# COMMUNITY RISK ASSESSMENT

## Standards of Cover & Deployment Analysis

# San Bruno Fire Department

San Bruno, CA

October 2022

AP TRITON
VISION • INNOVATION • SOLUTIONS

# Contents

## Acknowledgments

AP Triton Consulting wishes to extend its sincere appreciation to each individual whose contributions and assistance made this project possible.

***Our sincere appreciation is extended to each of you…***

**San Bruno Fire Department**

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**Gage Schlice**
Fire Marshal

**Bill Forester**
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**Scott Waldvogel**
Battalion Chief

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***…and each of the firefighters, officers, and support staff who daily serve the citizens and visitors of the San Bruno Fire Department service area and surrounding communities.***

# Section I:
# THE FIRE DEPARTMENT & EMERGENCY SERVICES SYSTEM

# Overview of the San Bruno Fire Department

The City of San Bruno Fire Department (SBFD) is an all-hazards department originally established in the early 1900s as a volunteer organization. In 1937, the department acquired its first career firefighters. SBFD continued to utilize volunteers until 2004. The department provides service to an area of nearly six square miles in addition to a boundary drop for San Mateo County. SBFD serves a resident population exceeding 44,000 persons.[1]

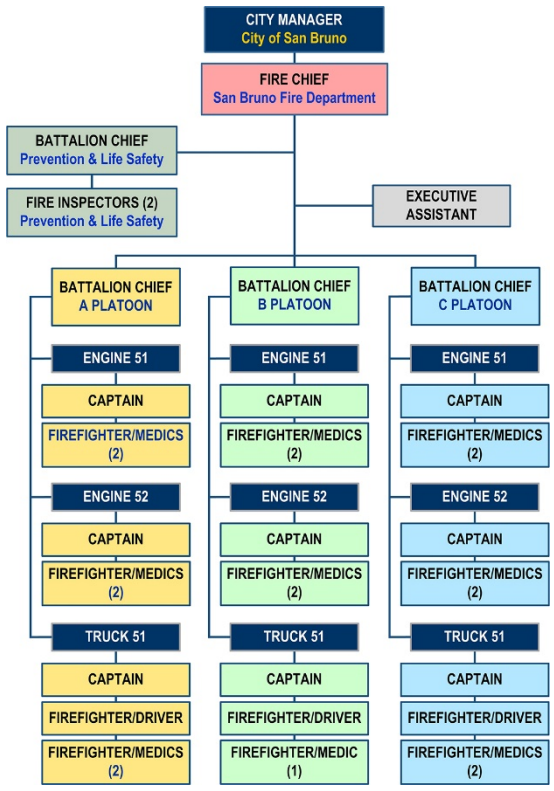
**Figure 1: San Bruno VFD (1934)**

In 2017, the San Bruno Fire Department was given a Public Protection Classification (PPC®) score of 2 by the Insurance Services Office (ISO).

## SBFD Organizational Structure

The City of San Bruno is governed by the City Council and operates under a Council-Manager form of government. The City Manager oversees the Fire Chief. The following figure illustrates the current organizational structure of the San Bruno Fire Department. As shown, the Fire Chief oversees an Executive Assistant, a Battalion Chief (BC) serving as the Fire Marshal, and three shift BCs who are each assigned to manage a single platoon.

**Figure 2: SBFD Organizational Structure (2021)**



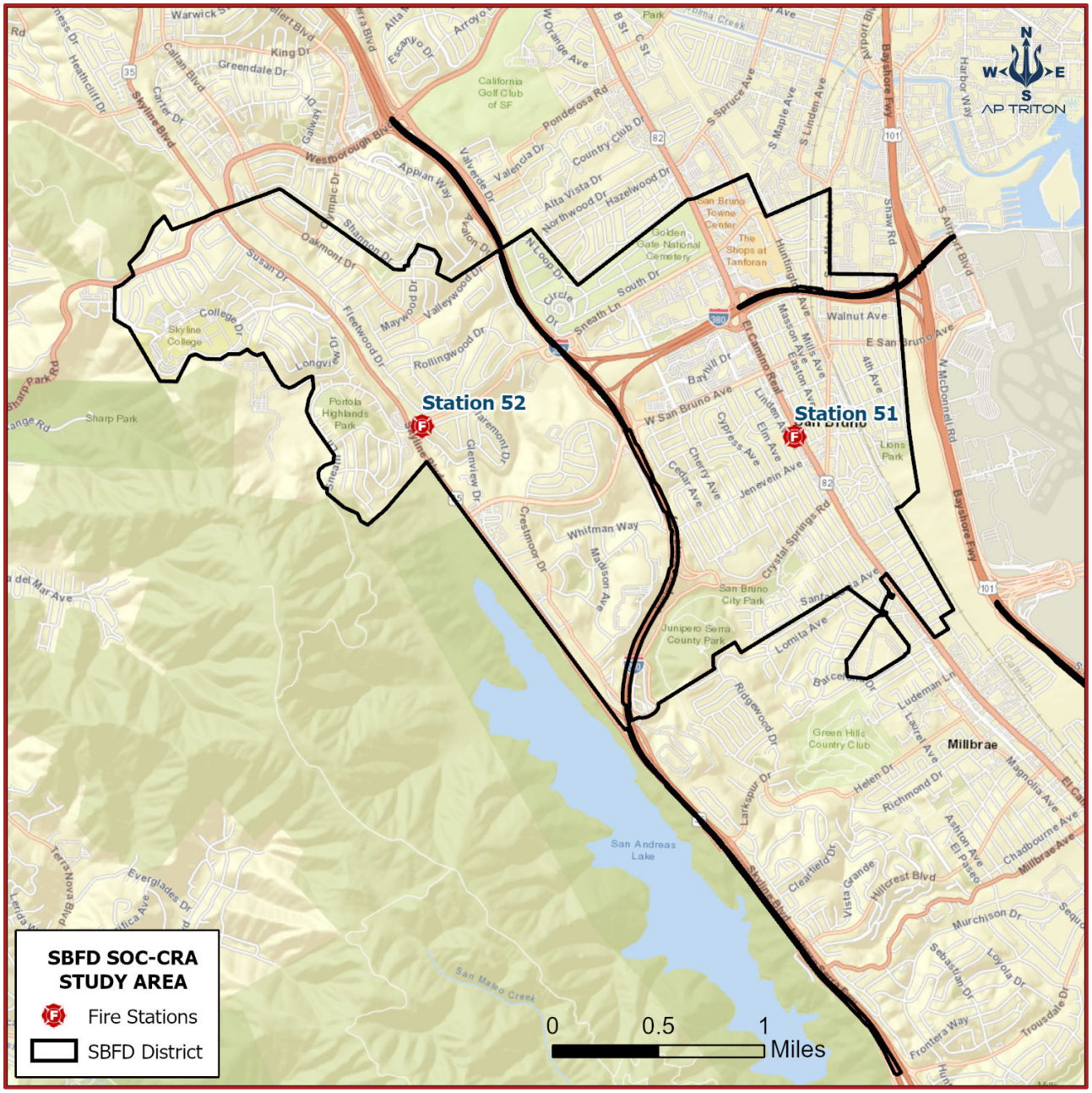

## Services Provided by SBFD

The San Bruno Fire Department deploys its apparatus and personnel from two staffed fire stations. As an all-hazard fire department, SBFD provides traditional fire protection, wildland fire response, and medical first response (MFR) at the Advanced Life Support (ALS) level utilizing Firefighter/Paramedics on each of its apparatus, low-angle rope rescue at the operational level (LARO), confined space rescue, and hazardous materials response at the operational level.

In addition, SBFD provides fire inspections, code enforcement, plan reviews, fire and arson investigations, and public education and prevention programs.

The following figure illustrates the service area of the San Bruno Fire Department.

**Figure 3: SBFD Service Area**



## Emergency Services in San Mateo County

The following section is a brief overview of other emergency services and automatic aid organizations in San Mateo County.

### EMS Transport

Since 1998, American Medical Response (AMR) has served as the primary provider of 911 ground emergency medical transport (GEMT) at the ALS level in San Mateo County. AMR is under contract with the County, which in 2019 renewed its contract with AMR for an additional 10 years. The company employs approximately 250 Paramedics, Emergency Medical Technicians, and support staff. Throughout San Mateo County, AMR transports about 40,000 patients annually.[2] In addition, the South San Francisco Fire Department can deploy ALS transport units from its Stations 61 and 63.

### Air Medical Transport

Three organizations are available to SBFD for rotary-wing scene response: Stanford Lifeflight, CALSTAR Air Medical Services, and REACH Air Medical Services. Lifeflight is based in Stanford at the hospital, CALSTAR has multiple bases throughout California, and REACH is affiliated with CALSTAR.

Stanford Lifeflight is staffed with specially trained Flight Nurses, and the agency is accredited by the Commission on Accreditation of Medical Transport Systems (CAMTS). In addition, CALSTAR utilizes Flight Nurses and Paramedics with advanced training and is also an accredited organization by CAMTS.

### Hospitals & Tertiary Care Facilities in San Mateo County

The primary hospitals in San Mateo County include:

- Seton Medical Center (Daly City & Moss Beach)—maintains an emergency department & has a catheterization lab equipped to treat strokes and STEMI cases.
- San Mateo Medical Center—maintains an emergency department and has interventional radiology capabilities for strokes and STEMI cases.
- Kaiser Permanente (Redwood City & South San Francisco).
- Mills-Peninsula Heath Services (Burlingame & San Mateo).
- Zuckerberg San Francisco General Hospital & Trauma Center maintains a fully equipped and staffed emergency department and is a Level 1 Trauma Center with interventional radiology capabilities.
- Stanford University Medical Center (located in Santa Clara County).

**Mutual & Automatic Aid Providers**

San Mateo County has at least 13 fire departments available for mutual and automatic aid responses. The next figure shows the locations of many (but not all) departments.

**Figure 4: Mutual & Automatic Aid Fire Station Locations in San Mateo County**

# Staffing & Personnel

The greatest asset for any organization is its personnel. Therefore, managing an organization's human capital is essential in ensuring that maximum production is achieved while employees also enjoy a high level of job satisfaction. Job satisfaction is typically a combined result of several factors, including consistent management practices, a safe working environment, recognition of positive workforce practices, inclusion and equitable treatment, and the encouragement of workforce input.

The size and structure of an organization's staffing depend on the organization's specific needs. Organizational priorities should correlate to the community in which they serve. Several national organizations provide staffing guidance and recommendations, including the Occupational Health and Safety Administration (OSHA), the National Fire Protection Association (NFPA), and the Center for Public Safety Excellence (CPSE). This section provides an overview of the San Bruno Fire Department's staffing configuration.

Two distinct groups of staff are common in most fire service organizations. The first group is the administrative and support staff that directly services the internal customers by providing the management and support needed to deliver effective and efficient emergency services. The second group is the operational staff, or internal customers, who provide emergency services to external customers and are typically the most recognized group among the citizens. Ensuring a balance between these two groups is essential in providing effective and efficient emergency services and high-quality customer service.

## Administrative & Support Staffing

Providing the operational staff with the means and ability to respond to and mitigate emergencies safely, effectively, and efficiently is one of the primary responsibilities of administrative and support staff. Additional responsibilities of this group include planning, organizing, directing, coordinating, and evaluating the various programs utilized within SBFD. In many cases, the administrative and support staff handle various responsibilities, some of which do not fall under the previously mentioned responsibilities. Some of these ongoing responsibilities include records management, payroll, purchasing, travel/per diem, and training documentation requirements.

The following figure illustrates the administrative and support staffing structure for SBFD.

**Figure 5: SBFD Administrative & Support Staffing**

| Position Title | No. of FTEs | Hours per Week |
|---|---|---|
| Fire Chief | 1 | 40 |
| Deputy Fire Chiefs | 0 | N/A |
| Division Fire Chiefs | 0 | N/A |
| Administrative Battalion Chiefs | 0 | N/A |
| Fire Marshal Battalion Chief | 1 | 40 |
| Fire Inspectors | 2 | 40 |
| Executive Assistant | 1 | 40 |
| Information Technology Tech | 0.5 | 20 |
| Training Captain (new in 2022) | 1 | 40 |
| **Total:** | **6.5** | |

As with many fire service organizations, administrative and support staff typically serve multiple roles with varying job responsibilities. For SBFD, the Fire and Life Safety Division is an example. The division includes three full-time equivalents (FTE): a Battalion Chief/Fire Marshal and two Fire Inspectors. All three positions serve as fire inspectors, handle plan reviews, and coordinate public education and community engagement. Administrative and support staffing represents 14% of the total SBFD employees.

## Operational Staffing

As previously discussed, the operational staff is typically the face of any fire service organization due to increased interaction with the citizens they serve. This group is involved with nearly every facet of the organization's operations. For SBFD, this includes fire suppression, emergency medical response, technical rescue, fire investigations, public education, pre-incident planning, and a regional hazardous materials team.

Several national organizations recommend standards to address staffing issues. The Occupational Health & Safety Administration (OSHA) *CFR 1910.134, Section (g)(4) Respiratory Protection Standard,* National Fire Protection Association (NFPA) 1710: *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments* and the Center for Public Safety Excellence (CPSE) publishes benchmarks on the number of personnel recommended on the emergency scene for various risk levels.

The following figure illustrates the operational staffing structure for SBFD.

**Figure 6: SBFD Operational Staffing**

| Position Title | Number of FTEs | Hours Worked per Week | Work Schedule |
|---|---|---|---|
| Battalion Chiefs | 3 | 56 | 48/96 |
| Captains | 9 | 56 | 48/96 |
| Firefighter/Paramedics | 15 | 56 | 48/96 |
| Firefighter/EMTs | 5 | 56 | 48/96 |
| **Total:** | **32** | | |

A three-platoon system working 48-hour shift rotations that yield an average 56-hour workweek accomplishes shift operations. The minimum staffing goal for SBFD is 10 personnel responding from two fire stations on four apparatus every 24 hours. The on-duty Battalion Chief manages flexibility for a limited timeframe. The following figure illustrates the current minimum staffing model for SBFD.

**Figure 7: SBFD Current Staffing Model**

| Apparatus | Minimum Staffing |
|---|---|
| Engine 51 | 3 personnel |
| Truck 51 | 3 personnel |
| Battalion Chief | 1 person |
| Engine 52 | 3 personnel |
| **Total:** | **10 personnel** |

Responding on the appropriate units with sufficient responders is critical for all emergency incidents but is especially true for fire suppression operations. Staffing methodologies for fire suppression operations are typically derived from numerous national organizations that have been previously mentioned. For example, OSHA safety regulations (CFR 1910.120) require that personnel entering a building involved in a fire must do so in groups of two. Further, before personnel can enter a building, at least two additional firefighters must be on-scene and assigned to conduct search and rescue if the initial crew becomes trapped. This is referred to as the "two-in, two-out rule."

As previously discussed, SBFD has a minimum staffing requirement of 10 personnel on duty each period. Several fire suppression apparatus types are housed at the two SBFD fire stations, and cross-staffing is used to respond to emergencies such as wildland fires. The SBFD's actual response to incidents and performance will be analyzed in a separate section of this report.

Industry standards offer guidance for determining the staffing level that will meet service demand. NFPA 1710 *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments* (2020 Edition) provides specific definitions and operational standards for SBFD:

- A career fire department is an organization that utilizes full-time or equivalent station-based personnel immediately available to compromise at least 50 percent of an initial full alarm assignment.
- Four Firefighters must be on the scene to proceed with an interior fire attack. This portion of the standard mirrors the OSHA Regulation "two-in, two-out" policy (29 CFR 1910.134 (g)(4)) that states that for an atmosphere immediately dangerous to life and health (IDLH) such as a structure fire, two personnel can fight the fire, but at least two standby persons must be present before entry should be made into the structure.
- Company staffing (crew size) should be Engine = minimum 4 on duty, and Truck = minimum 4 on duty.
- Initial Alarm Deployment (number of Firefighters including officers) is Low Hazard = 15 firefighters, Medium Hazard = 28 firefighters, and High Hazard = 43 firefighters.
- A fire department should identify minimum staffing requirements to ensure the number of members available to operate based on the community's needs.

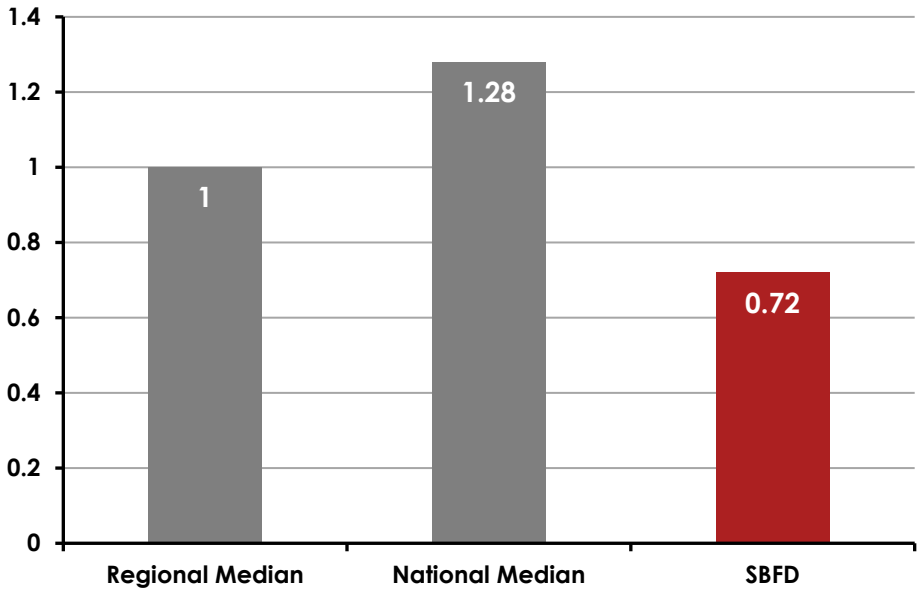
SBFD currently does not meet the NFPA 1710 minimum staffing standards for its three full-time apparatus. Four-person minimum staffing on apparatus is a department and community needs-driven local decision. It can be based on several factors, including budgetary constraints, overall population, and the ability to attain an effective response force of firefighters and apparatus, to name a few. Many communities strive to attain the NFPA 1710 standard but operate at a level below the NFPA staffing standard.

In many urban areas, fire departments will prioritize the goal of attaining the four-person NFPA 1710 staffing standard to apply to aerial apparatus first, followed by the staffing of fire engines. This is seen at San Bruno's regional partners, including San Mateo Consolidated Fire, Redwood City Fire, and North County Fire, where those agencies regularly staff their aerial trucks with four-person minimum staffing.

## Comparison of Regional & National Operational Staffing

The following figure illustrates the current comparison of the number of firefighters for SBFD on staff per 1,000 population of the service region compared to national averages from the United States Fire Department Profile issued by the NFPA.

**Figure 8: SBFD Firefighters per 1,000 Population (2022)**




SBFD staffing percentage at 0.72 is below both the National Median and the West Coast Regional Median for firefighters on staff per 1,000 population.

In comparison, SBFD is slightly below its regional partners, including Central County Fire Department at 1.03 and San Mateo Consolidated Fire Department at 0.74.

# Financial Overview

The SBFD is an operating department within the City of San Bruno. Determining financial policies and adopting budgets falls to the San Bruno City Council. The City operates on an annual budget from July 1st through June 30th.

The City Manager's FY 2021/22 Budget Transmittal Letter speaks to the financial challenges the City has faced since FY 2020/21. As a result, significant reductions were made citywide, both at adoption and mid-year, to balance the budget. Reductions included eliminating positions, delaying recruitment for various positions, reducing expenses, transferring revenue, and utilizing General Fund reserves.

While the City included $10.2 million in American Rescue Plan Act (ARPA) funding for the current fiscal year, that is insufficient to restore City services that were reduced due to the prior shortfall. In addition, the FY 2021/22 budget also projects the General Fund Reserve balance remaining at $12.28 million, which is slightly less than the adopted Reserve Policy Target of 25% of annual budget expenditures.

The City predicts a return to full economic recovery will be challenging, as additional revenue shortfalls may be experienced in upcoming years.

## Revenue

As with most municipalities, the City's General Fund is the primary fund for overall City operations, including the fire department. The General Fund is principally comprised of tax-generated revenues such as property taxes, sales tax, business license tax, and transient occupancy tax.

The June 2020 Comprehensive Annual Financial Report (CAFR) discusses a new funding source, Measure G, a local half-cent transaction and use tax approved by voters in November 2019, and the tax became effective on April 1, 2020. Two of the many described uses of this funding are fire prevention services and urban wildlife protection. This funding is included in the revenue sources directed into the General Fund and therefore utilized as a part of the City's General Fund contribution toward the fire department operations

The fire department also receives several direct revenue sources. The following figure summarizes the fire department's allocated revenue.

**Figure 9: San Bruno Fire Department Revenues**

| Description | FY 17/18 Actual | FY 18/19 Actual | FY 19/20 Actual | FY 20/21 Amended | FY 21/22 Budget |
|---|---|---|---|---|---|
| **General Fund** | $9,570,406 | $10,426,140 | $11,100,039 | $11,698,391 | $11,515,028 |
| **Recurring Department Revenues:** | | | | | |
| Fire Inspection Fees | $51,548 | $72,969 | $78,897 | $82,000 | $381,500 |
| Fire Permit Fees | $48,627 | $13,601 | $2,775 | $50,000 | $25,000 |
| Fire Plan Check Fees | ($1,849) | $15,511 | $25,806 | $50,000 | $250,000 |
| Fire Code Fees | $80,335 | $120,873 | $93,080 | $95,000 | $0 |
| Fire Reimbursements | $47,208 | $45,072 | $42,823 | $47,208 | $47,208 |
| Other Revenue[1] | $420,713 | $315,350 | $62,160 | $63,930 | $64,969 |
| **Total Revenue:** | **$646,582** | **$583,376** | **$305,541** | **$388,138** | **$768,677** |
| State Grants | — | — | $75,661 | — | — |
| ARPA Fund Support[2] | — | — | — | — | $763,201 |
| **Total Revenue:** | **$10,216,988** | **$11,009,516** | **$11,481,241** | **$12,086,529** | **$13,046,906** |

[1]Primarily consists of reimbursement for services to SF Jail

[2]Excluded from the total revenue in FY 21/22 budget, page 129

## Expenditures

SBFD mirrors most service providers, with employee salaries and benefits accounting for most of the department's expenses. According to the current budget, 82.3% of the fire Department's General Fund allocation is directed to these costs. The fire department operation represents 24.2% of the citywide General Fund budget for FY 2021/22.

A summary of total General Fund expenditures for the most recent five fiscal years is provided in the next figure.

**Figure 10: San Bruno Fire Department General Fund Expenditures**

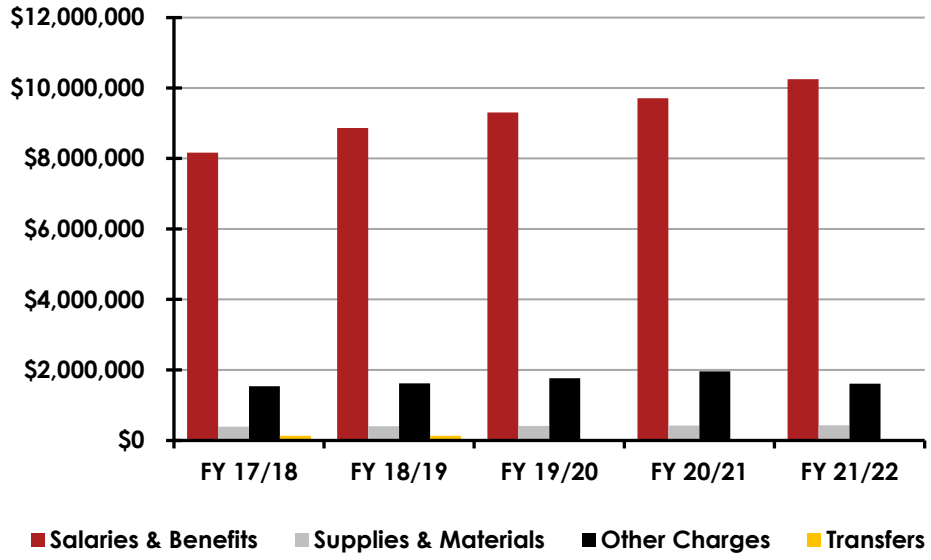
| Description | FY 18/19 Actual | FY 19/20 Actual | FY 20/21 Amended | FY 21/22 Amended | FY 22/23 Adopted |
|---|---|---|---|---|---|
| Salaries & Benefits | $8,861,808 | $9,305,761 | $9,708,772 | $9,482,971 | $10,669,216 |
| Supplies & Materials | $400,681 | $410,919 | $420,341 | $498,102 | $617,470 |
| Other Charges | $1,616,840 | $1,764,562 | $1,957,416 | $1,608,424 | $1,633,114 |
| Transfers | $130,187 | $0 | $0 | $0 | $0 |
| **Total Expenditures:** | **$11,009,516** | **$11,481,242** | **$12,086,529** | **$11,589,497** | **$12,919,800** |

The American Rescue Plan Act (ARPA) passed in 2021, also called the COVID-19 Stimulus package, provided funding resulting in expenditures for SBFD in fiscal 21/22 and 22/23.

In addition to the previous SBFD general fund expenditures, there were $763,201 in Salaries & Benefits expenditures in the fiscal 21/22 amended budget and $665,068 in Salaries & Benefits expenditures in the fiscal 22/23 adopted budget that were paid out of the ARPA fund.

Because the fire department operates as a function of the City, the revenues and expenditures are balanced, so there is no surplus or deficit to review.

**Figure 11: San Bruno Fire Department Expenditures by Category**



No fire department-specific data regarding the City's Other Post-Employment Benefit (OPEB) obligation is available. However, according to the June 2020 CAFR, "it was determined during the fiscal year 2016 the City's participation in a multi-employer health trust should disclose annual trust contributions rather than the Other Post-Employment Benefit (OPEB) liability." According to the Memorandum of Understanding between the City and Teamsters Local 856, IBT, San Bruno Professional Firefighters Association, employees are eligible to participate in the Teamsters Local 856 Health and Welfare Trust, which includes the provision of retiree health benefits.

Long-range financial forecasting is a best practice that San Bruno utilizes. Therefore, according to the adopted FY 2021/22 budget, the City is projecting the following for the General Fund.

**Figure 12: San Bruno Citywide General Fund Projections**

| Description | FY 21/22 Adopted | FY 22/23 Forecast | FY 23/24 Forecast | FY 24/25 Forecast | FY 25/26 Forecast |
|---|---|---|---|---|---|
| Revenues | $49,767,229 | $51,814,890 | $53,883,003 | $58,586,820 | $63,202,652 |
| Expenditures | $50,851,490 | $53,040,282 | $54,631,490 | $56,270,435 | $58,576,548 |
| **Surplus/(Deficit):** | **($1,084,261)** | **($1,225,392)** | **($748,487)** | **$2,316,385** | **$4,626,104** |

# Capital Facilities & Apparatus

Trained personnel, apparatus and vehicles, firefighting and emergency medical equipment, and fire stations are the essential capital resources necessary for a fire department to carry out its mission. No matter how competent or numerous the firefighters are, if appropriate capital equipment is not available for operations personnel, it would be impossible for the San Bruno Fire Department to perform its responsibilities effectively. The essential capital assets for emergency operations are facilities, apparatus, and other emergency response vehicles. This section of the report assessed SBFD's fire stations, vehicles, and apparatus.

## Fire Station Features

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

Fire station activities should be closely examined to ensure the structure is adequate in both size and function. Examples of these functions can include the following:

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

In gathering information from the San Bruno Fire Department, Triton asked the department to rate its fire stations' condition using the next figure's criteria. The results will be seen in the figures after that.

**Figure 13: Criteria Utilized to Determine Fire Station Condition**

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

## San Bruno Fire Stations

The following figures list the features of the two SBFD fire stations.

**Figure 14: SBFD Station 51**

| | |
|---|---|
| **Address/Physical Location:** | 555 El Camino Real, San Bruno, CA 94066 |


**General Description:**
This station co-locates with Fire Administration and Prevention staff. It houses one staffed engine company and one staffed truck company and contains a hose/training tower and fleet maintenance bay. The station has numerous deficiencies and is in poor condition.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Structure** | | | | | | |
| Date of Original Construction | 1958 | | | | | |
| Seismic Protection | No | | | | | |
| Auxiliary Power | Yes | | | | | |
| General Condition | Poor | | | | | |
| Number of Apparatus Bays | Drive-through Bays | 2 | | Back-in Bays | 2 | |
| ADA Compliant | No | | | | | |
| Total Square Footage | 6,796 | | | | | |
| **Facilities Available** | | | | | | |
| Sleeping Quarters | 9 | Bedrooms | 10 | Beds | 0 | Dorm Beds |
| Maximum Staffing Capability | 10 | | | | | |
| Exercise/Workout Facilities | In apparatus bay | | | | | |
| Kitchen Facilities | Yes | | | | | |
| Individual Lockers Assigned | Yes | | | | | |
| Bathroom/Shower Facilities | Yes | | | | | |
| Training/Meeting Rooms | No | | | | | |
| Washer/Dryer | Yes | | | | | |
| **Safety & Security** | | | | | | |
| Station Sprinklered | No | | | | | |
| Smoke Detection | Yes | | | | | |
| Decontamination/Bio. Disposal | Yes | | | | | |
| Security System | No | | | | | |
| Apparatus Exhaust System | Plymovent | | | | | |

Figure 15: SBFD Station 52

| | |
|---|---|
| **Address/Physical Location:** | 1999 Earl Drive San Bruno, CA 94066 |

**General Description:**
This station houses one staffed engine company and is in a residential neighborhood. It is located directly above the San Andreas fault, has numerous deficiencies, and is rated in poor condition.

| **Structure** | | | | | | |
|---|---|---|---|---|---|---|
| Date of Original Construction | 1957 | | | | | |
| Seismic Protection | No | | | | | |
| Auxiliary Power | Yes | | | | | |
| General Condition | Poor | | | | | |
| Number of Apparatus Bays | Drive-through Bays | 0 | Back-in Bays | 2 | | |
| ADA Compliant | No | | | | | |
| Total Square Footage | 3,604 | | | | | |
| **Facilities Available** | | | | | | |
| Sleeping Quarters | 3 | Bedrooms | 4 | Beds | 0 | Dorm Beds |
| Maximum Staffing Capability | 3 | | | | | |
| Exercise/Workout Facilities | In apparatus bay | | | | | |
| Kitchen Facilities | Yes | | | | | |
| Individual Lockers Assigned | Yes | | | | | |
| Bathroom/Shower Facilities | Yes | | | | | |
| Training/Meeting Rooms | No | | | | | |
| Washer/Dryer | Yes | | | | | |
| **Safety & Security** | | | | | | |
| Station Sprinklered | No | | | | | |
| Smoke Detection | Yes | | | | | |
| Decontamination/Bio. Disposal | Yes | | | | | |
| Security System | No | | | | | |
| Apparatus Exhaust System | Plymovent | | | | | |

**Summary of the San Bruno Fire Stations**

The next figure summarizes the two San Bruno fire stations and their basic features. In addition, the department owns a third fire station which is unstaffed, non-functional, and closed.

**Figure 16: Summary of the San Bruno Fire Station Features (2022)**

| Station | Square Footage | Apparatus Bays | Maximum Staffing | General Condition | Station Age |
|---|---|---|---|---|---|
| Station #51 | 6,796 | 4 | 10 | Poor | 63 years |
| Station #52 | 3,604 | 2 | 3 | Poor | 64 years |
| **Totals:** | **10,400** | **6** | **13** | | |

As shown in the preceding figure, SBFD can staff a maximum of 13 personnel across two fire stations and house a total of six apparatus—although one bay at each station is occupied with exercise equipment.

**Fire Stations Discussion**

Both stations are considered to be in "Poor" condition and are well beyond the typical lifespan of 50 years for most fire stations. Therefore, the City of San Bruno needs to consider options for fire station replacements and possible relocation.

### Fire Station 51

During Triton's inspection, it was evident that Station 51 has exceeded its life expectancy because of its age and numerous infrastructure problems. The facility is 64 years old and well beyond repair. Structural deficiencies included:

- Does not meet seismic upgrade protections.
- It is not ADA-compliant.
- Does not have a sprinkler system.
- Does not have a security system.
- Lacks a separate turnout storage room.
- No adequate space for a reserve truck.
- Inadequate space for the Fleet Maintenance program to operate if continuing to maintain the on-duty mechanic program.
- There are dry-rotted plywood siding areas on the station's exterior and hose tower.

Living, safety, and usability deficiencies included:

- Lack of a workout or exercise room. Exercise equipment is currently kept in the apparatus bay.
- No adequate training or meeting room.
- There is no dedicated office space for crews (offices in sleeping quarters).
- Inadequate office space for Fire Chief, administrative staff, Fire Prevention, and support personnel. Fire Prevention is housed in a separate building.
- Inadequate public reception/greeting area for a City Hall-based Main fire station.
- Numerous other general issues create dysfunction and insufficient use of the fire station.

### Fire Station 52

During Triton's inspection, it was noted that Station 52 has also exceeded its life expectancy because of its age, present location, and numerous infrastructure problems. The facility is 65 years old and well beyond the typical life expectancy of a fire station.

Structural deficiencies included:

- Does not meet seismic upgrade protections.
- It is not ADA-compliant.
- Does not have a sprinkler system.
- Does not have a security system.
- Lacks a separate turnout storage room.
- The station is located directly above the San Andres fault line.
- Personnel must walk through the apparatus bay to travel from dormitories/restrooms to daytime living quarters.

Living, safety, and usability deficiencies included:

- Lack of a workout or exercise room. Exercise equipment is currently kept in the apparatus bay.
- No turnout washing extractor.
- Lack of a dedicated EMS supply/decontamination room and sink.
- There is no dedicated office space for crews (offices in sleeping quarters).
- Numerous other general issues create dysfunction and insufficient use of the fire station.

## Apparatus & Vehicles Inventory

Fire apparatus, command vehicles, and other emergency response units must be sufficiently reliable to transport firefighters and equipment rapidly and safely to an incident scene. In addition, such vehicles must be properly equipped and function appropriately to ensure that the delivery of emergency services is not compromised.

As a part of this study, Triton requested that the San Bruno Fire Department provide a complete inventory of its fleet (suppression apparatus, command and support vehicles, specialty units, etc.). For each vehicle listed, SBFD was asked to rate its condition utilizing the criteria described in the next figure, which will be shown in the apparatus inventory figures.

**Figure 17: Criteria Used to Determine Apparatus & Vehicle Condition**

| Components | Points Assignment Criteria | |
|---|---|---|
| **Age:** | One point for every year of chronological age, based on the date the unit was originally placed into service. | |
| **Miles/Hours:** | One point for every 10,000 miles or 1,000 hours | |
| **Service:** | 1, 3, or 5 points are assigned based on the service type received (e.g., a pumper would be given a 5 since it is classified as severe duty). | |
| **Condition:** | This category considers body condition, rust, interior condition, accident history, anticipated repairs, etc. The better the condition, the lower the assignment of points. | |
| **Reliability:** | Points are assigned as 1, 3, or 5, depending on the frequency a vehicle is in for repair (e.g., a 5 would be assigned to a vehicle in the shop 2 or more times per month on average; while a 1 would be assigned if in the shop on average once every 3 months or less. | |
| **Point Ranges** | **Condition Rating** | **Condition Description** |
| Under 18 points | Condition I | Excellent |
| 18–22 points | Condition II | Good |
| 23–27 points | Condition III | Fair (consider replacement) |
| 28 points or higher | Condition IV | Poor (immediate replacement) |

The San Bruno Fire Department maintains two frontline Type 1 structural engines and a single 100-foot ladder truck with a tiller. The next figure shows SBFD's frontline apparatus inventory.

**Figure 18: SBFD Frontline & Reserve Apparatus Inventory (2022)**

| Unit | Type | Manufacturer | Year | Condition | Features |
|---|---|---|---|---|---|
| Engine 51 | Type 1 | Pierce | 2022 | Excellent | 1500 gpm/500 gal. |
| Engine 52 | Type 1 | Pierce | 2022 | Excellent | 1500 gpm/500 gal. |
| Truck 51 | Aerial | E-One | 2017 | Excellent | 100-foot tiller |
| Truck 151 | Aerial | E-One | 2001 | Poor | 100-foot truck |
| Engine 151 | Type 1 | E-One | 2017 | Excellent | 1500 gpm/500 gal. |
| Engine 152 | Type 1 | Seagrave | 2011 | Fair | 1500 gpm/500 gal. |
| Engine 2607 | Type 6 | HME | 2020 | Excellent | 500 gpm/300 gal. |

In 2022, SBFD received two 2022 Pierce Enforcer Fire Engines that replaced Engine 51 and Engine 52 and a 2022 Chevy Tahoe that replaced Chief 16. The addition of these new units into the capital fleet significantly improved the apparatus inventory and condition of the SBFD front line & reserve fleet. The city leadership is to be commended for their significant investment in improving the SBFD fleet. Additionally, with the addition of the new engines, the current two reserve engines (both 2001 E-One's rated in Poor condition) will be placed in surplus.

SBFD was also assigned a Type 6 Wildland Fire Engine in 2020 via an agreement in cooperation with the California Office of Emergency Services (OES) housed at station 52.

The next figure lists SBFD's frontline command and staff vehicles.

**Figure 19: SBFD Frontline Command & Other Vehicles**

| Unit | Assigned To | Manufacturer | Year | Condition |
|---|---|---|---|---|
| Battalion 16 | Battalion Chief | Chevy Tahoe | 2016 | Excellent |
| Prevention 16 | Fire Marshal | Ford F-150 | 2019 | Excellent |
| Prevention 16A | Fire Inspector | Ford Explorer XLT | 2019 | Excellent |
| Prevention 16B | Fire Inspector | Ford Escape | 2019 | Excellent |
| C16 | Staff | Chevy Tahoe | 2022 | Excellent |

As shown in the preceding figure, most of the SBFD command and staff vehicles are relatively new and considered to be in "Excellent" condition.

## Apparatus Maintenance & Replacement Planning

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

Because of the expense of fire apparatus and ambulances, most communities develop replacement plans. To enable such planning, fire departments often turn to the accepted practice of establishing a life-cycle for apparatus that results in an anticipated replacement date for each vehicle. However, the reality is that it may be best to establish a life-cycle for planning purposes, such as the development of replacement funding for various types of apparatus, yet apply a different method (such as a maintenance and performance review) for determining the actual replacement date, thereby achieving greater cost-effectiveness when possible.

## Economic Theory of Apparatus Replacement

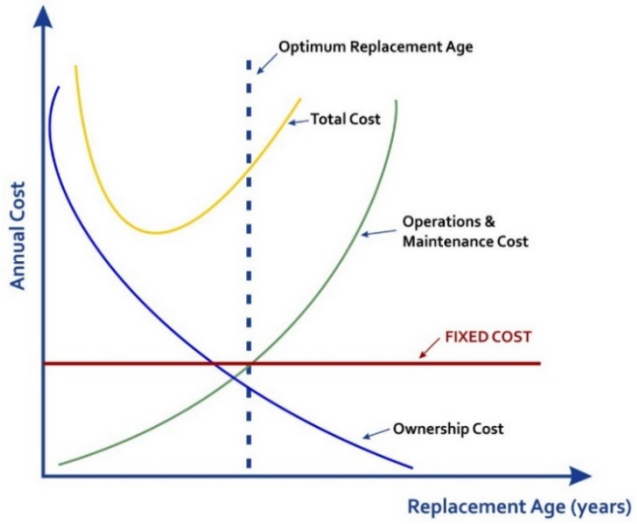
A conceptual model utilized by some fire departments is the *Economic Theory of Vehicle Replacement*. As a vehicle ages, the theory states that the cost of capital diminishes, and its operating costs increase. The combination of these two costs produces a total cost curve. The model suggests that the optimal time to replace any apparatus is when the operating costs begin to exceed the capital costs. This optimal time may not be a fixed point but a time range.

Shortening the replacement cycle to this window allows an apparatus to be replaced at optimal savings to the fire department. However, if an agency does not routinely replace equipment promptly, the overall reduction in replacement spending can quickly increase maintenance and repair expenditures. Therefore, fire officials, who assume that deferring replacement purchases is a good tactic for balancing the budget, need to understand two possible outcomes that may occur because of that decision:

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

The next figure is a representation of the *Economic Theory of Vehicle Replacement*.

**Figure 20: Economic Theory of Vehicle Replacement**




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

**Future Apparatus Serviceability**

An important consideration for fire departments is the cost associated with the future replacement of major equipment. Apparatus service life can readily be predicted based on factors that include vehicle type, call volume, age, and maintenance considerations.

*NFPA 1901: Standard for Automotive Fire Apparatus* recommends that fire apparatus 15 years of age or older be placed into reserve status and that apparatus 25 years or older be replaced. This is a general guideline, and the standard recommends using the following objective criteria in evaluating fire apparatus lifespan:

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

It is important to note that age is not the only factor for evaluating serviceability and replacement. Vehicle mileage and pump hours on engines must also be considered. For example, a two-year-old engine with 250,000 miles may need replacement sooner than a 10-year-old vehicle with 2,500 miles.

Triton uses a calculation tool to determine the replacement costs of apparatus. Utilizing the original costs of the vehicles, the following figure applies a 15-year life expectancy for each engine, 20 years for the quint, and 10 years for the ambulances.

## Capital Medical Equipment Inventory

As an ALS provider, the San Bruno Fire Department must maintain and utilize advanced-level capital medical equipment. Likely the most expensive items are the cardiac monitor/defibrillators that must be assigned to each frontline apparatus. These devices are a critical part of delivering ALS-level care. Aside from the basic features of cardiac monitoring and defibrillation, the devices have other capabilities, including 12-lead ECG, blood pressure monitoring, pulse oximetry, end-tidal $CO_2$ monitoring, and other features.

SBFD owns and maintains three Physio-Control Lifepak® 15 monitor/defibrillators manufactured during 2016–2020, and AMR owns and maintains two on SBFD apparatus.

SBFD also owns one Lifepak® 12 monitor/defibrillator manufactured in 2014. In addition to the cardiac monitor/defibrillators, SBFD maintains two Physio-Control Lifepak® 1000 and five HeartSine® Automated External Defibrillators (AED).

# Section II:
# COMMUNITY RISK ASSESSMENT

# Description of the Community Served

## The City of San Bruno

The City of San Bruno was known as a rural town until the 1940s when two events dramatically changed the City. First, the Tanforan horse racing track was used during WWII for the internment of American citizens of Japanese descent before sending them off to detention camps. The Army oversaw this operation and decided to use the area west of the racetrack for the Army's Western Region Advance Personnel Depot. Second, thousands of military personnel went through San Bruno on their way to and from military outposts in the Pacific. This changed San Bruno forever. Many military personnel settled in the area upon returning to the United States.

The second event of the '40s that changed San Bruno was George Williams' purchase of much of the Mills' land. Williams built houses on this land for the vast number of support personnel and veterans returning from the war. Soon after Williams developed the Mills Park Addition, the land in the western hills of San Bruno was also developed into housing. The housing boom that took place between the 1940s and 1960s transformed San Bruno from a town of about 6,500 in 1940 to a population of over 35,000 by the mid-1960s. Since then, the population has stabilized due to a lack of available land. Currently, there are over 44,000 residents in San Bruno.

In the past, the City of San Bruno was known as an airport city. Mills Field was dedicated in 1927 near the site now occupied by San Francisco International Airport, but it took many years for the airport to become the success it is today. The many other established airports in the area, along with the short and often swampy runways, made Mills Field unpopular with aviators and businesses alike until 1945, when voters approved a $1 million bond for the improvement and expansion of the airport. Since then, the airport has become one of the busiest in the world, and San Bruno has grown into an international city.

Today, San Bruno is often referred to as the "City with a Heart" as a result of a heart-shaped housing tract in a neighborhood on the Eastern flats near Bayshore Freeway, where you can find "Cupid Row," an arrow of a street that pierces the heart-shaped housing tract.

The City is between South San Francisco and Millbrae, adjacent to San Francisco and the Golden Gate National Cemetery, and is approximately 12 miles (19 km) south of downtown San Francisco.

According to the U.S. Census Data, the City has a total area of 5.5 square miles (14 km$^2$).[3] The City spreads from the mostly flat lowlands near San Francisco Bay into the foothills of the Santa Cruz Mountains, which rise to more than 600 feet (180 m) above sea level in Crestmoor and more than 700 feet (210 m) above sea level in Portola Highlands. San Bruno City Hall sits at an official elevation of 41 feet (12.5 m) above sea level.

Portions of Mills Park, Crestmoor, and Rollingwood are very hilly, featuring canyons and ravines. Many of them are now in culverts, and creeks flow from springs in the hills toward San Francisco Bay. Just west of Skyline Boulevard and outside city limits is San Andreas Lake, which got its name from the San Andreas Fault. The lake is one of several reservoirs used by the San Francisco Public Utilities Commission (SFPUC), providing water to San Francisco and several communities in San Mateo County, including San Bruno. In addition, the City of San Bruno maintains its own wells, which are critical to the emergency water supply in case of disruption from the SFPUC water system.

### San Mateo County

San Mateo County is located in the San Francisco Bay area. It is in the San Francisco-Oakland-Berkeley, CA, Metropolitan Statistical Area (MSA), and Redwood City is the county seat. The estimated population of the MSA in 2019 was 4,731,803, representing an increase of 9.1% since 2010. San Mateo County's population, according to the 2020 Census, is 764,442 and has increased by 6.4% since 2010.[4] It is the home of the San Francisco International Airport, which is in the northeastern section of the County. The County is considered suburban, with interspersed pockets of urban areas.

The southern end of the County borders Silicon Valley. It is the home of many innovative companies such as "*bioscience, computer software, green technology, hospitality, financial management, health care, education, and transportation.*" The County is 455 square miles of land and "*bordered by the Pacific Ocean to the west and San Francisco Bay to the east*."[5]

According to the U.S. Census 2019 American Community Survey, the median age in San Mateo County is 39.9, at-risk populations under five years old is 5.7%, and those older than 65 is 15.8%. In addition, the median household income is $122,641, while the percentage of those in poverty is 6.1%.

## Population

Risk factors influence the types of services a community provides. Identification of hazards is the process of recognizing the natural or human-caused events that threaten a community. Every community must prepare for and respond to events, including natural disasters like an earthquake, pandemics, or wildfires. In addition, the degree to which a community exhibits certain social conditions, including poverty levels, vehicle access, or the number of individuals in a household, may affect the community's ability to prevent suffering and financial loss in the event of a disaster. These factors describe the risks found in a community.

A community's risk is assessed based on numerous factors, including socioeconomic status, household composition, minority status and language, population and density and housing types, local land use and development, and the geography and natural hazards present throughout the community. These factors affect the number and type of resources—both personnel and apparatus—necessary to control or mitigate an emergency. The community's risk assessment provides relevant information to help public officials and agencies better prepare their communities to respond to emergency events and help them recover faster.

- Population density is a risk factor, and demographics present another unique risk. For example, over 15% of the population is 65 years of age, and over 50% of the population speaks languages other than English at home.
- The physical characteristics of the area and the resultant natural hazards are risk factors. For example, SBFD is located near the San Francisco Airport and Crestmoor Canyon area and is at risk of entirely different hazards like wildland fires and earthquakes.
- Land use and zoning 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, wildland exposures, and high-density residential).

The City of San Bruno has seen an increase in population based on the U.S. Census data from the America Community Survey, except for 2017 and 2019.[6] The following figure illustrates the population trends of the community from 2010 through 2020 for San Bruno.

Figure 21: San Bruno Population (2010–2020)

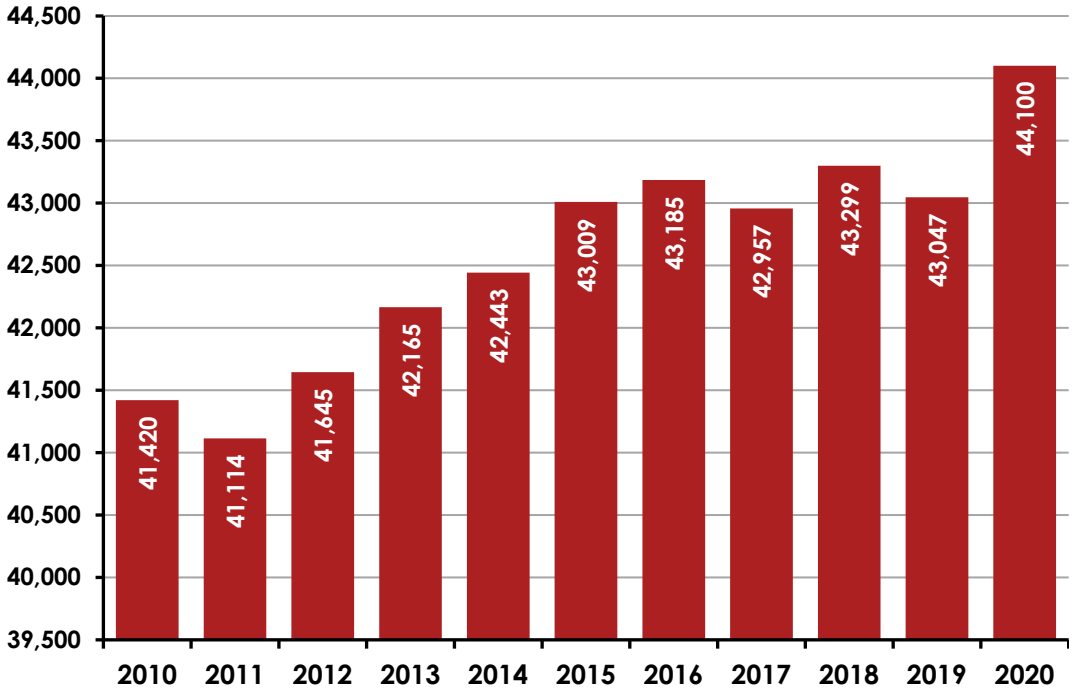
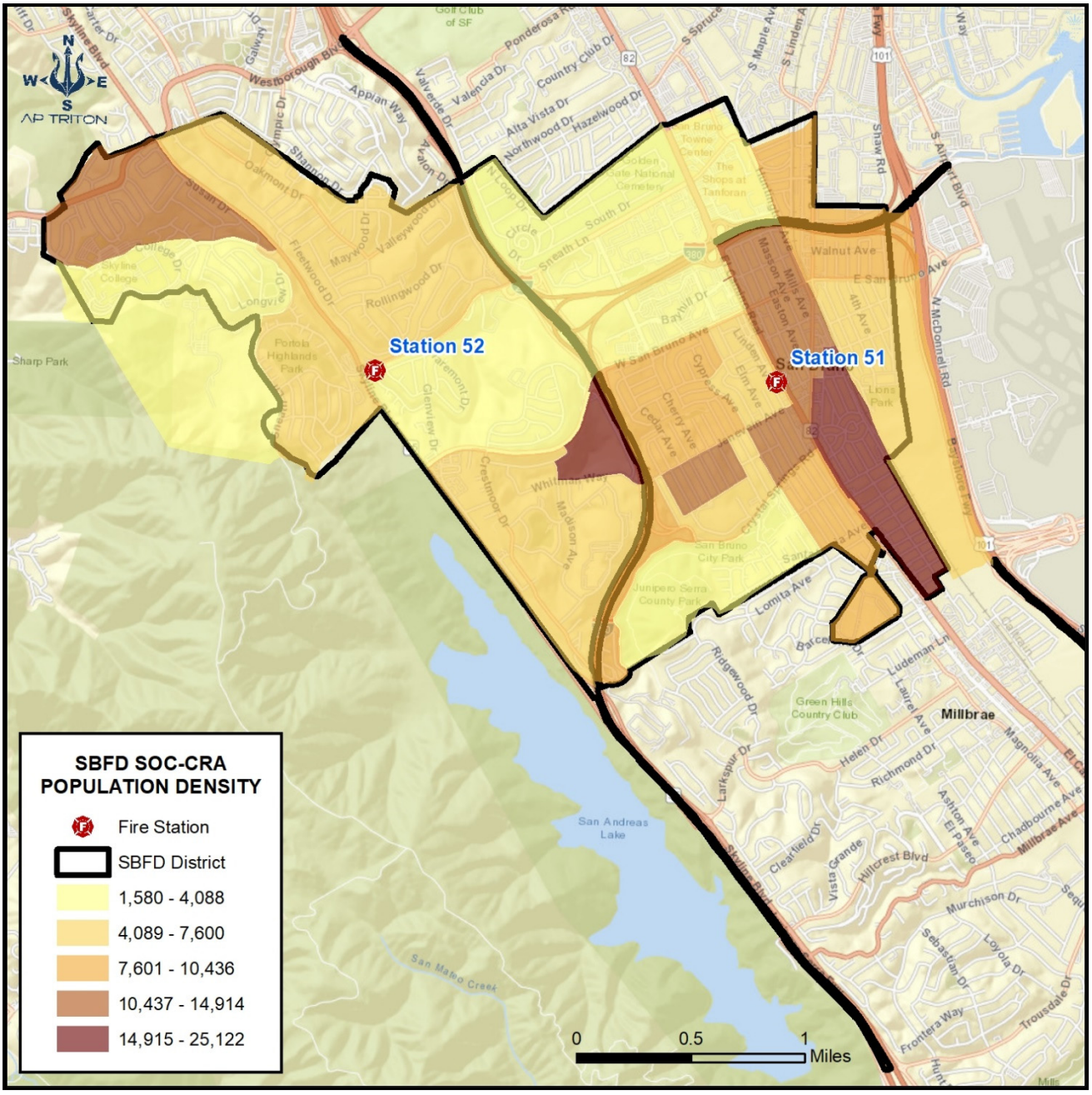


**Figure 22: San Bruno Population Density**



## Demographics

### At-Risk Population

Specific populations are at higher risk of fires and other unintentional injuries, and these incidents directly affect service delivery. Several factors place groups of people in higher-risk categories in urban and suburban areas. For example, NFPA reports identified groups with a higher risk of injury or death in a fire as follows:[7]

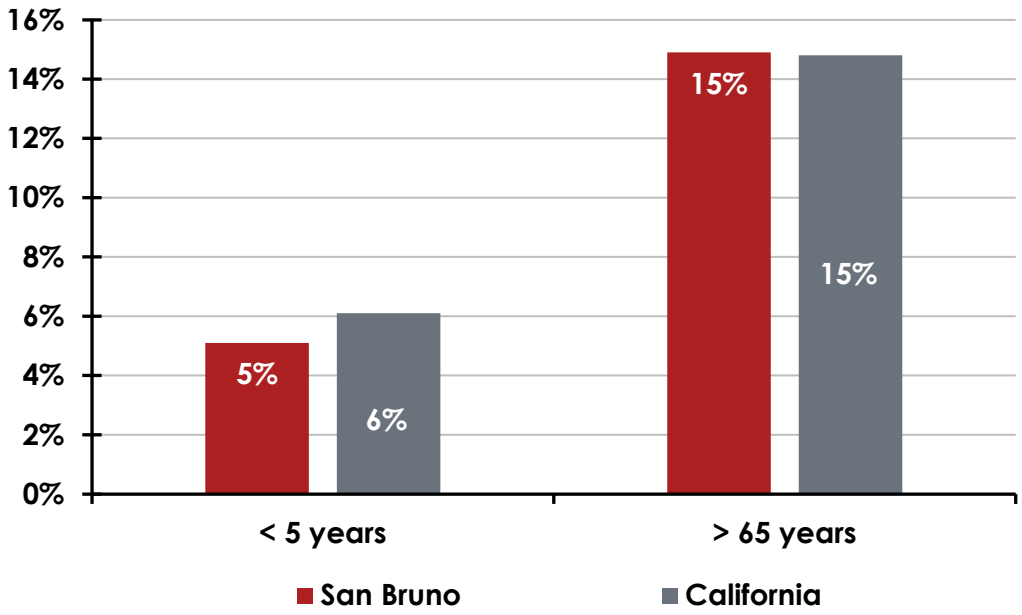
- Children under 5 years of age
- Older adults over 65 years of age
- People with disabilities
- Language barrier
- People in low-income communities

Information from the U.S. Census data estimates identified several groups that fall into these categories.[8] These groups are more likely to need additional emergency services, specifically EMS, than other population groups. It should be noted that San Bruno's data was limited and unavailable for each risk.

### Age

The age of a community may directly relate to the need for higher service demand from SBFD. In San Bruno, the percentage of children under five years of age is 5.1% compared to 6.1% in California. The number of older adults over 65 is 14.9%, compared to California at 14.8%. San Bruno is similar to the state averages for the risk age factor based on the information.

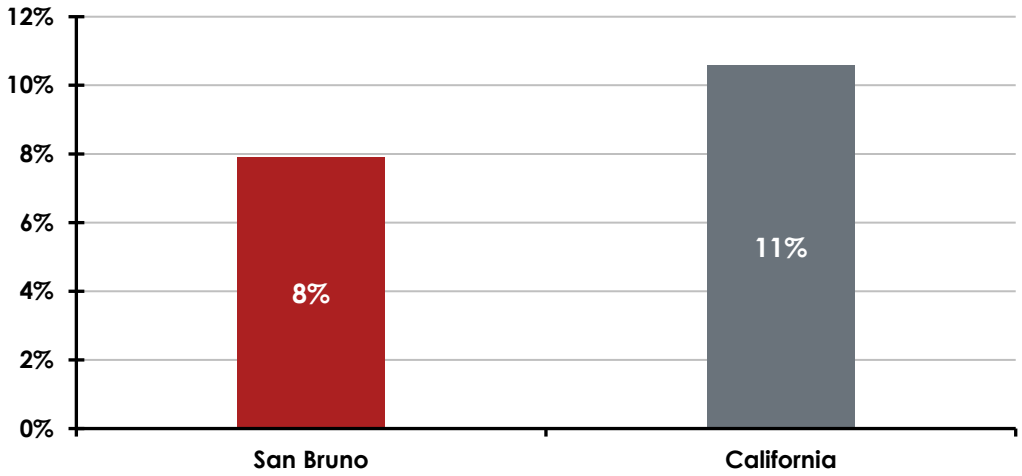
Figure 23: San Bruno Percentage of Population by Age Risk




**Disabilities**

Residents with disabilities comprise 7.9% of the population in San Bruno, which is lower than California at 10.6%. This group may have more difficulty or be unable to evacuate during an emergency. These people place an additional demand for emergency medical services as they age, thus increasing response from SBFD. It should be noted that the median resident age of San Bruno is 39.5 years, and California's median age is 37 years.

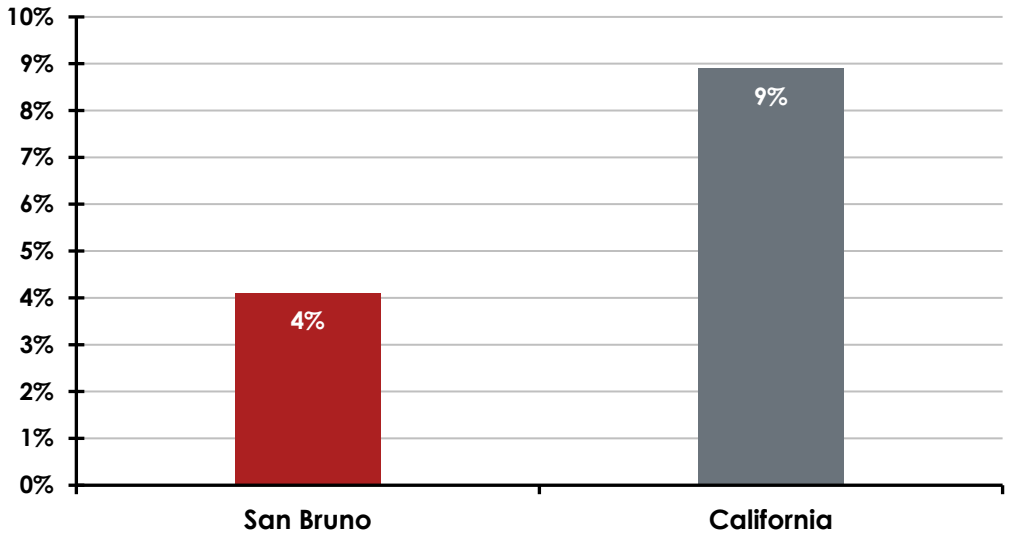
Figure 24: San Bruno Percentage of Population with Disabilities



**Persons without Health Insurance**

SBFD already has a high-risk population of 15% 65 and over. This age group is even at higher risk when looking at those 65 and over without health insurance. This group is more likely to have chronic illnesses requiring more intensive health care services because they did not seek treatment. The good news is that this group is lower than the state average as the population in San Bruno is at 4.1% without insurance compared to California, which is higher at 8.9%.

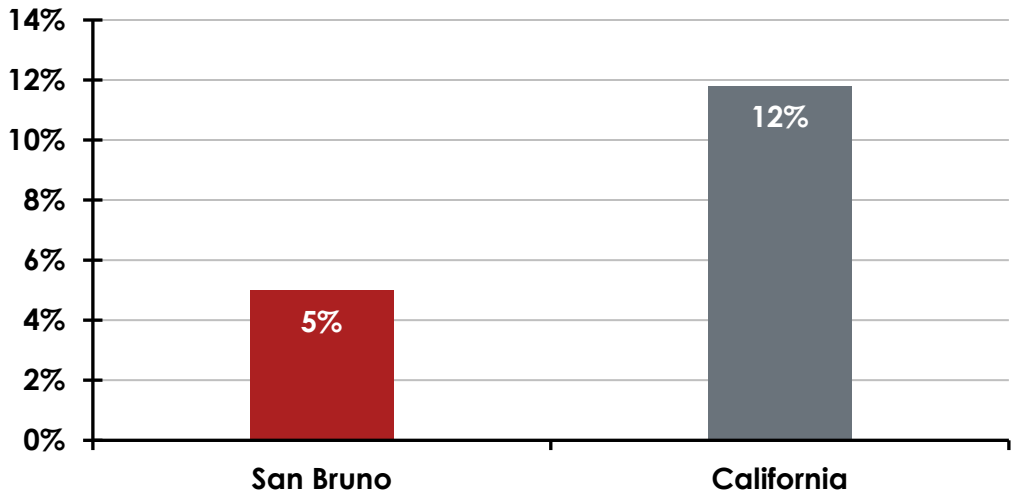
Figure 25: San Bruno Percentage of Population Without Health Insurance




**Low-Income Persons**

The effect of low incomes in the community corresponds with a higher risk of fires and medical responses. 5% of San Bruno residents had an income below the poverty level in 2019, which was 7% less than the poverty level of 12% across California. Considering residents not living in families, 7.7% of high school graduates and 8.8% of non-high school graduates live in poverty. The highest age group in poverty is between 15 to 25 years of age, representing 32% of those in poverty, and the renting rate among poor residents was 59.6%. The median household income in San Bruno is $123,532 compared to the median household income in California of $80,440.

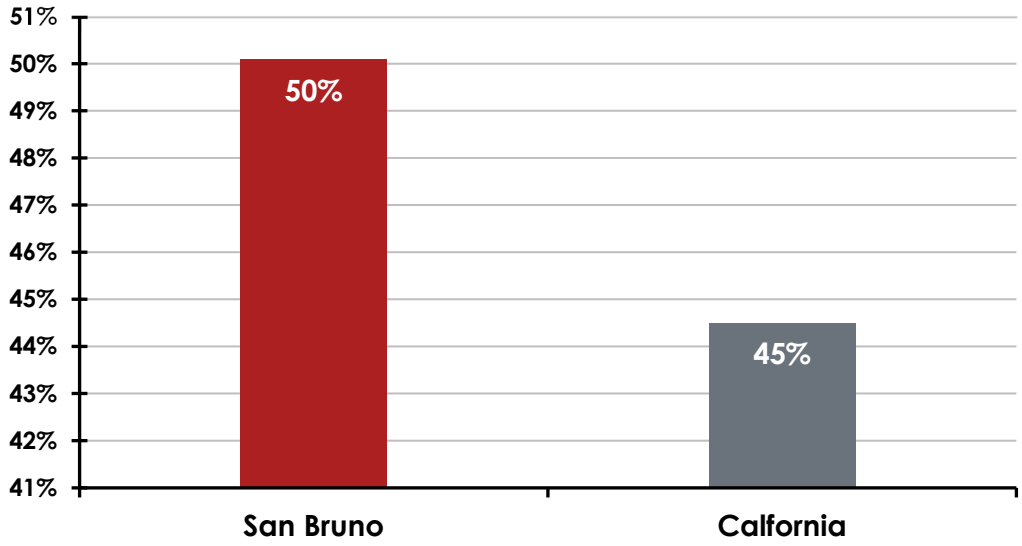
Figure 26: Percentage of Population with Income Below the Poverty




**Language Barriers**

SBFD is highly likely to regularly encounter someone who needs another type of communication or language translation during an emergency or when providing fire safety public education. According to the U.S. Census data, the most numerous races in San Bruno are Hispanic (11,329 residents), White (13,806 residents), and Asian (13,926 residents), where 50.1% of San Bruno residents speak English only at home.

Figure 27: Percentage of Population Speaking English "Only" and "Very Well"

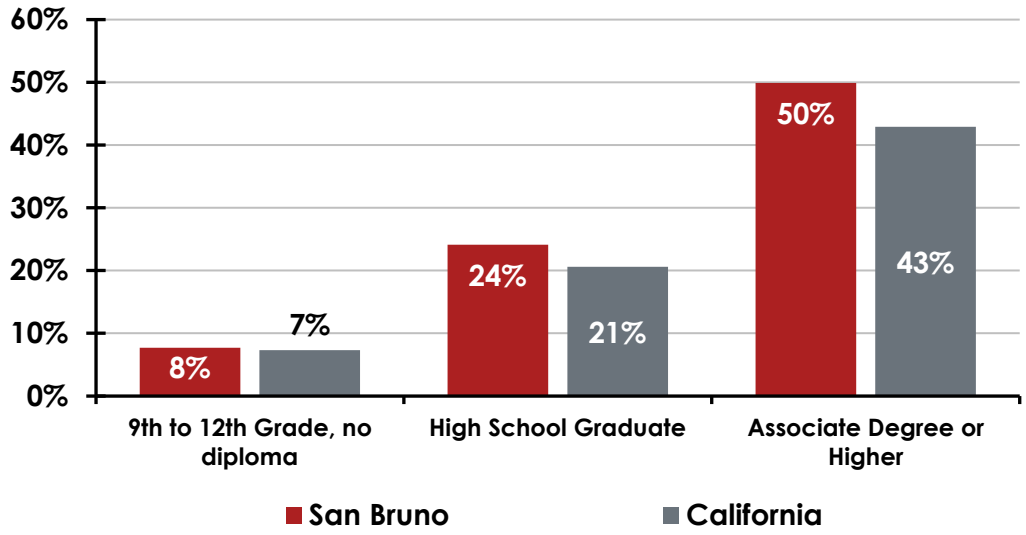



## Other Demographics

### Educational Levels

Educational attainment is not considered one of the NFPA at-risk populations but should be considered when developing fire and life safety educational programs. In San Bruno, 7.7% of the population under age 25 does not have a high school diploma, compared to 7.3% in California. In San Bruno, approximately 24% of the population only has a high school diploma, and approximately 49.9% have an associate degree or higher, which is much higher than in California, which is at 43%. The following figure provides data on the levels of education in San Bruno

Figure 28: San Bruno Educational Levels 25 Years & Older



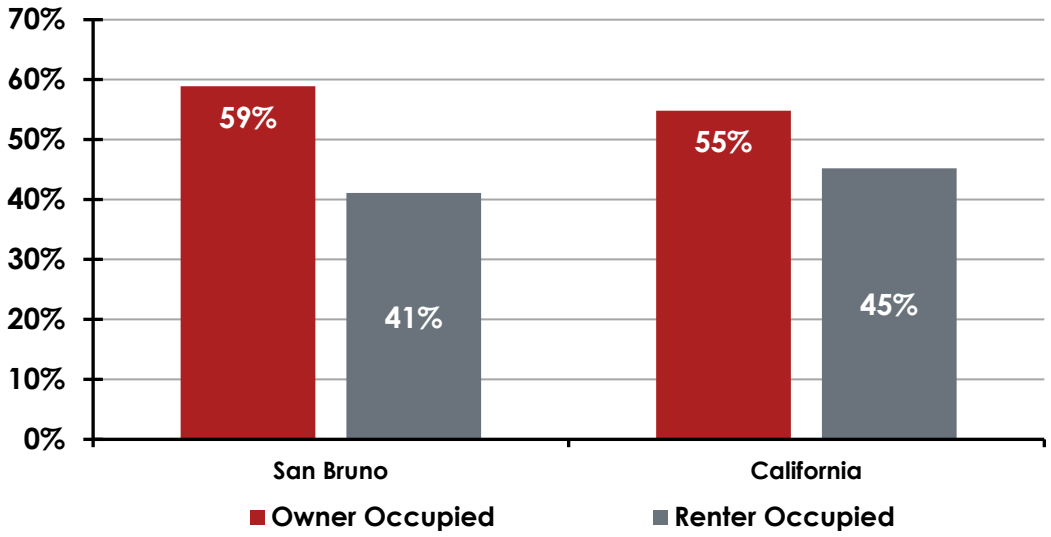

**Housing**

The housing types vary in a community and can provide insight into ownership, the age of the home, and the number of units in the building. Housing risks can include the location, such as homes in the wildland interface area, selected housing types, such as older multifamily apartments built before fire sprinkler requirements, and vacant homes.

In San Bruno, there are approximately 15,787 total housing units, of which 15,153 are occupied, 8,940 are owner-occupied, and 6,213 are renter-occupied.

Vacant structures can pose a risk for the fire department and community if the building is not secured to prevent entry. If the building is not maintained, the structural integrity can degrade and present problems during a fire. Vandalism may create additional problems for the fire department and law enforcement. In San Bruno, the median year a house or apartment was built is 1968. The percentage of owner-occupied housing is 59%, compared to California at 54.8%. Rentals in San Bruno are 41% of the properties compared to California at 45.2%.

Figure 29: San Bruno Housing Types—Owner-Occupied or Renter-Occupied



# Risk Classification

## Risk Assessment Methodology

Developing a risk score to determine risks in a community is necessary to provide an organization with a method for creating response protocols for an incident. The Three-Axis Heron model establishes a score by reviewing probability, consequence, and impact factors and assigning a score between 2–8 in each category.[9] A description of the incident types for each risk is located in an appendix of this report.

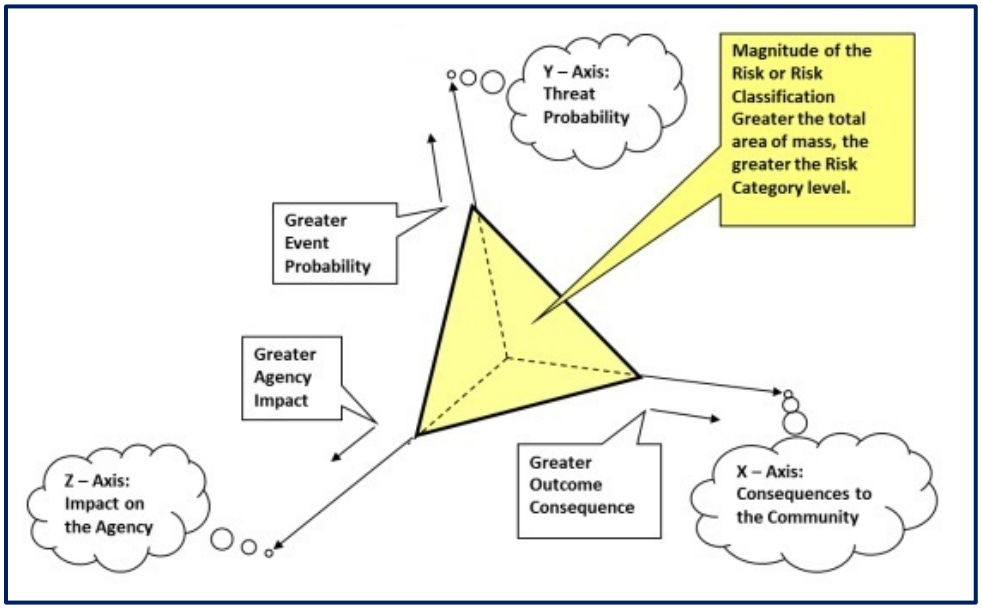
Use of the Three-Axis Heron Formula includes the following equation:

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

The risk is graphically illustrated through a three-axis model as follows:

- **P** = Probability (Y-Axis)
- **C** = Consequences (X-Axis)
- **I** = Impact (Z-Axis)

Figure 30: Three-Axis Risk Classification Process

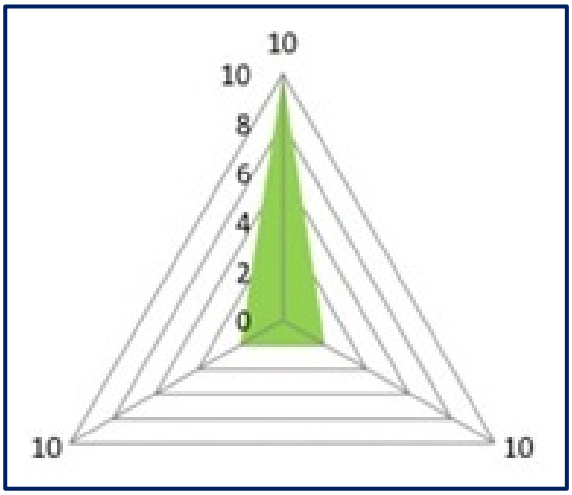


When developing the score, it should be recognized that each of the three scoring components is based on incident data from SBFD. Although a low risk may have a higher consequence or impact than a moderate or high risk, the probability is a significant factor in the score. In many instances, the number of low-risk incidents is high, while the consequence and impact on the department are low.

For example, a BLS medical call response can be used. The likelihood (probability) of this occurring would be high (it occurs multiple times every day) by a factor of 10. The consequence would be minor (affects one person) by a factor of 2. The impact on the Department's ability to respond would be minor (one crew) by a factor of 2. Using the calculator, here is what it looks like: Heron's formula value is 20.2. This equates to a "Low Risk" incident, as shown in the following figure.

The result of the formula's calculation (risk area) is depicted by the triangular shape created by the risk scores ascribed to points on each three-axis.

**Figure 31: Heron's Formula Example**




**Probability = 10 Consequence = 2 Impact on Department = 2**

**Probability**

Probability is the likelihood of an incident occurring in the community over time. This axis reflects the probability of a particular type of incident occurring (which contributes to the level of risk). Many factors are considered, such as time of day, location, hazard present, season of the year, building construction and maintenance, demographic factors, and more. It can range from a rare event to one that occurs often.

Figure 32: Probability or Likelihood of Occurrence

| Score | Category | Probability or Likelihood |
|---|---|---|
| 2 | Minor | Unlikely: < 0.02% of total call volume. Expected to occur very rarely. |
| 4 | Low | Possible: 0.02%–0.07% of total call volume. Expected to occur rarely. |
| 6 | Moderate | Probable: 0.07&–0.3% of total call volume. Expected to occur monthly. |
| 8 | High | Likely: 0.3%–2% of total call volume. Expected to occur multiple times per week. |
| 10 | Extreme | Frequent: >2% of total call volume. Expected to occur one or more times per day. |

**Consequence**

The consequence of an incident can vary from minor casualties to severe impacts that may destroy historical or major facilities in the community and create a large loss of employment or life.

Figure 33: Consequence to the Community

| Score | Category | Consequence to the Community |
|---|---|---|
| 2 | Minor | 1–2 people affected (injuries/deaths). < $10,000 loss. |
| 4 | Low | < 5 people affected (injuries/deaths). < $500,000 loss |
| 6 | Moderate | 5–50 people affected (injuries/deaths). $500,000–$1,000,000 loss |
| 8 | High | 51–100 people affected (injuries/deaths). $1,000,000–$5,000,000 loss |
| 10 | Extreme | > 100 people affected (injuries/deaths). > $5,000,000 loss |

**Impact**

The third factor in determining the risk is the fire department's impact and the critical tasking needed to control or mitigate an incident. This includes the number of emergency responders and apparatus available internally or from external agencies. It measures the department's ability to respond to a given risk or incident while providing service to the remaining parts of the service area.

Figure 34: Impact on Operational Forces

| Score | Category | Impact on Operational Forces |
|---|---|---|
| 2 | Minor | ≥ 90% Remaining Apparatus/Crews |
| 4 | Low | ≥ 75% Remaining Apparatus/Crews |
| 6 | Moderate | ≥ 50% Remaining Apparatus/Crews |
| 8 | High | ≥ 25% Remaining Apparatus/Crews |
| 10 | Extreme | < 25% Remaining Apparatus/Crews |

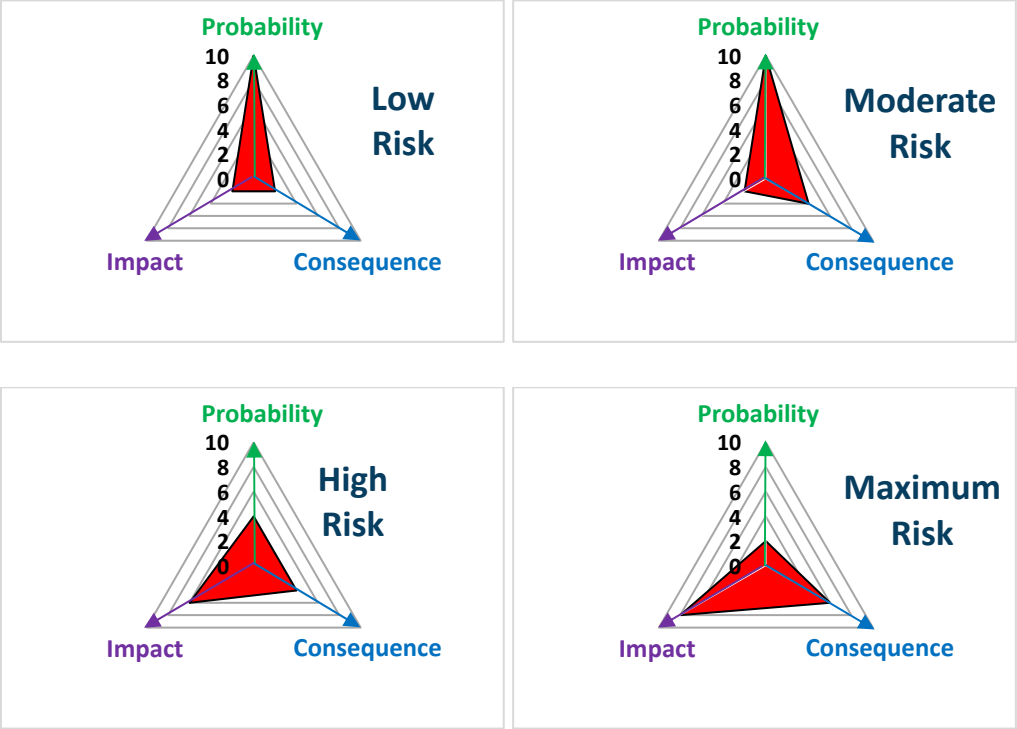
**Fire Response**

SBFD is the primary provider of prevention or mitigation of fire-related incidents. These range from low-risk incidents such as a vehicle fire to a maximum risk for a fire involving a school. Fire risks for a vehicle fire are considered low compared to a maximum risk for a school that houses students. This scoring is applied to four different categories of fire incidents in SBFD's service area to provide staffing needs to meet critical tasks on the fire ground. The following figures provide the risk score and classifications assigned to each type of fire risk in SBFD.

Figure 35: SBFD Fire Response Risk Assessment

| Description | Low | | | Moderate | | | High | | | Maximum | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Risk Score | P | C | I | P | C | I | P | C | I | P | C | I |
| | 10 | 2 | 2 | 6 | 4 | 2 | 2 | 4 | 6 | 2 | 6 | 8 |
| Score Assigned | 20.2 | | | 32.12 | | | 26.53 | | | 36.8 | | |

Figure 36: Fire 3-Axis Risk Classifications



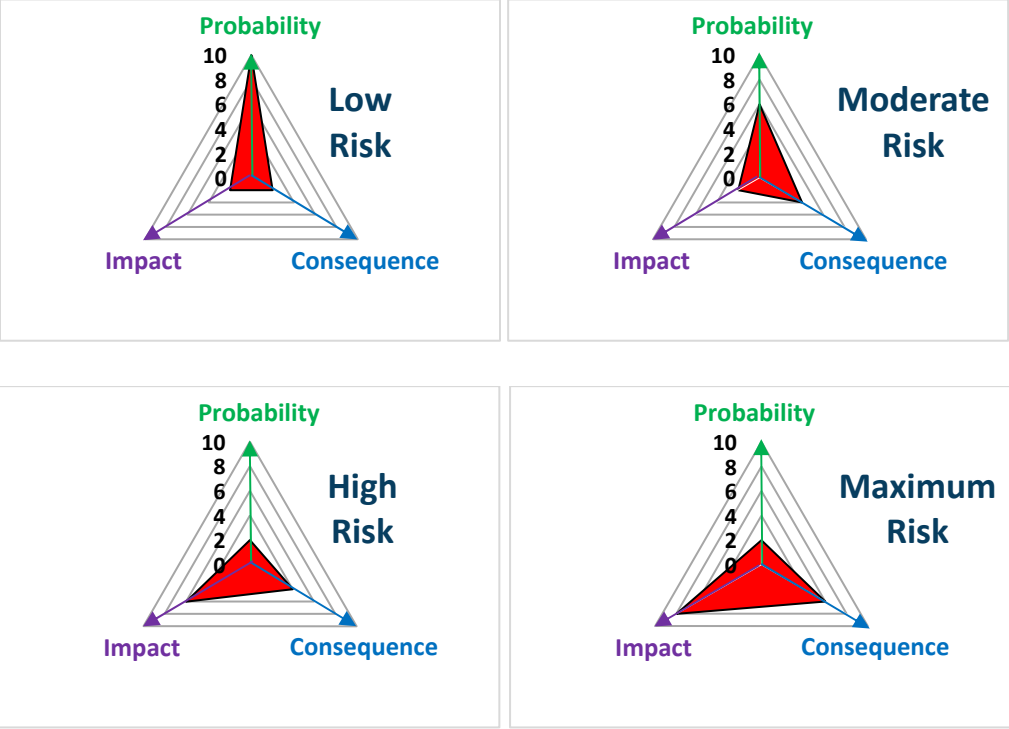
**Emergency Medical Services**

SBFD provides advanced life support emergency medical care in their service area but does not offer transport services. Low-risk incidents range from a medical assist to a maximum for an active shooter. The following figures provide the risk score and classifications assigned to each type of EMS risk in SBFD.

Figure 37: SBFD EMS Response Risk Assessment

| Description | Low | | | Moderate | | | High | | | Maximum | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Risk Score | P | C | I | P | C | I | P | C | I | P | C | I |
| | 10 | 2 | 2 | 10 | 4 | 2 | 2 | 8 | 8 | 2 | 6 | 8 |
| Score Assigned | 20.2 | | | 19.8 | | | 19.8 | | | 38.77 | | |

Figure 38: EMS 3-Axis Risk Classifications



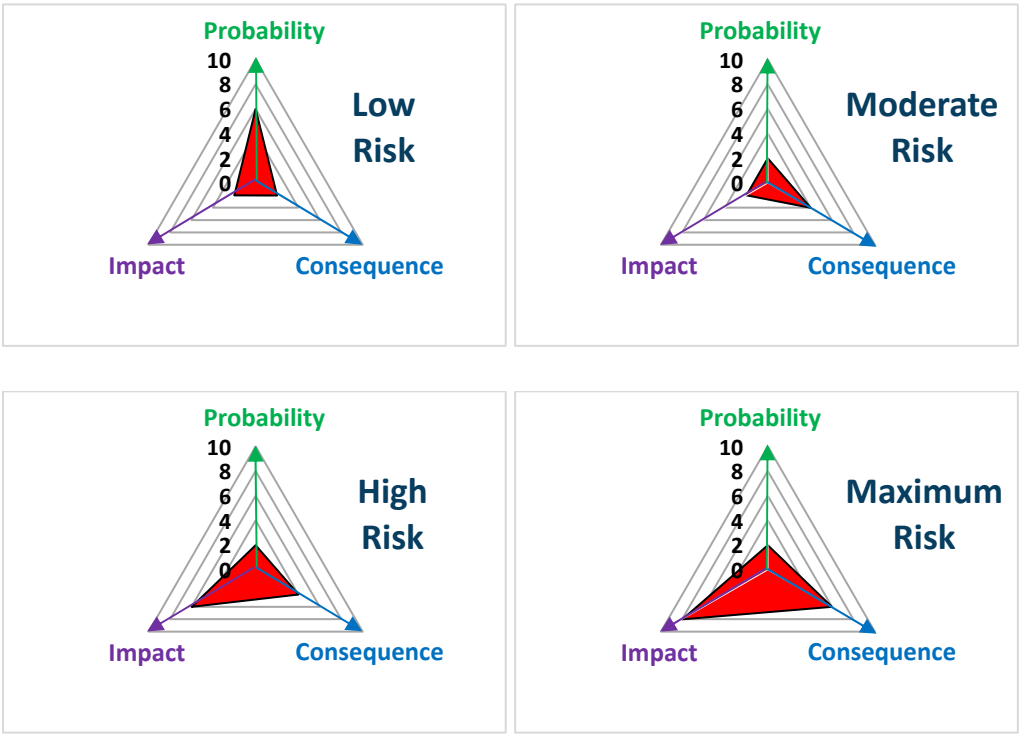
**Technical Rescue**

Rescue services can vary from a low-risk incident, such as accessing a locked vehicle with a child inside, to a confined space incident (maximum) that potentially requires many personnel to mitigate the incident. The following figures provide the risk score and classifications assigned to each type of technical rescue risk in SBFD.

Figure 39: SBFD Technical Rescue Response Risk Assessment

| Description | Low | | | Moderate | | | High | | | Maximum | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Risk Score | P | C | I | P | C | I | P | C | I | P | C | I |
| | 6 | 2 | 2 | 2 | 4 | 2 | 2 | 4 | 6 | 2 | 6 | 8 |
| Score Assigned | 12.33 | | | 8.49 | | | 19.8 | | | 36.77 | | |

Figure 40: Technical Rescue 3-Axis Risk Classification



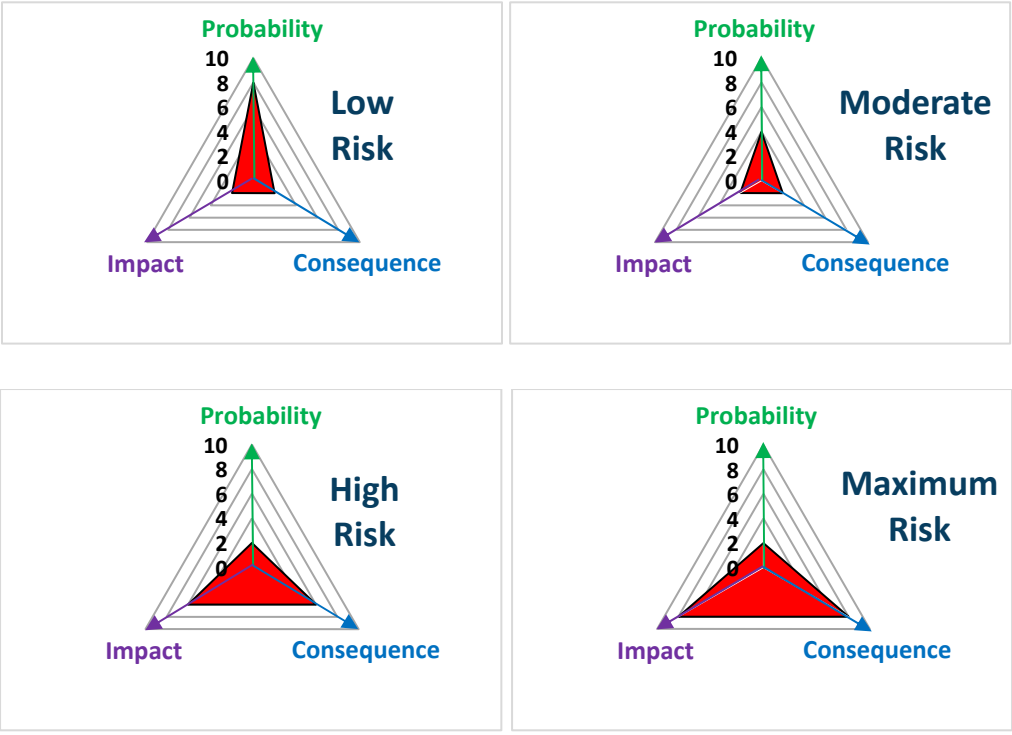
**Hazardous Materials**

Hazardous materials responses can vary from low-risk odor investigations to the maximum risk for a fuel tanker fire in higher populations. Most of these incidents can be managed by SBFD, but higher risks may need assistance from outside resources. The following figures provide the risk score and classifications assigned to each type of hazardous materials risk in SBFD.

Figure 41: SBFD Hazardous Materials Response Risk Assessment

| Description | Low | | | Moderate | | | High | | | Maximum | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Risk Score | P | C | I | P | C | I | P | C | I | P | C | I |
| | 8 | 2 | 2 | 4 | 2 | 2 | 2 | 6 | 6 | 2 | 8 | 8 |
| Score Assigned | 16.25 | | | 8.49 | | | 28.1 | | | 48 | | |

Figure 42: Hazardous Materials 3-Axis Risk Classification



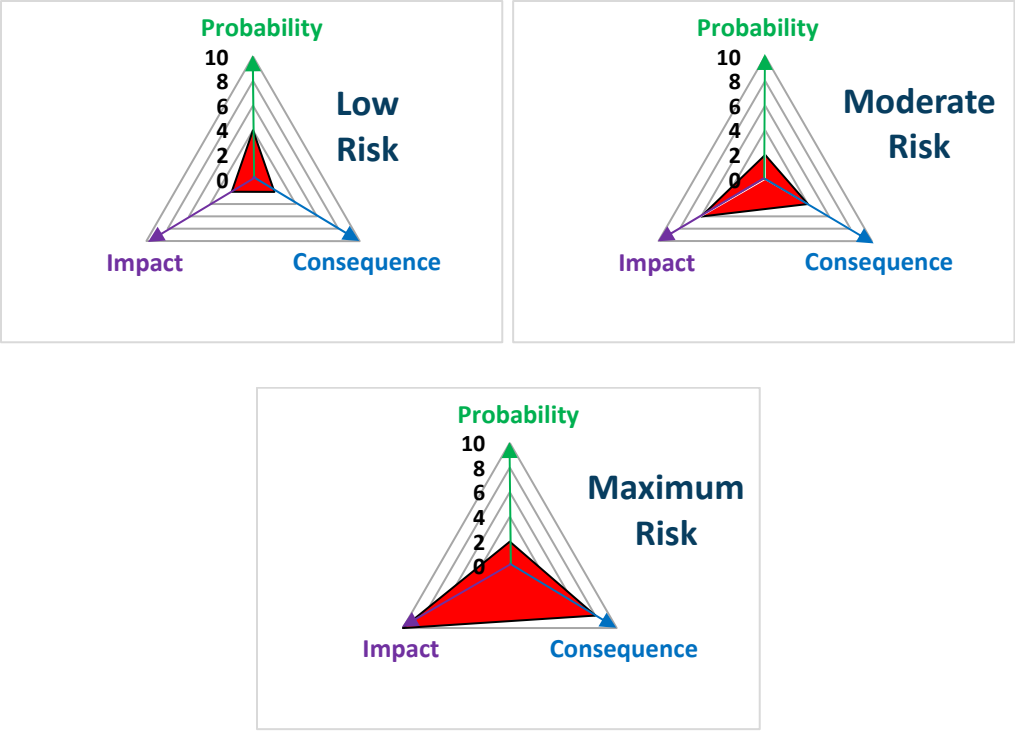
**Wildland Fires**

The types of wildland fire risk vary from small grass fires to large forest fires requiring many internal and external resources. The following figures provide the risk score and classifications assigned to each type of wildland fire risk in SBFD.

Figure 43: SBFD Wildland Fires Response Risk Assessment

| Description | Low | | | Moderate | | | Maximum | | |
|---|---|---|---|---|---|---|---|---|---|
| Risk Score | P | C | I | P | C | I | P | C | I |
| | 4 | 2 | 2 | 2 | 4 | 6 | 2 | 8 | 10 |
| Score Assigned | 8.49 | | | 19.8 | | | 59.4 | | |

Figure 44: Wildland 3-Axis Risk Classification



# Physical Hazards

## Weather Conditions

A physical hazard is a natural or man-made event that has the potential to cause impacts on people, buildings, infrastructure, agriculture, environmental assets, and communities. Every community faces the risk of being struck by a physical hazard of one type, including natural disasters such as floods, hurricanes, ice-storms, wildfires, and earthquakes, or technological disasters such as a chemical spill or explosion. When disaster strikes, it can wreak havoc on a community—destroying homes and businesses and leaving people homeless and out of work. Nationwide, property damage from disasters has been increasing steadily, partly because of larger disasters and because more and more people live in hazard-prone areas. Hurricane damages alone have cost the nation billions of dollars.

Without knowledge of the past, we cannot predict what might happen in the future. Historical catalogs are used to understand the frequency of hazard events. They help us develop synthetic event sets that represent, for example, up to 10 000 years of events. This allows us to understand what might be possible in the future and to prepare for events that we have not seen in our lifetime. For rarer hazards such as earthquakes, seismological investigations play a critical role in identifying and characterizing individual pre-historic events that make up the active tectonics record.

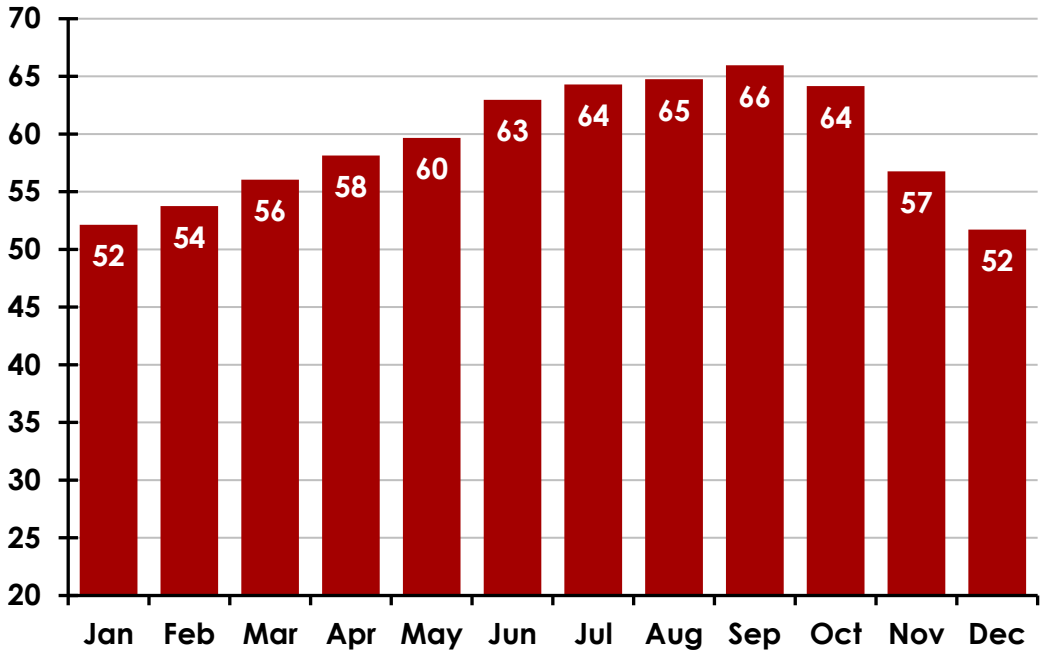
Reducing risk can only be achieved by decreasing the contribution from one or more of these three components. Examples of risk reduction or managing the risk in these components are:

- **Hazard:** building a flood levee to alter the course of flood events.
- **Exposure:** land-use planning decisions to ensure that new development is not exposed to hazardous events or influences the development type.
- **Vulnerability:** retrofitting older buildings built to lower building standards or before building codes were enforced.

### Temperature

The weather conditions in an area can impact not only the fire department but the entire community. When temperatures are high, they affect firefighters during extended incident operations and require rehabilitation to prevent heat exhaustion. For example, although the average temperature in San Bruno is 59 ˚F, the temperature can increase during August and September when the average maximum temperature reaches the high 60s.

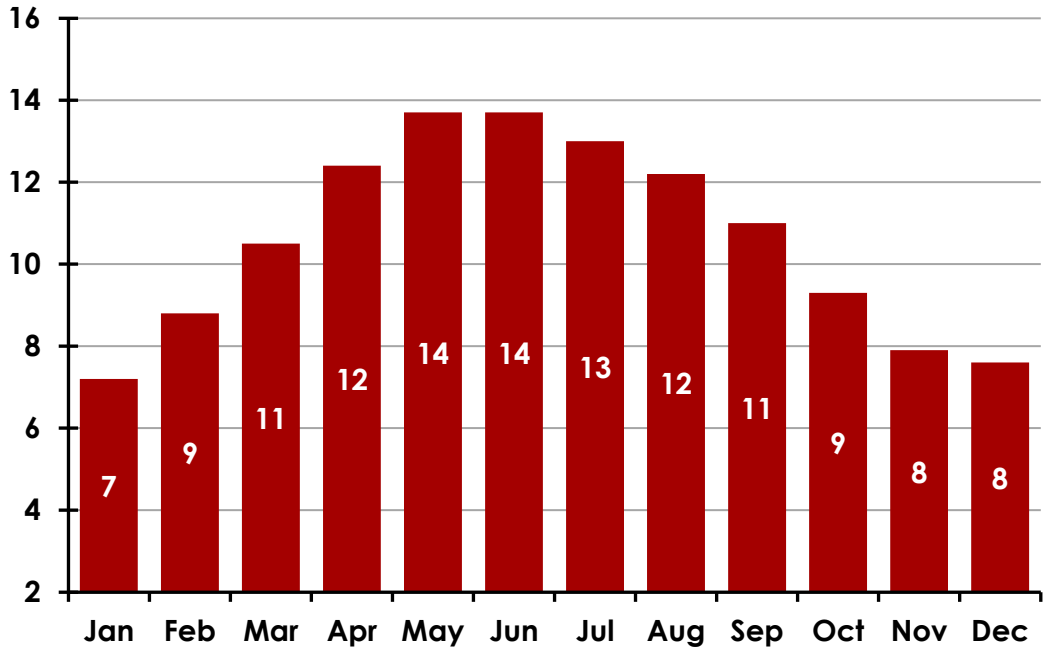
Figure 45: San Bruno Average Daily High Temperatures




**Winds**

The direction and speed of winds directly influence how SBFD plans for daily operations, specifically during wildland fire danger. Based on San Francisco International Airport data, the average wind speed indicates that May through July is the highest and predominately from the north or northwest.

Figure 46: San Bruno Average Wind Speeds




**Drought**

The effects of a drought directly impact the growth of crops and the ability to provide water to replace surface water supplies. In addition, droughts may last for an extended period and create secondary problems during peak wildfire conditions as the vegetation becomes dry and highly combustible. This creates conditions in the community that can cause local resources to become strained during an event. More than 95% of the West remains in drought, with over half the region in the extreme to exceptional drought. According to the US Drought Monitor, this represents the most expansive and intense drought for the West this century and continues to intensify across portions of northern California. San Mateo County is in a severe drought condition.

Figure 47: San Bruno Average Monthly Precipitation

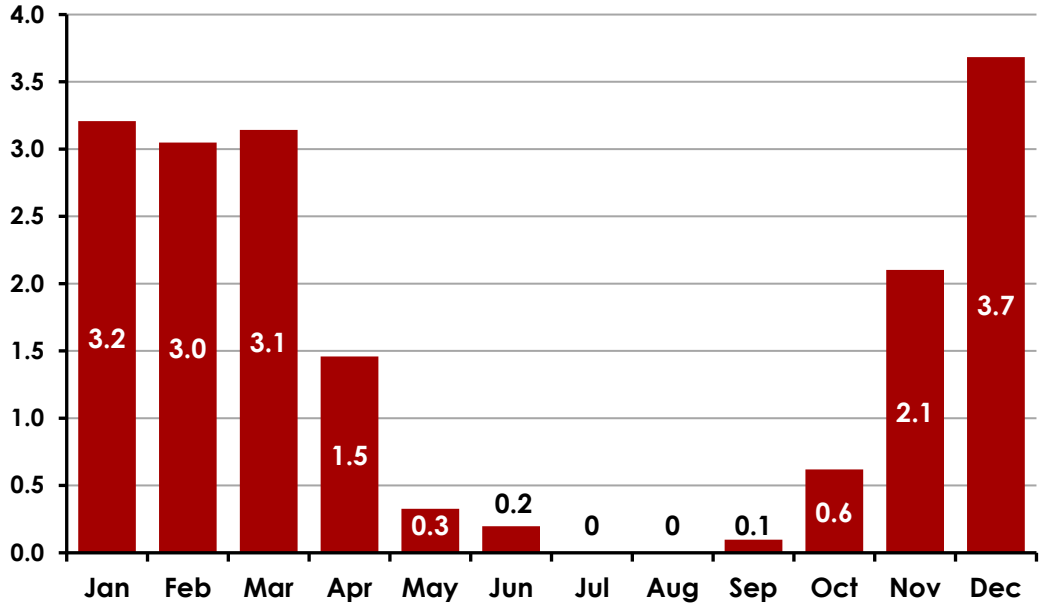
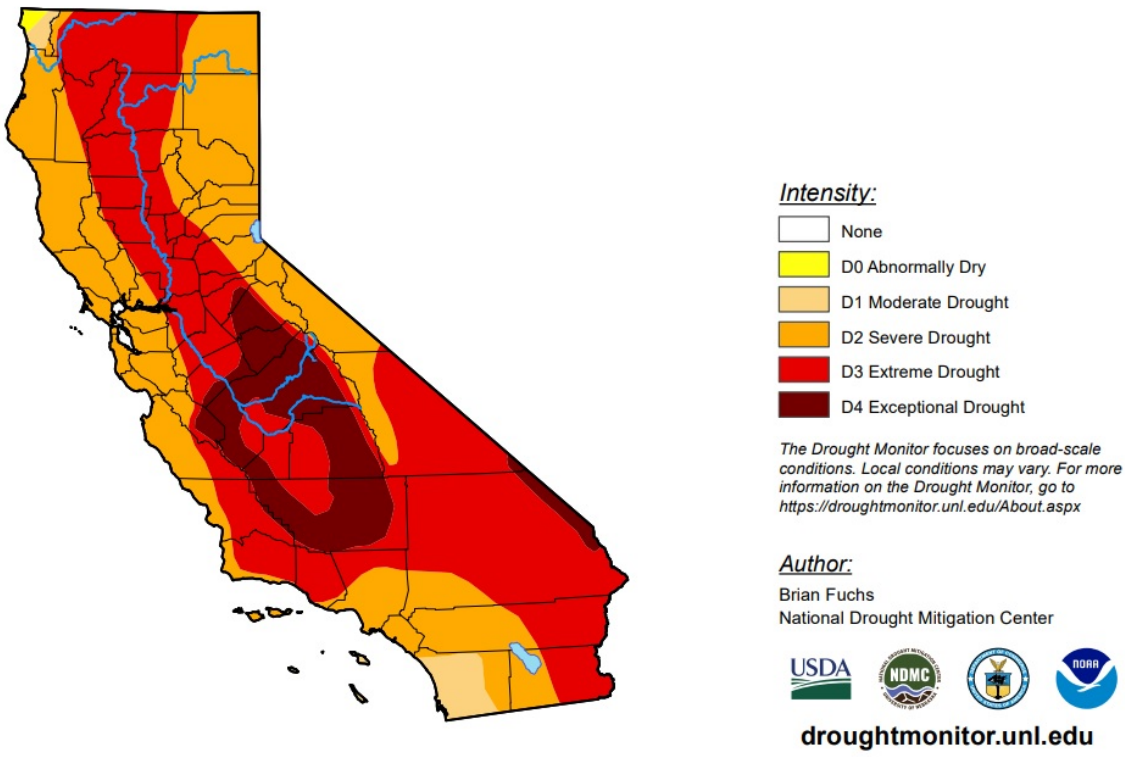



Figure 48: San Bruno Drought Conditions (July 2022)



## Environmental Hazards

San Mateo County (18) natural disasters are near the U.S. average (15). Major Disasters (Presidential) Declared: 11. In the history of the City of San Bruno, Emergencies Declared: 2 Causes of natural disasters: Floods: 11, Storms: 6, Mudslides: 5, Winter Storms: 5, Landslides: 4, Fires: 2, Drought: 1, Earthquake: 1, Freeze: 1.

### Earthquakes

The San Bruno Fire Department is in a high seismic area, and the United States Geological Society has identified several faults. There are a couple of faults in the San Bruno and San Mateo County area, but none are considered active. However, San Andreas and Serra faults are considered potentially active. As a result, San Bruno has a very high earthquake risk, totaling 3,741 earthquakes since 1931.

Data suggests a 97.2% chance of a major earthquake within 50km of San Bruno within the next 50 years. The largest earthquake within 30 miles of San Bruno was a 4.8 magnitude in 1977. Since the early 1900s, 13 earthquakes at 4.8 or greater have occurred within 50 miles of San Bruno.[10] An area of concern is the possibility of soil liquefaction. There are locations along the coast where high-severity groundwater and liquefaction may present problems during a major earthquake.

**Figure 49: SBFD Earthquake Risk**

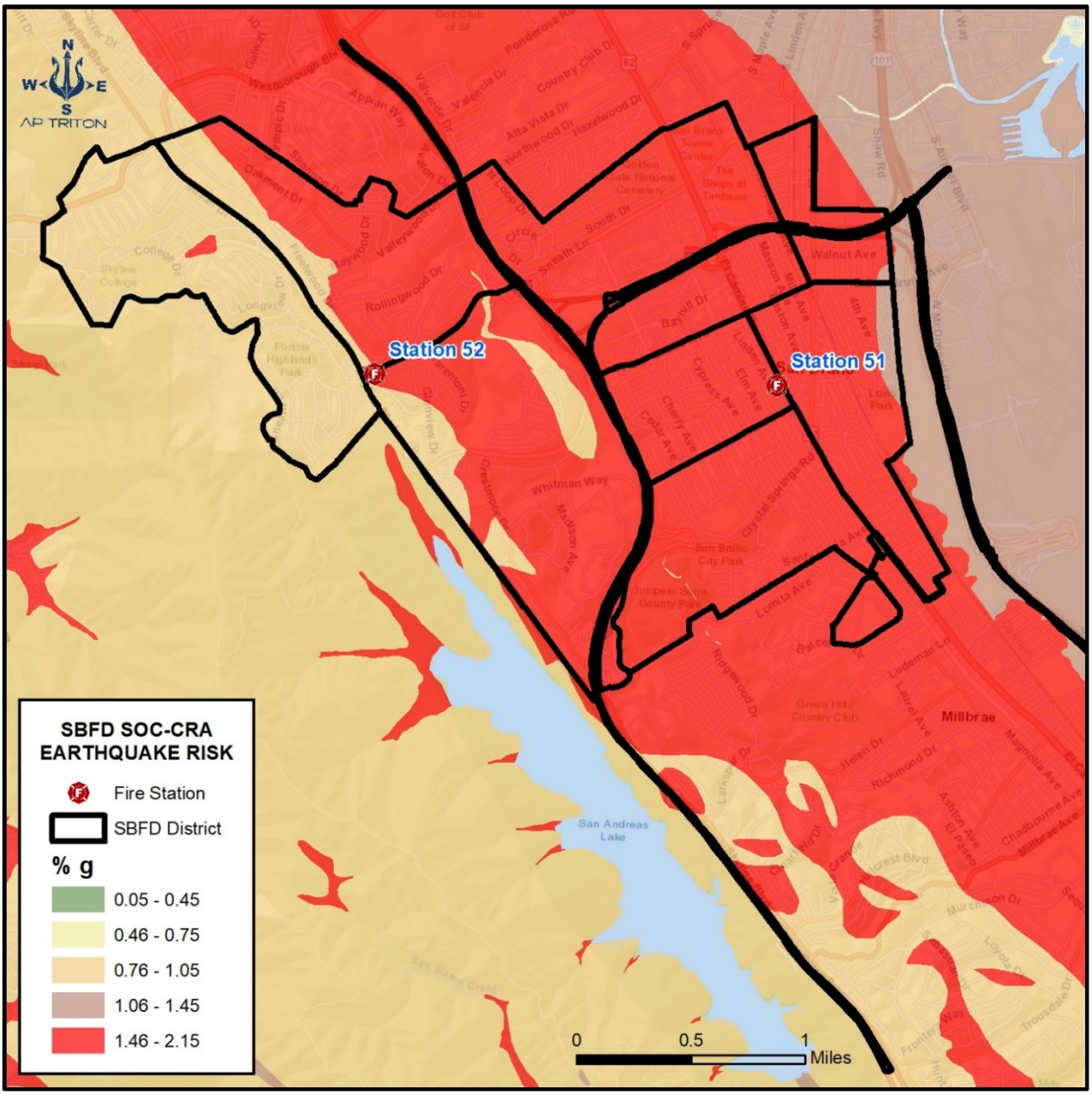
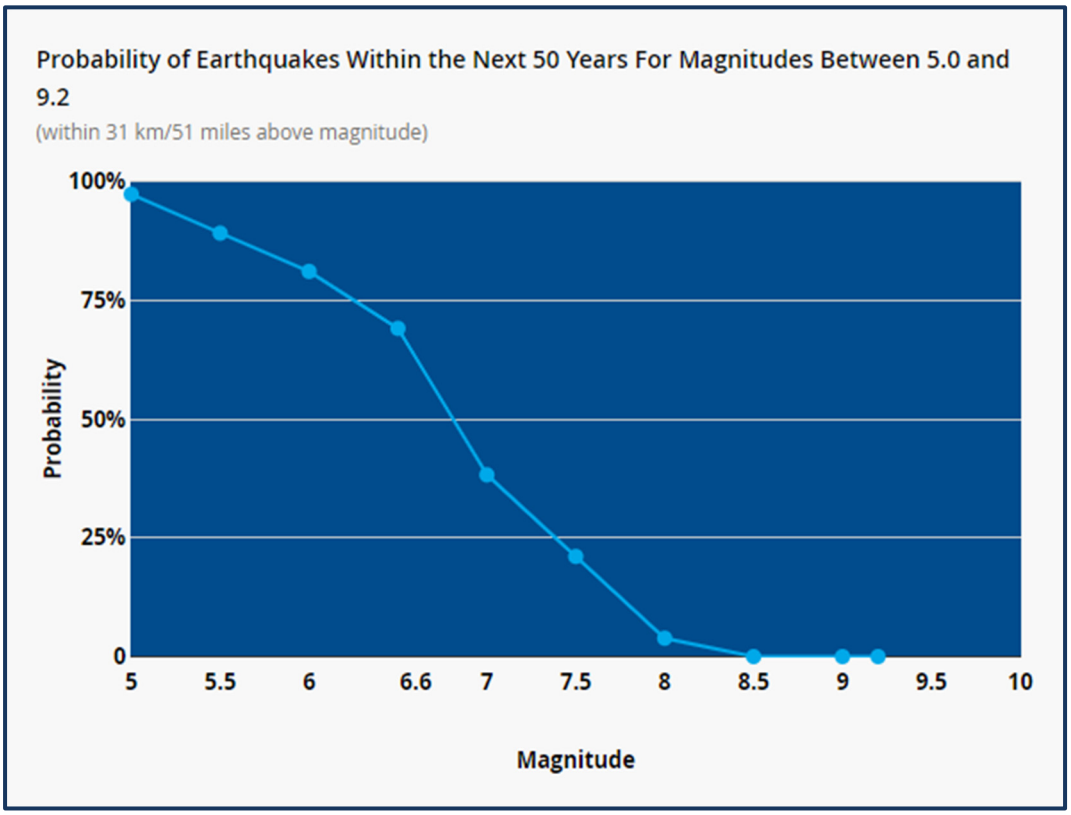


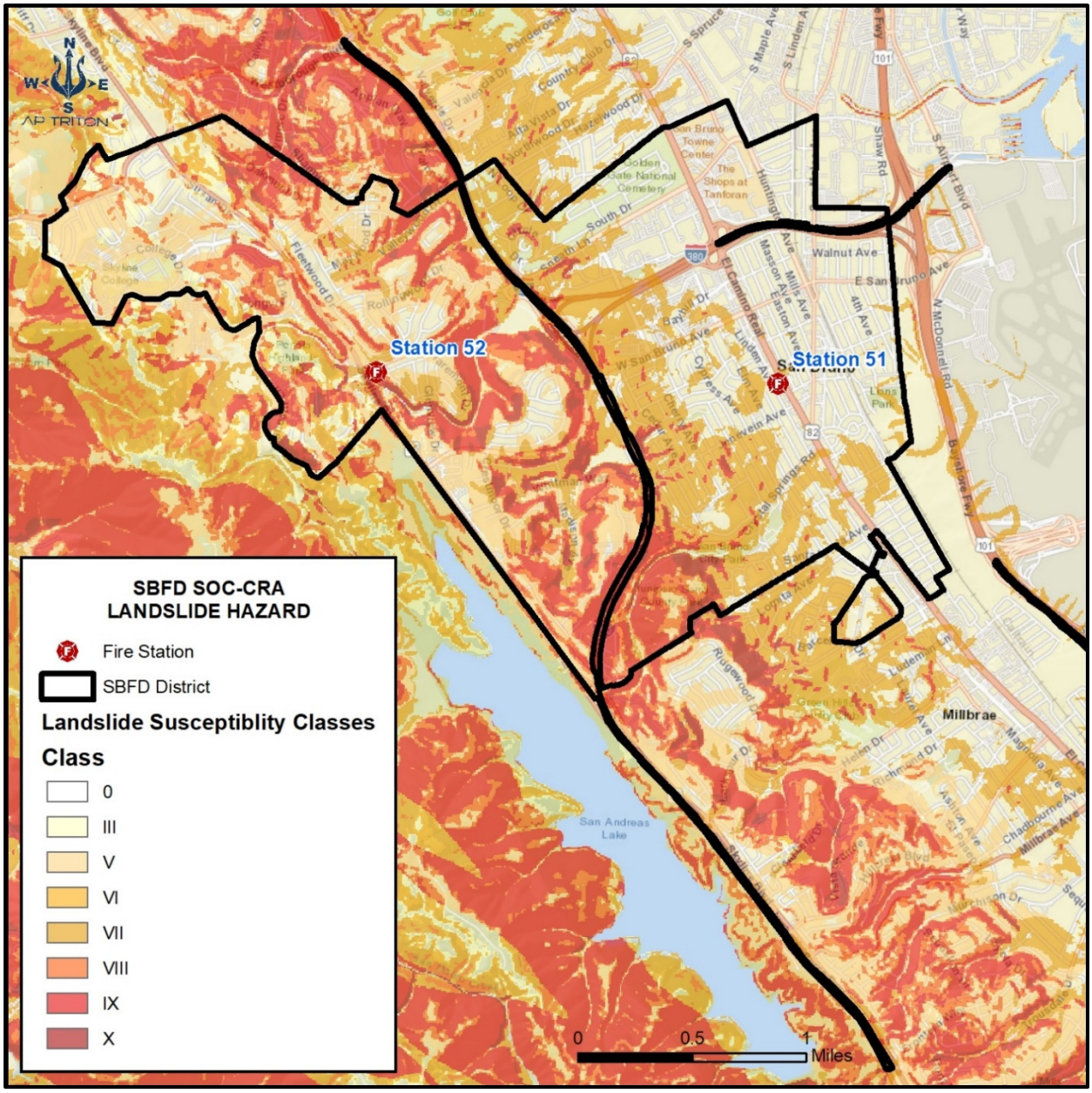
Figure 50: San Bruno Earthquake Probability




**Landslides**

The City's risk of a landslide in San Bruno is considered very low. However, areas within the City of San Bruno in the Crestmoor Canyon have potential landslides, especially along hills or canyons. Landslides commonly occur because of slope failure due to erosion from surface water runoff, mudflows when the water has saturated the ground, or debris flows after a wildland fire. These locations are along the western portion of the City near Crestmoor Drive and Piedmont Avenue, the Glenview Park area, and the area just below the park.

Figure 51: San Bruno Landslide Hazard Map




**Wildland Fires**

Wildland fire risks in SBFD's jurisdiction range from moderate to high; however, much of the City is in a high fire severity area. Much like many areas in San Mateo County, the threat of wildland fire in SBFD's jurisdiction is a significant risk. The greatest wildfire threat to the City comes from fires spreading out of the Crestmoor canyon, or undeveloped San Mateo County lands west of San Bruno and the coast range to the west.

Crestmoor Canyon is a large open space area totaling 76.6 acres owned by the City of San Bruno. The Canyon is wooded, containing some native species but primarily non-native eucalyptus trees. The Canyon is near the City's westerly border and close to several regional and arterial roadways, including Sneath Lane to the north, State Route 35 (Skyline Blvd.) to the west, San Bruno Avenue to the south, and US 280 to the east. It is surrounded by the Crestmoor and Rollingwood residential subdivisions, containing approximately 321 homes; 137 homes, a school, and City facilities directly border the Canyon. Within a quarter-mile to the west of the Canyon are 1,200 acres of open space (Sweeney Ridge), identified as a State Response Area with a high fire risk.

Besides the Canyon area, populated areas in San Bruno have, on average, a greater risk than 21% of communities in California. Populated areas in San Bruno are predominantly exposed to wildfire from indirect sources, such as embers or home-to-home ignition. The neighborhoods west of the Junipero Serra Freeway and the Crestmoor Canyon community are substantially at risk of damage or loss from wildfires due to their proximity to the wildland vegetation and direct and indirect exposure to the San Bruno Mountain range. Data indicates the area is listed as 39% indirectly exposed and 12% directly exposed to wildfire. These areas produce unique risks because of limited egress and access due to reduced fire road widths and difficulties for vehicles attempting to pass during an emergency. In addition, a delayed response may occur when emergency vehicles need access during an incident because other vehicles use the same roads.

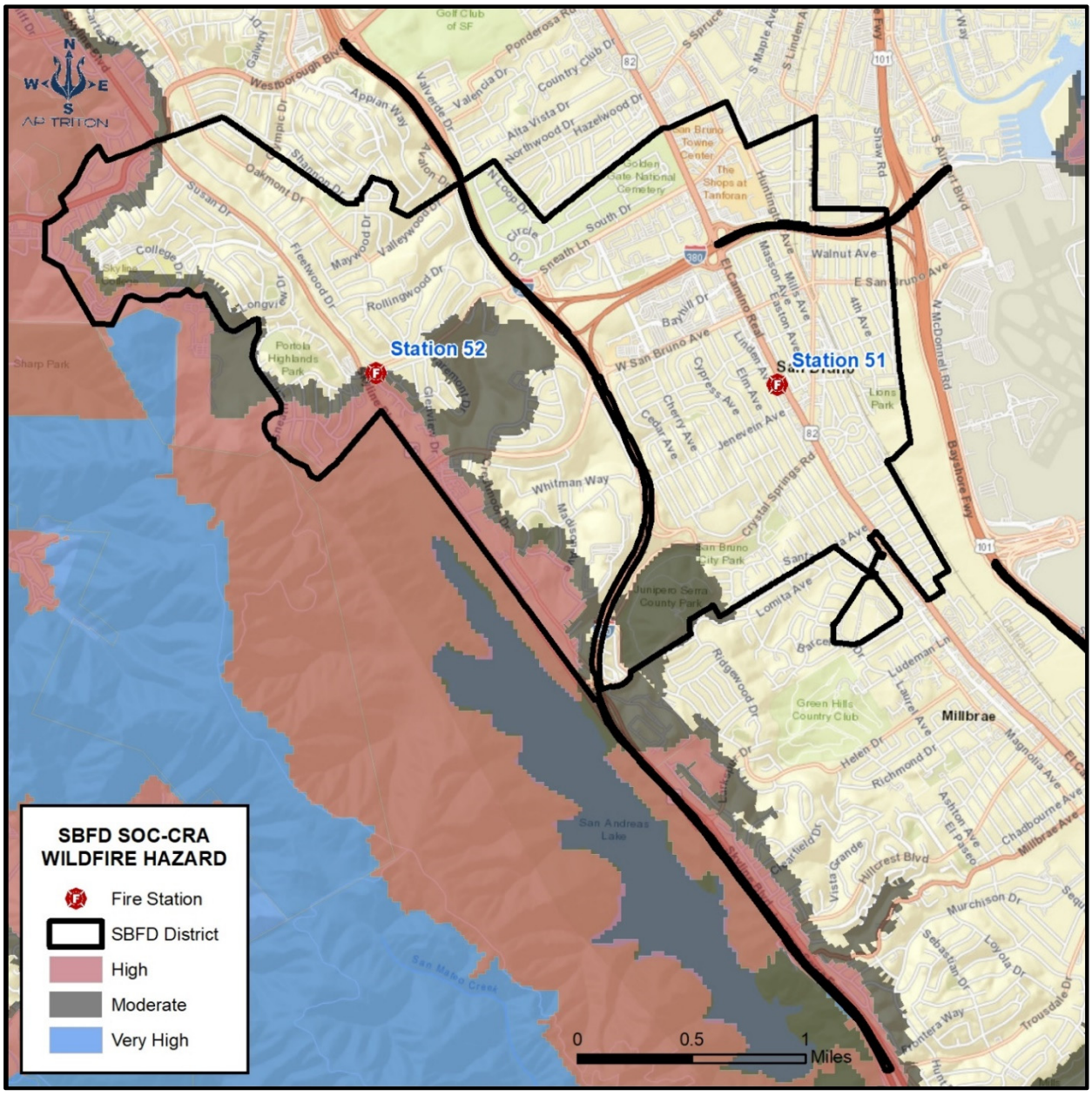
Because of the risk to San Mateo County, the City of San Bruno has partnered with county agencies to develop a Community Wildfire Protection Plan (CWPP) and was part of a county-wide planning effort to evaluate and identify the wildfire threat. As a result, the CWPP developed strategies that enhanced wildfire protection to help protect human life and the City's assets. The development of this CWPP includes data, planning documents, and a science-based assessment of the potential wildfire threat. As a result of this CWPP, SBFD was able to identify areas with wildfire threats and developed mitigation actions needed to enhance the protection of the City from wildfire.

SBFD has implemented programs to mitigate hazardous WUI issues to reduce damages during an event. SBFD presented to the City council in January 2019, providing an overview of the fire migration plan and the Crestmoor community projects. The Fire Hazard Mitigation Program is overseen by the San Bruno Fire Department with input from the Community Services Department.

The program prioritizes major rights of way and easements in San Bruno. Staff recognizes the need for a thorough assessment of potential hazards. SBFD received a grant from the California Fire Foundation to create fuel breaks surrounding the fire roads and completed them in December 2018. In addition, SBFD submitted a grant application to California Climate Investment Fire Prevention Program to create defensible space in the neighborhoods surrounding the Canyon. SBFD is participating in the FEMA Hazard Mitigation Grant for DR-4382. Staff continues to work on a plan to conduct fire mitigation in the Crestmoor Canyon to create defensible space surrounding the neighborhood.

Because of the 2019 city presentation, in 2020, the City of San Bruno contracted with the California Conservation Corps (CCC) to help with fuel reduction. This project is critical to meeting the City's fire safety goals. The California Conservation Corps, or the CCC, is a department of the government of California, falling under the state cabinet-level California Resources Agency. The CCC is a voluntary work development program specifically for men and women between 18 to 25 (up to 29 for veterans), offering work in environmental conservation, fire protection, land maintenance, and emergency response to natural disasters. The project consists of vegetation clearing along pathways, creating new pathways for improved access, designing and installing a fire hydrant network, underbrush clearing, and removing fallen and unhealthy trees/vegetation within the Canyon proper.

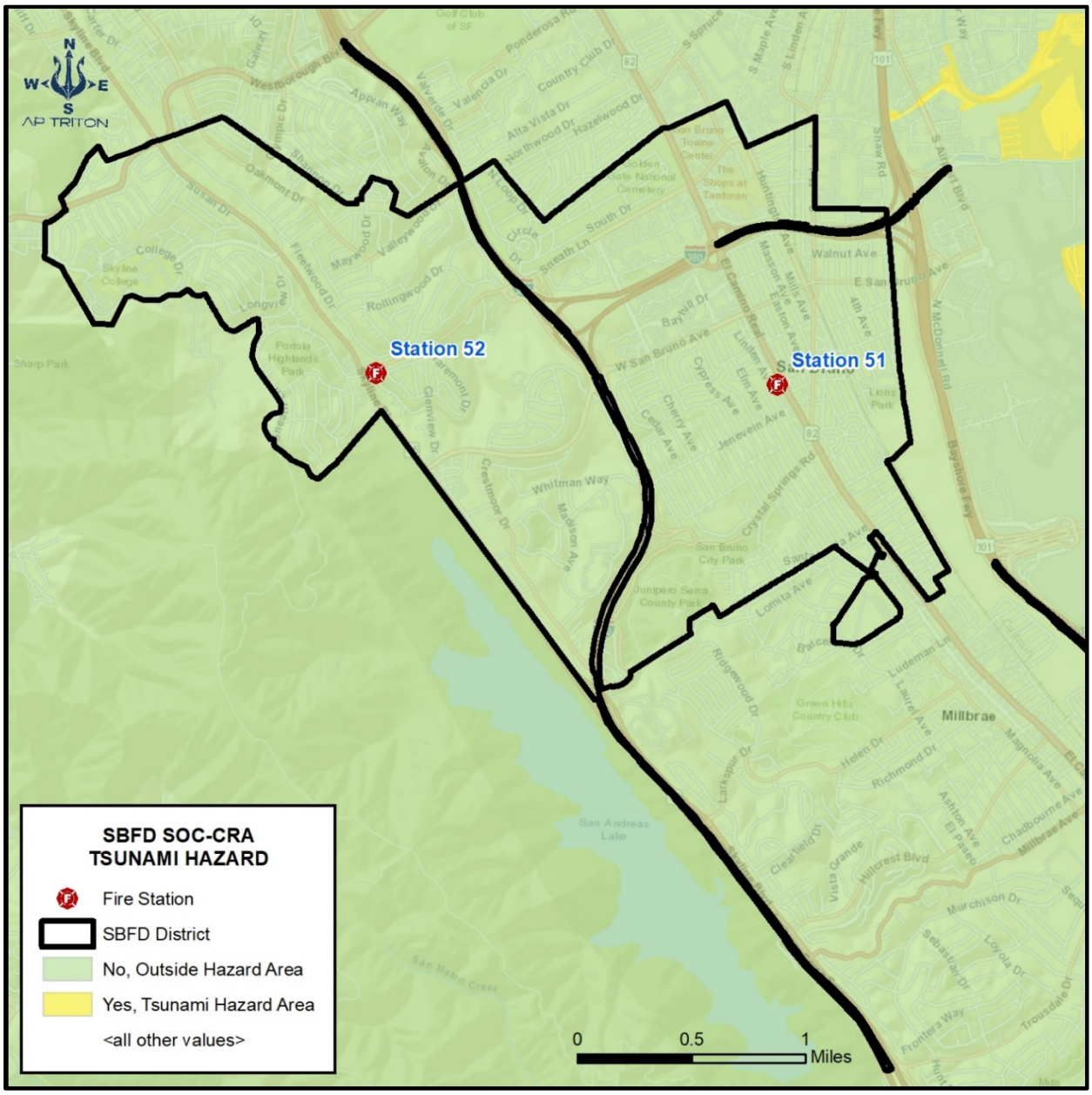
**Figure 52: San Bruno Wildfire Hazards**



**Tsunami**

The probability of a tsunami occurring in San Bruno is low. Still, the City has areas adjacent to the San Francisco Bay that could receive flooding during an event. Inundation maps from California Geological Survey display the most significant area east of Highway 101 to the San Francisco Bay, and this area includes residential and commercial properties.

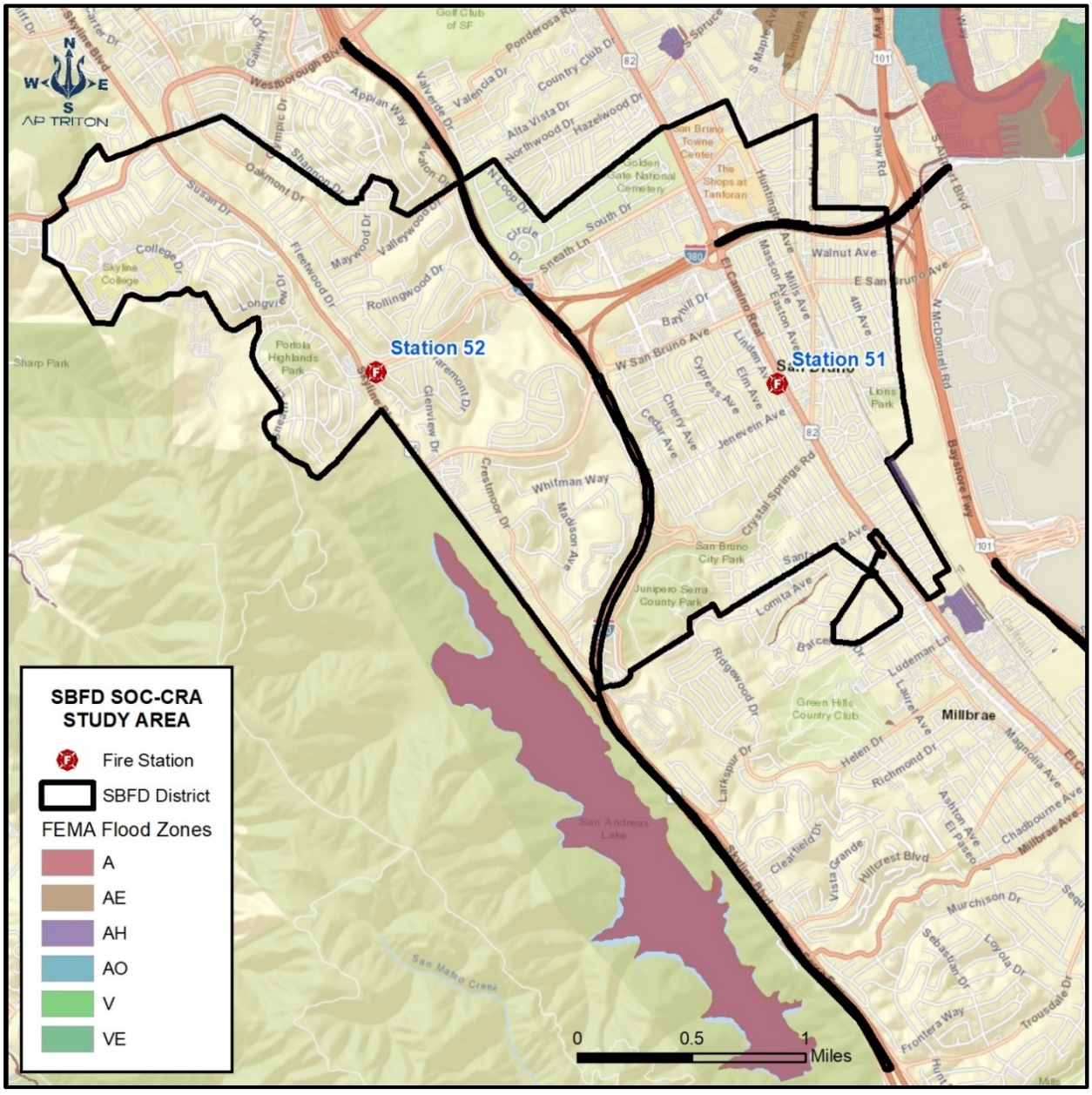
Figure 53: San Bruno Tsunami Hazard Map



**Floods**

SBFD's jurisdiction, according to FEMA, is at low risk of flooding, specifically along the creeks flowing into the San Francisco Bay. Although flooding typically occurs during the highest rainfall, the seasonable variations can cause localized flooding along the creek channels during high-intensity rainfall events. However, the events are usually brief since there is a short distance from San Francisco Bay to the Pacific Ocean. Additional problems could occur with flash flooding in the City's urban areas, but they are usually short-lived.

Figure 54: San Bruno FEMA Flood Zones



Although FEMA's previous studies did not show any special flood hazard areas in San Bruno, the new analysis identified numerous residential properties within the Belle Air neighborhood as potentially subject to coastal flooding. The next figure illustrates the flood zones determined by the Federal Emergency Management Agency (FEMA).

**Figure 55: FEMA Belle Air Flood Map**

# Technological (Human-Caused) Hazards

Events that occur without warning or that are unknown and suddenly appear are considered technological hazards. Examples include industrial accidents or hazardous chemical releases. Each community should create contingency plans for the specific risks in their jurisdiction. This may consist of permitting, fire and life safety inspections periodically, and pre-incident planning. These activities are designed to reduce risks and provide on-site visits for fire department personnel.

If a building or facility has been identified that stores or produces hazardous materials, it may require special personal protective clothing and equipment to control or mitigate the event. Locations with hazardous materials on-site during the year exceeding the limits established by the Environmental Protection Agency are required to file Tier II reports. These reports are provided to local jurisdictions, local emergency planning committees, and the state's Emergency Response Commission as required by the Emergency Planning and Community Right-to-Know Act of 1986, also known as SARA Title III. These thresholds require submission:

- Ten-thousand pounds for hazardous chemicals.
- Lesser of 500 pounds or the threshold planning quantity for extremely hazardous chemicals.
- California requires additional reporting quantities through a five-tier system that authorizes the treatment and storage of hazardous waste.

### Hazardous Materials (Haz-Mat)

There are numerous facilities in SBFD's jurisdiction that store hazardous materials, but there are no locations that produce or store any extremely hazardous substances. U.S. Hwy 10, CA Hwy 82 and 35, Interstate 380 and 280 are the primary transportation corridors passing through the service area. This presents the possibility of a hazardous materials incident involving motor vehicles and trucks.

SBFD provides the initial basic Haz-Mat response at the HazMat Operations level. However, if there is a need for an in-depth hazardous materials response, this is accomplished through the regional Haz-Mat response team from the San Mateo Consolidated Fire Department. This response includes an initial Haz-Mat unit with a Battalion Chief and the OES Emergency Services.

## Land Use

Land use for a community is designed to classify properties within a geographical area normally under governmental control. The concept of land use regulation is to provide attractive social and environmental outcomes to assist in efficiently managing development. Zoning areas may vary within one portion of the service area with a mixture of low-, moderate-, and high-risk properties.

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

The vision of the City of San Bruno's land use goal is as follows:

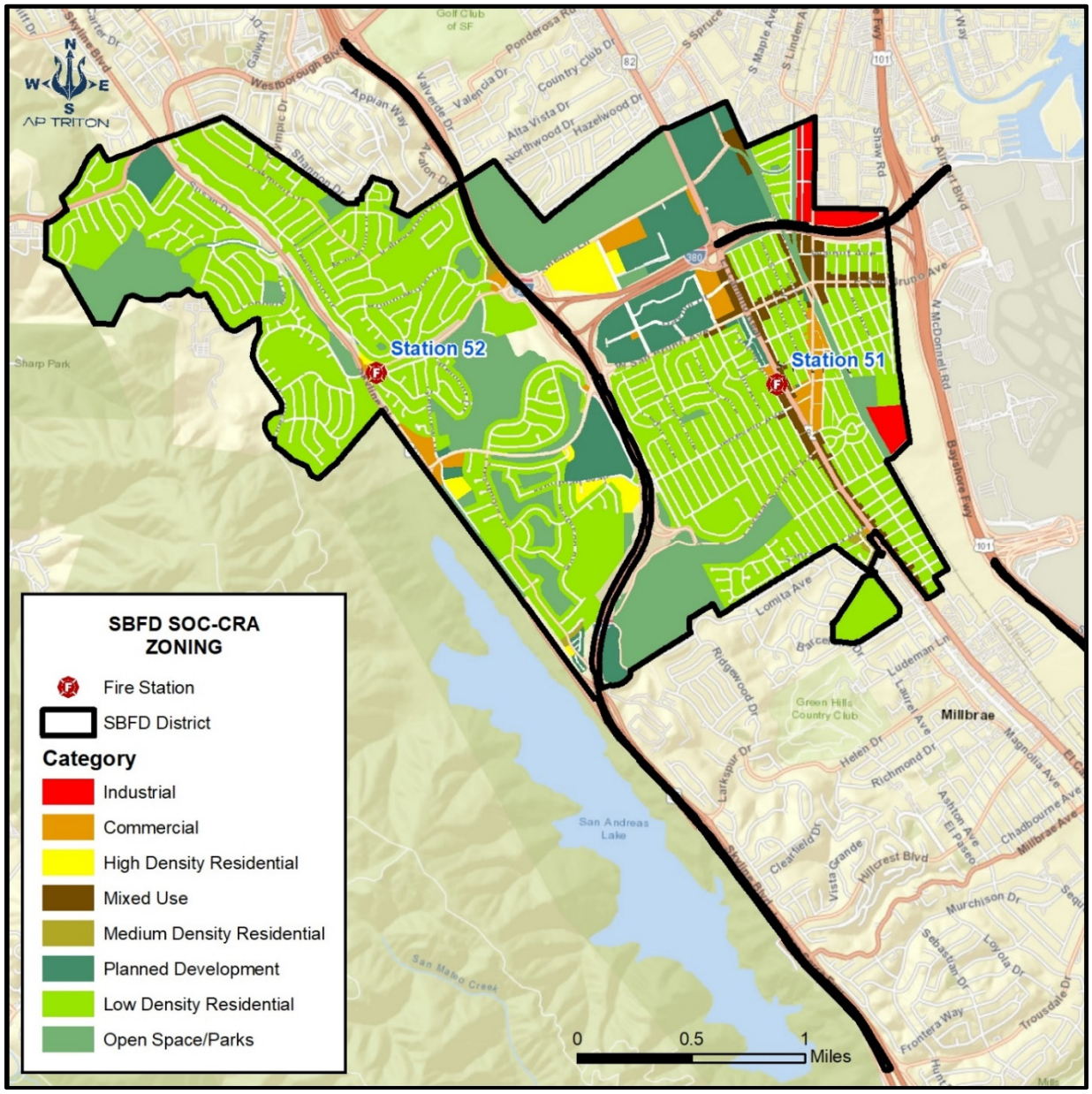
> "This General Plan promotes balanced development, outlines strategies for conserving established neighborhoods, revitalizing Downtown and other aging commercial and industrial areas. Policies for expanding the City's affordable housing stock and promoting mixed-use development are included. The General Plan also outlines strategies for improved bicycle and pedestrian connections between residences, activity centers, and transit stations. The General Plan seeks to conserve existing natural resources, and policies are designated to minimize hazards."[11]

Most of San Bruno's land area comprises residential use, and neighborhoods are its most prominent feature. The City's older eastern half contains the greatest diversity of land uses and residential types. In this relatively flat area, streets are organized in a grid pattern reflecting their early 20th-century roots. San Bruno's newer western half comprises single-family subdivisions and several large multi-family complexes.

Commercial uses include neighborhood and regional retail, office, finance/insurance, hotels and motels, and other services. The Shops at Tanforan and Towne Center, approximately 72 acres, are San Bruno's two regional shopping centers. The San Bruno BART Station is located on the east side of The Shops at Tanforan. Other retail establishments are located along El Camino Real, San Mateo Avenue (south of I-380), and San Bruno Avenue (east of Cherry Avenue). The City is currently in development discussions for a potential significant multi-use facility replacing the Shops at Tanforan. This development will add to the demand on the North East end of the City.

The portion of San Mateo Avenue between Huntington Avenue and El Camino Real is downtown. Industrial, warehousing, distribution, and auto-related uses are located in the area bordered by the Caltrain tracks, I-380, and San Mateo Avenue, along San Mateo Avenue south to its intersection with Huntington Avenue; and along San Bruno Avenue between San Bruno Avenue and Interstate 380. Other light industrial uses are located at the Airport Trade Center on Sneath Lane and Cherry Avenue. Several auto dealerships and repair shops are also located along El Camino Real.

**Figure 56: San Bruno Zoning Map**

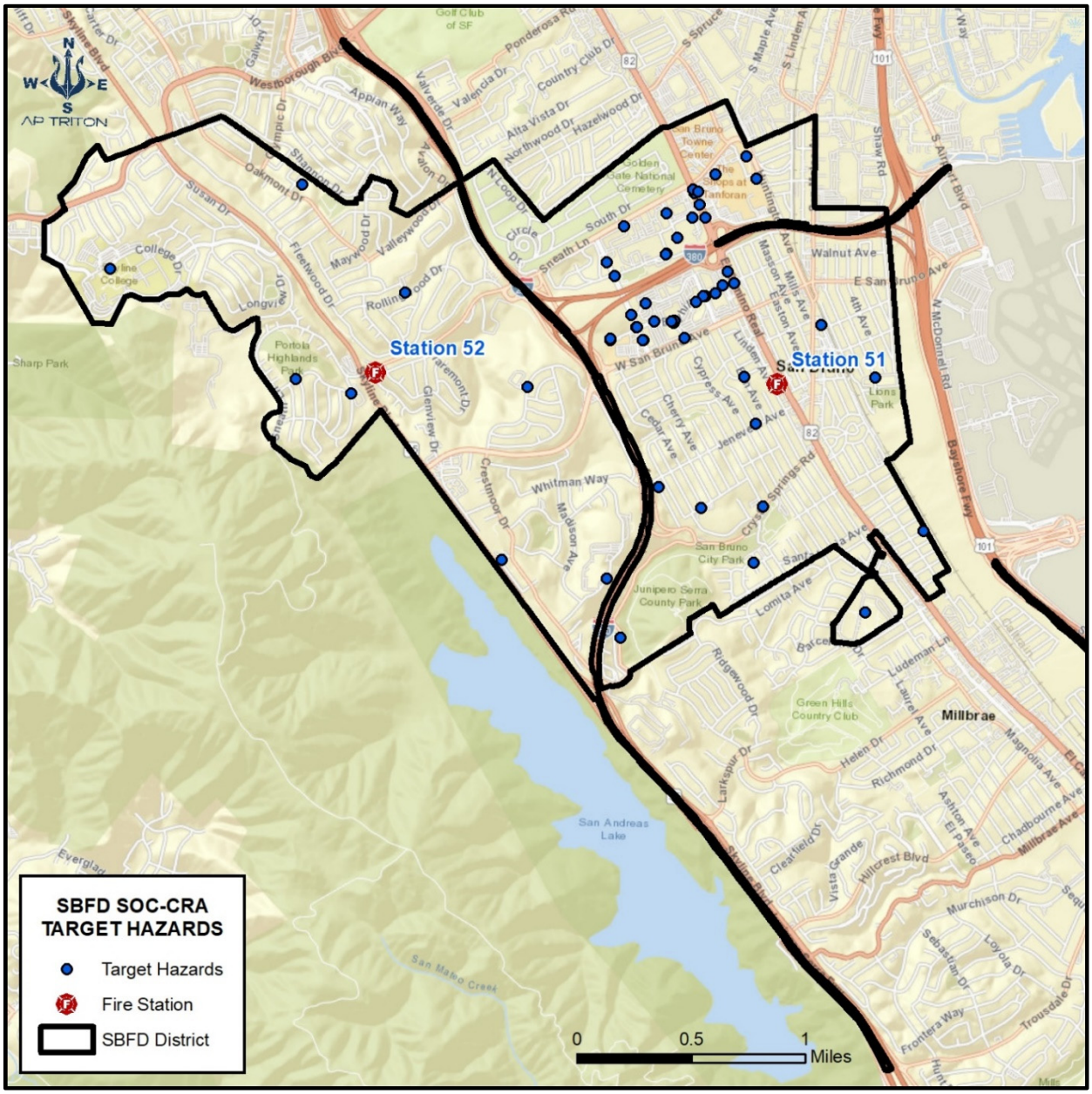


# Physical Assets Protected

## Structural Risks

The next figure illustrates the various self-identified target hazards in the San Bruno Fire Department. These hazards include public assemblies, large shopping centers, healthcare facilities, transportation centers, and large square footage buildings.

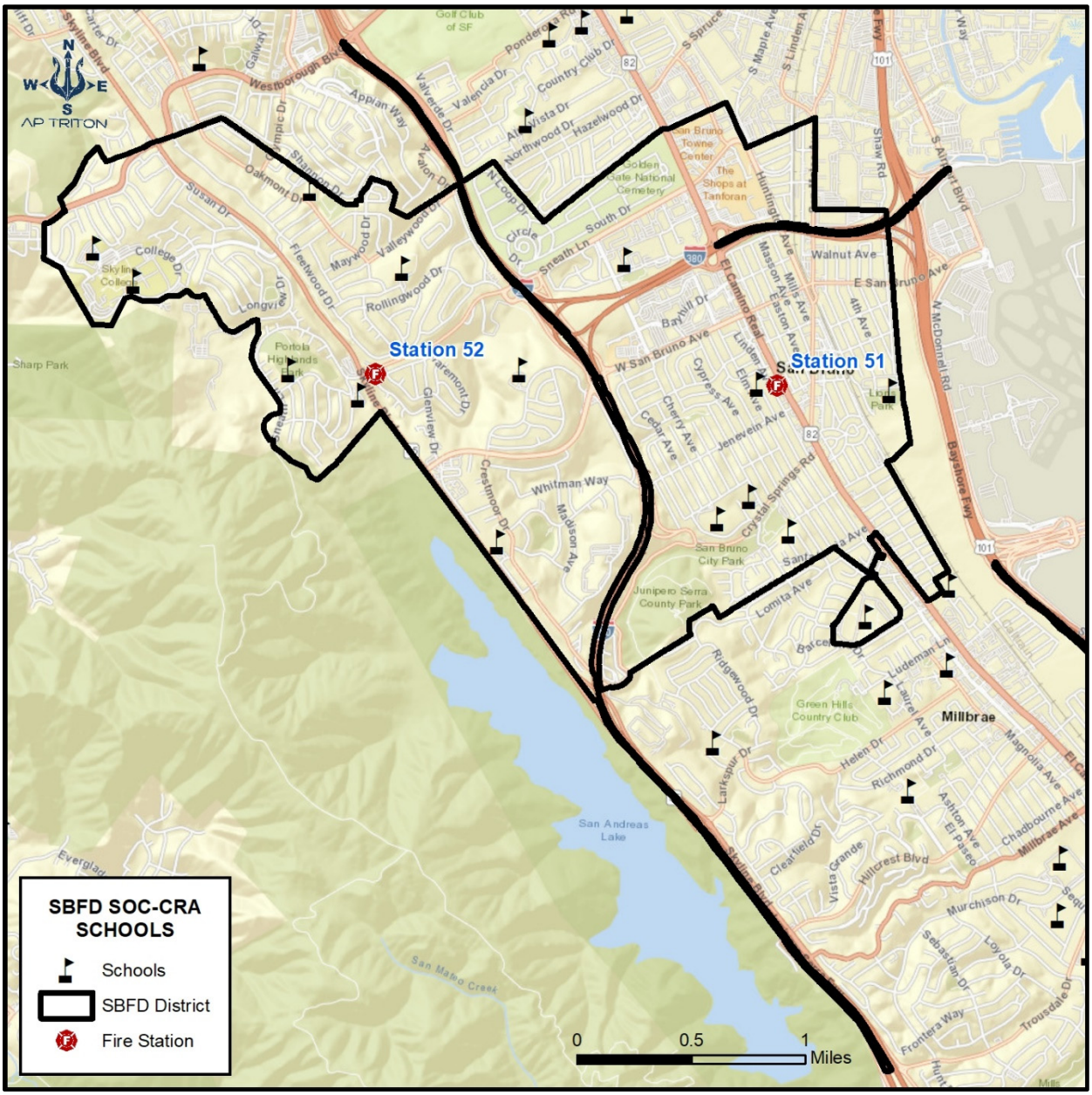
Figure 57: San Bruno Target Hazards



**Schools**

The San Bruno Park School District serves approximately 2,500 students in five elementary schools and one intermediate school, in addition to the California Montessori School, Saint Robert Catholic Elementary School, and Parkside Middle School. These locations should be considered target hazards because of the many students and teachers in a single place.

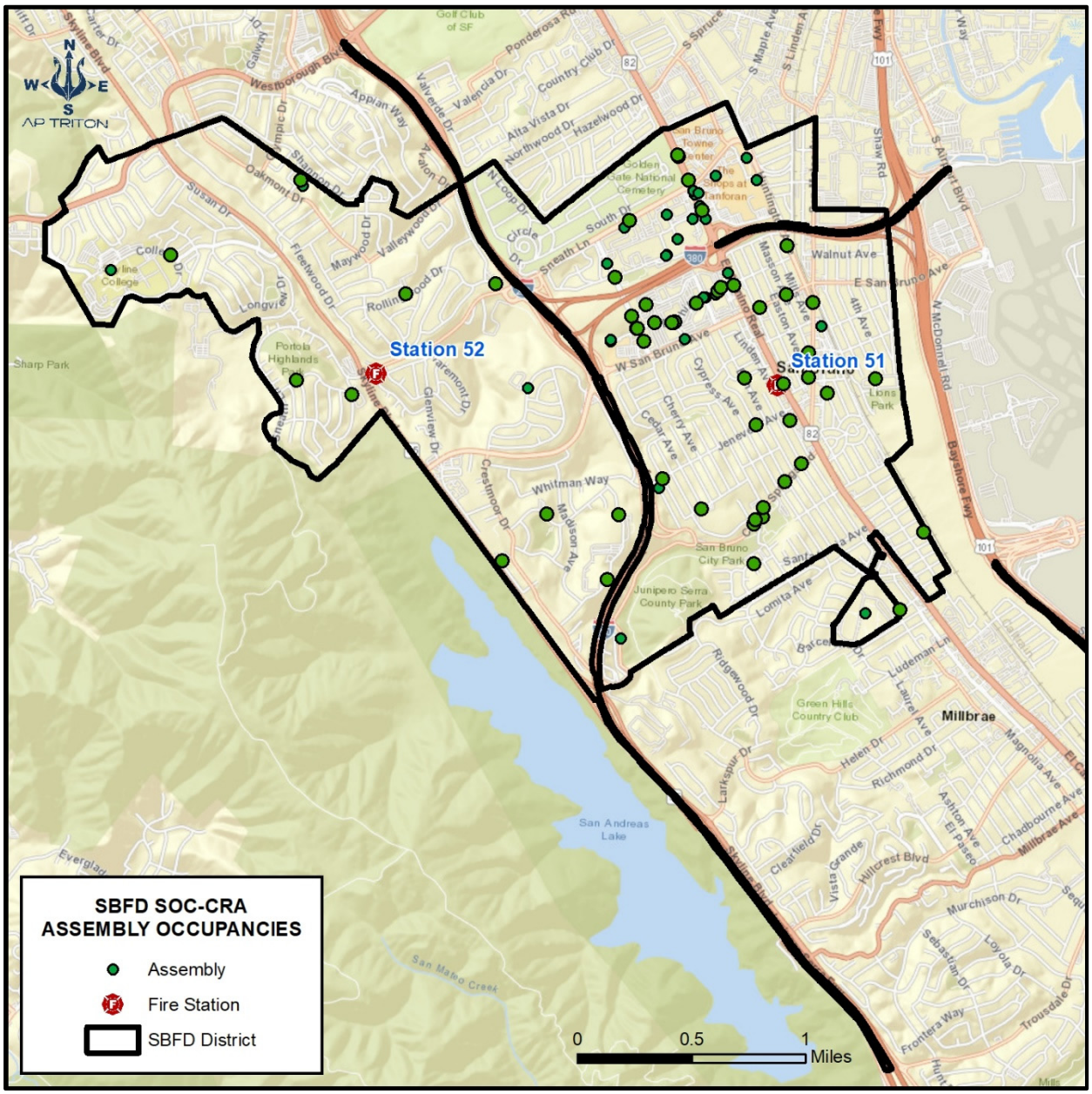
**Figure 58: San Bruno School Locations**



**Assembly**

Assembly occupancies create unique risks because of the large number of people in a single location. These occupancies include restaurants, theaters, nightclubs, sporting events, or large outside festivals, all locations where people gather. These occupancies may require many emergency response personnel during an event such as a fire or active shooter. These locations should have pre-incident plans completed for use by personnel during a response. SBFD has identified their assemblies on the following figure using the criteria of A1, A2, & A3 occupancies having a greater occupancy of 50 persons or more at one time.

## Figure 59: San Bruno Assembly Occupancies



**Institutional**

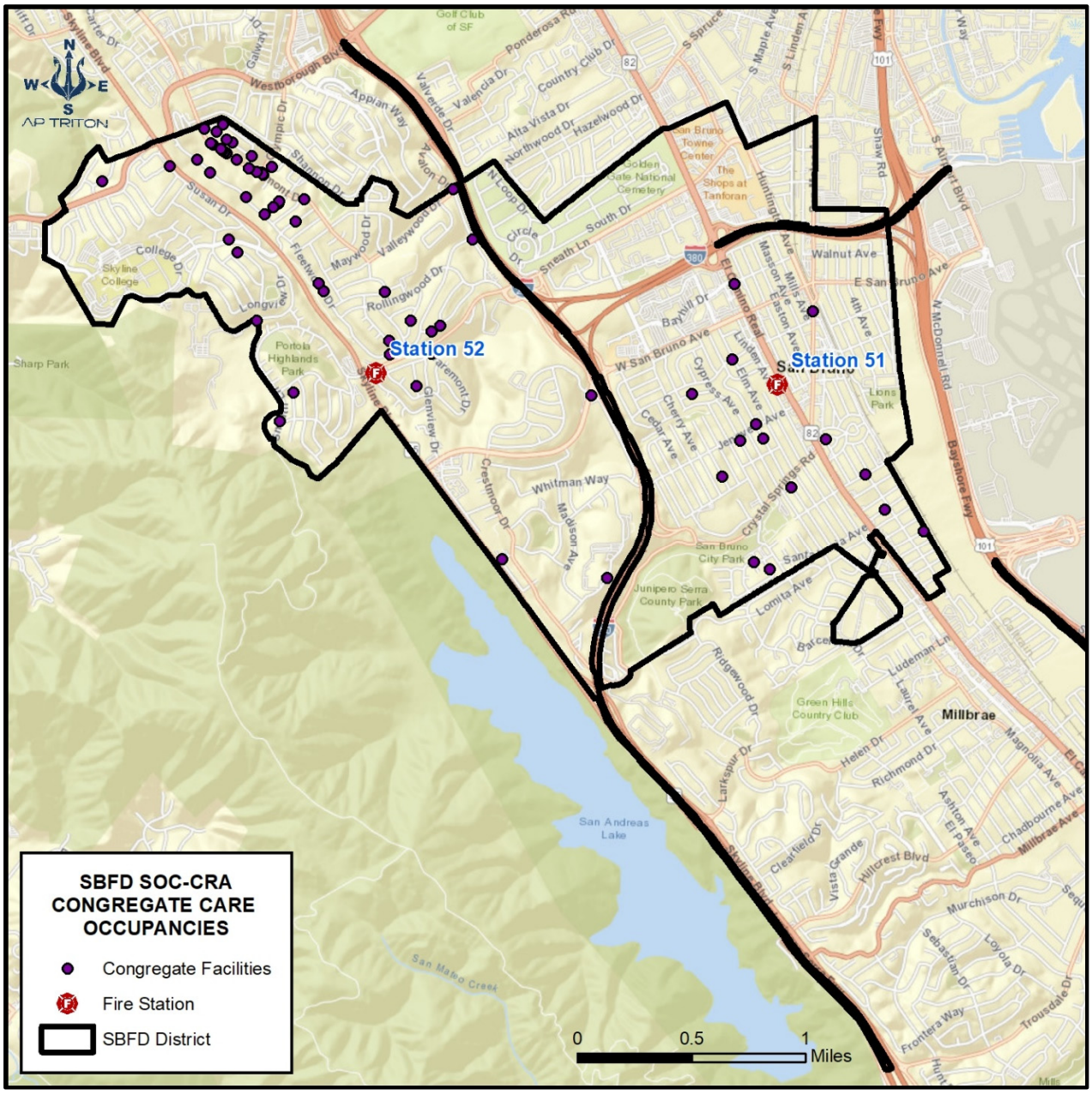
These types of buildings are where occupants may be unable to leave without assistance from the employees. Examples include assisted living, nursing homes, medical facilities, jails, and detention centers.

**Childcare Facilities**

Childcare facilities pose a special concern because of the children's young age and, in some cases, the inability to evacuate during an emergency. These facilities require childcare workers to assist small children or physically carry infants when an evacuation is necessary.

SBFD used the threshold for institutional and childcare facilities that had state licenses, including boarding care facilities and senior daycare centers, on the following figure.

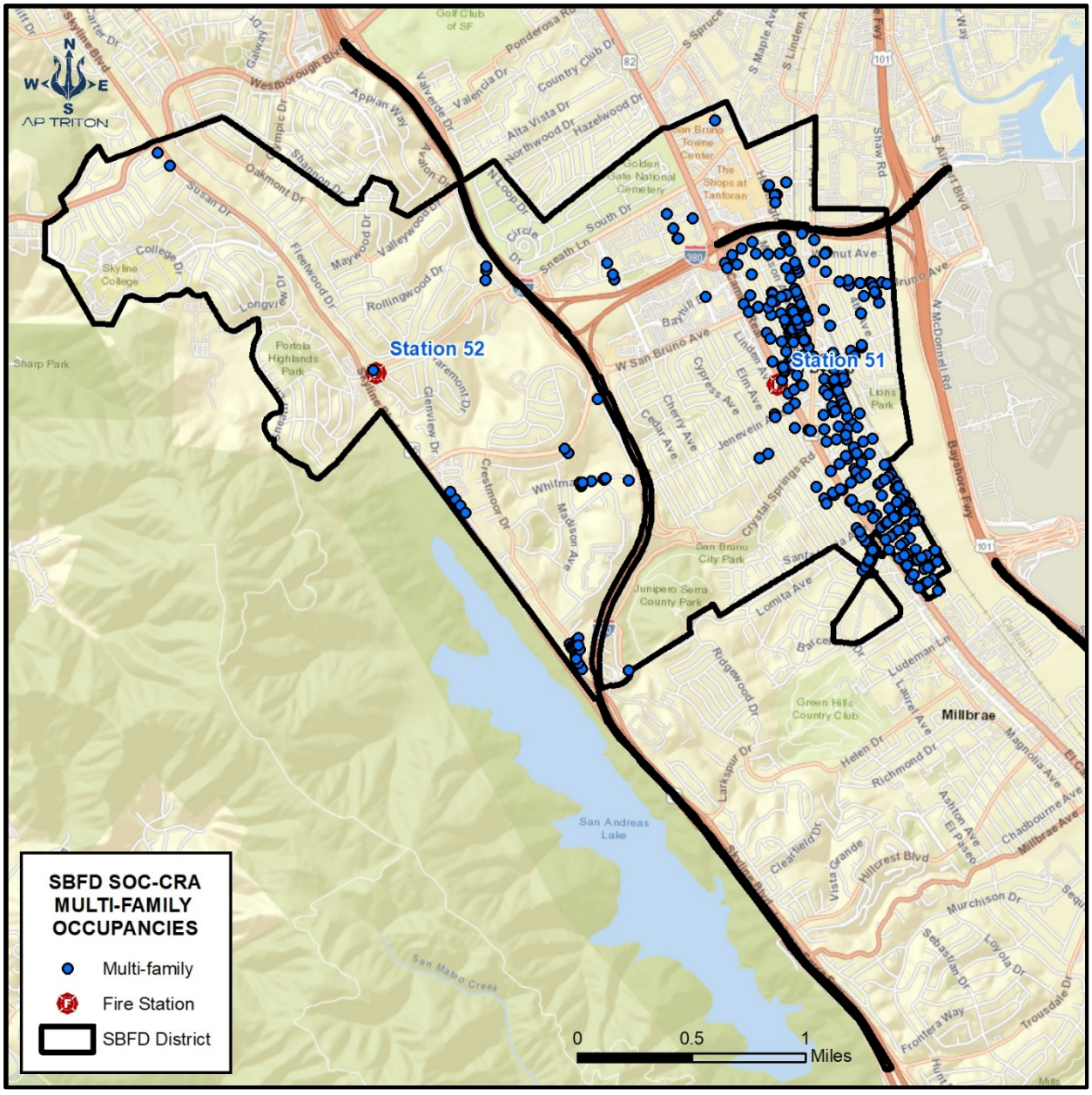
**Figure 60: San Bruno Institutional & Childcare Facilities**



**Residential Multifamily Occupancies**

Residential properties create a higher risk for occupants than most commercial buildings. Most fire fatalities occur in these locations and represent numerous risks, such as occupants with accessibility issues or buildings built without fire sprinkler protection. The common areas of these occupancies are required to be inspected annually to ensure fire code compliance. SBFD used the threshold of multifamily occupancies containing three units or more identified in the following figure.

**Figure 61: San Bruno Multifamily Occupancies**



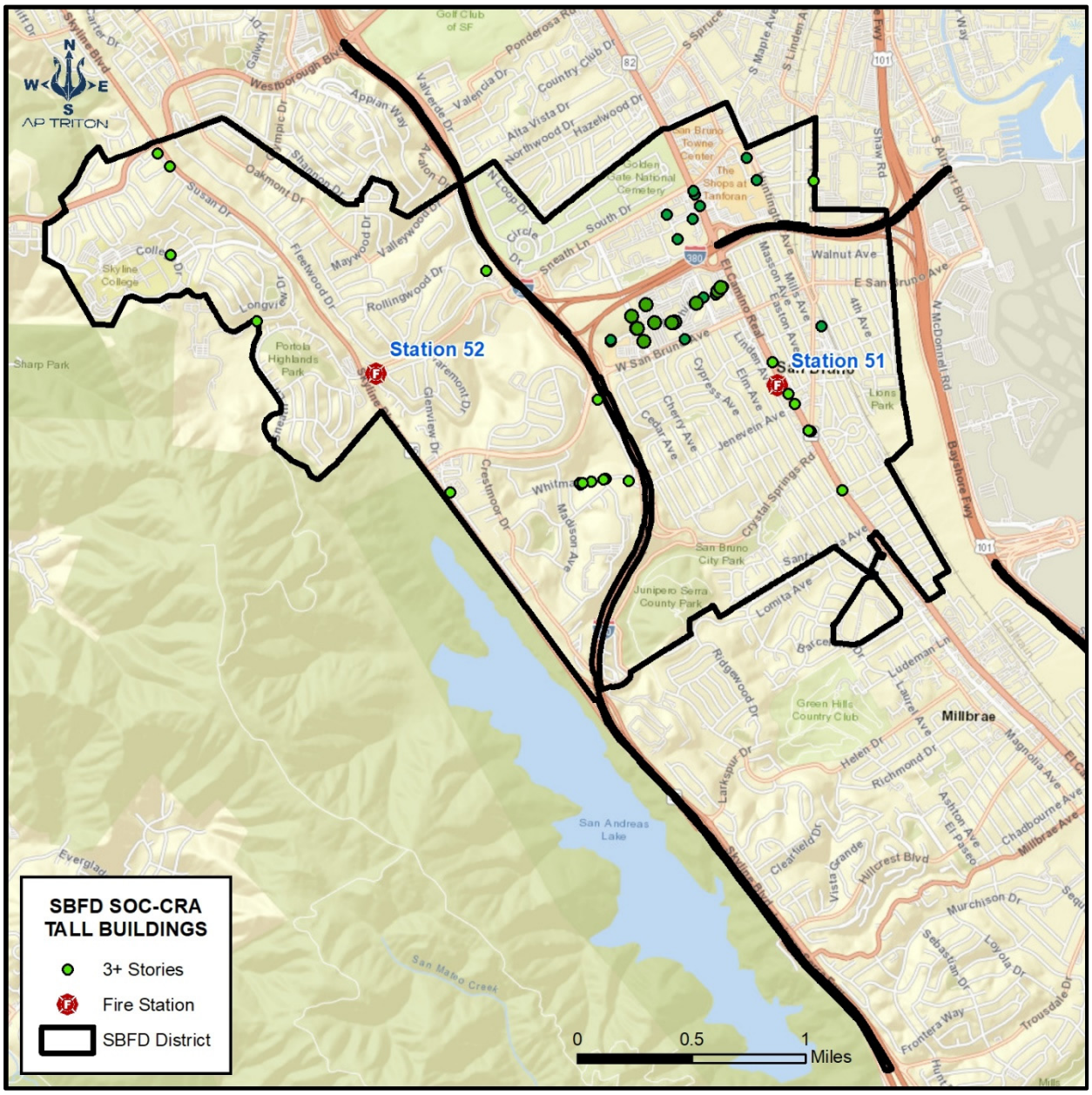
## Target Hazards

### Buildings Three or More Stories in Height

Structures three or more stories in height typically require an aerial apparatus with an elevated master stream. The Insurance Service Office reviews the coverage area for a ladder truck for all buildings within 2.5 miles.

A ladder truck may be necessary to access these higher buildings' upper floors or roofs since most ground ladders cannot reach these heights. The following figure provides the locations of all buildings three or more stories in height.

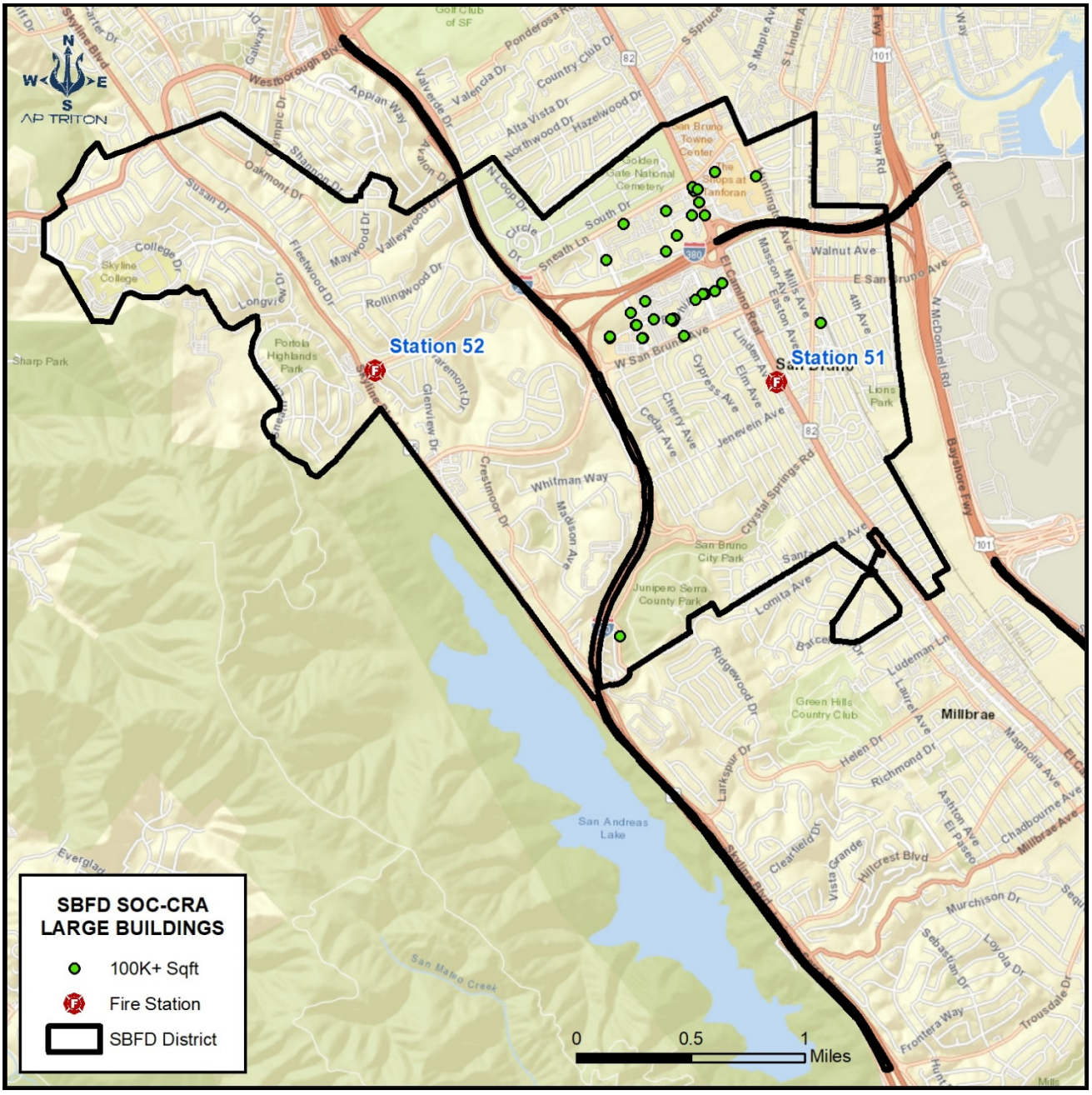
**Figure 62: San Bruno Tall Buildings Map**



**Large Square Footage Buildings**

Large buildings, such as warehouses, strip malls, and large "box" stores, need more significant volumes of water for firefighting and require more firefighters to advance hose lines long distances into the building. Although the number of large square footage buildings is low, the fire flow may be more significant for smaller buildings because of construction type, distance to exposures, and lack of built-in fire protection systems such as fire sprinklers. The following figure is based on data from ISO and shows the locations for buildings 100,000 square feet and larger.

**Figure 63: San Bruno Large Buildings**



**Large Fire-Flow Occupancies**

Occupancies can be classified according to their risk level. Risk factors that classify occupancies as low, medium, or high include the size of the building(s), construction type, the presence or absence of fire suppression features such as sprinklers and standpipes, the needed fire flow, the risk to life, the presence of chemicals or hazardous processes, and the amount of water available relating to the required fire flow.

The Insurance Services Office developed the Batch Report that lists the needed fire flow (NFF) for most commercial occupancies in SBFD. The NFF formula was developed based on a review of large-loss fires by ISO that included the construction and occupancy type, area of the building, and exposures.

# Critical Infrastructure

## Energy & Pipelines

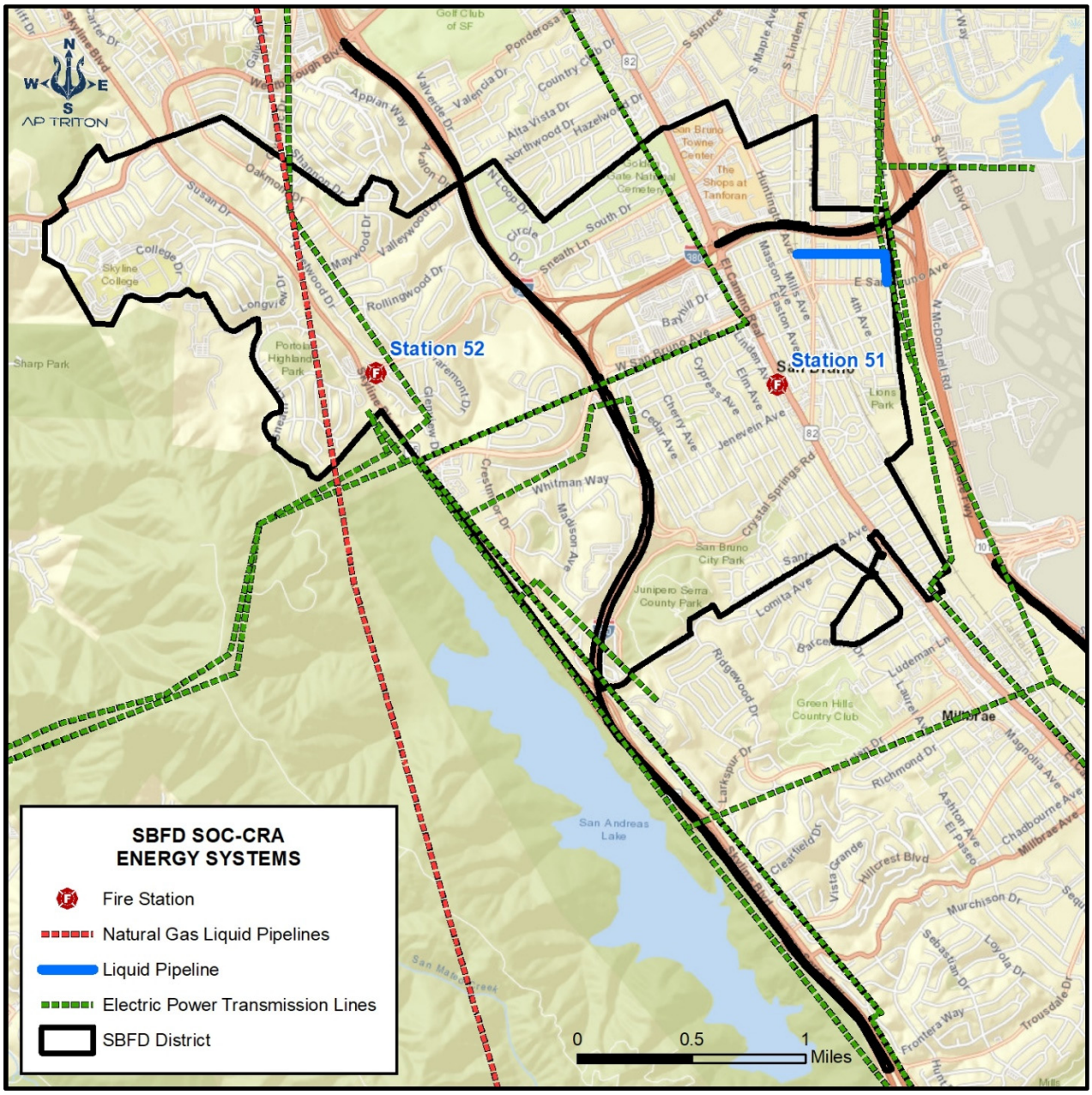
The use of electrical power is required for many day-to-day activities. The need for electricity requires lines throughout the service area and can be broken down into a distribution network. The highest voltage lines in SBFD are 66 kV, 230 kV, and 130 kV, all owned and operated by Pacific Gas & Electric. The two major natural gas transmission lines travel along Interstate 280 and Highway 35, and the other line travels along Highway 101. There was an additional note of a hazardous liquids pipeline located from the train tracks down Walnut Street to the corner of 7th Avenue and San Bruno Avenue East.

PG&E may implement Public Safety Power Shutoffs when wildfire dangers exist to prevent a fire from igniting from power lines. These shutoffs are normally temporary. PG&E provides alerts for customers before the power is shut off, but the customer must sign up for text, phone messages, or email notifications.[12] If these shutoffs occur, SBFD must be prepared if its stations are impacted or understand how the community may be affected.

The City of San Bruno was the site of a pipeline explosion that occurred on September 9, 2010, when a 30-inch diameter steel natural gas pipeline owned by PG&E exploded into flames in the Crestmoor residential neighborhood near Station 52.

The following figure includes the significant natural gas pipeline, liquid pipeline, and electrical power transmission lines in San Bruno. It identifies transmission lines only and not smaller distribution lines.

Figure 64: San Bruno Energy Systems




## Transportation Network

Most of the transportation network consists of collector streets fed by residential roads throughout SBFD. These roads provide interconnectivity for emergency responders, but some no-outlet roads could impact response if the roads are impassable.

Traffic signal preemption allows responding units to modify the signal plan and change the light to green to allow safe and quick passage through a controlled intersection. These systems can reduce the number of vehicle crashes with apparatus or between private vehicles. All San Bruno fire apparatus contain signal preemption "Opticom" devices. However, not all intersections in San Bruno contain signal preemption control equipment.

The main highways transverse SBFD's jurisdiction are US Hwy 35, US Hwy 101, and Route 82. There are also two interstates in San Bruno—Interstate 280 and Interstate 380. According to *Caltrans,* the 2018 peak monthly average volume for passenger vehicles at the Interstate 280 junction with Route 35 North was approximately 120,800, and more than 532 were trucks.[13] It is unknown how many of these trucks transport hazardous materials. Based on accident data, the SBFD experiences more auto accidents in March, May, September, and December on Wednesday afternoons than any other day. This data also indicates that almost all fatal auto accidents have occurred on Interstate 380 and Sneath Lane in San Bruno.

**Figure 65: San Bruno Average Daily Traffic Counts**

| Location | Average Annual Daily Traffic–Vehicles | Average Annual Daily Traffic–Trucks |
|---|---|---|
| RTE. 280 JCT. RTE 35 North | 120,800 | 532 |
| JCT. RTE 280 and Crystal Springs Road | 3,400 | 44 |
| San Bruno Avenue and Juniper Serra Fwy. | 116,000 | 2,749 |
| RTE. 380 JCT. RTE 82 | 50,900 | 743 |
| Taylor and San Mateo Ave. | 35,500 | 554 |

**Rail Lines/Caltrain/BART**

The City of San Bruno has high-speed rail lines, including Caltrain and Bay Area Rapid Transit (BART), which pose a significant risk to the community. The San Francisco & San Jose Railroad was completed on January 16, 1864, and the railroad known today as "Caltrain" is the oldest in the West, with continuous passenger service passing through SBFD's jurisdiction. Rail crossing overpasses include Angus Avenue, San Mateo Avenue, and San Bruno Avenue West. Scott Street has a Caltrain rail crossing in which numerous fatal accidents have been documented. There is a San Bruno station for passengers located at 833 San Mateo Avenue.

Caltrain has a passenger train that runs every hour through San Bruno. On March 10, 2022, Caltrain had an incident that involved an investigation by the National Transportation Safety Board (NTSB). At about 10:33 AM, a southbound Caltrain struck three stationary on-track maintenance vehicles at milepost 11.6 on main track 2 near San Bruno. The locomotive derailed, and all three maintenance vehicles were destroyed. Fuel from the hi-rail maintenance vehicles released and fueled a fire that spread to one of the passenger rail cars. Fourteen people reported injuries: 12 passengers, 1 train crew member, and 1 maintenance contractor. Seven were transported to local hospitals, and seven were treated and released at the scene. Caltrain and its contractors estimated property damages to be almost $1.4 million.

### Water Supply

A reliable public water system that provides adequate volume, pressure, and flow duration close to all buildings is critical in mitigating a community's fire risk.

The City of San Bruno owns, operates, and maintains the potable water distribution system that serves drinking water to residential, commercial, institutional, and industrial establishments within its service area. Water supplied through the City's distribution system is a combination of purchased water and groundwater pumped from the City's groundwater supply wells.

The City's water supply comes from three different sources surface water purchased from San Francisco Public Utilities Commission (SFPUC), surface water purchased from North Coast County Water District (NCCWD), and groundwater extracted from the Westside Groundwater Basin through the City's four local well.

The City of San Bruno Water Distribution system consists of four active groundwater wells, eight booster pump stations, 13 pressure zones, 31 pressure regulating stations, 985 fire hydrants, approximately 116 miles of water main ranging from 2 to 18 inches, and eight storage tanks with a total storage capacity of approximately 8.3 MG.

The 2021 City of San Bruno Water System Master Plan identifies a significant need for new pipelines and regulating stations to address fire flow needs. The City's existing distribution system has adequate capacity and reliability for everyday operational needs. However, most of the system was built when less stringent fire flow standards were in effect. While the system is generally well reinforced and many areas meet current standards, there is a need for new distribution system infrastructure to improve capacity and fire flow.

## Communications

The ability to receive and transmit incident information requires an emergency communication center. All 911 calls are received by the County of San Mateo Public Safety Center (SMPSC). The county telecommunicators provide Emergency Dispatch services for both Fire and EMS responses.

SMPSC provides dispatching services utilizing shift personnel specifically assigned as Telecommunicators. The 911/Communications Center currently works 12-hour shifts and staffs more than 60 employees. SMPSC uses a Versaterm Public Safety computer-aided dispatch system to receive incident data and dispatch the appropriate unit.

The Public Safety Communications (PSC) is the ninth Emergency Communications Center in the State of California, the 97th in the world, to become an Accredited Dispatch Center of Excellence for providing medical priority dispatch services to those who call for emergency medical services. The Center's performance is closely monitored, and reports performance measures to the County Board of Supervisors bi-annually. Standards include processing high-priority service calls within established timeframes and customer satisfaction. The Center continually meets the call processing standards and rates over 99% in customer satisfaction.

In addition to these standards, PSC dispatch staff have job-related performance standards used during the performance evaluation process and compliance standards (95% or above) for Emergency Medical Dispatch. PSC continually exceeds the National Academy standards and Center of Excellence averages for EMD compliance (98%). PSC is the only Communications Center in the County to manage multi-discipline incidents (police, fire, and medical), resulting in overall efficiency, accuracy, and expedited service. Staff are allowed to cross-train on all radios (police, fire, and medical) or remain "specialists" in either Law or Fire/EMS dispatching.

## Government & Public Safety Facilities

Buildings that provide services for the public from local or other governmental units are considered essential facilities and should receive special attention. These facilities are for the public to receive community services, and fire department personnel should be familiar with the properties during an emergency. Pre-incident plans should be completed and updated annually, including their facilities.

# Comparison of Fire Risk in Other Communities

## Fire Loss

In 2020, fire departments responded to more than 1.4 million incidents in the United States that caused 3,500 civilian fire fatalities and over 15,200 civilian fire injuries. The property damage was estimated at more than $21.9 billion. The NFPA reported that 64% of the fire deaths occurred in one-or two-family dwellings. In addition, the report stated that $4.2 billion of property fire losses from wildland-urban interface incidents occurred in California.

A review of fire loss data from SBFD revealed an increase from the two previous years by more than 50%. This is an example of how fire loss can vary yearly based on the number of fires occurring annually. In 2018, the fire loss per capita was $46.25, and $45.79 in 2019. The following figure compares the number of fires per 1,000 population and property loss per capita.

**Figure 66: SBFD 2020 Fires and Fire Loss and Property Damage**

| Community Size 25,000–49,999 | Fires per 1,000 Population | Property Loss per Capita |
|---|---|---|
| San Bruno Fire Department | 3.5 | $87.32 |
| United States | 2.9 | $66.62* |

*This amount is for the entire U.S. NFPA no longer provides loss by community size.

## Intentionally Set Fires

Intentionally set fires, in many cases, are considered arson and 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.*"[14] SBFD provides fire investigative services to determine the cause of a fire. These investigators receive bi-annual training and have established a juvenile firesetter intervention program. All evidence collected during an investigation is stored in the San Bruno Police Department's Evidence Room. In addition, the department's records management system tracks all fire investigations. The following figure lists the number of intentionally set fires between 2018–2020.

Figure 67: Intentionally Set Fires

| Year | Intentionally Set Fires |
|---|---|
| 2018 | 0 |
| 2019 | 3 |
| 2020 | 2 |

## Insurance Services Office

The Insurance Services Office, Inc. (ISO©) is an independent organization that collects and analyzes data from fire departments in communities throughout the United States to determine rates for fire insurance. According to their report, the ISO's Public Protection Classification program, or PPC, "is a proven and reliable predictor of future fire losses." Commercial property insurance rates are expected to be less in areas with a lower (better) ISO PPC Class rating.

The ISO Fire Suppression Rating Schedule (FSRS) measures four 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 *Community Risk Reduction* (max 5.5 points), for a maximum possible total of 105.5 points. ISO then assigns a grade using a scale of 1 to 10. Class 1 represents the highest degree of fire protection, and Class 10 designates a fire suppression program that does not meet the ISO minimum criteria.

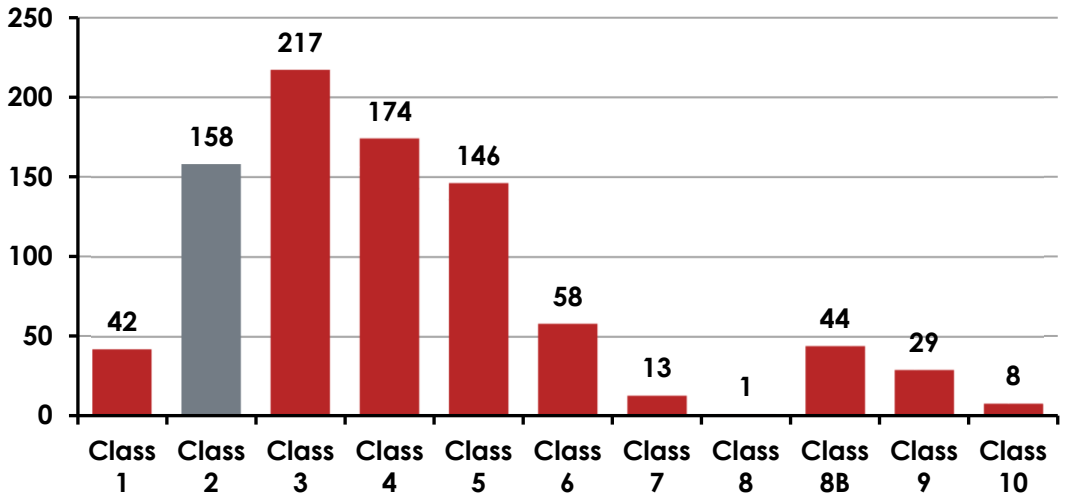
***In 2017, the SBFD was assigned an ISO classification of 2***. SBFD is one of 158 communities out of 890 surveyed nationwide to achieve the rating, as shown in the following figure. SBFD received 87.74 points which translate to its assigned classification. The following figure provides a review of the Public Protection Classification Summary Report revealed:

Figure 68: ISO Earned & Available Credits

| ISO Feature | Earned Credit | Available Credit |
|---|---|---|
| Emergency Communications | 9.20 | 10 |
| Fire Department | 39.83 | 50 |
| Water Supply | 36.43 | 40 |
| Divergence | -2.28 | 0 |
| Community Risk Reduction | 4.56 | 5.5 |
| **Totals:** | **87.74** | **105.5** |

The following figure provides an overview of ISO classification in California and highlights Class 2, where SBFD is grouped.

Figure 69: Comparison of ISO Class Rating (California)



# Section III:
# STANDARDS OF COVER

# Historical Response Workload

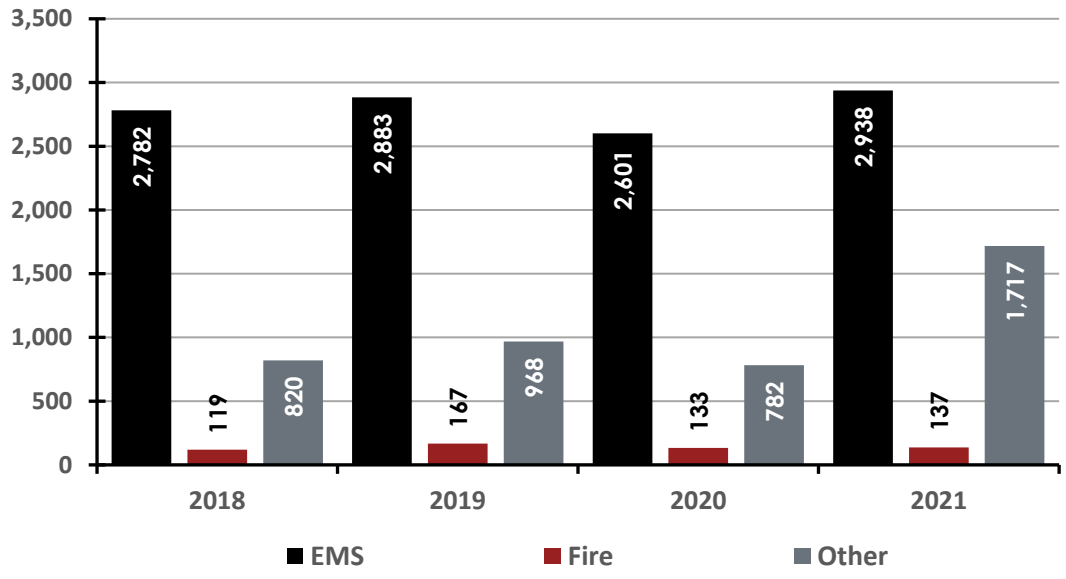
In analyzing the service delivery and performance of SBFD, the study team requested incident and unit response data for the calendar years of 2018 through June 30, 2021. The department provided data from its records management system (RMS) and dispatch center.

## Service Demand

The following figure shows the response workload by general type for the last four full calendar years. The total response workload has increased by 28.7% over the four full-year periods. Interestingly, mainly due to "other" category call types that rose over the period. Other call types include false alarms, lockouts, public assists, service calls, hazardous conditions, and out-of-district responses.

EMS still shared the vast majority of the total volume and has increased by 5.6% overall and was increasing before the pandemic effects of less traffic and less personal interaction affected a decrease in 2020. All other types of calls had increased overall.

Figure 70: SBFD Service Demand (2018–2021)




SBFD responded to over 13,000 incidents over four years. The following figure shows incidents by type. Emergency medical responses and motor vehicle collisions were the most common incident types, comprising 62% of the total responses.

**Figure 71: Responses by Incident Type**

| Incident Type | Percent of Total* |
|---|---|
| EMS | 62% |
| Good Intent | 12% |
| Service Call | 9% |
| Hazard | 7% |
| Alarm | 7% |
| Other Fire | 1% |
| Trash Fire | 1% |
| Structure Fire | < 1% |
| Wildfire | < 1% |
| Vehicle Fire | < 1% |
| Rescue | < 1% |
| Special | < 1% |
| Weather | < 1% |
| Vehicle Fire | < 1% |

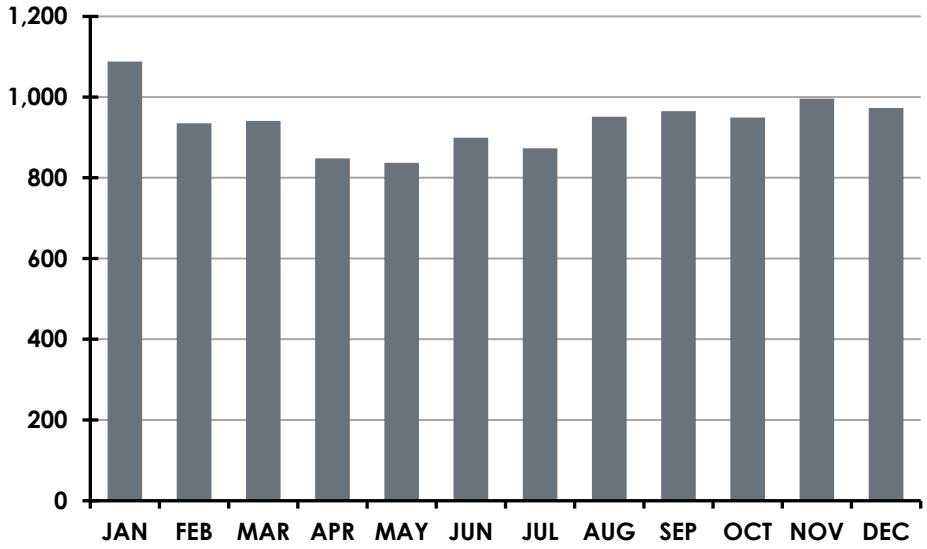
*Percentages rounded to the nearest integer.

**Temporal Analysis**

This analysis shows how responses change in volume over various measures of time. For example, the following figure shows the change in volume over the months during the study period, indicating seasonality in the response pattern.

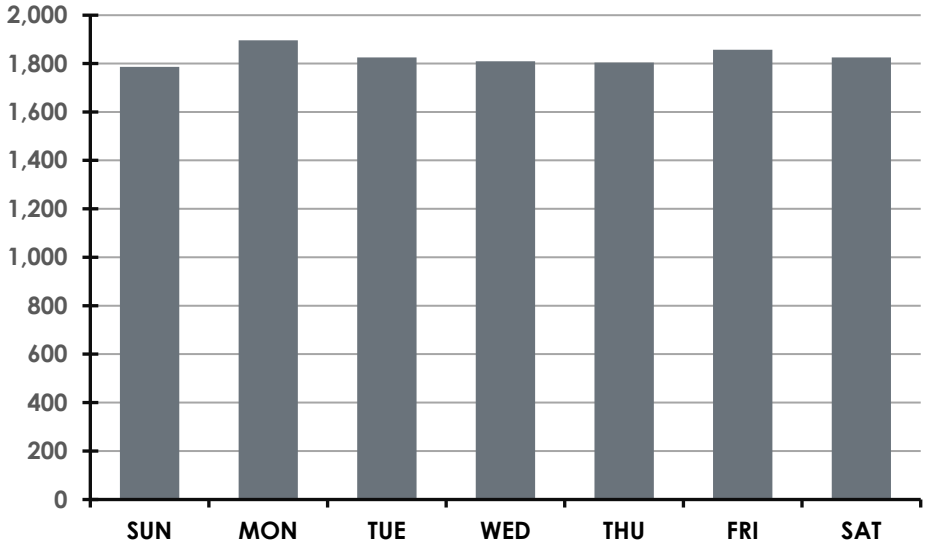
The busiest months for SBFD have been November through January, after which total monthly volume generally declines until June, then rises.

Figure 72: Monthly Response Workload (2018–2021)




Next, the response workload is shown by the day of the week. Mondays and Fridays tend to have slightly more responses.

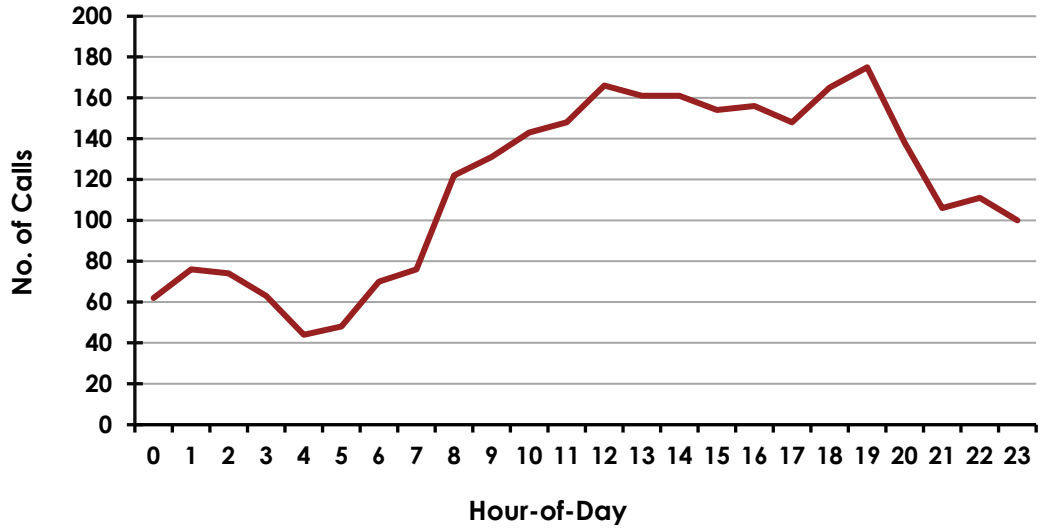
Figure 73: Daily Response Workload (2018–2021)



Response workload by the hour typically shows fire department activity higher during daytime hours, as in the case of SBFD. Response workload correlates with the time of day in which people are most active. In San Bruno, the department's activity begins to increase from 4:00 to 5:00 a.m. until it reaches its first peak at midnight. This level gradually decreases until the 6:00 p.m. hour, when it begins to decrease more rapidly. For some reason, there is a tendency for an increase in workload during the hour of 1900.

The following figure represents the SBFD hourly workload for incidents during the four-year period of 2018–2021.

**Figure 74: SBFD Hourly Workload**

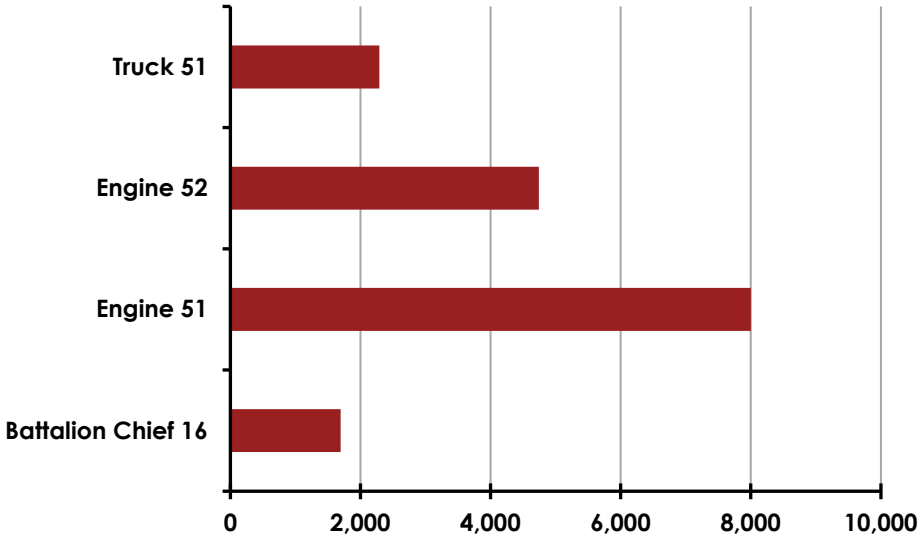



**Response Unit Workload**

The response workload for each SBFD apparatus is shown in the following figure. Many incidents, like structure fires and severe motor vehicle collisions, require more than one unit to respond. Engine 51 is the busiest unit.

The following figure represents the SBFD unit workload for all apparatus for incidents during the period of 2018–2021.

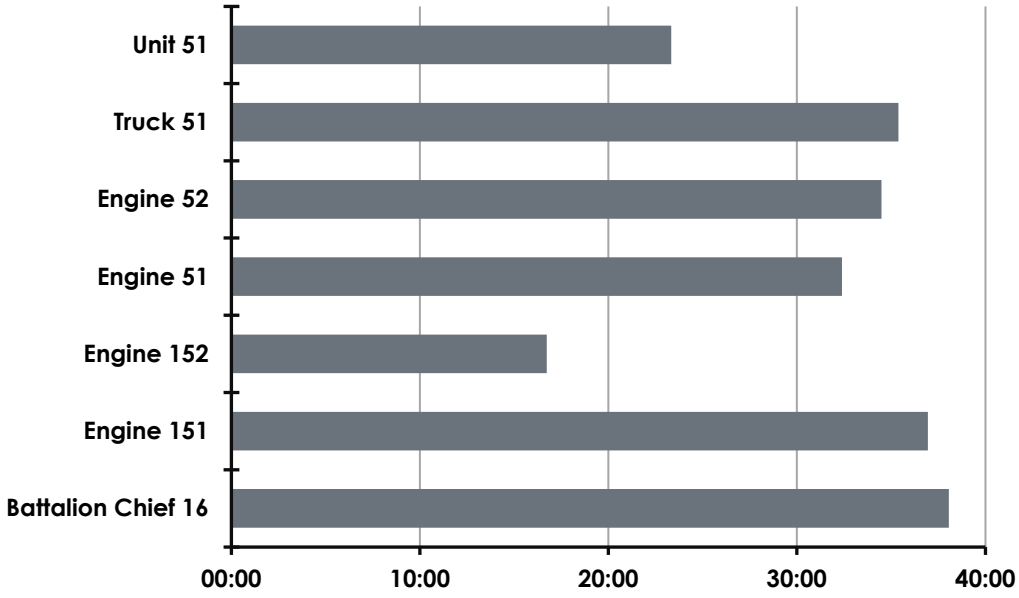
**Figure 75: SBFD Unit Workload (Incidents) by Apparatus**




Due to low volumes, the workload for Engines 151, 152, 2607, and Unit 51 were excluded from the preceding figure. As a result, these apparatus had a combined service demand of 48 incidents for the same period.

The amount of time spent on the scene can affect firefighters' workload and the availability of resources for the next or concurrent incident. The following figure details the average time each unit was committed to a scene type. Understandably for fire incidents, the amount of time committed to the scene by a unit is longer than for the other call types.

Figure 76: Average Time on Scene by SBFD Apparatus

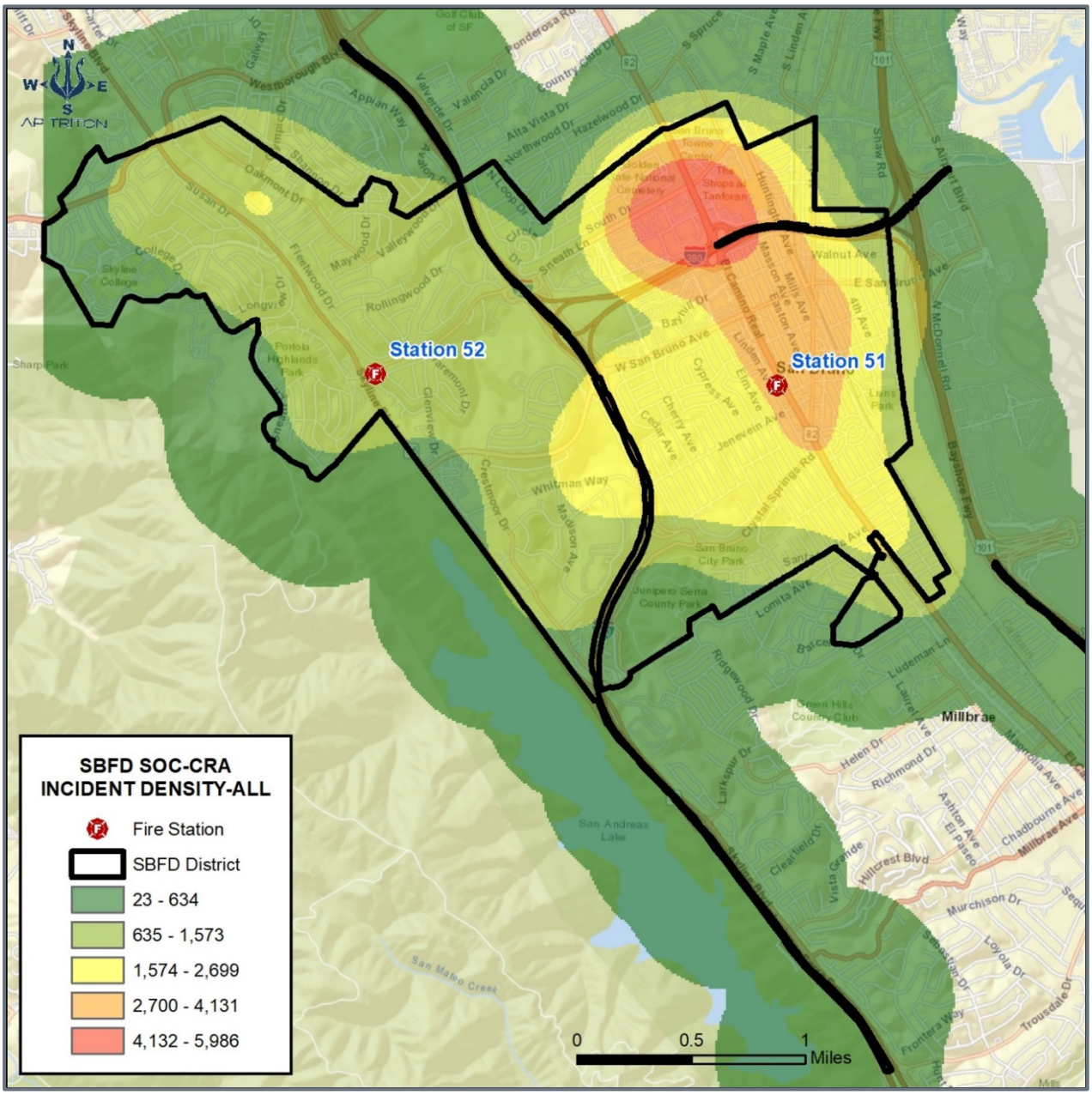



As shown, the Battalion Chief spent the most amount of time on scene. The remaining frontline units spend a similar amount of time on the scene.

**Spatial Analysis**

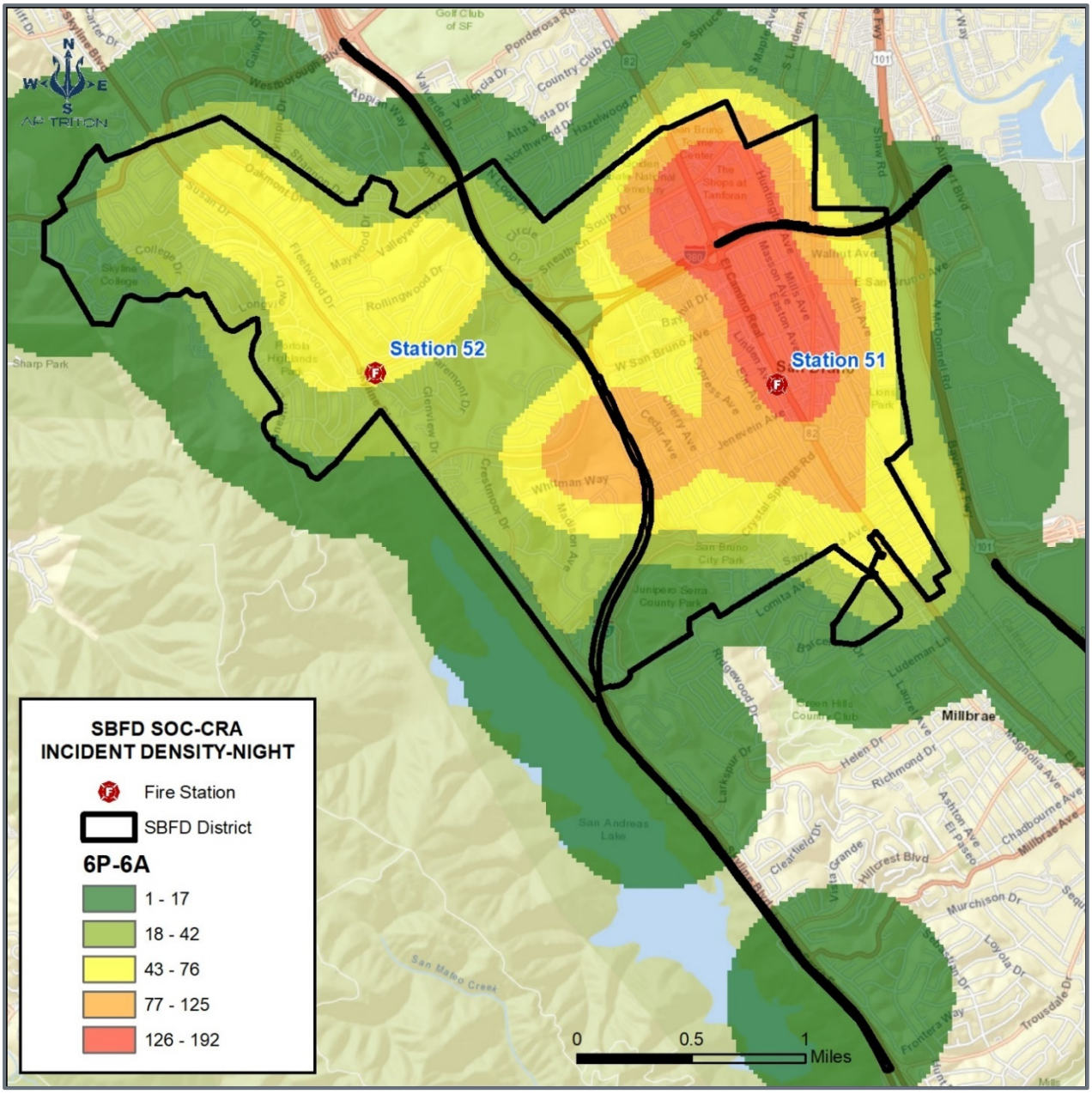
Triton also examined the response workload geographically. As a result, the distribution of heavier service demand can be evaluated against the location of the fire station. The following figure shows the density of response workload during the study period.

**Figure 77: SBFD All Incident Demand Density**



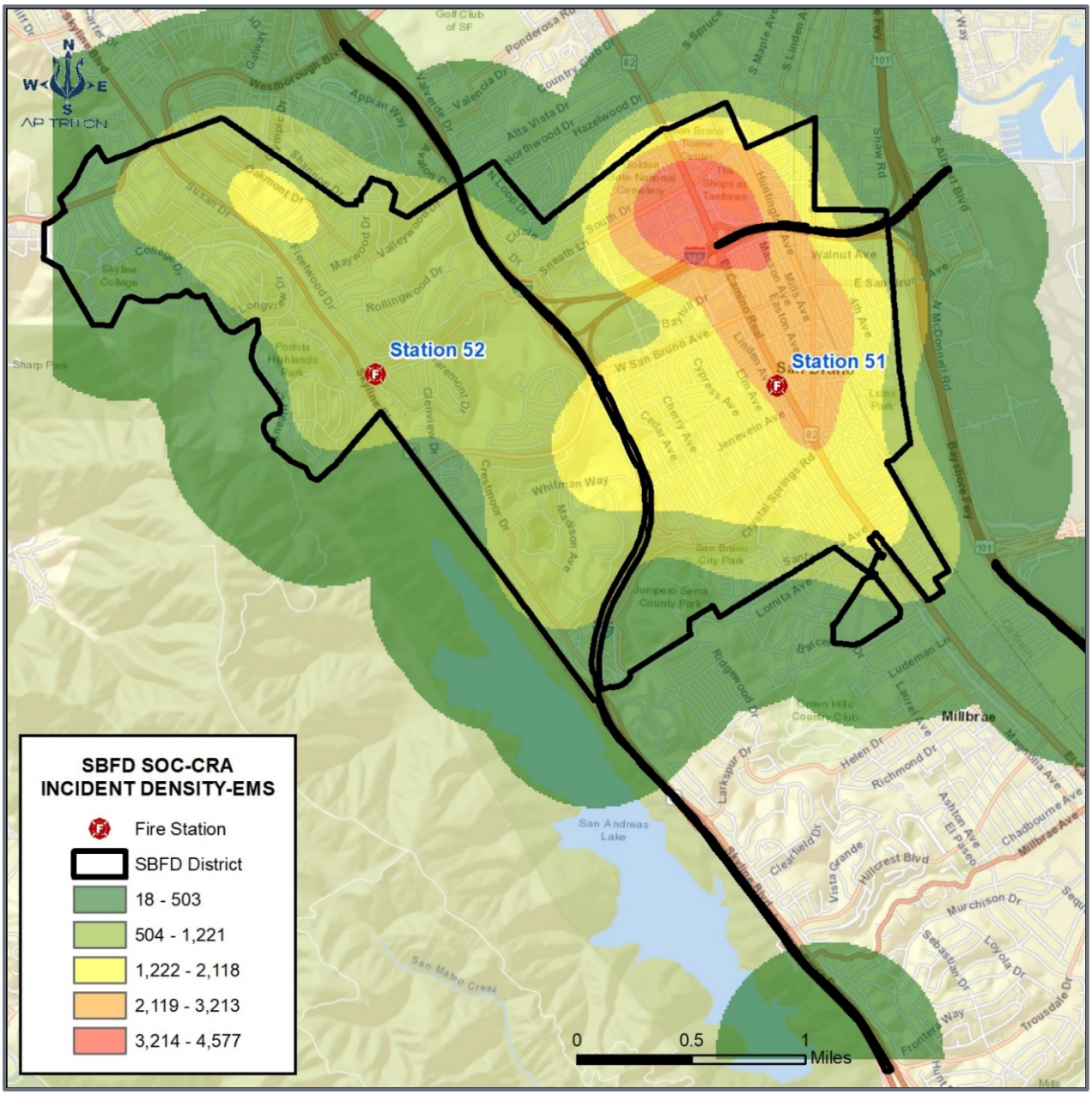

The previous figure reflected the predominance of emergency medical incidents within the dataset. Note that most demand is located near station 51 and to its North. During the day, the pattern closely mimics the overall demand. As noted previously, the workload during the evening is higher as it increases throughout the day. Based on the SBFD, all incident demand density, both Stations 51 and 52 are in adequate locations but could be re-located to nearby locations to further optimize overall better coverage for San Bruno and potentially utilize more appropriate building sites.

**Figure 78: SBFD All Incident Density—Night Hours**



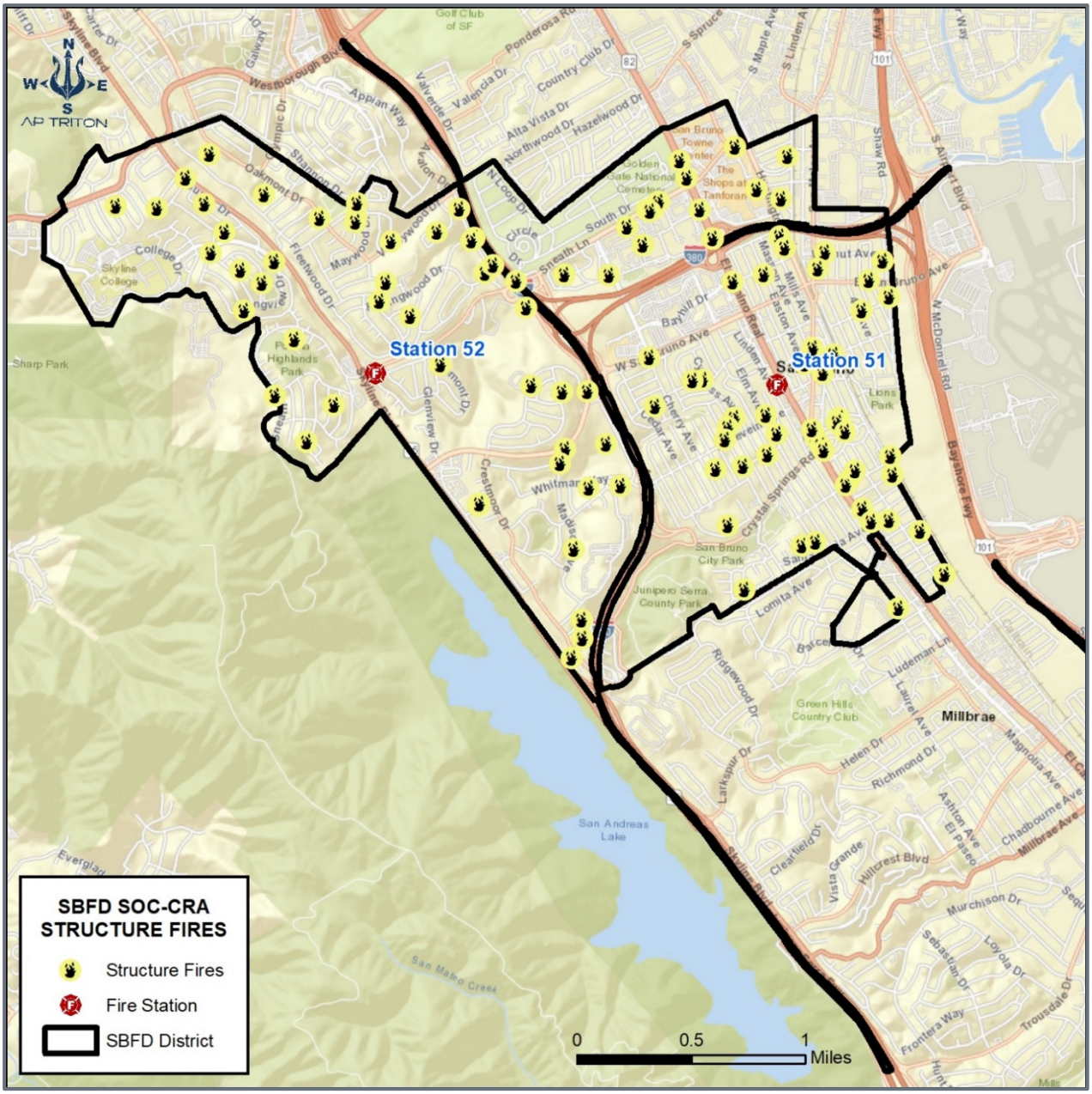
Because of the predominance of EMS-type incidents in the workload data, this figure mimics the map of overall demand density.

**Figure 79: SBFD EMS Incident Demand**



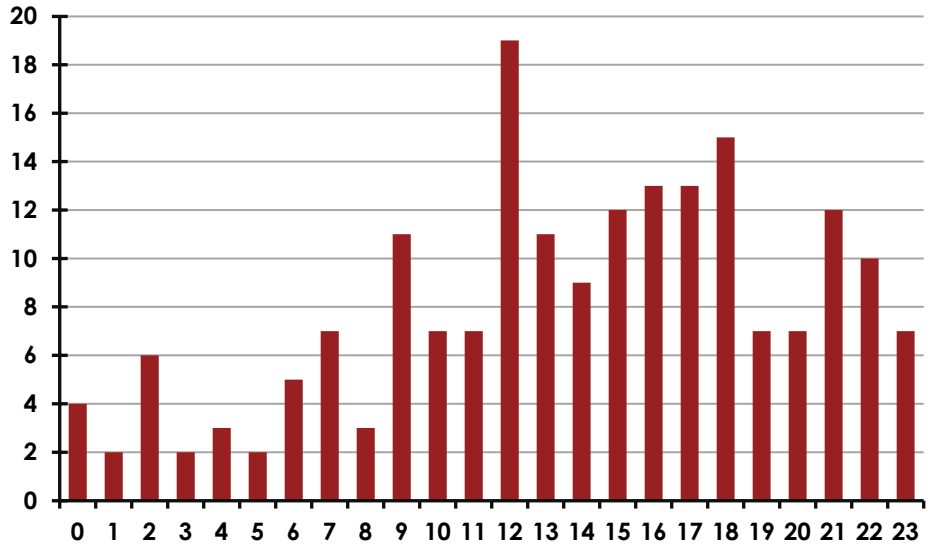
The next figure shows the level of structural fire events within the city.

**Figure 80: SBFD Structure Fire Locations**




The preceding figure reveals that most structure fires occur during the afternoon and early evening hours, as shown in the next figure.

Figure 81: SBFD Structure Fires by Hour of Day




The following figure details the addresses to which SBFD responded most frequently.

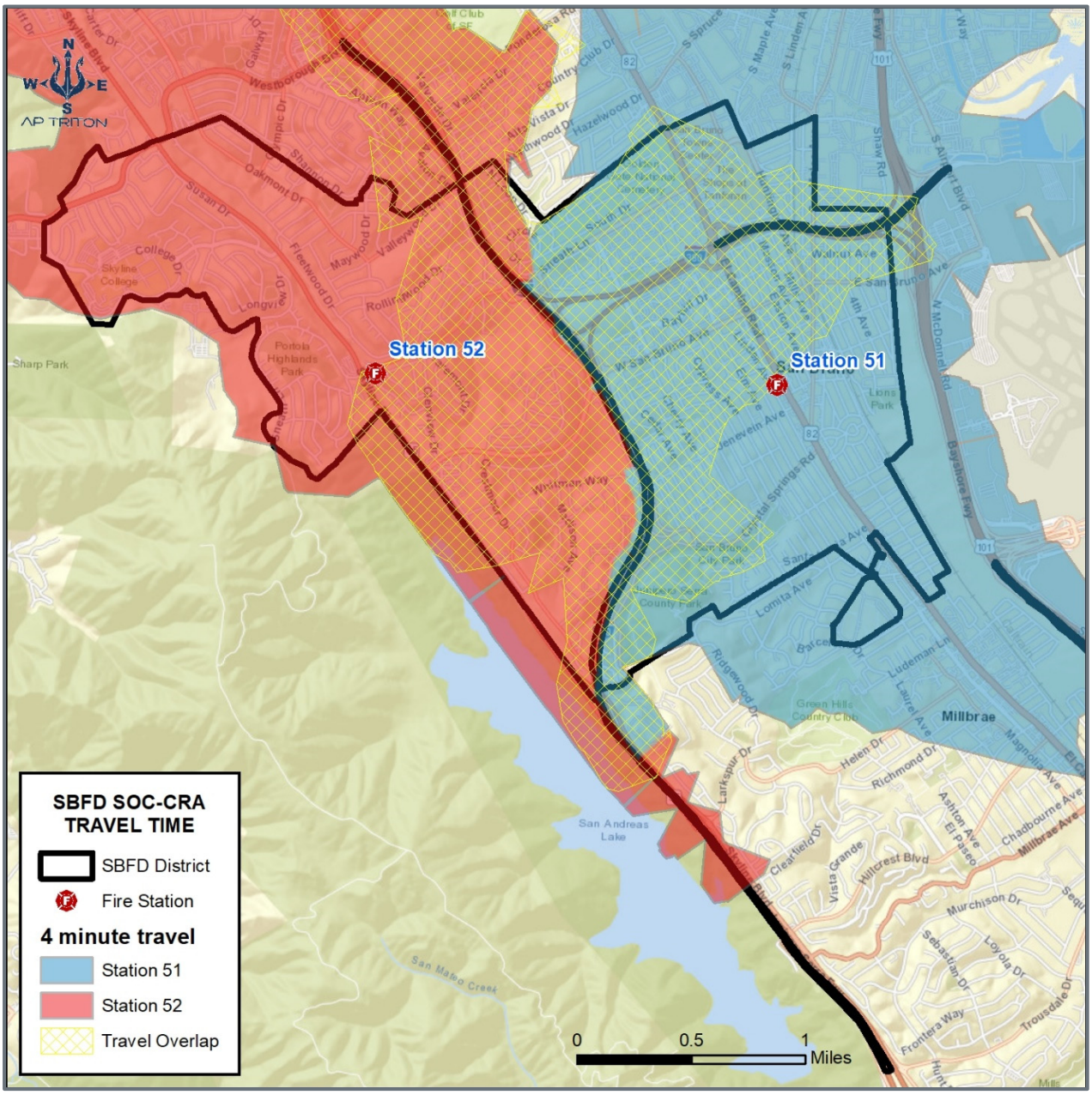
Figure 82: Frequent Response Addresses

| Location | Facility | No. of Calls |
|---|---|---|
| 1150 EL CAMINO REAL, SNB | The Shops at Tanforan | 359 |
| 1101 NATIONAL AVE, SNB | Village at the Crossing | 309 |
| 1151 HUNTINGTON AVE, SNB | BART Station | 203 |
| 1177 HUNTINGTON AVE, SNB | San Bruno Police Dept | 144 |
| 3300 COLLEGE DR, SNB | | 79 |
| 701 SHELTER CREEK LA, SNB | Shelter Creek Condos | 68 |
| 659 HUNTINGTON AVE, SNB | Artichoke Joe's Casino | 65 |
| SB 101 NO MILLBRAE, SFO | | 63 |

## Resource Distribution

SBFD operates out of two fire stations. The following figure illustrates the street sections that can be reached from each station within 4 minutes or less of travel time. The data are based on posted road speeds modified to account for turning, stops, and acceleration. They do not consider congestion, construction, weather, darkness, and other non-controllable factors.

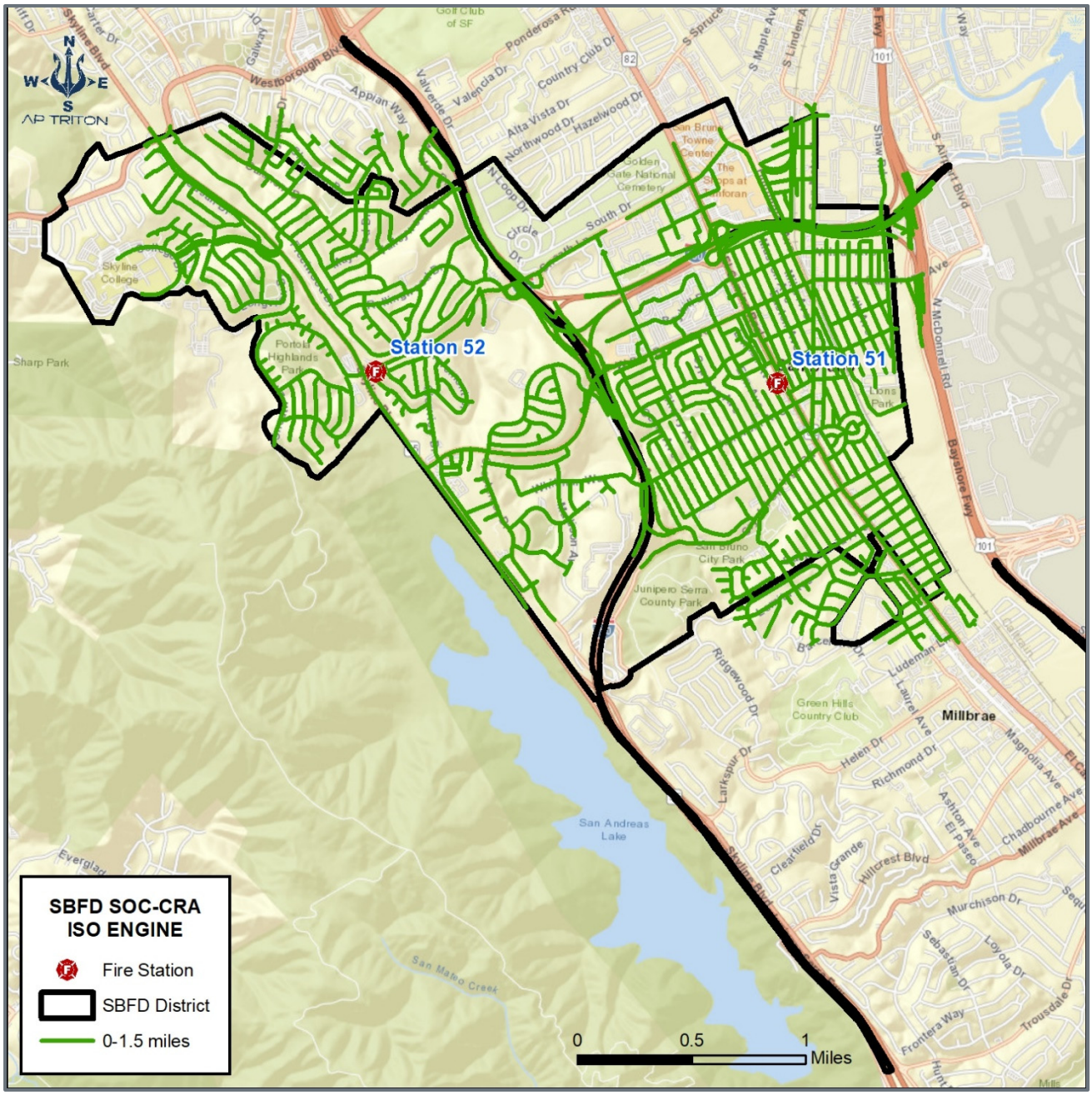
**Figure 83: SBFD Travel Time Overlap (0–4 Minutes)**




The overall coverage of fire incident demand is 99%, presuming engines are available and responding from their assigned stations. The coverage of EMS incidents was 99%.

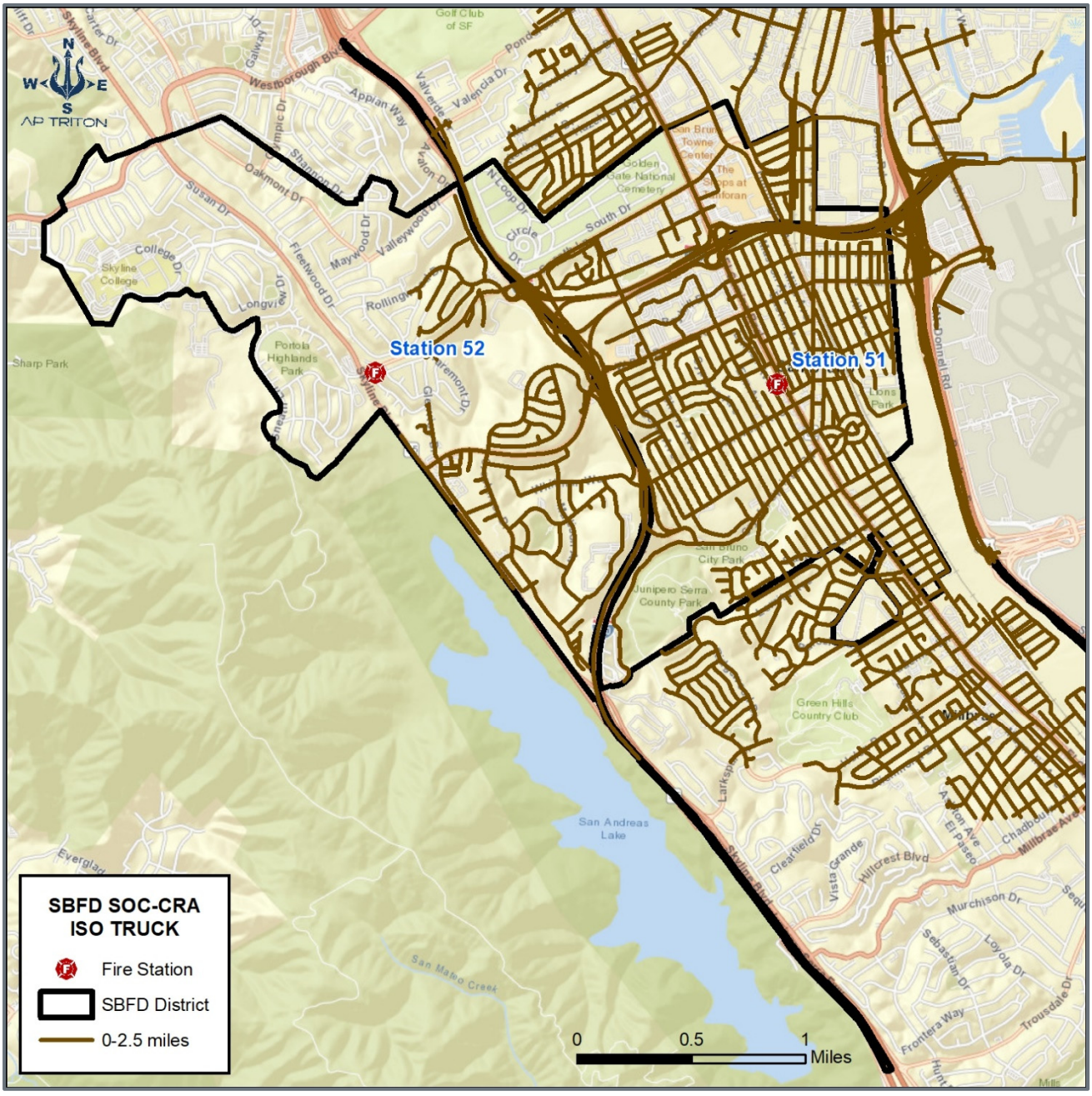
The Insurance Services Office (ISO) is a major rating bureau that assists insurers in setting insurance prices. Their evaluation of the fire department includes the station location and the distance from which a property is located. For engines, better rates are achieved when located within 1.5 miles of a fire station. The following image shows the ISO 1.5-mile engine distance for SBFD.

**Figure 84: ISO1.5-Mile Engine Distance from SBFD Stations**



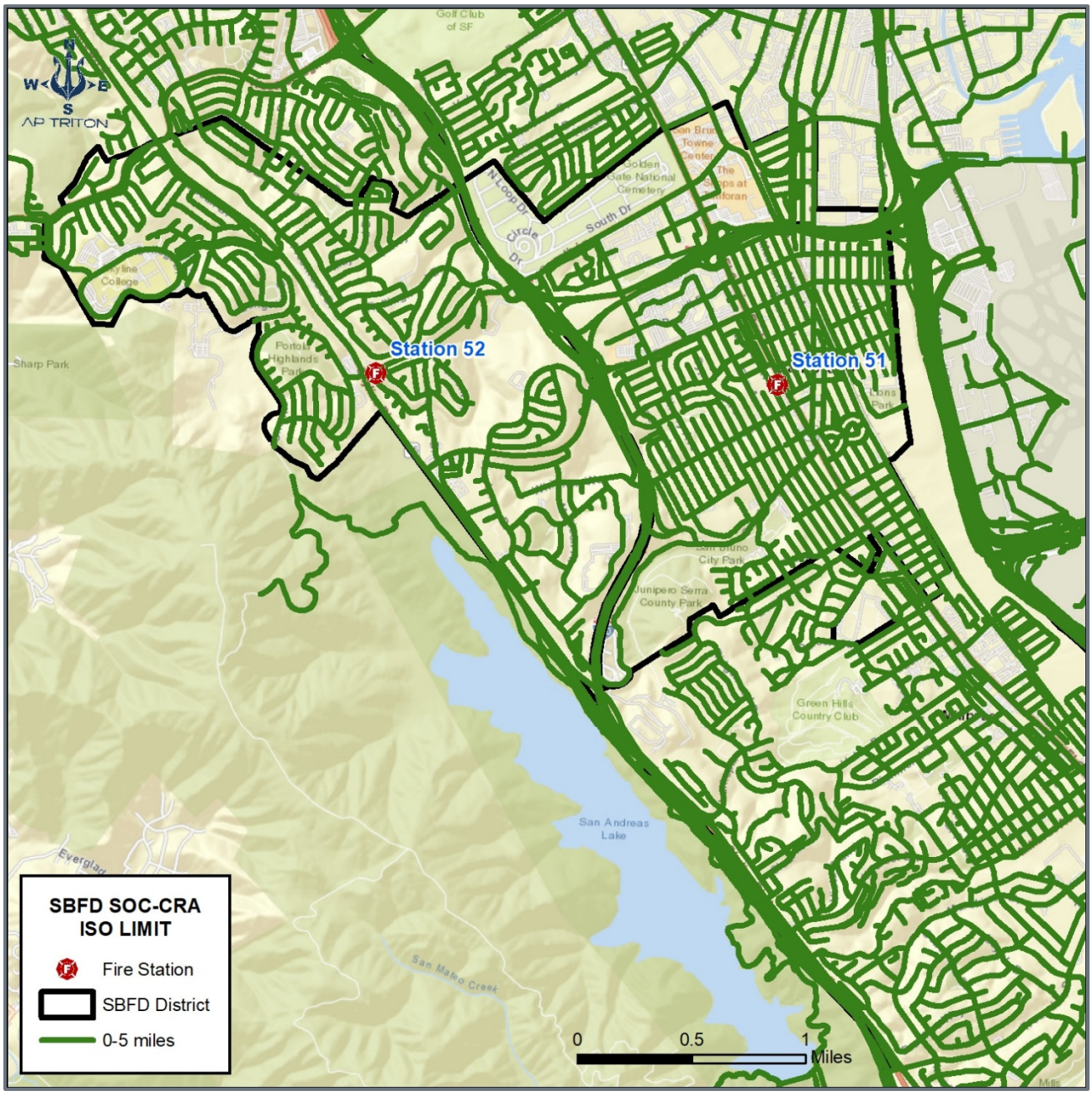
The ISO requirement for ladder truck apparatus is less severe since they should be positioned near multistory or large square footage buildings within a 2.5-mile distance. The figure that follows shows the 2.5-mile distances for SBFD Truck 51.

**Figure 85: ISO5-Mile Truck Distance from SBFD Stations**



ISO's worst rates are reserved for properties beyond 5 miles from a fire station which is not an issue for the SBFD area, as shown in the following figure.

**Figure 86: ISO Distance Limit (0–5 miles)**



## 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 or property. The ERF is specific to each type of incident and is based on the critical tasks to be performed.

The response time goal for delivering the initial full ERF to a building fire is within 8 minutes, 90% of the time for Low and Medium Risk Hazard structures, and 10 minutes, 10 seconds, 90% of the time for High-Risk Hazard and High-Rise structures. SBFD has defined the minimum full effective response force for Low and Medium Risk Hazard building fires as five fire engines, one Ladder Truck, and two Battalion Chiefs for a total of 20 firefighters, including resources from neighboring fire agencies.

For high-rise and commercial building fires, the defined minimum full ERF is increased to add additional engines, ladders, and Battalion Chiefs to 33 firefighters due to the identified need for more firefighters. While several units are dispatched when a fire is reported, once the first unit arrives and the scene is assessed, responding units may be canceled en route.

## Impact of Automatic Aid & Mutual Aid

SBFD relies on automatic and mutual aid from adjacent agencies during a structure fire and other incidents when needed. These are very important relationships that enable the department to ensure it has sufficient staff and apparatus to fight the fire. The following list catalogs the adjacent mutual aid agencies.

- Menlo Park Fire Protection District
- Woodside Fire Protection District
- Redwood City Fire Department
- San Carlos Fire Department
- San Mateo Consolidated Fire Department
- Central County Fire Department
- Coastside Fire Protection District
- Kings Mountain Fire Brigade
- South San Francisco Fire Department
- North County Fire Authority

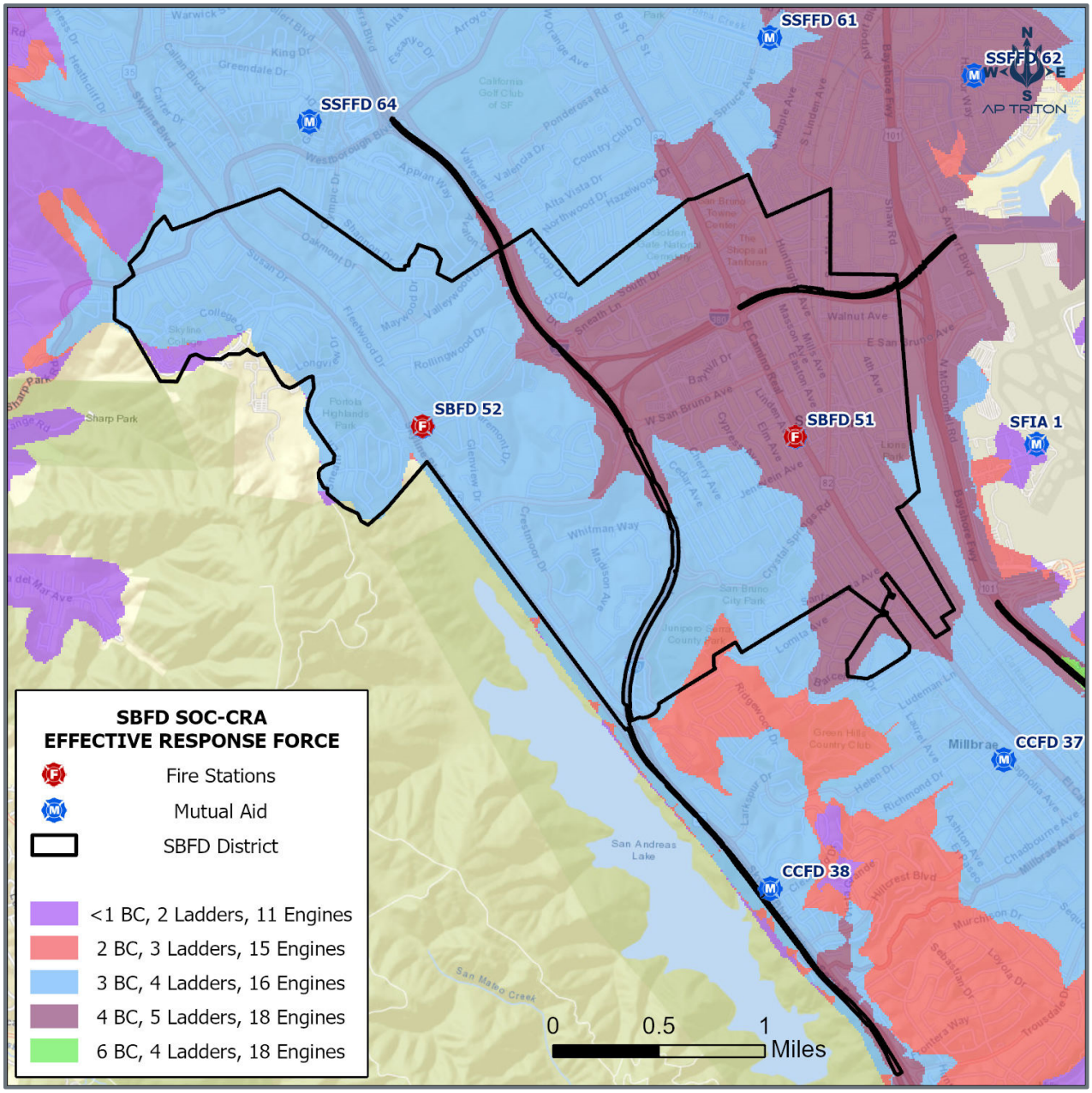
- Colma Fire Protection District
- La Honda Fire Brigade
- California Department of Forestry & Fire Protection

SBFD reciprocates by providing aid to its adjacent agencies when requested. According to SBFD data, 11% of the incidents were recorded as providing mutual aid. The most mutual aid was given to a Millbrae postal address, with South San Francisco the second most.

When a structure fire is reported, the reality may be something else, perhaps less threatening. As a result, an engine often arrives and handles the fire threat, canceling the other units dispatched. According to the RMS data, no structure fire response achieved the effective apparatus and staffing firefighting force compared to the department's alarm assignment protocol.

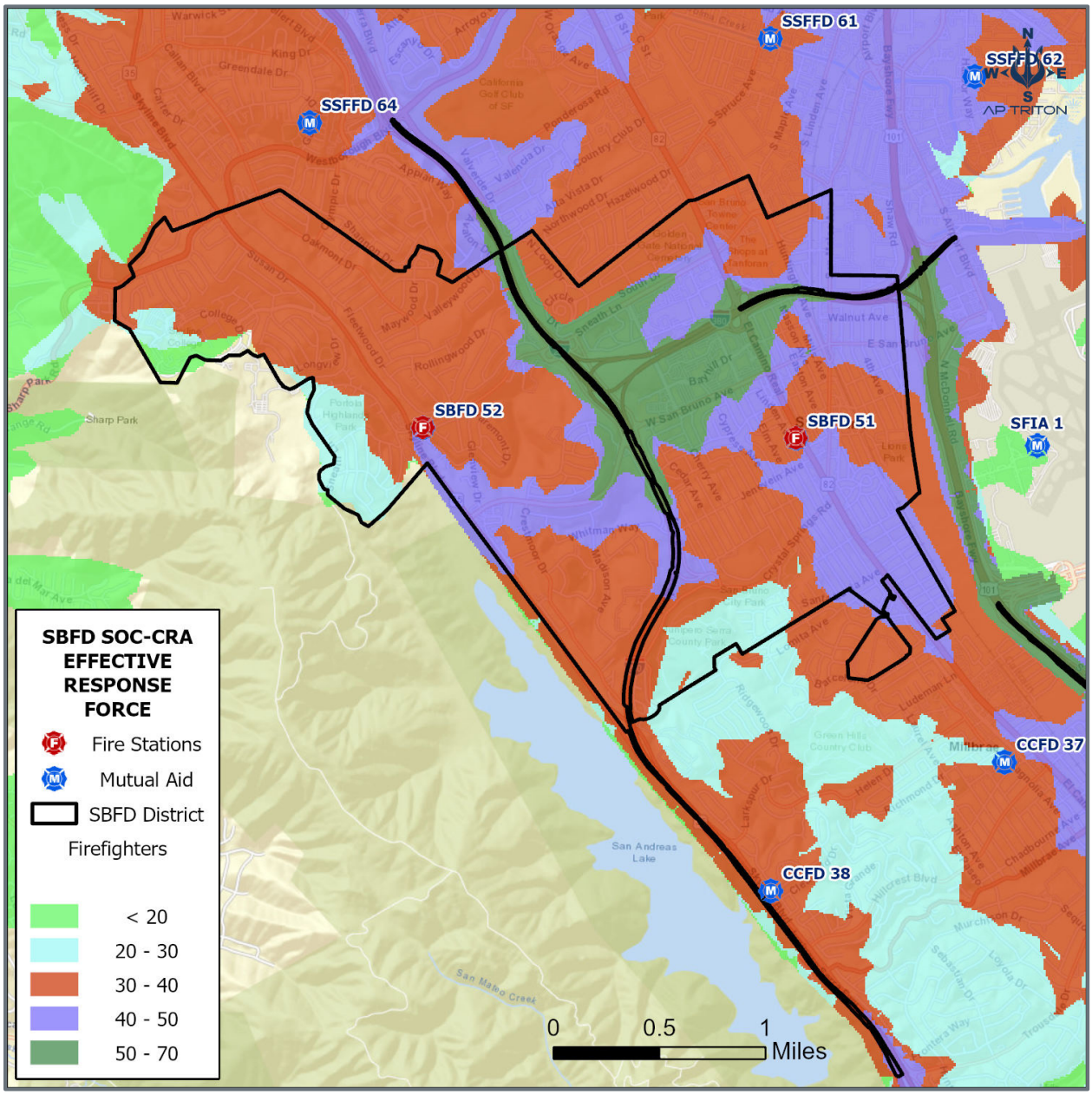
The concentration analysis reviews the physical capability of SBFD's resources to achieve its target ERF travel time to its service area. The following figures depict the physical capability of SBFD to assemble apparatus and firefighters by area within an 8-minute travel time. The modeled analysis below assumes that all response units are available. The first figure represents the collective apparatus needed to achieve the ERF.

Figure 87: Effective Firefighting Force—Apparatus



The next figure shows where the number of firefighters from SBFD and automatic aid agencies can reach within an 8-minute travel time.

**Figure 88: Effective Response Force—Firefighters**



## Resource Reliability

This section analyzes the workload at the unit level rather than at the department level, as previously shown. However, unit-level workload analysis can reveal further insights into the stress level firefighters, and apparatus are experiencing. For instance, units are only effective if available within their station. Therefore, if they are already handling an incident when another incident is reported, a unit from further away must respond, increasing the response times.

Unit Hour Utilization (UHU) calculates the percentage of time a unit is not available for a response because it is committed to an incident during a calendar year. This is important because the higher the percentage, the more time the unit is not available to respond to another incident. This is especially important for agencies like SBFD that measure their performance at the 90th percentile. For example, a unit with greater than 10% utilization cannot provide on-time performance to a 90% target within its response area. This analysis only measures response incidents and does not include other unmeasured activities in the dataset, such as training time and station duties.

**Figure 89: Unit Hour Utilization**

| Unit | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|
| Battalion Chief 16 | 2% | 2% | 2% | 1% |
| Engine 51 | 10% | 11% | 9% | 8% |
| Engine 52 | 7% | 7% | 6% | 6% |
| Truck 51 | 3% | 4% | 3% | 3% |

### Concurrency

One way to look at resource workload is to examine the number of times multiple incidents occur within the same time frame. Therefore, 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. Therefore, this factor significantly impacts the jurisdiction's response times to emergencies.

The following figure shows the number of times that one or more incidents occurred concurrently during the study period.

**Figure 90: Concurrent Incident Percentage**

| Calls Concurrent | Percent |
|---|---|
| Single Incident | 80.26% |
| Two Incidents | 16.27% |
| Three Incidents | 2.70% |
| Four Incidents | 0.48% |
| Five or More Incidents | 0.29% |

It is also useful to review the number of times that one or more response units are committed to incidents simultaneously. The following figure shows the number of times one or more SBFD response units were committed to incidents. It is more common for multiple response units to be simultaneously committed to incidents, with two to four concurrent responses occurring in significant numbers.

**Figure 91: Unit Concurrency**

| Units/Incident | Percent |
|---|---|
| Single Unit | 87.77% |
| Two Units | 5.57% |
| Three Units | 4.67% |
| Four Units | 1.93% |
| Five or More Units | 0.04% |

How a station crew responds reliably within its assigned area is important to its ability to handle the incident and its response time performance. Other stations must handle incidents outside their response zones when busier units are on assignment. This is especially true during fire events that require multiple units from several stations. The fire department instituted Automatic Vehicle Locators (AVL) so that the dispatch center can send the closest available unit even if it is not in its response area, which can occur if the zone station is busy on another assignment (concurrency) or a mutual aid assignment outside of the city. For the data period studied, the station unit was dispatched first 87% of the time in Station 51's area and 84% of the time in Station 52's area.

# Historical System Performance

## Operational Performance Standards

Incident data for the period between January 1, 2018, and June 30, 2021, were evaluated in detail to determine SBFD's current performance.

Only priority incidents occurring within the SBFD service area are included in the analysis. Non-emergency public assistance requests were excluded. Performance is reported based on the type of incident as reported. Three categories are used to report performance:

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

Each phase of the incident response sequence was evaluated to determine current performance. This allows an analysis of each 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 its appropriate mitigation. Therefore, the time required for each of the components varies. In addition, the policies and practices of the department directly influence some of the steps.

SBFD's response performance was compared to the national consensus standard for response performance found in the NFPA 1710 standard for career departments. In addition, the dispatch center's performance was compared to standards found in the National Fire Protection Association's Standard 1221, *Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems*, 2019 Edition.

The following figure summarizes the performance standards used in this section to evaluate performance compared to NFPA 1710's standards.

**Figure 92: Summary of Performance Goals**

| Incident Interval | Performance Goal |
|---|---|
| 911 call answer time (time from the 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). | Within 60 sec., 90% of the time (EMS)<br>Within 80 sec., 90% of the time (Fire) |
| First unit travel time (time from initiation of response until the arrival of the first unit at the incident). | Within 4 minutes, 90% of the time |
| First unit response time (time from dispatch until the arrival of the first unit at the incident). | Within 5 minutes, 90% of the time (EMS)<br>Within 5 minutes, 20 seconds, 90% of the time (Fire) |
| Full effective response force travel time (time from dispatch until all units initially dispatched arrive at the incident. Response resources needed for a medium-risk building fire are used for the evaluation). | Within 8 minutes, 90% of the time |

In keeping with NFPA Standards 1710 and 1221 and SBFD'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 the time was at or less than the result. Only 10% were longer.

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

A detailed description and review of each phase of the response time continuum follows. Finally, all phases will be compared to SBFD's performance goals.

**Detection**

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

**Call Processing Phase**

The call processing phase has two parts, the "call answer time" and the "call processing time." Most emergency incidents are reported by telephone to the 911 center. Call takers must quickly elicit accurate information about the incident's nature and location from persons apt to be excited. Lay people well-trained in reporting emergencies can reduce the time required for the call processing 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.

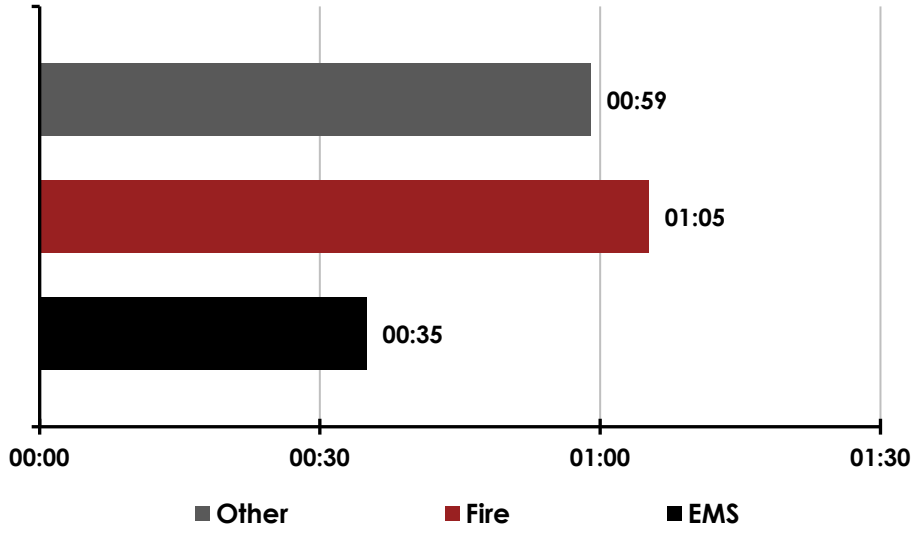
The San Bruno Police Department is the primary 9-1-1 call answer point for the SBFD. It answers the 9-1-1 call, queries the caller to determine nature and location, and then transfers the information to the secondary Public Safety Answering Point (PSAP) at San Mateo County Public Safety Communications Center, which dispatches SBFD units. The "call transfer" time from PSAP to PSAP adds a time element to the sequence.

Triton determined that the actual "call answer" and "call transfer" times for the SBFD dispatch performance goal data are non-existent as the San Bruno Police Dispatch Center does not track these times, and there is no CAD-to-CAD transfer from San Bruno Police dispatch to San Mateo County dispatch. Therefore, the "call answer" and "call transfer" data were unavailable in this analysis.

The second part of the call processing phase, called "call processing time," begins when the call is entered into the system at the dispatch center and ends when response units are notified of the incident. NFPA 1221 standards recommend that this phase occurs within 60 seconds, 90% of the time. SBFD has a call process time goal of 60 seconds as well.

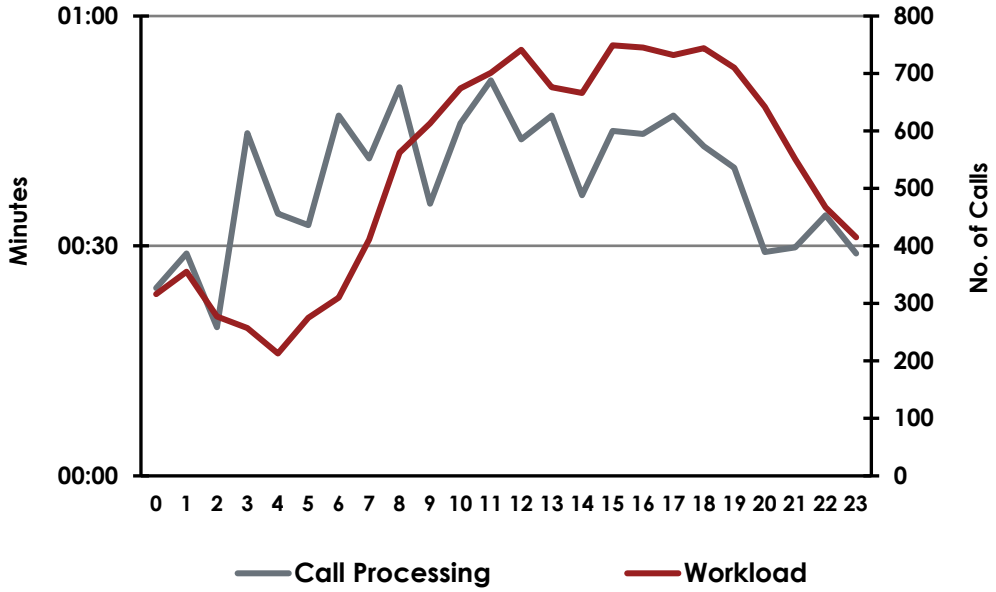
The following figure illustrates the San Mateo County dispatch center's "call processing time" performance from the time it receives the call until it notifies response units. Overall performance during the study period was within the NFPA guideline.

Figure 93: Call Processing by Incident Type




The workload at the dispatch center can influence call processing performance. The following figure illustrates call processing performance at different times of the day compared to SBFD's response workload for all incidents during the period 2018–2021. Call processing time is below NFPA recommendations despite the variation of being faster in the evening and slightly longer during the day.

Figure 94: Call Processing by Hour of Day

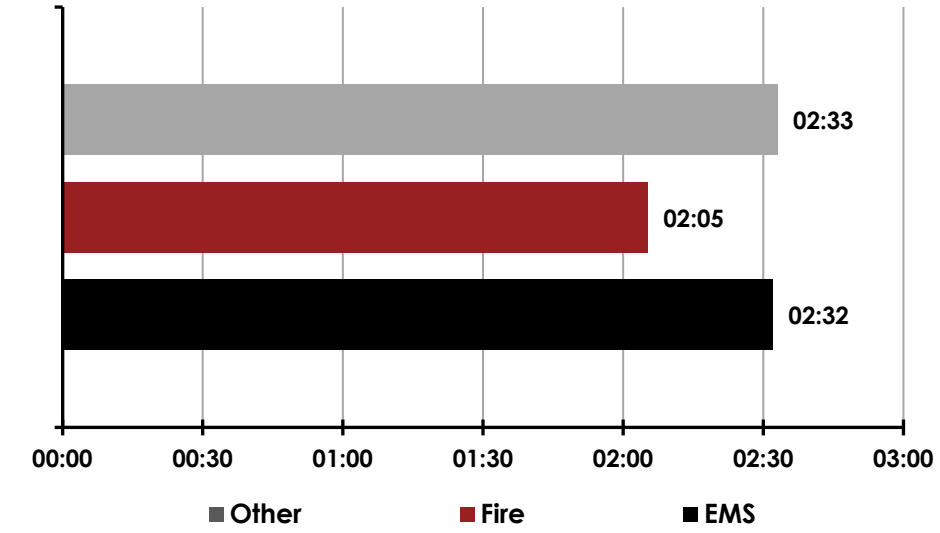


**Turnout Time**

The turnout time response phase is controllable by SBFD. This phase begins with the dispatch center's notification of an emergency in progress and ends when personnel and apparatus begin to move toward the incident location. Personnel must don appropriate equipment, assemble on the response vehicle, and begin traveling to the incident. Good training and proper fire station design can minimize the time required for this phase.

The performance goal for turnout time is within 60 seconds, 90% of the time for priority emergency incidents. The following figure lists turnout time by incident type. Turnout times for all incident types did not meet standards. During the study period, turnout time for priority incidents was within 2 minutes, 32 seconds, 90% of the time.

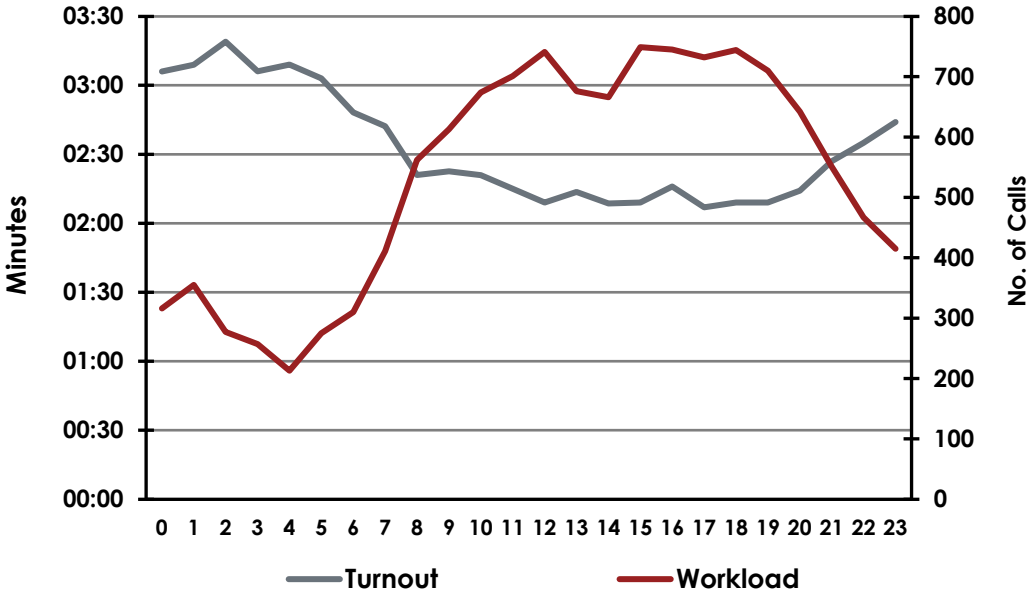
**Figure 95: Turnout Time Performance by Incident Type**




Turnout time can vary by the hour of the day. In this case, turnout time varied by 72 seconds between the early morning hours and daytime hours, as shown in the following figure.

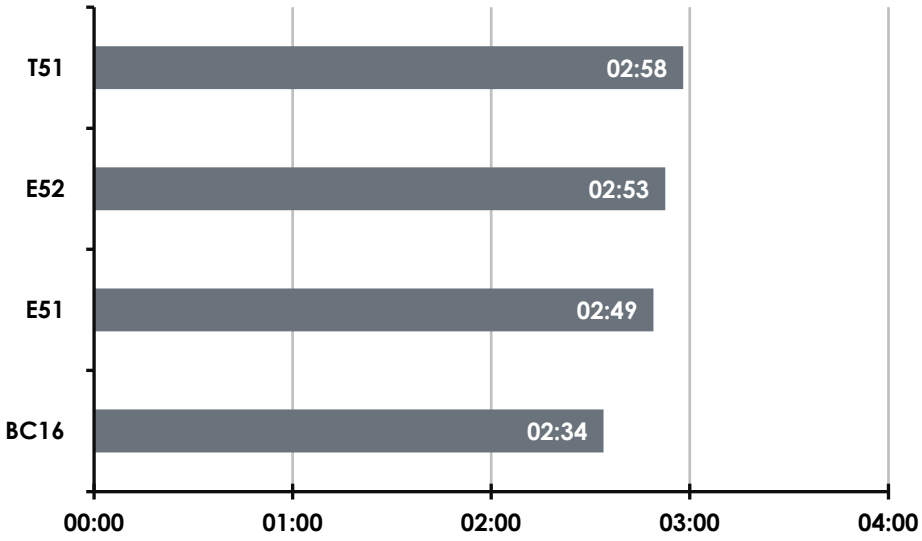
SBFD has identified the turnout time deficiency issue and has already developed a plan for turnout time performance education and improvement during this study.

Figure 96: Turnout time Performance by Hour of Day




The following figure shows turnout time by unit at the 90th percentile performance measure.

Figure 97: Turnout Time by Unit at the 90th Percentile

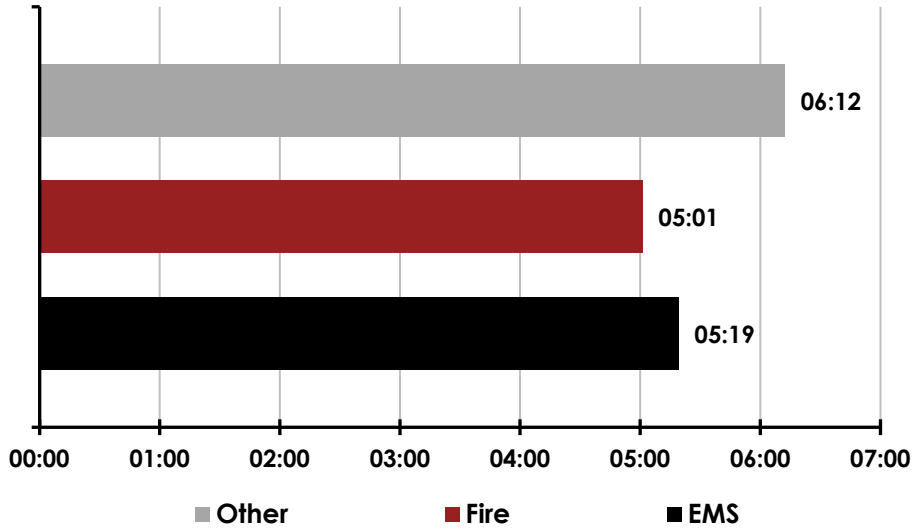


**Distribution & Initial Arriving Unit Travel Time**

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 also are factors. This phase begins with the initial apparatus movement toward the incident location and ends when response personnel and apparatus arrive at the emergency's location. According to NFPA 1710, the performance goal should be 4 minutes for the first response unit to arrive at an incident.

The following figure lists travel times for all priority incidents and incident types. SBFD's travel times exceeded its goal in all incident types. Travel time for all incident types was within 5 minutes, 31 seconds, 90% of the time.

Figure 98: Travel Time Performance by Call Type




Travel time can vary considerably by the time of day. Heavy morning and evening traffic can slow the department's response. Concurrent incidents also can increase travel time since units from more distant stations would need to respond. Morning commuter traffic appears to affect travel time more than evening commuter traffic. The following figure shows the travel time performance and the hourly workload.

Figure 99: Travel Time Performance by Hour of Day

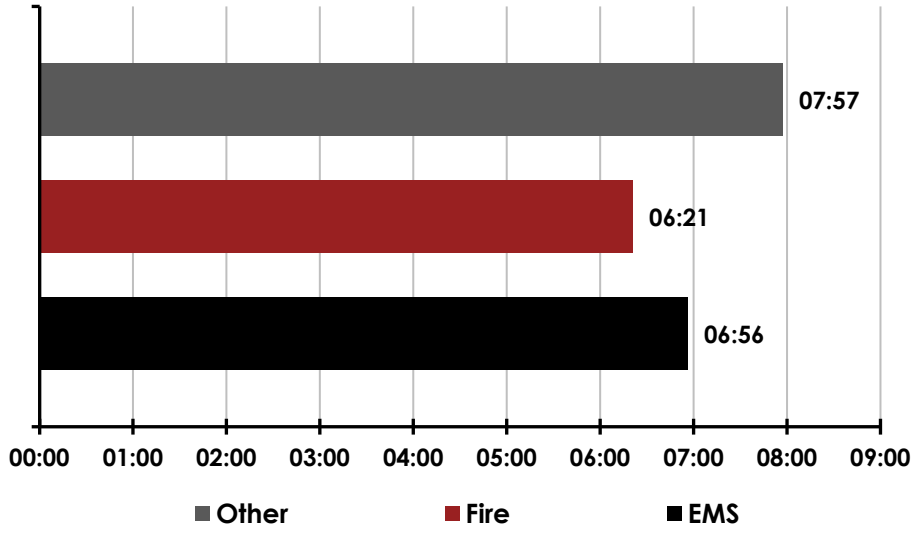

A response unit must be available within four travel minutes of the incident to provide an on-time response. During the study period, 99% occurred within four travel minutes of a fire station.

**First Arriving Unit Response Times**

First Unit Response time is defined as that period between the notifications 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, 90% of the time for EMS incidents, and within 5 minutes, 20 seconds, 90% of the time for fire incidents.

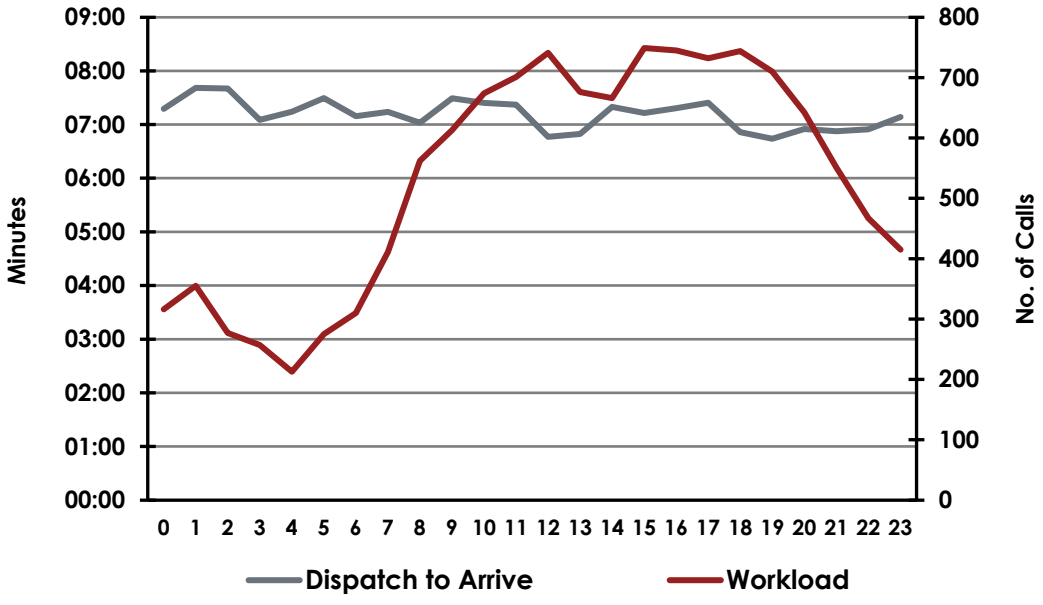
The following figure illustrates the response time for priority incident types. Overall, average first-unit response times for all priority incidents were within 7 minutes, 9 seconds, at 90% of the time. This is longer than SBFD response time objectives for urban/suburban areas of 5 minutes.

Figure 100: First Unit Response Time Performance




The next figure shows response times and the 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, SBFD's best response times occur during the day when response activity is at its highest.

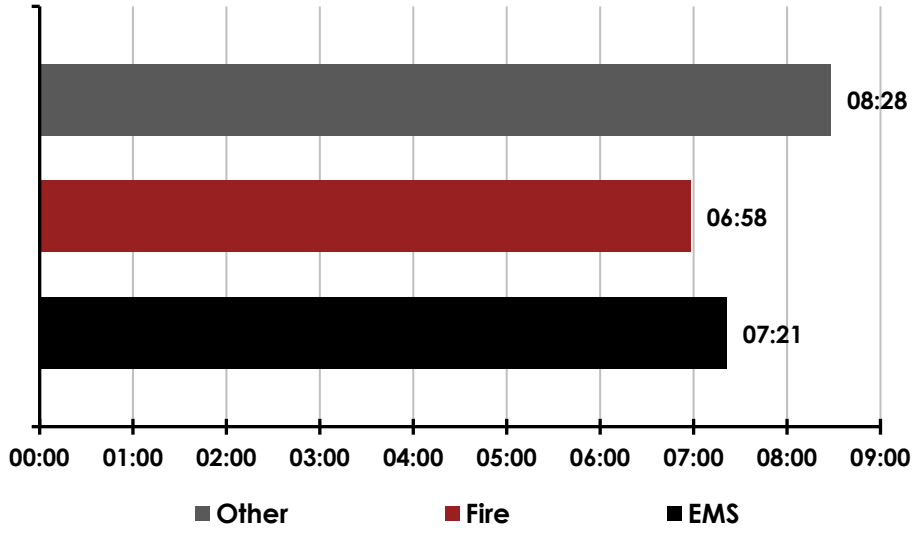
Figure 101: First Unit Arrival Performance by Hour of Day



**Call Received to First Unit Arrival Time**

From the customers' standpoint, response time begins when an emergency occurs. Their first contact with emergency services is when they call for help, usually by dialing 911. The call received-to-first unit arrival time phase combines the answer/transfer, call processing, turnout, and travel time phases. When the performance goals are combined, call received-to-first unit arrival time should be within 6 minutes, 30 seconds, 90% of the time for all priority incidents. The following figure shows call received-to-first unit arrival performance for priority incidents within the SBFD service area. Overall, call received-to-first unit arrival time was within 7 minutes, 36 seconds, 90% of the time.

**Figure 102: Call Received to First Unit Arrival by Call Type**




The next figure shows received-to-arrival performance by time of the day compared to incident activity by time of day. From the customers' standpoint, received-to-arrival is quickest during the middle of the day and evening hours and is the slowest at night when it spikes after midnight.

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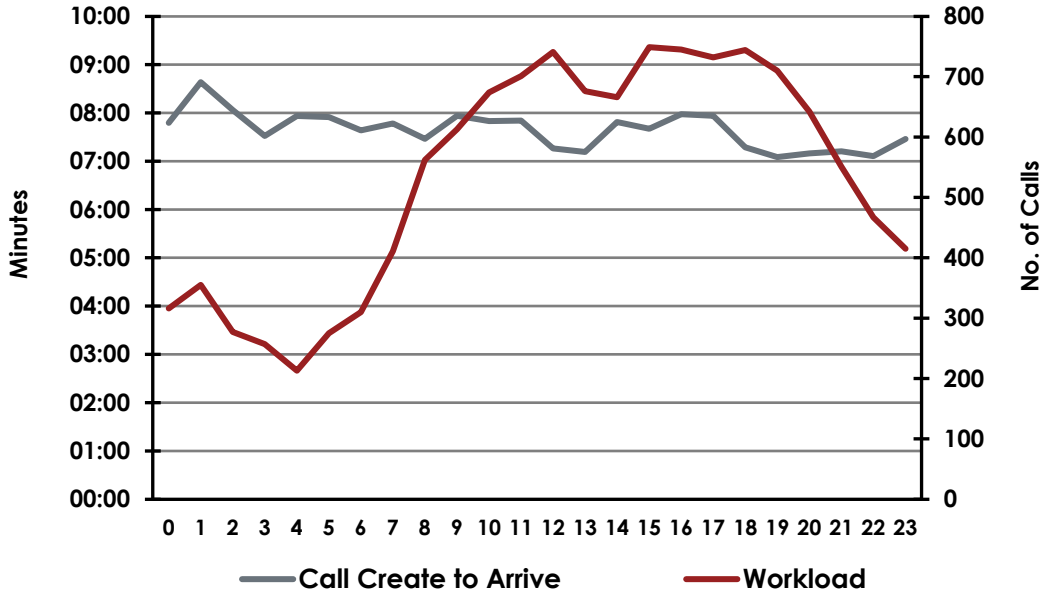
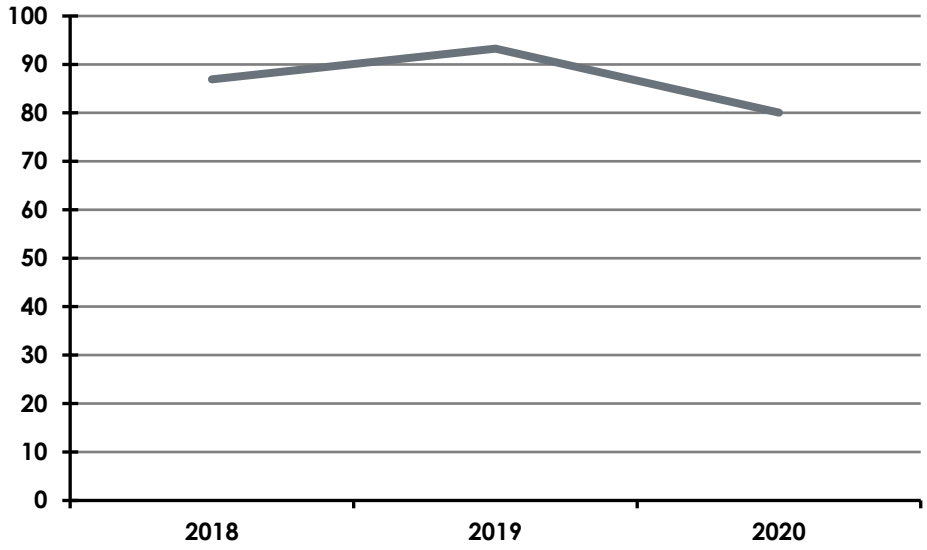
Figure 103: Call Received to Arrival by Hour of Day



## Population & Incident Workload Projections

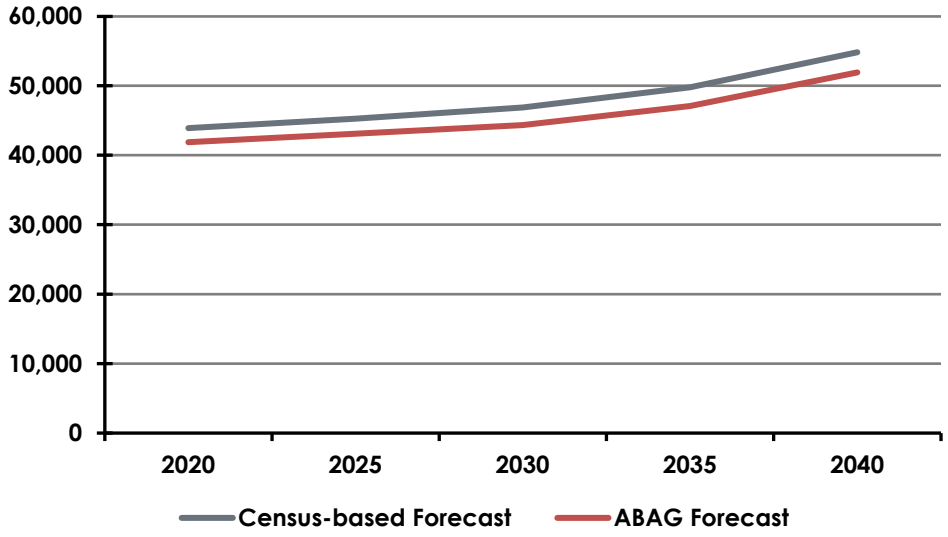
Over the last four years, the utilization rate of the fire department per 1,000 population generally both increased and decreased, as shown in the following figure. The rate during 2019 increased, but in 2020, the rate was lower at 93.3 incidents per 1,000 population. This was likely due to pandemic concerns, traffic reduction, and fears of healthcare settings. It is projected that utilization will stabilize at 86.8 per 1,000 population through 2040.

**Figure 104: Utilization Rate**



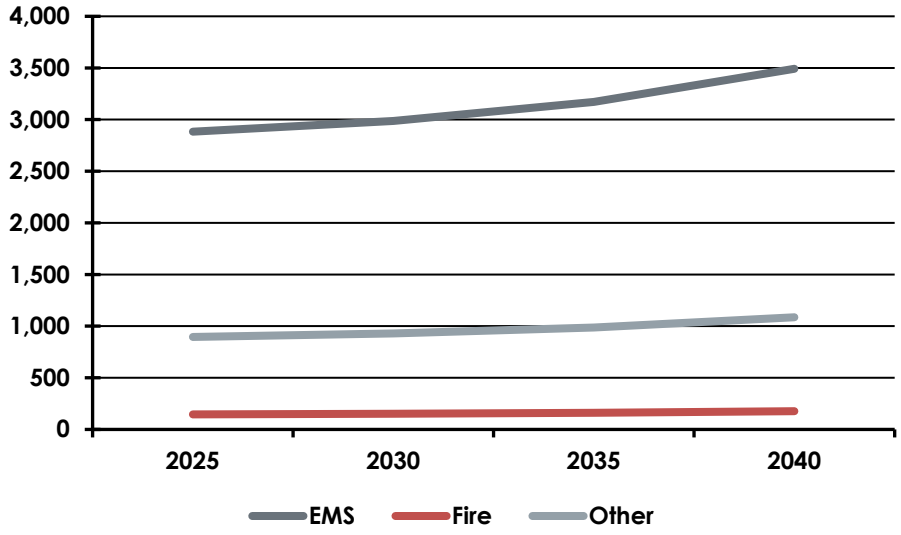

Using the lasted growth rate and census population data, a forecast for a future population can be calculated. This forecast was very close to the population projections provided for San Bruno by the Association of Bay Area Governments (ABAG) report.[15] Census-based forecast calculated a population of 54,827 in 2040, while the ABAG projected 51,920 residents.

Figure 105: Population Projections




The following figure shows that using the census-based forecasted population growth will potentially increase SBFD's workload. However, response workload is expected to remain stable, and requests for emergency medical services are expected to increase.

Figure 106: Workload Projections



## Performance Objectives & Measures

San Bruno Fire Department's service area combines urban and suburban areas with unique risks and response requirements. This can be seen by providing fire protection and EMS coverage to over 5 square miles that stretch from Hwy 101 adjacent to San Francisco International Airport to the high wildfire risk areas of the Crestmoor Canyon. Specific critical tasks must be accomplished with each type of incident and corresponding risk, 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. Therefore, the department's ability to quickly muster the needed numbers of trained personnel to make a difference is critical to successful incident outcomes.

The following figure illustrates the minimum emergency incident staffing recommendations of the Commission on Fire Accreditation International (CFAI). 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 more significant commercial properties with a sustained attack (fire flows more than 1,000 gallons per minute), multiple patient medical incidents, significant releases of hazardous materials, high-risk rescues, and wildland fires with extreme weather or fire behavior.

**Figure 107: CFAI Staffing Recommendation 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 |

SBFD has developed the following Critical Task Analysis using risk matrices for various incident types. AP Triton'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 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 promptly by firefighters at emergency incidents to control the situation, stop loss, and perform necessary tasks required for a medical emergency. SBFD is responsible for ensuring those responding companies can perform all described tasks promptly, efficiently, and safely. These are the minimum number of personnel needed by incident type. More personnel will be required for incidents of increased complexity or size.

**Figure 108: Structure Fire w/Hydrants**

| Task | Number of Personnel |
|---|---|
| Command & Safety | 2 |
| Pump Operations | 1 |
| Attack Line | 2 |
| Search and Rescue | 3 |
| Ventilation | 3 |
| Back-up Line | 3 |
| RIT | 3 |
| Ambulance/EMS | 0 |
| Other (Utilities, support) | 3 |
| **Total:** | **20** |

**Figure 109: Structure Fire without Hydrants**

| Task | Number of Personnel |
|---|---|
| Command & Safety | 2 |
| Pump Operations | 1 |
| Attack Line – 2 from 1st Co and additional company | 5 |
| Back-up Line | 3 |
| Search and Rescue | 3 |
| Ventilation | 3 |
| RIT | 3 |
| Ambulance/EMS | 0 |
| Water Tender Operator | 1 |
| **Total:** | **21** |

**Figure 110: Commercial Structure Fire**

| Task | Number of Personnel |
|---|---|
| Command & Safety | 2 |
| Pump Operations | 1 |
| Attack Line | 5 |
| Search and Rescue Team | 6 |
| Back-Up Line | 3 |
| Ventilation/Ground Ladders | 3 |
| Aerial Operator (if ladder used) | 1 |
| RIT | 3 |
| Medical Care | 0 |
| **Total:** | **24** |

**Figure 111: High-Rise Structure Fire**

| Task | Number of Personnel |
|---|---|
| Command & Safety | 2 |
| Pump Operations | 1 |
| Attack Line | 6 |
| Back-Up Line | 3 |
| Vertical Ventilation Crew | 3 |
| Victim Search & Rescue Team | 6 |
| Interior Staging Manager | 1 |
| Evacuation | 2 |
| Lobby Control | 2 |
| Equipment Transport | 3 |
| RIT | 3 |
| Ambulance/EMS | 3 |
| **Total:** | **35** |

**Figure 112: Wildland Fire—Low Risk**

| Task | Number of Personnel |
|---|---|
| Command/Safety | 1 |
| Pump Operations/Lookout | 1 |
| Attack Line | 5 |
| Exposure Lines | 3 |
| Structure Protection | — |
| Water Supply | — |
| Other (mop-up, overhaul, line) | — |
| **Total:** | **10** |

**Figure 113: Wildland Fire—High Risk**

| Task | Number of Personnel |
|---|---|
| Command & Safety | 2 |
| Pump Operations/Lookout | 1 |
| Attack Line | 8 |
| Exposure Lines | 6 |
| Structure Protection | 6 |
| Water Supply | 3 |
| Other (mop-up, overhaul, line) | — |
| **Total:** | **26** |

**Figure 114: Aircraft Emergency**

| Task | Number of Personnel |
|---|---|
| Command & Safety | 2 |
| Aircraft Fire Suppression | 1 |
| Pump Operations | 1 |
| Attack Line | 2 |
| Back-Up Line | 3 |
| Rescue | 3 |
| Emergency Medical Care | 3 |
| Water Supply | — |
| **Total:** | **15** |

Figure 115: Hazardous Materials—Low-Risk (Investigation)

| Task | Number of Personnel |
|---|---|
| Command/Safety | 1 |
| Investigation | 2 |
| **Total:** | **3** |

Figure 116: Hazardous Materials—High-Risk (Response)

| Task | Number of Personnel |
|---|---|
| Command | 1 |
| Haz Mat Group Supervisor | 1 |
| Haz Mat Safety Officer | 1 |
| Entry Supervisor | 1 |
| Entry Team | 2 |
| Back-Up Team | 2 |
| Decontamination | 4 |
| Pump Operations | 1 |
| Chemist | 1 |
| **Total:** | **14** |

Figure 117: Emergency Medical Aid

| Task | Number of Personnel |
|---|---|
| Patient Management | 1 |
| Patient Care | 2 |
| **Total:** | **3** |

Figure 118: Motor Vehicle Accident

| Task | Number of Personnel |
|---|---|
| Command/Safety | 1 |
| Patient Care | 3 |
| Extrication | 3 |
| Pump Operator/Suppression Line | 1 |
| Vehicle Stabilization | 2 |
| **Total:** | **10** |

**Figure 119: Major Medical Response**

| Task | Number of Personnel |
|---|---|
| Command & Safety | 2 |
| Medical Group Supervisor | 1 |
| Triage | 3 |
| Treatment Manger | 1 |
| Patient Care | 3 |
| Transportation Manager | 1 |
| Documentation | 1 |
| **Total:** | **12** |

**Figure 120: Technical Rescue (Water Bay/Near Shore)**

| Task | Number of Personnel |
|---|---|
| Command/Safety | 1 |
| Rescue Boat | 3 |
| Back-Up Boat | 3 |
| Patient Care | 3 |
| **Total:** | **10** |

**Figure 121: Technical Rescue (Rope Rescue)**

| Task | Number of Personnel |
|---|---|
| Command/Safety | 1 |
| Technical Safety Officer | 1 |
| Rigging Team | 3 |
| Rescue Team Edge Supervisor | 3 |
| Back-Up Team | 3 |
| Patient Care | 3 |
| **Total:** | **14** |

**Figure 122: Technical Rescue (Confined Space Rescue)**

| Task | Number of Personnel |
|---|---|
| Command/Safety | 1 |
| Technical Safety Officer | 1 |
| Support Team (air monitor, air supply, communications) | 3 |
| Rigging Team | 3 |
| Rescue Team | 3 |
| Back-Up Team | 3 |
| Patient Care | 3 |
| **Total:** | **17** |

**Figure 123: Technical Rescue (Trench Rescue)**

| Task | Number of Personnel |
|---|---|
| Command & Safety | 2 |
| Support Team (air monitor, air supply, communications) | 3 |
| Shoring Team | 6 |
| Rescue Team | 3 |
| Back-Up Team | 3 |
| Patient Care | 3 |
| **Total:** | **20** |

### Alarm Assignments

To ensure sufficient personnel and apparatus are dispatched to an emergency event, the following first alarm response assignments have been established by SBFD to ensure sufficient personnel and apparatus are dispatched to an emergency event. "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 may require additional resources above and beyond the numbers listed next. With currently available resources, SBFD is able to staff all incident types in accordance with its Critical Tasking Analysis by relying on auto-aid with other neighboring departments while using Automatic Vehicle Location (AVL) technology.

Figure 124: SBFD Structure Fire w/Hydrants

| Unit Type | Number of Units | Total Personnel |
|---|---|---|
| Engine | 5 | 15 |
| Ladder | 1 | 3 |
| Battalion Chief | 2 | 2 |
| **Total Units/Staffing Provided by SBFD:** | **4** | **10** |
| **Total Staffing Needed:** | | **20** |
| **Auto-Aid Units/Staffing:** | **4** | **10** |
| **Total Staffing Provided:** | | **20** |
| **Gap/Deficit:** | | **0** |

Figure 125: SBFD Expanded Structure Fire

| Unit Type | Number of Units | Total Personnel |
|---|---|---|
| Engine | 5 | 15 |
| Ladder | 1 | 3 |
| Battalion Chief | 2 | 2 |
| **Total Units/Staffing Provided by SBFD:** | **4** | **10** |
| **Total Staffing Needed:** | | **20** |
| **Auto-Aid Units/Staffing:** | **4** | **10** |
| **Total Staffing Provided:** | | **20** |
| **Gap/Deficit:** | | **0** |

Figure 126: SBFD High-Rise Structure Fire

| Unit Type | Number of Units | Total Personnel |
|---|---|---|
| Engine | 6 | 18 |
| Ladder | 3 | 9 |
| Air Supply | 1 | 3 |
| Battalion Chief | 3 | 3 |
| **Total Units/Staffing Provided by SBFD:** | **4** | **10** |
| **Total Staffing Needed:** | | **35** |
| **Auto-Aid Units/Staffing:** | **9** | **23** |
| **Total Staffing Provided:** | | **33** |
| **Gap/Deficit:** | | **-2** |

Figure 127: SBFD Wildland Fire—Low Risk

| Unit Type | Number of Units | Total Personnel |
|---|---|---|
| Engine | 3 | 9 |
| Brush Engine | 3 | 9 |
| Battalion Chief | 1 | 1 |
| Bulldozer | 1 | 1 |
| **Total Units/Staffing Provided by SBFD:** | **4** | **10** |
| **Total Staffing Needed:** | | **10** |
| **Auto-Aid Units/Staffing:** | **4** | **10** |
| **Total Staffing Provided:** | | **20** |
| **Gap/Deficit:** | | **+10** |

Figure 128: SBFD Wildland Fire—High Risk

| Unit Type | Number of Units | Total Personnel |
|---|---|---|
| Engine | 6 | 18 |
| Brush Engine | 1 | 3 |
| Battalion Chief | 3 | 3 |
| Water Tender | 1 | 1 |
| Division Chief | 1 | 1 |
| Type 3 Engines | 6 | 18 |
| Air Attack + 2 Air Tankers | 3 | 4 |
| Helicopter | 1 | 8 |
| Bulldozer | 2 | 2 |
| Fire Crews | 2 | 28 |
| **Total Units/Staffing Provided by SBFD:** | **4** | **10** |
| **Total Staffing Needed:** | | **26** |
| **Auto-Aid Units/Staffing:** | **22** | **76** |
| **Total Staffing Provided:** | | **86** |
| **Gap/Deficit:** | | **+60** |

Figure 129: SBFD Hazardous Materials—Low Risk (Investigation)

| Unit Type | Number of Units | Total Personnel |
|---|---|---|
| Engine | 1 | 3 |
| Ladder | 0 | 0 |
| Battalion Chief | 0 | 0 |
| **Total Units/Staffing Provided by SBFD:** | **1** | **3** |
| **Total Staffing Needed:** | | **3** |
| **Auto-Aid Units/Staffing:** | **0** | **0** |
| **Total Staffing Provided:** | | **3** |
| **Gap/Deficit:** | | **0** |

Figure 130: SBFD Hazardous Materials—High Risk (Response)

| Unit Type | Number of Units | Total Personnel |
|---|---|---|
| Engine | 4 | 12 |
| Ladder | 1 | 3 |
| Battalion Chief | 1 | 1 |
| Hazardous Material Unit | 1 | 6 |
| SMCO Environmental Health Chemist | 1 | 1 |
| **Total Units/Staffing Provided by SBFD:** | **4** | **10** |
| **Total Staffing Needed:** | | **14** |
| **Auto-Aid Units/Staffing:** | **4** | **13** |
| **Total Staffing Provided:** | | **23** |
| **Gap/Deficit:** | | **+9** |

Figure 131: SBFD Emergency Medical Aid

| Unit Type | Number of Units | Total Personnel |
|---|---|---|
| Engine or Ladder | 1 | 3 |
| Battalion Chief | | |
| **Total Units/Staffing Provided by SBFD** | **1** | **3** |
| **Total Staffing Needed:** | | **3** |
| **Auto-Aid Units/Staffing:** | | **0** |
| **Total Staffing Provided:** | | **3** |
| **Gap/Deficit:** | | **0** |

Figure 132: SBFD Motor Vehicle Accident

| Unit Type | Number of Units | Total Personnel |
|---|---|---|
| Engine | 1 | 3 |
| Ladder | 1 | 3 |
| Chief Officer | 1 | 1 |
| **Total Units/Staffing Provided by SBFD:** | **3** | **7** |
| **Total Staffing Needed:** | | **10** |
| **Auto-Aid Units/Staffing:** | | **0** |
| **Total Staffing Provided:** | | **7** |
| **Gap/Deficit:** | | **-3** |

Figure 133: SBFD Major Medical Response

| Unit Type | Number of Units | Total Personnel |
|---|---|---|
| Engine | 3 | 9 |
| Ladder | 1 | 3 |
| MCI Trailer | | |
| Battalion Chief | 1 | 1 |
| **Total Units/Staffing Provided by SBFD:** | **4** | **10** |
| **Total Staffing Needed:** | | **12** |
| **Auto-Aid Units/Staffing:** | **1** | **3** |
| **Total Staffing Provided:** | | **13** |
| **Gap/Deficit:** | | **+1** |

Figure 134: SBFD Technical Rescue Water (Bay/Near Shore)

| Unit Type | Number of Units | Total Personnel |
|---|---|---|
| Engine | 2 | 6 |
| Boat (Varies on mutual aid) | 2 | 6 |
| Ladder | 1 | 3 |
| Battalion Chief | 1 | 1 |
| **Total Units/Staffing Provided by SBFD:** | **4** | **10** |
| **Total Staffing Needed:** | | **10** |
| **Auto-Aid Units/Staffing:** | **2** | **6** |
| **Total Staffing Provided:** | | **16** |
| **Gap/Deficit:** | | **+6** |

Figure 135: SBFD Technical Rescue—Trench Rescue

| Unit Type | Number of Units | Total Personnel |
|---|---|---|
| Engine | 3 | 9 |
| Ladder | 1 | 3 |
| USAR Type 1 | 1 | 3 |
| Battalion Chief | 1 | 1 |
| **Total Units/Staffing Provided by SBFD:** | **4** | **10** |
| **Total Staffing Needed:** | | **20** |
| **Auto-Aid Units/Staffing:** | **2** | **6** |
| **Total Staffing Provided:** | | **16** |
| **Gap/Deficit:** | | **-4** |

### Response Time Performance Objectives

Once SBFD has established response time objectives and identified the critical tasks and number of personnel necessary to achieve those critical tasks (in the preceding section), the department can begin defining emergency response time performance objectives.

The process of setting response time performance objectives will include two primary questions:

- What are the expectations of the community and elected officials regarding the initial response times of SBFD to an emergency incident? What is the public's perception of quality emergency services concerning response time?
- What response time performance would be reasonable and effective in containing the fire, stopping the loss, and saving lives when considering the common types of incidents and fire risks faced by SBFD?

With the SBFD being a career fire department, references to the national consensus standard for career fire departments should be used (NFPA 1710 Standard for Career Fire Departments). Although the NFPA performance recommendations are considered an industry best practice, fire departments working with their governing bodies can implement response performance goals that better suit their communities.

Triton recommends that tiered response performance objectives be developed based on the population density and risks present. This methodology will effectively segregate the service area into response zones reflecting community expectations and fire department capabilities.

The following two figures provide examples of response performance goals based on population and risk response zones. The first example is the "first due" response of a single unit utilizing the industry best practice response time metric, from the time the call is received at 911 to arrival on-scene at the 90th percentile.

**Figure 136: Example of a First-Due Single-Unit Response Standard**

| Density | Description | Response Time Goal |
|---|---|---|
| Urban | Greater than 1,000 persons/square mile | 9 minutes or less at 90% |
| Suburban | 500–1,000 persons/square mile | 12 minutes or less at 90% |
| Rural | Less than 500 persons/square mile | 15 minutes or less at 90% |

The following example represents the first-alarm response to a moderate-risk structure fire, utilizing the industry best practice response time metric.

**Figure 137: Example of First Alarm Response (3 Engines, 2 Medic Units, & 1 BC)**

| Density | Description | Response Time Goal |
|---|---|---|
| Urban | Greater than 1,000 persons/square mile | 11 minutes or less at 90% |
| Suburban | 500–1,000 persons/square mile | 16 minutes or less at 90% |
| Rural | Less than 500 persons/square mile | 18 minutes or less at 90% |

Fire departments throughout the United States use the practice of establishing risk zones based on risk and population density. Using risk or "demand" zones provides a more accurate picture of service-delivery performance. This is especially relevant for fire departments such as SBFD, which provide emergency response to substantial and diverse service areas in the 5.5 square mile city.

The preceding response standards are presented as examples. The previous discussion provides SBFD with the information necessary to establish response standards and targets. Establishing response standards and performance goals should be viewed as a strategic planning tool for community loss control. Therefore, San Bruno Fire Department is encouraged to begin the process as soon as feasible to assist with future planning needs.

# Section IV:
# FINDINGS & RECOMMENDATIONS

# Findings & Observations

The following section outlines some of Triton's more significant findings and observations during this study based on the data received onsite observations and stakeholder interviews. In addition, these follow many of the "critical issues" listed by the Fire Chief, including career development & secession planning, policy development & revisions, strategic plan development, and addressing community development that is outpacing fire department resources.

## Operations & Deployment

- Historical incident records show that most service demand occurs in San Bruno's Station 51 response area, particularly to the North of Station 51.
  - Based on the data, Station 51 is located in an adequate location.
  - Coverage gaps are created during busy periods between 8 a.m. to 6 p.m.
  - Additional significant new development in this high response zone justifies additional operational staffing at Station 51.
- During the study period, SBFD attributes an increasing service demand to "homeless" persons.
  - Although most of these were EMS-related, other calls involved fires and other incident types.
- SBFD maintains IGAs with other departments to initiate a closest forces response model utilizing Automatic Vehicle Location (AVL) technology.
  - SBFD relies heavily on automatic aid to fill its operational ERF requirements.
  - Operational policies, training, procedures, and activities of the other fire departments are not necessarily consistent with SBFD's standards.
  - This has sometimes created challenges during incidents that require a multi-agency response. It was noted from line personnel that operational and training consistencies were generally better with those Auto aid agencies from the South.

## Response Performance

- There is an inability to consistently meet response performance goals and NFPA best practice time measurements throughout the SBFD area.
- Based on the data provided, the "call processing time," overall performance of 60 seconds or less, 90% of the time, was within NFPA 1221 standards.

- The San Bruno Police Department dispatch center answers many of the calls for SBFD, and the "call answer" and "call transfer" times to San Mateo County Public Safety Communications are not well documented and are non-existent.
- NFPA 1221 benchmarks recommending that 911 calls be answered within 15 seconds, 90% of the time (within 20 seconds, 95% of the time), are not able to be determined due to insufficient data by the San Bruno City Police Dispatch Center.
- SBFD's turnout time performance goal is 60 seconds or less at 90% for all call types.
  - Overall turnout times were 2 minutes, 32 seconds at 90% during the study period.
- SBFD's travel time performance goal is 4 minutes, 0 seconds at 90%.
  - SBFD's travel time performance was 5 minutes, 31 seconds, at 90% for all incidents during the study period.
- SBFD's first unit response time performance goal is 5 minutes, 0 seconds, or less at 90% for all call types.
  - For all incident types during the study period, SBFD's first-arriving unit response time was 7 minutes, 9 seconds at 90%.
- SBFD's total call received to first unit arrival response time performance goal is 6 minutes, 30 seconds, or less at 90% for all call types.
  - For all incident types during the study period, SBFD's first-arriving unit response time was 7 minutes, 36 seconds at 90%.
- SBFD currently does not regularly conduct performance and outcome measurements.

### Personnel & Staffing

- Although NFPA 1710 recommends 4-person staffing on engines and aerial apparatus, SBFD does not maintain this standard as a minimum.
  - SBFD currently has FTEs on the books to staff with four on two shifts on Truck 51 but regularly works down to three as a minimum.
  - The current daily minimum staffing on both engines is currently three.
  - SBFD estimates that it would require an additional seven firefighters to maintain 4-person staffing on all apparatus, which would improve its ERF.
  - Four-person staffing would improve deficiencies in total staffing needed for SBFD critical tasking and alarm assignment totals.
- Access to professional career development training for officers, firefighters, and other staff appears to be limited.

- SBFD does not have a formal succession plan in place.
- SBFD currently has no additional operational management staff other than the Fire Chief and Fire Marshal. Numerous inputs received stated that the current management staff FTEs is inadequate with the numerous program responsibilities.

## Fire Stations & Facilities

- As discussed in this report, Station 51 and Station 52 are both over 63 years old and in very poor condition. Each facility has numerous deficiencies and has likely reached its useful life as a functional modern fire station.
- Station 51 is currently in a suitable location for response coverage and to remain a City Hall-based fire station.
- Station 52 could be moved to a different location for better overall system-wide response coverage, improved operational and functional station layout and design, and a site for potential training facilities within the city.
  - The current station location is adequate, and relocating it to an area in the general vicinity does not adversely affect response coverage and, in some cases, improves coverage.
- SBFD currently lacks an adequate training grounds, training tower, or classroom facilities within the city.
- SBFD currently houses Reserve Truck 151 outside the city of San Bruno as there are no available apparatus bays within the two fire stations for storage.

## Miscellaneous Findings & Observations

- It was noted by numerous personnel that there had been several attempts at cooperative ventures with neighboring agencies via Intergovernmental (IGAs) or Joint Power Authority (JPA) agreements.
- The on-duty shift mechanic program has seen good success based on stakeholder input. The current program is based in a modified apparatus bay at Station 51.
- SBFD currently does not have a Capital Facilities Replacement Plan or a Strategic Plan.
- Many of SBFD's standard operating guidelines, policies, and procedures are outdated or nonexistent.
- There was universal stakeholder input received at all levels about the high level of regard, support, enthusiasm, spirit, and camaraderie within SBFD.

# Proposed Strategies & Recommendations

## Response Performance

**Recommendation 1: The department should start conducting performance and outcome measurements.**

- SBFD needs to look at ways to provide performance and outcome measurements to share with the community and the elected officials. This could include documenting both property loss and property saved. It is a powerful message to demonstrate every year that SBFD experienced a $4.5 million fire loss for the year and was able to save $8.9 billion of property.
- Other measurements could include: How often is the fire contained to the room of origin? How long does it take to get water on the fire? How long does it take to get fire control? How many animals have been saved for the year? How often is an effective firefighting force on-scene within 8 minutes?
- Outcome measures will determine if a program or practice is working. Each year the City of San Bruno approves a budget to provide funding to operate the agency. Does the funding allow the organization to develop and implement what they believe are the best strategies to improve services? Developing outcome measures permits the city and the fire department to determine if program activities are beneficial.

## Fire Stations & Facilities & Organizational Structure

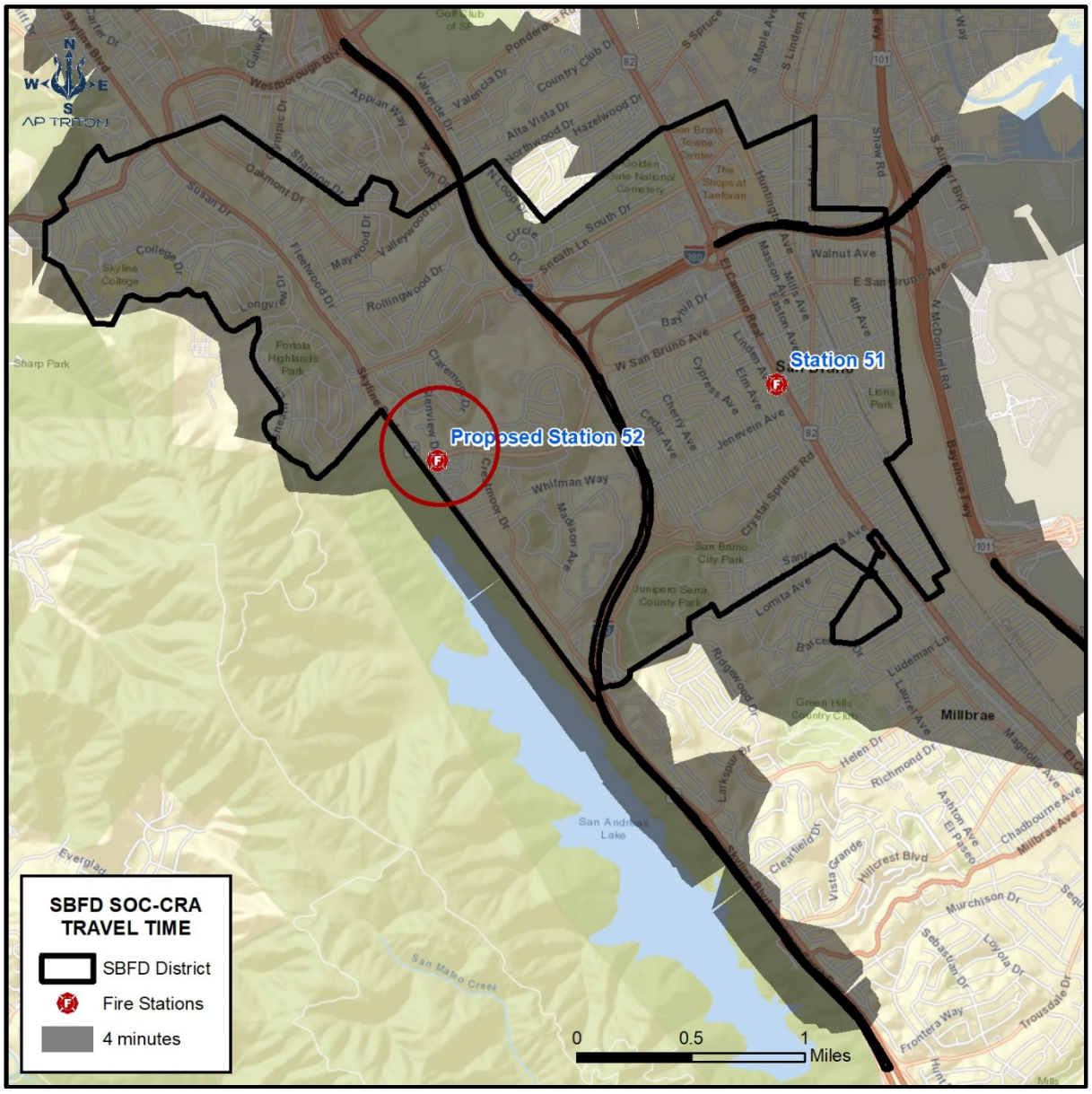
**Recommendation 2: Consider replacing both Station 51 and Station 52 with new facilities.**

- Both fire stations are over 65 years old and are in unacceptable condition for modern fire station facilities. Numerous reasons are cited in the report for each. Station 51 could be rebuilt in its current location as a city hall-based fire station as the current location meets all travel times and goals. Station 52's current location also meets travel time goals but could be relocated (see Recommendation 6) to attain a more suitable location, improving overall time measurements for many portions of San Bruno.

**Recommendation 3: Consider replacing Station 52 with a new facility in a more strategic alternative location.**

Station 52 is currently located in a residential neighborhood and would be better if relocated and rebuilt in a more suitable location. AP Triton recommends a potential general area, as identified in the red circle, with a desired preferred location of a vacant lot at the intersection of San Bruno Ave & Glenview. The data shows that response times from the new proposed location still meet the City's response time objectives and can improve them in some areas.

Figure 138: Four-Minute Travel Time Distance from Station 51 & Proposed Station 52



The preceding figure shows the 4-minute travel time distances from both Station 51 and a newly relocated Station 52 near the proposed preferred location of San Bruno Avenue & Glenview Drive. The travel time distance of a relocated Station 52 still adequately covers all areas of Station 52's response zone and improves response times to some areas to the South and into Station 51's response zone.

From the proposed new Station 52 location, San Bruno Avenue allows much quicker access to most areas to the east. From Skyline Blvd to El Camino Real, San Bruno Avenue has only six traffic signal lights, all operated by Opticom traffic control devices, and is a two-lane road its entire length allowing much faster travel speeds and the ability to pass vehicles pulled over on the shoulder safely.

Station 52's current route east using Sneath Lane from Skyline Blvd to El Camino Real has seven traffic signal lights, with not all having Opticom traffic control devices, two stop signs, is much steeper, has a 30-mph posted speed limit, and is only one direction each way for half of the route making travel time much slower for fire apparatus with limited ability to pass vehicles pulled over on the shoulder safely.

The next figure shows the proposed preferred location site. This space allows for an adequate site to house a modern-day fire station facility and possibly incorporate small training facilities within the site, including a training tower, open space training area, and classroom facility.

**Figure 139: Proposed Preferred Location for Potential SBFD Fire Station 52**

**Recommendation 4: Consider shared services with outside agencies when efficiencies can be recognized and duplication eliminated.**

- Currently, SBFD shares multiple services with outside agencies, including SBFD soon providing a training Captain for shared training with Central County Fire, and SBFD sharing AVL responses, which constitutes a significant out-of-district impact for some agencies, including San Bruno.
- In approximately 2015, SBFD embarked on a consolidation study with Central County Fire Department shortly after the City of Milbrae entered into a contract for service with Central County. Still, the study resulted in SBFD staying autonomous due to issues including the lack of representation on the Joint Powers Authority (JPA).
- The City of Millbrae's current IGA with Central County expires in 2024, which leads to interesting potential opportunities for both agencies. The two agencies have considered collaborative opportunities in the past, as previously stated, and stakeholders at all levels at San Bruno submitted input on this potential collaborative partnership opportunity.
- Any potential shared services efforts should be carefully studied to determine the financial and operational impacts, potential benefits and efficiencies gained effects on employees, issues of representation, and other considerations for SBFD.

**Recommendation 5: Consider building training facilities and infrastructure for San Bruno.**

- If San Bruno embarks on station reconstruction projects for Station 51 and Station 52, small training facilities should be considered to be built in either location.
- If Station 51 were to use the current city hall location to rebuild, a small training center could be configured on that current site.
- If the newly proposed Station 52 site was considered for rebuilding, that location could also house a small training facility with possibly more space than at Station 51.
- If San Bruno is to remain autonomous into the future, having adequate training facilities within the city is an important goal.

**Recommendation 6: Find a location for Reserve Truck 151 to be stored and equipped within the city of San Bruno.**

- The reserve truck is currently kept off-site and should be housed within the city and better equipped as a reserve apparatus. The reconstruction of a new Station 51 could provide an adequate location for the reserve truck to be housed.

**Recommendation 7: Provide more suitable facilities and equipment for the on-duty shift mechanic program.**

- San Bruno is finding success with the on-duty shift mechanic program. However, the current apparatus bay and facility at Station 51 has been modified by raising the roof and is inadequate for this purpose. The reconstruction of a new Station 51 could provide an adequate location with proper equipment for this program to be housed.

## Operations & Deployment

**Recommendation 8: Consider hiring enough additional firefighters to staff Truck 51 to ensure a minimum of 4-person staffing daily.**

- The department currently has positions on the books to staff with four on two shifts but regularly works down to three. The minimum of four meets NFPA 1710, helps the Effective Response Force data and improves the critical tasking total staffing needed for alarm assignments. Therefore, these two positions should be converted to full-time, and a third FTE should be hired to meet the minimum truck staffing.
- It is well documented that 4-person truck companies maintain much greater efficiency and safety when operating on fire and emergency scenes.
- This configuration allows for a more flexible on-duty shift mechanic program to continue with the ability of the mechanic to perform their emergency repair duties when needed while maintaining the truck in service.

**Recommendation 9: Consider hiring enough additional firefighters to ensure a minimum of 4-person staffing daily on Engine 51 and Engine 52.**

- The current daily minimum staffing on both engines is currently three. The minimum of four meets NFPA 1710 standards and improves the critical tasking total staffing needed for alarm assignments.
- Based on Triton's risk analysis, increasing staffing to a four-person company model will result in an enhanced Effective Response Force for potential fires and other significant events to all occupancies, most notably for high-risk occupancies.
- Four-person staffing meets the "two-in, two-out" OSHA respiratory protection standard.
- SBFD would need to hire six additional FTE Firefighter positions to reach the goal of four-person minimum staffing for the two fire engines combined. Four-person staffing for communities like San Bruno are policymaker-based decisions based on fiscal resources and limitations and the needs and desires of the community.

**Recommendation 10: Consider conducting a management staffing analysis for the potential hiring of additional management staff.**

- SBFD currently has only two administrative management personnel, the Fire Chief and the Fire Marshal Battalion Chief.
- The current management staff is inadequate, and an additional Chief Officer should be considered to assist in the overall management workload.
- This will result in greater efficiencies, including maintaining and implementing new programs and redistributing the numerous program responsibilities that current personnel at all levels manage.

## Miscellaneous Recommendations

**Recommendation 11: Continue to support and update San Bruno Fire Department's succession planning and career development programs.**

- Succession planning and career development will be important for San Bruno, especially If San Bruno is to remain autonomous into the future.
- SBFD should continue supporting succession planning for each critical position within the organization. This should include all promoted positions:
  - Firefighter/Driver, Captains, Battalion Chiefs, Fire Marshal, and the Fire Chief.
- Consider utilizing NFPA 1021: Standard for Fire Service Officer Professional Qualifications as a general guide.
- SBFD should consider training options for personnel, such as the National Fire Academy's Command & Control classes, Managing Officer Program, and Executive Officer Program.

**Recommendation 12: Develop and update standard operating guidelines and all policies and procedures.**

- SOGs and Policies for SBFD are outdated, and updating them is a priority. Triton received numerous amounts of stakeholder input on the need to update policies.
- The policies have been outdated due to numerous revolving Fire Chiefs and administrations, and the current new Fire Chief recognizes the need and desires to take on this challenge and will have great success.
- Specifically, one area needing updated policies and procedures is for water rescue response. SBFD lacks the proper PPE equipment, training, and response guidelines to adequately and effectively respond to water rescue events.

- Several personnel shared their concerns regarding a recent significant mutual aid water rescue incident.
- Once new updated guidelines, policies, and procedures have been developed, all personnel should be trained in the guidelines.

**Recommendation 13: Consider developing a Strategic Plan for San Bruno Fire Department.**

- A strategic plan is a living management tool that provides short-term direction, builds a shared vision, documents goals and objectives, and optimizes the use of resources.
- With the growth and service demands increasing, a Strategic Plan will help SBFD with its future planning efforts.
- A formal capital facilities and apparatus replacement plan should be developed and maintained as part of the strategic planning process.

**Recommendation 14: Consider writing and implementing a Firefighter's Safety Highway Response SOG.**

- Numerous stakeholder feedback was received on this topic to address basic firefighter safety while responding to highway accidents.
- SBFD has more freeways on all sides of the city than most other jurisdictions do. As a result, firefighter and law enforcement freeway safety has become a pressing issue due to a high number of critical and fatal accidents involving first responders and freeway motorists.

**Recommendation 15: Consider further analyses of the call answering times, call processing times, and specifically call transfer times from the San Bruno Police Dispatch Center to San Mateo County Dispatch Center.**

- The San Bruno Police Department Dispatch Center answers many of the calls for SBFD, then transfers them to San Mateo County Dispatch, and the hand-off times are not well documented and the actual "call answer" & "call transfer" times are non-existent.
- NFPA 1221 standard benchmarks recommend that 911 calls be answered within 15 seconds, 90% of the time (within 20 seconds, 95% of the time). Unfortunately, this benchmark was unable to be determined due to insufficient data.
- A more detailed analysis should be conducted for data on the actual call answering times of the San Bruno Police dispatch and call transfer times that the San Bruno Police dispatch center is taking to get the calls transferred to San Mateo County.

- Once a call is at San Mateo County dispatch, the data shows the "call processing" time of 60 seconds or less, 90% of the time, was within NFPA 1221 standards.
- Because of questions that arose in the CAD data provided by San Mateo County Dispatch for this study, it is recommended that further analysis on the accuracy of the CAD data is conducted, specifically looking at the time stamp benchmarks provided on all incidents.
- It is further recommended that SBFD look into a Computer Aided Dispatch (CAD) CAD to CAD transfer system or network. By creating an interconnected network of CAD systems, public safety agencies can communicate faster and more efficiently and track data appropriately.

**Recommendation 16: Consider studying turnout time performance measures and possible causes.**

- SBFD's turnout times were well above the performance goal of 60 seconds or less at 90% for all call types.
  - Overall turnout times were 2 minutes, 32 seconds at 90% during the study period.
- With the new Continuum program that the agency has available as an RMS add-on, turnout times can be self-tracked over time, and SBFD can provide an internal analysis of the data provided to work on improvement measures. SBFD has already identified this deficiency and has made progress in turnout time improvement.
- It should be noted that the current poor station configurations and conditions for both Station 52 and Station 52 contribute to the turnout time deficiency, as it was noted by several personnel having to "navigate around" workout equipment in the apparatus bay to get onto apparatus in addition to poor station layouts and inefficient designs.
- New station facilities and better designs would improve the turnout performance measures.

**Recommendation 17: Find suitable locations for workout exercise areas outside of the apparatus bays at both Station 51 and Station 52.**

- There is a significant need for workout exercise areas outside the hazards of the apparatus bays in both SBFD fire stations.
- The safety and health risks of exercising in apparatus bays with diesel exhaust present, fuel vapors, turnouts, post-incident medical bio and carbon contaminants, and cramped space next to fire apparatus all contribute to the health and safety risks for firefighting personnel and other staff using the exercise equipment.

- This risk and concern was noted by several SBFD personnel during the stakeholder interviews.
- New replacement station construction of both fire stations would eventually alleviate this risk; however, it is recommended that SBFD work to find suitable locations for exercise equipment outside the apparatus bays in the immediate future.

# Section V:
# APPENDICES

# Appendix A: Risk Classifications

The following are the risk classifications determined by incident type.

## Fire

### Low Risk

These incidents are considered low in risk and are minor in scope and intensity. It requires a single fire apparatus and crew to manage fires involving passenger vehicles, fences, trash or dumpster, downed power lines, residential or commercial alarm investigations, or an odor investigation.

### Moderate Risk

These incidents are the first alarm response needed to manage a moderate fire risk incident. These incidents include smoke in a building, small outside building fires, commercial vehicle fires, a single-family residence, a lightning strike to a building, an automatic fire alarm at a high-risk occupancy, or a hazardous materials pipeline fire.

### High Risk

These incidents are a second alarm response needed to manage a high-fire risk incident. These incidents include smoke in a high-life hazard property (school, skilled nursing, etc.), single-family residences with injured or trapped victims, multi-family residential buildings, or a moderate-sized commercial/industrial occupancy.

### Maximum Risk

A third alarm response is needed to manage a maximum fire risk incident. These incidents include a hospital, assisted living facility, fire in an apartment building, high-rise building fire, a large commercial or industrial occupancy, hazardous materials railcar, or storage occupancy. Incident assignments will include additional command staff, recalling off-duty personnel, or mutual aid assistance for other critical tasking needs.

## EMS Risks

### Low Risk

A single EMS unit can manage a low-risk EMS incident involving an assessment of a single patient with a critical injury or illness, no-life threatening medical call, lift assist, or standby.

### Moderate Risk

A two-unit response is required to control or mitigate a moderate-risk EMS incident. It involves assessing and treating one or two patients with critical injuries or illnesses or a motor vehicle crash with 1-2 patients.

**High Risk**
A multiple-unit response is required to control or mitigate a high-risk EMS incident. It involves 3-8 patients with injuries ranging from minor to critical. Patient care will involve triage, BLS, ALS treatment, and a coordinated transport of patients.

**Maximum Risk**
A multiple-unit response is required to control or mitigate a maximum-risk EMS incident. It involves more than nine patients with injuries ranging from minor to critical. Patient care will involve triage, BLS, ALS treatment, and a coordinated transport of patients. If this is an active shooter incident, the response may require a casualty collection area unit to treat patients not in the hot zone.

## Technical Rescue

**Low Risk**
A single fire unit can manage a low-risk technical rescue incident involving minor rescues, such as a child locked in a vehicle, elevator entrapment, or minor mechanical entrapment.

**Moderate Risk**
A two-unit response is required to control or mitigate a moderate technical rescue risk incident. Support is not usually required from a technical rescue team. This type of incident involves a motor vehicle crash that requires patient extrication, removal of a patient entangled in machinery or other equipment, or a person trapped by downed power lines.

**High Risk**
A multiple-unit response is required to control or mitigate a high-risk technical rescue incident. This type of incident may involve full-scale technical rescue operations ranging from structural collapse to swift water rescues. It may involve multiple motor vehicles that require extrication, commercial passenger carriers, or a vehicle impacting a building. Support is usually required from a technical rescue team. In addition, this incident may require multiple alarms.

**Maximum Risk**

A multiple-unit response is required to control or mitigate a maximum-risk technical rescue incident. Support is required from a specialized technical rescue team and may have multiple operations locations. This type of incident will involve full-scale technical rescue operations such as victims endangered or trapped by structural collapse, swift water, or earth cave-ins. This incident will require multiple alarms and may expand beyond the identified critical tasking. Recall that off-duty personnel or assistance from auto or mutual aid may occur during a disaster or when additional alarms and command staff are needed.

## Hazardous Materials

**Low Risk**

A single fire unit can manage a low-risk hazardous materials incident involving carbon monoxide alarms and other unknown hazmat investigations without symptomatic victims, less than 20 gallons of fuel, natural gas meter incident, downed power lines, equipment, or electrical problems, or attempted burning. This includes automatic alarms that may originate from a hazardous material.

**Moderate Risk**

A two-unit response is required to control or mitigate a moderate-risk hazardous materials incident. Direct support is not usually required from a hazardous materials team. This type of incident involves a carbon monoxide alarm with symptomatic patients, a fuel spill of 20–55 gallons, or a gas or petroleum products pipeline break not threatening any exposures.

**High Risk**

A multiple-unit response with a hazmat team is required to control or mitigate a high-risk hazardous materials incident. For example, support is needed for a Level 2 Haz-Mat incident that involves establishing operational zones (hot/warm/cold) and assigning multiple support divisions and groups. This response includes a release with 3–8 victims, gas leaks in a structure, hazmat alarm releases with victims, flammable gas or liquid pipeline breaks with exposures, fuel spills greater than 55 gallons, fuel spills in underground drainage or sewer systems, transportation or industrial chemical releases, or radiological incidents. Additional assistance may be required to expand operations past the identified critical tasks.

**Maximum Risk**

A multiple-unit response is required to control or mitigate a maximum-risk hazardous materials incident. Support is required from an on-duty hazmat team and their specialized equipment. This type of incident involves establishing operational zones (hot/warm/cold) and assigning multiple support divisions and groups. Examples include nine or more contaminated or exposed victims, a large storage tank failure, a hazmat railcar failure, or a weapon of mass destruction incident. This incident will require multiple alarms and may expand beyond the identified critical tasking. Recall that off-duty personnel or assistance from auto or mutual aid may occur during a disaster or when additional alarms and command staff are needed.

## Wildland Urban Interface

**Low Risk**

A single fire unit can manage a low-risk wildland firefighting incident involving a fire minor in scope, structures not threatened, and Red Flag conditions do not exist. These include low-risk wildland or grass fires, an outside smoke investigation, illegal or controlled burns, or small vegetation fires.

**Moderate Risk**

Multiple units are needed to manage a moderate-risk wildland firefighting incident involving a significant fire in the brush or brush pile at a chipping site, grass, or cultivated vegetation. Red Flag conditions do not exist, and structures may or may not be threatened.

**High Risk**

Multiple units or alarms are needed to manage a high-risk wildland firefighting incident. This level is associated with Red Flag warnings with structures that may or may not be threatened. This fire involves a significant wildfire in the brush, grasses, cultivated vegetation, and woodland areas. Additional alarm assignment, command staff, recall of off-duty personnel, and mutual aid assistance may require the operations to extend beyond the identified critical tasks.

# Appendix B: Summary of the Stakeholder Interviews

## Introduction to the Stakeholder Interviews

Triton interviewed stakeholders representing various of the San Bruno Fire Department's internal and external stakeholders. These interviews aimed to understand better issues, current service levels, concerns, options regarding the emergency service delivery system, opportunities for improvements, and expectations.

It is important to note that the information solicited and provided during this process was in the form of "people inputs" (stakeholders individually responding to Triton's questions), some of which are perceptions 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 comments to identify specific patterns or trends. Based on the information reviewed, the team identified a series of observations, recommendations, needs, and general comments that were significant enough to be included in this report.

Stakeholders were identified within the following groups: Elected Officials, San Bruno City Management & Department Heads, Rank & File line personnel, Chief officers, Administrative Staff, and Community Leaders.

## Elected Officials, City Management, and City Department Heads

**What strengths contribute to the successes of the San Bruno Fire Department?**

- SBFD is great to work with and has some of the most fantastic staff in the region.
- The new Fire Chief has hit the ground running and doing well.
- The new wave of entry-level hires are progressive.
- Our prevention division has progressed and is now a fully-functioning division.
- The new Fire Chief has a lot of trust and support from within.
- We have a humble group of Firefighters that love what they do.
- We have a great working relationship between city departments.
- The fire department has a strong sense of community.
- They do their job well, are dedicated, devoted, and work as a cohesive team.

**What does San Bruno Fire Department do well?**

- SBFD provides a high level of medical service in the field.
- The SBFD members have a lot of pride in the community and their work.
- The Crestmoor mitigation project has been great.
- SBFD operates with limited resources so they do a good job and work hard.

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

- Seeing the city grow, the department needs to concurrently grow alongside the community and the demand of service.
- Replacing both Station 51 and Station 52 had numerous responses as a high priority.
- Our fire stations are embarrassing to the public.
- We could have more diversity within the organization.
- SBFD does not compensate as much as it could. Personnel costs are challenging.
- Our reserve truck is not equipped and should be.
- Our fire stations are not up to modern standards. We have to provide good fire stations for them to safely and adequately function in.
- It's a priority to get four firefighters on both Truck 51 and Engine 51.
- It's better for EMS service to have staffing of 4 on Engines.
- Fire prevention needs to be in the same building as administration.
- The City needs to put more priority into the facilities. They are so far gone that no one cares about them.
- Further studying the consolidation question should possibly be asked again.
- Re-engage with the community.

**What do you see as San Bruno's greatest risks?**

- Infrastructure.
- Future development and growth.
- Wildfire. We have open spaces that haven't been taken care of, most notably the Canyon area fire hazard.
- We have an inadequate water distribution system.
- The pipeline explosion.
- We need to retain and maintain our staff for long term stability.

**What do you see as the top critical issues face by the San Bruno Fire Department?**

- Future growth. The YouTube and Tanforan developments will tax our system.
- The City is growing fast and the fire department needs more funding for services.
- Serving new development. The Tanforan project with biotech campus, 1000 units, office & research, and retail will be challenging.
- The ability to keep up with future growth.

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

- Improve and rebuild the two fire station facilities.
- We need community meeting rooms in the fire stations.

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

- The public views SBFD in a good light.
- Our fire department is very well respected in the community.
- The fire marshal and inspectors have become a crucial part of the business community and are doing well.

### Officers, Rank & File, Firefighter Line Personnel

**What strengths contribute to the successes of the San Bruno Fire Department?**

- A high percentage of those interviewed stated the department's success was due to the department's culture and the employees that work for San Bruno Fire.
- The high number of calls San Bruno gets allows everyone to stay proficient.
- Many line personnel expressed how proud they felt working for an organization that other organizations throughout the region are recognizing.
- The recent change that occurred during the hiring process to involve more of the fire department within the selection process was a positive thing.
- We have a lot of pride in our culture.
- We had really good hires the last 5 years, both lateral and entry level.
- We had a revolving door of Fire Chiefs but have a great one now.
- We had 11 chiefs in 22 years. We now have a progressive Chief.
- Fire prevention is doing a great job as we have lots of development in 5 years.
- Our EMTs and Paramedics are top-notch.

- The on-duty mechanic program has been very successful.
- It's an exciting time to be at San Bruno Fire. We are starting over. If we are to be self-sufficient, then let's do it.

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

- We need an apparatus bay, preferably in a new station to house the reserve apparatus.
- Need more staff as we have lots of program assignments and are spread thin.
- We have two of the oldest stations in the area that need replaced. Need female quarters in Station 52.
- We need an admin BC to help take the load off.
- The AVL is pulling us out of the area too much, needs to be re adjusted.
- A current safety risk is our health and wellness. We have cardio and exercise workout equipment next to the engine exhaust in the apparatus bay.
- We are 15% under median in pay and benefits in San Mateo County.

**Tell us about your daily of staffing 3,3,4 working down to 3,3,3. Is it adequate staffing day-to-day for your responses?**

- Day-to-day operations definitely run better when the 4th was on duty on the truck.
- It complicates things when the 4th isn't backfilled because of leave or vacation.
- Many examples were given of how the fourth allows SBFD to do more from allowing the mechanic to continue to work on a maintenance project.
- The 4th allows an engine to stay in service when a medic has to ride in with AMR which is much more frequent now.
- Engine and truck companies would be able to move quicker with two in and two out with a four-person crew.
- Four-person staffing meets NFPA National standards and is much safer for our San Bruno crews. It is a national standard that we should meet.
- The truck needs four as it is the medical backup after the engine and often gets dispatched and the firefighter often rides in with AMR.
- We need four-person staffing on all units, we currently figure out how to make it work each time but not optimal.
- Our daily staffing should be at 10,10,10 minimum, with the truck always staffed at 4.

**What do you see as San Bruno's greatest risks?**

- Multi-family occupancies.
- Wildfire in the Canyon, urban interface, WUI.
- Earthquake.
- Aircraft accidents from the airport.
- A major mall development possibly coming.
- The gas pipeline.
- The train tracks and train frequency.
- Hazardous materials responses

**What do you see as the top critical issues face by the San Bruno Fire Department?**

- The most critical issue raised by personnel by far was the current poor condition of the two aging fire station facilities.
- San Bruno lacks the opportunity to train within the city as the lack of a training tower places a burden on shift personnel to go out of the city to conduct routine training.
- SBFD lacks a Deputy Chief and support staff in training.
- SBFD lacks professional development and succession planning for personnel.
- Juggling numerous projects and tasks with the high call volume is a big concern.
- SBFD needs to make sure the organization keeps up with the community's growth and the demand for services.
- Not having enough daily staffing.
- AMR not sending ALS Paramedics is a big problem. It takes our resources away when having to ride in to the hospital.

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

- Replacing our two fire stations with modern facilities.
- Four-person staffing.
- Have a training tower.

**You have significant mutual aid partnerships rely on. How well do you work with Mutual aid (MA) partners?**

- During the interviews, a common theme was identified that training and MA partners from the South were stronger than the MA partners to the North.
- There were concerns with agencies pulling out of the regional training, which could affect responses and working together in the future.
- MA partners response lacks access to keys and fire system information.
- We work well with MA partners and they like it when we arrive on-scene.

**In your opinion based on your response experiences, do you feel your two fire stations are located in the right area of your city?**

- A very high percentage of those interviewed stated that Station 52 should be located in a better location. Most commonly stated South of its current location.
- The same high percentage of those interviewed agreed that Station 51 was in the appropriate location.
- There needs to be a location within the city to store our reserve apparatus.
- Based on the locations of stations 61& 63 from South San Francisco and Station 37 from Central (Milbrae) our Station 51 is located in a good location.
- Based on the location of MA Stations 64 and 38, Station 52 could be located further South at Glenview & San Bruno Avenue.
- When leaving Station 52, it's a quick turn, turn, turn three times, which is very difficult to do on a blind corner coming out of a residential neighborhood.

**In your opinion, what are the most serious problems or safety risks in your response area?**

- Freeways and Highways are a serious risk and concern.
- Congestion and Access issues on tight roadways.
- Alternative dwellings in locations and occupancies not expected to be there.
- Concern over Truck 51 being called out of the city because of the AVL dispatch.
- Citizens are now living in garages and attics in large numbers.

**Think back to a situation where you felt powerless to help a resident in need. What could have helped you in that situation?**

- The situation that stood out the most from many personnel for this question was being on the recent flash floods that occurred which was a response into a MA area for a water rescue call.
- Several other water rescue calls with different stories were also mentioned. The need for proper PPE, equipment, and training would have better outcomes.
- Frustration with the inability to turn things over to health services or DPS to address hoarding and other enforcement issues when found on calls.

### Fire Department Chief Officers & Administrative Staff

**What strengths contribute to the successes of the San Bruno Fire Department?**

- The department takes care of its employees.
- SBFD is a very progressive department.
- We have lots of motivated, educated, driven personnel.
- The new Fire Chief has brought in fresh ideas and morale has improved.
- The fire department is a big family and they acknowledge each achievement.

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

- We have a lot on our plate and take on a lot of programs. Lots to be responsible for.
- We are lacking in policies and procedures.
- We need a professional development program.
- Our fire stations are embarrassing to walk into.
- We lack command staff—either a Deputy Chief or Admin Battalion Chief.
- The City of San Bruno needs to invest in their fire department if they intend to keep it.
- The work space in the fire administration office is cramped with old equipment. It needs to be a more efficient setup. There is no security in the entry way.

**Tell us about your daily of staffing 3,3,4 working down to 3,3,3. Is it adequate staffing day-to-day for your responses?**

- Auto aid is close, so 3,3,3, staffing is workable, but it would be a better benefit to have four-person staffing.
- The four-person staffing allows us to use two-in, two-out and split crews into teams.
- Currently, Daily City, San Mateo Consolidated, Redwood, and Menlo Park all have four-person staffing. San Bruno only has three-person staffing.

**What do you see as San Bruno's greatest risks?**

- Non sprinklered buildings.
- The San Andreas fault line.
- Wildland Urban Interface fires.
- Transportation systems including SFO, Bart, Cal Trans, & Freeways.

**What do you see as the top critical issues face by the San Bruno Fire Department?**

- The current condition of the fire stations. Station 52 should be located near Skyline and San Bruno Avenue.
- We could be pushed into consolidation someday due to necessity to maintain.
- The county maintaining proper ambulance coverage. Currently it's not adequate.

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

- We could benefit by having an admin BC as the BCs are very busy.
- Station 52 needs to be in a better location. The location of station 51 at City Hall is good but the station needs to be replaced.

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

- Excellent and we have good cooperation with our MA companies.

## Community Members & Others

**What strengths contribute to the successes of the San Bruno Fire Department?**

- I know lots of firefighters and they are always training and keep their skills up.
- We have a lot of Paramedics that are very good.
- They have fast responses.
- The firefighters are on top of things.

**What does San Bruno Fire Department do well?**

- They did hands on CPR at the Senior Center which was great.
- They do the Stop the Bleed program with the police department.
- They are involved in a lot of community activities and get out into the community.
- The fire department is a good community partner.

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

- The fire stations are old and probably not up to the standards of today.
- Community concern regarding the condition of the two fire stations has come up.

**What do you see as San Bruno's greatest risks?**

- The multifamily dwellings and condos.

**What do you see as the top critical issues face by the San Bruno Fire Department?**

- Our fire department has a really big job and a lot of responsibilities.

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

- They are excellent at what they are called to do.

# Appendix C: Table of Figures

# Appendix D: References

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