

# ALAMEDA COUNTY

CITYGATE ASSOCIATES, LLC  
FIRE & EMERGENCY SERVICES



# FIRE

## ALAMEDA COUNTY FIRE DEPARTMENT

# VOLUME 1 OF 3 - EXECUTIVE SUMMARY STANDARDS OF COVERAGE REVIEW

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 CITYGATE ASSOCIATES, LLC

[WWW.CITYGATEASSOCIATES.COM](http://WWW.CITYGATEASSOCIATES.COM)

2250 EAST BIDWELL ST., STE. 100  
FOLSOM, CA 95630

PHONE: (916) 458-5100  
FAX: (916) 983-2090



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### **VOLUME 2 of 3 – Technical Report (separately bound)**

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The Alameda County Fire Department (ACFD) retained Citygate Associates, LLC (Citygate) to perform a Standards of Coverage (SOC) review. This study included reviewing the adequacy of the current fire station resource deployment system, the risks to be protected, and the emergency incident outcomes desired by the community. This report is presented in three volumes, including this Executive Summary (**Volume 1**) summarizing the findings and recommendations, a Technical Report (**Volume 2**) that includes a Standards of Coverage assessment and community risk assessment, and a geographic map atlas (**Volume 3**) that displays fire unit travel time coverage. Throughout the technical volume of this study, Citygate makes key findings and, where appropriate, specific action item recommendations. Overall, there are 14 key findings and 2 specific action item recommendations.

### **1.1 POLICY CHOICES FRAMEWORK**

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As County leadership and Fire Department executive management understand, there are no mandatory federal or state regulations directing the level of fire service response times and outcomes delivered by the Department. The level of service and resultant costs are a local community choice in the United States. The body of regulations on the fire service provides that *if fire services are provided, they must be done so with the safety of the firefighters and citizens in mind*. There is a constructive tension between a desired level of fire services and the level that can be funded. Thus, many communities do not have the level of fire services they may desire.



In growing urban areas like sections of the ACFD’s service area, it is an even harder challenge to keep fire service levels commensurate with growth along with all the other competing needs.

### **1.2 CITYGATE’S OVERALL OPINIONS ON ALAMEDA COUNTY’S DEPLOYMENT SYSTEM**

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The ACFD serves a very diverse land-use pattern with a geographically challenging and limited road network in some areas. Population drives service demand and development brings population.

While the state-mandated fire code requires automatic fire sprinklers even in dwellings, it will be many more decades before enough buildings are replaced or remodeled using automatic fire sprinklers. For the foreseeable future, the ACFD’s service areas will need both a first-due firefighting unit and Effective Response Force (First Alarm) coverage in all parts of the urbanized areas, consistent with current best practices, if the risk of a fire is to be limited to only part of the inside of an affected building.

While the volume of, and response times to, EMS incidents consume much of the District’s attention, all communities need a “stand-by and readily available” firefighting force for when fires break out. The Fire Department provides advanced life support emergency medical care, but the threat of fire, even if low, still requires resources in addition to EMS hourly demand for an effective response to emerging fires.

For its current risks and desired outcomes, the ACFD has the correct quantity of fire engines (pumpers) and quint/ladder trucks. If the ACFD and/or its contract city partners chooses not to continue this level of service for fire services delivery, then it should adopt a travel time goal that it can afford, understanding that longer response times will mean the most time-sensitive emergencies could experience worse-than-desired outcomes.

### **1.3 STANDARDS OF COVER ASSESSMENT TECHNICAL SUMMARY**

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Fire department deployment, simply stated, is about the speed and weight of the attack. Speed calls for first-due, all-risk intervention units (engines, trucks, and/or ambulances) strategically located across a community responding in an effective travel time. These units are tasked with controlling moderate emergencies, preventing the incident from escalating to second alarm or greater size, which unnecessarily depletes departmental resources as multiple requests for service occur. Weight is about multiple-unit response for serious emergencies, such as a room-and-contents structure fire, a multiple-patient incident, a vehicle accident with extrication required, or a heavy rescue incident. In these situations, enough firefighters must be assembled within a reasonable time frame to safely control the emergency, thereby keeping it from escalating to greater alarms.

In *Part One* of **Volume 2** of this study, the Standards of Cover Assessment, Citygate’s analysis of prior response statistics and use of geographic mapping tools reveals that the Department does have an adequate number of fire stations to serve its diverse topography and population densities. The maps provided in **Volume 3** and the corresponding text explanation beginning in **Volume 2** describe the Department’s current performance in detail.

For effective outcomes on serious medical emergencies and to keep serious, but still emerging, fires small, a response time goal based on best practices and one consistent with the ACFD’s current goal is to have a first responder arrive within 7:30 minutes from the receipt of the 9-1-1 call at the ACFD’s regional fire dispatching center—Alameda County Regional Emergency Communications Center (ACRECC). To its credit, as reviewed in Table 1, the ACFD delivers Department-wide service to 90 percent of all incidents in 7:53 minutes.

**Table 1—Call to Arrival Time**

Area	2016
Department-wide	07:53
Battalion 2	07:43
Battalion 3	08:09
Battalion 4	07:39
Battalion 7	08:00

While some station areas that are more in the suburban edges or rural areas have times a little longer than this, the overall time of 7:53 minutes is very good compared to other Citygate clients serving large urban areas. While traffic congestion can be a factor at times, Citygate’s mapping coverage study finds adequate fire station coverage from the existing number and placement of fire stations. Some stations will eventually need replacement due to age, and if their current parcels are deemed too small, they should be replaced at another site in the nearby area. In the future, if the workload increases to a level impossible to serve from a one-crew fire station, then the ACFD should consider peak-hour relief units primarily for the high volume of calls for emergency medical service.

#### **1.4 RISK ASSESSMENT SUMMARY**

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Citygate conducted an in-depth community risk assessment, found in *Part Two* of **Volume 2** of this study. Citygate’s evaluation of the values at risk and hazards likely to impact the Department’s service area yields the following key points:

- ◆ Just over 25 percent of the population are under 10 years or over 65 years of age and are considered to be particularly vulnerable to harm from a hazard occurrence.

- ◆ The population’s ethnicity is predominantly Asian (31.75 percent), White (29.01 percent), and Hispanic/Latino (26.12 percent).
- ◆ More than three quarters of the population over 24 years of age has completed high school or the equivalent.
- ◆ Nearly 66 percent of the population 16 years of age or older are in the workforce; unemployment is approximately 5.5 percent.
- ◆ Over nine percent of the population is below the federal poverty level.
- ◆ Over 10 percent of the population has no health insurance coverage.
- ◆ There are 161 identified critical facilities / pieces of infrastructure within the Department’s service area.
- ◆ Overall risk for five hazards related to emergency services provided by the Department range from MODERATE to HIGH, as shown in the following table.

**Table 2—Overall Risk by Hazard**

Risk		Planning Zone				
		Batt. 2	Batt. 3	Batt. 4	Batt. 7	Emeryville
1	Building Fire	MODERATE	MODERATE	MODERATE	MODERATE	MODERATE
2	Wildland Fire	HIGH	HIGH	MODERATE	HIGH	MODERATE
3	Medical Emergency	MODERATE	MODERATE	MODERATE	MODERATE	MODERATE
4	Hazardous Materials	MODERATE	MODERATE	MODERATE	MODERATE	MODERATE
5	Technical Rescue	MODERATE	MODERATE	MODERATE	MODERATE	MODERATE

**1.5 FINDINGS AND RECOMMENDATIONS**

The following are findings and recommendations from **Volume 2**.

**1.5.1 Findings**

**Finding #1:** The ACFD Board of Directors has not adopted a complete deployment measure based on best practices for fire and emergency medical services incidents in the unincorporated areas. Adopting a similar set of specialty response measures would meet the best-practice recommendations of the Commission on Fire Accreditation International (CFAI). Each contract agency has its own unique performance measures included in its contract with the ACFD.



- Finding #2:** The ACFD follows best practices by using a standard response dispatching plan that considers the risk of different types of emergencies and pre-plans the response. Each type of call for service receives the combination of engine companies, truck companies, ambulances, specialty units, and command officers customarily needed to handle each type of incident based on experience.
- Finding #3:** In the urban service areas, the ACFD has effective fire station placements, with only very small gaps at the edges of some communities or when there is significant traffic congestion. The gaps are too small to cost-effectively add stations.
- Finding #4:** Only some of each urban core area is within 8:00 minutes travel time of an Effective Response Force assignment of three engines, one ladder truck, one rescue unit, and one Battalion Chief, with *no traffic congestion*. During traffic congestion, this coverage is further reduced in the east and south contract city areas.
- Finding #5:** The *single* ladder truck coverage is adequate for the current needs of the ACFD, but the coverage must be re-evaluated as new growth areas are added beyond the identified ladder truck and/or quint service areas.
- Finding #6:** The highest volume hours for incidents span from 9:00 a.m. through 8:00 p.m. Given this, if additional units are needed for high workload volumes or to cover for out-of-service training units, added units could be peak-hour units for 12 hours per day, six days per week.
- Finding #7:** National best practices as recommended by National Fire Protection Association standard (NFPA) 1221 are for call processing to be 90 seconds 90 percent of the time and 120 seconds 99 percent of the time. The ACRECC is substantially meeting this goal.
- Finding #8:** A realistic goal for turnout time is 2:00 minutes to 90 percent of the emergency incidents. The ACFD is just over this goal and, with focus, can meet or beat this goal, especially during waking hours.
- Finding #9:** In the 2016 measurement period, the ACFD had a Department-wide 90 percent travel time of 5:12 minutes. This travel time is 1:00 minute longer than a best-practice-based goal of 4:00 minutes in urban areas. This travel time is fairly consistent across urbanized areas of the ACFD as only one station area was under a 4:00-minute travel time.

**Finding #10:** Due to longer travel times, with the current quantity of fire stations, the ACFD comes within 23 seconds of a Department-wide call to arrival goal of 7:30 minutes.

Given the varied topography in some of the suburban and rural areas in this measure, it would not be cost effective to add stations to gain the 23 seconds. Sixteen stations delivered service in less than 8:00 minutes in the most urbanized areas, which is commendable given the road network and topography.

**Finding #11:** With only two engine companies approaching 20 percent unit-hour utilization workloads, no engines approach a Citygate-recommended threshold of 30 percent hour after hour. At this time, other than perhaps for covering units at training, adding units during the peak hours of the day is not yet essential to consider.

**Finding #12:** Alameda County has established appropriate emergency evacuation protocols, procedures, and resources as an element of its Emergency Operations Plan.

**Finding #13:** Alameda County has established an effective method to communicate emergency evacuation information to the public in a timely manner.

**Finding #14:** Alameda County regularly utilizes, validates, and evaluates its emergency notification and evacuation protocols, procedures, and resources to ensure ongoing readiness and effectiveness.

### 1.5.2 Recommendations

Based on the deployment analysis contained in this study, Citygate makes the following recommendations to slightly strengthen deployment performance and ensure quality paramedic coverage as incidents slowly increase year to year.

The first deployment step for the ACFD leadership in the near term is to adopt updated and complete performance measures from which to set forth service expectations and, on an annual budget basis, monitor and fund Fire Department performance. Currently, the ACFD reports performance metrics on a quarterly basis to each contract agency, the Fire Advisory Commission, and the Executive Management Oversight Committee.

**Recommendation #1:** **Adopt Elected Official Deployment Measures Policies:** The ACFD elected officials should adopt updated, complete performance measures to direct fire crew planning and to monitor the operation of the Department. The measures of time should be designed to save patients where medically possible and to keep small but serious fires

from becoming greater alarm fires. With this in mind, Citygate recommends the following measures:

- 1.1 Distribution of Fire Stations – Urban Areas: To treat medical patients and control small fires, the first-due unit should arrive within 7:30 minutes, 90 percent of the time, from the receipt of the 9-1-1 call in the regional fire communications center. This equates to a 1:30-minute dispatch time, a 2:00-minute company turnout time, and a 4:00-minute drive time in the most populated areas.
- 1.2 Multiple-Unit Effective Response Force for Serious Emergencies – Urban Areas: To confine fires near the room of origin and to treat up to five medical patients at once, a multiple-unit response of a minimum of four engines, one ladder truck, and one Battalion Chief, totaling 17 personnel, should arrive within 11:30 minutes from the time of 9-1-1 call receipt in fire dispatch 90 percent of the time. This equates to a 1:30-minute dispatch time, a 2:00-minute company turnout time, and an 8:00-minute drive time for multiple units in the most populated areas.
- 1.3 Hazardous Materials Response: Provide hazardous materials response designed to protect the community from the hazards associated with uncontrolled release of hazardous and toxic materials. The fundamental mission of the ACFD response is to minimize or halt the release of a hazardous substance so it has minimal impact on the community. It can achieve this with a total response time of 7:30 minutes or less, 90 percent of the time, for the first company capable of investigating a hazmat release at the operations level. After size-up and scene evaluation is completed, a determination will be made whether to request additional resources from the ACFD’s hazardous materials response team.
- 1.4 Technical Rescue: Respond to technical rescue emergencies as efficiently and effectively as possible with enough trained personnel to facilitate a successful rescue. Achieve a total response time within 7:30 minutes, 90 percent of the time, for the first-due company for size-up of the rescue. Assemble additional resources for technical rescue capable of initiating a rescue within a total response time of 11:30 minutes 90 percent of the time. Safely complete

rescue/extrication to ensure delivery of patient to a definitive care facility.

- 1.5** Emergency Medical Services: The ACFD should continue to provide first responder paramedic services to all neighborhoods within the response time goal of the County’s Emergency Medical Services Agency. The existing First Responder Advanced Life Support agreements requires 8:30 minutes, 90 percent of the time, from crew notification for Medical Priority Dispatch System (MPDS) categories Echo, Delta, and Charlie and 12:45 minutes for MPDS categories Bravo and Alpha.

**Recommendation #2:** The ACFD should monitor workload increases per company at peak hours of the day and, if they reach an hour-after-hour level that significantly lengthens response times, then the ACFD should consider peak-hour relief units primarily for the high volume of EMS calls for service.

## **1.6 THE PATH AHEAD**

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The purpose of a Standards of Coverage study is to compare the ACFD’s current performance against the local risks to be protected and nationally recognized best practices. This analysis of performance forms the basis from which to make recommendations for changes, if any, in fire station locations, equipment types, and staffing.

The response time goals identified in Recommendation #1 will continue to support adequate service levels. Measurement and planning as the ACFD continues to evolve will be necessary for the ACFD to meet these goals. Citygate recommends that the ACFD’s next steps be to work through the issues identified in this study over the following time lines:

### **1.6.1 Short-Term Steps**

- ◆ Absorb the policy recommendations of this fire services study and ask the elected officials to formally adopt ACFD response time measures.
- ◆ Continue the facilities work to site, procure, and program funding for the needed aging fire station replacements.

### **1.6.2 Long-Term Steps**

- ◆ Monitor the impact of incident growth and traffic congestion on individual fire companies at peak hours.

- ◆ If simultaneous incident demand and/or traffic congestion continues to decay response times, additional stations, or peak-hour engines, will become necessary to maintain response times to critical events.