CITYGATE ASSOCIATES, LLC
FOLSOM (SACRAMENTO), CA MANAGEMENT CONSULTANTS

DEPLOYMENT PERFORMANCE AND HEADQUARTERS STAFFING ADEQUACY STUDY

EAST CONTRA COSTA FIRE PROTECTION DISTRICT, CA

VOLUME 1 OF 3 – 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 Standards of Response Cover (deployment) and headquarters staffing adequacy study for the East Contra Costa Fire Protection District (District). This study included reviewing the adequacy of the current fire station deployment system and the headquarters staffing to support the agency. This report is presented in three volumes, including this Executive Summary (**Volume 1**) summarizing our findings and recommendations, a Technical Report (**Volume 2**) that includes a Standards of Coverage (deployment) assessment and a headquarters staffing adequacy assessment, and a geographic map atlas (**Volume 3**) that displays fire unit travel time coverage.

1.1 POLICY CHOICES FRAMEWORK

As the District's Board of Directors understands, 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 tried to make investments in its fire services, but has never had the economic strength since its formation in 2002 to keep services commensurate with the growth of the cities in particular.

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. The District's weak service level decreased due to the recent great recession. As a result, the District's current level of fire service deployment and headquarters staffing is only appropriate for lightly-populated rural areas.

Citygate must state up front that we found quality staff that the community should be proud of. The staff are doing a lot with very little in the way of adequate staffing, and have to serve a very large, diverse area. The recommendations in this study should be used for the District to have another earnest conversation with its taxpayers over providing more than a rural level of fire services to urban population density areas.

The District cannot meet its needs through its own fire response resources, and is dependent on its neighbors in the regional mutual aid system for assistance on serious, not just catastrophic emergencies. The District's deployment system does not meet the risks present in Brentwood and Oakley if the Fire Department is expected to prevent more than a catastrophic loss. The District is the most under-deployed and administratively understaffed fire department we have seen in over a decade for the size of the communities to be protected. Throughout this report, Citygate

makes key findings, and, where appropriate, specific action item recommendations. Overall, there are 17 key findings and 8 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, and specialty units such as for wildland fires) 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 Department 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, Standards of Response Cover and Headquarters Staffing Adequacy Technical Report, Citygate's analysis of prior response statistics and use of geographic mapping tools reveals that the District has inadequate fire station coverage if the usual and customary fire loss outcomes are to be delivered as expected in other communities with urban, suburban, and rural population densities. The maps provided in **Volume 3** and the corresponding text explanation beginning in **Volume 2** describe in detail the City's current deployment system performance.

For effective outcomes on serious medical emergencies, and to keep serious, but still-emerging, fires small, Citygate's best practices-based recommendation is for the first-due fire unit to arrive within 7:30 minutes/seconds of fire dispatch receiving the 9-1-1 call transfer from the Sheriff's communications center, 90% of the time. In the District, the most recently-funded three-fire-station system provides the following response times, across a variety of population density/risk areas for emergency medical and fire incident types:

Table 1—Call to Arrival Response Time (Minutes/Seconds) – 90% Performance (Table 33 from Volume 2)

Station	2013	2014	2015
Department-Wide	11:01	10:54	11:49
Station 52	09:34	09:19	09:48
Station 54	09:44	09:31	08:48
Station 59	12:10	11:37	12:24
Station 93	09:31	10:10	12:19
Station 94	14:06	14:06	14:55

The best way to understand what just three fire stations can or cannot do across 249 square miles and 695 miles of public roads is to assess travel times exclusive of dispatch and crew turnout times. National best practices, and Citygate's advice for urban population areas such as Brentwood and Oakley, are to plan to deliver a 4-minute travel time coverage from fire stations.

During the three-year study period, due to economics, the District's fire stations varied from 3-5 on-duty engine companies. The boundaries of station areas were changed. During some periods, only contract ambulances were sent to low acuity emergencies. Other times, a 2-medic squad was in service, but did not transport.

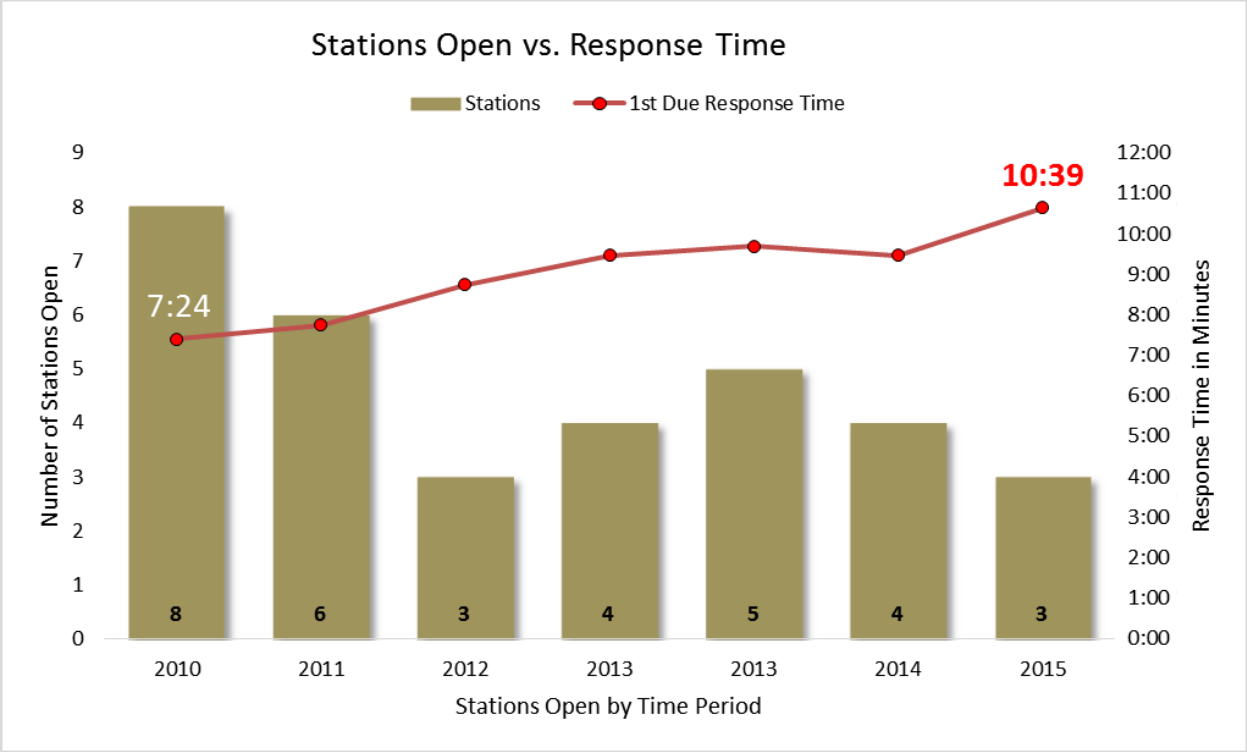
The following table illustrates 90% travel time compliance for District apparatus by arrival by year, and how it has declined in 2015 with only three fire stations open:

Table 2—Apparatus: 90% Travel Time Performance Minutes – Arrival Sequence per Year (Table 47 from Volume 2)

Year	1st Due	2nd Arrival	3rd Arrival	4th Arrival
2010	07:24 (4,722)	13:25 (250)	15:09 (84)	19:16 (37)
2011	07:45 (4,555)	14:13 (179)	18:30 (78)	18:18 (45)
2012	08:45 (4,520)	13:02 (146)	16:19 (52)	17:55 (31)
2013	09:28 (4,492)	15:38 (192)	19:14 (94)	19:51 (54)
2014	09:28 (4,618)	14:55 (161)	18:44 (51)	19:37 (31)
2015	10:39 (4,870)	20:13 (162)	21:13 (58)	21:04 (30)

The decay in first arrival times over the closures can be visualized in this graph:

Figure 1—Stations Open vs. Response Time (Figure 15 from Volume 2)



The bottom line is that three staffed fire stations are insufficient for urban or even suburban travel time coverage, and are insufficient to meet expectations that the arriving force can respond in time to keep small fires small, and save endangered people at the time 9-1-1 is notified.

The Department is not even staffed for one serious building fire at a time, and two medical calls for service at the same time, which would not be uncommon in the District's service area. The regional mutual aid response system delivers support, but with longer response times.

1.4 Overall Deployment Evaluation

The District serves a diverse land use pattern in an area bisected by open space areas. Population drives service demand, and development brings population. The District's responses are volume-driven by emergency medical events. But the District also has to 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, but varied by population density and risks, if the risk of fire is to be limited to only part of the inside of an affected building. 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 and its residents want to provide the three elements below, the District must significantly increase its deployment plan:

- Provide equitable response times to all similar risk neighborhoods
- Provide for depth of response when multiple incidents occur
- Provide for a concentration of response forces for high-risk properties.

Based on the deployment analysis contained in this study, Citygate makes the recommendations to strengthen deployment performance as incidents slowly increase year to year. Citygate's specific deployment recommendations are listed in Section 1.6 of this volume.

1.5 Overall Headquarters Services Evaluation

Citygate's review of headquarters programs revealed that the current District headquarters staffing of five personnel is totally inadequate to continue to provide safe and regulatory compliant supervision for a fire department as it exists today, much less expand the agency if additional funds are identified.

Currently in the District, it is amazing that the operation has continued so long with such a small leadership team. It is due to their attitude and dedication to work above and beyond to keep the District firefighting staff safe while also supporting a nine-member Board of Directors, two cities, and an interested County and LAFCO Agency.

However, the staff have no backup, no succession plan, and are becoming tired of the struggle to do everything, which means not everything can get done even to regulatory satisfaction. District operations would be crippled if either of the key figures—the Fire Chief or Administration Assistant—left or were ill or injured for a long time.

For sustained current operations, much less an expansion of the number of fire crews, the District must add at least three more headquarters positions now and, as stations are added back, an additional five positions will be needed over two more phases of growth.

1.6 Deployment Findings and Recommendations

Citygate's deployment findings and recommendations are listed below. 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 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 County's regional Fire 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: When the District can only staff three fire stations, even with mutual aid, it cannot begin to cover the urban population areas within 4 minutes fire unit travel time.

Finding #3: Even if all of the existing District fire stations were appropriately staffed, much of the urban population density areas are not covered within a best outcomes goal of 4 minutes travel time from a fire station. There are just an insufficient number of fire stations, and the mutual aid fire stations to the west are too far away to be of primary help.

Finding #4: The entire District, except for a tiny area in west Brentwood, is not within 8 minutes travel time of an Effective Response Force assignment of five engines and one Battalion Chief for sufficient urban area fire protection.

Finding #5: At a suburban multi-unit goal of 10 minutes travel, even all of Bentwood and Oakley are not covered with five units.

Finding #6: At a rural multi-unit goal of 14 minutes travel time, only the western two-thirds of the District are covered.

Finding #7: Given only three staffed core fire stations and two units from mutual aid for serious building fires, the District can only provide a rural level of response time, which means the likely outcome of a serious building fire will be total destruction of the building of origin and a large possibility of fire spread to adjoining buildings, particularly on windy days.

Finding #8: One Battalion Chief located in Brentwood can only cover two-thirds of the District in an urban travel time goal. The remaining District is reached by the

single Battalion Chief in suburban to rural travel times. The District is too large for a single Battalion Chief to cover at anything better than a 14-minute, rural level of coverage.

Finding #9: The District does not have any ladder truck coverage in the urban, suburban, or even the rural areas. Mutual aid ladder truck coverage is not an adequate replacement. The District needs to staff at least one ladder truck in the urban areas to provide coverage to serious building fires in Brentwood and Oakley.

Finding #10: The District will need nine District-staffed fire stations plus the CAL FIRE Sunshine station agreement if it sets a goal of a 4-minute travel time for urban population density areas and 8-minute travel time for suburban and rural population densities.

Finding #11: The District's time-of-day, day-of-week, and month-of-year calls for service demands are consistent. This means the District needs to operate a fairly consistent 24/7/365 response system.

Finding #12: The performance of the Contra Costa Fire Communications Center, at 2:26 minutes/seconds to 90% of the EMS and fire emergencies, is almost a full minute slower than a best practices expectation that 90% of the routine type incidents be dispatched within 90 seconds.

Finding #13: The District's turnout times are consistently over 2 minutes, and a focused effort needs to be made to improve this measure to 2 minutes.

Finding #14: In 2015, with just three fire stations opened, fire engine travel times ranged from a low of 10:01 to a high of 12:30 minutes/seconds. There are no national best practice sources that would recommend travel time coverage this slow in urban areas with the associated risks to be protected.

Finding #15: The District's *travel time* response time for five engines to serious fires, known as the Effective Response Force (ERF or First Alarm), ranges from 19:21 to 21:27 minutes/seconds and far exceeds an urban area coverage goal of 8 minutes, and even exceeds recommendations for rural areas. The District does not have an adequate multiple-unit response to serious fires anywhere in the District.

Finding #16: Operating only three to four units, given hourly and simultaneous incident demand at peak hours of the day, results in the District not being able to provide positive outcome-based service to EMS and fire incidents, even in the urban population centers of Brentwood and Oakley.

Recommendation #1: **Adopt District Board of Directors 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 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 is mind, Citygate recommends tiered deployment measures based on population densities as outlined in the following table:

Table 3—Deployment Recommendations (Table 48 from Volume 2)

Response Time Component	Structure Fire Urban Areas	Structure Fire Suburban Areas	Rural Areas
	>3,000 people/sq. mi.	500-3,000 people/sq. mi.	<500 people/sq. mi.
1st Due Travel Time (min/seconds)	4:00	8:00	12:00
Total Response Time	7:30	11:30	15:30
1st Alarm Travel Time	8:00	12:00	16:00
1st Alarm Total Response	11:30	15:30	19:30

Sub-recommendations 1.1 through 1.5 explain these recommended deployment measures specifically for urban areas. The District should adopt similar measures for suburban and rural areas with response times consistent with the table above.

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% of the time from the receipt of the call in the Fire Communications Center. This equates to a 1:30-minute dispatch time, a 2-minute company turnout time, and a 4-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, 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 five engines, one ladder truck, and two Battalion Chiefs totaling 20 personnel should arrive within 11:30 minutes from the time of fire dispatch call

receipt, 90% of the time. This equates to 1:30-minute dispatch time, 2 minutes company turnout time, and 8 minutes drive time spacing for multiple units in the urban areas.

1.3 Hazardous Materials Response – *Urban Areas*: 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 than 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 multi-agency hazardous materials response partnership.

1.4 Technical Rescue – *Urban Areas*: 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 6 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 minutes, 90% of the time. Safely complete rescue/extrication to ensure delivery of patient to a definitive care facility.

1.5 Emergency Medical Services – *Urban Areas*: The District should continue to provide first responder EMT services to urban neighborhoods to 90% of the higher priority medical incidents within at least 7:30 minutes/seconds from fire dispatch receipt.

Recommendation #2: The Fire Dispatch Center and Fire District need to lower dispatch processing and fire crew turnout times to best practices recommendation of 3:30 minutes.

Recommendation #3: When a fourth fire station is staffed inside Brentwood, the District should staff and operate a ladder truck and engine from that station.

Recommendation #4: The District should work for funding to operate a nine-fire-station model, along with continuing the CAL FIRE agreement for the Sunshine area. This includes the ongoing use, relocation, and addition of stations to achieve three stations in Oakley, four in Brentwood, and two in Discovery Bay.

1.7 Headquarters and Support Services Findings and Recommendations

Citygate's headquarters services findings and recommendations are listed below.

Finding #17: The current District headquarters position of five personnel is totally inadequate to continue to provide safe and regulatory-compliant supervision for a fire department as it exists today, much less expand the agency if additional funds are identified.

Recommendation #5: The District should, as soon as funding permits, increase the headquarters staff by three full-time positions as identified in this study.

Recommendation #6: When the Department operates five fire stations, the headquarters team should be expanded with an additional two full-time and two part-time positions.

Recommendation #7: When the District operates nine fire stations, the headquarters team should be expanded again to make two part-time positions full time, and add a full-time position, for a total minimum headquarters team of 13 full-time personnel.

Recommendation #8: The District must start long range fiscal strategic planning to identify the funding sources and annual capital reserves saving to repair and replace fire apparatus and fire stations.

1.8 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 should adopt updated and best-practices-based response time goals for the three population density areas served in the District, and provide accountability for the Department personnel to meet those standards. The goals identified in Recommendation #1 meet

national best practices advice. Measurement and planning as the District continues to evolve will be necessary to meet these goals.

Additional revenue sources and planning as the District continues to evolve will be necessary for the District to meet these goals. Citygate's recommends that the District's next steps be to work through the issues identified in this study over the short-term:

1.8.1 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 the funding sources to re-grow the agency to the community's desired level.
- Fund and hire the immediate needed fire headquarters positions.
- Replace the needed front-line fire apparatus over the next five years.