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■ **FIRE AND EMERGENCY** ■
MEDICAL SERVICES
DEPLOYMENT ANALYSIS

SOUTHERN MARIN
FIRE PROTECTION
DISTRICT, CA

VOLUME 1 OF 2 –
EXECUTIVE SUMMARY

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■ 2250 East Bidwell St., Ste #100 ■ Folsom, CA 95630
(916) 458-5100 ■ Fax: (916) 983-2090



CITYGATE ASSOCIATES, LLC
FIRE & EMERGENCY SERVICES

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VOLUME 1—EXECUTIVE SUMMARY

Citygate Associates, LLC performed a Fire and Emergency Medical Services Deployment Analysis for the Southern Marin Fire Protection District (District). This study included reviewing the adequacy of the current fire station deployment system. This report is presented in two volumes, including this Executive Summary (**Volume 1**) summarizing our findings and recommendations, and a Technical Report (**Volume 2**) that includes a Standards of Coverage (deployment) and risk assessment.

1.1 POLICY CHOICES FRAMEWORK

As the District Directors understand, there are no mandatory federal or state regulations directing the level of fire service response times and outcomes. 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*. Historically, the District has made significant investments in its fire services, and as a result, has fire and emergency medical services (EMS) response coverage in the three largest population clusters in the District.

1.2 CITYGATE'S OVERALL OPINIONS ON THE STATE OF THE DISTRICT'S FIRE SERVICES

In brief, Citygate finds that the challenge of providing fire services in the District is similar to that found in many communities: providing an adequate level of fire services within the context of limited fiscal resources, competing needs, growing and aging populations, plus uncertainty surrounding the exact timing of future development. Citygate must state up front that we found that the District's personnel care about their agency and the people they serve. As is true of most agencies after the recession, the District struggles to balance needs against available revenues. In our opinion, the District should consider identifying the additional resources to slightly increase daily staffing quantity.

The District is currently meeting some, but not all of its needs through its own fire response resources. For multiple-unit emergencies, the District is dependent upon using its neighbors in the regional mutual aid system for assistance. As such, the deployment system does *not completely* meet the District's risks to be protected. The coverage for first-due unit response to small emergencies is adequate, but only in the three population clusters in the District. The District barely fields enough of its own units for simultaneous incidents or even a serious house fire (assuming the ambulances are available to respond) requiring at least 15 firefighters including a command chief officer.

Throughout this report, Citygate makes key findings, and, where appropriate, specific action item recommendations. Overall, there are 12 key findings and 5 specific action item recommendations.

1.3 FIELD OPERATIONS DEPLOYMENT (FIRE STATIONS)

Fire department deployment, simply stated, is about the **speed** and **weight** of the attack. **Speed** calls for first-due, all-risk intervention units (engines, ladder trucks, chief officers for incident command) strategically located across a coverage area. These units are tasked with controlling moderate emergencies, preventing the incident from escalating to second alarm or greater, which unnecessarily depletes a fire department’s 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, a sufficient quantity of firefighters must be assembled within a reasonable time frame to safely control the emergency, thereby keeping it from escalating to greater alarms.

In **Volume 2** of this study, in our Technical Report, Citygate’s analysis of prior response statistics and use of geographic mapping tools reveals that the District has adequate, but not complete, fire station coverage due to the challenging topography of its service area. The maps and response statistics provided in **Volume 2** along with corresponding text explanations describe in detail the District’s current deployment system performance.

For effective outcomes on serious medical emergencies, and to keep serious, but still-emerging, fires small, Citygate’s recommendation is for the first-due fire unit to arrive within 9:30 minutes/seconds of the Sheriff’s Office Communications Center receiving the 9-1-1 call, 90% of the time. In the District, the current fire station system can provide this coverage where the populations and buildings to be protected are the most significant.

Table 1—Call to Arrival Response Time (Minutes/Seconds) – 90% Performance
(Table 24 from Volume 2)

Area	Overall	2013	2014	2015
District-Wide	09:34	09:12	09:42	09:37
Station 1	09:52	09:27	09:44	10:12
Station 4	10:51	11:00	11:14	10:04
Station 9	08:08	08:12	08:00	08:20

As this study will explain, the size and road network of the District are too awkward to effectively serve 100% from three fire station locations. This can be observed in the fire unit travel times, which are higher than a national best practice recommendation of 4 minutes *travel* time in urban/suburban population density areas:

Table 2—Travel Time (Minutes/Seconds) – 90% Performance
(Table 27 from Volume 2)

Area	Overall	2013	2014	2015
Department-Wide	06:17	06:28	05:59	06:21
Station 1	07:11	07:27	06:59	07:08
Station 4	06:12	06:27	05:56	06:14
Station 9	04:57	05:09	04:28	05:01

The District is staffed for one serious building fire and two medical calls for service at the same time. The District is dependent on the regional mutual aid response system to deliver serious fire and multiple-incident support. While this coverage exists when needed, it comes with longer-than-needed response times.

1.4 OVERALL DEPLOYMENT EVALUATION

The District serves a diverse land use pattern in an area bisected by hilly topography, open space areas, and main roads with limited crossovers. Population drives service demand, and development brings population. The District’s responses are volume-driven by emergency medical events. However, the District also must ensure an effective firefighting force is available even when multiple medical events occur.

For the foreseeable future, the District will need both a first-due firefighting unit and Effective Response Force (First Alarm) coverage in all parts of the District, consistent with current best practices, if the risk of fire is to be limited to only part of the inside of an affected building or wildland fires are to be stopped when small. While residential fire sprinklers are now included in the national model fire codes, it will be decades before the existing housing stock will be upgraded or replaced, even if these codes were to be adopted for all new construction.

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. If the District wants to continue providing the elements below, and be *less dependent* on mutual aid for an immediate response ladder truck, the District can slightly increase its deployment plan by fielding a another firefighter per day at Station 4. Citygate suggests that the District provide equitable response times to all similar risk neighborhoods to:

- ◆ Provide for depth of response when multiple incidents occur.
- ◆ Provide for a concentration of response forces for high-risk properties.

For its current risks and likely desired outcomes, the District does have a sufficient quantity of fire engines spaced across the District’s most populated areas. Given the low number of building fires annually, the District can continue to request mutual aid when needed.

While the District does not separately staff an aerial ladder truck, it does have the ladder truck at Station 4, which is cross-staffed by the station crew. If the daily crew were increased to five at Station 4, then three crewmembers could be assigned to the engine or the ladder truck while leaving the other unit staffed with two personnel. Or, to a serious verified building fire, four personnel could staff the ladder truck at a best practices-based level, still allowing one crewmember to drive the engine if needed.

Based on the deployment analysis contained in this study, Citygate makes specific deployment findings and recommendations that are listed below.

1.5 FINDINGS AND RECOMMENDATIONS

Citygate’s findings and recommendations are listed below for ease of singular reference. For reference purposes, the findings and recommendation numbers refer to the sequential numbers as these are presented in the technical report volume.

- Finding #1:** The District Board of Directors has not adopted a complete and best-practices-based deployment measure or set of specialty response measures for all-risk emergency responses that includes the beginning time measure from the point of the Communications Center receiving the 9-1-1 phone call, nor a goal statement tied to risks and outcome expectations. The deployment measure should have a second measurement statement to define multiple-unit response coverage for serious emergencies. Making these deployment goal changes will meet the best practice recommendations of the Commission on Fire Accreditation International.
- Finding #2:** The District’s response policy for structure fires includes the squad with four personnel to all structure fire responses outside its home district.
- Finding #3:** The District’s response strategy for Station 9 is for both the squad and engine to respond together for all calls for service. The engine is the primary firefighting response unit.
- Finding #4:** The current locations for the District’s fire engines are adequate to meet the needs of the District.
- Finding #5:** Relocating or adding a fire station in the District is not a necessary or cost-effective investment.

- Finding #6:** The District’s time-of-day, day-of-week, and month-of-year calls for service demands are very consistent. This means the District needs to operate a fairly consistent 24/7/365 response system.
- Finding #7:** The Fire District is not in control of the Sheriff’s Office Communications Center performance; however, for time-sensitive fire and EMS events, the Center’s performance is not to best practices and the time lost in dispatch processing cannot be made up by driving faster.
- Finding #8:** The District’s turnout times need improvement and need to fall consistently below 2 minutes.
- Finding #9:** The District is too difficult to serve within a best practice urban travel time of 4 minutes due to topography and the location of current fire stations in the centers of main population clusters. As such, it would not be possible to lower travel time without doubling the number of fire stations, clearly not a cost-effective solution given the modest quantity of incidents annually.
- Finding #10:** The few building fires that do occur are typically in the most populated areas near fire stations. As such, the fourth-due unit at building fires can arrive in under 10 minutes, which is very good given the District’s challenging topography.
- Finding #11:** The District operates the needed fire apparatus and support vehicles to respond to expected risks.
- Finding #12:** The District has a plan for the replacement of capital fire apparatus and support vehicles.
- Recommendation #1:** The District should revise the structure fire response policy and replace the squad with the engine on all structure fire calls.
- Recommendation #2:** The District should revise its response policies to articulate the proper single unit responds to a single-unit event when needed.
- Recommendation #3:** **Adopt Deployment Measures Policies:** The District elected officials should adopt updated, complete performance measures to direct fire crew planning and to monitor the operation of the District. 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:

- 3.1** Distribution of Fire Stations: To treat medical patients and control small fires, the first-due unit should arrive within 9:30 minutes/seconds, 90% of the time from the receipt of the call in the Sheriff’s Office Communications Center. This equates to a 90-second dispatch time, a 2-minute company turnout time, and a 6-minute drive time in the most populated areas.
- 3.2** Multiple-Unit Effective Response Force for Serious Emergencies: To confine fires near the room of origin, to stop wildland fires to under three acres when noticed promptly, and to treat up to five medical patients at once, a multiple-unit response of a *minimum* of one ladder truck, four engines (two of which are via mutual aid), one medic unit, and one Battalion Chief totaling 17-18 personnel (based on unit staffing) should arrive within 11:30 minutes/seconds from the time of 9-1-1 call receipt in fire dispatch, 90% of the time. This equates to a 90-second dispatch time, 2-minute company turnout time, and 8-minute drive time spacing for multiple units in the most populated areas.
- 3.3** 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 District 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 travel time for the first company capable of investigating a HazMat release at the operations level within 6 minutes travel time or less, 90% of the time. After size-up and scene evaluation is completed, a determination will be made whether to request additional resources from the District’s multiple-agency hazardous materials response partnership.
- 3.4** Technical Rescue: Respond to technical rescue emergencies as efficiently and effectively as possible with enough trained personnel to facilitate a successful rescue. Achieve a travel time for the first company in for size-up of the rescue within 8 minutes travel time or less, 90% of the time. Assemble additional resources for technical rescue capable of initiating a rescue within a total response time of 11:30 minutes/seconds,

90% of the time. Safely complete rescue/extrication to ensure delivery of patient to a definitive care facility.

Recommendation #4: The District needs to slightly lower fire crew turnout times.

Recommendation #5: The District should consider adding a fifth crewmember per day to Station 4 to enhance engine and ladder truck deployment options.

1.6 NEXT STEPS

The purpose of this assessment is to compare the District’s current performance against the local risks to be protected, as well as to compare against nationally recognized best practices. This analysis of performance forms the base from which to make recommendations for changes, if any, in fire station locations, equipment types, staffing, and headquarters programs.

As one step, the District Board of Directors should adopt updated and best practices-based response time goals for the District and provide accountability for the District personnel to meet those standards. The goals identified in Recommendation #3 meet national best practices. Measurement and planning as the District continues to evolve will be necessary for the District to meet these goals. Citygate recommends that the District’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 adopt updated District performance measures to drive the deployment of firefighting and emergency medical resources.
- ◆ Identify funding and timing for an added crew member per day at Fire Station 4.

1.6.2 Ongoing Steps

- ◆ Monitor the headquarters staff workload and, as capacity is exceeded, use part-time or contract employees to support services during economic upswings.