CITYGATE
FIRE & EMS

FIRE SERVICES MASTER PLAN

VOLUME 1 OF 2: TECHNICAL REPORT

SOUTHERN MARIN FIRE PROTECTION DISTRICT

OCTOBER 9, 2024

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EXECUTIVE SUMMARY

The Southern Marin, California Fire Protection District (District) retained Citygate Associates, LLC (Citygate) to conduct a Fire Services Master Plan to include a Community Risk Assessment (CRA), Standards of Cover (SOC) deployment analysis, an adequacy review of headquarters support services, and a physical assessment of the District's physical building facilities. Together, these components comprise a Fire Services Master Plan from which the District can make informed decisions relative to the current and near-future delivery of fire and emergency medical services.

This report is presented in two volumes. **Volume 1**—**Technical Report** (this volume) includes: this Executive Summary—which contains a summary of Citygate's analysis and suggested next steps; a Standards of Cover deployment analysis supported by maps and response statistics; a Headquarters Services Adequacy Review; and a Fire Station Physical Conditions Review Summary. **Appendix A** includes a detailed Community Risk Assessment, and **Appendix B** includes detailed Facilities Assessment Worksheets. A Map Atlas of deployment coverage measures is provided in **Volume 2**.

Throughout this report, Citygate makes key findings and, where appropriate, specific action item recommendations. Overall, there are **38 findings** and **21 actionable recommendations**.

POLICY CHOICES FRAMEWORK

As a reminder to the reader, there are no mandatory federal or state regulations directing the level of fire service staffing, response times, or outcomes. The level of service provided, and any resultant cost, is a local policy choice. The body of regulations related to fire service suggests that, if fire services are provided, they must be provided with the safety of firefighters and the public in mind. Thus, there is often a constructive tension between the desired level of fire services and the level that can be funded, and many communities may not have the level of fire services they desire. The District's investments in fire services over past years serve as its baseline commitment today.

The fundamental policy choices driving the District's investment in fire services should be derived from **two key questions**:

1. What outcomes are desired for the emergencies to which the District responds? Is it the desire to provide emergency medical care in time to lessen the possibility of preventable death and severe disability, and to keep a building fire to the room, building, or block of origin?
2. Should equitable response time coverage be provided to all neighborhoods with similar risks (building types and population density) to protect?

Once desired outcomes are identified, fire and emergency medical services (EMS) first responder and ambulance deployment can then be designed to cover the most geography in the fewest travel minutes to meet stated outcome goals.

STANDARDS OF COVER DEPLOYMENT EVALUATION SUMMARY

Citygate finds the District is appropriately organized to accomplish its mission to serve a diverse urban/suburban population across southern Marin County, including the Cities of Mill Valley and Sausalito. The District is utilizing best practices where possible and is committed to continuous improvement. Citygate found a professional, caring, committed workforce dedicated to anticipating and meeting community needs. Citygate finds many positive factors related to how the District provides quality services within the constraints of fiscal realities.

> Fire service deployment, simply summarized, is about the ***speed*** and ***weight*** of response.
>
> ***Speed*** refers to initial response resources—typically engines, ladder trucks, squads, or ambulances—strategically deployed across a jurisdiction within a specified travel time interval to mitigate routine-to-moderate emergencies to achieve desired outcomes.
>
> ***Weight*** refers to multiple-unit responses for more serious emergencies such as building fires, multiple-patient medical emergencies, vehicle collisions with extrication required, or technical rescue incidents where enough firefighters must be assembled within a time interval to safely control the emergency and prevent it from escalating into an even more serious event.

Adequate incident response is not defined by the number of physical apparatus responding to a particular emergency; rather, it is defined as the appropriate number of firefighters with the right training and equipment to safely mitigate the emergency. Within the fire service deployment process, positive outcomes are the goal. From that goal, staffing and travel time can be calculated to determine appropriate fire station spacing (distribution and concentration). Serious medical emergencies and building fires have the most severe time constraints.

Typical **desired outcomes** in communities with urban/suburban density include:

1. Preventing death and permanent impairment from medical emergencies where possible.
2. Confining building fires to the room or compartment of origin and safely rescuing any occupants unable to self-evacuate.

To achieve these outcomes, the initial (first-due) unit should arrive within 7:30 to 8:30 minutes—before brain death becomes irreversible or an incipient building fire expands beyond the room or compartment of origin—and a full, multiple-unit Effective Response Force (ERF) should arrive

within 11:30 to 12:00 minutes with enough personnel to safely perform all the critical tasks necessary to mitigate the emergency and prevent it from becoming even more serious.

The Risk Assessment (**Appendix A**) included with this report provides details related to the values the District serves to protect. The District faces a significant wildland fire risk in its Wildland Urban Interface (WUI) areas of the Mount Tamalpais watershed and is making a focused effort to reduce this risk through comprehensive mitigation strategies including community education, inspection of properties within the WUI, defensible space / home hardening, and community-level projects including fuels reduction and access/egress improvements.

Even as state or local fire codes require fire sprinklers in residential dwellings, it will be many more decades before enough homes are built or remodeled with automatic fire sprinklers. The District will—for decades to come—still need both first-due unit and multiple-unit ERF coverage consistent with controlling a building fire to within or near the room(s) of origin and improving the chance of survival for patients with life-threatening medical emergencies. The District must also remain prepared for the special risks of wildfire, hazardous materials spills, and technical rescues, including marine incidents. The District is to be commended for its strong mutual aid relationships and should maintain robust firefighting and first responder EMS programs appropriate for an urban/suburban fire agency in staffing, unit types, and facility locations.

The District has a strong deployment system, with five fire stations appropriately located to protect the values at risk and that can be expected cover 91.3 percent of the District's public road miles within a travel time of 6:00 minutes. Faster response performance is significantly hampered by the curvilinear road design and topography. While none of the response crews are at or nearing peak-hour demand workload saturation, annual incident service demand is increasing, including a rate of two or more simultaneous incidents 31 percent of the time.

HEADQUARTERS SERVICES ADEQUACY REVIEW SUMMARY (SECTION 3)

Overall, Citygate's review and assessment of the District's administrative support services and functions finds it to be appropriately organized and adequately staffed (but at a minimum level and without redundancy of some key functions) to meet the District's mission to "contribute to the Greater Southern Marin Community's reputation as a safe, friendly, economically thriving community in which to live, work, learn, play, and visit."

Citygate's review found the administrative support organization operating at a very high level to meet workload demand and programmatic expectations despite insufficient human resource staffing capacity and a single designated point or position to coordinate and manage all logistics-

related functions and programs.[1] The District also lacks an updated set of set of administrative, fiscal, and operational policies and procedures—although District staff is working to remedy this critical gap as workload capacity and priorities allow

The District is also lacking redundancy for many critical business processes and programs, including a formal charter for the Safety Committee identifying its role, responsibilities, membership, meeting schedule, and key procedures and deliverables; a formalized process and assigned responsibility to review accidents, injuries, and near misses for causal and contributory factors to prevent recurrence; and a current inventory of high-hazard (target) occupancies.

FACILITIES REVIEW SUMMARY (SECTION 4)

Citygate's review of the District's physical building facilities found Fire Stations 1 and 4 and the District Offices of Liberty Ship Way to be in good overall condition and meeting current and anticipated future operational needs with routine maintenance. Should the District need additional headquarters office space in the future, it has first right to any additional space that may become available within that building.

However, this space is leased and Stations 1, 6, and 7 are owned by the City of Sausalito, and Mill Valley, respectively. The District eventually needs a capital facility plan for lease expiration and regarding who owns the expenses for capital remodeling or replacement costs for the City-owned stations. Having an agreed-upon plan will allow the owners, either city or District, to save for these major expenses as fire stations eventually age out and modernization becomes economically unfeasible.

Stations 7 and 9 were found to be in fair condition and needing improvements or renewal to meet operational needs and current industry standards. Station 6 was found to be undersized to meet modern fire service standards and in poor overall condition, needing major remodeling to meet operational needs and current industry standards.

In addition, some stations lack compliance with current Building Code, Americans with Disabilities Act (ADA) requirements, recommended NFPA standards, and the California Essential Services Buildings Seismic Safety Act of 1986. Further, the sleeping, locker room, and restroom facilities at Stations 6 and 7 were designed for historically all-male crews and progress is being made for appropriate separation and personnel privacy on a station-by-station basis.

[1] Includes functions and programs such as uniforms; personal protective equipment; respiratory protection equipment; EMS, firefighting, and rescue equipment; station supplies; facility maintenance and repair; vehicle maintenance and repair; etc.

FINDINGS AND RECOMMENDATIONS BY THEME

Standards of Cover Deployment Findings (Section 2)

Finding #1: The District's current deployment model provides a minimum of 21 response personnel on duty daily, including a chief officer, for incident command and safety.

Finding #2: The District has established formal response performance goals as a best practice consistent with the recommendations published by the Commission on Fire Accreditation International and the National Fire Protection Association.

Finding #3: The District has a standard response plan that considers risk and establishes an appropriate initial response for each incident type; each type of call for service receives the combination of engines, trucks, specialty units, and command officers customarily needed to effectively control that type of incident based on District experience.

Finding #4: The District's five fire station locations can be expected to deliver 6:00-minute first-unit travel time coverage to slightly more than 91 percent of the District's public road segments.

Finding #5: Given the District's street layout and topography, the District should continue to utilize a 6:00-minute first-unit travel time goal to 90 percent of emergency incidents as a best fit.

Finding #6: There is a constant, predictable demand for service across all hours of the month, week, and day, with overall demand increasing by approximately 7 percent annually.

Finding #7: Two simultaneous calls for service occur slightly more than 31 percent of the time, with three simultaneous incidents occurring 11 percent of the time. The highest rate of simultaneous demand occurs in the response areas of Station 4 and Station 1.

Finding #8: None of the District's staffed response units are approaching a Citygate-recommended 30 percent Unit-Hour Utilization saturation rate over multiple consecutive hours.

Finding #9: At an aggregate 1:00 minute over the previous five years, 90th percentile call-processing / dispatch performance is 33 percent *faster* than Citygate's recommended 1:30-minute best practice goal to facilitate positive outcomes for fire and EMS emergencies.

Finding #10: At 2:22 minutes, 90th percentile crew turnout performance over the five-year period studied was 18 percent *slower* than the Citygate-recommended 2:00-minute best practice goal.

Finding #11: At 7:44 minutes in 2023, 90th percentile first-unit travel time performance to fire and EMS incidents was 93 percent *slower* than a recommended 4:00-minute best practice goal to facilitate best practice outcomes in urban-density communities, and 29 percent *slower* than the 6:00-minute goal adopted by the District.

Finding #12: At 9:49 minutes, 90th percentile call-to-first-unit-arrival performance over the five-year period studied was only slightly slower than the District's adopted 9:30-minute goal; however, that performance degraded each of the five years to 10:17 minutes in 2023.

Finding #13: At 13:41 minutes, 90th percentile ERF call-to-arrival performance was slightly more than 2:00 minutes (19 percent) *slower* than a Citygate-recommended and District-adopted, 11:30-minute best practice goal to facilitate positive outcomes in communities with urban/suburban density. However, there were only four ERF incidents over the five years of data studied, showing that small data sets can be quite volatile.

Standards of Cover Deployment Recommendations (Section 2)

Recommendation #1: The District should continue to maintain and monitor its current adopted response performance measures with a focused effort to reduce crew turnout performance to 2:00 minutes or less over a 24-hour day.

Recommendation #2: The District should consider increasing the daily staffing on Engine 1 to four personnel over time to enhance two-in / two-out and ERF staffing performance, particularly in the southern section of the District.

Headquarters Services Assessment Findings (Section 3)

Finding #14: The Personnel and Administration Division is appropriately organized; however, its staffing levels are challenged to meet its human resource—and possibly its finance responsibilities and expectations—with current staffing capacity and workload.

Finding #15: The District currently lacks an updated set of written administrative and fiscal policies and procedures, although Personnel and Administration Division staff are working to remedy this critical gap as workload capacity and priorities allow.

Finding #16: The Personnel and Administration Division (all the Administrative Deputy Fire Chief's five non-sworn technical reports) lack redundant capability for many critical business processes.

Finding #17: All District response personnel are meeting minimum annual training requirements.

Finding #18: The District needs to maintain an updated set of standardized operational policies/procedures at all times.

Finding #19: The District's Safety Committee lacks a formal written charter identifying its role, responsibilities, membership, meeting schedule, and key procedures and deliverables.

Finding #20: The District lacks a formal process and assigned responsibility to review accidents, injuries, and near misses for causal and contributory factors to prevent recurrence.

Finding #21: The District lacks a clearly defined fiscal process for program-level purchases, the development of which is underway.

Finding #22: The District lacks a single, centralized point/position to coordinate and manage all logistics-related functions and programs.

Finding #23: The District needs adequate office support professional (clerical) capacity to ensure support for its emergency-response-related programs.

Finding #24: The District's EMS program is meeting state and County EMS Agency standards and regulations relative to continuing education and continuous improvement.

Finding #25: Advanced life support EMS equipment and supplies are appropriately controlled and accounted for by the Southern Marin Emergency Paramedic System (SMEMPS) and compliant with state and County standards and regulations for patient care.

Finding #26: The District has no legislated emergency management (disaster) responsibilities other than a verbal agreement to provide emergency management support to the Cities of Sausalito and Mill Valley as needed.

Finding #27: The California Fire Code does not address life safety in berthed vessels used for full-time or rental habitation.

Finding #28: The District lacks a current inventory of high-hazard (target) occupancies.

Finding #29: The District has a Communications Coordinator effectively implementing the elements of the District's Comprehensive Branding and Communications Plan to strengthen community trust with timely information and engagement.

Headquarters Services Assessment Recommendations (Section 3)

Recommendation #3: The Personnel and Administration Division should prioritize completion of an updated set of written administrative and fiscal policies and procedures as soon as possible, including a clearly defined process for program-level purchases and budget management.

Recommendation #4: The District should consider additional Human Resource Specialist/Technician capacity to provide needed workload support.

Recommendation #5: The District should evaluate the need for additional finance section technical support equaling 1.0 FTE to meet current and anticipated future workload.

Recommendation #6: The Personnel and Administration Division should prioritize eliminating or minimizing all single points of failure in critical business processes.

Recommendation #7: Prioritize completion of formal operational policies and procedures by the end of 2024.

Recommendation #8: Develop a formal written Safety Committee charter identifying its role, responsibilities, membership, meeting schedule, and key procedures and deliverables.

Recommendation #9: Ensure that all accidents, injuries, and near misses are appropriately investigated in a timely manner, with an After-Action Report produced identifying all causal and contributory factors with the goal of preventing future recurrences.

Recommendation #10: The District should consider the benefit of creating a single, centralized position to coordinate and manage all logistics-related functions and programs.

Recommendation #11: The District should consider additional technical administrative capacity to support all Operations Division programs.

Recommendation #12: The District should codify any agreement relative to providing emergency management services for the Cities of Sausalito and Mill Valley.

Recommendation #13: The District should work with the City of Mill Valley to update its Emergency Operations Plan and develop a Continuity of Operations Plan in conformance with federal Department of Homeland Security guidelines.

Recommendation #14: The District should work with the City of Sausalito and the County to incorporate US Coast Guard regulations with new local Fire Code amendments to address life safety standards in berthed vessels used for full-time or part-time human habitation.

Recommendation #15: The District should develop an updated inventory of high-hazard (target) occupancies for its emerging pre-incident planning effort.

Facilities Assessment Findings (Section 4)

Finding #30: Most fire stations are appropriately sized to meet current needs; however, they should be considered for reconfiguration to better meet District use.

Finding #31: Although a designated historic building, Station 6 in Mill Valley is undersized for current needs and does not meet Essential Services Buildings Seismic Safety Act of 1986 and current Building Code and NFPA standards.

Finding #32: The sleeping, locker room, and restroom facilities at Stations 6 and 7 were designed for historically all-male crews and progress is not complete for appropriate separation and personnel privacy.

Finding #33: Two of the District's five stations are more than 60 years old, with a third being nearly 50 years old. These three stations are outdated and unsuited for modern apparatus, staffing levels, and operational and safety practices.

Finding #34: Some fire station facilities lack security fencing, separation between station public entry and office space, and efficient HVAC systems.

Finding #35: All five fire stations have physical fitness equipment located in the apparatus room where employees are exposed to listed carcinogens.

Finding #36: Most of the fire stations have firefighter PPE stored on the apparatus floor where it is exposed to listed carcinogens.

Finding #37: Some building components throughout the District's fire stations are in needed of replacement, including station alerting, overhead doors, HVAC systems, and carpeting.

Finding #38: The District and cities lack long-range capital facility plans for fire station renewal/replacement. Administrative office space is leased and Stations 1, 6, and 7 are owned by the City of Sausalito, and Mill Valley, respectively. The District eventually needs a capital facility plan for lease expiration and regarding who owns the expenses for capital remodeling or replacement costs for the City-owned stations. Having an agreed-upon plan will allow the owners, either city or District, to save for these major expenses as fire stations eventually age out and modernization becomes economically unfeasible.

Facilities Assessment Recommendations (Section 4)

Recommendation #16: The District should consider prioritizing fire stations 4 and 9 for substantial renewal or replacement.

Recommendation #17: The District should work with the City of Mill Valley to address the deficiencies of Station 6 and Station 7 and work with the City of Sausalito to address future Station 1 needs.

Recommendation #18: The District should develop a comprehensive, multi-year facility maintenance and renewal/replacement plan.

Recommendation #19: All fire stations should be master planned for capital reinvestment so they can be reconfigured to accommodate current/future use and operations.

Recommendation #20: Develop solutions for relocating physical fitness equipment and firefighter PPE in areas away from listed carcinogens produced by fire apparatus.

Recommendation #21: Fire station living areas should be designed to accommodate employees of all gender identities.

NEXT STEPS

Near Term

- Review and absorb the content, findings, and recommendations of this report.
- Place a priority on adding capacity to administrative staffing. A starting point would be to increase human resources workload capacity with 1.0 additional FTE Human Resources Specialist/Technician and use a second part-time Finance Specialist to total one full-time position.
- Monitor response performance for trending decay.

Longer Term

- Consider increasing the daily staffing on Engine 1 to four personnel over time to enhance two-in / two-out and ERF staffing performance, particularly in the southern section of the District.

SECTION 1—INTRODUCTION AND BACKGROUND

The Southern Marin Fire Protection District, California (District) retained Citygate Associates, LLC (Citygate) to conduct a Fire Services Master Plan study to include an update to its previous Community Risk Assessment (CRA) and Standards of Cover (SOC) deployment analysis, along with review and evaluation of the adequacy of its headquarters support services organization and staffing capacity, physical facilities adequacy, future demand for services, and future service delivery alternatives. Together, these elements serve as a foundation from which the District can make informed decisions relative to the current and near-future delivery of fire and EMS services.

This assessment is based on nationally recognized guidelines and best practices, federal and state mandates, and relevant local and regional operating procedures. This assessment is intended to provide recommendations relative to the organization and deployment of fire suppression operations, emergency medical operations, and special operations for consideration by District leadership as a template for future analysis and long-term financial and deployment planning.

Citygate's work plan for this assessment reflects its Project Team members' cumulative experience in fire administration and deployment. Citygate utilizes various National Fire Protection Association (NFPA) and Insurance Services Office (ISO) publications as best practice guidelines, along with the self-assessment criteria of the Commission on Fire Accreditation International (CFAI). This systems-based approach uses local risks and demographics to determine the level of protection best fitting District needs.

1.1 REPORT ORGANIZATION

This report is organized into the following volumes and sections.

Volume 1—Technical Report

Executive Summary

A summary of Citygate's analysis of the District's current services and significant challenges, including key findings and recommendations.

Section 1—Introduction and Background

An introduction to the study and background information about the District.

Section 2—Standard of Coverage Analysis

An overview of the SOC process and detailed analysis of the District's existing deployment model including daily response staffing, emergency outcome expectations, community risk assessment

summary, staffing needed for different emergencies (critical tasks), geographical distribution and concentration effectiveness of fire station locations, reliability and historical response measures effectiveness, specialty response deployment review, and a concluding overall deployment evaluation.

Section 3—Headquarters Services Assessment

A review and evaluation of the District's administrative support organization for regulatory compliance and workload capacity, including configuration and lines of authority.

Section 4—Facilities Assessment

A summary of key themes and recommendations based on Citygate's on-site assessment of the District's physical building facilities, review of facility records, and interviews of key personnel.

Appendix A—Community Risk Assessment

A comprehensive assessment of the values at risk to be protected within the District's service area and evaluation of the fire and non-fire hazards likely to impact the District as related to services provided.

Appendix B—Facility Assessment Worksheets

A detailed assessment of each of the District's physical building facilities.

Volume 2—Map Atlas

A Map Atlas of deployment coverage measures and scenarios as described in 2.6.1 of this report.

1.2 Goals of the Report

This document provides technical information about how fire services are provided and legally regulated, and how the District is currently operating. This information is presented in the form of findings and recommendations, as appropriate, related to each finding. The result is a solid technical foundation upon which to understand the advantages and disadvantages of the policy choices facing District leadership regarding the best way to provide services and, more specifically, at what level of desired outcome and expense.

1.3 Limitations of the Report

There are no federal or state regulations mandating the level of fire service staffing, response performance, or outcomes. Through the public policy process, each community is expected to understand local fire and non-fire risks and its ability to pay for fire services, and then choose its

level of services accordingly. *If* fire services are provided at all, federal and state regulations specify how to safely provide them both for the public and the personnel providing services.

While this report and technical explanation can provide a framework for the discussion of District services, neither this report nor the Citygate team can make final decisions or cost out every possible alternative in detail. Once final policy choices receive District Board of Directors approval, staff can conduct any final cost and fiscal analyses as typically completed in the District's normal operating and capital budget preparation cycle.

1.4 Project Approach and Scope of Work

1.4.1 Project Approach and Research Methods

Citygate utilized multiple sources to gather, understand, and model information about the District including requesting and reviewing a large amount of relevant background data and information to better understand current costs, service levels, history of service level decisions, and other prior studies.

In virtual and on-site meetings, Citygate conducted focused interviews of District project team members and other key project stakeholders. Citygate reviewed demographic information about the District's service area, including the potential for future growth and development. Citygate also obtained map and response data from which to model current and projected fire service deployment, with the goal to identify the location(s) of stations and the number of personnel required to best serve the District community as it currently exists and facilitate future deployment planning.

Once Citygate gained an understanding of the District's service area and its fire and non-fire risks, Citygate developed a model of fire services that was tested against prior response data to ensure an appropriate fit. Citygate also considered future growth and service demand to develop a potential approach to address both current and longer-range needs. The result is a framework for enhancing District services while meeting reasonable community expectations and fiscal realities.

1.4.2 Scope of Work

Citygate's scope of work for this assessment included:

- Reviewing data and information provided by the District and conducting listening sessions with key project stakeholders.
- Conducting a comprehensive Community Risk Assessment in conformance with NFPA 1300 – Standard on Community Risk Assessment and Community Risk Reduction Plan Development (2020 edition).

- Providing a deployment Standard of Coverage (SOC) analysis consistent with guidelines by the CFAI, the NFPA, the International Code Council (ICC), the ISO, Cal/OSHA, federal and state laws, and recognized industry best practices including assessment of the Department's incident history records, the deployment plan's historic reliability, response effectiveness, and fire station distribution and concentration analysis.
- Assessing the District's EMS, wildland firefighting, technical rescue, and specialty deployment to identify optimal resource deployment locations and hours of service to best serve the District's demographics and service demand needs.
- Assessing the staffing and technical workload capacity of the District's headquarters organization, including overall District administration, operations, training, EMS quality assurance, fire prevention, emergency management, and communications programs.
- Assessing District facilities, to include an in-person review of all fire stations and the Liberty Ship Way Headquarters offices utilizing an NFPA 1500 (2021 edition) checklist.
- Preparing a comprehensive report that includes analysis-based findings and recommendations, including an executive summary presentation of the written report for District stakeholders.

1.5 DISTRICT OVERVIEW

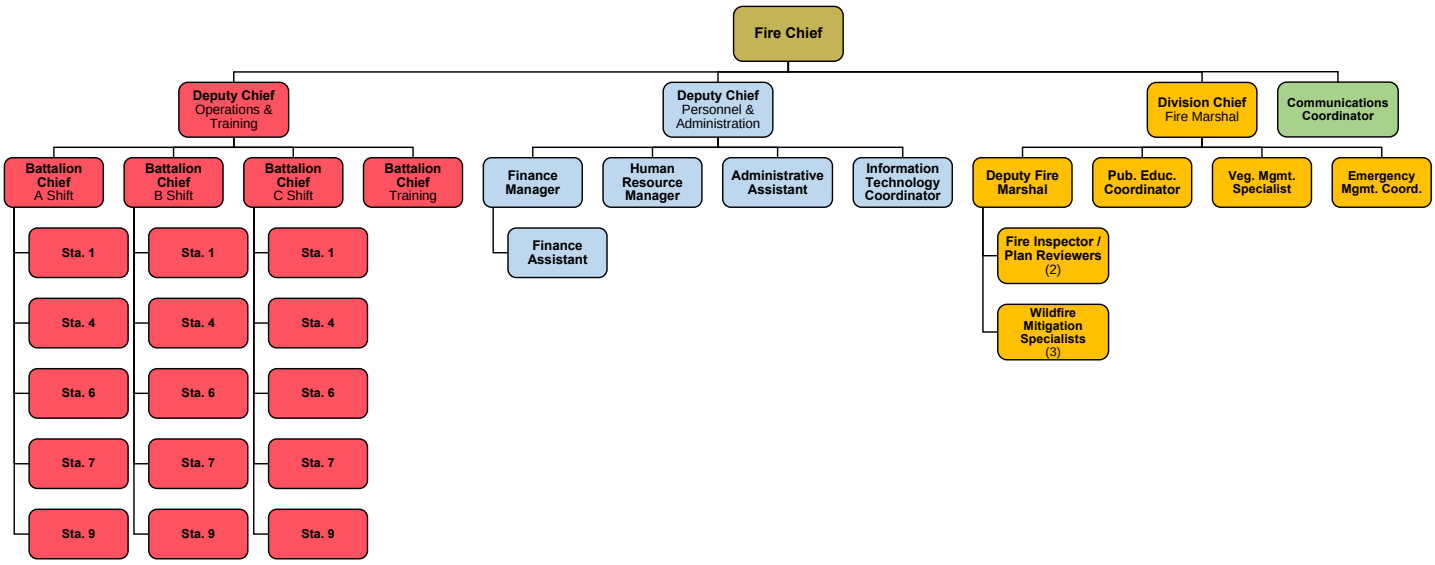
Located on the northern end of the Golden Gate Bridge, across from the City of San Francisco at the southern end of Marin County, the Southern Marin Fire Protection District encompasses 25 square miles and serves a population of approximately 41,000 residents. In addition, the US Department of the Interior contracts with the District to provide fire and EMS services for the southern Marin County section of the Golden Gate National Recreation Area.

Established as an independent special district in 1999 by the Marin County Board of Supervisors—via the merger of the Alto-Richardson and Tamalpais Fire Protection Districts, and subsequent merger of the City of Sausalito (2012) and the City of Mill Valley (2023)—the District is governed by a seven-member Board of Directors who are elected to staggered, four-year terms. The District's total adopted fiscal year 2024/25 budget is $37.58 million.

Operating under authority of California Health and Safety Code Section 13800 et seq. (Fire Protection District Law of 1987), the District provides fire suppression, Basic Life Support (BLS) and Advanced Life Support (ALS) pre-hospital emergency medical services, ALS ground ambulance transportation, rescue, initial hazardous materials response, fire prevention, disaster

preparedness / emergency management, community outreach/education, and related services with a staff of 67 personnel from its five fire stations and headquarters offices. The District is organized into three divisions as shown in the following figure.

Figure 1—Southern Marin FPD Organization Chart



ALS (paramedic) and ground ambulance services are provided under the umbrella of the Southern Marin Emergency Medical Paramedic System (SMEMPS), a Joint Powers Authority (JPA) established in 1980 to serve the emergency medical service (EMS) needs of the residents and visitors of southern Marin County. SMEMPS member agencies include the Marin County Fire Department and the Southern Marin and Tiburon Fire Protection Districts.

1.5.1 Future Growth

The District population is projected to increase by about 7 percent (approximately 3,000 people) over the next 16 years to 2040, which equates to an average annual growth of less than one-half of one percent.[2] This estimate is based on the Marin County General Plan estimate of 2 percent over the same period for unincorporated areas of the County, plus an estimated 3.1 percent increase for the City of Sausalito, and the potential for population growth of approximately 19 percent in the City of Mill Valley based on its Proposed Housing Element Update—although Mill Valley has maintained a steady population in recent history. The primary concern for the District is growth in the number of Accessory Dwelling Units (ADUs).

[2] Source: Southern Marin FPD

1.5.2 Facilities, Response Resources, and Staffing

The District provides services with 21 response personnel on duty daily from five fire stations, as summarized in the following table.

Table 1—Fire District Facilities, Response Resources, and Daily Response Staffing

Station Number	Address	Year Built	Assigned Response Resources	Minimum Daily Staffing
1	333 Johnson Street Sausalito	2010	**Engine 1** **Medic 1** Fire Boat Liberty IRB-1 Dive Tender 1 RWC 15R1 RWC 15R2	**3** **2** ** ** ** ** **
4	309 Poplar Ave. Mill Valley	1962	**Engine 4** **Medic 4** Truck 4 Engine 604 MCI Trailer	**3** **2** ** ** **
6	26 Corte Madera Ave. Mill Valley	1936	**Engine 6** Reserve Medic 6	**3** ****
7	1 Hamilton Drive Mill Valley	1975	**Engine 7** Engine 607 MCI Trailer	**3** ** **
9	308 Reed Blvd. Mill Valley	1993	**Engine 9** Rescue 9 **Battalion Chief** UTV 15U9 Decon. Trailer	**4** ** **1** **
Total Minimum Daily Response Staffing				**21**

** Cross-staffed as needed depending on incident type

Finding #1: The District's current deployment model provides a minimum of 21 response personnel on duty daily, including a chief officer, for incident command and safety.

1.5.3 Service Capacity

Service capacity refers to the District's available response force; the size, type, and condition of its response fleet and any specialized equipment; core and specialized performance capabilities and competencies; resource distribution and concentration; availability of automatic or mutual aid; and any other agency-specific factors influencing its ability to meet current and prospective future service demand relative to the risks to be protected.

The District's service capacity for fire and non-fire risk consists of 21 response personnel on duty daily staffing five engines and two paramedic ambulances, plus one Battalion Chief, all operating from the District's five fire stations. The District also has two Type-3 wildland fire engines, an aerial ladder truck, one medium rescue, two Mass Casualty Incident (MCI) trailers, one fire boat, one rigid hull inflatable rescue boat, one dive tender, two rescue watercraft, and one all-terrain utility vehicle that can be cross-staffed and deployed as needed with on-duty or call-back personnel.

All response personnel are trained to either the Emergency Medical Technician (EMT) level, capable of providing Basic Life Support (BLS) pre-hospital emergency medical care, or the EMT-Paramedic (Paramedic) level, capable of providing Advanced Life Support (ALS) pre-hospital emergency medical care. Ground paramedic ambulance service is provided the Southern Marin Emergency Medical Paramedic System (SMEMPS), which includes the District's two medic ambulances.

Response personnel are also trained to the U.S. District of Transportation Hazardous Material First Responder Operational (FRO) level to provide initial hazardous material incident assessment, hazard isolation, and support for the Marin County regional hazardous material response team.

All response personnel are further trained to the Confined Space Awareness and Low-Angle Rope Rescue Operations levels, with 17 personnel also trained to the Trench Rescue Technician level, Confined Space / USAR Technician level, high-angle rope rescue, heavy machinery rescue, and heavy vehicle extrication to cross-staff the rescue from Station 9 as needed. The District maintains an underwater search and recovery team and rescue swimmer program with 18 members.

The District is a signatory to the Marin County Fire Chiefs Mutual Aid Plan and the California Master Mutual Aid Agreement.

SECTION 2—STANDARDS OF COVER ANALYSIS

This section provides a detailed review of the District's current ability to deploy and mitigate emergency hazards within its service area. The response analysis uses prior incident response statistics and geographic mapping to help the District and community visualize the capabilities and limitations of the current response system.

2.1 STANDARDS OF COVER PROCESS OVERVIEW

The core methodology used by Citygate in the scope of its deployment analysis work is *Standards of Cover*, fifth and sixth editions, which is a systems-based approach to fire department deployment published by the CFAI. This approach uses local risk and demographics to determine the level of protection best fitting a community's needs.

> **The SOC method evaluates deployment as part of a fire agency's self-assessment process.** This approach uses risk and community expectations on outcomes to help elected officials make informed decisions regarding fire and EMS first responder deployment levels. Citygate has adopted this methodology as a comprehensive tool to evaluate fire station locations. Depending on the needs of the assessment, the depth of the components may vary.
>
> Such a systems-based approach to deployment, rather than a one-size-fits-all prescriptive formula, allows for *local* determination. In this comprehensive approach, each agency can match local needs (risks and expectations) with the costs of various levels of service. In an informed public policy debate, a governing board "purchases" the fire and emergency medical service levels the community needs and can afford.

While working with multiple components to conduct a deployment analysis is admittedly more work, it yields a much better result than using only a singular component. For instance, if only travel time is considered, and frequency of multiple calls is not, the analysis could miss overworked companies. If a risk assessment for deployment is not considered, and deployment is based solely on travel time, a community (city, district, county) could under-deploy to incidents.

The following table describes the **eight elements of the SOC process**.

Table 2—Standards of Coverage Process Elements

SOC Element		Description
1	**Existing Deployment**	Describing the current deployment model and response performance goals the agency has in place today.
2	**Community Outcome Expectations**	Reviewing the expectations of the community for responses to emergencies.
3	**Community Risk Assessment**	Identifying and quantifying the assets at risk to fire and non-fire hazards likely to impact the community (see **Appendix A—Community Risk Assessment**.)
4	**Critical Task Analysis**	Reviewing the tasks that must be performed, and the personnel required to deliver the stated outcome expectation.
5	**Distribution Analysis**	Reviewing the spacing of first-due response resources (typically engines) to control routine emergencies.
6	**Concentration Analysis**	Reviewing the spacing of fire stations so that more complex emergencies can receive sufficient resources and personnel in a timely manner (First Alarm Assignment or ERF).
7	**Reliability and Historical Response Effectiveness Analysis**	Using prior response statistics to determine the percent of compliance the existing system delivers.
8	**Overall Evaluation**	Proposing Standard of Coverage statements by risk type, as necessary.

Source: CFAI, *Standards of Cover*, Fifth Edition

Simply summarized, fire service deployment is about the ***speed*** and ***weight*** of the response.

Speed refers to initial response (first-due), all-risk intervention resources (e.g., engines, ladder trucks, rescues, ambulances) strategically deployed across a jurisdiction for response to emergencies within a specified time interval to control routine-to-moderate emergencies to achieve desired outcomes and prevent the incident from escalating to greater size or severity.

Weight refers to multiple-unit responses for more serious emergencies, such as building fires, multiple-patient medical emergencies, vehicle collisions with extrication required, or technical rescue incidents where enough firefighters must be assembled within a time interval to safely control the emergency and prevent it from escalating into a more serious event.

The following table illustrates this deployment paradigm.

Table 3—Fire Service Deployment Paradigm

Element	Description	Purpose
Speed of Response	Travel time of first-due, all-risk intervention units strategically located across a jurisdiction.	Controlling routine-to-moderate emergencies without the incident escalating in size or complexity.
Weight of Response	Number of firefighters in a multiple-unit response for serious emergencies.	Assembling enough firefighters within a reasonable time frame to safely control a more complex emergency without escalation.

Thus, smaller fires and less complex emergencies require an *adequately staffed* single-unit or two-unit response within a relatively short response time. Larger or more complex incidents require more units and personnel to control. In either case, if the crews arrive too late or the total number of personnel is too few for the emergency, they are drawn into an escalating and more dangerous situation. The science of fire crew deployment is to spread crews out across a community or jurisdiction for quick response to keep emergencies small and ensure positive outcomes *without* spreading resources so far apart that they cannot assemble quickly enough to effectively control more serious emergencies.

2.2 CURRENT DEPLOYMENT

SOC ELEMENT 1 OF 8
EXISTING DEPLOYMENT POLICIES

Nationally recognized standards and best practices suggest using several incremental measurements to define response time. Ideally, the clock starts when the Marin County Sheriff's Office Communications Center dispatcher receives the emergency call. Response time increments include 9-1-1 call processing / dispatch, crew response unit boarding (commonly called crew turnout), and actual driving (travel) time. Response performance best practices include specific time goals for each of these three increments which, combined, equal total response time, or call-to-arrival time, which is a fire agency's true customer service metric.

Response performance goals should also address response performance to other risks within the service area, such as hazardous materials and technical rescue, as recommended by the CFAI.

The District has adopted emergency response performance measures as shown in the following table, which were analyzed for this study.

Table 4—Response Performance Measures

Type of Emergency	Response Component	Performance Objective (Minutes)
Fire **EMS** **Hazardous Material**	Call Processing Crew Turnout First-Unit Travel **First-Unit Call to Arrival**	1:30 2:00 6:00 **9:30**
Technical Rescue	Call Processing Crew Turnout First Unit Travel **First-Unit Call to Arrival**	1:30 2:00 8:00 **11:30**
Multiple-Unit Effective Response Force (17–18 Personnel)	Call Processing Crew Turnout Last Unit Travel **ERF Call to Arrival**	1:30 2:00 8:00 **11:30**

Reference: Southern Marin FPD Policy 359

Currently, NFPA Standard 1710—a recommended deployment standard for career fire departments in urban/suburban areas—recommends the initial (first-due) intervention unit arrival within a 4:00-minute travel time, and arrival of all resources comprising a multiple-unit First Alarm (or ERF) within an 8:00-minute travel time, all at 90 percent or better reliability.[3]

If the travel time measures recommended by the NFPA and Citygate are added to dispatch processing and crew turnout times recommended by Citygate and best practices, then a realistic first-unit total response time goal (at 90 percent reliability) for urban response zones is 7:30 to 8:30 minutes from the time of the Marin Emergency Communications Center (Marin ECC) receiving the call. This includes 1:30 minutes for call processing / dispatch, 2:00 minutes for crew turnout, and 4:00 to 5:00 minutes for travel.

Finding #2: The District has established formal response performance goals as a best practice consistent with the recommendations published by the Commission on Fire Accreditation International and the National Fire Protection Association.

2.2.1 Current Response Plan

The District is an all-risk fire agency providing the people and community it protects with services that include fire suppression, pre-hospital BLS and ALS emergency medical, rescue, and initial

[3] Source: 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).

hazardous material response. Given these risks, the District utilizes a tiered response plan calling for different types and numbers of resources depending on incident/risk type. The Marin ECC CAD system selects and dispatches the most appropriate resource types pursuant to the District's response plan, as summarized in the following table.

Table 5—Response Plan by Incident Type

Incident Type	Resources Dispatched	Total Personnel
EMS **Cardiac, stroke, shooting, stabbing, remote EMS call (trails**	1 Engine, 1 Medic Ambulance 1 Engine, Rescue 9, 1 Medic Ambulance	**5–6** **9**
Traffic Collision – Freeway	2 Engines, 1 Medic Ambulance, 1 Battalion Chief Plus Rescue 9 if extrication required	**10** **14**
Traffic Collision – Surface Streets	1 Engine, 1 Medic Ambulance Plus Rescue 9 and 1 Battalion Chief if extrication required	**5–6** **10**
Vehicle Fire	2 Engines, 1 Battalion Chief	**7–8**
Building Fire – Residential without Truck	4 Engines, Rescue 9, 1 Medic Ambulance, 2 Battalion Chiefs	**20**
Building Fire with Truck	4 Engines, 1 Medic Ambulance, 2 Battalion Chiefs	**19**
Vegetation Fire – LRA **Vegetation Fire – FRA/SRA**	5 Engines, 1 Medic Ambulance, 2 Battalion Chiefs Varies depending on dispatch level	**16** **65–75**
Water Rescue	2 Engines, Rescue 9, 1 Medic Ambulance, 2 Fire Boats, 2 RWCs, 1 Battalion Chief	**23**
Hazardous Material Release	3 Engines, Rescue 9, 1 Medic Ambulance, 1 Battalion Chief, Regional HazMat Team	**22**
Technical Rescue **Coastline Rescue**	3 Engines, Rescue 9, 1 Medic Ambulance, 1 Battalion Chief 3 Engines, Rescue 9, 1 Medic Ambulance, 1 Fireboat, 2 RWC, 2 Copters, 1 Battalion Chief	**16** **27**

Finding #3: The District has a standard response plan that considers risk and establishes an appropriate initial response for each incident type; each type of call for service receives the combination of engines, trucks, specialty units, and command officers customarily needed to effectively control that type of incident based on District experience.

2.3 OUTCOME EXPECTATIONS

SOC ELEMENT 2 OF 8
COMMUNITY OUTCOME EXPECTATIONS

The SOC process begins by reviewing existing emergency services outcome expectations. This includes determining for what purpose the response system exists and whether the governing body has adopted any response performance measures. If it has, the time measures used must be understood and sound data must be available to evaluate performance.

Currently, national best practice is to measure percent completion of a goal (e.g., 90 percent of responses) instead of an average measure. Mathematically, this is called a *fractile* measure.[4] Measuring the average only identifies the central or middle point of response time performance for all calls for service in the data set. Using an average makes it impossible to know how many incidents had response times that were far above or just above the average.

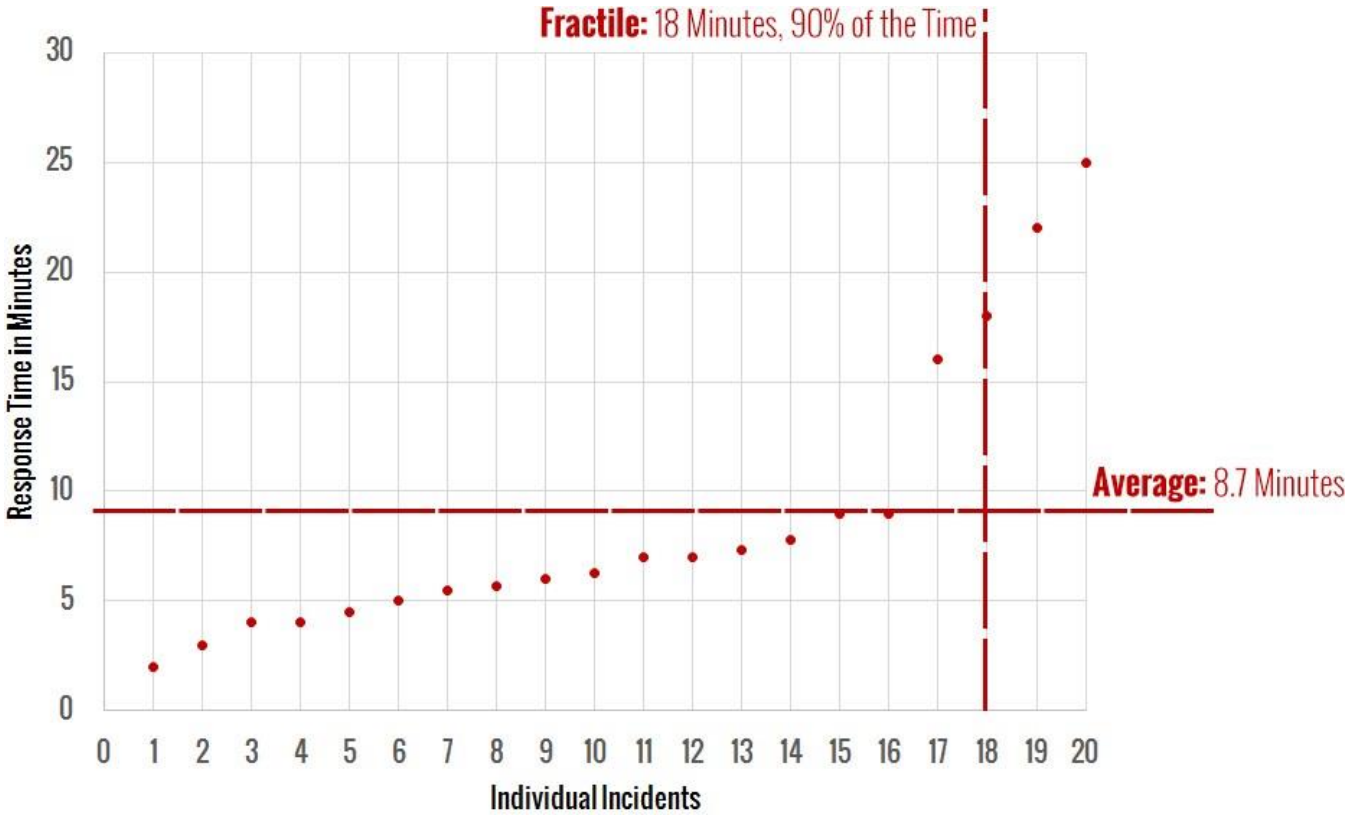
For example, the following figure shows response times for a *fictitious* fire department. This small agency receives 20 calls for service each month, and each response time has been plotted on the following graph from shortest response time to longest response time.

The graph shows that the *average* response time is 8.7 minutes. However, the average response time fails to properly account for four calls for service with response times far exceeding a threshold in which positive outcomes could be expected. In fact, it is evident in that 20 percent of responses are far too slow and that this jurisdiction has a potential life-threatening service delivery problem. Average response time as a measurement tool for fire services is simply not sufficient. This is a significant issue in larger cities if hundreds or thousands of calls are answered far beyond the average point.

By using the fractile measurement with 90 percent of responses in mind, this small example jurisdiction has a response time of 18:00 minutes, 90 percent of the time. This fractile measurement is far more accurate at reflecting the service delivery situation of this small, fictitious agency.

[4] A *fractile* is that point below which a stated fraction of the values lie. The fraction is often given in percent; the term percentile may then be used.

Figure 2—Fractile versus Average Response Time Measurements



More importantly, within the SOC process, positive outcomes are the goal. From that goal, crew size and response time can be calculated to allow appropriate fire station spacing (distribution and concentration). Emergency medical incidents include situations with the most severe time constraints. The human brain can only survive 4:00 to 6:00 minutes without oxygen. Cardiac arrests and other events can cause oxygen deprivation to the brain. While cardiac arrests make up a small percentage of emergencies, drowning, choking, trauma constrictions, or other similar events have the same effect. In a building fire, a small incipient fire can grow to involve the entire room in a 3:00- to 5:00-minute time frame. If fire service response is to achieve positive outcomes in severe emergency medical situations and incipient fire situations, *all* responding crews must arrive, assess the situation, and deploy effective measures before brain death occurs or the fire spreads beyond the room of origin.

Thus, from the time the 9-1-1 call is received by the dispatch center, an effective deployment system is *beginning* to manage the problem within a 7:00- to 8:00-minute total response time. This is right at the point that brain death is becoming irreversible, and the fire has grown to the point of leaving the room of origin and becoming very serious. Thus, the District needs a first-due response goal that is within a range to give hope for a positive outcome.

It is important to note that **the fire or medical emergency continues to deteriorate from the time of inception**, not from the time the fire engine starts to drive the response route. Ideally, the emergency is noticed immediately, and the 9-1-1 system is activated promptly. In the best of circumstances, this step of awareness—calling 9-1-1 and giving the dispatcher accurate information—takes 1:00 minute. Crew notification and travel time take additional minutes. Upon arrival, the crew must approach the injured party or emergency, assess the situation, and appropriately deploy its skills and tools. Even in easy-to-access situations, this step can take 2:00 minutes or more. This time frame may be increased considerably due to long driveways, apartment buildings with limited access, multiple-story buildings or office complexes, or shopping centers.

Unfortunately, there are times when the emergency has become too severe, even before the 9-1-1 notification or fire department response, for the responding crew to reverse; however, when an appropriate response time policy is combined with a well-designed deployment system, then only anomalies like bad weather, poor traffic conditions, or multiple emergencies slow down the response system. Consequently, a properly designed system will give the public hope of a positive outcome for their tax dollar expenditure.

For this report, total response time is the sum of 9-1-1 call processing / dispatch, crew turnout, and travel time, which is consistent with CFAI and NFPA best practice recommendations.

2.4 COMMUNITY RISK ASSESSMENT

SOC ELEMENT 3 OF 8
COMMUNITY RISK ASSESSMENT

The third element of the SOC process is a community risk assessment. Within the context of an SOC study, the objectives of a community risk assessment are to:

- Identify the values at risk to be protected within the community or service area.
- Identify the specific hazards with the potential to adversely impact the community or service area.
- Quantify the overall risk associated with each hazard.
- Establish a foundation for current/future deployment decisions and risk-reduction/hazard mitigation planning and evaluation.

2.4.1 Risk Assessment Methodology

Citygate utilizes a three-axis model incorporating *probability of occurrence*, *impact extent*, and *consequence severity* parameters to assess community risks relative to specific hazard services

provided by the fire agency. The process begins with identifying geographic planning sub-zones (risk planning zones) appropriate to the jurisdiction or service area. Citygate then identifies and quantifies, to the extent data is available, the specific values at risk. We then assign a risk score from 1 (lowest risk) to 6 (highest risk) to each hazard parameter using historical agency data or subjective analysis of local factors. The total risk score for each hazard is then calculated using a modification of Heron's Formula for calculating the area of a triangle, and a descriptive risk rating is then assigned based on the total risk score. This methodology conforms as applicable to this community/jurisdiction with the principles of NFPA 1300[5] and the CFAI.

2.4.2 Values at Risk to Be Protected

Broadly defined, *values at risk* are those tangibles of significant importance or value to the community or jurisdiction that are potentially at risk of harm or damage from a hazard occurrence. Values at risk typically include people, critical facilities/infrastructure, buildings, and key economic, cultural, historic, and natural resources.

People

Residents, employees, visitors, and travelers through a community or jurisdiction are vulnerable to harm from a hazard occurrence. Particularly vulnerable are specific at-risk populations, including those unable to care for themselves or self-evacuate in the event of an emergency. Key demographic data for the District's service area includes:

- Slightly more than 35 percent of the population is under 10 years or over 65 years of age.
- The service area population is predominantly White (79 percent), followed by two or more races (10.5 percent), Hispanic/Latino (7.6 percent and also counted as White), Asian (7.5 percent), and Other racial or ethnic identities (2.1 percent).
- Of the population over 24 years of age, more than 98 percent has completed high school or equivalency.
- Of the population over 24 years of age, nearly 78 percent has an undergraduate, graduate, or professional degree.
- Of the population 15 years of age or older, 97 percent is in the workforce; of those, 3 percent are unemployed.
- Median household income is slightly more than $166,000.
- The population below the federal poverty level is 5.6 percent.

[5] NFPA 1300 – Standard on Community Risk Assessment and Community Risk Reduction Plan Development (2020 Edition).

- Only 1.8 percent of the population does not have health insurance coverage.

Critical Infrastructure / Key Resources

The U.S. Department of Homeland Security defines critical infrastructure and key resources (CIKR) as those physical assets essential to the public health and safety, economic vitality, and resilience of a community, such as lifeline utilities infrastructure, telecommunications infrastructure, essential government services facilities, public safety facilities, schools, hospitals, airports, etc. The District has identified 70 critical facilities and infrastructure, as identified in **Appendix A**. A hazard occurrence with significant consequence severity affecting one or more of these facilities would likely adversely impact critical public or community services.

Buildings

The District has nearly 36,000 residential housing units and over 3,200 businesses including offices, professional services, retail sales, restaurants/bars, motels, churches, schools, government facilities, healthcare facilities, and other occupancy types as described in **Appendix A**.

2.4.3 Hazard Identification

Citygate utilizes prior risk studies where available, fire and non-fire hazards as identified by the CFAI, and agency/jurisdiction-specific data and information to identify the hazards to be evaluated for this study.

Following an evaluation of the hazards identified in the 2023 Southern Marin County Fire Protection District Profile of the Marin County Multi-Jurisdictional Hazard Mitigation Plan, and the fire and non-fire hazards identified by the CFAI as they relate to services provided by the District, Citygate evaluated the following **six hazards** for this assessment:

1. **Building fire**
2. **Vegetation/wildland fire**
3. **Medical emergency**
4. **Hazardous material release/spill**
5. **Technical rescue**
6. **Marine incident**

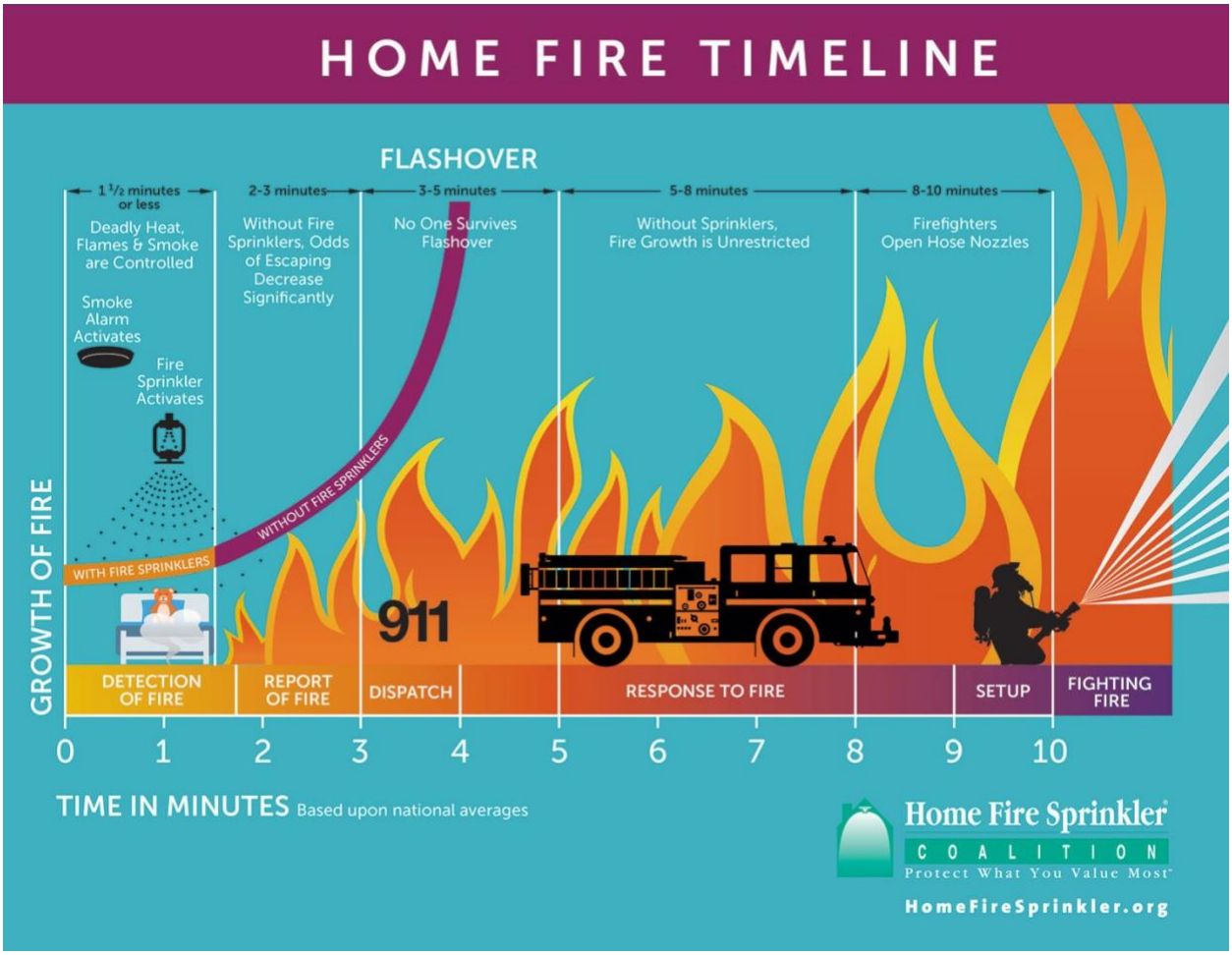
Because building fires and medical emergencies have the most severe time constraints if positive outcomes are to be achieved, the following is a brief overview of building fire and medical emergency risk. **Appendix A** contains the full risk assessment for all six hazards.

Building Fire Risk

One of the primary hazards in any community is building fire. Building fire risk factors include building density, size, age, occupancy, and construction materials and methods, as well as the number of stories, the required fire flow, the proximity to other buildings, built-in fire protection/alarm systems, an available fire suppression water supply, building fire service capacity, fire suppression resource deployment (distribution/concentration), staffing, and response time.

The following figure illustrates the building fire progression timeline and shows that flashover, which is the point at which the entire room erupts into fire after all the combustible objects in that room reach their ignition temperature, can occur as early as 3:00 to 5:00 minutes from the initial ignition. Human survival in a room after flashover is extremely improbable.

Figure 3—Building Fire Progression Timeline

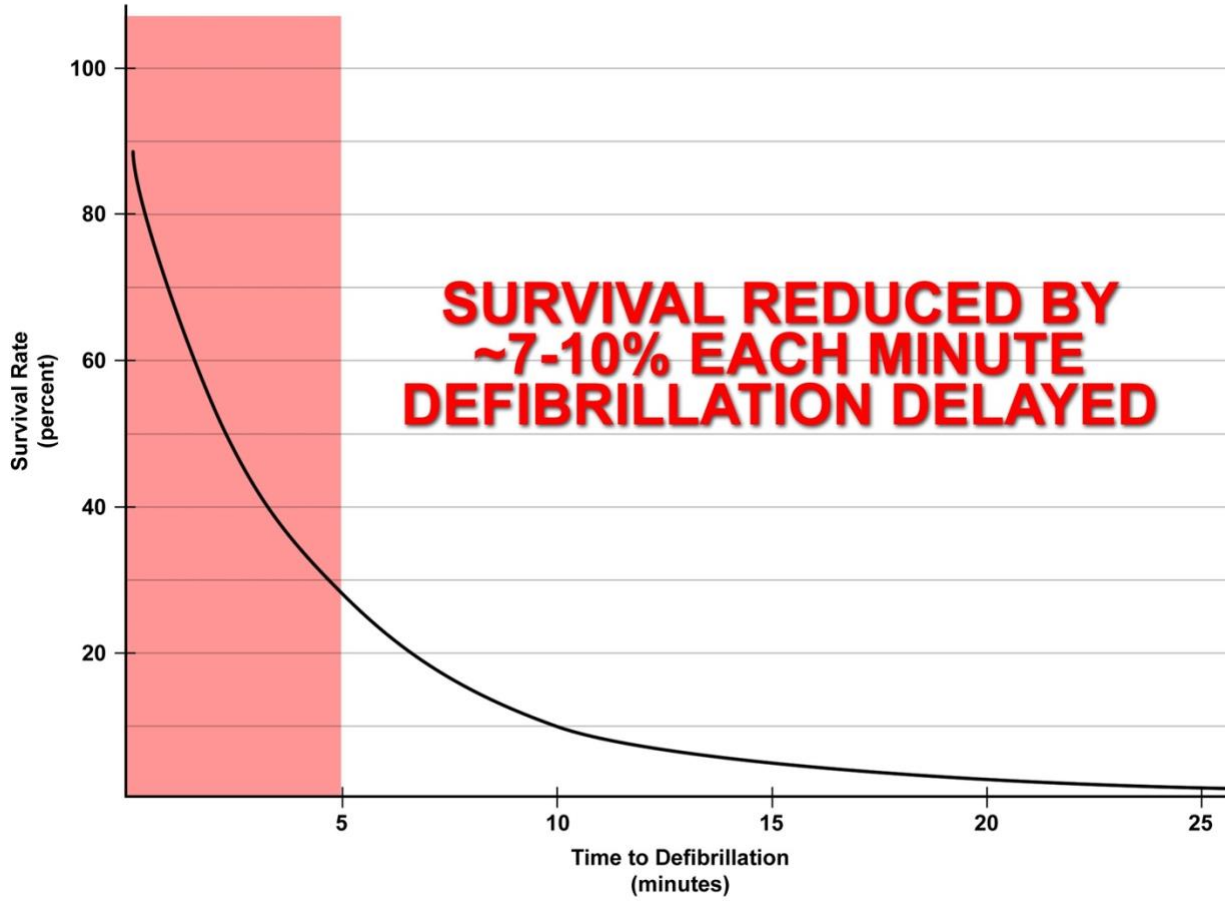


Source: http://www.firesprinklerassoc.org

Medical Emergency Risk

Fire agency service demand in most jurisdictions is predominantly for medical emergencies. The following figure illustrates the reduced survivability of a cardiac arrest victim as time to defibrillation increases.

Figure 4—Survival Rate versus Time of Defibrillation



The District provides BLS and ALS pre-hospital emergency medical services with all response personnel trained to either the EMT or EMT-P level.

2.4.4 Risk Assessment Summary

The District's overall risk for six hazards related to emergency services provided range from **Low** to **Extreme**, as summarized in the following table. See **Appendix A** for the full risk assessment.

Table 6—Overall Risk by Hazard and Planning Zone

Hazard	Planning Zone				
	Sta. 1	Sta. 4	Sta. 6	Sta. 7	Sta. 9
Building Fire	Moderate	Moderate	Moderate	Moderate	Moderate
Vegetation/Wildland Fire	Moderate	Extreme	High	Moderate	Moderate
Medical Emergency	High	High	High	High	High
Hazardous Material	Moderate	Moderate	Moderate	Moderate	Moderate
Technical Rescue	Moderate	Moderate	Low	Low	Moderate
Marine Incident	Moderate	Low	Low	Low	Moderate

2.5 Critical Task Time Measures—What Must Be Done over What Time Frame to Achieve the Stated Outcome Expectation?

SOC Element 4 of 8
CRITICAL TASK TIME STUDY

SOC studies use critical task information to determine the number of firefighters needed within a time frame to achieve desired objectives related to fire and emergency medical incidents. The following tables illustrate critical tasks typical of building fire and medical emergency incidents, including the minimum number of personnel required to complete each task. These tables are composites from Citygate clients in urban/suburban jurisdictions like the that of the District, with units staffed with three or four personnel per engine or ladder truck, and two personnel per medic ambulance.

It is important to understand the following relative to these tables:

- It can take a considerable amount of time after a task is ordered by command to complete the task and achieve the desired outcome.
- Task completion time is usually a function of the number of personnel that are simultaneously available. The fewer firefighters available, the longer some tasks will take to complete. Conversely, with more firefighters available, some tasks are completed concurrently.
- Some tasks must be conducted by a minimum of two firefighters to comply with safety regulations. For example, two firefighters are required to search a smoke-filled room for a victim.

2.5.1 Critical Firefighting Tasks

The following table illustrates the critical tasks required to control a typical single-family dwelling fire with seven response units, including four engines, one ladder truck, one rescue, one ALS ambulance, and two chief officers for a total Effective Response Force (ERF) of 23 personnel. These tasks are taken from typical fire departments' operational procedures, which are consistent with the customary findings of other agencies using the SOC process. No conditions exist to override the Occupational Safety and Health Administration (OSHA) two-in/two-out safety policy, which requires that firefighters enter atmospheres such as building fires that are immediately dangerous to life and health in teams of two while two more firefighters are outside and immediately ready to rescue them should trouble arise.

> ***Scenario:*** *Simulated approximately 2,000-square-foot, two-story, single-family residential fire with unknown rescue situation. Responding companies receive dispatch information typical for a witnessed fire. Upon arrival, they find approximately 50 percent of the second floor involved in fire.*

Table 7—First Alarm Residential Fire Critical Tasks (23 Personnel)

	Critical Task Description	Personnel Required
First-Due Engine (3 Personnel)		
1	Conditions report	**1**
2	Establish supply line to hydrant	**2**
3	Deploy initial fire attack line to point of building access	**1–2**
4	Operate pump and charge attack line	**1**
5	Establish incident command	**1**
Second-Due Engine (3 Personnel)		
1	If necessary, establish supply line to hydrant	**1–2**
2	Secure utilities	**2**
3	Deploy a backup attack line	**1–2**
4	Establish initial Rapid Intervention Team	**2**
First-Due Rescue (4 Personnel)		
1	Conduct primary search and rescue, if not already completed	**2–3**
2	Deploy ladders to roof	**1–3**
3	Establish horizontal or vertical building ventilation	**1–2**
4	Open concealed spaces as required	**2–3**
First-Due Chief Officer		
1	Transfer of incident command	**1**
2	Establish exterior command and incident safety	**1**
Third-Due Engine (3 Personnel)		
1	Establish Rapid Intervention Team	**2**
2	Assist suppression effort as directed	**2–4**
Fourth-Due Engine (3 Personnel)		
1	Conduct secondary search	**2**
2	Assist other units as assigned	**2–4**
First-Due Truck (3 Personnel)		
1	Deploy aerial ladder to roof as directed	**1–2**
2	Assist with suppression effort as directed	**2–3**
ALS Ambulance (2 Personnel)		
1	Establish incident rehabilitation station	**2**
2	Monitor incident personnel vital health signs when assigned to rehab	**1–2**
Second-Due Chief Officer		
1	Receive incident status and IAP briefing from Incident Commander	**1**
2	Assume Incident Safety Officer role	**1**

Grouped together, these duties form an ERF, or First Alarm Assignment. These distinct tasks must be performed to effectively achieve the desired outcome; arriving on-scene does not stop the emergency from escalating. While firefighters accomplish these tasks, the incident progression clock keeps running.

Some studies have shown that a small fire can spread to engulf an entire room in fewer than 3:00 to 5:00 minutes after free burning has started. Once the room is completely superheated and involved in fire (known as flashover), the fire will spread quickly both vertically and horizontally throughout the structure. For this reason, it is imperative that fire suppression and search/rescue operations commence before the flashover point occurs if the outcome goal is to keep fire damage in or near the room of origin and to rescue persons unable to self-evacuate. In addition, flashover presents a life-threatening situation to both firefighters and any occupants of a building. Fire fatalities typically include persons under 10 and over 65 years of age and those unable to self-evacuate, and slightly more than 35 percent of the service area population falls within those age groups.

2.5.2 Critical Medical Emergency Tasks

The District responds to more than 3,000 EMS incidents annually, including vehicle accidents, strokes, heart attacks, difficulty breathing, falls, childbirths, and other medical emergencies.

For comparison, the following table summarizes the critical tasks required for a cardiac arrest patient.

Table 8—Cardiac Arrest Critical Tasks – 1 Engine, 1 Rescue, and 1 Medic Ambulance (9 Personnel)

Critical Task		Personnel Required	Critical Task Description
1	Chest compressions	**1–2**	Compression of chest to circulate blood
2	Ventilate/oxygenate	**1–2**	Mouth-to-mouth, bag-valve-mask, apply O_2
3	Airway control	**1–2**	Manual techniques/intubation/cricothyroidotomy
4	Defibrillate	**1–2**	Electrical defibrillation of dysrhythmia
5	Establish I.V.	**1–2**	Peripheral or central intravenous access
6	Control hemorrhage	**1–2**	Direct pressure, pressure bandage, tourniquet
7	Splint fractures	**2–3**	Manual, board splint, traction splint, spine
8	Interpret ECG	**2**	Identify type and treat dysrhythmia
9	Administer drugs	**2**	Administer appropriate pharmacological agents
10	Spinal immobilization	**2–5**	Prevent or limit paralysis to extremities
11	Extricate patient	**3–4**	Remove patient from vehicle, entrapment
12	Patient charting	**1–2**	Record vitals, treatments administered, etc.
13	Hospital communication	**1–2**	Receive treatment orders from physician
14	Treat en route to hospital	**2–3**	Continue to treat/monitor/transport patient

2.5.3 Critical Task Analysis and Effective Response Force (ERF) Size

What does a deployment study derive from a critical task analysis? The time required to complete the critical tasks necessary to stop the escalation of an emergency (as shown in Table 7 and Table 8) must be compared to outcomes. As stated, after approximately 3:00 to 5:00 minutes of free burning in an enclosed room, fire will escalate to the point of flashover. At this point, the entire room is engulfed in fire, the entire building becomes threatened, and human survival near or in the room of a fire's origin becomes impossible. Additionally, brain death begins to occur within 4:00 to 6:00 minutes of the heart stopping. Thus, the ERF must arrive in time to prevent such emergency events from becoming worse.

> The District's daily on-duty response staffing of 21 personnel and an Effective Response Force of 20 personnel is sufficient to deliver more than the NFPA-recommended minimum ERF of 16–17 personnel to a low-hazard or medium-hazard building fire, which the statistical analysis of this report will discuss in detail.

Mitigating an emergency event is a team effort once the units have arrived. This refers to the *weight* of response analogy; if too few personnel arrive too slowly, the emergency will escalate

instead of improving. The outcome times, of course, will be longer and yield less-desirable results if the arriving force is later or smaller.

The number of personnel and the arrival timeframe can be critical in a serious fire. Fires in older or multiple-story buildings could require the initial firefighters to rescue trapped or immobile occupants. If the ERF is too small, rescue and fire suppression tasks *cannot* be conducted simultaneously. Thus, achieving good performance requires *adequate staffing* (and training).

Fires and complex medical incidents require additional units to arrive in time to complete an effective intervention. Time is one factor that comes from *proper station placement and the staffing model used*. When fire stations are spaced too far apart and one unit must cover another unit's area or multiple units are needed, the units can be too far away, and the emergency will escalate and result in a less-than-desirable outcome. Thus, some overlapping coverage between fire stations is desirable.

Previous critical task studies conducted by Citygate and NFPA Standard 1710 identify that all units need to arrive at a building fire with a minimum of 17 firefighters within 11:30 minutes (from the time of a 9-1-1 call) to *simultaneously and effectively* perform the tasks of rescue, fire suppression, and ventilation.

If fewer firefighters arrive, all tasks may not be completed. Most likely, the search team would be delayed, as would ventilation. The attack lines would only consist of two firefighters, which does not allow for rapid movement of the hose line above the first floor in a multiple-story building. Because rescue is conducted with at least two two-person teams, when rescue is essential, other tasks are not completed in a simultaneous, timely manner. Therefore, effective deployment is about the ***speed*** (travel time) and the ***weight*** (number of firefighters) of the response.

The fact that the District's 90th percentile ERF call-to-arrival performance over the five years of data studied was 13:41 minutes reflects a commitment to confining building fires to or near the room of origin and preventing the spread of fire to adjoining buildings.

2.6 Distribution and Concentration Studies—How the Location of First-Due and First Alarm Resources Affects Emergency Incident Outcomes

SOC Element 5 of 8
Distribution Study

SOC Element 6 of 8
Concentration Study

The District's service area is currently served by five fire stations. When using geographic mapping tools, it is appropriate to understand what the existing station spacing does and does not cover within travel time goals; if there are any coverage gaps needing one or more additional stations; and what, if anything, to do about them. In brief, there are **two geographic perspectives** to fire station deployment:

- **Distribution** – the spacing of first-due fire units to control routine emergencies and achieve desired outcomes before they escalate and require additional resources.
- **Concentration** – the spacing of fire stations sufficiently close to each other so that more complex emergency incidents can quickly receive sufficient resources from multiple fire stations. As indicated, this is known as the Effective Response Force (ERF) or, more commonly, the First Alarm Assignment—the collection of a sufficient number of firefighters on scene, delivered within the concentration time goal to stop the escalation of the problem.

To analyze first-due fire unit travel time coverage, Citygate used a geographic mapping tool that measures theoretical travel time over a road network. For this calculation, Citygate used the base map and street travel speeds calibrated to actual fire apparatus travel times from previous responses to simulate real-world travel time coverage. Using these tools, Citygate ran several deployment tests and measured their impact on various parts of the service area. We evaluated a 6:00-minute travel time for first-due coverage throughout the District, consistent with best practice response performance goals to facilitate positive outcomes in suburban areas.

2.6.1 Deployment Baselines

Map #1 – General Geography, Station Locations, and Response Resource Types

Map #1 shows the District boundary and fire station locations. This is a reference map for other maps that follow. Station symbols denote the type of staffed fire apparatus at each station. Four engines are staffed with a minimum of three personnel each, and the fifth engine at Station 9 is staffed with a minimum of four personnel. Medic ambulances are staffed with a minimum of two personnel, including at least one paramedic.

Map #2 – Risk Assessment Planning Zones

This map displays the five fire station service areas that this study also uses to quantify and assess the risks to be protected by the District.

Map #2a – Risk Assessment: Population Density

Map #2a shows resident population density across the District. Population drives EMS incident demand; thus, the areas of a jurisdiction with higher population density are also typically the areas with higher EMS demand. As the map shows, the District's fire stations are located in or in very close proximity to the most densely populated areas.

Map #2b – Risk Assessment: Wildland Fire Hazard Zones

This map shows the locations of very high wildland fire hazard severity zones (FHSZ) as determined by the California Department of Forestry and Fire Protection.

Map #3 – Distribution: 6:00-Minute First-Due Travel Time Coverage

Map #3 shows, in green, the 91 percent of the District's public road miles that should be expected to be reached within 6:00 minutes of travel time from the District's five fire station locations *without traffic congestion*, and assuming the responding resource is in-station. This is the District's current first-due travel time objective.

The purpose of response time modeling is to determine response time coverage across a jurisdiction's geography and station locations. This geo-mapping design is then validated against actual response data to reflect actual travel times. There should be some overlap between station areas so that a second-due unit can have a chance of an acceptable response time when it responds to a call in a different station's first-due response area.

Map #3b – Distribution: 8:00-Minute First-Due Ambulance Travel Time Coverage

This map shows the 61 percent of the District's public road miles that should be expected to be reached by a medic ambulance within 8:00 minutes travel time from Stations 1 or 4. As the map shows, most of the higher population density areas of the District are within 8:00 minutes travel time.

Map #4 – Insurance Services Office 1.5-Mile Coverage

Map #4 displays the ISO recommendation that urban stations cover a 1.5-mile *distance* response area. Depending on a jurisdiction's road network, the 1.5-mile measure usually equates to a 3:30-minute to 4:00-minute travel time; however, a 1.5-mile measure is a reasonable indicator of station spacing and overlap. As the map shows, the 1.5-mile measure covers 18 miles (9 percent) *less* than the 4:00-minute coverage in Map #3.

Map #5 – Concentration: 8:00-Minute Effective Response Force (ERF) Travel Time Coverage (4 Engines only)

This map shows, in green, the sections of the District's public road miles that *should* be reachable within 8:00 minutes of travel time for a multiple-unit ERF of four engines only with a total of 12–13 personnel. As the map illustrates, this four-unit ERF can only be expected to reach 27 miles (13.4 percent) of the District's public road segments—generally in the very middle section of the District—within a travel time of 8:00 minutes.

Map #5a – Concentration: 8:00-Minute Effective Response Force (ERF) Travel Time Coverage (3 Engines, 1 Truck, Medic Ambulance, and BC)

Map #5a shows that reducing the ERF by one engine and adding the ladder truck, medic ambulance, and Battalion Chief provides essentially the same 8:00-minute ERF travel time coverage (24 miles; 12 percent of total miles) as the four engines only in Map #5.

Map #6 – Concentration: 8:00-Minute Travel Time Coverage –Truck from Station 4; Rescue from Station 9

Map #6 shows in green and blue the 67 percent of the District's total road miles covered in 8:00 minutes of travel time by Truck 4 and Rescue 9, which includes 51 percent of total road miles for Truck 4 (green); 29 percent of total road miles for Rescue 9 (blue); and the 13.5 percent overlap of both Truck 4 and Rescue 9 (magenta).

Map #7 – 8:00-Minute Battalion Chief Travel Time Coverage from Sta. 9

This map shows the 58 percent of the total road miles covered in 8:00 minutes of travel time for the duty Battalion Chief from Station 9. It is readily apparent that this location provides 8:00-minute coverage to only the northeastern section of the District, including all of Station 7's and Station 9's response areas.

Map #8 – All Incident Locations

This map shows the locations of all incident responses from January 1, 2019, through December 31, 2023, which occurred on almost every street segment in the District as well as the Golden Gate National Recreation Area (GGNRA).

Map #9 – Emergency Medical Services and Rescue Incident Locations

Map #9 illustrates only the emergency medical and rescue incident locations for the five years of data analyzed by Citygate. With most of the calls for service being medical emergencies, virtually all areas of the District, including the GGNRA contract area, have significant demand for pre-hospital emergency medical services.

Map #10 – All Fire Locations

This map displays the location of all fires within the District for the five years of data studied, which includes any type of fire call, from vehicle, to dumpster, to building. Even given the fact there are fewer fires than medical or rescue calls, it is evident that fires occur in all five fire station response areas and the GGNRA contract area.

Map #11 – Building Fire Locations

Map #11 shows the locations of all building fire incidents over the five years. While the number of building fires is a smaller subset of total fires, in Citygate's experience, this is consistent with other, similar districts in the western United States. As with the prior map showing all types of fires, there are more building fires in areas of the District that are more densely populated and areas with older building stock.

Map #12 – Emergency Medical Services and Rescue Incident Location Densities

This map displays by mathematical density where clusters of EMS and rescue incident activity occurred during the five years of data analyzed. In this set, the darker density color plots the highest

concentration of EMS and rescue incidents. This type of map makes the location of frequent workload more meaningful than simply mapping the locations of *all* EMS and rescue incidents, as was shown in Map #9.

This perspective is important because the deployment system needs an overlap of units to ensure the delivery of multiple units when needed for more serious incidents or to handle simultaneous calls for service, as is evident for the areas of the District with higher population density.

Map #13 – Fire Incident Location Densities

Map #13 shows the hot spots for all types of fire incidents (shown in Map #10).

Map #14 – Building Fire Incident Location Densities

This map shows the hot spots specifically for building fire incidents (shown in Map #11). The density of structure fire incidents is most pronounced in sections of the District that are more densely populated (as with EMS incidents) and have older building stock.

Fire Station Distribution Travel Time Coverage

The GIS model also measures the road miles covered from each station within a specified time interval, as summarized in the following table.

Table 9—Travel Time Coverage Summary

Map Number	Travel Time Measure	Total Public Road Miles	Miles Covered	Percent of Total Miles Covered
3	**6:00-Minute First-Due**	201	**184**	**91.3%**
3b	**8:00-Minute Ambulance**	201	**123**	**61.3%**
4	**ISO 1.5-Mile Station Spacing**	201	**166**	**82.4%**
5	**8:00-Minute ERF – 4 Engine Overlap**	201	**27**	**13.4%**
5a	**8:00-Minute ERF – 3 Engines, 1 Truck, 1 Ambulance, BC**	201	**24**	**12.0%**
6	**8:00-Minute Truck from Sta. 4 and Rescue from Sta. 9**	201	**134**	**66.6%**
6	**8:00-Minute Truck Travel from Sta. 4 only**	201	**103**	**51.0%**
6	**8:00-Minute Rescue Travel from Sta. 9 only**	201	**58**	**29.1%**
6	**8:00-Minute Overlap only**	201	**27**	**13.5%**
7	**8:00-Minute Battalion Chief from Sta. 9**	201	**58**	**29.1%**

Finding #4:	The District's five fire station locations can be expected to deliver 6:00-minute first-unit travel time coverage to slightly more than 91 percent of the District's public road segments.
Finding #5:	Given the District's street layout and topography, the District should continue to utilize a 6:00-minute first-unit travel time goal to 90 percent of emergency incidents as a best fit.

2.7 Statistical Analysis

SOC Element 7 of 8
Reliability and Historical Response Effectiveness Studies

While travel time maps can show the *ideal* situation for response times and response effectiveness given perfect conditions, examination of the actual response time data provides a picture of *actual* response performance with simultaneous calls, rush-hour traffic congestion, units out of position, and delayed travel time due to events such as periods of severe weather.

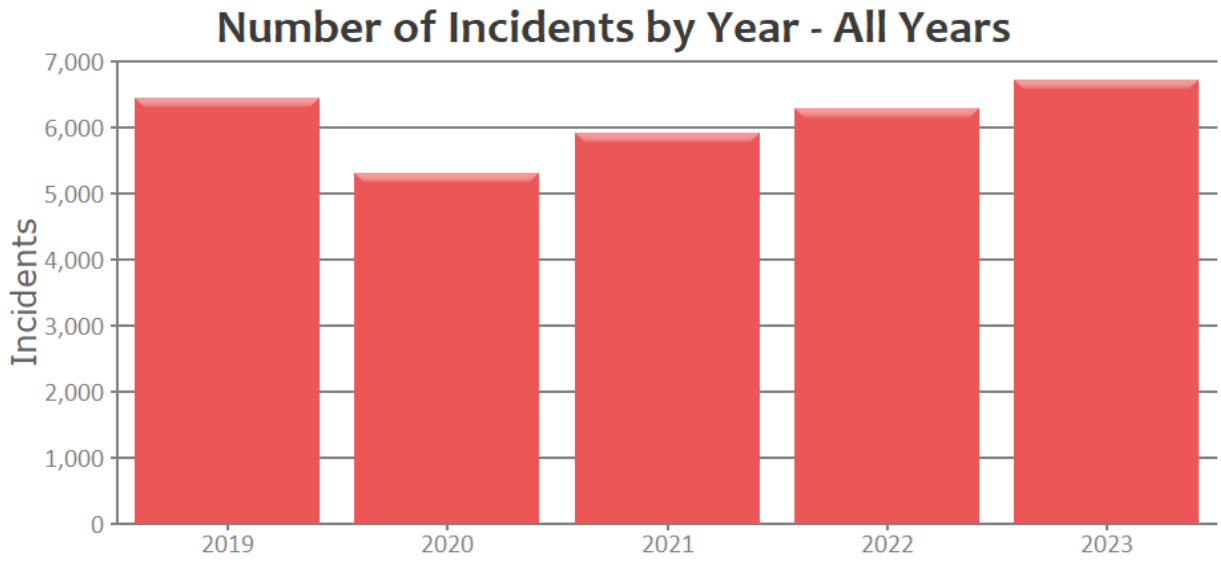
The following subsections provide summary statistical information regarding the District and its services.

2.7.1 Service Demand

In 2023, the District responded to 6,723 incidents for a daily demand of 18.42 incidents, of which 0.83 percent were fire incidents, 58.5 percent were EMS incidents, and 40.67 percent were "Other" incident types.

The following figure summarizes total service demand over the most recent five years.

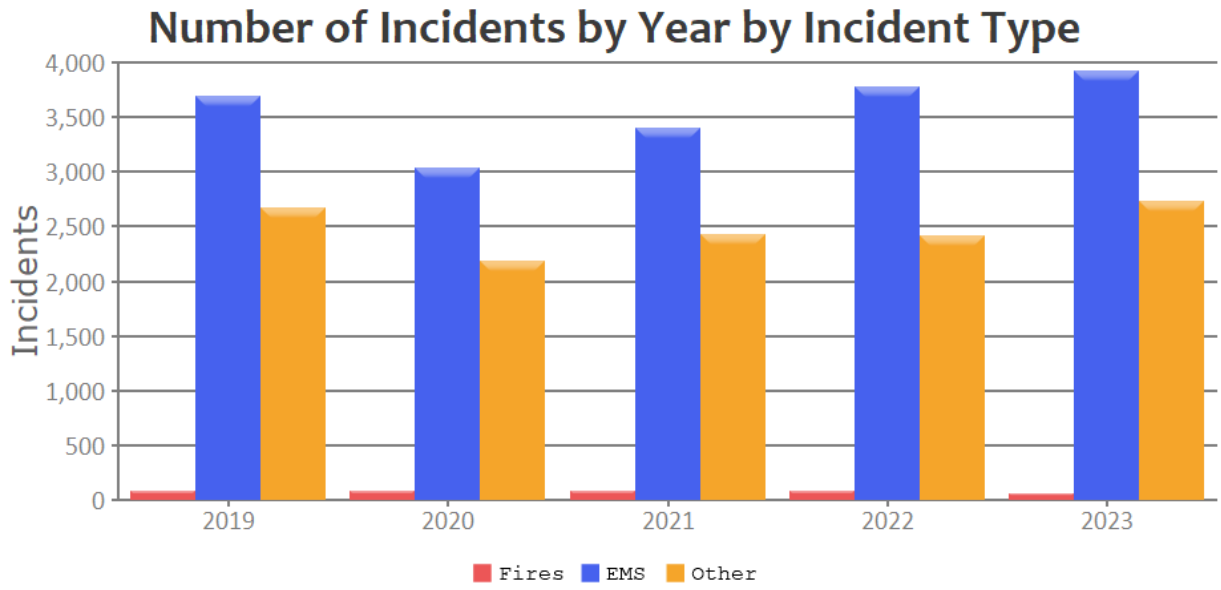
Figure 5—Annual Service Demand by Year



As the figure shows, total service demand decreased significantly in 2020 before increasing incrementally in subsequent years to slightly more than 7 percent above 2019 in 2023.

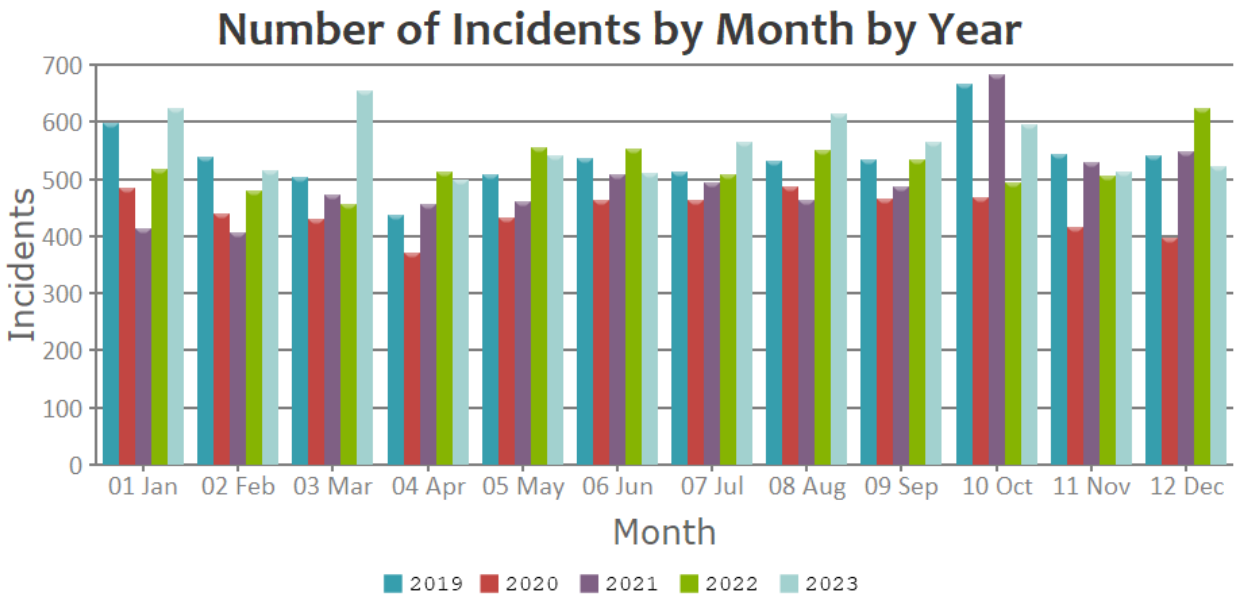
The following figure illustrates annual service demand by incident type. As the figure shows, EMS incidents decreased in 2020 from 2019 before increasing incrementally in subsequent years to approximately 15 percent above 2019 in 2023.

Figure 6—Annual Service Demand by Incident Type



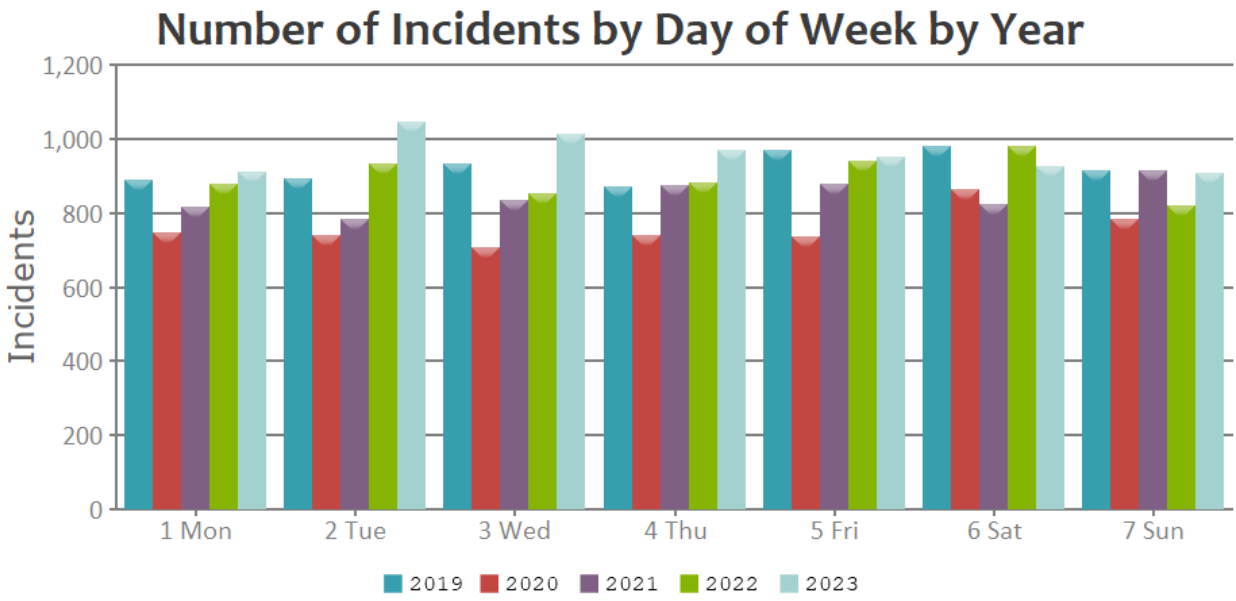
The following figure illustrates service demand by month and year.

Figure 7—Service Demand by Month



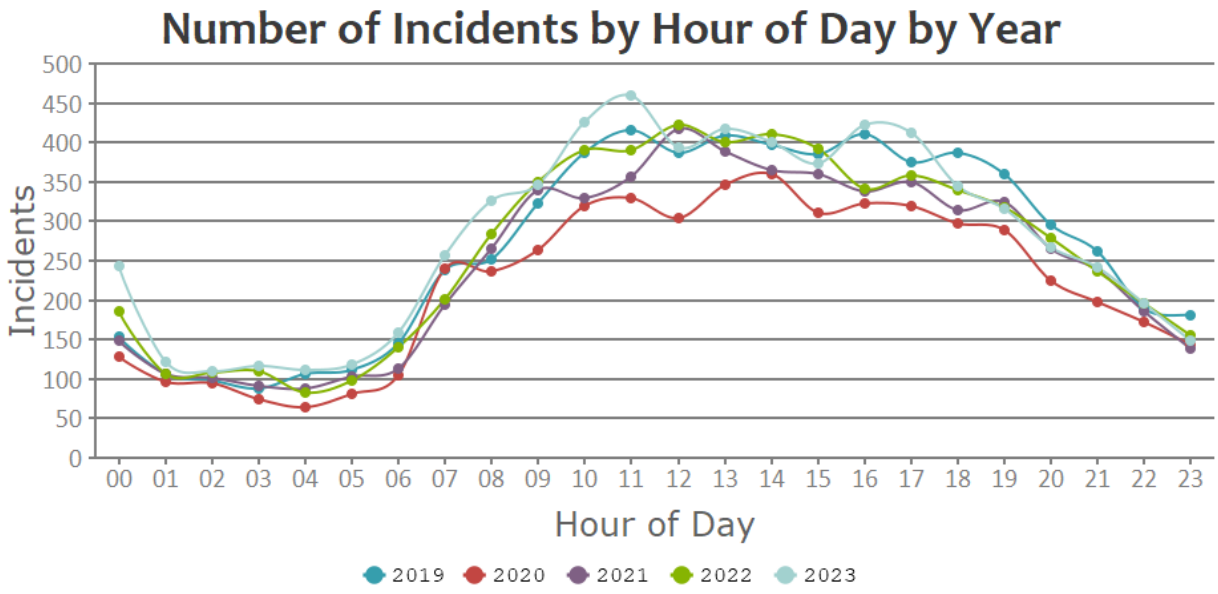
The following figure shows service demand by day of week, with the highest demand tending to occur on Saturday, and the lowest on Monday.

Figure 8—Service Demand by Day of Week



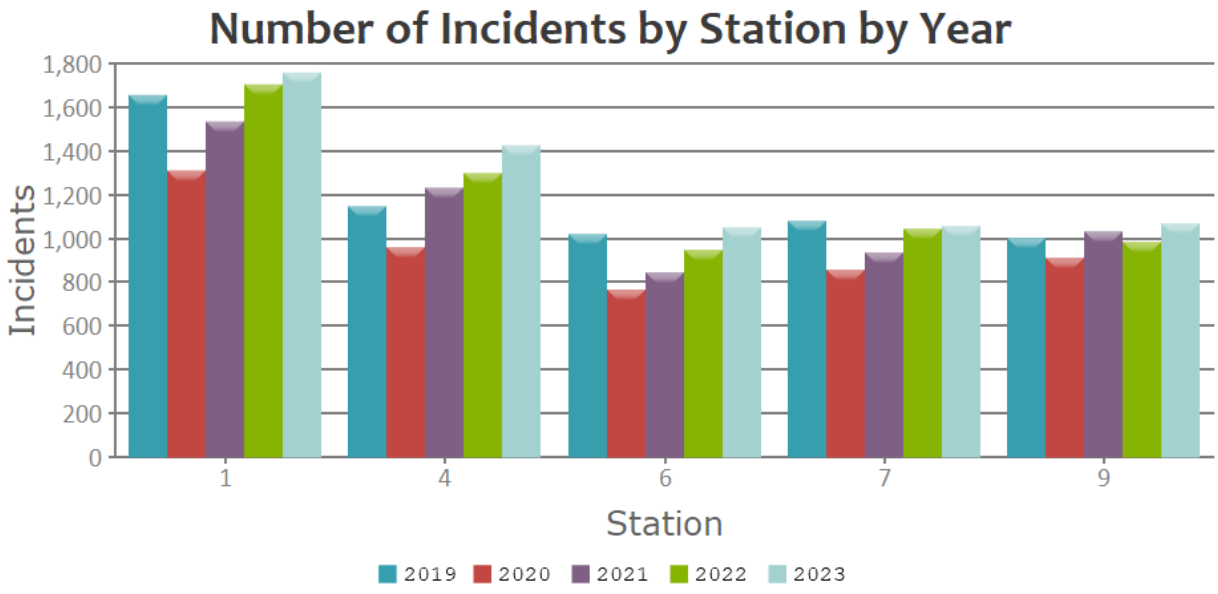
The following figure illustrates the breakdown of incidents by hour of the day by year, with only slight variance in annual hourly volume.

Figure 9—Service Demand by Hour of Day and Year



The following figure illustrates the number of incidents by station for the five years of data analyzed. All stations show an increase in volume over the most recent three years except Station 9, where incident volume has remained relatively flat.

Figure 10—Service Demand by Station



Finding #6:	There is a constant, predictable demand for service across all hours of the month, week, and day, with overall demand increasing by approximately 7 percent annually.

2.7.2 Service Demand by Incident and Property Types

The following table summarizes service demand by NFIRS 5 incident type code for more than 100 total incidents over the five-year period analyzed. These national reporting system codes identify the type of incident more specifically. Dispatched and canceled en route incidents ranked second in volume. Building fires ranked a distant 26th place by volume.

Table 10—Incident Type by Year

Incident Type	2019	2020	2021	2022	2023	Total
321 EMS call, excluding vehicle accident with injury	3,274	2,709	3,099	3,475	3,593	**16,150**
611 Dispatched & canceled en route	570	545	606	731	770	**3,222**
550 Public service assistance, other	299	203	258	240	273	**1,273**
500 Service Call, other	266	170	161	172	221	**990**
322 Vehicle accident with injuries	246	144	156	155	195	**896**
735 Alarm system sounded due to malfunction	187	132	164	158	168	**809**
554 Assist invalid	101	113	149	137	145	**645**
745 Alarm system sounded, no fire - unintentional	116	97	91	113	123	**540**
651 Smoke scare, odor of smoke	128	129	77	73	67	**474**
744 Detector activation, no fire - unintentional	111	77	75	92	98	**453**
444 Power line down	103	50	125	53	95	**426**
553 Public service	40	36	121	82	136	**415**
510 Person in distress, other	89	101	72	79	62	**403**
600 Good intent call, other	122	64	51	70	83	**390**
622 No incident found on arrival of incident address	64	65	71	79	73	**352**
700 False alarm or false call, other	67	36	45	42	49	**239**
412 Gas leak (natural gas or LPG)	57	25	24	40	36	**182**
324 Motor vehicle accident no injuries	36	48	33	26	28	**171**
352 Extrication of victim(s) from vehicle	35	40	24	31	36	**166**
650 Steam, other gas mistaken for smoke, other	50	43	29	19	20	**161**
311 Medical assist, assist EMS crew	25	35	19	28	39	**146**
323 Motor vehicle/pedestrian accident (MV Ped)	28	34	28	30	21	**141**
733 Smoke detector activation due to malfunction	25	26	26	24	27	**128**
900 Special type of incident, other	15	59	17	13	18	**122**
360 Water & ice related rescue, other	33	22	29	21	14	**119**
111 Building fire	23	23	31	24	10	**111**
400 Hazardous condition, other	22	19	20	21	26	**108**
531 Smoke or odor removal	19	22	26	17	23	**107**
440 Electrical wiring/equipment problem, other	18	16	21	22	26	103

The following table summarizes service demand by property use by year, with the highest-ranked uses being residential dwellings. Only property types with more than 100 occurrences over the five-year period of data analyzed are shown.

Table 11—Incident Type by Property Use by Year

Property Use	2019	2020	2021	2022	2023	Total
419 1 or 2 family dwelling	1,818	1,556	1,702	1,683	1,909	**8,668**
429 Multifamily dwellings	721	699	821	766	640	**3,647**
400 Residential, other	548	428	410	639	898	**2,923**
~~**BLANK**~~	~~389~~	~~355~~	~~557~~	~~711~~	~~616~~	~~**2,628**~~
962 Residential street, road, or driveway	360	269	326	218	276	**1,449**
960 Street, other	320	241	226	244	405	**1,436**
900 Outside or special property, other	335	220	171	230	322	**1,278**
961 Highway or divided highway	328	237	224	176	179	**1,144**
963 Street or road in commercial area	135	141	179	166	127	**748**
311 24-hour care nursing homes, 4 or more persons	203	99	106	166	171	**745**
965 Vehicle parking area	156	118	162	159	104	**699**
~~**UUU Undetermined**~~	~~133~~	~~148~~	~~157~~	~~184~~	~~72~~	~~**694**~~
459 Residential board and care	3	66	102	122	134	**427**
500 Mercantile, business, other	84	53	32	73	105	**347**
449 Hotel/motel, commercial	50	39	64	97	86	**336**
941 Open ocean, sea or tidal waters	76	64	77	59	42	**318**
519 Food and beverage sales, grocery store	64	42	52	58	49	**265**
931 Open land or field	46	72	72	35	39	**264**
161 Restaurant or cafeteria	47	24	29	42	38	**180**
340 Clinics, doctors' offices, hemodialysis centers	52	20	21	30	46	**169**
300 Health care, detention, & correction, other	72	11	14	14	51	**162**
213 Elementary school, including kindergarten	30	21	43	35	32	**161**
150 Public or government, other	31	25	23	23	19	**121**
215 High school/junior high school/middle school	43	11	20	30	13	**117**
940 Water area, other	30	24	14	12	23	103

2.7.3 Simultaneous Incident Activity

Simultaneous incidents occur when other incidents are underway at the time a new incident begins. During 2023, 31.24 percent of the District's incidents occurred while one or more other incidents were underway.

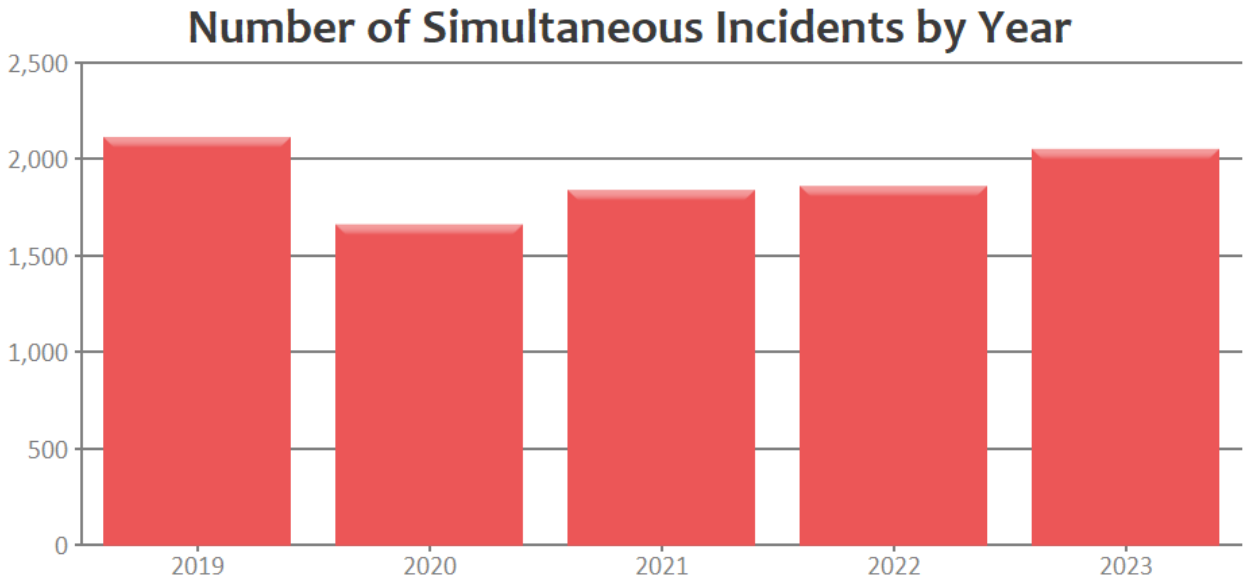
The following table summarizes simultaneous incident occurrence for 2023.

Table 12—Simultaneous Incident Activity (2023)

Number of Simultaneous Incidents	Percent of Occurrence
1 or more	31.24%
2 or more	11.60%
3 or more	3.66%
4 or more	1.44%

The following graph shows the number of simultaneous incidents is increasing year to year after a decrease in 2020.

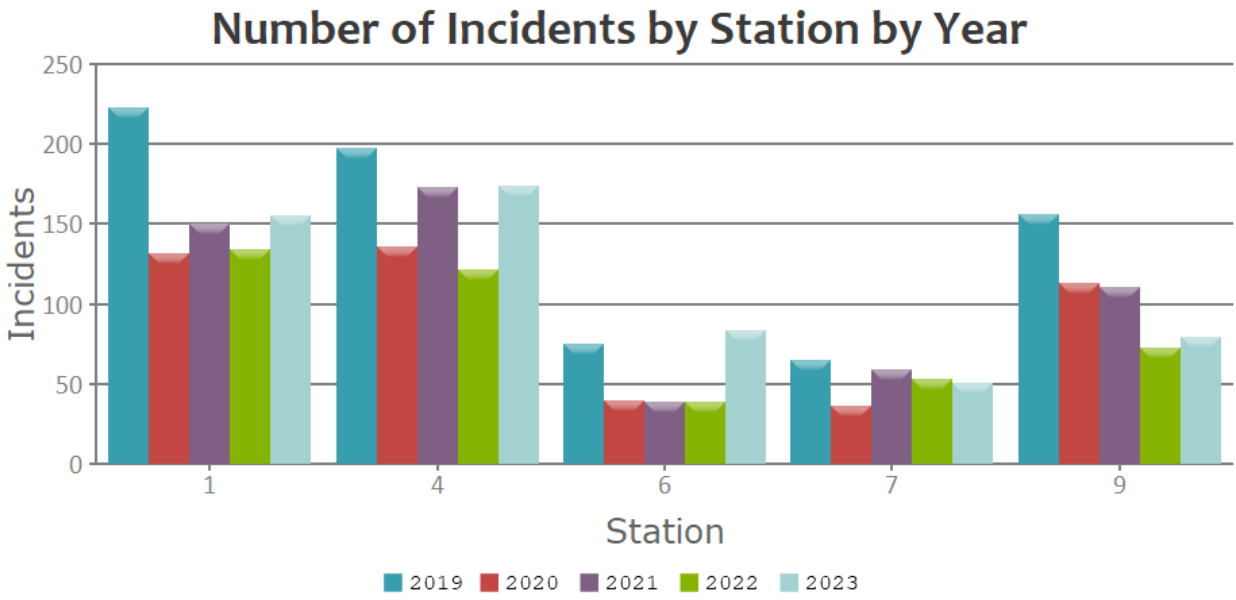
Figure 11—Simultaneous Incident Activity by Year



In a larger jurisdiction, simultaneous incidents in different station areas have very little operational consequence. However, when simultaneous incidents occur within a single station area, there can be significant delays in response times.

The following graph illustrates the number of single-station simultaneous incidents by station area by year. Stations 1 and 4 have the greatest number of single-station area simultaneous incidents.

Figure 12—Number of Incidents by Station by Year



Finding #7:	Two simultaneous calls for service occur slightly more than 31 percent of the time, with three simultaneous incidents occurring 11 percent of the time. The highest rate of simultaneous demand occurs in the response areas of Station 4 and Station 1.

2.7.4 Unit-Hour Utilization

The unit-hour utilization (UHU) percentage for apparatus is calculated using the number of responses and the duration of those responses to show the percentage of time a unit is committed to an active incident during a given hour of the day. In Citygate's experience, a unit-hour utilization of 30 percent or higher over *multiple consecutive hours* becomes the point at which other responsibilities, such as training, do not get completed.

The following table summarizes incident activity by unit by hour of day for the District's engine companies in 2023. The utilization percentage for apparatus is calculated by **two primary factors**:

1. The ***number*** of responses.
2. The ***duration*** of responses.

The busiest engines are listed first and, as the table shows, no engine crews are nearing the 30 percent saturation rate. Midnight increases in activity are likely record errors.

Table 13—Unit-Hour Utilization – Engines (2023)

Hour	E7	E6	E1	E4	E9
00:00	5.59%	11.03%	9.31%	1.66%	2.18%
01:00	1.86%	2.61%	2.71%	2.22%	0.73%
02:00	1.65%	2.20%	1.75%	1.28%	1.41%
03:00	4.58%	1.68%	2.43%	1.69%	1.93%
04:00	14.02%	2.00%	1.46%	1.41%	2.17%
05:00	5.35%	2.95%	1.51%	1.86%	1.84%
06:00	8.73%	2.35%	5.62%	1.37%	1.85%
07:00	6.44%	6.02%	5.53%	2.55%	2.50%
08:00	10.67%	9.44%	5.59%	4.66%	3.80%
09:00	6.43%	8.66%	6.43%	3.46%	3.54%
10:00	9.74%	7.99%	5.94%	9.24%	3.54%
11:00	16.11%	9.07%	5.88%	4.22%	4.08%
12:00	15.75%	7.47%	6.38%	2.54%	4.36%
13:00	6.07%	6.63%	9.38%	4.75%	4.55%
14:00	8.88%	6.54%	7.09%	3.29%	4.11%
15:00	13.50%	6.47%	7.43%	2.98%	5.75%
16:00	6.35%	7.61%	6.18%	5.22%	3.90%
17:00	11.98%	5.85%	7.05%	5.51%	5.48%
18:00	4.55%	6.34%	7.81%	3.58%	3.24%
19:00	10.96%	5.86%	7.31%	4.33%	3.64%
20:00	4.86%	4.66%	5.81%	2.42%	3.27%
21:00	4.01%	4.43%	5.62%	3.24%	2.06%
22:00	3.36%	2.88%	4.50%	1.59%	4.47%
23:00	3.23%	2.23%	3.06%	1.57%	1.66%

The following table summarizes incident activity by hour of day for the District's ladder truck in 2023. It should be noted that this apparatus is only cross staffed as needed by Engine 4 personnel.

Table 14—Unit-Hour Utilization – Ladder Truck 4 (2023)

Hour	T4
00:00	0.04%
01:00	0.06%
02:00	0.00%
03:00	0.00%
04:00	0.00%
05:00	0.00%
06:00	0.80%
07:00	0.09%
08:00	0.63%
09:00	0.45%
10:00	1.07%
11:00	1.42%
12:00	0.71%
13:00	1.68%
14:00	1.80%
15:00	2.09%
16:00	8.29%
17:00	1.54%
18:00	1.25%
19:00	0.45%
20:00	0.23%
21:00	0.66%
22:00	0.10%
23:00	0.31%

The following table summarizes incident activity by hour of day for the District's two ALS ambulances and the ALS rescue for 2023.

Table 15—Unit-Hour Utilization – Medic Ambulances and Medic Rescue (2023)

Hour	M4	M1	R9
00:00	3.63%	9.37%	2.67%
01:00	3.94%	2.42%	1.10%
02:00	4.03%	1.69%	1.52%
03:00	4.45%	2.18%	2.44%
04:00	2.86%	2.47%	2.69%
05:00	4.07%	1.32%	1.92%
06:00	5.00%	3.41%	2.49%
07:00	7.71%	4.79%	5.61%
08:00	8.02%	6.24%	4.73%
09:00	10.32%	5.60%	5.11%
10:00	10.65%	8.39%	5.01%
11:00	17.74%	6.97%	5.70%
12:00	11.32%	7.67%	5.41%
13:00	10.20%	8.21%	5.63%
14:00	12.56%	7.98%	7.57%
15:00	11.99%	7.87%	7.47%
16:00	10.43%	8.07%	4.85%
17:00	11.14%	6.23%	6.80%
18:00	9.01%	6.78%	5.08%
19:00	7.77%	6.06%	5.86%
20:00	6.57%	4.37%	3.76%
21:00	6.92%	4.37%	3.00%
22:00	5.95%	3.31%	4.83%
23:00	4.33%	2.69%	2.43%

Finding #8: None of the District's staffed response units are approaching a Citygate-recommended 30 percent Unit-Hour Utilization saturation rate over multiple consecutive hours.

2.7.5 Operational Performance

This section reviews performance for the first apparatus to arrive on the scene of emergency incidents. Measurements are the number of minutes and seconds necessary for 90 percent completion of:

- Call Processing
- Turnout
- Travel
- Dispatch to Arrival
- Call to Arrival

To ensure analysis of the most acute emergencies, *only* fire and EMS incidents are used for the following measures.

Call Processing / Dispatch

Call processing measures the time interval from the first incident timestamp at the Marin County Sheriff's Office Communications Center until completion of the dispatch notification.

Call-processing performance depends on what is being measured. If the first incident timestamp takes place at the time the Public Safety Answering Point (PSAP) receives a 9-1-1 call, then call processing includes PSAP time as well as dispatch handling time. Otherwise, the performance represents only a portion of the entire processing operation. In addition, not all requests for assistance are received via landline 9-1-1. Generally, there are numerous ways that requests for assistance are received—including landline telephone, cellular telephone, SMS text message, fire, or police officer-initiated requests, TTY/TDD operator, etc.—that each have a separate timestamp at a different point in the processing operation. This is not as much of a factor if most requests are received via 9-1-1 PSAP.

The following table shows 90th percentile call processing / dispatch performance by year.

Table 16—90th Percentile Call Processing Analysis by Year

Station	Overall	2019	2020	2021	2022	2023
District-Wide	**1:00**	1:09	1:02	0:55	0:51	0:57

Finding #9: At an aggregate 1:00 minute over the previous five years, 90th percentile call-processing / dispatch performance is 33 percent *faster* than Citygate's recommended 1:30-minute best practice goal to facilitate positive outcomes for fire and EMS emergencies.

Crew Turnout

Crew turnout measures the time interval from completion of the dispatch notification until the start of vehicle movement to the emergency incident. While the NFPA[6] recommends 1:00 to 1:20 minutes for crew turnout depending on the type of protective clothing that must be donned, Citygate has found that few agencies can meet this performance standard, and thus has long recommended 2:00 minutes averaged across a 24-hour day as an achievable goal for on-duty station personnel.

The following table summarizes 90th percentile crew turnout performance and shows that, at 2:22 minutes, overall performance over the five-year study period was 22 seconds (35 percent) *slower* than the Citygate-recommended 2:00-minute best practice goal.

Table 17—90th Percentile Crew Turnout Performance by Year

Station	Overall	2019	2020	2021	2022	2023
District-Wide	**2:22**	2:15	2:26	2:21	2:21	2:29

Finding #10: At 2:22 minutes, 90th percentile crew turnout performance over the five-year period studied was 18 percent *slower* than the Citygate-recommended 2:00-minute best practice goal.

First-Unit Travel

First-unit travel measures the time interval from the start of apparatus travel until arrival at the emergency incident. In most urban/suburban jurisdictions, a 90th percentile first-unit travel time goal of 4:00 minutes[7] would be considered highly desirable to achieve desired outcomes.

As the following table shows, 90th percentile first-unit travel is 93 percent *slower* than the NFPA and Citygate-recommended 4:00-minute goal to achieve positive outcomes in urban/suburban density communities, and 29 percent slower than the District's own 6:00-minute travel time objective. This slower-than-desired performance is predominantly due to the District's road design and topography, as well as some large first-due response zones and simultaneous incidents within the same station's response area.

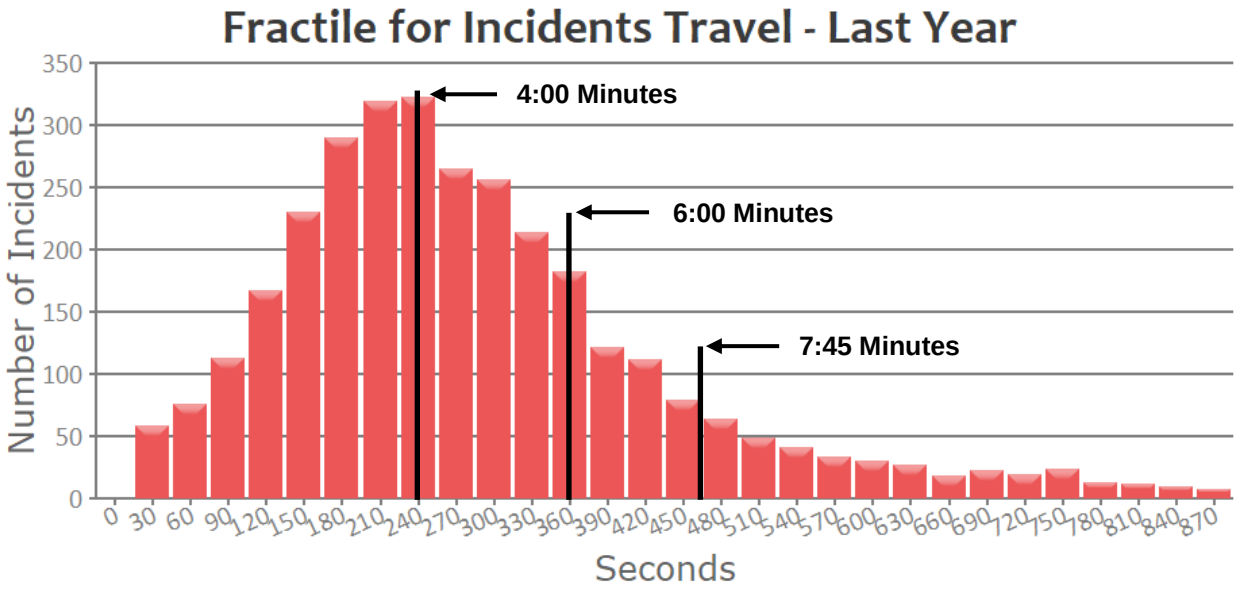
[6] NFPA 1710 Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operation to the Public by Career Fire Departments (2020 Edition).
[7] Source: NFPA 1710 – Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments (2020 Edition).

Table 18—90th Percentile First-Unit Travel Performance by Year

Station	Overall	2019	2020	2021	2022	2023
District-Wide	7:44	7:00	7:38	7:46	8:00	8:10

The following figure shows fractile first-unit travel performance in 30-second increments for 2023, with peak performance occurring at 4:00 minutes (240 seconds). While a significant number of incidents are being reached within the District-adopted 6:00-minute travel time goal, there are still a significant number of incidents that require travel time into the eighth minute and longer. It should also be noted that 90th percentile travel time has increased each of the five years studied.

Figure 13—First-Unit Travel Fractile Analysis (2023)



Finding #11: At 7:44 minutes in 2023, 90th percentile first-unit travel time performance to fire and EMS incidents was 93 percent *slower* than a recommended 4:00-minute best practice goal to facilitate best practice outcomes in urban-density communities, and 29 percent *slower* than the 6:00-minute goal adopted by the District.

2.7.6 Call-to-First-Unit Arrival

Call-to-first-unit arrival measures the time interval from receipt of the 9-1-1 call until the first response apparatus arrives at the emergency incident and is a fire agency's true customer service measure. For 90th percentile call-to-first-unit arrival to fire and EMS incidents, Citygate's best practice recommendation to achieve desired outcomes—determined over many years of fire service deployment analysis—is for first-unit arrival within 7:30 minutes of 9-1-1 answering the

call. Due to its challenging road design and topography, the District has adopted a 9:30-minute performance goal for fire and EMS incidents.

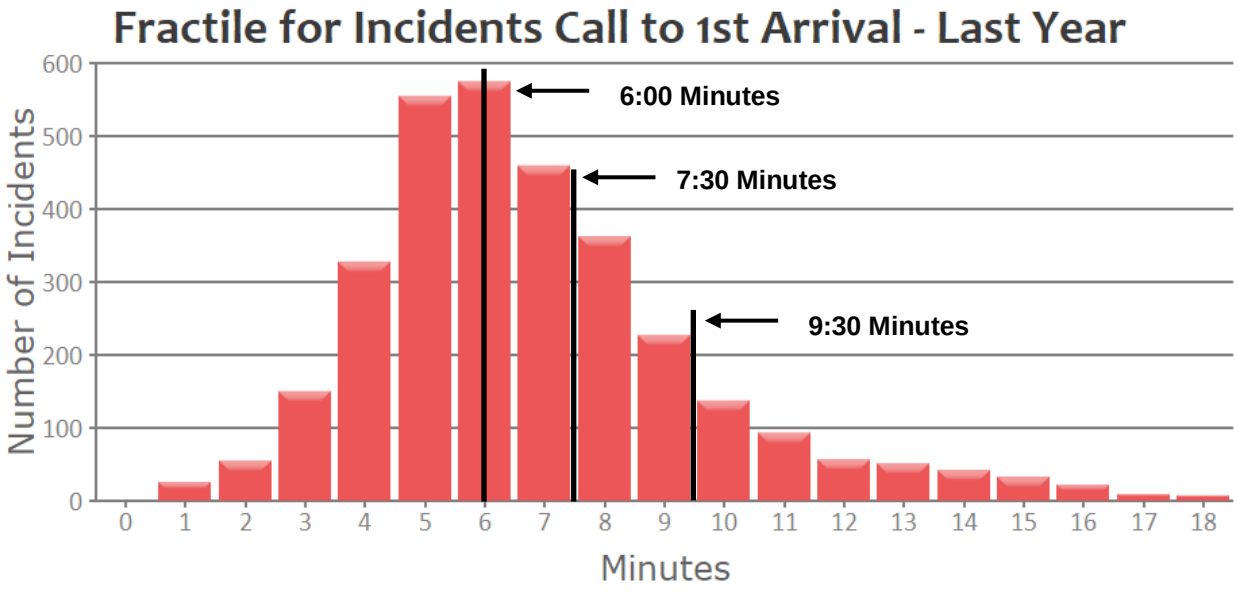
The following table shows that the District's aggregate, 90th percentile call-to-first-unit-arrival performance over the five-year period studied was 9:49 minutes. While this aggregate performance is only slightly slower than the District's current 9:30-minute goal, it should be noted that performance has degraded each of the five years to 10:17 minutes in 2023.

Table 19—90th Percentile Call to First-Unit Arrival Performance by Year

Station	Overall	2019	2020	2021	2022	2023
District-Wide	9:49	9:16	9:40	9:47	9:58	10:17

The following figure shows fractile call-to-first-unit-arrival performance peaking at 6:00 minutes in 2023; however, the right-shifted graph indicates a high number of incidents with longer call-to-arrival times.

Figure 14—Call-to-First-Unit-Arrival Fractile Analysis (2023)



Finding #12: At 9:49 minutes, 90th percentile call-to-first-unit-arrival performance over the five-year period studied was only slightly slower than the District's adopted 9:30-minute goal; however, that performance degraded each of the five years to 10:17 minutes in 2023.

2.7.7 Effective Response Force (ERF) Concentration Measurements

The District's ERF for a building fire is four engines, one ladder truck, one rescue, one medic ambulance, and two Battalion Chiefs for a total of 23 personnel, meeting NFPA recommendations. Over the five-year period of data studied, there were 65 building fire incidents within the District; however, none of these incidents had the full ERF arrive at the incident. Citygate thus evaluated building fire incidents with an ERF of three engines, one ladder truck, one medic ambulance, and one Battalion Chief, which resulted in only four incidents over three of the five years studied (2019, 2021, and 2023) where the full ERF arrived. The following tables show 90th percentile ERF travel time and ERF call-to-arrival time for those four incidents; however, it is important to understand that data from small sample sizes such as this can be quite volatile.

Table 20—90th Percentile ERF Travel Time Performance by Year

Station	Overall	2019	2020	2021	2022	2023
District-Wide	**13:08**	9:17	n/a	13:08	n/a	8:16

Best practice, Citygate's recommendations, and the District's current response goals are an ERF *travel* time of 8:00 minutes for the last-arriving unit and a total call-to-arrival time of 11:30 minutes or less for all units to achieve desired outcomes. As the previous table shows, overall 90th percentile ERF travel time was 64 percent *slower* than the recommended 8:00-minute goal over the five-year period.

As shown in the following table, overall ERF *call-to-arrival* performance was slightly more than 2:00 minutes (18.9 percent) *slower* than the Citygate-recommended, 11:30-minute best practice-based goal to facilitate positive outcomes in communities with urban/suburban density.

Table 21—90th Percentile ERF Call-to-Arrival Performance by Year

Station	Overall	2019	2020	2021	2022	2023
District-Wide	**13:41**	11:19	n/a	13:41	n/a	9:04

Finding #13: At 13:41 minutes, 90th percentile ERF call-to-arrival performance was slightly more than 2:00 minutes (19 percent) *slower* than a Citygate-recommended and District-adopted, 11:30-minute best practice goal to facilitate positive outcomes in communities with urban/suburban density. However, there were only four ERF incidents over the five years of data studied, showing that small data sets can be quite volatile.

2.8 Overall Deployment Evaluation

The District serves an urban/suburban population over a 25-square-mile service area including two incorporated cities with a mixed land-use pattern. The District has a significant wildland fire risk due to its geography and topography, including built infrastructure within or intermixed with a wildland vegetation environment—commonly known as the wildland urban interface, or WUI. While the District is mostly built out, with minimal growth projected over the near future, infill intensification of land uses will potentially influence risk and service demand. Going forward, the District should maintain robust firefighting and first responder EMS programs suitable for an urban/suburban fire agency in staffing, unit types, and facility locations.

Even as State or local fire codes require fire sprinklers in residential dwellings, it will be many more decades before enough homes are built or remodeled with automatic fire sprinklers. The District will still need both first-due unit and multiple-unit ERF coverage consistent with controlling a building fire within or near the room(s) of origin and improving the chance of survival for patients with life-threatening medical emergencies for decades to come. The District must also remain prepared for the special risks of wildfire, hazardous materials spills, and technical rescues. The District is to be commended for its strong mutual aid relationships and focus on mitigating its wildfire risk using multiple strategies, including being a founding member agency of the Marin Wildfire Prevention Authority.

> The District has a strong deployment system to protect the values at risk; however, response performance is impacted by a combination of large station response areas, narrow curvilinear roads and steep topography throughout much of the service area, traffic congestion, and a relatively high rate of simultaneous incidents.

The resultant 90th percentile first unit call-to-arrival performance over the five-year study period was 9:49 minutes, which is only 19 seconds (3.3 percent) slower that the adopted 9:30-minute goal for the most populated areas of the District, which is good performance for suburban communities. It should be noted, however, that first-unit call-to-arrival performance has degraded slightly each year since 2019, with 2023 performance at 10:17 minutes, or 47 seconds (8.2 percent) *slower* than the 9:30-minute goal.

Overall annual service demand increased an average of nearly 10 percent over the last three years, including a 31.2 percent rate of two or more simultaneous emergency incidents of any type, and an 11.6 percent rate of three or more simultaneous incidents.

Citygate's deployment analysis further found that none of the District's staffed response units are approaching a 30 percent Unit-Hour Utilization workload saturation rate over multiple consecutive hours, although Medic 4 is moderately busy during normal workday hours. As noted above, the District has adopted formal, outcome-driven response performance measures to monitor response

effectiveness. Based on this analysis, Citygate recommends the District maintain and continue to monitor the current performance metrics.

Although there were only four building fire incidents requiring the full ERF over the most recent five years, it should be noted that the District's jurisdiction is effectively located at the "end of a cul-de-sac," with auto/mutual aid predominantly available only from the north. As such, because it takes significantly longer to assemble a full ERF in the southern section of the District when needed, Citygate recommends the District consider increasing the on-duty staffing at Station 4 to five or six personnel over time to provide full-time staffing of the ladder truck. If staffed with two personnel, the truck could respond to incidents as needed, with additional staffing provided by an engine crew.

2.8.1 Deployment Recommendations

Based on the technical analysis and findings contained in this assessment, Citygate makes the following deployment recommendation. Overall, Citygate does not find it is necessary to add fire stations given the risks to be protected and the challenges presented by the terrain and road system. However, a small engine staffing increase would be desirable as commitment time on the ambulances increases.

Recommendation #1:	The District should continue to maintain and monitor its current adopted response performance measures with a focused effort to reduce crew turnout performance to 2:00 minutes or less over a 24-hour day.
Recommendation #2:	The District should consider increasing the daily staffing on Engine 1 to four personnel over time to enhance two-in / two-out and ERF staffing performance, particularly in the southern section of the District.

SECTION 3—HEADQUARTERS SERVICES ASSESSMENT

As an element of this Master Plan, Citygate was tasked to review the District's administrative support structure and staffing for adequacy, regulatory compliance, and workload capacity, including configuration, lines of authority, and projected future workload and potential additional headquarters staffing needs, if any.

NFPA 1201[8] states, in part, "*the [Department] shall have a leader and organizational structure that facilitates efficient and effective management of its resources to carry out its mandate as required [in its mission statement].*" Best practices call for a management organization and headquarters programs with adequate staffing capacity to provide a properly trained, equipped, and supported response force to ensure prompt response and safe, competent service delivery. Compliance regulations for fire services operations are continually increasing; thus, the proper hiring, training, and supervision of operational personnel requires a significant commitment from department leadership and jurisdictional governance.

3.1 REVIEW METHODOLOGY

For this assessment, Citygate reviewed all District administrative support functions and conducted interviews with individual personnel as needed to identify and evaluate:

- Key program responsibilities for each support function.
- Administrative support organizational structure and staffing, including configuration and lines of authority.
- Critical workload capacity gaps, if any, including what key responsibilities are not being met, or are not being performed at the desired or expected levels or within the expected timeline.
- Available redundant critical business services capability (e.g., timecard/payroll processing, accounts payable, personnel issues tracking, etc.).
- Workload capacity gaps relative to critical business systems and assigned key primary and secondary responsibilities.
- Single points of failure, if any, of critical business functions, processes, or services.

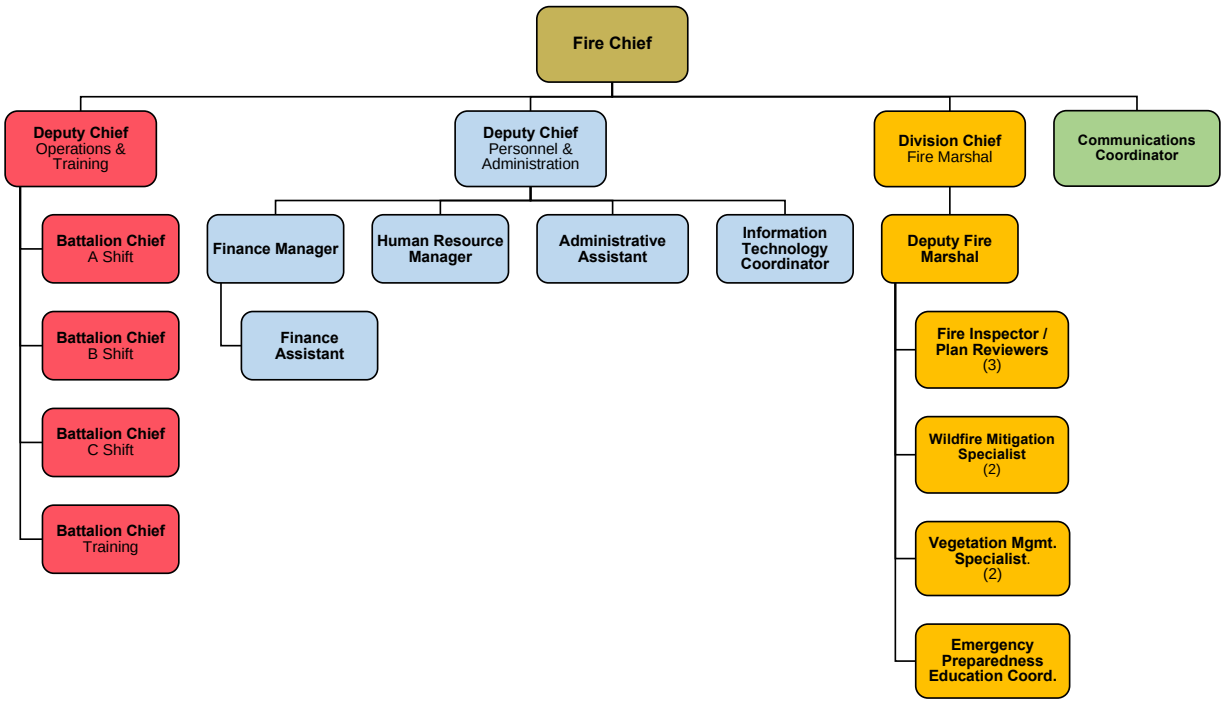
[8] NFPA 1201 – Standard for Providing Emergency Services to the Public (2020 Edition).

3.2 Fire District Administrative Support Organization

The District's administrative support organization is responsible for the overall administration and management of all administrative support functions and programs, including general District administration, fire prevention, training, health and safety, public education/information, policies and procedures, coordination with other local or regional service providers and stakeholders, and other related administrative and program responsibilities.

The District's fiscal year 2023/24 budget authorizes 20 FTE personnel to support the District's operational response, training, finance, fire prevention, and logistics functions, as shown in the following figure.

Figure 15—Fire District Administrative Support Organization



3.3 Personnel and Administration Division

The Personnel and Administration Division includes the Deputy Chief of Personnel, a Finance Manager, a Finance Assistant, a Human Resource Manager, an Administrative Assistant, and an Information Technology Coordinator. Key Division responsibilities include:

- Overall management of District programs and functions
- District governance Board support

- Management of District budget
- Administrative systems and procedures
- Labor/management issues
- Policies and procedures
- Strategic planning
- Risk management
- Finance
- Human resources
- Grant management
- Information technology.

3.3.1 Deputy Chief of Personnel and Administration

The Deputy Chief of Personnel and Administration directly oversees all District administrative functions and services including human resources, finance, and information technology.

Workload Capacity Review

Citygate's high-level review of the Deputy Chief of Personnel and Administration's workload capacity found that while higher-priority Division responsibilities and tasks are being completed in a relatively timely manner, some responsibilities/tasks are lagging due to overall workload capacity, including:

- Developing redundancy for critical processes and procedures.
- Developing adequate administrative support for shift battalion chiefs.
- Expanding human resource workload capacity.
- Development of administrative and fiscal policies and procedures.
- Obtaining dedicated contract legal counsel.
- Mending the current labor-management relationship and mentoring a just organizational culture.

The Deputy Chief advised Citygate that the Division has multiple single points of failure, including lack of redundancy for many critical business processes, lack of administrative and fiscal policies and procedures, and lack of a dedicated District legal counsel. The Deputy Chief also advised

Citygate that Division staff is currently working on codifying administrative and fiscal policies and procedures as workload capacity and priorities allow.

3.3.2 Finance Manager

The Finance Manager is responsible for all District finance functions including:

- Payroll
- Accounts receivable
- Accounts payable
- Fiscal policies and procedures
- Board of Directors financial reports
- Comprehensive Annual Financial Report
- Banking
- Actuarial evaluations
- Capital assets management and replacement
- Measure U reporting
- Fiscal forecasting
- Pension system reporting
- Golden Gate National Recreational Area (GGNRA) contract management.

Additional responsibilities include:

- Deferred compensation account Trustee
- Marin Wildfire Prevention Authority (MWPA)Treasurer.

This position also supervises the Finance Assistant position.

Workload Capacity Review

The Finance Manager works a flexible, 32-hour-per-week schedule by choice and does not desire a full-time schedule. While the Finance Assistant manages most of the day-to-day fiscal tasks, the Finance Manager is often challenged to meet all workload responsibilities and expectations within the incumbent's 32-hour workweek schedule. Recently, responsibility to implement a new budgeting software system and complete the Comprehensive Annual Financial Report by June 30 demonstrated that the incumbent has no additional near-term workload bandwidth. In addition, the

Kentfield Fire Protection District's part-time Finance Manager will be leaving employment with that district at the end of June, and the District has approached Southern Marin FPD to backfill that function. Should the District elect to provide that service for Kentfield, the finance function will likely need some additional level of technical fiscal capacity.

Citygate's high-level review of the District's finance section found good redundancy for all critical processes except for the uploading of checks to the County Controller's office.

3.3.3 Finance Assistant

Under the supervision of the Finance Manager, this position is primarily responsible for day-to-day payroll, accounts payable, and accounts receivable tasks with the following secondary responsibilities:

- Fleet insurance and fuels accounts management
- District insurance management
- Quarterly reports (Workers' Compensation, etc.)
- Other responsibilities and projects as assigned.

This is a full-time position with the incumbent working a 4/10 schedule.

Workload Capacity Review

Citygate's review of the Finance Assistant's workload capacity found it to be adequately staffed to meet current primary responsibilities and balance secondary responsibilities and workload within the 40-hour workweek, with no potential single points of failure identified.

3.3.4 Human Resources Manager

The Human Resources Manager is responsible for all human resource-related functions for the District's 93 employees, including:

- Recruitment and hiring
- New personnel onboarding
- Employee relations coordination
- Employee benefits coordination
- Workers' compensation
- Employee disciplinary coordination
- Human resource-related policies and procedures

- Coordination of employee medical appointments
- Health and wellness committee participation
- Health and Safety committee participation
- Employee status change coordination with Finance
- Collective bargaining negotiations coordination
- Chief officer contract management
- OSHA reports
- HR record keeping
- Personnel performance evaluation processing.

Workload Capacity Review

At the time of Citygate's review, the HR Manager was averaging 40–45 hours per week to keep up with the workload despite a 32-hour workweek by choice. To help resolve this, the Administrative Assistant was temporarily assigned to assist with reducing the workload backlog. Citygate's high-level review of this function found that most HR processes and procedures had no redundancy, resulting in many potential critical points of failure. Both the HR Manager and Deputy Chief of Personnel and Administration stated that, given current and anticipated future human resource workload and redundancy, one additional full-time HR Technician is needed to minimize or eliminate any single points of failure.

3.3.5 Administrative Assistant

Under the direction of the Deputy Chief of Personnel and Administration, the Administrative Assistant provides a wide variety of technical clerical and general office administrative services. This position also produces reports and maintains District records. At the time of this review, the Administrative Assistant was on loan to the HR Manager to assist with human resource workload backlog, and the position was being backfilled with a temporary part-time employee.

Workload Capacity Review

Citygate's review of the Administrative Assistant's workload capacity found it to provide adequate staffing at one FTE to meet current responsibilities and workload, with no potential single points of failure identified.

3.3.5 Information Technology Coordinator

The Information Technology Coordinator supports most District information technology systems and equipment including:

- Network administration and security (workstations only).
- Procurement of all IT-related hardware and software.
- Installation, setup, maintenance, repair, and limited user support of all District-owned IT/AV equipment (except those installed on apparatus).

Workload Capacity Review

Citygate's review of the Information Technology Coordinator's workload capacity found it to be adequately staffed to meet current IT responsibilities and workload, with no significant single points of failure identified. The current incumbent works a 40-hour schedule Monday through Friday; however, the Coordinator is always available by cell phone after hours or on weekends or holidays as needed, and the District retains Marin IT—a local IT vendor very familiar with the District's network and systems—as a secondary backup/redundancy for any IT-related issues or problems. However, the District needs more than technical support; it needs methods and staffing for automated reporting to the management team and Board for all key metrics, not just response time.

3.3.6 Overall Personnel and Administration Division Review Summary

Citygate's review and assessment of the Personnel and Administration Division found it to be appropriately organized; however, its staffing levels are challenged to meet its human resource—and possibly its finance responsibilities and expectations—with current staffing capacity and workload. Both the Deputy Chief and Human Resource Manager advised, and Citygate concurs, that additional human resource specialist/technician capacity is needed to adequality manage that function's responsibilities and workload. Citygate also finds that the finance function may need additional technical capacity to meet all responsibilities and expected workload.

Division staff identified multiple single points of failure, including lack of redundancy for many critical business processes, and lack of a complete set of administrative and fiscal policies. However, the Deputy Chief advised Citygate that Division staff is currently working on codifying administrative and fiscal policies and procedures as workload capacity and priorities allow.

> **Finding #14:** The Personnel and Administration Division is appropriately organized; however, its staffing levels are challenged to meet its human resource—and possibly its finance responsibilities and expectations—with current staffing capacity and workload.

Finding #15:	The District currently lacks an updated set of written administrative and fiscal policies and procedures, although Personnel and Administration Division staff are working to remedy this critical gap as workload capacity and priorities allow.
Finding #16:	The Personnel and Administration Division (all the Administrative Deputy Fire Chief's five non-sworn technical reports) lack redundant capability for many critical business processes.

Recommendation #3:	The Personnel and Administration Division should prioritize completion of an updated set of written administrative and fiscal policies and procedures as soon as possible, including a clearly defined process for program-level purchases and budget management.
Recommendation #4:	The District should consider additional Human Resource Specialist/Technician capacity to provide needed workload support.
Recommendation #5:	The District should evaluate the need for additional finance section technical support equaling 1.0 FTE to meet current and anticipated future workload.
Recommendation #6:	The Personnel and Administration Division should prioritize eliminating or minimizing all single points of failure in critical business processes.

3.4 OPERATIONS DIVISION

The District supports its emergency operations services with a Deputy Chief supervising three shift Battalion Chiefs and a Training Battalion Chief. Each shift Battalion Chief supervises a 48-hour operational work shift with 19 response personnel deployed from the District's five fire stations.

3.4.1 Deputy Chief of Operations and Training

Key Deputy Chief of Operations and Training responsibilities include:

- Acting as Fire Chief in the absence of the Fire Chief
- Monitoring daily deployment status and response performance

- Approval of all operational equipment and training
- Investigation of accidents and after-action reports for significant incidents
- Oversight of all operations-based programs
- Operational policies and procedures
- Development/maintenance of target hazard and pre-incident plans
- District Safety Officer
- District liaison to the Southern Marin Emergency Medical Paramedic System.

Workload Assessment

Citygate's review found the Operations and Training Deputy Chief's workload to be very heavy due to the incumbent being new to the position in September 2023, following completion of the Mill Valley merger and the retirement of the former Mill Valley Fire Chief who had transitioned to the District as the Deputy Chief of Operations. The current incumbent stated the District lacks fully updated operational policies and procedures as well as a procedure for serious accidents or injuries despite two prior line-of-duty deaths. The District is challenged with program-level budget management requiring better-defined fiscal processes as the organization continues to grow. The executive management team has a unified goal to clearly identify and foster a "right" organizational culture. The current incumbent is focusing available workload capacity on completion of a standardized operations playbook, serious accident/injury procedures, improving the labor-management relationship, and cultivating a more consistent organizational culture.

3.4.2 Operations Battalion Chiefs

In addition to managing daily response staffing; maintaining operational proficiency of assigned shift personnel; responding to and managing emergency incidents, personnel, training, meetings, and other related responsibilities, each of the three shift Battalion Chiefs are responsible for managing one or more of the District's logistics functions or programs, including:

- Facilities
- Fleet
- Personal Protective Equipment (PPE)
- Uniforms
- Self-Contained Breathing Apparatus (SCBA)
- Fire/rescue equipment

- Basic life support EMS equipment/supplies
- Station supplies
- Communications equipment.

Workload Assessment

While some logistics functions/programs are delegated to designated station personnel, each Battalion Chief retains overall responsibility for his/her assigned programs. While this delegation of programmatic responsibilities to shift-based personnel is typical in smaller organizations, it often results in communication and coordination challenges and delays when the assigned manager is off duty or on an extended incident assignment. In Citygate's experience, organizations which have a single, centralized 40-hour point/position to coordinate all operations-based logistics and programs experience significantly higher overall program efficacy. Citygate thus recommends the District consider this as it continues to evolve to provide more time for the shift Battalion Chiefs to focus on (1) developing and maintaining operational proficiency of assigned personnel and (2) fostering and mentoring the desired organizational culture and development of future leaders. Citygate further noted a lack of sufficient office support professional (clerical) capacity to support these operations-based functions and programs, and recommends the District consider additional Administrative Assistant capacity to provide that needed support to relieve shift personnel of lower-level technical administrative tasks and procedures.

3.4.3 Training Battalion Chief

The Training Battalion Chief is a 40-hour position with the following key responsibilities:

- Recruitment and hiring
- Onboarding of new firefighters
- Marin County Regional Fire Academy Director
- Development of a biennial Training Plan
- Coordination of all operational training to meet District training goals
- Employee development
- Employee improvement
- Chairperson of District's Safety Committee.

The District participates in the Marin County Regional Fire Academy to train new response personnel who are required to possess Fire Fighter I and Emergency Medical Technician

certification at the time of hire. In addition to a regional training facility in Point Reyes, the District has training props at Station 9, including a Golden Gate Bridge net prop for rescue training.

The Training Battalion Chief is responsible for developing and implementing a comprehensive, two-year training plan utilizing Target Solutions—an online training management program. Continuing education for the District's paramedics is coordinated and delivered through the Southern Marin Emergency Paramedic System (SMEMPS), and the District utilizes its paramedics to deliver continuing education and recertification training in-house for its Emergency Medical Technicians (EMTs). Training for the various special operations is delivered in block format annually or within the regional Urban Search and Rescue (USAR) team that designated District personnel participate in. The District's marine firefighting, open water and swift water rescue, and dive team are regional response resources available to County, state, and federal partner agencies and jurisdictions upon request.

The District's biennial Training Plan requires a minimum of 240 hours annually for all response personnel, and completed training is a key component of every employee's annual performance evaluation. District staff confirmed that all response personnel met or exceeded the 240-hour requirement for 2023. The 2024 Training Plan includes the following topics.

- Policies/procedures
- EMS
- Firefighting skills
- Mandated federal/state workplace training
- Fire prevention
- Hazardous materials
- Company/battalion manipulative drills
- Rescue
- Incident Command System
- Driver/operator
- Safety
- External training

This position also administers assessment centers for promotional processes, as well as developing training programs and materials to prepare personnel for promotion to the next (higher)

organizational level. The District currently provides multiple officer development programs, with the goal of standardizing incident operations through policy and scenario-based training.

The District's legacy Training and Safety Committee was split into separate groups in October 2023, with the Safety Committee comprised of nine personnel representing response personnel, chief officers, labor, prevention, human resources, training, and the Operations and Training Deputy Chief. The Safety Committee manages the following responsibilities as prioritized by the Deputy Chief.

- Completion of the District's Illness and Injury Prevention Plan
- Completion of the station inspection process
- Recommendation of committee members
- Establishing a written agenda
- Establishing Committee Chair, Co-Chair, and Secretary positions
- Maintaining written minutes of each meeting

Workload Assessment

Citygate's high-level assessment of the Training Division's workload capacity found the Division to be appropriately staffed to meet District training and safety responsibilities and expectations.

One area of a comprehensive health and safety program not found is a critical incident review and after-accident report procedure to identify any causal and contributing factors to prevent recurrence. Citygate recommends the District make this a high priority, particularly given that it has experienced two prior line-of-duty deaths.

3.4.4 Emergency Medical Services

The District provides BLS, ALS, and ALS ground ambulance transport pre-hospital emergency medical services. ALS (paramedic) and ground ambulance services are provided under the umbrella of SMEMPS, a JPA established in 1980 to serve the EMS needs of the residents and visitors of southern Marin County. In addition to this District, other SMEMPS member agencies include the Marin County Fire Department and Tiburon Fire Protection District.

Governed by a four-member Board of Directors appointed by the member jurisdictions, SMEMPS serves the following core functions for the member agencies.

- Acts as the contracting agency relative to the Agreement for Advanced and Basic life Support Service with the Marin County Department of Health and Human Services (County Agreement).

- Oversees implementation of County EMS policies within EMS Service Area.
- Develops and oversees the SMEMPS Plan of Operation.
- Establishes paramedic and EMT qualifications.
- Establishes minimum training standards and recertification programs for paramedics and EMT.
- Provides support for EMS and rescue training.
- Maintains and updates implementation of the Continuous Quality Improvement Plan stipulated in County Agreement.
- Provides oversight for any associated contracts.
- Maintains insurance coverage for SMEMPS as stipulated in County Agreement.
- Provides oversight for SMEMPS budget in accordance with Budget Management and Finance Policies adopted by the SMEMPS Board of Directors.
- Reviews and approves payment for all expenses incurred by SMEMPS.
- Establishes appropriate fees for ambulance transport services.
- Provides oversight for the Agreement for Medical Service Revenue Recovery and Billing.
- Purchases and distribute medical supplies and equipment for all ALS Medic Units.
- Establishes replacement and maintenance programs for all SMEMPS-owned vehicles.

Medical oversight, Continuous Quality Improvement (CQI), and EMS Education services are provided under contract with Marin Health, and ALS program management provided by a Marin County Fire Department Battalion Chief as a collateral responsibility. The Southern Marin FPD Fire Chief serves as the District liaison to SMEMPS Board of Directors and Chiefs Group, and the District Deputy Chief of Operations serves as the District liaison to the SMEMPS Operations Group.

SMEMPS owns and maintains four ambulances and one ALS rescue, with three of the ambulances and the rescue assigned to Southern Marin FPD. An additional ambulance, owned and maintained by the District, is maintained as a ready reserve unit at Station 6 in Mill Valley that can be cross staffed as needed by the ALS engine crew.

As noted previously, SMEMPS establishes and collects fees for ambulance services and, according to a pro-rated formula, reimburses member agencies for any revenues received in excess of costs

needed to provide core SMEMPS services and maintain a reasonable reserve fund. BLS equipment, supplies, and training are provided independently by each member agency as applicable.

According to District staff, SMEMPS is compliant with all regulatory training required by the California Emergency Medical Services Authority and the Marin County Emergency Medical Service Agency. In addition, Citygate's high-level review found the District's EMS program is meeting state and County EMS Agency standards and regulations relative to continuing education and CQI.

Finding #17: All District response personnel are meeting minimum annual training requirements.

Finding #18: The District needs to maintain an updated set of standardized operational policies/procedures at all times.

Finding #19: The District's Safety Committee lacks a formal written charter identifying its role, responsibilities, membership, meeting schedule, and key procedures and deliverables.

Finding #20: The District lacks a formal process and assigned responsibility to review accidents, injuries, and near misses for causal and contributory factors to prevent recurrence.

Finding #21: The District lacks a clearly defined fiscal process for program-level purchases, the development of which is underway.

Finding #22: The District lacks a single, centralized point/position to coordinate and manage all logistics-related functions and programs.

Finding #23: The District needs adequate office support professional (clerical) capacity to ensure support for its emergency-response-related programs.

Finding #24: The District's EMS program is meeting state and County EMS Agency standards and regulations relative to continuing education and continuous improvement.

Finding #25: Advanced life support EMS equipment and supplies are appropriately controlled and accounted for by the Southern Marin Emergency Paramedic System (SMEMPS) and compliant with state and County standards and regulations for patient care.

Recommendation #7:	Prioritize completion of formal operational policies and procedures by the end of 2024.
Recommendation #8:	Develop a formal written Safety Committee charter identifying its role, responsibilities, membership, meeting schedule, and key procedures and deliverables.
Recommendation #9:	Ensure that all accidents, injuries, and near misses are appropriately investigated in a timely manner, with an After-Action Report produced identifying all causal and contributory factors with the goal of preventing future recurrences.
Recommendation #10:	The District should consider the benefit of creating a single, centralized position to coordinate and manage all logistics-related functions and programs.
Recommendation #11:	The District should consider additional technical administrative capacity to support all Operations Division programs.

3.5 FIRE PREVENTION DIVISION

The Fire Prevention Division includes 10 full-time personnel organized as shown in Figure 15, including one Division Chief / Fire Marshal, one Deputy Fire Marshal, three Plan Examiners / Inspectors, two Wildfire Mitigation Specialists, two Vegetation Management Specialists, and one Emergency Preparedness Fire Prevention Education Coordinator.

The Prevention Division has the following key responsibilities:

- Enforcement of the California Fire Code with local amendments.
- Review of all development projects and building permits for conformance with applicable fire and life safety codes, ordinances, and regulations.
- Inspection of residential and commercial permitted projects for project scope and completion.
- Inspection of existing building occupancies for conformance with applicable fire and life safety codes, ordinances, and regulations.

- Inspection of properties within a wildland Fire Hazard Severity Zone (FHSZ) for compliance with Public Resources Code regulations relating to defensible space around buildings.
- Implementation and/or maintenance of multiple wildfire mitigation projects as identified and prioritized in the 2020 Marin County Community Wildfire Protection Plan.
- Special event planning and inspection.
- Public fire and life safety education.
- Response to concerns and complaints regarding fire hazards and violations.
- Knox Box key access program.

The District adopted a comprehensive fee schedule in 2017 (updated in 2020) that includes fees for all plan reviews, permits, and inspection services as well as administrative fees for state and local code violations. Most of the fee billing and collection is provided by an electronic vendor; however, some fees are collected directly by District staff and the cities of Mill Valley and Sausalito.

3.5.1 Fire Code Adoption and Enforcement

The District's service area includes the cities of Mill Valley and Sausalito as well as unincorporated areas of Mill Valley and Tiburon—all of which have distinct local amendments to the California Fire Code, including more stringent standards for fire sprinkler requirements, vegetation management plans, and home hardening requirements. There are also several marinas within the District's service area containing vessels large enough for continuous human habitation that are not specifically addressed within the local fire code amendments.

3.5.2 Plan Review and Construction Inspections

The District utilizes an electronic plans submittal process for review by the Plan Reviewers / Fire Inspectors and the Deputy Fire Marshal, with a goal of completing all plan reviews within 14 workdays. The same personnel also perform all required site inspections for proper installation and operation of all fire and life safety systems including the final Certificate of Occupancy. Field inspectors utilize tablets for documentation of inspection activities.

3.5.3 Vegetation Management Specialist

Given that much of the District is designated as Wildland Urban Interface (WUI) and is also within a Wildland Fire Hazard Severity Zone as identified by the California Department of Forestry and Fire Protection (CAL FIRE), the Division places great emphasis on mitigation of the wildland fire risk using multiple strategies to reduce vegetative fuel loading, ignition sources, and potential fire

spread. These strategies are outlined in the 2020 District WUI Wildfire Hazard and Risk Assessment and the 2020 Marin Community Wildfire Protection Plan (CWPP), with mitigation projects identified and prioritized to achieve those strategies for parcels identified as having a Very High or High Fire Threat rating. Funding for these efforts is provided by two separate sources: 1) the District's general fund ($1 million annual allocation under current tax Measure U), and 2) the Marin Wildfire Prevention Authority (MWPA), a joint powers agency that includes 17 partner agencies throughout Marin County and receives and distributes revenues from a parcel assessment (2020 tax Measure C).

The two District Vegetation Management Specialists are responsible for managing the following 19 wildfire mitigation projects identified in the 2020 District WUI Wildfire Hazard and Risk Assessment and the 2020 Marin CWPP[9] as funding allows from the District's annual Measure C allocation—which totaled $1.4 million in fiscal year 2022/23.[10]

[9] Source: 2020 Marin Community Wildfire Protection Plan, Appendix B.
[10] Includes the City of Mill Valley.

Table 22—Wildfire Mitigation Projects - Southern Marin Fire District

Project Name	Priority	Project Description	Objective	Fire Threat Rating
Wolfback Ridge Fuelbreak	High	Fuelbreak / Defensible Space	Create/Improve Defensible Space	Very High
Live Oak Fuelbreak	High	Fuelbreak	Create/Improve Defensible Space	Very High
Shoreline Hwy. Fuelbreak	High	Fuelbreak / Defensible Space	Create/Improve Defensible Space	High
Autumn Lane / Cabin	High	Fuelbreak / Defensible Space	Create/Improve Defensible Space	Very High
Ring Mountain Area	High	Fire Road / Ridge Access	Fire Road / Ridge Access	Very High
Rodeo Water Tank	High	Fuelbreak	Community Wildfire Hazard Reduction	High
Meda Project	High	Fuelbreak / Defensible Space	Neighborhood Wildfire Hazard Reduction	High
Milland	High	Fuelbreak / Defensible Space	Neighborhood Wildfire Hazard Reduction	High
Seminary	High	Fuel Reduction	Neighborhood Wildfire Hazard Reduction	High
Hawkhill	High	Fuelbreak / Defensible Space	Neighborhood Wildfire Hazard Reduction	High
Laguna/Forest	High	Fuelbreak / Defensible Space	Create/Improve Defensible Space	High
Lattie Lane / Hwy. 1	High	Fuelbreak / Defensible Space	Neighborhood Wildfire Hazard Reduction	Very High
Hwy. 1 / Erica / Friars	High	Fuelbreak / Defensible Space	Neighborhood Wildfire Hazard Reduction	Very High
S. Morning Sun / Tennessee	High	Roadside Evacuation Route	Improve Evacuation Route	High
Blackfield	Moderate	Fuelbreak / Defensible Space	Neighborhood Wildfire Hazard Reduction	High
Edwards / Marion	High	Fuelbreak	Neighborhood Wildfire Hazard Reduction	Very High
Cabin Drive	High	Tree Removal	Neighborhood Wildfire Hazard Reduction	Very High
Fairview	Moderate	Roadside Evacuation Route	Improve Evacuation Route	High
Homestead Valley Land Trust	High	Fuelbreak / Defensible Space	Create/Improve Defensible Space	High

3.5.4 Public Education

In addition to coordinating public fire and life safety outreach and education to community stakeholders, the Preparedness and Education Coordinator is also responsible for coordination of Neighborhood Response Groups (NRGs) and Community Emergency Response Team (CERT) members. Public fire/life safety outreach and education includes fire extinguisher and first aid training scheduled by the Coordinator and conducted by Prevention or Operations Division personnel. This position is also responsible for raising community awareness of all-hazards, motivating them to develop their own personal resilience/preparedness and utilize the many programs and services offered by the District. Shifting some of the related administrative and outreach tasks to this newly expanded role has relieved some of the burden previously placed on Prevention and Operations personnel. The position further assists with disaster and emergency preparedness and risk reduction education through community outreach, events, and activities, and serves as a District representative with local community groups and organizations to facilitate the District's response to community needs. These activities include, but are not limited to:

- Engaging with the public to encourage participation in and awareness of District and County-wide services, such as the NRG program, CERT, Firewise, fire prevention, evacuation, and vegetation management services, as well as District-led projects affecting the public.
- Organizing and facilitating public webinars, presentations, and forums leveraging District expertise, partner organizations, and guest speakers.
- Public education, outreach, and awareness activities at information fairs, station tours/open house, tabling events, etc.
- Comprehensive public fire and life safety education and training to reduce the loss of life and property, delivered appropriately to all ages in various modalities.
- Serving as a trusted source and public liaison on behalf of the District at Southern Marin emergency preparedness commissions and disaster councils.
- Creating and distributing digital and print resources.
- Maintaining and further developing the Southern Marin NRG website.
- Continuing to support the development of new and existing NRGs.

3.5.5 Wildfire Mitigation Specialist

Under the supervision of the Fire Marshal or Deputy Fire Marshal, the Wildfire Mitigation Specialist (WMS) is responsible for performing such duties as wildfire defensible space inspections and home safety assessments. This position involves, to varying degrees, public education, public relations, weed abatement, record keeping, and report writing.

The WMS position is responsible for inspection of service area properties within a state-designated Wildland Fire Hazard Severity Zone (FHSZ) or WUI area for compliance with local ordinances and California Public Resources Code regulations related to defensible space around structures. In 2023, 2,950 inspections were conducted, accounting for 23 percent of total parcels within the FHSZ/WUI.

3.5.6 Emergency Management

As a special district within Marin County, the District has no direct emergency management responsibilities other than any negotiated with the cities of Sausalito and Mill Valley. The City of Sausalito has a dedicated Emergency Services Coordinator position in the Police Department and has a multi-purpose room that also serves as the City's Emergency Operations Center (EOC) as needed. The City of Mill Valley has a position designated to coordinate emergency management responsibilities and projects for the City, although the City's Municipal Code designates the City Manager as the Director of Emergency Services. District staff advised Citygate that there is a verbal agreement with the City that the District will provide emergency management support as needed. When a local emergency or disaster has the potential to impact either Sausalito or Mill Valley, the District may be asked to assign a fire representative to either or both cities' EOCs.

The unincorporated areas of the District are covered under the Marin County Sheriff's Office Emergency Management Division and the Marin County Fire Department. The District Deputy Chief of Operations serves as the liaison to the Marin County EOC when it is activated.

3.5.7 Fire Investigation

Fire origin and cause investigations are performed by one or more of the five Division personnel also certified as fire investigators, including the Fire Marshal, Deputy Fire Marshal, and three Fire Inspectors. Fire investigators are responsible to conduct a cause and origin investigation of every fire if the duty Battalion Chief is unable to make that determination or if the fire results in injury or death. These five investigators are also members of the Countywide Fire Investigation Team. If a crime is suspected, investigators work with the Sheriff's Office or a city Police Department on follow-up investigation, evidence custody, and case management as needed.

3.5.8 Workload Assessment

Citygate's high-level assessment of the Fire Prevention Division's workload capacity found the Division to be adequately staffed and organized to meet its responsibilities and workload, including the expanded responsibilities and workload related to the 2023 Mill Valley annexation. In 2023, the Division completed nearly 4,000 inspections across all property types as summarized in the following table.

Table 23—Inspection Activity (2023)

Occupancy Type / Occupancy	Number Inspected
Assembly	6
Business	12
Education	10
Residential	107
Vegetation	3,009
New Construction	786
Total	**3,932**

The modest number of development projects allows for an enhanced focus on programs mitigating the significant wildfire threat within the District. Citygate's review also noted the District lacks an updated inventory of high-hazard (target) occupancies.

The District's and both cities' sections of the Marin County Multi-Jurisdictional Hazard Mitigation Plan were updated in 2023. Mill Valley's Emergency Operations Plan (EOP) was last updated in 2014, and Sausalito's was updated in 2020. Although the District has its own Continuity of Operations Plan (COOP) for District operations, neither Sausalito nor Mill Valley has a separate COOP which is an important preparedness tool for catastrophic events. Neither City has any active emergency management grants.

Finding #26: The District has no legislated emergency management (disaster) responsibilities other than a verbal agreement to provide emergency management support to the Cities of Sausalito and Mill Valley as needed.

Finding #27: The California Fire Code does not address life safety in berthed vessels used for full-time or rental habitation.

Finding #28: The District lacks a current inventory of high-hazard (target) occupancies.

Recommendation #12: The District should codify any agreement relative to providing emergency management services for the Cities of Sausalito and Mill Valley.

Recommendation #13:	The District should work with the City of Mill Valley to update its Emergency Operations Plan and develop a Continuity of Operations Plan in conformance with federal Department of Homeland Security guidelines.
Recommendation #14:	The District should work with the City of Sausalito and the County to incorporate US Coast Guard regulations with new local Fire Code amendments to address life safety standards in berthed vessels used for full-time or part-time human habitation.
Recommendation #15:	The District should develop an updated inventory of high-hazard (target) occupancies for its emerging pre-incident planning effort.

3.6 COMMUNICATIONS COORDINATOR

In 2020, the District established a full-time Communications Coordinator position to coordinate all internal and external District communications including media relations, community engagement (online and in-person), community relations, and event coordination. This position reports directly to the Fire Chief. Key Communications Coordinator responsibilities include:

- Overseeing internal and external communications, including social media and the District's e-newsletter, ensuring consistent and engaging messaging.
- Serving as the District's media representative and overseeing the preparation of all press releases.
- Managing and creating materials and services for organizational needs in the areas of marketing, communications, public relations, and emergency preparedness.
- Managing all District media relations during non-emergency and emergency situations, including responding to routine media inquiries; drafting, editing, and distributing news releases; and alerting media of photo opportunities.
- Management and updating of the District website.
- Public notification of significant incidents utilizing all available District communication formats.
- Coordinating all media inquiries.

- Communicating newsworthy stories, organizing media events, and /or performing other media or community related activities.
- Agency branding.
- Photography and videography.
- Board of Directors and Annual Report content relative to communications activity.

The District has over 3,500 subscribers to its electronic newsletter and provides relevant information to the service area community through its website, social media, and Nextdoor platforms. The District also has a Comprehensive Branding and Communications Plan developed pursuant to one of the initiatives adopted in the District's 2016–2020 Strategic Plan.

Workload Assessment

Citygate's review of the District's communications function found it to be appropriately staffed, with the incumbent having prior marketing, finance, digital communications, and advertising experience. The incumbent advised Citygate that the workload is consistently high due to the broad range of responsibilities and the District's proactive focus on communications and marketing as critical elements of strengthening and maintaining the trust and support of District residents, businesses, stakeholder organizations, and the media. The District has the ability to contract with a local private-sector communications specialist familiar with the District to fulfill this role should the need arise.

Finding #29: The District has a Communications Coordinator effectively implementing the elements of the District's Comprehensive Branding and Communications Plan to strengthen community trust with timely information and engagement.

3.7 Overall Headquarters Services Assessment Summary

Overall, Citygate's review and assessment of the District's administrative support services and functions finds them, with a few minor exceptions, to be appropriately organized and adequately staffed to meet the District's mission to "contribute to Greater Southern Marin Community's reputation as a safe, friendly, economically thriving community in which to live, work, learn, play, and visit."

Our review found the administrative support organization operating at a very high level to meet workload demand and programmatic expectations despite insufficient human resource staffing capacity and the absence of a single designated point or position to coordinate and manage all logistics-related functions and programs. The District also lacks an updated set of administrative,

fiscal, and operational policies and procedures, although District staff is working to remedy this critical gap as workload capacity and priorities allow.

The District is also lacking redundancy for many critical business processes and programs, including a formal charter for the Safety Committee identifying its role, responsibilities, membership, meeting schedule, and key procedures and deliverables; a formalized process and assigned responsibility to review accidents, injuries, and near misses for causal and contributory factors to prevent recurrence; and a current inventory of high-hazard (target) occupancies. A starting point would be to increase human resources workload capacity with 1.0 additional FTE Human Resources Specialist/Technician and use a second part-time Finance Specialist to total one full-time position.

SECTION 4—FACILITIES ASSESSMENT

The scope of work for this study included an on-site review and evaluation of District facilities for service and space adequacy, regulatory compliance, adequacy of maintenance and repairs, and Capital Plan refurbish/replacement schedule, if any.

4.1 ASSESSMENT METHODOLOGY

Citygate's high-level of review of the District's physical facilities included a detailed on-site review and inspection of each facility, completion of a detailed facility assessment worksheet for each facility, review of relevant facility records, and interviews with staff and station personnel as needed to identify key issues.

Facilities were assessed for conformance with current California Building Code, California Essential Services Act, Americans with Disabilities Act (ADA), and NFPA standards and recognized best practices with a focus on health, safety, employee privacy, and accessibility. The review included confirmation of facility conditions against available records and anecdotal history.

4.2 FIRE DISTRICT FACILITIES

The District provides services from the following six facilities.

Table 24—Fire District Facilities

Facility	Address/Location	Size (Square Feet)	Age (Years)	Ownership
Fire Station 1	333 Johnson St, Sausalito	15,010	14	City of Sausalito
Fire Station 4	309 Poplar Ave, Mill Valley	8,330	62	Fire District
Fire Station 6	26 Corte Madera Ave, Mill Valley	11,450[1]	88	City of Mill Valley
Fire Station 7	1 Hamilton Dr, Mill Valley	6,132	49	City of Mill Valley
Fire Station 9	308 Reed Blvd, Mill Valley	12,336	31	Fire District
Administrative Offices	28 Liberty Ship Way, Suite 2800	8,504	23	Private (leased space)

[1] Co-joined with Mill Valley City Hall

4.3 REGULATORY STANDARDS

4.3.1 California Building Code

The International Code Council launched the International Codes Series (I-codes) at the end of the 1990s as a singular replacement for regional building codes. Locally, the California Building Code is borne out of the International Building Code and local jurisdictions adopt the California Building Code as their own guidance.

The International Building Code provides a tiered approach for the required structural performance of a building and, as an essential facility, fire stations are subject to the strictest structural requirements. While an office building is required to be built to protect life in the event of a disaster, which means the occupants survive but the building may be condemned, a fire station must be designed to protect life and be immediately occupiable post-disaster. This means a fire station will be better able to resist the shaking of an earthquake or the high winds of a hurricane.

4.3.2 Americans with Disabilities Act (ADA)

The ADA, enacted in 1990, establishes a series of standards for accessibility for persons with identified disabilities (e.g., 2010 ADA Standards). Requirements for fire stations as public buildings are scoped under Title 2 of the Act, and public facilities are subject to higher accessibility standards than commercial and residential developments.

With a few exceptions for building support spaces, fire station facilities, as Title 2 public buildings, are required to be fully accessible for disabled staff and the public. Cogent arguments have been made for why some areas within a fire station should not be considered public or accessible, like a sleeping room. Similarly convincing cases have been made relative to the mandatory fitness requirements for firefighters. Nonetheless, the ADA law is clear: spaces are not exempt based on a policy that excludes persons with disabilities from certain work, and a fire facility is considered a public building in its entirety.

4.3.3 California Essential Services Buildings Seismic Safety Act (ESBSSA)

In 1986, the California Legislature determined that buildings providing essential services should be capable of providing those services to the public after a disaster. Their intent in this regard was defined in legislation known as the Essential Services Buildings Seismic Safety Act of 1986 and includes requirements that such buildings shall be "designed and constructed to minimize fire hazards and to resist…the forces generated by earthquakes, gravity, and winds…" (Excerpt from Health and Safety Code section 16001). The enabling legislation can be found in the California Health and Safety Code, Chapter 2, sections 16000 through 16022.[11]

[11] https://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=HSC&division=12.5.&title=&part=&chapter=2.&article=

In addition, the California Building Code cited above defines how the intent of the act is to be implemented in Title 24, Part 1 of the California Building Standards Administrative Code, Chapter 4, Articles 1 through 3. None of the District's five fire stations were built as Essential Services facilities; however, Station 4 underwent a major expansion and remodel that included a complete fire sprinkler retrofit.

4.3.4 NFPA 1500

NFPA 1500 – *Standard on Fire District Occupational Safety, Health, and Wellness Program* is a non-mandated, generally accepted best practice consensus standard for fire station design relative to cancer prevention, firefighter fitness, and space for firefighters to unwind from the stresses of the job.

Newly built fire stations include differential air pressure zones where positive-pressure airflow or an air curtain can prevent contaminants in the apparatus bays from entering the station living and work areas.

Since districts are required to have fitness programs, many opt for a separate physical fitness space. Indoor and outdoor fitness areas have been used when space is limited; however, they should have easy access to the apparatus bays in the event of a dispatch while exercising.

Training rooms allow crews to learn about the latest safety and health programs, so ample space that provides a functional learning space is part of this standard.

Personal protective equipment (PPE) needs to be stored in areas away from the sun and with little fluorescent lighting. The space also needs ventilation to remove particulates from the area and needs to be physically isolated from indoor living, sleeping, and work areas. All five fire stations have PPE stored in the apparatus bays.

4.3.5 NFPA 1851

NFPA 1851 – *Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting* provides non-mandated, consensus best practice guidelines for the maintenance and care of firefighter PPE. This standard recommends separate laundry facilities for contaminated PPE from facilities used to launder personal clothing/uniforms, bedding, and bath towels. Laundry areas continue to evolve and are being separated where personal belongings can be cleaned in the living areas, and PPE is laundered in a separate room or adjacent to the apparatus bays, so it does not enter the living spaces of the facility.

4.3.6 NFPA 1710

NFPA 1710 – *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Districts*

provides guidelines for fire station design to include access to the apparatus bays from first and second floor (as applicable) interior living/work areas.

4.4 INDUSTRY STANDARDS

Fire Districts have primary goals of providing safe, responsive services to the community(s) they protect while providing a safe work environment for employees and the public. Following are generally recognized facility design best practices to facilitate achievement of those goals.

4.4.1 Response

Fire stations are ideally located pursuant to careful analysis of response times to reach locations in a service area to provide service within desired time frames. Location is the first criteria to support response. Site circulation across the front apron and connection to roadways determines the ability for rapid response for the apparatus once fire fighters are in the vehicle. Clear lines of sight and traffic control at busy roadways contribute to fast response. Alerting systems with clear signalization and visual and audible direction provide firefighters with the information they need to respond. Apparatus bay doors that operate quickly and automatically allow the apparatus to exit the station when the crew is ready.

A plan layout of the facility should be organized to provide firefighters with the direct access to the apparatus bay as quickly as possible from all areas of the station. Priority should be given to the areas the firefighters may be in most such as office areas and living areas. Sleeping areas should be prioritized with a direct path to the apparatus bay as longer internal response to the apparatus occurs when the firefighters are sleeping. Areas that may need to be visited as part of response should be placed on the path to that apparatus bay, such as radio charging stations and response alcoves providing information for the call.

4.4.2 Community Access

A fire station is a connection to the community to provide service and a destination for assistance and care for those in danger. The fire station should be accessible to the community. Parking and walkways to the lobby of the station and emergency phone should follow ADA requirements to allow all members of the community to be able to approach the station for assistance. Station site configuration, building orientation and exterior facade should provide a clear understanding of the location a community member should go to receive help, often the primary entry of the facility.

4.4.3 Safety – Vehicle Circulation

Site pathways and features should provide access and direction from the parking and pedestrian way to the pedestrian entry without crossing the path of a district's or department's vehicle response. This provides community safety and more rapid response ability. When a station's front

apron is near a street sidewalk, the apron should have enough depth for the fire apparatus to be fully out of the station with the ability to stop before entering the roadway without blocking the pedestrian way. In cases where this is not possible, warning beacons and paving marking are recommended for pedestrians during a response. Response Egress and Roadway Entry – Traffic analysis should be performed on roadways that fire stations respond onto. Traffic control or notification devises may be required depending on lines of sight or traffic volumes. Some conditions may need "keep clear" striping to avoid vehicles blocking egress of the apparatus if near an intersection where vehicles may be stopped. Flashing beacons may be needed to alert oncoming vehicles that a response is occurring if there is impairment to the line of sight. Control of adjacent signalization may be required to clear and control an adjacent intersection as the apparatus is entering. Return Drive Through – Fire Station return of apparatus should have a safe means of entering the apparatus bay. Whenever possible, providing drive-through capability for all apparatus is the safest process for returning to the station. This requires adequate circulation to the rear of the station to enter through rear bay doors. This avoids any reason to back the vehicle up, which is a higher risk maneuver. Only in circumstances where there is no other option and when there is a large enough front apron to allow for a safe three-point back in operation without utilizing the public roadway should a back-in return be considered. Careful site planning and warning features should be used to separate any public visitor vehicles or pedestrians from the back-in area if this is to occur. Bollards should be located at door entry points and around items to protect on site equipment.

4.4.4 Safety – Hazardous Material Decontamination

Firefighter health and safety is a top priority to protect personnel from the hazardous materials that they encounter when fighting fires and from the vehicle exhaust from the apparatus. A facility can encourage the proper decontamination process a firefighter must follow when returning from a call. Placing the decontamination room, turnout cleaning and turnout storage along a linear and unobstructed path to the apparatus bay supports the process of decontamination and turnout cleaning prior to entering the app bay. The addition of hand washing sinks and boot cleaning stations at any entrance to the living area in addition to the decontamination zone helps firefighters maintain a clean-living area called the "Clean Zone" that is separated from the "Hot Zone" of the apparatus bay and support area. A facility also should provide an air-lock vestibule as a "Transition Zone" at the connection points of the "Clean" and "Hot" zones to keep the vehicle exhaust from the apparatus bay from infiltrating the firefighters' living and sleeping quarters. Firefighter processes for decontamination when returning from a call and when entering the "Clean" living area will help protect the long-term health of the firefighters living at the station. At the same time, the station layout can encourage these proper cleaning processes to help embed healthy practices into the culture of a district or department.

4.4.5 Public To Private Separation

Fire Stations are not only a beacon and refuge to the community in times of emergency, they are also home to the firefighters while on duty. A separate lobby space should be provided to allow for the public to come to the station. This lobby should be secure and separate from the private living area of the fire station. Ideally, the office function of the fire station should be as close as possible to the lobby so on-duty firefighters can monitor the lobby and to provide a transition from the public space to the public interaction office area to the living area. A separate ADA bathroom in the lobby area would ensure the public does not have direct access to the living space.

4.4.6 Security

The building and site of a fire station facility should be secure from theft and unauthorized visitors to protect equipment and personnel so they can perform their service to the community unhindered. The special equipment within the facility, including response vehicles, are valuable assets to the community and require special training to operate. The rear apron provides an area to locate this equipment as well as parking of firefighter personal vehicles while on duty. This area should be protected with a security fence and vehicle gate. Visitor entry and parking can be located outside this secure fence. The entry of the building itself should have a lobby with a secure door that allows visitors to come to the station without having access to the firefighter living areas, allowing station personnel to feel secure within their work/living area.

4.4.7 Equity and Inclusion

Fire stations traditionally had limited privacy with open floor plans in dormitories, locker rooms, and restrooms. This reduced the opportunity for a diverse staff by not providing equitable, inclusive, and private living accommodations. Traditional open-dorm fire station sleeping and restroom facilities were developed based on historically all-male fire crews. For a district or department to be inclusive and recruit, retain and support a diverse staff, facilities need to be provided that accommodate all. Private sleeping areas and individual private restrooms and showers allow for any firefighter to have equitable living conditions and privacy. This encourages diversity within a district or department by providing a facility designed to ensure equitable private living conditions while on duty.

4.4.8 Organizational Culture

Because the firefighting profession relies heavily on the collaboration and teamwork of each crew member to be able to perform together and live together, opportunities for privacy should be balanced with spaces that encourage team collaboration. The apparatus bay and apparatus support spaces are areas where firefighters work together on daily duties. The living area should be configured to foster informal, casual and more formal collaboration with areas of meeting, relaxing, and eating together. The kitchen, dining and day room areas should be organized to

maintain the traditional collaborative culture of the fire service, while the firefighter sleeping areas provide equitable space to allow each firefighter to maintain their own desired level of privacy.

4.5 Facility Assessment Criteria

The following table summarizes the criteria used by Citygate to determine the overall condition of each facility.

Table 25—Facility Condition Criteria

Condition	General Criteria
Very Good	• Design and space meet current and anticipated future operational needs • Meets health and safety requirements for human habitation/use • Building or major systems require only minor routine maintenance to maintain continued operational expectations • No near-term capital improvement/renewal needs anticipated
Good	• Design and space adequate for current and anticipated near-future operational needs • Meets health and safety requirements for human habitation/use • Building or major systems require regular routine maintenance/repairs to maintain continued operational use • May require some capital improvement/renewal over next five years
Fair	• Design and space may not meet current/anticipated future operational needs • May have some health and safety issues relative to human habitation/use • Building or major systems require more than routine maintenance/repairs to maintain continued operational use • Major capital improvement/renewal needed or anticipated in near future
Poor	• Design and space do not meet current/anticipated future operational needs • May have health and safety issues relative to human habitation/use • Building or major systems require frequent major repairs to maintain continued operational use • Major capital improvement/restoration needed for continued operational use

4.6 Facility Assessment Summary

The following table summarizes Citygate's assessment of District facilities. A detailed Facility Assessment Worksheet for each facility can be found in **Appendix B**.

Table 26—Facility Assessment Summary

Facility	Condition	Comments
Fire Station 1	***Good***	• Although a large facility, there is limited ability to expand the number of offices, restrooms, dormitories and kitchen within the current footprint • Limited Parking • Showing wear and tear in some areas • Two fire poles for rapid egress from second floor • Currently houses one engine, one medic ambulance; and Fire Boat Liberty, one IRB, and Dive Tender at harbor • PPE stored on apparatus floor • Co-located with City of Sausalito EOC • No security gates • Space for additional apparatus if needed
Fire Station 4	***Good***	• Restrooms added on the second floor and recently remodeled for better gender inclusion and privacy • Currently undergoing a major earthquake retrofit • Kitchen remodeled to enlarge • Carpet should be replaced with polished concrete or laminate • One fire pole for rapid egress from second floor • Currently houses one engine, one ladder truck, one medic ambulance, wildland engine, and MCI trailer • PPE stored on apparatus floor • Physical fitness equipment on apparatus floor • No security gates • No space for additional apparatus
Fire Station 6	***Poor***	• Fire station shares lot and building with Mill Valley City Hall • Station is undersized by modern fire service standards in many aspects including apparatus area, living areas, and kitchen • Dormitories, lockers, and restrooms should be reconfigured for better gender inclusion and privacy • Station is very worn • One fire pole for rapid egress from second floor • No security gates • Carpet should be replaced with polished concrete or laminate • PPE extractor needed and additional washer/dryers are needed for PPE decontamination • Currently houses one engine and a reserve ambulance • PPE stored on apparatus floor • Physical fitness equipment on apparatus floor • No bathroom on first floor • No space for additional apparatus
Fire Station 7	***Fair***	• Fire Station shares building with Mill Valley Police Headquarters • Station is appropriately sized appropriately because it used to be a Fire Headquarters facility that housed administrative personnel in addition to operations personnel. • Dormitories lockers and restrooms should be reconfigured for better gender inclusion and privacy. • Physical fitness space on apparatus floor. • PPE on apparatus floor • No Security Gates • Currently houses a Type I Engine, Type I Reserve Engine, Search and Rescue Unit, MCI Trailer • Kitchen is worn and should be updated with new cabinets and appliances • Room for additional apparatus

Facility	Condition	Comments
Fire Station 9	***Fair***	• Station is sized appropriately because it used to be a Fire Headquarters facility that housed administrative personnel in addition to operations personnel. • Dormitories lockers and restrooms should be reconfigured for better gender inclusion and privacy. • District training tower adjacent to station • No Fire pole from second floor for quick egress • No Security Gates • Very small parking lot • PPE in room off of apparatus with no door • Physical Fitness equipment on apparatus floor • Remove carpet and replace with polished concrete where applicable. • Roof leaks throughout station (poke through tiles) • Currently houses a Type I Engine, Medic Rescue, Battalion Chiefs, and Utility • No room for an additional Engine
Administrative Offices	***Very Good***	• District has first right to any additional available building space

Citygate's review of the District's physical building facilities found Fire Stations 1 and 4 and the District Offices of Liberty Ship Way to be in good overall condition and meeting current and anticipated future operational needs with routine maintenance. Should the District need additional headquarters office space in the future, it has first right to any additional space that may become available within that building.

However, this space is leased and Stations 1, 6, and 7 are owned by the City of Sausalito, and Mill Valley, respectively. The District eventually needs a capital facility plan for lease expiration and regarding who owns the expenses for capital remodeling or replacement costs for the City-owned stations. Having an agreed-upon plan will allow the owners, either city or District, to save for these major expenses as fire stations eventually age out and modernization becomes economically unfeasible.

Stations 7 and 9 were found to be in fair condition and needing improvements or renewal to meet operational needs and current industry standards. Station 6 was found to be undersized to meet modern fire service standards and in poor overall condition, needing major remodeling to meet operational needs and current industry standards.

In addition, some stations lack compliance with current Building Code, Americans with Disabilities Act (ADA) requirements, recommended NFPA standards, and the California Essential Services Buildings Seismic Safety Act of 1986. Further, the sleeping, locker room, and restroom facilities at Stations 6 and 7 were designed for historically all-male crews and progress is being made for appropriate separation and personnel privacy on a station-by-station basis.

4.6.1 Facility Assessment Findings and Recommendations

Following are Citygate's findings and recommendations pursuant to our assessment of District facilities.

Findings

Finding #30: Most fire stations are appropriately sized to meet current needs; however, they should be considered for reconfiguration to better meet District use.

Finding #31: Although a designated historic building, Station 6 in Mill Valley is undersized for current needs and does not meet Essential Services Buildings Seismic Safety Act of 1986 and current Building Code and NFPA standards.

Finding #32: The sleeping, locker room, and restroom facilities at Stations 6 and 7 were designed for historically all-male crews and progress is not complete for appropriate separation and personnel privacy.

Finding #33: Two of the District's five stations are more than 60 years old, with a third being nearly 50 years old. These three stations are outdated and unsuited for modern apparatus, staffing levels, and operational and safety practices.

Finding #34: Some fire station facilities lack security fencing, separation between station public entry and office space, and efficient HVAC systems.

Finding #35: All five fire stations have physical fitness equipment located in the apparatus room where employees are exposed to listed carcinogens.

Finding #36: Most of the fire stations have firefighter PPE stored on the apparatus floor where it is exposed to listed carcinogens.

Finding #37: Some building components throughout the District's fire stations are in needed of replacement, including station alerting, overhead doors, HVAC systems, and carpeting.

Finding #38: The District and cities lack long-range capital facility plans for fire station renewal/replacement. Administrative office space is leased and Stations 1, 6, and 7 are owned by the City of Sausalito, and Mill Valley, respectively. The District eventually needs a capital facility plan for lease expiration and regarding who owns the expenses for capital remodeling or replacement costs for the City-owned stations. Having an agreed-upon plan will allow the owners, either city or District, to save for these major expenses as fire stations eventually age out and modernization becomes economically unfeasible.

Recommendations

Recommendation #16:	The District should consider prioritizing fire stations 4 and 9 for substantial renewal or replacement.
Recommendation #17:	The District should work with the City of Mill Valley to address the deficiencies of Station 6 and Station 7 and work with the City of Sausalito to address future Station 1 needs.
Recommendation #18:	The District should develop a comprehensive, multi-year facility maintenance and renewal/replacement plan.
Recommendation #19:	All fire stations should be master planned for capital reinvestment so they can be reconfigured to accommodate current/future use and operations.
Recommendation #20:	Develop solutions for relocating physical fitness equipment and firefighter PPE in areas away from listed carcinogens produced by fire apparatus.
Recommendation #21:	Fire station living areas should be designed to accommodate employees of all gender identities.

APPENDIX A—COMMUNITY RISK ASSESSMENT

A.1 COMMUNITY RISK ASSESSMENT

SOC ELEMENT 3 OF 8
COMMUNITY RISK ASSESSMENT

The third element of the Standards of Coverage (SOC) process is a community risk assessment. Within the context of an SOC study, the objectives of a community risk assessment are to:

- Identify the values at risk to be protected within the community or service area.
- Identify the specific hazards with the potential to adversely impact the community or service area.
- Quantify the overall risk associated with each hazard.
- Establish a foundation for current/future deployment decisions and risk-reduction/hazard-mitigation planning and evaluation.

A hazard is broadly defined as a situation or condition that can cause or contribute to harm. Examples include fire, medical emergency, vehicle collision, earthquake, flood, etc. Risk is broadly defined as the *probability of hazard occurrence* in combination with the *likely severity of resultant impacts* to people, property, and the community as a whole.

A.1.1 Risk Assessment Methodology

Citygate utilizes a three-axis model incorporating *probability of occurrence, impact extent*, and *consequence severity* parameters to assess community risks relative to specific hazard services provided by the fire agency. The process starts with identifying geographic planning sub-zones (risk planning zones) appropriate to the jurisdiction or service area. Citygate then identifies and quantifies, to the extent data is available, the specific values at risk. We then assign a risk score from 1 (lowest risk) to 6 (highest risk) to each hazard parameter using historical agency data or subjective analysis of local factors. The total risk score for each hazard is then calculated using a modification of Heron's Formula for calculating the area of a triangle, and a descriptive risk rating is then assigned based on the total risk score. This methodology conforms as applicable to this community/jurisdiction with the principles of NFPA 1300[12] and the Commission on Fire Accreditation International (CFAI).

[12] NFPA 1300 – Standard on Community Risk Assessment and Community Risk Reduction Plan Development (2020 Edition)

For this assessment, Citygate used the following data sources to understand the hazards and values to be protected within the District:

- Esri and U. S. Census Bureau population and demographic data
- City Geographical Information Systems (GIS) data
- City General Plans and Zoning information
- City and County Hazard Mitigation Plans
- District and other City data and information.

A.1.2 Risk Assessment Summary

Citygate's evaluation of the values at risk and hazards likely to impact the service area yields the following:

1. The District serves a very diverse urban population with densities ranging from less than 2,000 to more than 6,000 people per square mile over a varied urban land use pattern.
2. The District's service area population is projected to grow minimally over the next 16 years to 2035.
3. The service area has a large inventory of residential and non-residential buildings to protect.
4. The service area has significant economic and other resource values to be protected, as identified in this assessment.
5. The District has multiple mass emergency notification options available to effectively communicate emergency information to the public in a timely manner.
6. The service area's risk for six hazards related to emergency services provided by the District range from **Low** to **Extreme** as summarized in the following table.

Table 27—Overall Risk by Hazard and Planning Zone

Hazard	Planning Zone				
	Sta. 1	Sta. 4	Sta. 6	Sta. 7	Sta. 9
Building Fire	Moderate	Moderate	Moderate	Moderate	Moderate
Vegetation/Wildland Fire	Moderate	Extreme	High	Moderate	Moderate
Medical Emergency	High	High	High	High	High
Hazardous Material	Low	Moderate	Low	Low	Low
Technical Rescue	Moderate	Moderate	Low	Low	Moderate
Marine Incident	Moderate	Low	Low	Low	Moderate

A.1.3 Community Description

Located northwest of the City of San Francisco across the Golden Gate Bridge in southern Marin County, the Southern Marin Fire Protection District serves the cities of Mill Valley and Sausalito, unincorporated areas of southern Marin County, and by contract the southern Marin County section of the Golden Gate National Recreation Area. Best known for its proximity to the Golden Gate Bridge and Muir Woods redwood forest, the District is a popular tourist destination known for its waterfront shops, restaurants, eclectic houseboats, and comfortable homes along the steeply sloped hillsides.

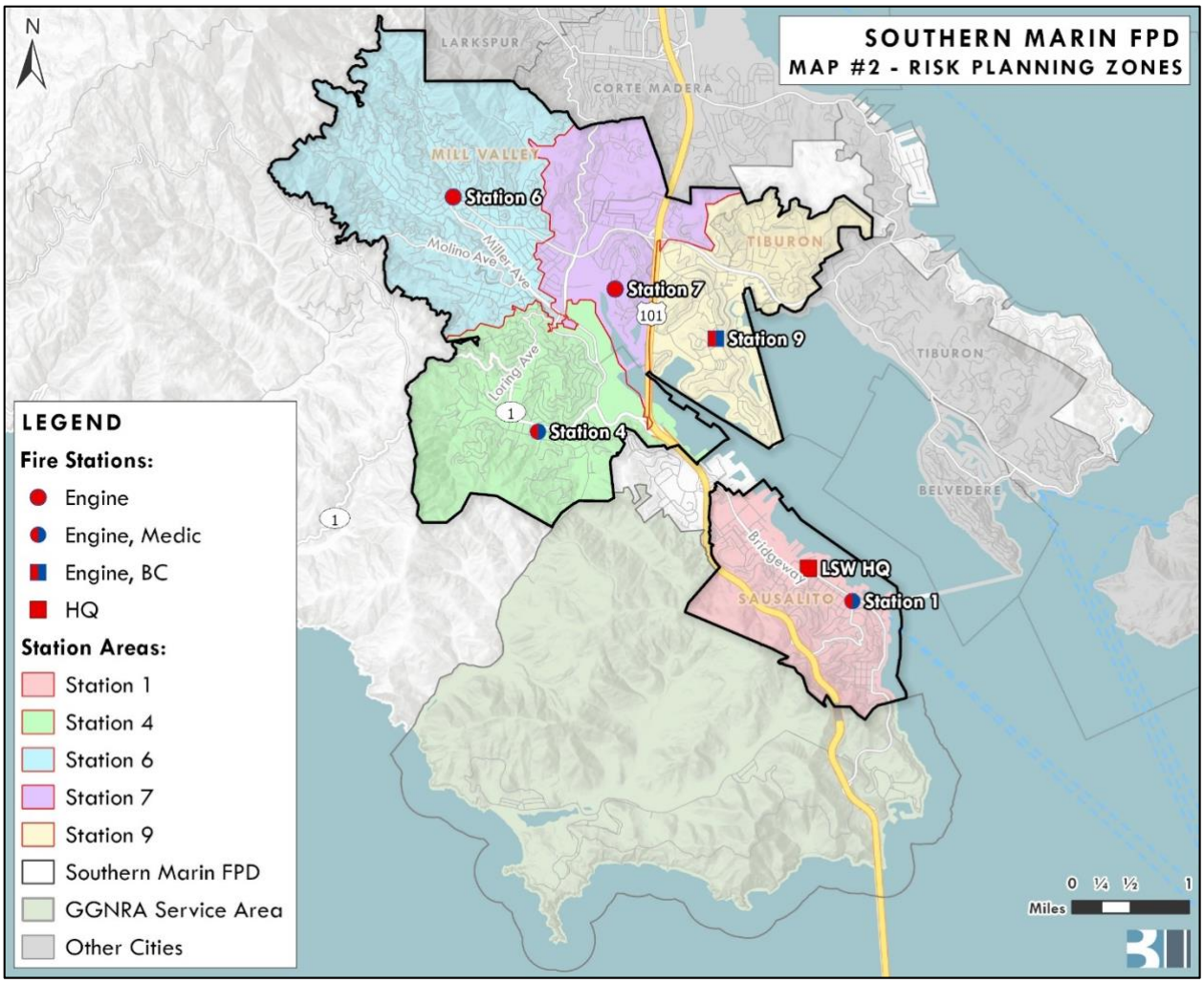
Governed by the seven-member Board of Directors elected to staggered four-year terms, the District was established by the Marin County Board of Supervisors in 1999 with the merger of the Alto-Richardson and Tamalpais Fire Protection Districts. The District contracted with the federal government to provide fire and EMS services to the southern Marin County area of the Golden Gate National Recreation Area in 2010. The City of Sausalito annexed into the District in 2012 followed by annexation of the City of Mill Valley in 2022.

A.1.4 Risk Planning Zones

The Commission on Fire Accreditation International (CFAI) recommends jurisdictions establish geographic planning zones to better understand risk at a sub-jurisdictional level. For example, portions of a jurisdiction may contain predominantly moderate risk building occupancies, such as detached single-family residences, while other areas contain high- or maximum-risk occupancies, such as commercial and industrial buildings with a high hazard fire load. If risk were to be evaluated on a jurisdiction-wide basis, the predominant moderate risk could outweigh the high or maximum risk and may not be a significant factor in an overall assessment of risk. If, however, high- or maximum-risk occupancies are a larger percentage of the risk in a smaller planning zone, then they become a more significant risk factor. Another consideration in establishing planning zones is that the jurisdiction's record management system must also track the specific zone for

each incident to appropriately evaluate service demand and response performance relative to each specific zone. For this assessment, Citygate utilized five planning zones corresponding with established District fire station first-due response areas as shown on the following map.

Figure 16—Risk Planning Zones



A.1.5 Values at Risk to Be Protected

Values at risk, broadly defined, are tangibles of significant importance or value to the community or jurisdiction potentially at risk of harm or damage from a hazard occurrence. Values at risk typically include people, critical facilities/infrastructure, buildings, and key economic, cultural, historic, or natural resources.

People

Residents, employees, visitors, and travelers in a community or jurisdiction are vulnerable to harm from a hazard occurrence. Particularly vulnerable are specific at-risk populations, including those

unable to care for themselves or self-evacuate in the event of an emergency. At-risk populations typically include children under the age of 10, the elderly, people housed in institutional settings, and households below the federal poverty level. The following table summarizes key demographic data for the District's service area.

Table 28—Key Demographic Data – Southern Marin Fire District

Demographic	2024
Population	**40,882**
Under 10 Years	10.0%
10–14 Years	5.9%
15–64 Years	58.8%
65–74 Years	15.8%
75 Years and Older	9.4%
Median Age	50.4
Daytime Population	41,868
Housing Units	**19,461**
Owner-Occupied	60.0%
Renter-Occupied	32.2%
Vacant	7.7%
Average Household Size	2.25
Median Home Value	$1,756,741
Ethnicity	
White Alone	78.6%
Black / African American Alone	0.9%
Asian Alone	7.5%
Other / Two or More Races	13.0%
Hispanic / Latino Origin	7.6%
Diversity Index	45.5
Education (Population over 24 Years of Age)	**30,435**
High School Graduate or Equivalent	98.7%
Undergraduate Degree	82.1%
Graduate/Professional Degree	38.0%
Employment (Population over 15 Years of Age)	**22,013**
In Labor Force	96.8%
Unemployed	3.2%
Median Household Income	$166,355
Population Below Poverty Level*	5.6%
Population with Disabilities*	3.4%
Population without Health Insurance Coverage*	1.8%

Source: Esri Community Analyst (2024) and U.S. Census Bureau

* Population-weighted average of Mill Valley and Sausalito data.

Of note from the previous table is the following:

- Slightly more than 35 percent of the population is under 10 years or over 65 years of age.
- The service area population is predominantly White (79 percent), followed by two or more races (10.5 percent), Hispanic/Latino (7.6 percent and also counted as White), Asian (7.5 percent), and Other racial or ethnic identities (2.1 percent).
- Of the population over 24 years of age, more than 98 percent has completed high school or equivalency.
- Of the population over 24 years of age, just over 82 percent has an undergraduate, graduate, or professional degree.
- Of the population 15 years of age or older, nearly 97 percent is in the workforce; of those, just over 3 percent are unemployed.
- Median household income is slightly more than $166,000.
- The population below the federal poverty level is approximately 5.6 percent.
- Only approximately 1.8 percent of the population under age 65 does not have health insurance coverage.

Projected Growth

The District's service area is projected to experience modest growth in both Sausalito[13] and unincorporated Marin County[14] areas along with potential for 19 percent growth in Mill Valley resulting in more than 2,900 additional residents by 2040.[15] These individual projections correspond to an aggregate annual 0.44 percent growth rate for the District, which is minimal.

Buildings

The service area has more than 19,000 residential housing units and 3,230 businesses including manufacturing, research, technology, office, professional services, retail sales, restaurants/bars, motels, churches, schools, storage, government facilities, healthcare facilities, and other occupancy types.[16]

Building Occupancy Risk Categories

The CFAI identifies the following four risk categories that relate to building occupancy:

[13] Source: Sausalito General Plan 2021.
[14] Source: Marin Countywide Plan revised January 24, 2023.
[15] Source: City of Mill Valley Housing Element Update (2023-2031).
[16] Source: Esri Community and Business Profile 2024.

Low Risk – includes detached garages, storage sheds, outbuildings, and similar building occupancies that pose a relatively low risk of harm to humans or the community if damaged or destroyed by fire.

Moderate Risk – includes detached single-family or two-family dwellings; mobile homes; commercial and industrial buildings smaller than 10,000 square feet without a high hazard fire load; aircraft; railroad facilities; and similar building occupancies where loss of life or property damage is limited to the single building.

High Risk – includes apartment/condominium buildings; commercial and industrial buildings larger than 10,000 square feet without a high hazard fire load; low-occupant load buildings with high fuel loading or hazardous materials; and similar occupancies with potential for substantial loss of life or unusual property damage or financial impact.

Maximum Risk – includes buildings or facilities with unusually high risk requiring an Effective Response Force (ERF) involving a significant augmentation of resources and personnel and where a fire would pose the potential for a catastrophic event involving large loss of life or significant economic impact to the community.

Evaluation of the service areas' building inventory identified 3,945 high/maximum-risk building uses as they relate to the CFAI building fire risk categories, as summarized in the following table.

Table 29—Building Occupancy Inventory by Risk Category

Building Occupancy Classification		Number[1]	Risk Category[2]
A-1	Large Assembly		***Maximum***
H	Hazardous		***Maximum***
I	Institutional		***High***
R-1	Hotel/Motel		***High***
R-2	Multi-Family Residential		***High***
R-2.1	Assisted Living		***High***
Total			

[1] Source: Southern Marin Fire District Prevention Division
[2] Source: CFAI *Standards of Cover* (Fifth Edition)

Critical Infrastructure

The U.S. Department of Homeland Security defines critical infrastructure and key resources as those physical assets essential to the public health and safety, economic vitality, and resilience of a community, such as lifeline utilities infrastructure, telecommunications infrastructure, essential government services facilities, public safety facilities, schools, hospitals, airports, etc. The District has identified 70 critical facilities and infrastructure, as shown in the following table. A hazard

occurrence with significant consequence severity affecting one or more of these facilities would likely adversely impact critical public or community services.

Table 30—Critical Facilities/Infrastructure

Critical Facility Category	Quantity
Communications	2
Education	10
Food, Water, Shelter	1
Government Services	3
Healthcare & Medical	6
Public Safety	7
Transportation	9
Electric Utility	1
Pump Stations	4
Water Tanks	12
Military/Civil Defense	2
LRAD Notification	12
Dam	1
Total	**70**

Source: 2023 Southern Marin Fire Protection District Profile of the Marin County Multi-Jurisdictional Hazard Mitigation Plan

Economic Resources

The service area has over 3,200 businesses employing over 19,000 people. Key economic industries include retail, services, and tourism.[17] Key employers include:

- Cities of Sausalito and Mill Valley
- Glassdoor Inc.
- Bay Equity

Natural Resources

Key natural resources within the service area include:

- Richardson Bay

[17] Source: Esri Business Profile 2024 and Marin County CAFR 2023.

- Golden Gate National Recreation Area
- Muir Woods National Monument
- Mount Tamalpais Watershed

Cultural/Historic Resources

Key cultural/historic resources within the service area include:

- Sausalito Boardwalk
- Ice House Museum
- Center for Native American Art

A.1.6 Hazard Identification

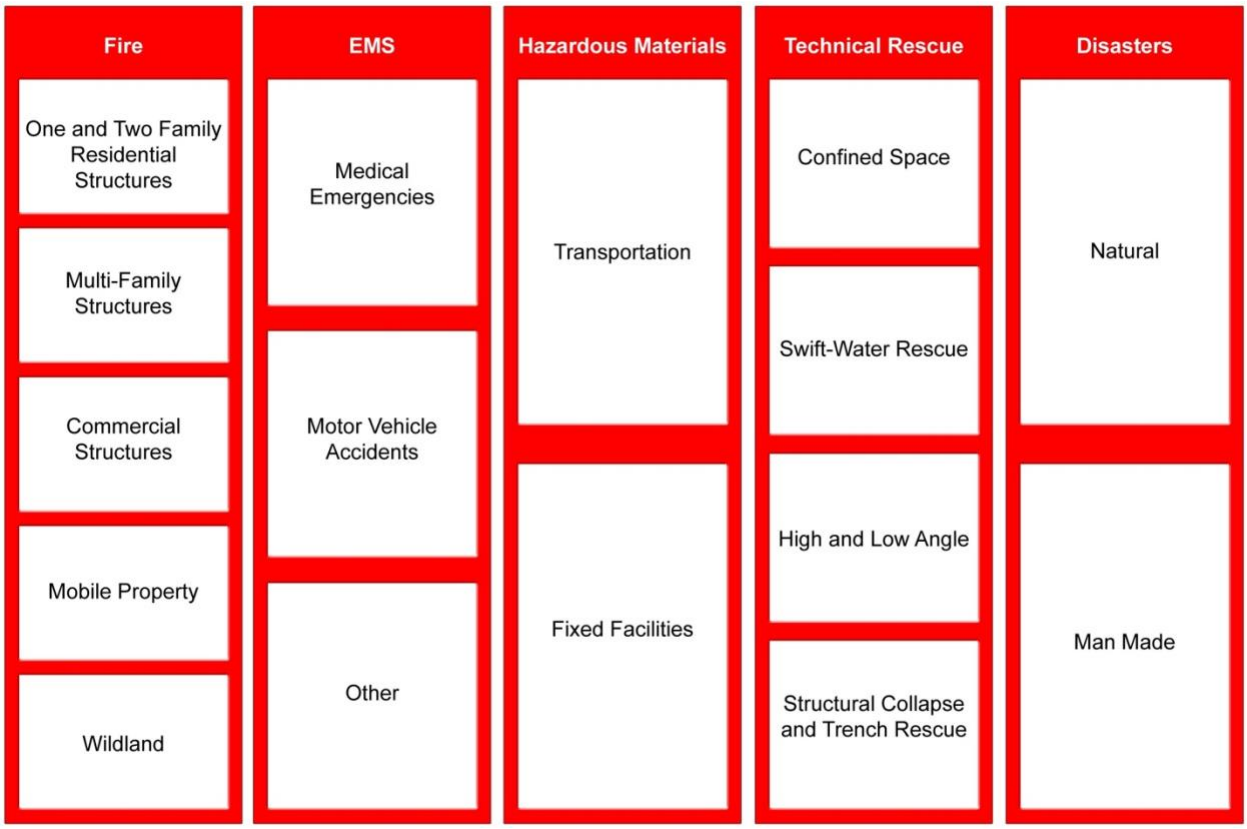
Citygate utilizes prior risk studies where available, fire and non-fire hazards as identified by the CFAI, and agency/jurisdiction-specific data and information to identify the hazards to be evaluated for this study. The 2023 Southern Marin Fire Protection District Profile of the Marin County Multi-Jurisdictional Hazard Mitigation Plan identifies the following eleven hazards likely to impact the District:

1. Wildfire
2. Earthquake
3. Seal Level Rise
4. Drought
5. Tsunami
6. Severe Weather- Extreme Heat
7. Severe Weather- Wind, Tornado
8. Flooding
9. Debris Flow
10. Levee Failure
11. Land Subsidence

Although the District has no legal authority or responsibility to mitigate any hazards other than possibly for wildfire, it does provide services related to many hazards, including fire suppression, emergency medical services, technical rescue, and hazardous materials response.

The CFAI groups hazards into fire and non-fire categories, as shown in the following figure. Identification, qualification, and quantification of the various fire and non-fire hazards are important factors in evaluating how resources are or can be deployed to mitigate those risks.

Figure 17—Commission on Fire Accreditation International Hazard Categories



Source: CFAI *Standards of Cover* (Fifth Edition)

Subsequent to review and evaluation of the hazards identified in the 2023 Southern Marin Fire Protection District Profile of the Marin County Multi-Jurisdictional Hazard Mitigation Plan, and the fire and non-fire hazards as identified by the CFAI as they relate to services provided by the District, Citygate evaluated the following six hazards for this risk assessment:

1. Building fire
2. Vegetation/wildland fire
3. Medical emergency
4. Hazardous material release/spill
5. Technical rescue
6. Marine incident

A.1.7 Service Capacity

Service capacity refers to an agency's available response force; the size, types, and condition of its response fleet and any specialized equipment; core and specialized performance capabilities and competencies; resource distribution and concentration; availability of automatic or mutual aid; and any other agency-specific factors influencing its ability to meet current and prospective future service demand and response performance relative to the risks to be protected.

The District's service capacity for fire and non-fire risk consists of 21 personnel on duty daily staffing five engines, two ambulance units,[18] plus a Battalion Chief, operating from the District's five fire stations. The District also has an aerial ladder truck, heavy rescue,[9] reserve ambulance,[9] two wildland engines, one fire boat, two inflatable rescue boats, two rescue watercraft, one decontamination trailer unit, one dive tender, two mass casualty incident trailers, and one all-terrain utility vehicle that can be cross-staffed as needed with on-duty or call-back personnel.

All response personnel are trained to either the Emergency Medical Technician (EMT) level, capable of providing Basic Life Support (BLS) pre-hospital emergency medical care, or EMT-Paramedic (Paramedic) level, capable of providing Advanced Life Support (ALS) pre-hospital emergency medical care. Ground paramedic ambulance service is provided by the Southern Marin Emergency Medical Paramedic System (SMEMPS) which includes the department's medic ambulances.

Response personnel are also trained to the U.S. District of Transportation Hazardous Material First Responder Operational (FRO) level to provide initial hazardous material incident assessment, hazard isolation, and support the Marin County regional hazardous material response team.

All response personnel are further trained to the Confined Space Awareness and Low Angle Rope Rescue Operations levels, with 17 personnel also trained to the Trench Rescue Technician level, Confined Space / USAR Technician level, high-angle rope rescue, heavy machinery rescue, and heavy vehicle extrication to cross-staff the heavy rescue from Station 9 as needed. The District maintains an underwater search and recovery team and rescue swimmer program with 18 members.

A.1.8 Probability of Occurrence

Probability of occurrence refers to the probability of a future hazard occurrence during a specific period. Because the CFAI agency accreditation process requires annual review of an agency's risk assessment and baseline performance measures, Citygate recommends using the 12 months following the completion of an SOC study as an appropriate period for the probability of occurrence evaluation. The following table describes the six probability of occurrence categories and related characteristics used for this analysis.

[18] These units are owned and maintained by the Southern Marin Emergency Medical Paramedic System.

Table 31—Probability of Occurrence Categories

Probability	Characteristics	Expected Occurrence Interval	Approximate Annual Occurrences	Risk Score
Rare	• Hazard ***may occur*** rarely under unusual conditions.	> 10 years	0	**1**
Unlikely	• Hazard **could *occur*** infrequently. • No recorded or anecdotal evidence of occurrence. • Little opportunity, reason, or means for hazard to occur.	2–10 years	0-1	**2**
Possible	• Hazard ***might occur*** occasionally. • Infrequent, random recorded or anecdotal evidence of occurrence. • Some opportunity, reason, or means for hazard to occur.	3–23 months	1-11	**3**
Probable	• Hazard ***should occur.*** • Recorded or anecdotal evidence of occurrence. • Reasonable opportunity, reason, or means for hazard to occur.	2–8 weeks	12-51	**4**
Regular	• Hazard ***will occur*** regularly. • Regular recorded or strong anecdotal evidence of occurrence. • Considerable opportunity, reason, or means for hazard to occur.	Daily to weekly	52-350	**5**
Frequent	• Hazard ***does occur*** frequently. • High level of recorded or anecdotal evidence of regular occurrence. • Strong opportunity, reason, or means for hazard to occur. • Frequent hazard recurrence.	Multiple Times Daily	>350	**6**

Citygate's SOC assessments use recent multiple-year hazard response data to determine the probability of hazard occurrence for the ensuing 12-month period.

A.1.9 Impact Extent

Impact extent refers to the probable geographic area and/or number of persons likely to be impacted by a specific hazard occurrence. The following table describes the five impact extent categories and general characteristics used for this analysis.

Table 32—Impact Extent Categories

Category	General Characteristics	Risk Score
Negligible	• Less than 5 acres and/or no persons likely impacted	**1**
Limited	• Less than 1 percent of planning area or planning area population likely impacted	**2**
Moderate	• 1–5 percent of planning area or planning area population likely impacted	**3**
Significant	• 5–25 percent of planning area or planning area population likely impacted	**4**
Extensive	• More than 25 percent of planning area or planning area population likely impacted	**5**

A.1.10 Consequence Severity

Consequence severity refers to the magnitude or reasonably expected loss a hazard occurrence has on people, buildings, lifeline services, the environment, and the community as a whole. The following table describes the five consequence severity categories and general characteristics used for this analysis.

Table 33—Consequence Severity Categories

Category	General Characteristics	Risk Score
Insignificant	• No injuries or fatalities • None to few persons displaced for short duration • Little or no personal support required • None to inconsequential damage • None to minimal community disruption • No measurable environmental impacts • None to minimal financial loss • No wildland Fire Hazard Severity Zones	**1**
Minor	• Few injuries; no fatalities; minor medical treatment only • Some displacement of persons for less than 24 hours • Some personal support required • Some minor damage • Minor community disruption of short duration • Small environmental impacts with no lasting effects • Minor financial loss • No wildland Fire Hazard Severity Zones	**2**
Moderate	• Medical treatment typically required; some hospitalizations; some fatalities • Localized displaced of persons for less than 24 hours • Personal support satisfied with local resources • Localized damage • Normal community functioning with some inconvenience • No measurable environmental impacts with no long-term effects, or small impacts with long-term effect • Moderate financial loss • Less than 25% of area in *Moderate* or *High* wildland FHSZ	**3**
Major	• Extensive injuries; moderate hospitalizations; many fatalities • Large number of persons displaced for more than 24 hours • External resources required for personal support • Significant damage • Significant community disruption; some services not available • Some impact to environment with long-term effects • Major financial loss with some financial assistance required • More than 25% of area in *Moderate* or *High* wildland FHSZ; less than 25% in *Very High* wildland FHSZ	**4**
Extreme	• Large number of severe injuries requiring hospitalization; mass fatalities • General displacement for extended duration • Extensive personal support required • Extensive damage • Community unable to function without significant external support • Significant impact to environment and/or permanent damage • Catastrophic financial loss; unable to function without significant support • More than 50% of area in *High* wildland FHSZ; more than 25% of area in *Very High* wildland FHSZ	**5**

A.1.11 Overall Risk

Overall risk considers *probability of occurrence*, likely *impact extent*, and typically expected *consequence severity* as follows.

Total Risk Score

A total risk score is computed using the following modification of Heron's Formula for calculating the area of a triangle.

$$\text{Total Risk Score} = \sqrt{\frac{(\text{Probability x Consequence Severity})^2 + (\text{Consequence Severity x Impact Extent})^2 + (\text{Impact Extent x Probability})^2}{2}}$$

Risk Rating

A descriptive risk rating is then assigned from the total risk score according to the following table.

Table 34—Overall Risk Rating

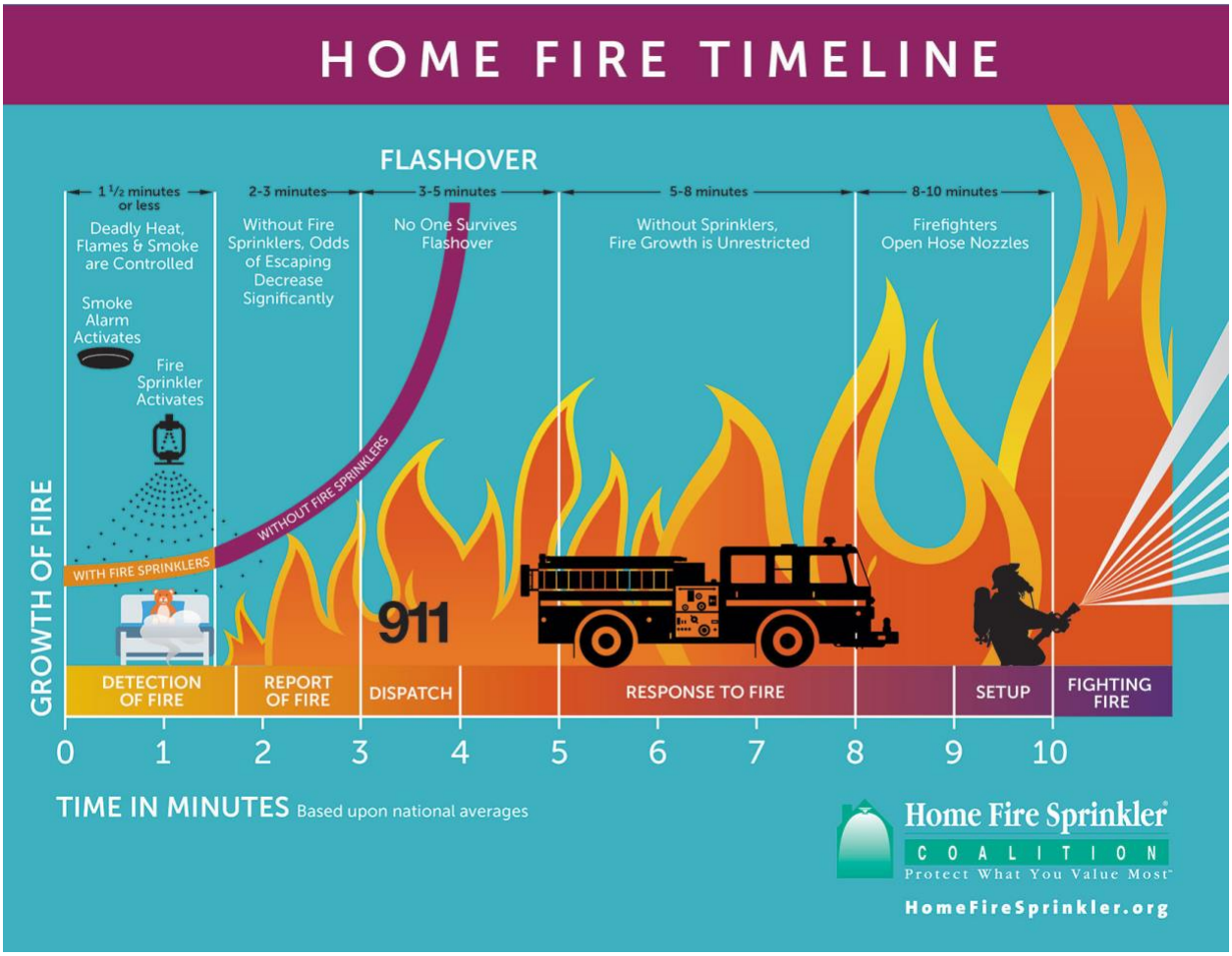
Total Risk Score	Risk Rating
< 8.0	Low
8.0 – 12.99	Moderate
13.0 – 18.99	High
> 19.0	Extreme

A.1.12 Building Fire Risk

One of the primary hazards in any community is building fire. Building fire risk factors include building size, age, construction type, density, occupancy, and height above ground level; required fire flow; proximity to other buildings; built-in fire protection/alarm systems; available fire suppression water supply; building fire service capacity; and fire suppression resource deployment (distribution/concentration), staffing, and response time. Citygate used available data from the District and the U.S. Census Bureau to assist in determining the District's building fire risk.

The following figure illustrates the building fire progression timeline and shows that flashover, which is the point at which the entire room erupts into fire after all the combustible objects in that room reach their ignition temperature, can occur as early as three to five minutes from the initial ignition. Human survival in a room after flashover is extremely improbable.

Figure 18—Building Fire Progression Timeline



Source: http://www.firesprinklerassoc.org

Population Density

Population density within the District ranges from less than 2,000 to more than 6,000 people per square mile.[19] Although risk analysis across a wide spectrum of other Citygate clients shows no direct correlation between population density and building fire *occurrence*, it is reasonable to conclude that building fire *risk* relative to potential impact on human life is greater as population density increases, particularly in areas with high density, multiple-story buildings.

Water Supply

A reliable public water system providing adequate volume, pressure, and flow duration in close proximity to all buildings is a critical factor in mitigating the potential consequence severity of a community's building fire risk. Potable water is provided by the Marin Municipal Water District,

[19] Source: Map #2A

and according to Fire District staff, available fire flow volume and pressure are adequate throughout the service area except in 10 pressure zones identified with hydrant performance of less than 680 gallons per minute available at 20 pounds per square inch of pressure.

Building Fire History

The District has a history of large loss fires including the entire downtown business section of Sausalito in the late 1800s and another large commercial fire in 1992 affecting numerous businesses along the waterfront.

Building Fire Service Demand

For the five-year period from January 1, 2019, through December 31, 2023, the District experienced 139 building fire incidents comprising 0.48 percent of total service demand over the same period, as summarized in the following table.

Table 35—Building Fire Service Demand

Hazard	Year	Planning Zone					Total	Percent Total Annual Demand
		Sta. 1	Sta. 4	Sta. 6	Sta. 7	Sta. 9		
Building Fire	**2019**	7	4	1	6	10	**28**	0.47%
	2020	7	11	3	3	10	**34**	0.70%
	2021	7	7	5	0	18	**37**	0.66%
	2022	4	4	1	1	16	**26**	0.43%
	2023	1	2	4	1	6	**14**	0.22%
	Total	**26**	**28**	**14**	**11**	**60**	**139**	**0.48%**
Percent of Total Station Demand		0.32%	0.35%	0.37%	0.29%	1.16%		

Building Fire Risk Analysis

The following table summarizes Citygate's analysis of the District's building fire risk by planning zone.

Table 36—Building Fire Risk Analysis

Building Fire Risk Analysis	Planning Zone				
	Sta. 1	Sta. 4	Sta. 6	Sta. 7	Sta. 9
Probability of Occurrence	3	3	3	3	4
Impact Extent	2	2	2	2	2
Consequence Severity	3	3	3	3	3
Total Risk Score	**8.75**	**8.75**	**8.75**	**8.75**	**11.05**
Risk Rating	**Moderate**	**Moderate**	**Moderate**	**Moderate**	**Moderate**

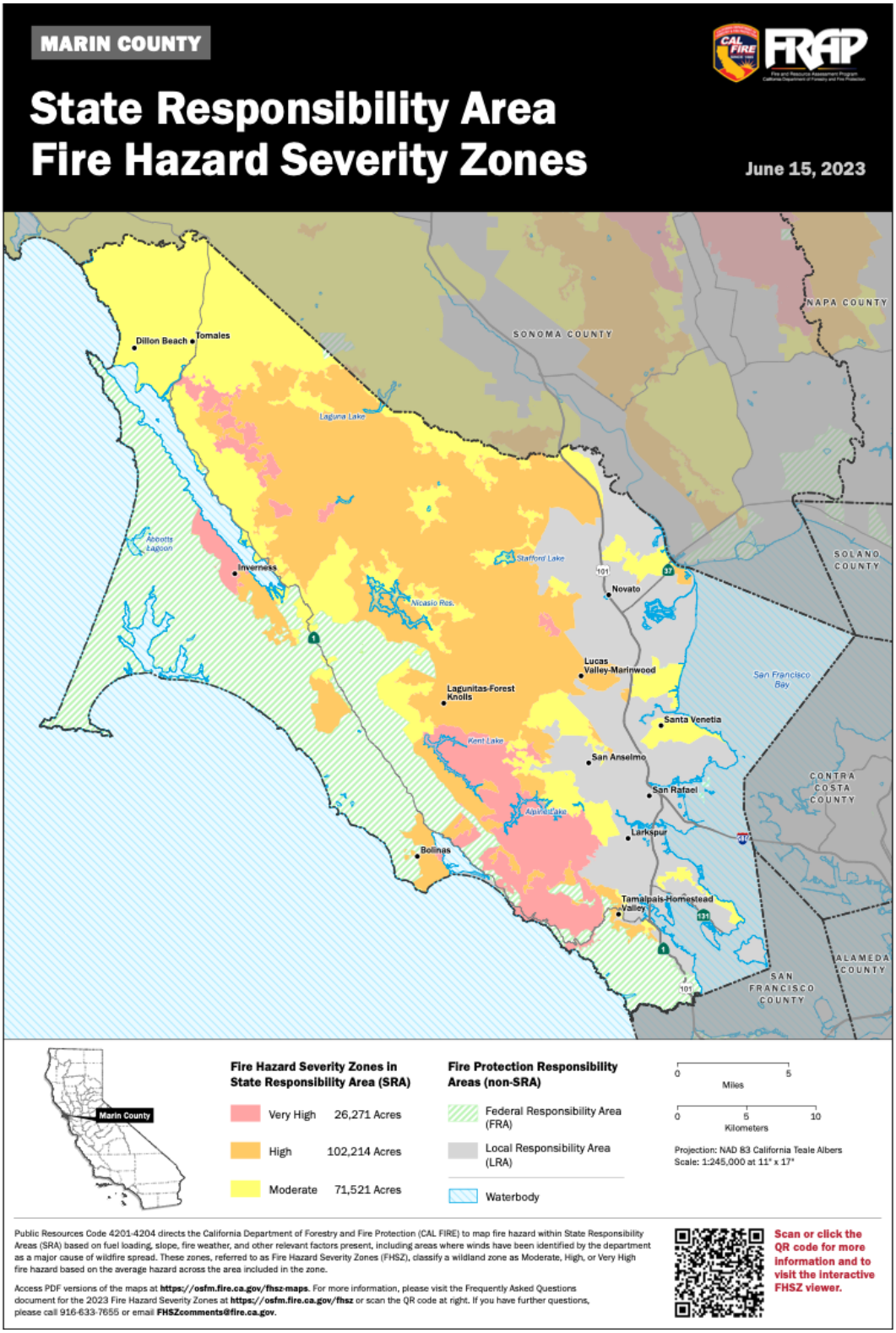
A.1.14 Vegetation/Wildland Fire Risk

Many areas within and adjacent to the District are susceptible to a vegetation/wildland fire. Vegetation/wildland fire risk factors include vegetative fuel types and configuration, weather, topography, prior fires, water supply, mitigation measures, and vegetation/wildland fire service capacity.

Wildland Fire Hazard Severity Zones

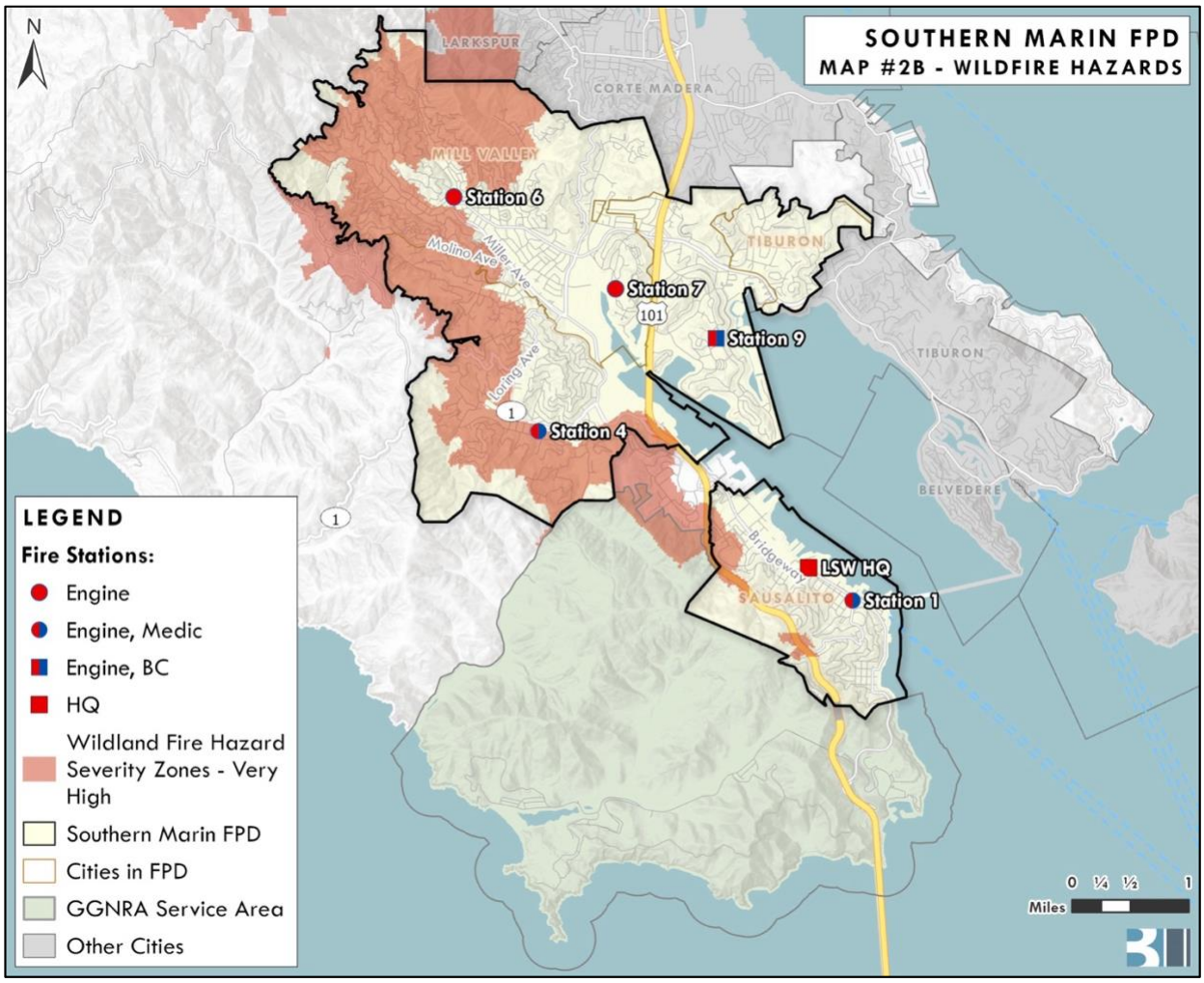
CAL FIRE designates wildland Fire Hazard Severity Zones (FHSZ) throughout the state based on analysis of multiple wildland fire hazard factors and modeling of potential wildland fire behavior. For State Responsibility Areas (SRAs) where CAL FIRE has fiscal responsibility for wildland fire protection, CAL FIRE designates Moderate, High, and Very High FHSZs by county, as shown in yellow, orange, and red, respectively, in the following map for Marin County. Note the Moderate and High zones in the central and northwestern sections of the District, and Very High zones along the western side.

Figure 19—SRA Wildland Fire Hazard Severity Zones



CAL FIRE also identifies ***Very High*** FHSZs for Local Responsibility Areas (LRAs) where the local jurisdiction is responsible for wildland fire protection, including incorporated cities, as shown in red in the following map.

Figure 20—LRA Very High Wildland Fire Hazard Severity Zones



Vegetative Fuels

Vegetative fuel factors influencing fire intensity and spread include fuel type (vegetation species), height, arrangement, density, and moisture. In addition to decorative landscape species, vegetative fuels within the service area consist of a mix of annual grasses and weeds, invasive species (chamise and eucalyptus), and mixed deciduous and conifer tree species. Once ignited, vegetation fires can burn intensely and contribute to rapid fire spread under the right fuel, weather, and topographic conditions.

Weather

Weather elements, including temperature, relative humidity, wind, and lightning, also affect vegetation/wildland fire potential and behavior. High temperatures and low relative humidity dry out vegetative fuels, creating a situation where fuels will more readily ignite and burn more intensely. Wind is the most significant weather factor influencing vegetation/wildland fire behavior, with higher wind speeds increasing fire spread and intensity. Fuel and weather conditions most conducive to vegetation/wildfires generally occur from late June through October; however, above-normal temperatures, wind, and drought can increase that period on either end.

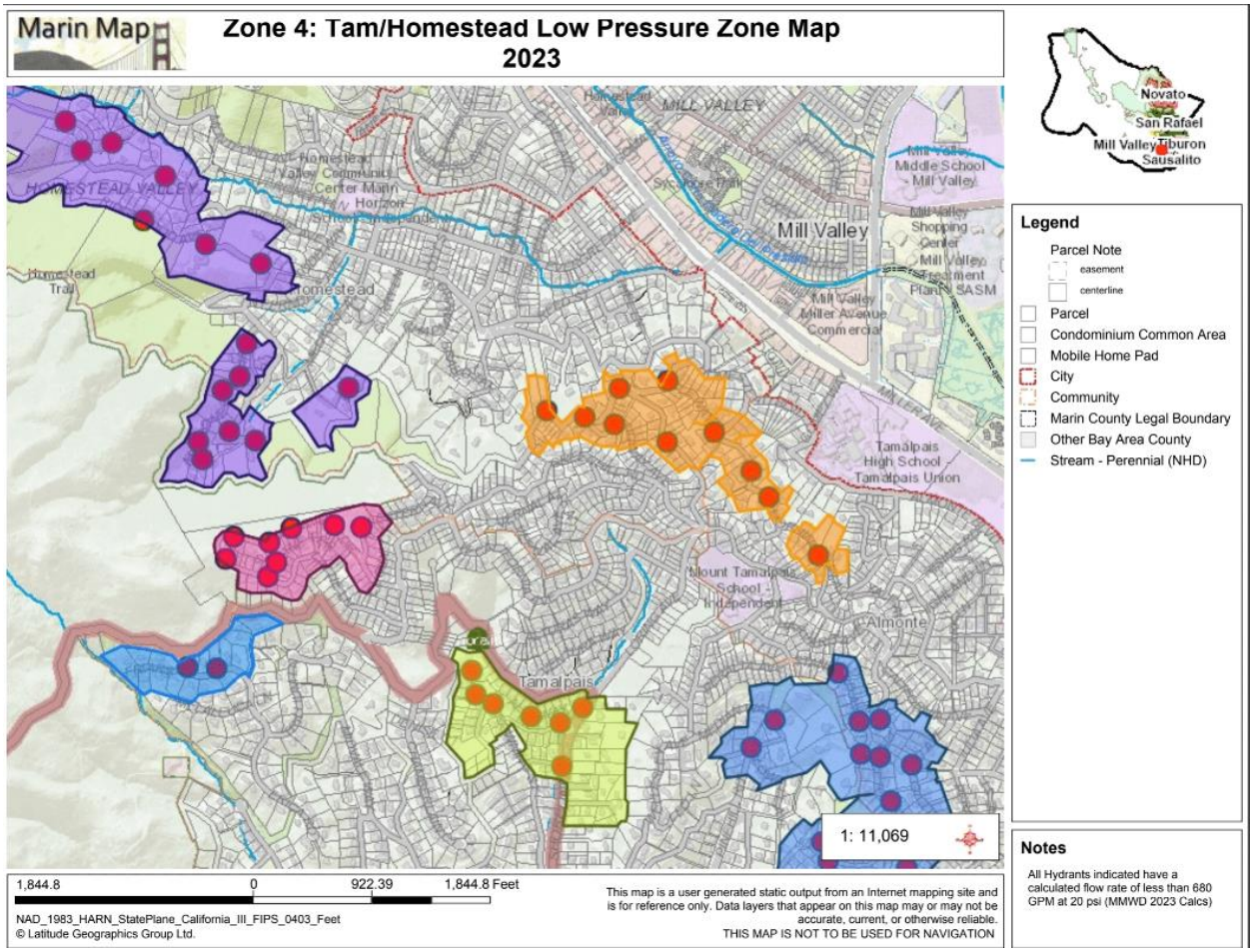
Topography

Vegetation/wildland fires tend to burn more intensely and spread faster when burning uphill and up-canyon, except for a wind-driven downhill or down-canyon fire. The western areas of the District with hilly terrain contribute more to vegetation/wildland fire behavior and spread.

Water Supply

Another significant vegetation fire consequence severity factor is water supply immediately available for fire suppression. According to Fire District staff, hydrant spacing is adequate throughout nearly the entire District but there are 10 pressure zones with low flow including eight within the higher elevation neighborhoods of Mill Valley as detailed in the following map.

Figure 21—Low Flow Hydrant Zones in Mill Valley



Wildland Fire History[20]

Although the District has not experienced a large or devastating wildfire event in recent times, the region has an abundant history of large loss fires including the 1929 Great Mill Valley Fire, the 1945 Mill Fire, the 1972 Kent Woodlands Fire, and the 1976 Sorich Park Fire.

Vegetation/Wildland Fire Hazard Mitigation

Hazard mitigation refers to specific actions or measures taken to prevent a hazard from occurring or to minimize the severity of impacts resulting from a hazard occurrence. While none of the hazards subject to this study can be entirely prevented, measures *can* be taken to minimize the impacts when those hazards do occur. In addition to requiring fire-resistive construction materials and methods in High Fire Hazard Areas, the District is a member of the Marin Wildfire Prevention Authority, a Joint Powers Agreement created in 2020 by voter approval of the 17 member

[20] Source: 2023 Marin County Operational Area Multi-Jurisdictional Hazard Mitigation Plan, Figure 3.200.

jurisdictions to fund proactive wildfire prevention and preparedness efforts throughout most of Marin County. Funded by a 10-year parcel tax (Measure C), revenues are allocated to core cross-jurisdictional projects (60 percent), defensible space evaluations and home hardening (20 percent), and community-level wildfire prevention mitigation (20 percent). As of fiscal year 2022/23, the District has been allocated just under $1 million for defensible space and community-level mitigation projects, and the City of Mill Valley has been allocated nearly $500,000 for the same mitigation strategies.

Vegetation/Wildland Fire Service Demand

Over the five-year study period, the District experienced 68 vegetation/wildfires comprising 0.24 percent of total service demand over the same period, as summarized in the following table.

Table 37—Vegetation/Wildland Fire Service Demand

Hazard	Year	Planning Zone					Total	Percent Total Annual Demand
		Sta. 1	Sta. 4	Sta. 6	Sta. 7	Sta. 9		
Vegetation/Wildland Fire	**2019**	2	3	0	4	5	**14**	0.23%
	2020	4	4	1	4	3	**16**	0.33%
	2021	6	0	0	5	8	**19**	0.34%
	2022	4	2	0	3	5	**14**	0.23%
	2023	2	1	0	0	2	**5**	0.08%
	Total	**18**	**10**	**1**	**16**	**23**	**68**	**0.24%**
Percent of Total Station Demand		0.22%	0.13%	0.03%	0.42%	0.44%		

The previous table shows annual vegetation/wildland fire service demand consistent over the first four years of the study period with a significant decline in 2023.

Vegetation/Wildland Fire Risk Analysis

The following table summarizes Citygate's analysis of the District's vegetation/wildland fire risk by planning zone.

Table 38—Vegetation/Wildland Fire Risk Analysis

Vegetation/Wildland Fire Risk Analysis	Planning Zone				
	Sta. 1	Sta. 4	Sta. 6	Sta. 7	Sta. 9
Probability of Occurrence	3	3	2	3	3
Impact Extent	3	4	4	3	3
Consequence Severity	3	5	5	3	3
Total Risk Score	11.02	19.61	16.79	11.02	11.02
Risk Rating	Moderate	Extreme	High	Moderate	Moderate

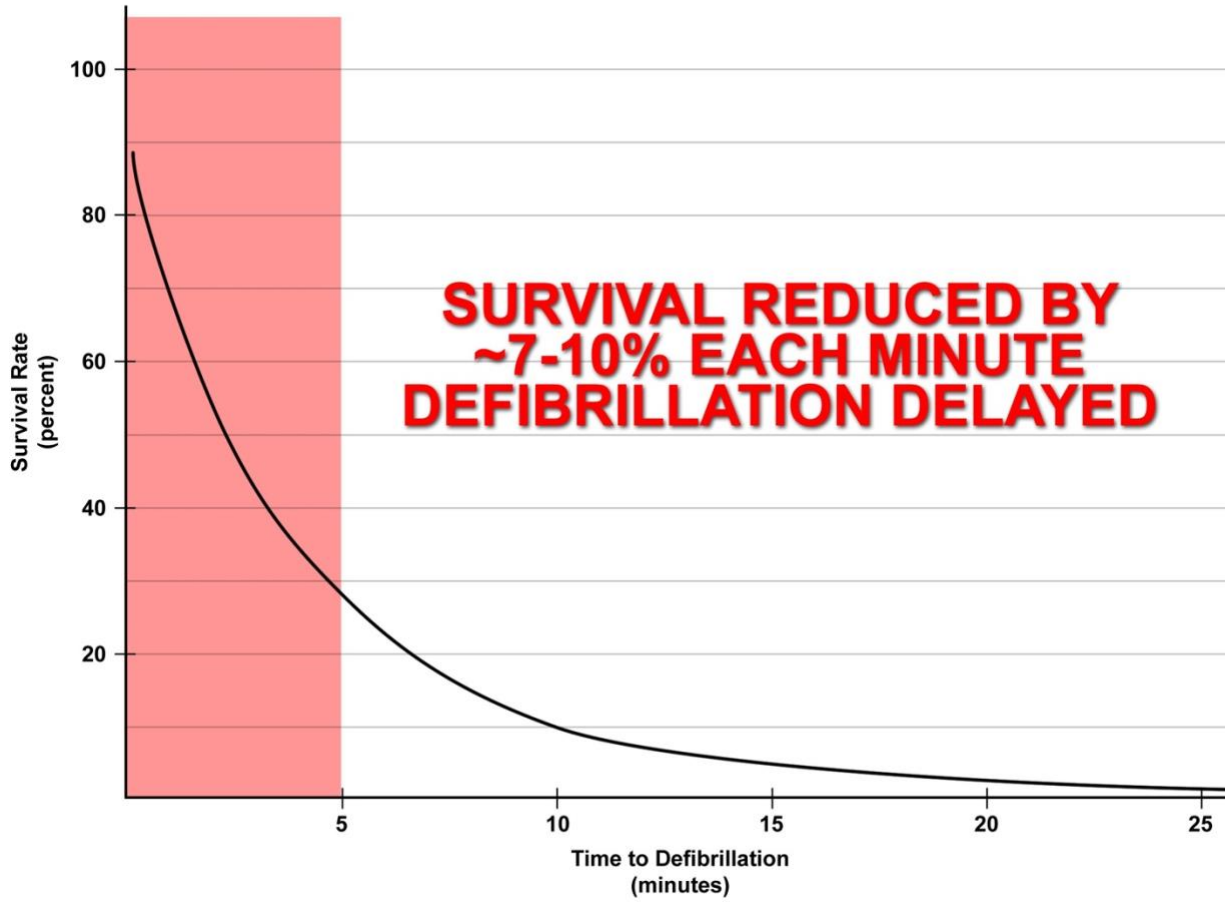
A.1.15 Medical Emergency Risk

Medical emergency risk in most communities is predominantly a function of population density, demographics, violence, health insurance coverage, and vehicle traffic.

Medical emergency risk can also be categorized as either a medical emergency resulting from a traumatic injury or a health-related condition or event. Cardiac arrest is one serious medical emergency among many where there is an interruption or blockage of oxygen to the brain.

The following figure illustrates the reduced survivability of a cardiac arrest victim as time to defibrillation increases. While early defibrillation is one factor in cardiac arrest survivability, other factors can influence survivability as well, such as early CPR and pre-hospital advanced life support interventions.

Figure 22—Survival Rate versus Time to Defibrillation



Population Density

Population density within the District ranges from less than 2,000 to more than 6,000 people per square mile, as shown in Map #2a (**Volume 2—Map Atlas**). Risk analysis across a wide spectrum of other Citygate clients shows a direct correlation between population density and the *occurrence* of medical emergencies, particularly in high urban population density zones.

Demographics

Medical emergency risk tends to be higher among older, poorer, less educated, and uninsured populations. As shown in Table 28, about 25 percent of the service area population is 65 and older, only 1.6 percent of the population over 24 years of age has less than a high school education or equivalent, approximately 5.6 percent of the population is at or below poverty level, and 1.8 percent of the population does not have health insurance coverage.[21]

[21] Source: ESRI and US Census Bureau.

Vehicle Traffic

Medical emergency risk tends to be higher in areas of a community with high daily vehicle traffic volume, particularly areas with high traffic volume traveling at high speeds. The District's transportation network includes Highway 1 and 101 carrying an aggregate annual average daily traffic volume of 143,500 vehicles.[22]

Medical Emergency Service Demand

Medical emergency service demand over the five-year study period includes nearly 15,000 calls for service comprising nearly 52 percent of total service demand over the same period, as summarized in the following table.

Table 39—Medical Emergency Service Demand

Hazard	Year	Planning Zone					Total	Percent Total Annual Demand
		Sta. 1	Sta. 4	Sta. 6	Sta. 7	Sta. 9		
Emergency Medical	**2019**	841	638	370	618	532	**2,999**	50.34%
	2020	675	545	312	438	464	**2,434**	50.28%
	2021	786	1,078	204	234	524	**2,826**	50.31%
	2022	937	1,261	246	263	506	**3,213**	53.36%
	2023	1,084	1,259	224	313	569	**3,449**	53.84%
	Total	**4,323**	**4,781**	**1,356**	**1,866**	**2,595**	**14,921**	**51.73%**
Percent of Total Station Demand		52.93%	60.28%	36.04%	49.04%	50.13%		

As the table shows, medical emergency service demand varies significantly by planning zone and over the five-year study period increased a total of 15 percent.

Medical Emergency Risk Analysis

The following table summarizes Citygate's analysis of the District's medical emergency risk by planning zone.

[22] Source: Caltrans Traffic Volumes: Annual Average Daily Traffic (AADT) 2022.

Table 40—Medical Emergency Risk Analysis

Medical Emergency Risk Analysis	Planning Zone				
	Sta. 1	Sta. 4	Sta. 6	Sta. 7	Sta. 9
Probability of Occurrence	6	6	5	6	6
Impact Extent	2	2	2	2	2
Consequence Severity	3	3	3	3	3
Total Risk Score	**15.87**	**15.87**	**13.44**	**15.87**	**15.87**
Risk Rating	**High**	**High**	**High**	**High**	**High**

A.1.16 Hazardous Material Risk

Hazardous material risk factors include fixed facilities that store, use, or produce hazardous chemicals or waste; underground pipelines conveying hazardous materials; maritime, and vehicle transportation of hazardous commodities into or through a jurisdiction; vulnerable populations; emergency evacuation planning and related training; and specialized hazardous material service capacity.

Fixed Hazardous Materials Facilities

District Prevention staff identified two sites requiring a state or county hazardous material operating permit or Hazardous Materials Business Plan. While there are no pipelines carrying oil or motor vehicle products, there are high-pressure natural gas distribution pipelines located throughout the service area.[23]

Transportation-Related Hazardous Materials

The service area also has transportation-related hazardous material risk because of its road transportation network, including Highways 1 and 101 carrying an aggregate annual average daily truck traffic volume of more than 2,700 trucks, some of which are likely transporting hazardous materials, as summarized in the following table.[24]

[23] Source: County of Marin Hazardous Materials Area Plan
[24] Source: Caltrans Traffic Volumes: Truck Annual Average Daily Traffic (AADT) 2022.

Table 41—Average Annual Daily Traffic Volume

Highway	Crossing	AADT[1]	Truck AADT by Axles				Percentage of Truck AADT by Axles			
			2	3	4	5+	2	3	4	5+
1	TAMALPAIS JCT, ALMONTE BOULEVARD	469	292	56	21	101	62	12	4	21
101	JCT. RTE. 1 WEST	2,318	1,759	247	44	268	76	11	2	12
Total		**2,787**	**2,051**	**303**	**65**	**369**	**74**	**11**	**2**	**13**

[1] Average Annual Daily Trips
Source: Caltrans Traffic Volumes: Truck Annual Average Daily Traffic (AADT) 2022.

The service area also has transportation-related hazardous material risk due to hundreds of maritime movements adjacent and into the service area daily, many of which are transporting hazardous commodities. Vessels with a draft of 45 feet or more must use the deep-draft route closer to Richardson Bay.[25]

Population Density

Because hazardous material emergencies have the potential to adversely impact human health, it is logical that the higher the population density, the greater the potential population exposed to a hazardous material release or spill. As shown in Map #2b (**Volume 2—Map Atlas**), the service area population density ranges from less than 2,000 to more than 6,000 people per square mile.

Vulnerable Populations

Persons vulnerable to a hazardous material release/spill include individuals or groups unable to self-evacuate, generally including children under the age of 10, the elderly, and persons confined to an institution or other setting where they are unable to leave voluntarily. As shown in Table 28, over 35 percent of the population is under age 10 or is 65 years and older.

Emergency Evacuation Planning, Training, Implementation, and Effectiveness

Another significant hazardous material consequence severity factor is a jurisdiction's shelter-in-place / emergency evacuation planning and training. In the event of a hazardous material release or spill, time can be a critical factor in notifying potentially affected persons, particularly at-risk populations, to either shelter-in-place or evacuate to a safe location. Essential to this process is an effective emergency plan that incorporates one or more mass emergency notification capabilities, as well as pre-established evacuation procedures. It is also essential to conduct regular, periodic exercises involving these two emergency plan elements to evaluate readiness and to identify and

[25] Source: Harbor Safety Plan of the Harbor Safety Committee of the San Francisco Bay Region 2021.

remediate any planning or training gaps to ensure ongoing emergency incident readiness and effectiveness.

The service area also has a free subscription and reverse 9-1-1-based mass emergency notification system (Nixle and Alert Marin) that is used to provide emergency alerts, notifications, and other emergency information to email accounts, cell phones, smartphones, tablets, and landline telephones. Federal Communications Commission Wireless Emergency Alerts and social media (Facebook, Twitter, Instagram, LinkedIn, Nextdoor) are also used to provide emergency notifications and information to the public. There District is also near completion of a Long-Range Acoustical Device (LRAD) array that was started in Mill Valley in 2019.

Hazardous Material Service Demand

The District experienced 253 hazardous material incidents over the five-year study period, comprising 0.88 percent of total service demand over the same period, as summarized in the following table.

Table 42—Hazardous Material Service Demand

Hazard	Year	Planning Zone					Total	Percent Total Annual Demand
		Sta. 1	Sta. 4	Sta. 6	Sta. 7	Sta. 9		
Hazardous Material	**2019**	13	25	11	10	7	**66**	1.11%
	2020	12	8	5	2	11	**38**	0.78%
	2021	11	10	7	5	12	**45**	0.80%
	2022	12	17	4	5	18	**56**	0.93%
	2023	6	17	11	5	9	**48**	0.75%
	Total	**54**	**77**	**38**	**27**	**57**	**253**	**0.88%**
Percent of Total Station Demand		0.66%	0.97%	1.01%	0.71%	1.10%		

As the previous table shows, hazardous material service demand was generally consistent over the five-year period.

Hazardous Material Risk Analysis

The following table summarizes Citygate's analysis of the District's hazardous materials risk by planning zone.

Table 43—Hazardous Materials Risk Analysis

Hazardous Material Risk Analysis	Planning Zone				
	Sta. 1	Sta. 4	Sta. 6	Sta. 7	Sta. 9
Probability of Occurrence	3	4	3	3	3
Impact Extent	2	2	2	2	2
Consequence Severity	2	2	2	2	2
Total Risk Score	6.63	8.49	6.63	6.63	6.63
Risk Rating	Low	Moderate	Low	Low	Low

A.1.17 Technical Rescue Risk

Technical rescue risk factors include active construction projects; structural collapse potential; confined spaces, such as tanks and underground vaults; bodies of water, including rivers and streams; industrial machinery use; transportation volume; and earthquake, flood, and landslide potential.

Construction Activity

There is ongoing residential, commercial, industrial, and infrastructure construction activity within the service area.

Unreinforced Masonry Buildings

While the District does not keep an exact inventory, staff acknowledges the existence of unreinforced masonry buildings in the historic central business districts of both Mill Valley and Sausalito.[26] One mitigation measure adopted in the Sausalito Municipal Code requires owners of buildings with unreinforced bearing walls to employ a structural engineer to identify deficiencies and prescribe needed modifications that are to be mandatory upon substantial remodel of the building.[27]

Confined Spaces

There are multiple confined spaces within the service area, including tanks, vaults, and open trenches.

Bodies of Water

The District includes more than 7 miles of Richardson Bay shoreline, and drainage from the Mt. Tamalpais watershed creates many seasonal streams including the Arroyo Corte Madera del

[26] Source: Southern Marin Fire Protection District Profile of the Marin County Operational Area Multi-Jurisdictional Hazard Mitigation Plan (2023).
[27] Source: Chapter 8.43, Sausalito Municipal Code adopted by Ordinance 05-2023.

Presidio, Warner Creek, and Cascade Creek that terminate at the Bothin Marsh Preserve. Sausalito has a total of five primary drainage basins which lead to small riparian streams.

Transportation Volume

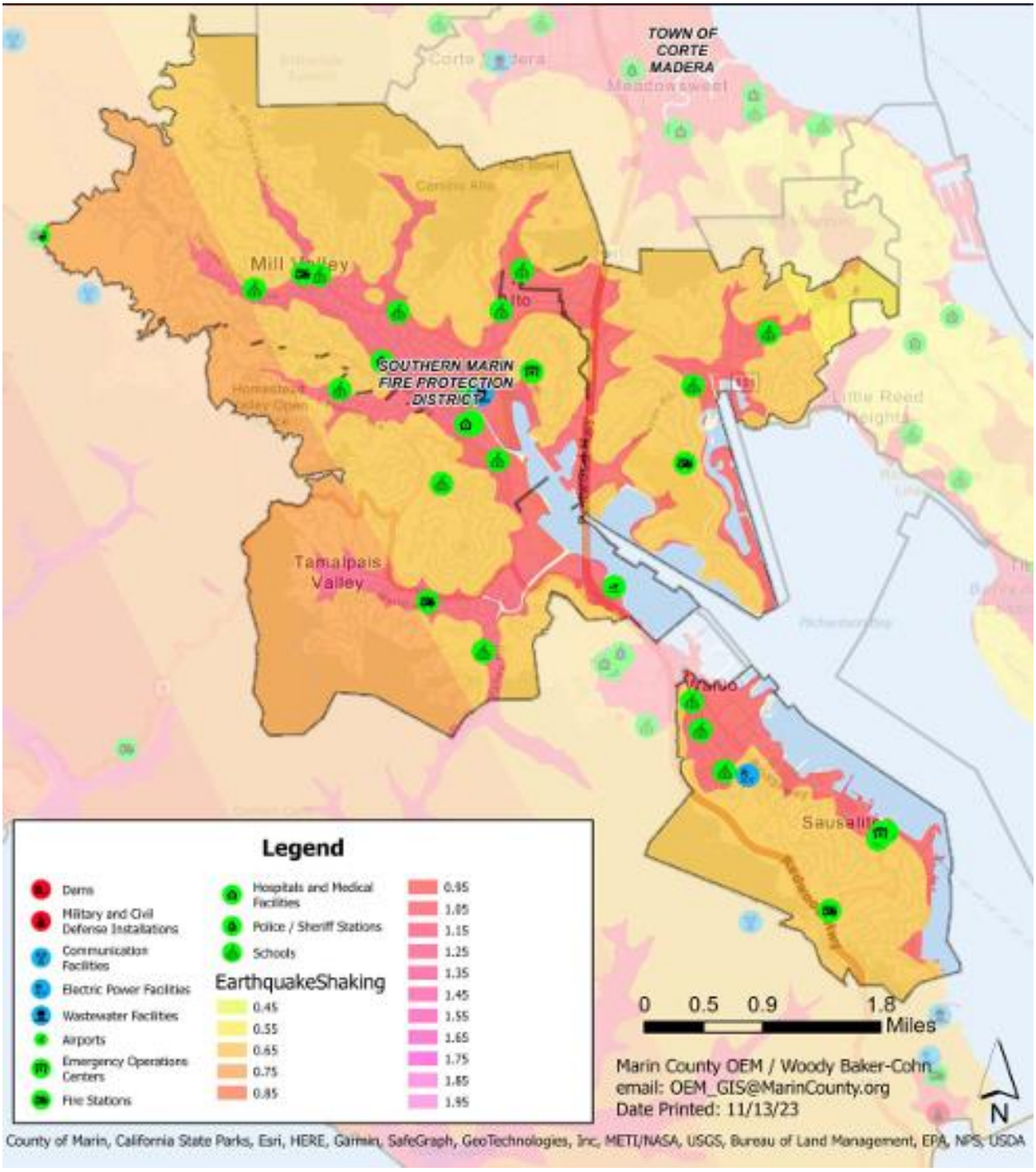
Another technical rescue risk factor is transportation-related incidents requiring technical rescue. This risk factor is primarily a function of vehicle, railway, maritime, and aviation traffic. Vehicle traffic volume is the greatest of these factors within the District with Highways 1 and 101 carrying an aggregate annual average daily traffic volume of 143,500 vehicles.[28]

Earthquake Risk[29]

According to the County Multi-Jurisdictional Hazard Mitigation Plan, the District is located directly between the San Andreas and Hayward faults where a moderate to extreme earthquake could occur due to these or smaller active faults within Marin County. In the unincorporated areas of the district, there is increased risks of liquefaction along the creeks and bay mud where hundreds of homes and Fire Station 4 are located. In Sausalito, areas east of Bridgeway Blvd. are especially susceptible due to superficial deposits and fill where Fire Station 1 and the City Police Station are located. In Mill Valley, there are areas of bedrock where structures should perform well. However, all the City's critical facilities are located upon areas containing superficial deposits and fill are susceptible to moderate to severe damage.

[28] Source: Caltrans Traffic Volumes: Annual Average Daily Traffic (AADT) 2022.
[29] Source: Southern Marin Fire Protection District Profile of the Marin County Operational Area Multi-Jurisdictional Hazard Mitigation Plan (2023).

Figure 23—Earthquake Intensity and Critical Facilities



Landslide (Debris Flow)[30]

Landslides can occur from both natural (earthquakes, weak materials, stream and coastal erosion, and heavy rainfall) and manmade actions (undercutting, overloading and over-steepening). While more likely where the terrain is steeper, seismic shaking and post wildfire erosion also increase the likelihood of landslides throughout the District. With increased wildfire potential because of climate change, the District is more susceptible to post-fire debris flows. Major impacts include major road access, particularly in Sausalito and Mill Valley.

Flood Risk[31]

Climate change is affecting precipitation patterns, and the number of very intense precipitation days is increasing making it more likely for flood events within the District. Along with runoff from the Tamalpais Valley, flooding may be caused by strong winds and tides. A simultaneous event of seawater surge and storm runoff has the potential to create the most significant impacts. About half of the lowland areas within the District are within the 100-year floodplain.

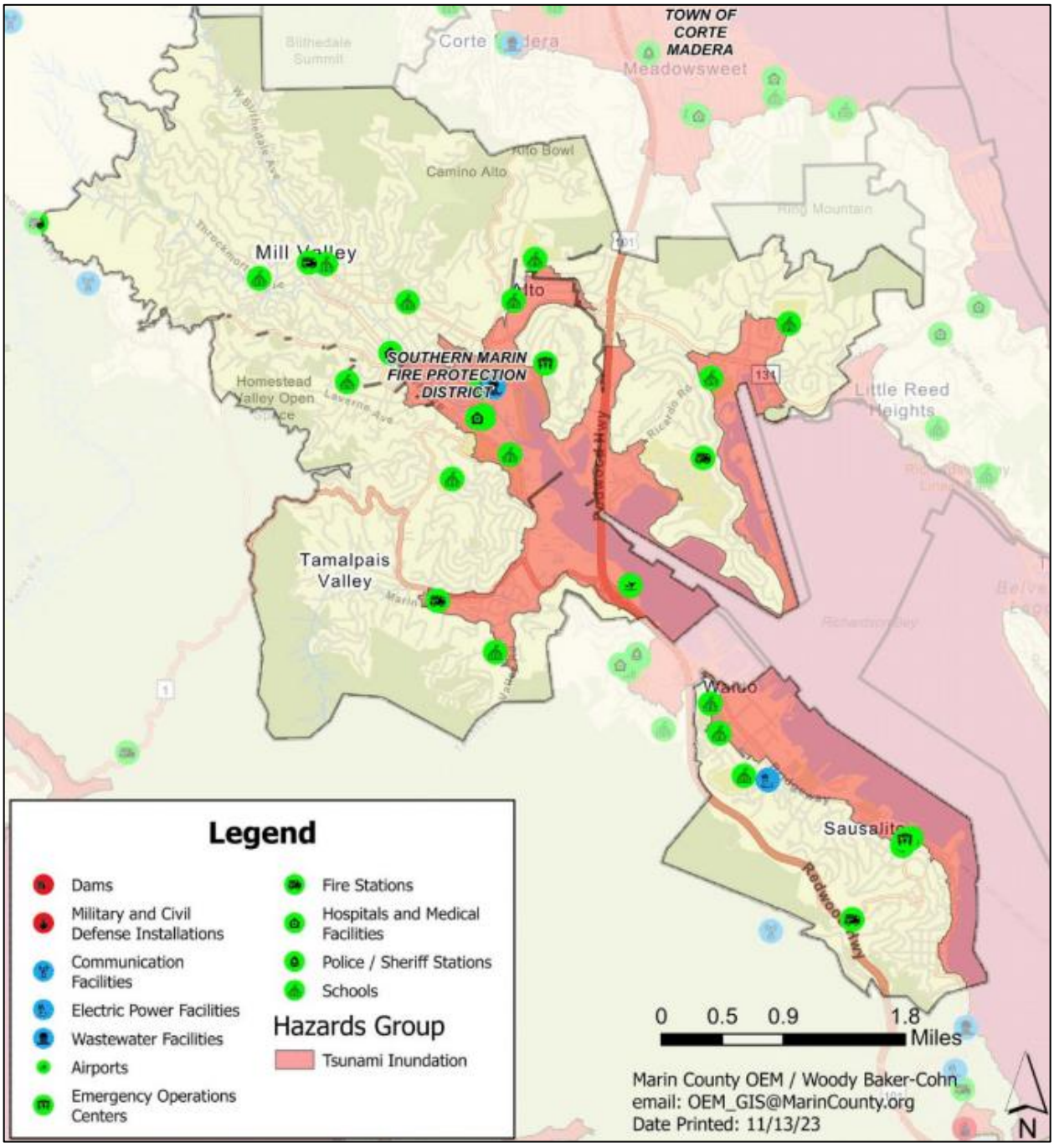
Flooding in Mill Valley can occur Old Mill Creek, Arroyo Corte Madera del Presidio and Warner Creeks as well as from high tides and storm runoff in low-lying areas along Richardson Bay. Within the unincorporated portions of the District, Tamalpais Valley high density areas and sections both Highway 1 and 101 all lie in the 100-year floodplain. In Sausalito, flooding is a combination of hightides and storm runoff in low-lying areas along Richardson Bay and sunny-day king tide flooding has become common.

Tsunami Risk[32]

Due to its location near the Pacific Coast, much of the lowland areas of the Tamalpais Valley, Strawberry, the cities of Mill Valley and Sausalito and the Town of Tiburon lie in a tsunami inundation zone as shown in the following map. A fortunate geographic mitigation is that major tsunami wave energy would be dissipated when propagating under the Golden Gate Bridge. However, sea level rise can make tsunamis worse by allowing further inland travel and cause even more damage. This is particularly true in the District where a large segment of the developed population lies in an area vulnerable to sea level rise.

[30] Source: Southern Marin Fire Protection District Profile of the Marin County Operational Area Multi-Jurisdictional Hazard Mitigation Plan (2023).
[31] Source: Southern Marin Fire Protection District Profile of the Marin County Operational Area Multi-Jurisdictional Hazard Mitigation Plan (2023).
[32] Source: Southern Marin Fire Protection District Profile of the Marin County Operational Area Multi-Jurisdictional Hazard Mitigation Plan (2023).

Figure 24—Tsunami Inundation Zones and Critical Facilities



Technical Rescue Service Demand

The District experienced 308 technical rescue incidents over the five-year study period, comprising 1.07 percent of total service demand for the same period, as summarized in the following table.

Table 44—Technical Rescue Service Demand

Hazard	Year	Planning Zone					Total	Percent Total Annual Demand
		Sta. 1	Sta. 4	Sta. 6	Sta. 7	Sta. 9		
Technical Rescue	**2019**	47	5	1	0	20	**73**	1.23%
	2020	40	7	1	1	18	**67**	1.38%
	2021	39	5	0	0	18	**62**	1.10%
	2022	32	5	0	1	19	**57**	0.95%
	2023	27	7	0	0	15	**49**	0.76%
	Total	**185**	**29**	**2**	**2**	**90**	**308**	**1.07%**
Percent of Total Station Demand		2.26%	0.37%	0.05%	0.05%	1.74%		

As the previous table shows, technical rescue service demand was relatively constant over the five-year study period.

Technical Rescue Risk Analysis

The following table summarizes Citygate's analysis of the District's technical rescue risk by planning zone.

Table 45—Technical Rescue Risk Analysis

Technical Rescue Risk Analysis	Planning Zone				
	Sta. 1	Sta. 4	Sta. 6	Sta. 7	Sta. 9
Probability of Occurrence	4	3	2	2	4
Impact Extent	2	2	2	2	2
Consequence Severity	3	3	3	3	3
Total Risk Score	**11.05**	**8.75**	**6.63**	**6.63**	**11.05**
Risk Rating	**Moderate**	**Moderate**	**Low**	**Low**	**Moderate**

A.1.18 Marine Incident Risk

Marine incident risk factors include waterway and near-shore recreational activities, commercial activities and watercraft storage and use in or on waterways within the service area.

Waterways

Bodies of water and waterways within the service area include Richardson Bay and mutual aid in the San Francisco Bay extending 5 nautical miles beyond the coastline.

Recreational Activity

The service area's waterways are popular for water recreation activities because of its sheltered location. Activities include fishing, paddle boarding, kayaking. The Richardson Bay is recognized as an Important Bird Area (IBA) and is located on the Pacific Flyway, an important migratory bird corridor.[33]

Watercraft Storage

There are nine marinas within the District including three in Sausalito with dry storage.[34]

Watercraft/Vessel Activity

The District's service area includes more than 2,000 slips and 100 vessels in anchorage, with an estimated twenty percent of these vessels having full-time or part-time live-aboard residents. There are also over 400 floating homes anchored in in the northern part of the Richardson Bay.

Marine Incident Service Capacity

The District's marine service capacity includes the three on-duty personnel at Station 1 who cross-staff the fireboat "Liberty", a 40-foot vessel with technical search and rescue equipment, an inflatable rescue boat, or a rescue watercraft as needed depending on incident type. Fifteen District response personnel are also certified Public Safety Rescue Divers who can staff the District's dive tender boat as needed for dive recovery incidents.

Marine Incident Service Demand

Over the five-year study period, the District experienced 134 marine incidents, comprising 0.46 percent of total service demand for the same period, as summarized in the following table.

[33] Source: Marin County Flood Control District Richardson Bay Overview
[34] Source: California State Parks Division of Boating and Waterways.

Table 46—Marine Incident Service Demand

Hazard	Year	Planning Zone					Total	Percent Total Annual Demand
		Sta. 1	Sta. 4	Sta. 6	Sta. 7	Sta. 9		
Marine Incident	**2019**	28	0	0	0	10	**38**	0.64%
	2020	17	2	0	0	4	**23**	0.48%
	2021	28	0	0	0	5	**33**	0.59%
	2022	22	0	0	0	5	**27**	0.45%
	2023	10	0	0	0	3	**13**	0.20%
	Total	**105**	**2**	**0**	**0**	**27**	**134**	**0.46%**
Percent of Total Station Demand		1.29%	0.03%	0.00%	0.00%	0.52%		

As the previous table shows, marine incident service demand was relatively consistent over the five-year study period and primarily impacted Stations 1 and 9.

Marine Incident Risk Analysis

The following table summarizes Citygate's analysis of the District's marine risk by planning zone.

Table 47—Marine Incident Risk Analysis

Marine Incident Risk Scoring	Planning Zone				
	Sta. 1	Sta. 4	Sta. 6	Sta. 7	Sta. 9
Probability of Occurrence	4	2	1	2	3
Impact Extent	2	2	2	2	2
Consequence Severity	3	3	3	3	3
Total Risk Score	**11.05**	**6.63**	**4.95**	**6.63**	**8.75**
Risk Rating	**Moderate**	**Low**	**Low**	**Low**	**Moderate**

APPENDIX B—FACILITY ASSESSMENT WORKSHEETS

FACILITY ASSESSMENT				
Fire Station 1				
Address: 333 Johnson St. Sausalito, CA 94965				
Ownership: City of Sausalito				
Parcel Size (sq. ft.)	**15,010**			
Building Size (sq. ft.)	**11,980**			
Number of Stories	**2**			
Building Age (years)	**14**			
Daily Staffing	Min. 5	Max. 5		
Number of Apparatus	Min. 4	Max. 4		
Apparatus Bays	Indoor: 4	Outdoor: 0		

Assessment Factor	Finding			
Essential Services Facility	**Yes**	**No**	**Unknown or N/A**	**Comments**
Meets ESA Seismic Requirements	X			
Meets ADA Access Requirements	X			
Backup Electrical Generator	X			Size:250 KW Fuel: Diesel
On-Site Vehicle Fueling		X		
Facility Safety/Security				
Fire Sprinkler System	X			
Smoke Detectors	X			
CO Detectors	X			
Vehicle Exhaust Capture System	X			
PPE allowed in living/sleeping areas		X		
Smoking and tobacco free	X			
Apparatus door safety features	X			
Station Alerting System Conformance with NFPA 1500			X	
Carcinogen Contamination Control Zones			X	
PPE Storage Conformance with NFPA 1851			X	Apparatus Floor
Dedicated PPE Cleaning Equipment	X			
Dedicated PPE Decontamination Area	X			
Dedicated Medical Waste Disposal	X			
Dedicated EMS Equipment/Supply Storage	X			
Secured Building Access	X			
Secured Employee Parking		X		
Annual Safety Inspections			X	**Last Inspection:**

Major Facility Systems/Components	Last Serviced or Repaired	Last Replaced	Condition	Notes		
HVAC	**2023**		**Good**			
Roof	**2023**		**Good**	On going leaks		
Asphalt Surfaces	**N/A**					
Standby Generator	**2023**		**Good**			
SCBA Air Compressor	**2023**		**Good**			
PPE Extractor	**2023**		**Good**			
Functional Areas	**Yes**	**No**	**Number**	**Total Area (Sq. Ft.)**	**Meets Current Needs**	**Meets Anticipated Future Needs**
Office/Workspace	**X**		**4**	**1260**	**Yes**	**Yes**
Restroom(s)	**X**		**6**	**432**	**Yes**	**Yes**
Sleeping (bedrooms/beds)	**X**		**6**	**2268**	**Yes**	**Yes**
Kitchen/Dining	**X**		**1**	**800**	**Yes**	**Yes**
Living Area / Day Room	**X**		**1**	**405**	**Yes**	**Yes**
Physical Fitness Workout Space	**X**		**1**	**684**	**Yes**	**Yes**
Storage Space	**X**		**1**	**1000**	**Yes**	**Yes**
Workshop	**X**		**2**	**240**	**Yes**	**Yes**
Training Room	**X**		**1**	**1000**	**Yes**	**Yes**
SCBA Storage	**X**		**1**	**120**	**Yes**	**Yes**
SCBA Refill Station	**X**		**1**	**120**	**Yes**	**Yes**
Emergency Vehicle Parking/Storage	**YES**	**NO**	**Number**	**Total Area (Sq. Ft.)**	**Meets Current Needs**	**Meets Anticipated Future Needs**
Drive-Through Apparatus Bays	**X**		**2**	**1000**	**Yes**	**Yes**
Front Apparatus Apron		**X**				
Rear Apparatus Apron / Parking	**X**					

Comments/Recommendations

Overall Facility Condition: Good

- Although a large station, there is limited ability to expand the number of offices, restrooms, dormitories and kitchen within the current footprint
- Minor roof leaks continue to be problematic and are being addressed with the City of Sausalito
- Physical fitness space on apparatus floor
- PPE stored in open lockers in apparatus bays
- Limited parking for personnel
- No security gates
- Has 2 fire poles for rapid egress from second floor
- Currently houses a Type I Engine and Medic Ambulance. Fire Boat Liberty, IRB, and Dive Tender
- PPE stored in apparatus bays
- Co-located with City of Sausalito EOC
- Room for additional apparatus

FACILITY ASSESSMENT				
Fire Station 4				
Address: 309 Poplar St. Mill Valley, CA 94941				
Ownership: Southern Marin Fire District				
Parcel Size (acres)	**30,150**			
Building Size (sq. ft.)	**8,330**			
Number of Stories	**2**			
Building Age (years)	**62**			
Daily Staffing	Min. 5	Max. 5		
Number of Apparatus	Min. 4	Max. 4		
Apparatus Bays	Indoor: 4	Outdoor: 0		
Assessment Factor	**Finding**			
Essential Services Facility	**Yes**	**No**	**Unknown or N/A**	**Comments**
Meets ESA Seismic Requirements	**X**			
Meets ADA Access Requirements	**X**			
Backup Electrical Generator	**X**			Size: 50 KW Fuel: Diesel
On-Site Vehicle Fueling		**X**		
Facility Safety/Security				
Fire Sprinkler System	**X**			
Smoke Detectors	**X**			
CO Detectors	**X**			
Vehicle Exhaust Capture System	**X**			
PPE allowed in living/sleeping areas		**X**		
Smoking and tobacco free	**X**			
Apparatus door safety features	**X**			
Station Alerting System Conformance with NFPA 1500			**X**	
Carcinogen Contamination Control Zones			**X**	
PPE Storage Conformance with NFPA 1851			**X**	
Dedicated PPE Cleaning Equipment	**X**			
Dedicated PPE Decontamination Area	**X**			
Dedicated Medical Waste Disposal	**X**			
Dedicated EMS Equipment/Supply Storage	**X**			
Secured Building Access	**X**			
Secured Employee Parking		**X**		Open to back of station.
Annual Safety Inspections			**X**	**Last Inspection:**

Major Facility Systems/Components	Last Serviced or Repaired	Last Replaced	Condition	Notes		
HVAC	**2023**		**Fair**	Need air conditioning downstairs		
Roof	**2023**		**New**	New Roof Entire Station		
Asphalt Surfaces			**Poor**	Needs Replacing		
Standby Generator	**2023**		**Good**			
SCBA Air Compressor	**2024**		**New**	Installed 3/24		
PPE Extractor	**2024**		**New**			
Functional Areas	**Yes**	**No**	**Number**	**Total Area (Sq. Ft.)**	**Meets Current Needs**	**Meets Anticipated Future Needs**
Office/Workspace	**X**		**2**	**1164**	**Yes**	**Yes**
Restroom(s)	**X**		**4**	**651**	**Yes**	**Yes**
Sleeping (bedrooms/beds)	**X**		**6**	**900**	**Yes**	**Yes**
Kitchen/Dining	**X**		**1**	**600**	**Yes**	**Yes**
Living Area / Day Room	**X**		**1**	**378**	**Yes**	**Yes**
Physical Fitness Workout Space	**X**		**1**	**528**	**Yes**	**Yes**
Storage Space		**X**			**No**	**No**
Workshop	**X**		**1**	**216**	**No**	**No**
Training Room		**X**				
SCBA Storage		**X**				
SCBA Refill Station	**X**		**1**	**75**	**Yes**	**Yes**
Emergency Vehicle Parking/Storage	**YES**	**NO**	**Number**	**Total Area (Sq. Ft.)**	**Meets Current Needs**	**Meets Anticipated Future Needs**
Drive-Through Apparatus Bays	**X**		**1**	**1500**	**Yes**	**Yes**
Front Apparatus Apron	**X**		**4**	**2500**	**Yes**	**Yes**
Rear Apparatus Apron / Parking	**X**		**2**	**3500**	**Yes**	**Yes**

Comments/Recommendations

Overall facility Condition: Good

- Earthquake retrofit project in 2022-23
- Kitchen and upstairs main bathroom were remodeled, and an additional bathroom/ shower were installed on the second floor
- No HVAC on first floor
- Additional storage space needed
- PPE storage on Apparatus floor
- Physical fitness space on Apparatus floor
- Laundry inside restroom upstairs
- Recommendations: Provide air conditioning downstairs; consider a new shop separate from the station for storage

FACILITY ASSESSMENT				
Fire Station 6				
Address: 26 Corte Madera Ave. Mill Valley CA 94941				
Ownership: City of Mill Valley				
Parcel Size (sq. ft.)	**20,822**			
Building Size (sq. ft.) **4,000 (Fire Station)**	**11,450 (Total)**			
Number of Stories	**2**			
Building Age (years)	**88**			
Daily Staffing	Min. 3	Max. 3		
Number of Apparatus	Min. 2	Max. 2		
Apparatus Bays	Indoor: 2	Outdoor: 0		
Assessment Factor	**Finding**			
Essential Services Facility	**Yes**	**No**	**Unknown or N/A**	**Comments**
Meets ESA Seismic Requirements	X			
Meets ADA Access Requirements		X		
Backup Electrical Generator	X			Size:150KW (entire building) Fuel: Diesel
On-Site Vehicle Fueling		X		
Facility Safety/Security				
Fire Sprinkler System		X		
Smoke Detectors	X			
CO Detectors		X		
Vehicle Exhaust Capture System	X			
PPE allowed in living/sleeping areas		X		
Smoking and tobacco free	X			
Apparatus door safety features	X			
Station Alerting System Conformance with NFPA 1500			X	
Carcinogen Contamination Control Zones			X	
PPE Storage Conformance with NFPA 1851			X	
Dedicated PPE Cleaning Equipment		X		
Dedicated PPE Decontamination Area		X		
Dedicated Medical Waste Disposal	X			
Dedicated EMS Equipment/Supply Storage	X			
Secured Building Access	X			
Secured Employee Parking		X		
Annual Safety Inspections			X	**Last Inspection:**

Major Facility Systems/Components	Last Serviced or Repaired	Last Replaced	Condition	Notes		
HVAC			**Poor**	No AC downstairs		
Roof			**Fair**	Last assessed 2019		
Asphalt Surfaces	**N/A**					
Standby Generator	**UNK**					
SCBA Air Compressor	**None**					
PPE Extractor	**None**					
Functional Areas	**Yes**	**No**	**Number**	**Total Area (Sq. Ft.)**	**Meets Current Needs**	**Meets Anticipated Future Needs**
Office/Workspace	**X**		**1**	**225**	**N**	**N**
Restroom(s)	**X**		**1**	**400**	**N**	**N**
Sleeping (bedrooms/beds)	**X**		**4**	**480**	**Y**	**N**
Kitchen/Dining	**X**		**1**	**400**	**Y**	**N**
Living Area / Day Room	**X**		**1**	**300**	**Y**	**N**
Physical Fitness Workout Space	**X**		**1**	**400**	**N**	**N**
Storage Space	**X**		**1**	**200**	**N**	**N**
Workshop	**X**		**1**	**200**	**N**	**N**
Training Room		**X**				
SCBA Storage		**X**				
SCBA Refill Station		**X**				
Emergency Vehicle Parking/Storage	**YES**	**NO**	**Number**	**Total Area (Sq. Ft.)**	**Meets Current Needs**	**Meets Anticipated Future Needs**
Drive-Through Apparatus Bays		**X**	**2**	**600**	**N**	**N**
Front Apparatus Apron	**X**		**2**	**600**	**Y**	**Y**
Rear Apparatus Apron / Parking		**X**				

Comments/Recommendations

Overall facility Condition: Poor

- Fire Station shares lot and building with Mill Valley City Hall
- Station is very undersized by modern fire service standards in many aspects including apparatus floor, living quarters, and kitchen
- Dormitories lockers and restrooms should be reconfigured for better gender inclusion and privacy
- Station is very worn; last remodel in 1978
- Has one fire pole from rapid egress from second floor
- No room for additional apparatus
- No security gates
- Remove carpet and replace with polished concrete where applicable.
- Extractor needed and additional washer/dryers are needed for PPE decontamination
- Currently houses a Type I Medic Engine and a reserve Medic Ambulance
- PPE storage in apparatus bays
- Physical fitness equipment in apparatus bays
- No restroom downstairs

FACILITY ASSESSMENT				
Fire Station 7				
Address: 1 Hamilton Drive Mill Valley CA, 94941				
Ownership: City of Mill Valley				
Parcel Size (sq. ft.)	**112,765**			
Building Size (sq. ft.)	**6,132**			
Number of Stories	**2**			
Building Age (years)	**49**			
Daily Staffing	Min. 3	Max. 3		
Number of Apparatus	Min. 2	Max. 2		
Apparatus Bays	Indoor: 3	Outdoor: 3		
Assessment Factor	**Finding**			
Essential Services Facility	**Yes**	**No**	**Unknown or N/A**	**Comments**
Meets ESA Seismic Requirements			X	
Meets ADA Access Requirements			X	
Backup Electrical Generator	X			Size: Fuel:
On-Site Vehicle Fueling		X		Generator tied into police building
Facility Safety/Security				
Fire Sprinkler System		X		
Smoke Detectors	X			
CO Detectors		X		
Vehicle Exhaust Capture System	X			
PPE allowed in living/sleeping areas		X		
Smoking and tobacco free		X		
Apparatus door safety features	X			
Station Alerting System Conformance with NFPA 1500			X	
Carcinogen Contamination Control Zones			X	
PPE Storage Conformance with NFPA 1851		X		
Dedicated PPE Cleaning Equipment	X			
Dedicated PPE Decontamination Area		X		
Dedicated Medical Waste Disposal	X			
Dedicated EMS Equipment/Supply Storage	X			
Secured Building Access	X			
Secured Employee Parking		X		
Annual Safety Inspections			X	**Last Inspection:**

Major Facility Systems/Components	Last Serviced or Repaired	Last Replaced	Condition	Notes		
HVAC						
Roof		2021	Good			
Asphalt Surfaces	N/A					
Standby Generator	2023					
SCBA Air Compressor	2023		Good			
PPE Extractor	2023					
Functional Areas	**Yes**	**No**	**Number**	**Total Area (Sq. Ft.)**	**Meets Current Needs**	**Meets Anticipated Future Needs**
Office/Workspace	X		2	455	Y	N
Restroom(s)	X		3	425	Y	Y
Sleeping (bedrooms/beds)	X		8	1150	Y	Y
Kitchen/Dining	X		1	340	N	N
Living Area / Day Room	X		1	270	N	N
Physical Fitness Workout Space	X		1	960	Y	N
Storage Space	X		2	400	Y	N
Workshop	X		1	270	Y	Y
Training Room		X				
SCBA Storage	X					
SCBA Refill Station	X		1	300	Y	Y
Emergency Vehicle Parking/Storage	**YES**	**NO**	**Number**	**Total Area (Sq. Ft.)**	**Meets Current Needs**	**Meets Anticipated Future Needs**
Drive-Through Apparatus Bays	X					
Front Apparatus Apron	X		3	2500	Y	Y
Rear Apparatus Apron / Parking	X		3	1000	Y	Y

Comments/Recommendations

Overall facility Condition: Fair

- Fire Station shares building with Mill Valley Police Headquarters
- Station is sized appropriately because it used to be a Fire Headquarters facility that housed administrative personnel in addition to response personnel
- Dormitories lockers and restrooms should be reconfigured for better gender inclusion and privacy; dormitories are ¾ to ceiling
- Currently houses a Type I Engine, Type I Reserve Engine, Search and Rescue Unit, MCI Trailer
- Physical fitness equipment located in apparatus bays
- PPE stored in apparatus bays
- Laundry and ice maker located in apparatus bays
- Room for additional apparatus
- No station security gates
- Major renovation in 2021; however, kitchen still needs update with cabinets and appliances

FACILITY ASSESSMENT

Fire Station 9

Address:	308 Reed Blvd. Mill Valley CA, 94941	
Ownership:	South Marin Fire District	
Parcel Size (sq. ft.)	**42,620**	
Building Size (sq. ft.)	**12,336**	
Number of Stories	**2**	
Building Age (years)	**31**	
Daily Staffing	Min. 5	Max 5
Number of Apparatus	Min. 5	Max 5
Apparatus Bays	Indoor: 4	Outdoor: 0

Assessment Factor	Finding			
Essential Services Facility	**Yes**	**No**	**Unknown or N/A**	**Comments**
Meets ESA Seismic Requirements	X			
Meets ADA Access Requirements	X			
Backup Electrical Generator	X			Size: 75 KW Fuel: Diesel
On-Site Vehicle Fueling		X		
Facility Safety/Security				
Fire Sprinkler System	X			
Smoke Detectors	X			
CO Detectors		X		
Vehicle Exhaust Capture System	X			
PPE allowed in living/sleeping areas		X		
Smoking and tobacco free	X			
Apparatus door safety features	X			
Station Alerting System Conformance with NFPA 1500			X	
Carcinogen Contamination Control Zones			X	
PPE Storage Conformance with NFPA 1851		X		
Dedicated PPE Cleaning Equipment	X			
Dedicated PPE Decontamination Area	X			
Dedicated Medical Waste Disposal	X			
Dedicated EMS Equipment/Supply Storage	X			
Secured Building Access	X			
Secured Employee Parking		X		
Annual Safety Inspections			X	**Last Inspection:**

Major Facility Systems/Components	Last Serviced or Repaired	Last Replaced	Condition	Notes		
HVAC	**2023**		**New**			
Roof	**2023**		**Good**	Current leak issues		
Asphalt Surfaces	**N/A**					
Standby Generator	**2023**		**Good**			
SCBA Air Compressor	**2023**		**Good**			
PPE Extractor	**2023**		**Good**			
Functional Areas	**Yes**	**No**	**Number**	**Total Area (Sq. Ft.)**	**Meets Current Needs**	**Meets Anticipated Future Needs**
Office/Workspace	**X**		**6**	**1080**	**Y**	**Y**
Restroom(s)	**X**		**6**	**750**	**Y**	**Y**
Sleeping (bedrooms/beds)	**X**		**7**	**1000**	**Y**	**Y**
Kitchen/Dining	**X**		**1**	**900**	**Y**	**Y**
Living Area / Day Room	**X**		**1**	**600**	**Y**	**Y**
Physical Fitness Workout Space	**X**		**1**	**600**	**N**	**N**
Storage Space	**X**		**4**	**1400**	**Y**	**Y**
Workshop	**X**		**1**	**400**	**Y**	**Y**
Training Room	**X**		**1**	**1080**	**Y**	**Y**
SCBA Storage	**X**		**1**	**270**	**Y**	**Y**
SCBA Refill Station	**X**		**1**	**270**	**Y**	**Y**
Emergency Vehicle Parking/Storage	**YES**	**NO**	**Number**	**Total Area (Sq. Ft.)**	**Meets Current Needs**	**Meets Anticipated Future Needs**
Drive-Through Apparatus Bays		**X**				
Front Apparatus Apron	**X**		**4**	**3600**	**Y**	**Y**
Rear Apparatus Apron / Parking		**X**				

Comments/Recommendations

Overall facility Condition: Fair

- Station is adequately sized for current use, formerly a Fire Headquarters facility with administrative staff in addition to response personnel.
- Dormitories, locker areas, and restrooms should be reconfigured for better gender inclusion and privacy
- District training tower adjacent to station
- No fire pole from second floor for quick egress
- No security gates
- Very small parking lot
- PPE in room off of apparatus bays with no door
- Physical fitness equipment located in apparatus bays
- Remove carpet and replace with polished concrete where applicable
- Roof leaks throughout station (poke through tiles)
- Currently houses a Type I Engine, Medic Rescue, Battalion Chiefs, and Utility
- No room for an additional apparatus
- Kitchen is showing signs of wear and tear

FACILITY ASSESSMENT				
District Administrative Offices				
Address: **28 Liberty Ship Way, Suite 2800, Sausalito, CA**				
Ownership: HARRISON HOLDINGS LLC				
Building Size (sq. ft.)	**25,609**			
Leased Space (sq. ft.)	**8,504**			
Number of Stories	**2**			
Building Age (years)	**23**			
Daily Staffing	Min. 11	Max. 19		
Number of Apparatus	Min. **n/a**	Max. **n/a**		
Apparatus Bays	Indoor: **N/A**	Outdoor: **N/A**		

Assessment Factor	Finding			
Essential Services Facility	**Yes**	**No**	**Unknown or N/A**	**Comments**
Meets ESA Seismic Requirements	**X**			
Meets ADA Access Requirements	**X**			
Backup Electrical Generator	**X**			Size: **400 KW** Fuel: **Diesel**
On-Site Vehicle Fueling		**X**		
Facility Safety/Security				
Fire Sprinkler System	**X**			
Smoke Detectors	**X**			
CO Detectors			**N/A**	
Vehicle Exhaust Capture System			**N/A**	
PPE allowed in living/sleeping areas			**N/A**	
Smoking and tobacco free			**N/A**	
Apparatus door safety features			**N/A**	
Station Alerting System Conformance with NFPA 1500			**N/A**	
Carcinogen Contamination Control Zones			**N/A**	
PPE Storage Conformance with NFPA 1851			**N/A**	
Dedicated PPE Cleaning Equipment			**N/A**	
Dedicated PPE Decontamination Area			**N/A**	
Dedicated Medical Waste Disposal			**N/A**	
Dedicated EMS Equipment/Supply Storage			**N/A**	
Secured Office Access	**X**			
Secured Employee Parking		**X**		
Annual Safety Inspections	**X**			**Last Inspection: May 2024**

Major Facility Systems/Components	Last Serviced or Repaired	Last Replaced	Condition	Notes		
HVAC		**2001**	**Maintained**	Serviced quarterly and is up to date.		
Roof		**2001**	**Maintained**	Serviced annually. Bidding for replacement.		
Asphalt Surfaces		**2001**	**Maintained**			
Standby Generator		**2021**	**New**			
SCBA Air Compressor	**N/A**					
PPE Extractor	**N/A**					
Functional Areas	**Yes**	**No**	**Number**	**Total Area (Sq. Ft.)**	**Meets Current Needs**	**Meets Anticipated Future Needs**
Office/Workspace	**X**		**20**		**X**	**X**
Restroom(s)	**X**		**2**		**X**	**X**
Sleeping (bedrooms/beds)	**N/A**					
Kitchen/Dining	**X**		**1**		**X**	**X**
Living Area / Day Room	**N/A**					
Physical Fitness Workout Space		**X**				
Storage Space	**X**		**2.5**		**X**	
Workshop		**X**				
Training/Meeting Room	**X**		**2**		**X**	**X**
SCBA Storage	**N/A**					
SCBA Refill Station	**N/A**					
Emergency Vehicle Parking/Storage	**YES**	**NO**	**Number**	**Total Area (Sq. Ft.)**	**Meets Current Needs**	**Meets Anticipated Future Needs**
Drive-Through Apparatus Bays	**N/A**					
Front Apparatus Apron	**N/A**					
Rear Apparatus Apron / Parking	**N/A**					
Comments/Recommendations						
Overall facility Condition: Very Good • District has first right to any additional available building space						