Standards of Cover Assessment for the
Menlo Park Fire Protection District

Volume 1 of 3 – Executive Summary

June 16, 2015
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VOLUME 1—EXECUTIVE SUMMARY

The Menlo Park Fire Protection District (the District) retained Citygate Associates, LLC to perform a Standards of Cover Assessment for field deployment services. This study included reviewing the adequacy of the existing deployment system from the current fire station locations. 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 review, and a Map Atlas (Volume 3) containing full-page map exhibits to complement our deployment review.

1.1  POLICY CHOICES FRAMEWORK

First, 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 delivered by the District. 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 good fire, rescue, and emergency medical services (EMS) response coverage in the most populated sections of 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 suburban 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 re-development in some areas. The District today is currently meeting its needs through its own fire response resources and through the use of partnerships with its neighbors in the automatic aid countywide response system.

The District’s deployment system meets the District’s current demands but is becoming strained, especially east of Highway 101, and needs adjustment soon moving forward as growth occurs. Traffic congestion is also an increasing problem as the communities the District protects continue to evolve. The District’s growing employment base and regional post-recession economic jobs recovery is yielding intense traffic congestion at rush hours. The GIS travel time analysis in this study and the prior incident travel time data for District responses clearly show the substantial hindrance this causes to emergency response travel in the District.

The only way going forward to maintain reasonable travel times will be for the District to add more crews, positioned initially east of Highway 101. Other crews may be needed later in the central and western District on a full- or part-time basis. One way to visualize this would be the
tight fire station spacing needed in downtown urban areas like San Francisco, Manhattan, and Chicago, where traffic congestion impairs typical fire station spacing.

Throughout this report, Citygate makes observations, key findings, and, where appropriate, specific action item recommendations. Overall, there are 15 key findings and 2 specific action item recommendations.

1.3 CHALLENGE – 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/or specialty units) strategically located across a department. These units are tasked with controlling moderate emergencies without the incident escalating to second alarm or greater size, 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, enough 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 Cover Assessment Technical Report, Citygate’s analysis of prior response statistics and use of geographic mapping tools reveals that the District has adequate fire station locations. The maps provided in Volume 3 and the corresponding text explanation beginning in Volume 2 describe the District’s current performance in detail.

For effective outcomes on serious medical emergencies and to keep serious, but still-emerging, fires small, best practices recommend that the first-due fire unit should arrive within 7 minutes of fire dispatch alerting the fire unit, 90% of the time. In the District, the current fire station system provides the following unit coverage across a variety of population density/risk areas for emergency medical and fire incident types:

Table 36, Volume 2—Call to Arrival Response Time (Minutes/Seconds)

<table>
<thead>
<tr>
<th>Station</th>
<th>2013</th>
<th>2014</th>
</tr>
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<tbody>
<tr>
<td>District-wide</td>
<td>06:32</td>
<td>06:34</td>
</tr>
<tr>
<td>1</td>
<td>06:41</td>
<td>07:03</td>
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<td>2</td>
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</tr>
<tr>
<td>77</td>
<td>07:36</td>
<td>07:11</td>
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Table 38, Volume 2—Travel Time Performance

<table>
<thead>
<tr>
<th>Station</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>District-wide</td>
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<td>04:55</td>
</tr>
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<td>04:51</td>
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<tr>
<td>2</td>
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<td>6</td>
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<td>04:04</td>
</tr>
<tr>
<td>7</td>
<td>05:41</td>
<td>05:36</td>
</tr>
</tbody>
</table>

As Volume 2 of this report will detail, the dispatch and crew turnout times are good. However, the travel times are longer than an urban best practices recommendation of 4 minutes, reflective of the large size of some station areas and for road network design and traffic congestion issues. Short of adding more companies to existing station areas for simultaneous incident coverage or peak-hour activity units given the District’s road network and traffic congestion, there is no way to appreciably lower the travel times.

The resulting total response times above are better than or just over a Citygate recommended and best practices consistent goal of 7 minutes from fire dispatch receiving the 9-1-1 call. The credit for keeping the response times good given the travel time slowness in the District belongs to excellent dispatch and crew turnout time performance. However, these pre-travel time steps are the best they can be and cannot further offset slow travel times.

The District is staffed for two serious building fires at a time and multiple medical calls for service at a time. The regional automatic and mutual aid response system delivers greater alarm and multiple-incident support, when needed, although with longer response times.

1.4 Overall Deployment Evaluation

The District serves a diverse land use pattern in a geographically challenging area in the San Mateo peninsula area. There is intense urbanization bisected by three busy highways and a commuter and commercial rail line, all of which have limited over and under crossings. For example, Highway 101 only has three overcrossings in the District. Many of the communities served by the District have very few streets laid out in a grid pattern with multiple connection points allowing quicker emergency response. Additionally, there are open spaces, creeks, and the San Francisco Bay that either bisect the communities served or create boundaries and challenges for expanding automatic or mutual aid with other bordering fire agencies such as Fremont Fire Department in Alameda County or Palo Alto Fire Department in Santa Clara County.
During the work week, the Dumbarton Bridge brings in significant commuter traffic, the vast majority of which is pass-through commuters. This significantly impacts roadways on the east or Bay side of the District and elsewhere depending upon time of day and traffic conditions. There are only a few remaining Bay crossings where vehicles are not immediately routed through to a highway instead of passing through residential communities such as East Palo Alto and Menlo Park.

Population drives service demand and development brings population, which increases traffic congestion. The effects of traffic congestion with the limited over/under crossings for east/west roads at rail and highway corridors now has measurable, negative effects on fire unit travel times during rush hours. The western, more upslope areas of the District also have slightly slower response times typical of outer edge, hilly suburban areas of California.

While the District and now the state-mandated Fire Code requires fire sprinklers in dwellings, it will be many more decades before enough buildings are added, replaced, or remodeled using automatic fire sprinklers. For the foreseeable future, the District will need both first-due firefighting unit and Effective Response Force (First Alarm) coverage in all parts of the District, consistent with current best practices for differing population densities and risks to be protected.

If the District wants to provide the three outcomes below, the District will have to increase its deployment of crews, to include at least a second ladder truck or quint / rescue squad and more personnel east of Highway 101 as development occurs:

- 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 in the core for high risk venues.

For its current risks and desired outcomes, the District has the correct quantity of fire engines (pumpers). The District’s single ladder truck does not cover the entire District. While the regional response system provides ladder trucks, there is no guarantee they will be available in a timely manner. Additionally, due to traffic congestion and incidents east of Highway 101 occurring at the peak hours of the day, the District needs to add a third unit and personnel in that area. To gain the most cost value of adding another crew to Fire Station #2, deploying the new crew on a second ladder truck or quint / rescue squad allows the District to increase several services with just one more crew per day.

To increase ladder truck coverage and total staffing east of Highway 101, the District has two immediate options:

1. Field a second ladder truck east of Highway 101 at Station #2 staffed with 4 personnel.
2. Field two quints (combination engine/ladder apparatus) staffed with four personnel that would replace Engines 2 and 4. Additionally, add a two-person rescue squad at Station #2, increasing the personnel east of Highway 101 by a total of three and by one at Station #4.

Additionally, in the future when Station #77 is rebuilt, the District should make it large enough for two crews in case this station needs two crews as calls for service grow past what three companies east of Highway 101 can handle in the near term.

Other next steps are further outlined at the end of this Executive Summary.

1.5 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 Directors have 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 fire dispatch 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 has 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 that type of incident based on fire department experience.

Finding #3: Minimum apparatus staffing per unit on engine companies at three is appropriate for the size and risks present in the District. The District will soon fund four personnel per day on the aerial ladder truck.

Finding #4: Using the current seven fire station locations, not including automatic aid stations, the highest developed population density areas are within 4 minutes travel time of a fire station. However, traffic congestion has a marked negative impact on unit travel times.
Finding #5: A neighborhood-based fire unit within a best practice recommendation of 4 minutes travel time covers all of the District’s neighborhoods, except for small outer-edge areas.

Finding #6: The District’s most built-up areas are within 8 minutes travel time of an Effective Response Force assignment of 5 engines, 1 District ladder truck, and 1 District Battalion Chief.

Finding #7: The District’s single ladder truck is insufficient to cover the eastern, more developed areas of the District.

Finding #8: 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, and is not in near term need of a peak-hour-of-the-day part-time unit.

Finding #9: The overall District’s total response times are better than Citygate’s recommendation of 7:00 minutes/seconds from call receipt at fire dispatch.

Finding #10: The San Mateo County Regional Communications Center’s dispatch processing times are very good and are better than national recommendations.

Finding #11: The District’s turnout times are consistently under 2 minutes from station to station, which is very good.

Finding #12: The travel times in the District are longer than a best practice goal of 4 minutes, which is reflective of the size of some station areas and serious traffic congestion at morning and evening rush hours. Short of adding more fire stations, fire station-based crews, or peak-hour activity units for simultaneous incidents, there is no way to appreciably lower the travel times. This is particularly true for the third- through sixth-due units to the areas east of Highway 101.

Finding #13: The District’s total response times are very good, and given the travel times being slightly longer than 4 minutes, the good performance at 7 minutes is due to excellent dispatch and turnout times.

Finding #14: The District’s total response time for all units to serious fires, known as the Effective Response Force (ERF or First Alarm), ranging from 08:53 to 10:06, are better than Citygate’s recommendation of 11 minutes.
Finding #15: The most compelling justification for additional resources in the Bay Side area is simply call volume, as well as the slightly greater likelihood of complex incidents on the Bay Side of Highway 101.

Recommendation #1: To deliver best practices-based ladder truck coverage to the eastern District areas, as well as to add a third company to the east of Highway 101 area to provide an improved multiple-unit response force to this more remote area of the District, the District should add a second ladder truck or a quint and rescue squad unit at Fire Station #2. Additionally, to ensure the District can also add other units as needed east of Highway 101, Station #77 should be rebuilt to accommodate at least two fire crews of 3 to 4 personnel each.

Recommendation #2: Adopt District Board of Directors Deployment Measures Policy: 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 deliver outcomes that will save patients medically salvageable upon arrival; and to keep small, but serious fires from becoming greater alarm fires. With this in mind, Citygate recommends the following measures:

2.1 Distribution of Fire Stations: To treat medical patients and control small fires, the first-due unit should arrive within 7 minutes, 90% of the time from the receipt of the 9-1-1 call in the regional fire dispatch center. This equates to 1 minute dispatch time, 2 minutes company turnout time, and 4 minutes drive time in the most populated areas.

2.2 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 from the regional response system of a minimum of 5 engines, 1 ladder truck, and 2 Battalion Chiefs totaling 21 personnel should arrive within 11:00 minutes from the time of 9-1-1 call receipt in fire dispatch, 90% of the time. This equates to 1 minute dispatch time, 2 minutes company turnout time, and 8 minutes drive time spacing for multiple units in the most populated areas.
2.3 **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 in urban to suburban areas for the first company capable of investigating a HazMat release at the operations level within 4 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.

2.4 **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 urban to suburban areas for size-up of the rescue within 4 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.

2.5 **Emergency Medical Services:** The District has to continue to provide first responder paramedic services to all neighborhoods to 90% of the medical incidents within 6:59 minutes/seconds from crew notification, per the current agreement with the County EMS agency.

1.6 **Next Steps**

The purpose of a Standards of Cover Assessment study 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. Citygate recommends the following next steps for the District to work through the issues identified in this study:
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.

◆ Monitor the final approved developments for the City of Menlo Park M2 area.

◆ Continue to measure the effects of traffic congestion on response times and communicate the effects to partner agencies having the authority for traffic circulation design and the possible use of traffic-calming measures.

◆ Immediately develop the costs and a timeline for the addition of a second ladder truck or quint / rescue squad staffed by additional personnel at Fire Station #2. The timeline needs to include the pace of development in eastern Menlo Park and East Palo Alto, along with the District’s ability to open the new and rebuilt Fire Station #2 and fund not just the ladder truck or quint / rescue squad via impact fees, but also the staffing for the additional personnel at Fire Station #2. The District should explore the option of remodeling or rebuilding Station #77 to accommodate more than a single fire crew of 3 to 4 personnel.

1.6.2 Long-Term Steps

◆ Monitor the effect of growth in the eastern District areas on incident demand volume at peak hours of the day.

◆ If adding a third company east of Highway 101 (the second ladder truck or quint / rescue squad located at Station #2) and rebuilding Station #77 to handle two crews is not enough to maintain response times to District-adopted goals, the District should begin the long-range planning for the addition of a reliever unit to operate at peak hours of the day, possibly a 2-firefighter Fast Response Rescue Squad, to assist with peak-hour incidents inside traffic-congested areas.