</b>        |
| <b>Total Staffing Needed</b>   |                 | <b>3</b>        |

**Figure 83: Motor Vehicle Accident (Trapped)**

| Unit Type                      | Number of Units | Total Personnel |
|--------------------------------|-----------------|-----------------|
| Engine                         | 1               | 3               |
| Truck                          | 1               | 3               |
| Division Chief                 | 1               | 1               |
| Rescue                         | 1               | CS              |
| Ambulance ALS (Private)        | 1               | 2               |
| <b>Total Staffing Provided</b> |                 | <b>19</b>       |
| <b>Total Staffing Needed</b>   |                 | <b>12</b>       |

**Figure 86: Technical Rescue—Water**

| Unit Type                      | Number of Units | Total Personnel |
|--------------------------------|-----------------|-----------------|
| Engine                         | 1               | 3               |
| Rescue                         | 1               | CS              |
| Division Chief                 | 1               | 1               |
| Rescue                         | 1               | CS              |
| UC Coast Guard                 | 1               | 3               |
| State Parks Lifeguard          | 2               | 2               |
| Sheriff Dive Team              | 2               | 4               |
| Monterey FD Fire Boat          | 1               | 3               |
| <b>Total Staffing Provided</b> |                 | <b>16</b>       |
| <b>Total Staffing Needed</b>   |                 | <b>14</b>       |

**Figure 87: Technical Rescue—Rope**

| Unit Type                      | Number of Units | Total Personnel |
|--------------------------------|-----------------|-----------------|
| Engine                         | 1               | 3               |
| Truck                          | 1               | 3               |
| Rescue                         | 1               | CS              |
| Division Chief                 | 1               | 1               |
| <b>Total Staffing Provided</b> |                 | <b>7</b>        |
| <b>Total Staffing Needed</b>   |                 | <b>14</b>       |

**Figure 88: Technical Rescue—Confined Space**

| Unit Type                      | Number of Units | Total Personnel |
|--------------------------------|-----------------|-----------------|
| Engine                         | 1               | 3               |
| Truck                          | 1               | 3               |
| Rescue                         | 1               | CS              |
| Division Chief                 | 1               | 1               |
| <b>Total Staffing Provided</b> |                 | <b>7</b>        |
| <b>Total Staffing Needed</b>   |                 | <b>14</b>       |

**Figure 89: Technical Rescue—Trench**

| Unit Type                      | Number of Units | Total Personnel |
|--------------------------------|-----------------|-----------------|
| Engine                         | 1               | 3               |
| Truck                          | 1               | 3               |
| Rescue                         | 1               | CS              |
| Division Chief                 | 1               | 1               |
| <b>Total Staffing Provided</b> |                 | <b>7</b>        |
| <b>Total Staffing Needed</b>   |                 | <b>14</b>       |

## REVIEW OF HISTORICAL SYSTEM PERFORMANCE

Incident data for the period between January 1, 2017, and December 31, 2019 (study period), was evaluated in detail to determine SFD's current performance. Data was 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 (2,320 incidents during 2017, 2,197 during 2018, and 2,319 during 2019). 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 or other hazardous incident.
- 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 the 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 the 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 its own adopted goals. These goals match those found in the national consensus standard for response performance; 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*, 2019 Edition.

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

**Figure 90: Summary of SFD Performance Goals**

| Incident Interval                                                                                                                                                                                               | Performance Goal                              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| 9-1-1 call answer time (time from first ring to answer).                                                                                                                                                        | Within 15 seconds, 90% of the time            |
| Call process time (time from acceptance at the dispatch center until notification of response units).                                                                                                           | Within 60 seconds, 90% of the time            |
| Turnout time (time from notification of response personnel until the initiation of movement towards the incident).                                                                                              |                                               |
| Fire incidents and special operations incidents                                                                                                                                                                 | Within 80 seconds, 90% of the time            |
| All other emergency incidents                                                                                                                                                                                   | Within 60 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 and special operations incidents                                                                                                                                                                 | Within 5 minutes, 20 seconds, 90% of the time |
| All other emergency incidents                                                                                                                                                                                   | Within 5 minutes, 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 low rise 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% of times were at or less than the result. Only 10% 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

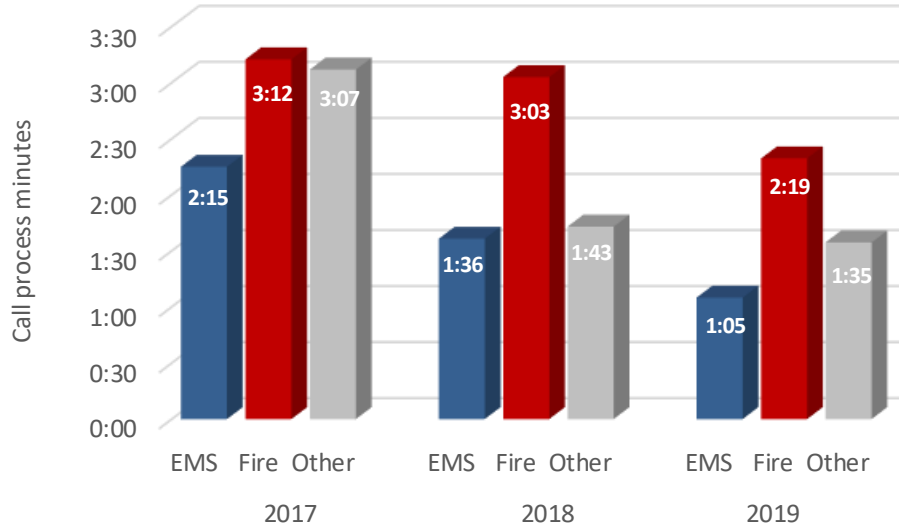
Most emergency incidents are reported by telephone to the 9-1-1 center. Call takers must quickly elicit accurate information about the nature and location of the incident from persons who are apt to be excited. A citizen well-trained in how to report emergencies can reduce the time required for this 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."

ECD is the PSAP and dispatch service provider for the Seaside Fire Department. It answers the call, processes the information, and dispatches SFD response units.

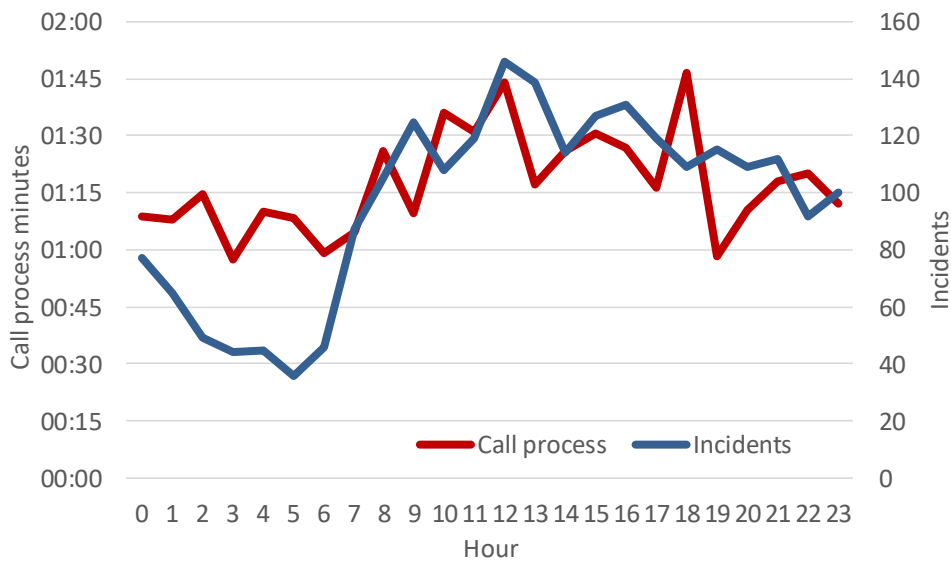
*National Fire Protection Association Standard 1221* recommends that 9-1-1 calls be answered within 15 seconds, 90% of the time (within 20 seconds, 95% of the time). MCEC reports they answer calls within 15 seconds, 95.5% of the time.

The second part of call processing time, dispatch time, begins when the call is received at the dispatch center (MCEC) and ends when response units are notified of the incident. SFD standards prescribe that this phase should occur within 60 seconds, 90% of the time.

The following figure illustrates performance by MCEC from the time it receives the call until it notifies response units. Overall performance during 2019 was within 1 minute, 20 seconds, 90% of the time, more than SFD's goal.

**Figure 91: MCEC Dispatch Time Performance**

The workload at the dispatch center can influence call processing performance. Figure 92 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.

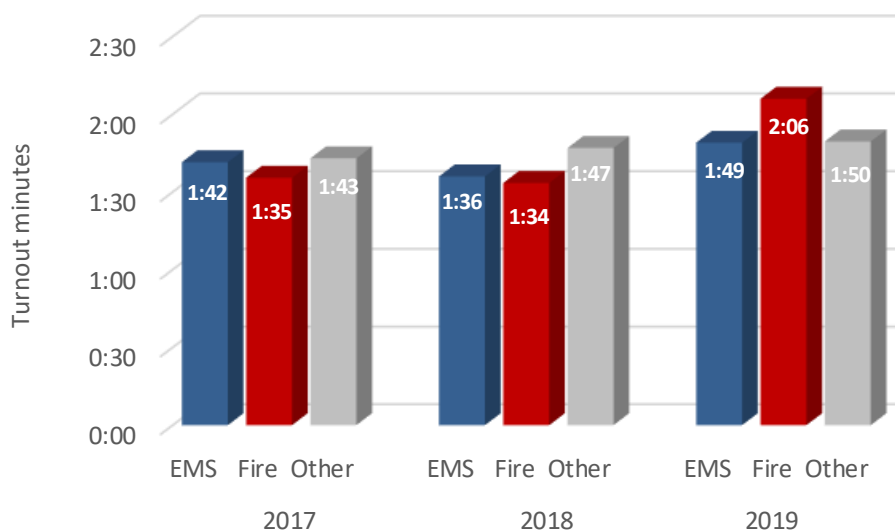
**Figure 92: Call Processing Time by Hour of Day, 2019**

## Turnout Time

Turnout time is a response phase controllable by the fire department. This phase begins at the 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.

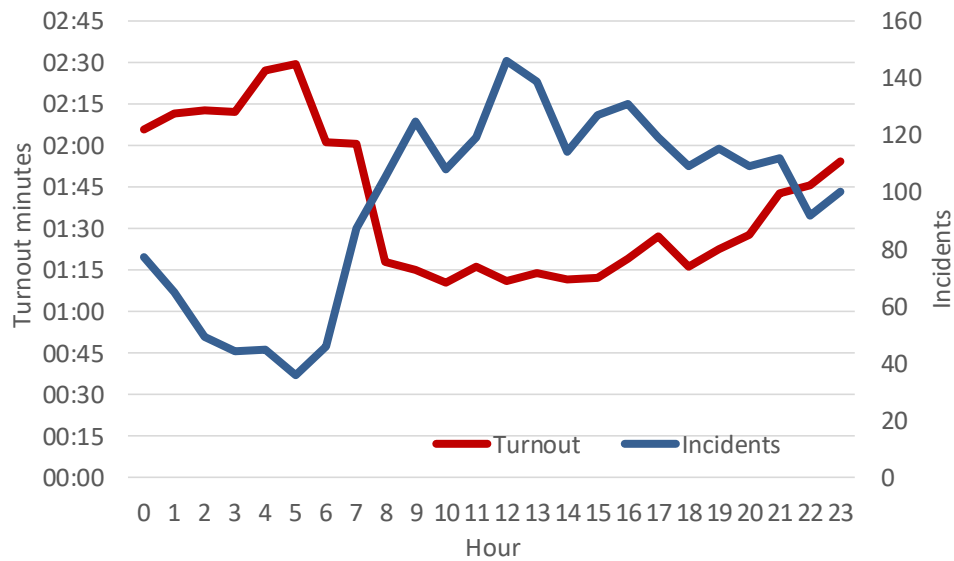
The performance goal for turnout time is within 80 seconds, 90% of the time for fire and special operations incidents, and within 60 seconds, 90% of the time for all other priority emergency incidents. Figure 93 lists turnout time for all incidents as well as specific incident types. Turnout times for all incident types exceed standards. During 2019, turnout time for fire incidents was within 2 minutes, 6 seconds, 90% of the time, within 1 minute, 49 seconds, 90% of the time for EMS incidents and within 1 minute, 50 seconds, 90% of the time for other incidents.

**Figure 93: Turnout Time Performance**



Turnout time can vary by hour of the day. In this case, turnout time varied by 78 seconds between the early morning hours and daytime hours.

**Figure 94: Turnout Time by Hour of Day, 2019**

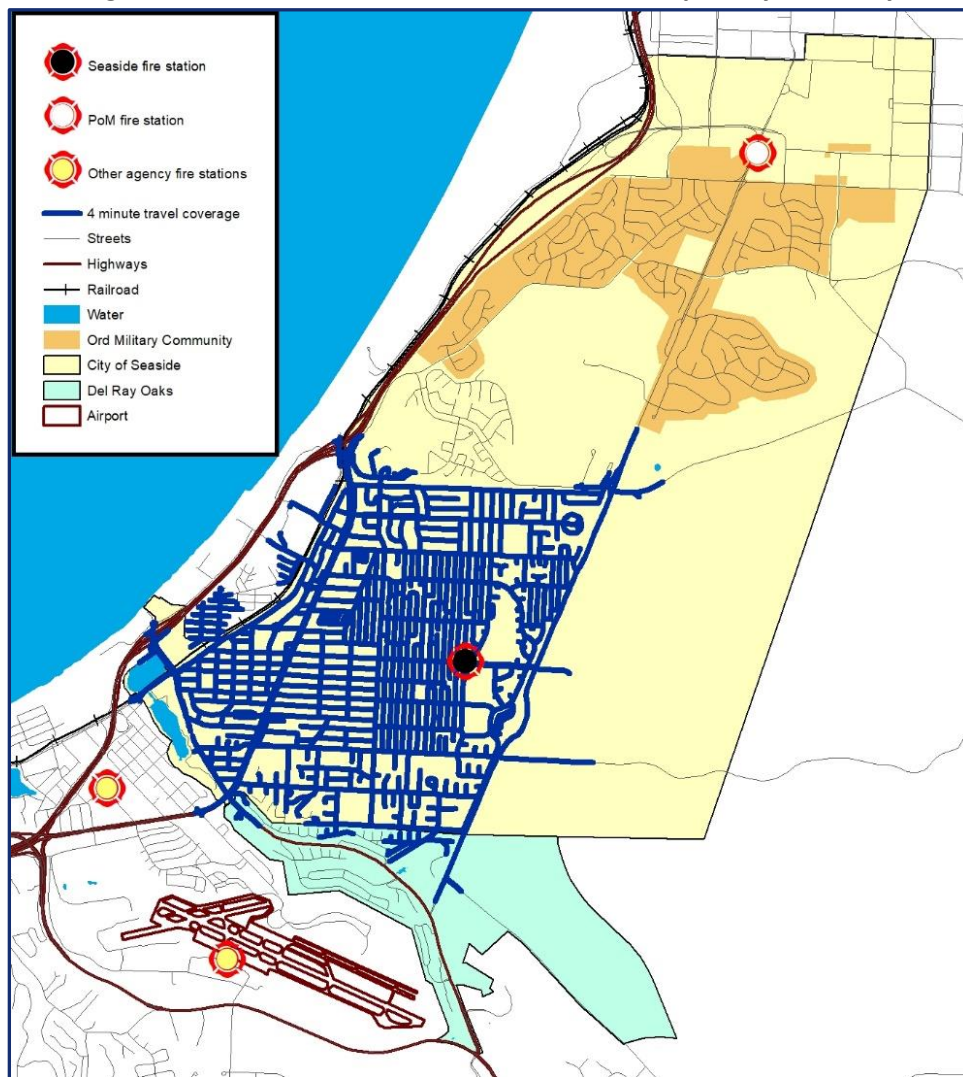


## Distribution and Initial Arriving Unit Travel Time

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.

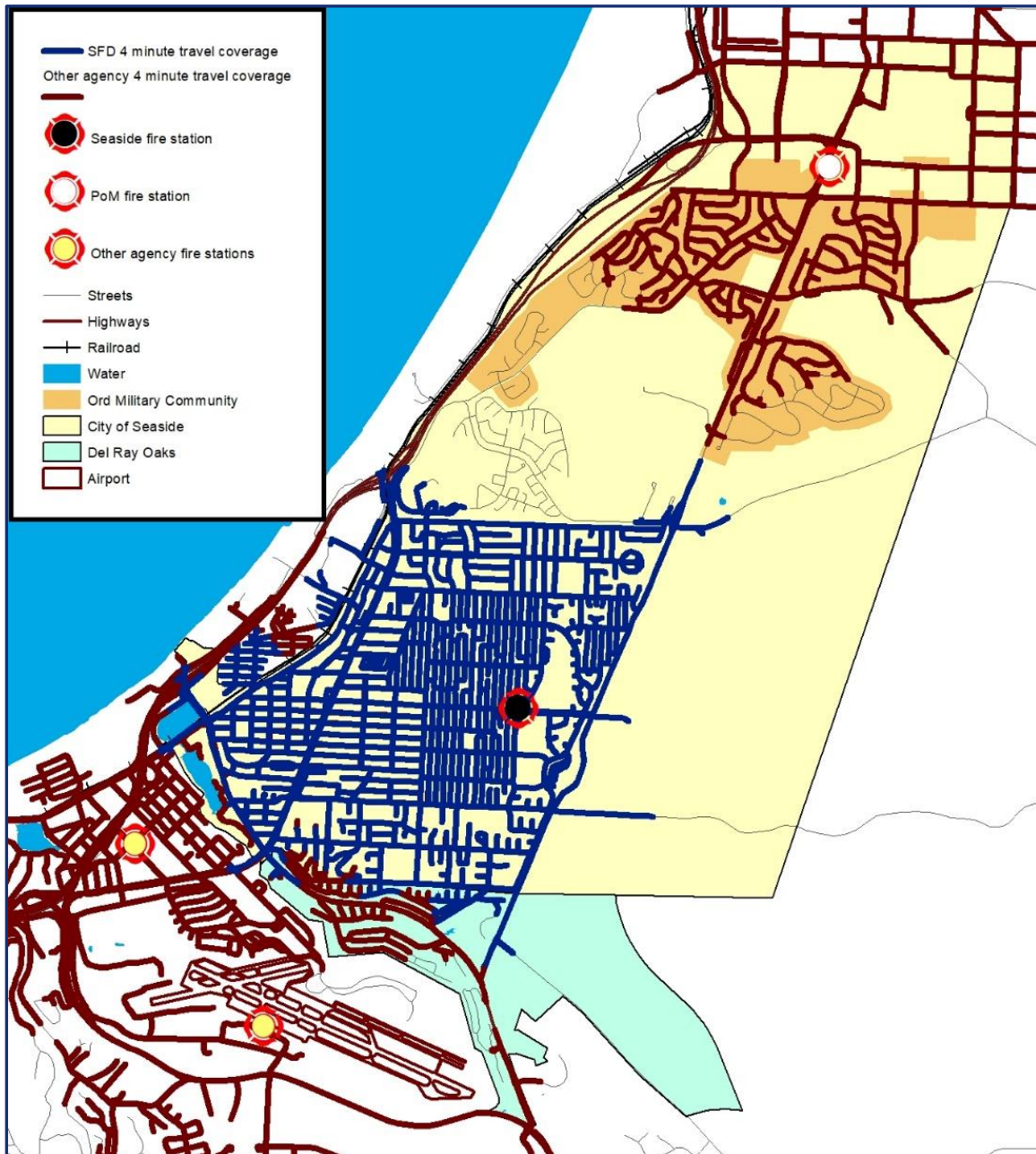
The following figure illustrates the street sections that can be reached from all SFD fire stations in four minutes of travel time. It is based on posted road speeds modified to account for turning, stops, and acceleration.

**Figure 95: Initial Unit Four Minute Travel Time Capability, SFD Only**



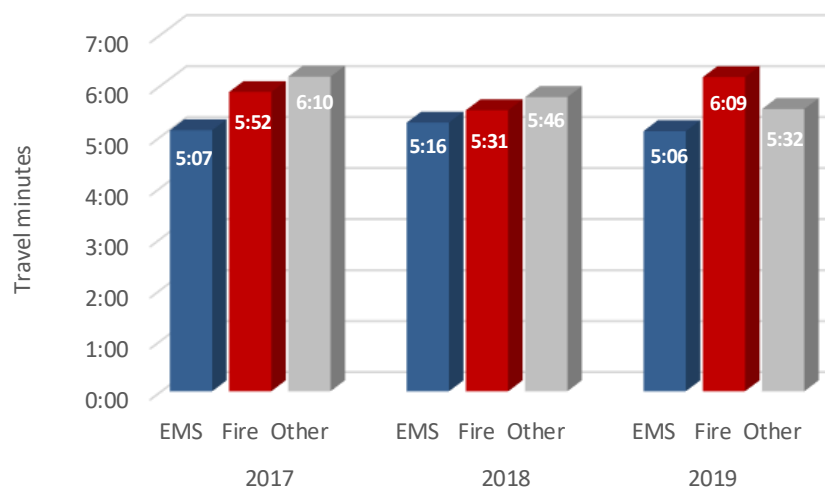
The next figure illustrates the area with four travel minutes of the SFD station and the three automatic aid partners that are within four travel minutes of SFD service area.

**Figure 96: Initial Unit Four Minute Travel Time Capability, SFD and Auto Aid Partners**



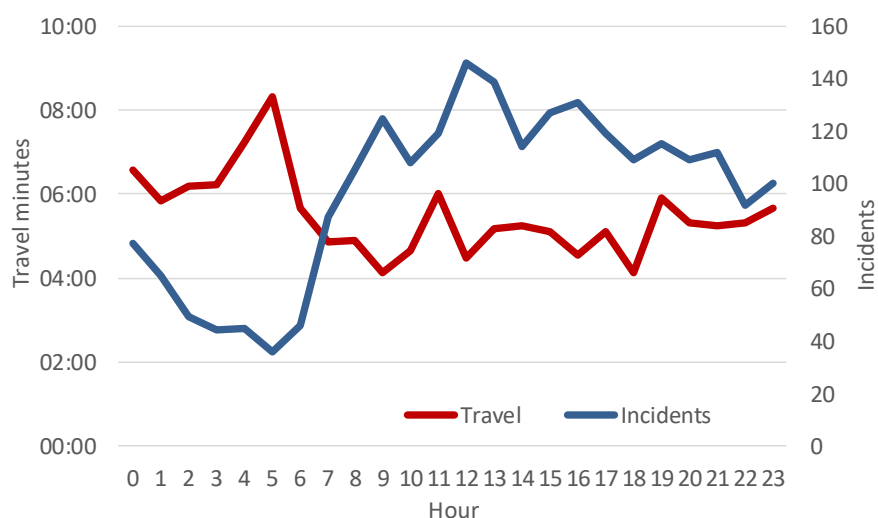
The following figure lists travel time for all priority incidents as well as specific incident types. SFD's travel times exceed its goal in all incident types. Travel time for all incidents during 2019 was within 5 minutes, 21 seconds, 90% of the time.

**Figure 97: Travel Time Performance—First Arriving Unit**



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

**Figure 98: Overall Travel Time and Incidents by Hour of Day—First Arriving Unit, 2019**



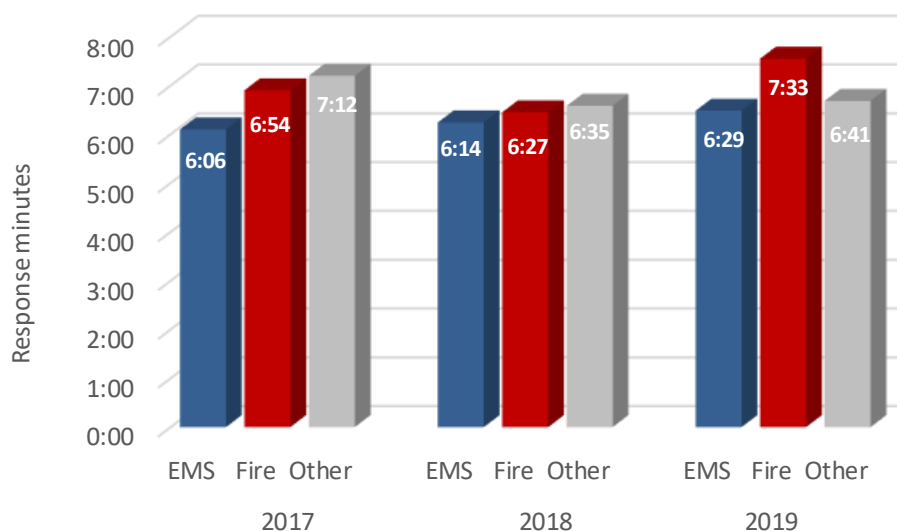
In order to provide an on-time response, a response unit must be within four travel minutes of the incident. Incidents were reviewed to identify how many occurred within four travel minutes of a fire station. During 2019, 2,783 of the 3,019 incidents within the SFD service area (92.2%) occurred within four travel minutes of a fire station.

### First Arriving Unit Response Time

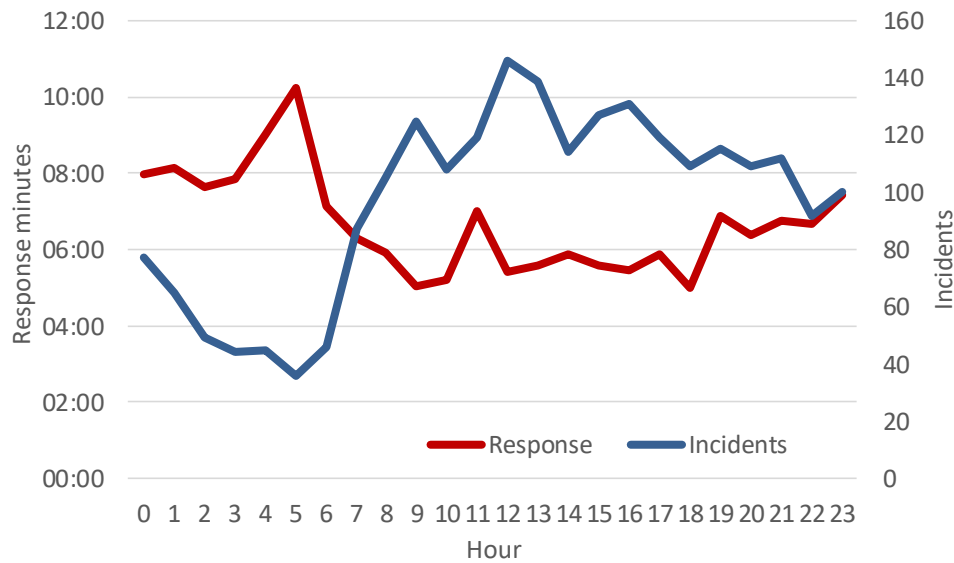
Response time is defined as that period between the notification of response personnel by the dispatch center that an emergency is in progress until the arrival of the first fire department response unit at the emergency. When turnout time and travel time are combined, the performance goal for response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

Figure 99 illustrates the response time for all priority incidents as well as specific incident types. Overall, response time for all priority incidents was within 6 minutes, 36 seconds, 90% of the time during 2019.

**Figure 99: Response Time Performance—First Arriving Unit**



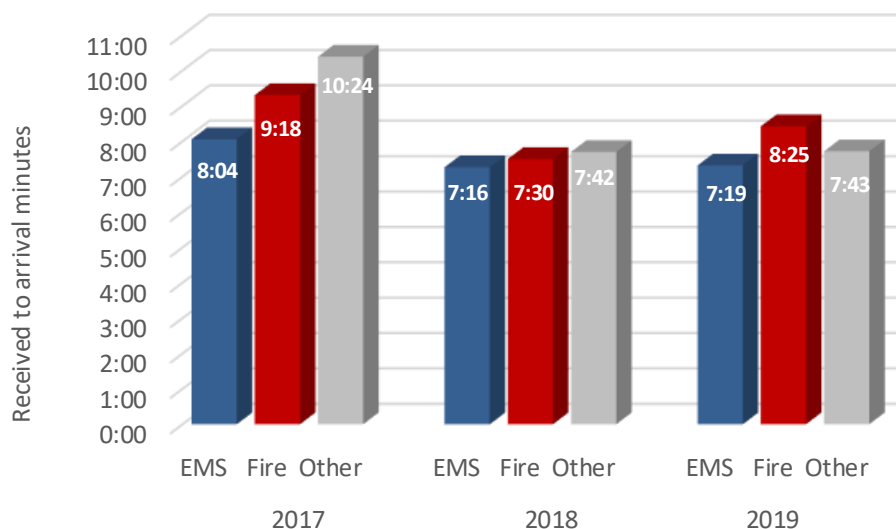
The next figure shows response time and number of incidents by the hour of the day for all incidents. Response time is slowest during the nighttime hours and fastest during the day. Generally, SFD's best response times occur during the period of the day when response activity is at its highest.

**Figure 100: Hourly Response Time Performance, 2019**

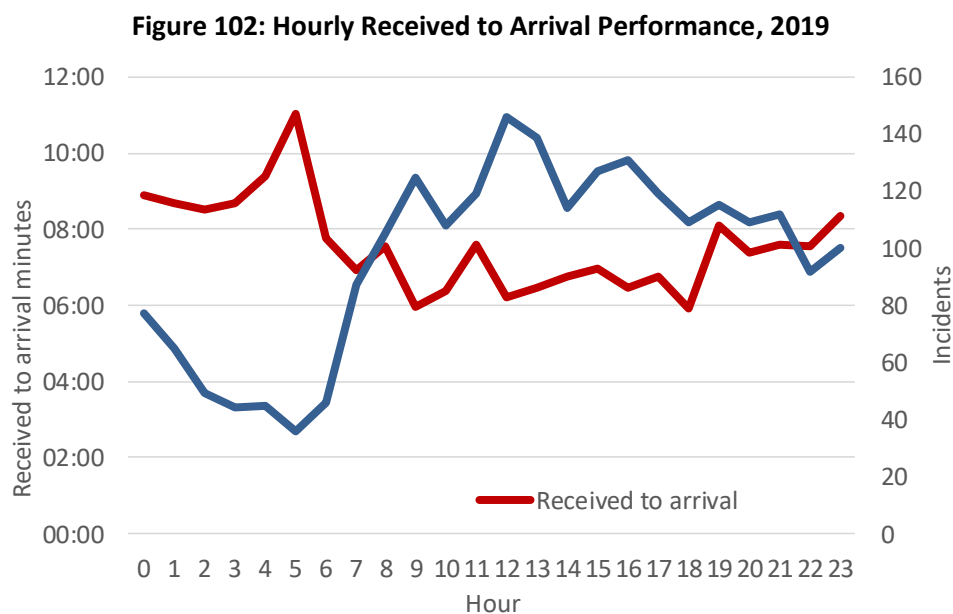
### First Arriving Unit Received to Arrival Time

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 call processing, turnout, and travel time. When the performance goals are combined, received to arrival time should be within 6 minutes, 20 seconds, 90% of the time for fire and special operations incidents, within 6 minutes, 90% of the time for all other priority incidents.

The following figure shows received to arrival performance for priority incidents within the SFD service area. Overall, received to arrival time was within 7 minutes, 43 seconds, 90% of the time during 2019.

**Figure 101: Received to Arrival Time—First Arriving Unit**

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



### 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 building fire is within 9 minutes, 20 seconds, 90% 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 Division Chief with a total of 16 firefighters. Higher risk fires require additional apparatus and personnel.

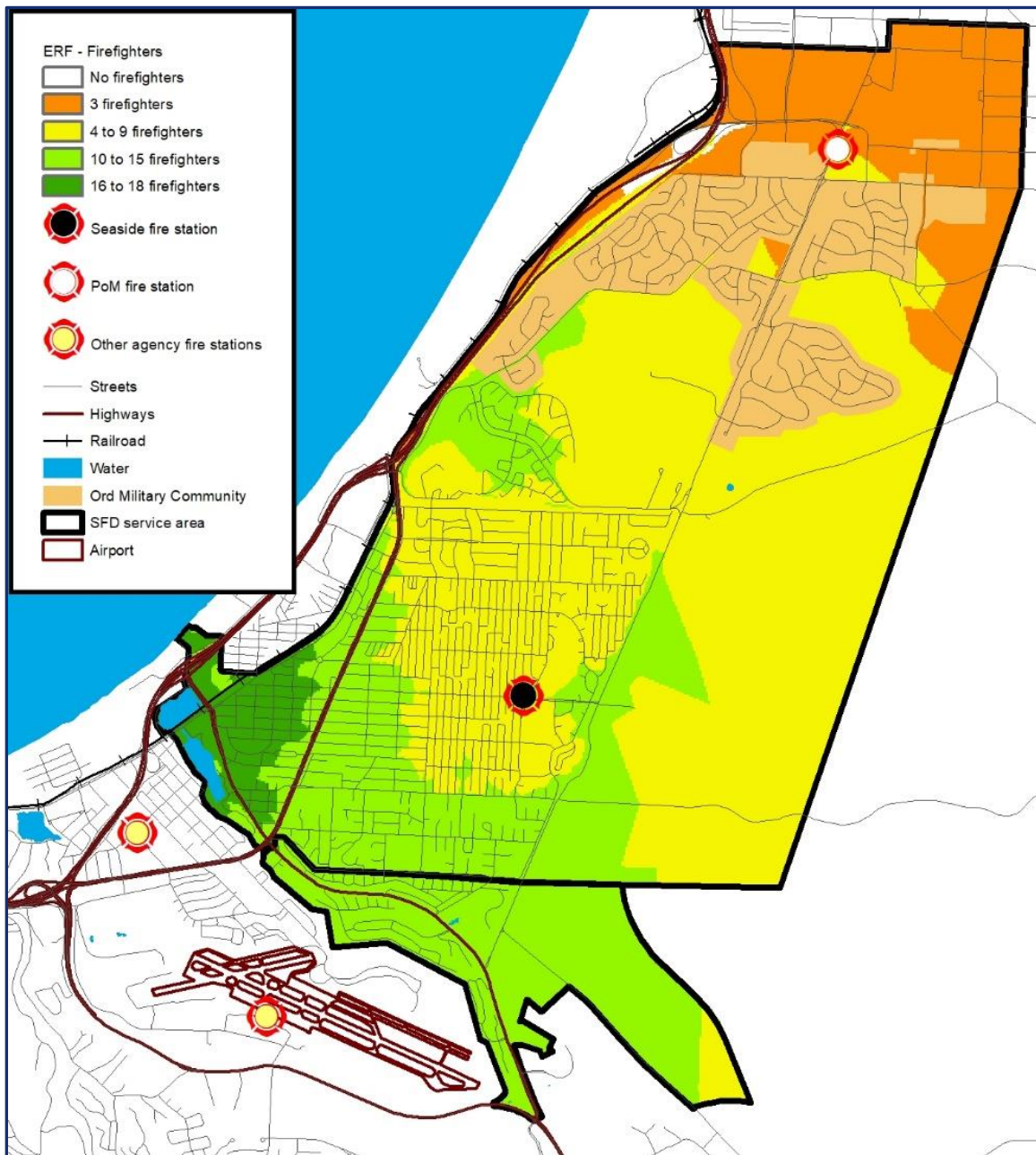
No data is available to identify building fires by type of risk (low-rise, high-risk commercial, etc.). All building fires have been evaluated using the low-rise effective response force criteria. The following figure illustrates effective response performance during the study period. The effective response force was delivered to 12 building fires during the study period. The following figure illustrates the time required to deliver the effective response force of apparatus to these fires.

**Figure 103: Effective Response Force Performance**

| Year | Time to Effective Response Force Arrival |
|------|------------------------------------------|
| 2017 | 0:10:42                                  |
| 2017 | 0:08:45                                  |
| 2017 | 0:09:47                                  |
| 2017 | 0:10:43                                  |
| 2017 | 0:11:21                                  |
| 2018 | 0:13:41                                  |
| 2018 | 0:25:13                                  |
| 2018 | 0:21:00                                  |
| 2018 | 0:08:57                                  |
| 2019 | 0:10:03                                  |
| 2019 | 0:09:59                                  |
| 2019 | 0:14:06                                  |

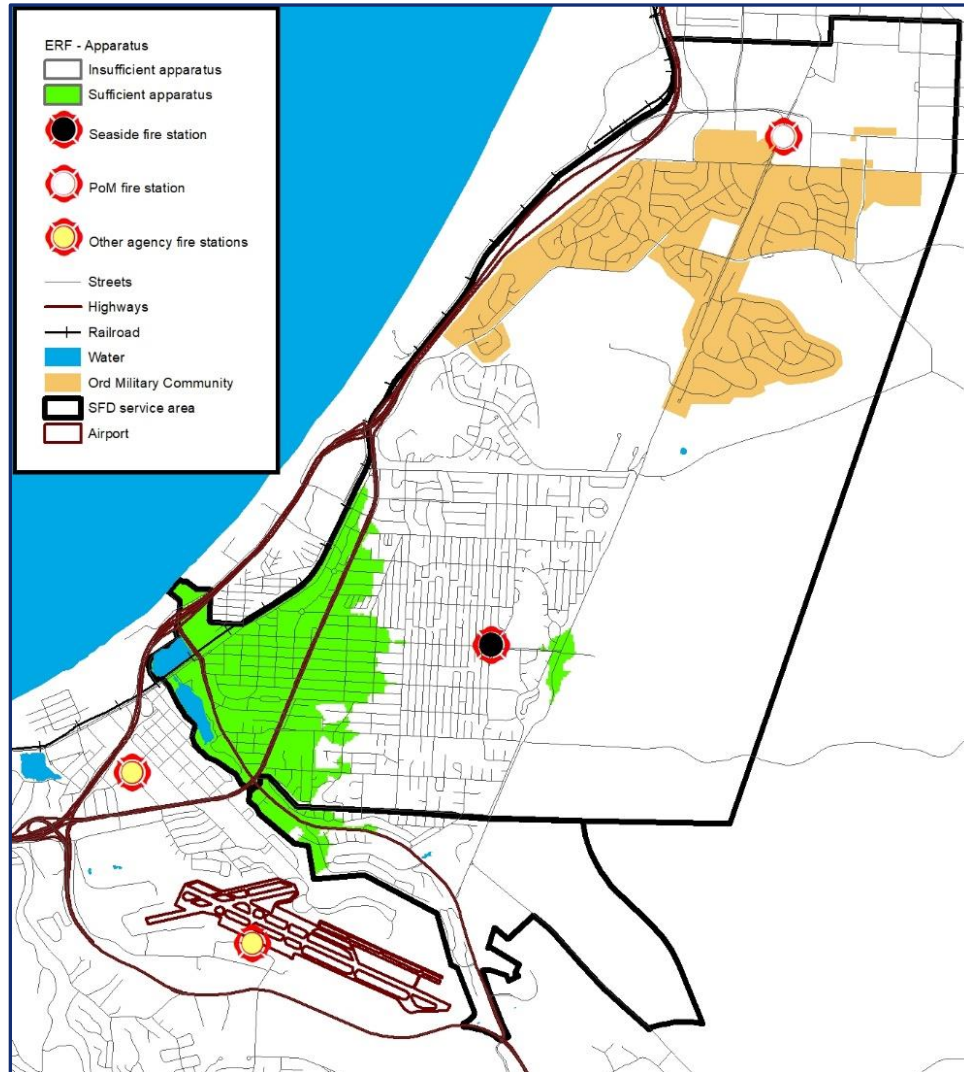
Concentration analysis reviews the physical capability of SFD's resources to achieve its target ERF travel time to its service area. The following figures depict the physical capability of SFD to assemble apparatus and firefighters by area within an eight-minute travel time. The modeled analysis shown 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. Since automatic aid resources are required to deliver an effective response force, this figure includes the resources of adjacent agency stations. The minimum complement of 16 firefighters needed for a low-rise residential fire can only be provided in the city's southwest corner. There is no part of the city where SFD can provide the number of firefighters needed for a higher-risk fire.

**Figure 104: Effective Response Force—Firefighters**

The next figure shows the area to which four fire engines, one truck, and a Division Chief can respond within eight minutes of travel time. The model indicates these resources can be delivered within eight minutes of travel only to the southwest area.

**Figure 105: Effective Response Force—Apparatus, Low Rise Fire**



### Second Unit Arrival Time

SFD fire engines are 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 the scene of a structure fire within 1 minute, 40 seconds, 90% of the time after the arrival of the first unit (52 seconds on average).

## Incident Concurrency

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 the 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 that one or more incidents occurred concurrently. This shows that 2,667 times during 2019, only one incident was in progress at a time. However, 393 times, there were two incidents in progress at the same time; 21 times, there were three incidents in progress at the same time; and twice, there were five incidents in progress at the same time.

**Figure 106: Incident Concurrency, 2019**

| Concurrent Incidents | 2019  |
|----------------------|-------|
| 1                    | 2,667 |
| 2                    | 393   |
| 3                    | 21    |
| 4                    | 1     |
| 5                    | 2     |

It is also useful to review the number of times one or more response units are committed to incidents at the same time. Since SFD only operated two response units during the study period, response units from other agencies were included. The following figure shows the number of times one or more SFD and other agency response units were committed to incidents within Seaside. It is common for multiple response units to be simultaneously committed to incidents, with two and three concurrent responses occurring regularly.

**Figure 107: Unit Concurrency**

| Concurrent Unit Responses | 2019  |
|---------------------------|-------|
| 1                         | 2,694 |
| 2                         | 837   |
| 3                         | 210   |
| 4                         | 95    |
| 5                         | 49    |
| 6                         | 29    |
| 7                         | 15    |
| 8                         | 7     |
| 9                         | 5     |
| 10                        | 2     |
| 11                        | 2     |
| 12                        | 4     |

## PERFORMANCE OBJECTIVES AND PERFORMANCE MEASURES

### Dynamics of Fire in Buildings

Most fires within buildings develop predictably 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.<sup>26</sup> 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.

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<sup>26</sup> 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.

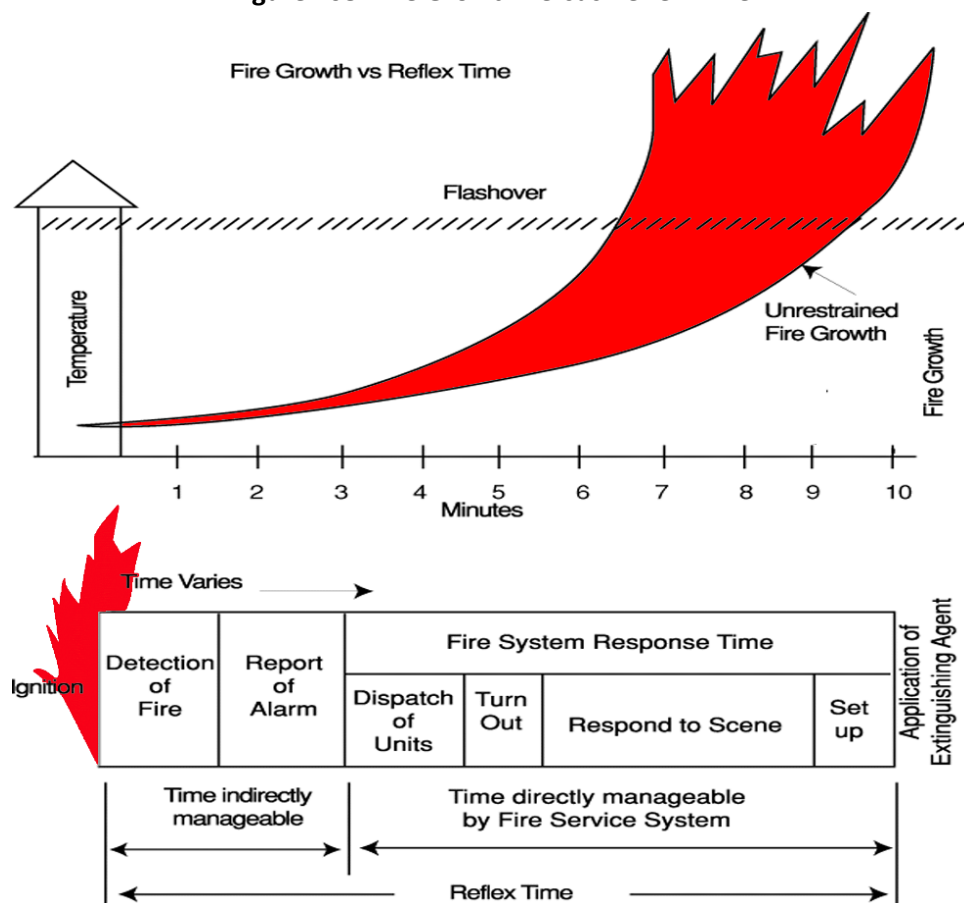
However, if it is *known* that victims are trapped inside the building, a rescue attempt can be performed without additional personnel ready to intervene outside the structure. Further, there is no requirement that all four arrive on the same response vehicle. Many fire departments rely on more than one unit arriving to initiate an 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 control a fire effectively. 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, the 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, 2011–2015**

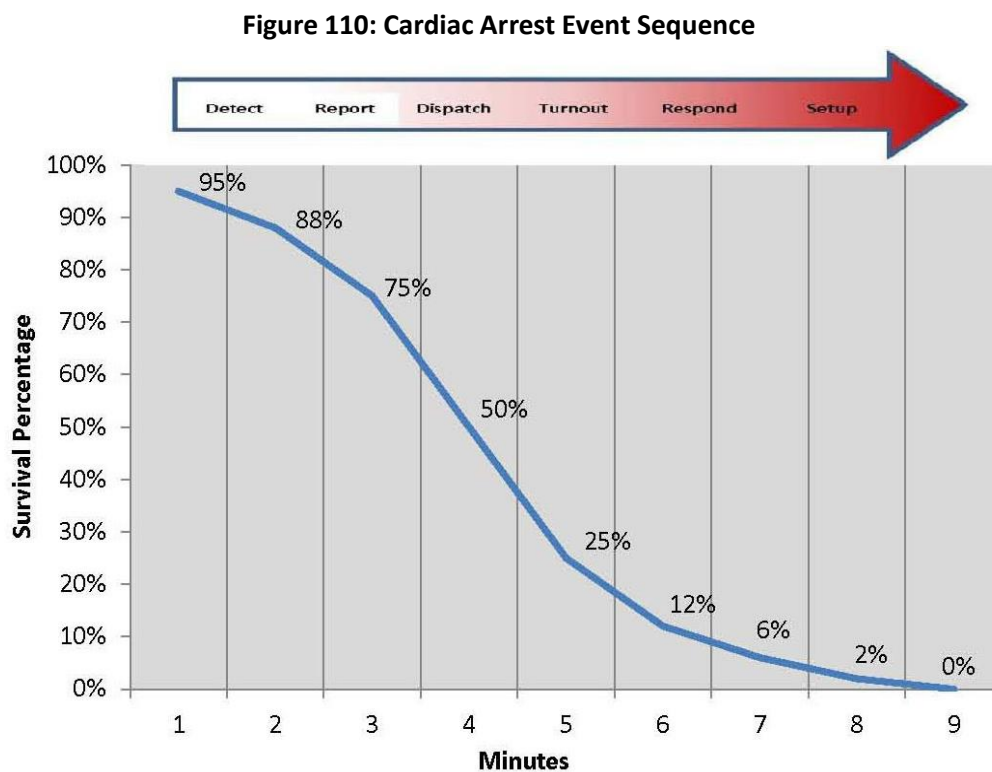
| Extension                                | Rates per 1,000 Fires |                   |                              |
|------------------------------------------|-----------------------|-------------------|------------------------------|
|                                          | Civilian Deaths       | 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% 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.



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 the 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

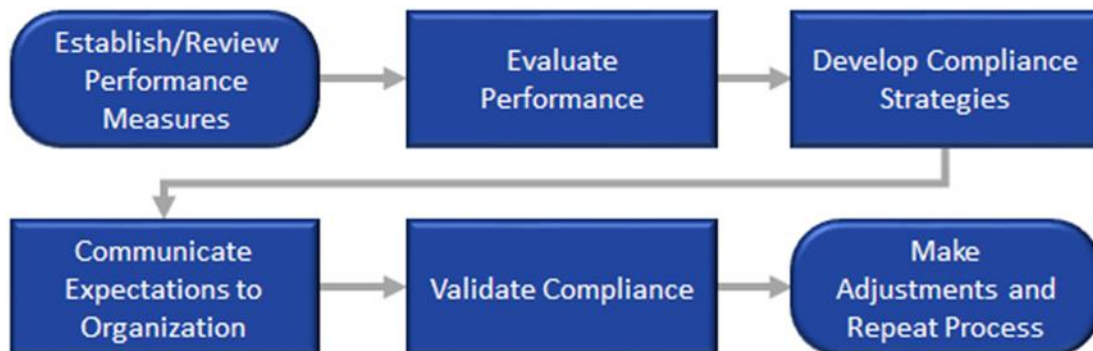
The preceding sections of this report provide a detailed analysis of the historical performance of the Seaside Fire Department. For this analysis to prove beneficial to the department and City policymakers, a continued analysis should be performed on a routine basis. The data provided to the project team for analysis proved to be difficult to analyze from the standpoint of consistency and completeness. These issues will also hinder future efforts to measure performance 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. A 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. Seaside 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 the actual services 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 the desired level.
- Develop budget estimates as necessary.
- Seek additional funding commitment as necessary.

## Phase 4—Communicate Expectations to Organizations

Communicate expectations:

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

Train personnel:

- Provide appropriate levels of training/direction for all affected personnel.
- Communicate the 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 the governing body
  - Adjustment of performance standards by the 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 the 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, 6<sup>th</sup> Edition*. It required the completion of an intensive analysis of 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 the 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 historical 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 16 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:

- Pre-incident planning is not being conducted on a regular basis.
- Buildings needing retrofitting for seismic protection have not been fully identified for operations personnel.
- The department lacks the staffing necessary to implement a coordinated Community Risk Reduction program.
- The department does not maintain a schedule to inspect all occupancies not required by the State of California.
- All operational permits required by the California Fire Code are not being issued, nor are fees collected for the occupancies.
- The level of administrative support appears to be inadequate for an organization the size and complexity of SFD.
- The total fire department response workload has increased by 36.1% over the last 10 years.
- The department's greatest demand for service is in the southernmost corner of the city.
- Engine 6211 is nearing 10% utilization, indicating its ability to achieve an on-time response is compromised.
- SFD is not able to staff a number of incident types in accordance with its Critical Tasking Analysis without the assistance of outside agencies.
- Overall, ECD's call processing performance during 2019 exceeded SFD's goals.
- The workload at ECD appears to be impacting the dispatch center's performance.
- At the time of this study, ECD was not utilizing Medical Priority Dispatch to prioritize requests for triaging the dispatch of fire units to emergency medical incidents.
- Turnout times for all incident types exceed SFD's goals.
- SFD's travel times exceed its goals for all incident types.
- Fire station workspaces are cramped, and demand has outstripped available accommodations.
- The City's General Fund Reserve Balance is a respectable 54% of General Fund Annual Recurring Expenditures allowing the City to take advantage of opportunities or to weather financial downturns.

## Recommendations

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. ESCI does not expect that SFD will implement all recommendations in the short-term. Some may wait until economic conditions allow their implementation. However, all of the recommendations offered chart a course to improved capability and service.

The recommendations 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 to guide service delivery improvement.**

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 Seaside City Council. The policy-making body must carefully balance the needs and expectations of its citizenry when deciding how to allocate money to all the services it provides.

SFD's current response performance goals will be difficult to achieve without the addition of many new resources, including response personnel and vehicles. The cost will be significant.

The following are recommended as SFD's fire and life safety response performance goals. They align directly with nationally recommended standards. These are not levels of service that must be achieved immediately but, instead, are targets for achievement when resources are available to do so. Further, the adoption of goals allows SFD management to regularly report progress on the 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***

- 9-1-1 calls will be answered at the primary PSAP within 15 seconds, 90% of the time.
- Response resources shall be notified of a priority incident within 60 seconds from receipt of the call at the dispatch center, 90% of the time.
  - Exceptions—These call types shall be processed and dispatched within 90 seconds, 90% of the time:
    - Calls requiring emergency medical dispatch questioning
    - Calls requiring language translation
    - Calls requiring the use of TTY/TTD devices
    - Calls of criminal activity
    - Hazardous materials and technical rescue incidents

***Current performance:*** Answer time is within 15 seconds, 99.5% of the time. Dispatch time currently within 80 seconds, 90% 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 en route to the incident location (responding), affects overall response times. Reducing this time component reduces total response time.

The 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% of the time.

**Current performance:** *Within 2 minutes, 6 seconds, 90% of the time.*

- Response personnel shall initiate a response to all other priority incidents within 60 seconds from notification 90% of the time.

**Current performance:** *Within 1 minute, 49 seconds, 90% 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. When the recommended standards for turnout time and travel time are combined response time should be within 5 minutes, 20 seconds, 90% of the time for fire and special operations incidents, and within 5 minutes, 90% of the time for all other priority incidents.

#### **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% of the time.

**Current performance:** *Within 7 minutes, 33 seconds, 90% 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% of the time.

**Current performance:** *Within 6 minutes, 29 seconds, 90% 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) 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 low-rise structure fires is identified as the arrival of at least four fire engines, one ladder truck, and one Battalion Chief (16 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% of the time.

**Current performance:** *Within 20 minutes, 19 seconds, 90% of the time.*

**Cost to Implement:** No cost to establish the goals.

### Recommendation B: Reduce the time required to dispatch a fire incident.

Currently, it takes well over 2 minutes for MCEC to dispatch a fire incident. Performance for other incident types is at or near national recommendations.

SFD and MCEC should explore this to determine what is taking so much time during the dispatch sequence. Changes in procedures or other actions should be accomplished to shorten this time.

**Cost to Implement:** Dependent on solutions selected.

### Recommendation C: Update traffic signal pre-emption equipment to include all signal-controlled intersections.

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. Research funding may be available through Monterey Bay Air Resources District through the AB2722 program. Monterey-Salinas Transit should be contacted for information about potential funding sources.

**Cost to Implement:** Cost estimates will vary depending on the technology installed. New GPS systems reduce installation costs and allow preemption from any direction. Local costs can be reduced if grant funding is available.

**Recommendation D: Improve SFD response unit turnout times.**

National guidance suggests turnout time should be within 80 seconds, 90% of the time for fire and special operations incidents, and within 60 seconds, 90% of the time for all other priority incidents. SFD response crew turnout times currently are longer.

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.

**Cost to Implement:** Dependent on changes needed.

**Recommendation E: 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 non-emergent but are not recognized as such until the ambulance response has been downgraded or the arrival of the SFD responding unit.

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

ECD does not currently offer this service for fire unit dispatch 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 to implement Emergency Medical Dispatch protocols for fire unit dispatch. The final decision as to the number and type of apparatus and staff dispatched should be determined by SFD consistent with the department's and City's 201 rights.

**Cost to Implement:** Minimal as EMD is currently being provided for ambulance response.

**Recommendation F: Develop a fire and life safety inspection program.**

Inspections of commercial properties reduce risks to the public from fire and life safety hazards and allow SFD an opportunity to educate the business owner on proper prevention or mitigation efforts. The California Fire Code requires permits for certain operational processes or storage of products to maintain a safe environment.

SFD should implement an inspection program based on the risk associated with an individual business. New commercial developments will increase community risk unless a formalized program is created. During an inspection, it can be determined if an operational permit is required. Seaside has adopted a fire inspection fee schedule. Inspections of all commercial properties also provide an opportunity to collect additional revenue from permits to support the cost of service.

**Cost to Implement:** Additional cost for staffing, which could be offset by additional revenue collected from fees.

**Recommendation G: Formalize and update Pre-Incident Planning for operations personnel.**

Pre-incident planning is designed to provide important information for responding personnel about a building to assist with the development of strategies and tactics during a fire or other emergency event. It ensures response personnel are familiar with the layout and risks within a building before they must encounter it during an emergency.

SFD should institute a comprehensive pre-incident planning program, including building surveys, plan development, and a system to retrieve plans quickly during an emergency.

**Cost to Implement:** Costs should be minimal. Staff will need training on recently upgraded software and time to complete the pre-incident planning.

**Recommendation H: Address administrative and support staff needs.**

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.

SFD should conduct a workload analysis of administrative and support staffing levels to quantify needs and gaps.

**Cost to Implement:** Cost will vary depending on if staff is utilized for the analysis or an outside firm is contracted.

**Recommendation I: Closely monitor the impact of new development on fire department workload.**

There exists much developable land within the City of Seaside. During the Stakeholder Interviews, ESCI was advised that plans had been approved for a development referred to as Campus Town.

SFD should continuously monitor new development and calculate the potential impact each will have on the delivery of service. The new workload can be reasonably predicted by applying the expected new population against the current utilization rate to determine the expected increase in responses.

**Cost to Implement:** Staff time to evaluate the impact of new development.

**Recommendation J: 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 reviewing data to quantify community risk. When community risks have been identified, they are prioritized based on the 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.

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

**Recommendation K: Explore cooperative service and consolidation opportunities.**

SFD is highly dependent on neighboring fire agencies for the delivery of effective response services to the City of Seaside. Although many incidents can be handled with one or both of the SFD response units, all building fires and other large incidents require support from outside agencies.

Although SFD is dependent on outside resources, it has no direct control over them. Support is provided by the other agencies at their discretion. Personnel qualifications and training are also at the discretion of the other agencies.

SFD should work with neighboring communities and the Department of Defense to develop a more integrated system. This could include agreements for shared training services, fire prevention services, joint purchasing, and the like.

Ideally, the communities in the region consolidate through a joint-powers authority (JPA) or similar structure. Orange County Fire Authority is a California example.

Each partner would designate a representative to the JPA Board of Directors, which would be the JPA's governing body. The JPA Board of Directors would select its Fire Chief, who would then have the authority to build a fully integrated fire services system.

The resulting system will provide a more effective response system. Cost reductions from current are likely since the number of administrative personnel should be reduced.

**Cost to Implement:** Dependent on the model selected.

## 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<br>this will occur                               | HUMAN<br>IMPACT                                                | PROPERTY<br>IMPACT                                             | BUSINESS<br>IMPACT                                             | PREPARED-<br>NESS                                           | INTERNAL<br>RESPONSE                                        | EXTERNAL<br>RESPONSE                                        | Relative threat* |
| SCORE                                         | 0 = N/A<br>1= Low<br>2= Moderate<br>3= High<br>4= Very High | 0 = N/A<br>1= Low<br>2= Moderate<br>3= High<br>4= Catastrophic | 0 = N/A<br>1= Low<br>2= Moderate<br>3= High<br>4= Catastrophic | 0 = N/A<br>1= Low<br>2= Moderate<br>3= High<br>4= Catastrophic | 0= Very High<br>1= High<br>2= Moderate<br>3= Low<br>4= None | 0= Very High<br>1= High<br>2= Moderate<br>3= Low<br>4= None | 0= Very High<br>1= High<br>2= Moderate<br>3= Low<br>4= None | 0 - 100%         |
| High Risk Urban                               | 4                                                           | 3                                                              | 4                                                              | 4                                                              | 2                                                           | 2                                                           | 2                                                           | 71%              |
| Moderate Risk Urban                           | 4                                                           | 3                                                              | 4                                                              | 4                                                              | 2                                                           | 2                                                           | 2                                                           | 71%              |
| Low Risk Urban                                | 4                                                           | 3                                                              | 4                                                              | 4                                                              | 2                                                           | 2                                                           | 2                                                           | 71%              |
| High Risk Suburban                            | 4                                                           | 4                                                              | 4                                                              | 4                                                              | 2                                                           | 2                                                           | 2                                                           | 75%              |
| Moderate Risk suburban                        | 4                                                           | 3                                                              | 4                                                              | 4                                                              | 2                                                           | 2                                                           | 2                                                           | 71%              |
| Low Risk Urban                                | 4                                                           | 4                                                              | 4                                                              | 4                                                              | 2                                                           | 2                                                           | 2                                                           | 75%              |
| AVERAGE SCORE                                 | 4.00                                                        | 3.33                                                           | 4.00                                                           | 4.00                                                           | 2.00                                                        | 2.00                                                        | 2.00                                                        | 72%              |

| ESCI HAZARD AND VULNERABILITY ASSESSMENT TOOL |                                                             |                                                                |                                                                |                                                                |                                                              |                                                              |                                                              |                  |
|-----------------------------------------------|-------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|------------------|
| NON-STRUCTURE FIRES                           |                                                             |                                                                |                                                                |                                                                |                                                              |                                                              |                                                              |                  |
| EVENT                                         | PROBABILITY                                                 | SEVERITY = IMPACT - MITIGATION)                                |                                                                |                                                                |                                                              |                                                              |                                                              | RISK             |
|                                               | Likelihood this will occur                                  | COMMUNITY IMPACT                                               |                                                                |                                                                | MITIGATION CAPACITY                                          |                                                              |                                                              | Relative threat* |
|                                               |                                                             | HUMAN IMPACT                                                   | PROPERTY IMPACT                                                | BUSINESS IMPACT                                                | PREPARED-NESS                                                | INTERNAL RESPONSE                                            | EXTERNAL RESPONSE                                            |                  |
| SCORE                                         | 0 = N/A<br>1= Low<br>2= Moderate<br>3= High<br>4= Very High | 0 = N/A<br>1= Low<br>2= Moderate<br>3= High<br>4= Catastrophic | 0 = N/A<br>1= Low<br>2= Moderate<br>3= High<br>4= Catastrophic | 0 = N/A<br>1= Low<br>2= Moderate<br>3= High<br>4= Catastrophic | 0 = Very High<br>1= High<br>2= Moderate<br>3= Low<br>4= None | 0 = Very High<br>1= High<br>2= Moderate<br>3= Low<br>4= None | 0 = Very High<br>1= High<br>2= Moderate<br>3= Low<br>4= None | 0 - 100%         |
| High Risk Urban                               | 4                                                           | 2                                                              | 3                                                              | 3                                                              | 2                                                            | 2                                                            | 2                                                            | 58%              |
| Moderate Risk Urban                           | 4                                                           | 2                                                              | 3                                                              | 3                                                              | 2                                                            | 2                                                            | 2                                                            | 58%              |
| Low Risk Urban                                | 3                                                           | 2                                                              | 3                                                              | 3                                                              | 2                                                            | 2                                                            | 2                                                            | 44%              |
| Urban/Wildland Interface                      | 2                                                           | 2                                                              | 3                                                              | 3                                                              | 3                                                            | 2                                                            | 2                                                            | 31%              |
| AVERAGE SCORE                                 | 3.25                                                        | 2.00                                                           | 3.00                                                           | 3.00                                                           | 2.25                                                         | 2.00                                                         | 2.00                                                         | 48%              |

| ESCI HAZARD AND VULNERABILITY ASSESSMENT TOOL |                                                             |                                                                |                                                                |                                                                |                                                              |                                                              |                                                              |                  |
|-----------------------------------------------|-------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|------------------|
| EMS-MEDICAL ASSISTS                           |                                                             |                                                                |                                                                |                                                                |                                                              |                                                              |                                                              |                  |
| EVENT                                         | PROBABILITY                                                 | SEVERITY = IMPACT - MITIGATION)                                |                                                                |                                                                |                                                              |                                                              |                                                              | RISK             |
|                                               | Likelihood<br>this will occur                               | COMMUNITY IMPACT                                               |                                                                |                                                                | MITIGATION CAPACITY                                          |                                                              |                                                              | Relative threat* |
|                                               |                                                             | HUMAN<br>IMPACT                                                | PROPERTY<br>IMPACT                                             | BUSINESS<br>IMPACT                                             | PREPARED-<br>NESS                                            | INTERNAL<br>RESPONSE                                         | EXTERNAL<br>RESPONSE                                         |                  |
| SCORE                                         | 0 = N/A<br>1= Low<br>2= Moderate<br>3= High<br>4= Very High | 0 = N/A<br>1= Low<br>2= Moderate<br>3= High<br>4= Catastrophic | 0 = N/A<br>1= Low<br>2= Moderate<br>3= High<br>4= Catastrophic | 0 = N/A<br>1= Low<br>2= Moderate<br>3= High<br>4= Catastrophic | 0 = Very High<br>1= High<br>2= Moderate<br>3= Low<br>4= None | 0 = Very High<br>1= High<br>2= Moderate<br>3= Low<br>4= None | 0 = Very High<br>1= High<br>2= Moderate<br>3= Low<br>4= None | 0 - 100%         |
| High Risk                                     | 4                                                           | 3                                                              | 3                                                              | 2                                                              | 2                                                            | 2                                                            | 2                                                            | 58%              |
| Moderate Risk                                 | 4                                                           | 2                                                              | 2                                                              | 2                                                              | 1                                                            | 2                                                            | 2                                                            | 46%              |
| Low Risk                                      | 4                                                           | 1                                                              | 1                                                              | 1                                                              | 1                                                            | 2                                                            | 2                                                            | 33%              |
| AVERAGE SCORE                                 | 4.00                                                        | 2.00                                                           | 2.00                                                           | 1.67                                                           | 1.33                                                         | 2.00                                                         | 2.00                                                         | 46%              |

| ESCI HAZARD AND VULNERABILITY ASSESSMENT TOOL |                                                             |                                                               |                                                               |                                                               |                                                             |                                                             |                                                             |                  |
|-----------------------------------------------|-------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|------------------|
| RESCUE                                        |                                                             |                                                               |                                                               |                                                               |                                                             |                                                             |                                                             |                  |
| EVENT                                         | PROBABILITY                                                 | SEVERITY = IMPACT - MITIGATION)                               |                                                               |                                                               |                                                             |                                                             |                                                             | RISK             |
|                                               | Likelihood<br>this will occur                               | COMMUNITY IMPACT                                              |                                                               |                                                               | MITIGATION CAPACITY                                         |                                                             |                                                             |                  |
|                                               |                                                             | HUMAN<br>IMPACT                                               | PROPERTY<br>IMPACT                                            | BUSINESS<br>IMPACT                                            | PREPARED-<br>NESS                                           | INTERNAL<br>RESPONSE                                        | EXTERNAL<br>RESPONSE                                        | Relative threat* |
| SCORE                                         | 0 = N/A<br>1= Low<br>2= Moderate<br>3= High<br>4= Very High | 0= N/A<br>1= Low<br>2= Moderate<br>3= High<br>4= Catastrophic | 0= N/A<br>1= Low<br>2= Moderate<br>3= High<br>4= Catastrophic | 0= N/A<br>1= Low<br>2= Moderate<br>3= High<br>4= Catastrophic | 0= Very High<br>1= High<br>2= Moderate<br>3= Low<br>4= None | 0= Very High<br>1= High<br>2= Moderate<br>3= Low<br>4= None | 0= Very High<br>1= High<br>2= Moderate<br>3= Low<br>4= None | 0 - 100%         |
| Rescue - MVA                                  | 3                                                           | 2                                                             | 2                                                             | 1                                                             | 2                                                           | 1                                                           | 1                                                           | 28%              |
| Rescue - Structural Collapse                  | 2                                                           | 3                                                             | 3                                                             | 2                                                             | 1                                                           | 2                                                           | 1                                                           | 25%              |
| Rescue - Trench                               | 2                                                           | 2                                                             | 2                                                             | 1                                                             | 2                                                           | 2                                                           | 2                                                           | 23%              |
| Rescue - Low/High Angle                       | 2                                                           | 1                                                             | 1                                                             | 1                                                             | 2                                                           | 2                                                           | 2                                                           | 19%              |
| Rescue - Confined Space                       | 2                                                           | 1                                                             | 4                                                             | 1                                                             | 2                                                           | 2                                                           | 2                                                           | 25%              |
| Rescue - Swiftwater                           | 2                                                           | 2                                                             | 4                                                             | 1                                                             | 2                                                           | 2                                                           | 2                                                           | 27%              |
| Rescue - Stillwater                           | 2                                                           | 2                                                             | 4                                                             | 1                                                             | 2                                                           | 2                                                           | 2                                                           | 27%              |
| Rescue - Ice                                  | 1                                                           | 1                                                             | 4                                                             | 1                                                             | 3                                                           | 3                                                           | 3                                                           | 16%              |
| Rescue - Other                                | 2                                                           | 1                                                             | 4                                                             | 2                                                             | 2                                                           | 2                                                           | 2                                                           | 27%              |
| AVERAGE SCORE                                 | 2.00                                                        | 1.67                                                          | 3.11                                                          | 1.22                                                          | 2.00                                                        | 2.00                                                        | 1.89                                                        | 25%              |

| ESCI HAZARD AND VULNERABILITY ASSESSMENT TOOL |                                                                 |                                                                    |                                                                    |                                                                    |                                                                  |                                                                  |                                                                  |                  |
|-----------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|------------------|
| HAZARDOUS MATERIALS                           |                                                                 |                                                                    |                                                                    |                                                                    |                                                                  |                                                                  |                                                                  |                  |
| EVENT                                         | PROBABILITY                                                     | SEVERITY = IMPACT - MITIGATION)                                    |                                                                    |                                                                    |                                                                  |                                                                  |                                                                  | RISK             |
|                                               | Likelihood<br>this will occur                                   | COMMUNITY IMPACT                                                   |                                                                    |                                                                    | MITIGATION CAPACITY                                              |                                                                  |                                                                  | Relative threat* |
|                                               |                                                                 | HUMAN<br>IMPACT                                                    | PROPERTY<br>IMPACT                                                 | BUSINESS<br>IMPACT                                                 | PREPARED-<br>NESS                                                | INTERNAL<br>RESPONSE                                             | EXTERNAL<br>RESPONSE                                             |                  |
| SCORE                                         | 0 = N/A<br>1 = Low<br>2 = Moderate<br>3 = High<br>4 = Very High | 0 = N/A<br>1 = Low<br>2 = Moderate<br>3 = High<br>4 = Catastrophic | 0 = N/A<br>1 = Low<br>2 = Moderate<br>3 = High<br>4 = Catastrophic | 0 = N/A<br>1 = Low<br>2 = Moderate<br>3 = High<br>4 = Catastrophic | 0 = Very High<br>1 = High<br>2 = Moderate<br>3 = Low<br>4 = None | 0 = Very High<br>1 = High<br>2 = Moderate<br>3 = Low<br>4 = None | 0 = Very High<br>1 = High<br>2 = Moderate<br>3 = Low<br>4 = None | 0 - 100%         |
| High Risk Hazmat - Urban                      | 3                                                               | 3                                                                  | 3                                                                  | 3                                                                  | 3                                                                | 2                                                                | 2                                                                | 50%              |
| Moderate Risk Hazmat - Urban                  | 3                                                               | 3                                                                  | 3                                                                  | 3                                                                  | 3                                                                | 1                                                                | 2                                                                | 47%              |
| Low Risk Hazmat - Urban                       | 2                                                               | 2                                                                  | 2                                                                  | 2                                                                  | 3                                                                | 1                                                                | 2                                                                | 25%              |
| High Risk Hazmat - Suburban                   | 2                                                               | 3                                                                  | 3                                                                  | 3                                                                  | 3                                                                | 2                                                                | 2                                                                | 33%              |
| Moderate Risk Hazmat - Suburban               | 2                                                               | 2                                                                  | 2                                                                  | 2                                                                  | 3                                                                | 1                                                                | 2                                                                | 25%              |
| Low Risk Hazmat - Suburban                    | 2                                                               | 1                                                                  | 1                                                                  | 1                                                                  | 3                                                                | 1                                                                | 2                                                                | 19%              |
| High Risk Hazmat - Rural                      | 3                                                               | 2                                                                  | 2                                                                  | 3                                                                  | 3                                                                | 2                                                                | 2                                                                | 44%              |
| Moderate Risk Hazmat - Rural                  | 3                                                               | 1                                                                  | 2                                                                  | 2                                                                  | 3                                                                | 2                                                                | 2                                                                | 38%              |
| Low Risk Hazmat - Rural                       | 2                                                               | 1                                                                  | 1                                                                  | 1                                                                  | 3                                                                | 2                                                                | 2                                                                | 21%              |
| AVERAGE SCORE                                 | 2.44                                                            | 2.00                                                               | 2.11                                                               | 2.22                                                               | 3.00                                                             | 1.56                                                             | 2.00                                                             | 33%              |

| ESCI HAZARD AND VULNERABILITY ASSESSMENT TOOL |                                                                 |                                                                    |                                                                    |                                                                    |                                                                  |                                                                  |                                                                  |                  |
|-----------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|------------------|
| NATURALLY OCCURRING EVENTS                    |                                                                 |                                                                    |                                                                    |                                                                    |                                                                  |                                                                  |                                                                  |                  |
| EVENT                                         | PROBABILITY                                                     | SEVERITY = IMPACT - MITIGATION)                                    |                                                                    |                                                                    |                                                                  |                                                                  |                                                                  | RISK             |
|                                               | Likelihood<br>this will occur                                   | COMMUNITY IMPACT                                                   |                                                                    |                                                                    | MITIGATION CAPACITY                                              |                                                                  |                                                                  | Relative threat* |
|                                               |                                                                 | HUMAN<br>IMPACT                                                    | PROPERTY<br>IMPACT                                                 | BUSINESS<br>IMPACT                                                 | PREPARED-<br>NESS                                                | INTERNAL<br>RESPONSE                                             | EXTERNAL<br>RESPONSE                                             |                  |
| SCORE                                         | 0 = N/A<br>1 = Low<br>2 = Moderate<br>3 = High<br>4 = Very High | 0 = N/A<br>1 = Low<br>2 = Moderate<br>3 = High<br>4 = Catastrophic | 0 = N/A<br>1 = Low<br>2 = Moderate<br>3 = High<br>4 = Catastrophic | 0 = N/A<br>1 = Low<br>2 = Moderate<br>3 = High<br>4 = Catastrophic | 0 = Very High<br>1 = High<br>2 = Moderate<br>3 = Low<br>4 = None | 0 = Very High<br>1 = High<br>2 = Moderate<br>3 = Low<br>4 = None | 0 = Very High<br>1 = High<br>2 = Moderate<br>3 = Low<br>4 = None | 0 - 100%         |
| Tornado                                       | 1                                                               | 1                                                                  | 1                                                                  | 1                                                                  | 2                                                                | 2                                                                | 2                                                                | 9%               |
| Severe<br>Thunderstorm                        | 2                                                               | 2                                                                  | 2                                                                  | 2                                                                  | 2                                                                | 2                                                                | 2                                                                | 25%              |
| Snow Fall                                     | 0                                                               | 0                                                                  | 0                                                                  | 0                                                                  | 2                                                                | 2                                                                | 2                                                                | 0%               |
| Blizzard                                      | 0                                                               | 0                                                                  | 0                                                                  | 0                                                                  | 0                                                                | 0                                                                | 0                                                                | 0%               |
| Ice Storm                                     | 0                                                               | 0                                                                  | 0                                                                  | 0                                                                  | 3                                                                | 3                                                                | 3                                                                | 0%               |
| Earthquake                                    | 4                                                               | 4                                                                  | 4                                                                  | 4                                                                  | 2                                                                | 2                                                                | 1                                                                | 71%              |
| Tidal Wave                                    | 1                                                               | 1                                                                  | 1                                                                  | 1                                                                  | 2                                                                | 2                                                                | 2                                                                | 9%               |
| Temperature<br>Extremes                       | 2                                                               | 3                                                                  | 3                                                                  | 2                                                                  | 2                                                                | 2                                                                | 2                                                                | 29%              |
| Drought                                       | 3                                                               | 3                                                                  | 3                                                                  | 3                                                                  | 2                                                                | 2                                                                | 2                                                                | 47%              |
| Flood, External                               | 2                                                               | 2                                                                  | 2                                                                  | 3                                                                  | 2                                                                | 2                                                                | 2                                                                | 27%              |
| Wild Fire                                     | 2                                                               | 2                                                                  | 2                                                                  | 2                                                                  | 2                                                                | 1                                                                | 1                                                                | 21%              |
| Landslide                                     | 1                                                               | 2                                                                  | 2                                                                  | 1                                                                  | 2                                                                | 2                                                                | 2                                                                | 11%              |
| Dam Inundation                                | 0                                                               | 0                                                                  | 0                                                                  | 0                                                                  | 0                                                                | 0                                                                | 0                                                                | 0%               |
| Volcano                                       | 0                                                               | 0                                                                  | 0                                                                  | 0                                                                  | 2                                                                | 4                                                                | 4                                                                | 0%               |
| Epidemic                                      | 2                                                               | 4                                                                  | 4                                                                  | 4                                                                  | 2                                                                | 2                                                                | 2                                                                | 38%              |
| AVERAGE SCORE                                 | 1.33                                                            | 1.60                                                               | 1.60                                                               | 1.53                                                               | 1.80                                                             | 1.87                                                             | 1.80                                                             | 14%              |

| ESCI HAZARD AND VULNERABILITY ASSESSMENT TOOL |                                                                |                                                                   |                                                                   |                                                                   |                                                                 |                                                                 |                                                                 |                  |
|-----------------------------------------------|----------------------------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|------------------|
| TECHNOLOGIC EVENTS                            |                                                                |                                                                   |                                                                   |                                                                   |                                                                 |                                                                 |                                                                 |                  |
| EVENT                                         | PROBABILITY                                                    | SEVERITY = IMPACT - MITIGATION)                                   |                                                                   |                                                                   |                                                                 |                                                                 |                                                                 | RISK             |
|                                               |                                                                | COMMUNITY IMPACT                                                  |                                                                   |                                                                   | MITIGATION CAPACITY                                             |                                                                 |                                                                 |                  |
|                                               | Likelihood<br>this will occur                                  | HUMAN<br>IMPACT                                                   | PROPERTY<br>IMPACT                                                | BUSINESS<br>IMPACT                                                | PREPARED-<br>NESS                                               | INTERNAL<br>RESPONSE                                            | EXTERNAL<br>RESPONSE                                            | Relative threat* |
| SCORE                                         | 0 = N/A<br>1= Low<br>2 = Moderate<br>3 = High<br>4 = Very High | 0 = N/A<br>1= Low<br>2 = Moderate<br>3 = High<br>4 = Catastrophic | 0 = N/A<br>1= Low<br>2 = Moderate<br>3 = High<br>4 = Catastrophic | 0 = N/A<br>1= Low<br>2 = Moderate<br>3 = High<br>4 = Catastrophic | 0 = Very High<br>1= High<br>2 = Moderate<br>3 = Low<br>4 = None | 0 = Very High<br>1= High<br>2 = Moderate<br>3 = Low<br>4 = None | 0 = Very High<br>1= High<br>2 = Moderate<br>3 = Low<br>4 = None | 0 - 100%         |
| Electrical Failure                            | 3                                                              | 3                                                                 | 2                                                                 | 3                                                                 | 2                                                               | 3                                                               | 3                                                               | 50%              |
| Generator Failure                             | 2                                                              | 2                                                                 | 2                                                                 | 2                                                                 | 2                                                               | 3                                                               | 3                                                               | 29%              |
| Transportation Failure                        | 2                                                              | 2                                                                 | 2                                                                 | 2                                                                 | 2                                                               | 3                                                               | 2                                                               | 27%              |
| Fuel Shortage                                 | 2                                                              | 2                                                                 | 1                                                                 | 3                                                                 | 3                                                               | 3                                                               | 2                                                               | 29%              |
| Natural Gas Failure                           | 2                                                              | 2                                                                 | 2                                                                 | 3                                                                 | 3                                                               | 3                                                               | 2                                                               | 31%              |
| Water Failure                                 | 2                                                              | 3                                                                 | 2                                                                 | 3                                                                 | 2                                                               | 3                                                               | 3                                                               | 33%              |
| Sewer Failure                                 | 2                                                              | 3                                                                 | 2                                                                 | 3                                                                 | 2                                                               | 3                                                               | 3                                                               | 33%              |
| Steam Failure                                 | 0                                                              | 0                                                                 | 0                                                                 | 0                                                                 | 0                                                               | 0                                                               | 0                                                               | 0%               |
| Fire Alarm Failure                            | 2                                                              | 2                                                                 | 1                                                                 | 2                                                                 | 2                                                               | 2                                                               | 2                                                               | 23%              |
| Communications Failure                        | 2                                                              | 3                                                                 | 2                                                                 | 2                                                                 | 2                                                               | 2                                                               | 2                                                               | 27%              |
| Medical Gas Failure                           | 2                                                              | 4                                                                 | 1                                                                 | 1                                                                 | 2                                                               | 3                                                               | 3                                                               | 29%              |
| Medical Vacuum Failure                        | 2                                                              | 4                                                                 | 1                                                                 | 1                                                                 | 2                                                               | 3                                                               | 3                                                               | 29%              |
| HVAC Failure                                  | 2                                                              | 2                                                                 | 1                                                                 | 2                                                                 | 2                                                               | 3                                                               | 3                                                               | 27%              |
| Information Systems Failure                   | 2                                                              | 3                                                                 | 2                                                                 | 4                                                                 | 2                                                               | 3                                                               | 3                                                               | 35%              |
| Fire, Internal                                | 2                                                              | 2                                                                 | 3                                                                 | 4                                                                 | 2                                                               | 2                                                               | 2                                                               | 31%              |
| Flood, Internal                               | 2                                                              | 2                                                                 | 3                                                                 | 3                                                                 | 2                                                               | 2                                                               | 2                                                               | 29%              |
| Hazmat Exposure                               | 2                                                              | 2                                                                 | 3                                                                 | 4                                                                 | 3                                                               | 2                                                               | 2                                                               | 33%              |
| Supply Shortage                               | 2                                                              | 1                                                                 | 1                                                                 | 2                                                                 | 2                                                               | 2                                                               | 2                                                               | 21%              |
| Structural Damage                             | 2                                                              | 2                                                                 | 3                                                                 | 4                                                                 | 2                                                               | 2                                                               | 2                                                               | 31%              |
| AVERAGE SCORE                                 | 1.95                                                           | 2.32                                                              | 1.79                                                              | 2.53                                                              | 2.05                                                            | 2.47                                                            | 2.32                                                            | 27%              |

| ESCI HAZARD AND VULNERABILITY ASSESSMENT TOOL |                                                                 |                                                                    |                                                                    |                                                                    |                                                                  |                                                                  |                                                                  |                  |
|-----------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|------------------|
| HUMAN RELATED EVENTS                          |                                                                 |                                                                    |                                                                    |                                                                    |                                                                  |                                                                  |                                                                  |                  |
| EVENT                                         | PROBABILITY                                                     | SEVERITY = IMPACT - MITIGATION)                                    |                                                                    |                                                                    |                                                                  |                                                                  |                                                                  | RISK             |
|                                               | Likelihood<br>this will occur                                   | COMMUNITY IMPACT                                                   |                                                                    |                                                                    | MITIGATION CAPACITY                                              |                                                                  |                                                                  | Relative threat* |
|                                               |                                                                 | HUMAN<br>IMPACT                                                    | PROPERTY<br>IMPACT                                                 | BUSINESS<br>IMPACT                                                 | PREPARED-<br>NESS                                                | INTERNAL<br>RESPONSE                                             | EXTERNAL<br>RESPONSE                                             |                  |
| SCORE                                         | 0 = N/A<br>1 = Low<br>2 = Moderate<br>3 = High<br>4 = Very High | 0 = N/A<br>1 = Low<br>2 = Moderate<br>3 = High<br>4 = Catastrophic | 0 = N/A<br>1 = Low<br>2 = Moderate<br>3 = High<br>4 = Catastrophic | 0 = N/A<br>1 = Low<br>2 = Moderate<br>3 = High<br>4 = Catastrophic | 0 = Very High<br>1 = High<br>2 = Moderate<br>3 = Low<br>4 = None | 0 = Very High<br>1 = High<br>2 = Moderate<br>3 = Low<br>4 = None | 0 = Very High<br>1 = High<br>2 = Moderate<br>3 = Low<br>4 = None | 0 - 100%         |
| Mass Casualty Incident (trauma)               | 2                                                               | 2                                                                  | 1                                                                  | 1                                                                  | 2                                                                | 2                                                                | 2                                                                | 21%              |
| Mass Casualty Incident (medical/infectious)   | 2                                                               | 2                                                                  | 1                                                                  | 1                                                                  | 2                                                                | 2                                                                | 2                                                                | 21%              |
| Terrorism                                     | 1                                                               | 2                                                                  | 2                                                                  | 2                                                                  | 2                                                                | 2                                                                | 2                                                                | 13%              |
| VIP Situation                                 | 2                                                               | 1                                                                  | 3                                                                  | 2                                                                  | 2                                                                | 2                                                                | 2                                                                | 25%              |
| Infant Abduction                              | 1                                                               | 2                                                                  | 2                                                                  | 1                                                                  | 3                                                                | 3                                                                | 3                                                                | 15%              |
| Hostage Situation                             | 1                                                               | 2                                                                  | 3                                                                  | 2                                                                  | 3                                                                | 3                                                                | 3                                                                | 17%              |
| Civil Disturbance                             | 1                                                               | 2                                                                  | 3                                                                  | 2                                                                  | 3                                                                | 3                                                                | 3                                                                | 17%              |
| Labor Action                                  | 1                                                               | 2                                                                  | 3                                                                  | 2                                                                  | 3                                                                | 3                                                                | 3                                                                | 17%              |
| Forensic Admission                            | 1                                                               | 1                                                                  | 2                                                                  | 1                                                                  | 2                                                                | 3                                                                | 3                                                                | 13%              |
| Bomb Threat                                   | 1                                                               | 2                                                                  | 2                                                                  | 2                                                                  | 2                                                                | 3                                                                | 3                                                                | 15%              |
| AVERAGE SCORE                                 | 1.30                                                            | 1.80                                                               | 2.20                                                               | 1.60                                                               | 2.40                                                             | 2.60                                                             | 2.60                                                             | 18%              |

## 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). Figure 113 summarizes the fire station operated by the Seaside 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's associates conducted walk-through inspections of the Seaside Fire Department's fire station utilizing a standard checklist. Special attention was made to the building's location, future use viability in terms of serving the community, and the capability of accommodating an increase in staffing levels and emergency response apparatuses in the future.

**Figure 112: Fire Station Condition Definitions**

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

The following figure depicts the results of ESCI's inspection:

**Figure 113: Seaside Fire Department Station 62 & Administrative Offices**

|                                                                                   |                                                        |                                                                                                                                                                                                                                                      |   |              |   |
|-----------------------------------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|--------------|---|
| <b>Station Name/Number:</b>                                                       | Station #62                                            |                                                                                                                                                                                                                                                      |   |              |   |
| <b>Address/Physical Location:</b>                                                 | 1635 Broadway Avenue                                   |                                                                                                                                                                                                                                                      |   |              |   |
|  |                                                        | <p>This facility, constructed in 1979, is in fair condition and in need of updating and expansion in order to accommodate current staffing and expectations. As presently constructed and configured, the facility has limited future viability.</p> |   |              |   |
| <b>Structure</b>                                                                  |                                                        |                                                                                                                                                                                                                                                      |   |              |   |
| Construction Type                                                                 | Type II/V                                              |                                                                                                                                                                                                                                                      |   |              |   |
| Date of Construction                                                              | 1979                                                   |                                                                                                                                                                                                                                                      |   |              |   |
| Seismic Protection                                                                | No                                                     |                                                                                                                                                                                                                                                      |   |              |   |
| Auxiliary Power                                                                   | Yes                                                    |                                                                                                                                                                                                                                                      |   |              |   |
| General Condition                                                                 | Fair                                                   |                                                                                                                                                                                                                                                      |   |              |   |
| Number of Apparatus Bays                                                          | 2                                                      | Drive-through bays                                                                                                                                                                                                                                   | 3 | Back-in bays |   |
| Special Considerations (ADA, etc.)                                                | Limited ADA and gender segregation accommodations      |                                                                                                                                                                                                                                                      |   |              |   |
| Square Footage                                                                    | 4,500                                                  |                                                                                                                                                                                                                                                      |   |              |   |
| <b>Facilities Available</b>                                                       |                                                        |                                                                                                                                                                                                                                                      |   |              |   |
| Separate Rooms/Dormitory/Other                                                    | 2                                                      | Bedrooms                                                                                                                                                                                                                                             | 1 | Beds         | 8 |
| Maximum Station Staffing Capability                                               | 9                                                      |                                                                                                                                                                                                                                                      |   |              |   |
| Exercise/Workout Facilities                                                       | Yes                                                    |                                                                                                                                                                                                                                                      |   |              |   |
| Kitchen Facilities                                                                | Yes                                                    |                                                                                                                                                                                                                                                      |   |              |   |
| Individual Lockers/Storage Assigned                                               | Yes                                                    |                                                                                                                                                                                                                                                      |   |              |   |
| Shower Facilities                                                                 | Yes                                                    |                                                                                                                                                                                                                                                      |   |              |   |
| Training/Meeting Rooms                                                            | Yes                                                    |                                                                                                                                                                                                                                                      |   |              |   |
| Washer/Dryer                                                                      | Extractor for turnouts and a washer/dryer for clothing |                                                                                                                                                                                                                                                      |   |              |   |
| <b>Safety &amp; Security</b>                                                      |                                                        |                                                                                                                                                                                                                                                      |   |              |   |
| Sprinklers                                                                        | Yes                                                    |                                                                                                                                                                                                                                                      |   |              |   |
| Smoke Detection                                                                   | Yes                                                    |                                                                                                                                                                                                                                                      |   |              |   |
| Decontamination/Biohazard Disposal                                                | No                                                     |                                                                                                                                                                                                                                                      |   |              |   |
| Security                                                                          | Yes                                                    |                                                                                                                                                                                                                                                      |   |              |   |
| Apparatus Exhaust System                                                          | Yes                                                    |                                                                                                                                                                                                                                                      |   |              |   |

## Facilities Summary

The City of Seaside's Fire Station #62 is 41 years old and, as noted in Figure 113, is in fair condition. The outside of the station needs maintenance, including but not limited to a protective coat of paint. Internally the workspaces are cramped, and demand has outstripped available accommodations. The station has not been seismically retrofitted, the crew workout area is in the apparatus bay, which exposes the crews to diesel exhaust residue, and numerous doors between the apparatus bays need smoke seals replaced.

In the event the plans on maintaining the current number of crews and apparatus at this station, consideration should be given to remodeling and, if possible, expanding all areas of the station.

In addition to Fire Station #62, the City owns a Fire Station (#61) on property previously owned by the government (Fort Ord). This station is currently leased to the Presidio of Monterey (POM) and is staffed by the Presidio Fire Department. In the event the City were to regain control of this station and wish to station apparatus and crews there, a significant amount of remodeling and/or a complete teardown and rebuild will need to occur to meet safety and current OSHA mandates.



**CITY OF SEASIDE  
STAFF REPORT**

**Item No.: 6.B.**

**TO:** Successor Agency to the Redevelopment Agency of the City of Seaside

**FROM:** Craig Malin, City Manager

**BY:** Lesley Milton, Assistant City Manager

**DATE:** July 16, 2020

**SUBJECT: RECEIVE PRESENTATION FROM MONTEREY ONE WATER  
REGARDING POTENTIAL RATE INCREASE**

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**PURPOSE & RECOMMENDATION**

Receive presentation and ask questions as necessary.

**BACKGROUND**

There is no staff report for this item. A presentation will be made at the meeting by staff members of Monterey One Water.

**FISCAL IMPACT**

None associated with receipt of the presentation.

**ATTACHMENTS**

None

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Reviewed for Submission to the  
City Council by:



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Craig Malin, City Manager