



CITYGATE ASSOCIATES, LLC
FIRE & EMERGENCY SERVICES

CITY OF SUNNYVALE, CA

VOLUME 1 OF 3 - EXECUTIVE SUMMARY

COMPREHENSIVE COMMUNITY RISK
ASSESSMENT, STANDARDS OF COVER
STUDY, AND STATION LOCATION AND
DEPLOYMENT STUDY

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Sunnyvale

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VOLUME 2 of 3 – Comprehensive Community Risk Assessment, Standards of Cover Study, and Station Location and Deployment Technical Report (separately bound)

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VOLUME 1—EXECUTIVE SUMMARY

Citygate Associates, LLC (Citygate) performed a Comprehensive Community Risk Assessment, Standards of Cover Study, and Station Location and Deployment Study for the City of Sunnyvale Department of Public Safety (Department or DPS). Throughout this report, the use of the word firefighter means Public Safety Officer (PSOs) performing a fire service response role assigned on fire apparatus as their primary duty assignment. This study included reviewing the adequacy of the current fire station deployment system and the fire station facilities 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 fire station adequacy assessment, and a geographic map atlas (**Volume 3**) that displays fire unit travel time coverage.

1.1 POLICY CHOICES FRAMEWORK

As the City Council 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 City has made significant investments in its fire services and, thus, has good fire and emergency medical services (EMS) response coverage in the City.

1.2 CITYGATE’S OVERALL OPINIONS ON THE STATE OF THE CITY’S FIRE SERVICES

In brief, Citygate finds that the challenge of providing fire services in the City 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 that it found a quality fire services agency that the City should be proud of. The recommendations in this study should be considered as a continuous quality improvement “*tune-up*” that can be considered in the yearly budget process.

The City has operated an innovative public safety team for decades. Citygate is impressed with the City’s commitment to excellence in this approach. There is in no way a partial effort on policing, firefighting, or EMS. From recruitment, to the new hire academy, to probationary field evaluation, and then through the rank structure over a career, all personnel are extensively cross-trained in all three disciplines. All personnel are certified as appropriate under state requirements and published best practices. Mid- and upper-management personnel rotate assignments during their careers to stay current on all services. This blended team offers a large amount of operational flexibility to all types of emergencies to which the City responds.

The DPS team may consider pursuing accreditation through the Commission on Fire Accreditation International (CFAI). The DPS team is to be commended on having a proven organization and, with this study, a robust SOC plan to enable consideration of accreditation. If accredited, it would be the only DPS agency, at present, in the United States. Accreditation tells the City Council, the residents, and business community that DPS excels and meets best practices for fire and EMS.

The City is currently meeting its needs through its own fire and first responder response resources, along with using its neighbors in the regional mutual aid system for assistance on catastrophic emergencies as needed. The two-part DPS deployment system largely meets the City's current demands but needs small adjustments to best meet the ongoing needs of the populations and risks to be protected in Sunnyvale as the City grows to its General Plan build-out. Throughout this report, Citygate makes key findings and specific action item recommendations where appropriate. Overall, there are 26 key findings and 10 specific action item recommendations.

In conclusion, Citygate finds a best practices-based agency with *very committed and caring employees* that take pride in what they do, how they do it, and in taking care of their City.

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 PSO patrol units) strategically located across a coverage area. These units are tasked with controlling moderate emergencies, preventing them 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 Comprehensive Community Risk Assessment, Standards of Cover Study, and Station Location and Deployment Study, Citygate's analysis of response statistics and use of geographic mapping tools reveals that the City has adequate fire station coverage. The maps provided in **Volume 3** and the corresponding text explanation beginning in **Volume 2** describe the City's current deployment system performance in detail.

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 of the City's DPS 9-1-1 Communication Center receiving the call, 90 percent of the time. The City's current fire station system provides the following first-due

apparatus arrival times regardless of type of unit coverage across a variety of population density/risk areas for emergency medical and fire incident types.

Table 1—Call to Arrival Response Time in 2017 (Table 25 in Volume 2)

Station	Time
Department-Wide	07:30
Station ST1	07:05
Station ST2	07:20
Station ST3	07:28
Station ST4	06:49
Station ST5	08:05
Station ST6	07:17

The emergent incident response times in Table 1 are better than or just over Citygate’s recommended 7:30 minutes. These statistics indicate the strength of the six-station system; because most stations are close to incident activity clusters, traffic congestion does not impede most response times.

The Department is staffed for one serious building fire and two medical calls for service at the same time. The regional mutual aid response system delivers greater-alarm and multiple-incident support, when needed, although with longer response times.

1.4 OVERALL DEPLOYMENT EVALUATION

The Sunnyvale DPS serves a diverse land use pattern that, in some locations, is geographically challenged with open spaces, such as Bay Lands and Stevens Creek, plus the limited cross access boulevards or freeways which limit quick response times. Population drives service demand, and development brings population. The Department’s responses are volume-driven by emergency medical events; however, the City also must ensure an effective firefighting force is available even when multiple medical events occur.

For the foreseeable future, the City will need both a first-due firefighting unit and Effective Response Force (ERF / First Alarm) coverage in all parts of the City, consistent with current best practices, 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 City’s attention, all communities need a “stand-by and readily available” firefighting force for when fires break out. If the City wants to continue providing the following four elements, the City should continue its outstanding fire services investment:

- ◆ 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
- ◆ Evaluate and fund a Fire Station #1 relocation.

For its current risks and desired outcomes, the City has the correct quantity of fire engines (pumpers) and ladder trucks.

Based on the deployment analysis contained in this study, Citygate makes the following recommendations to slightly strengthen deployment performance as incidents slowly increase year to year. The first deployment step for the City in the near term is to adopt updated and integrated performance measures from which to set forth service expectations and, on an annual budget basis, monitor and fund Bureau of Fire Services performance.

This study also makes recommendations on future staffing and station needs that can be addressed during regular budget cycles as the City grows toward its General-Plan-envisioned build-out.

1.5 CITYGATE’S FINDINGS AND RECOMMENDATIONS

Citygate’s findings and recommendations are listed in this subsection. For reference purposes, the finding and recommendation numbers refer to the sequential numbers as these are presented in the technical report volume.

Finding #1: While DPS has component response time measures spread across nine budget programs, the City has not adopted an integrated 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 DPS Communications Center receiving the 9-1-1 phone call, nor a goal statement tied to risks and outcome expectations. If the current technology of the computer dispatch and fire incident records systems do not allow for the capture of all of these time intervals, consideration should be given to the need for those time intervals to be collected upon the next technology upgrade.

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 CFAI.

- Finding #2:** The current number of six fire stations can reach 91 percent of the street segments within 4 minutes travel time if traffic congestion is not present. This is excellent coverage for an urban area.
- Finding #3:** Traffic congestion impacts constrain the 4-minute travel time coverage during morning and evening commute times. The gaps during peak traffic periods mean that the City needs at least all six fire station locations, or the coverage will remain significantly worse during traffic congestion hours as the City adds vertical populations and increased density in some areas.
- Finding #4:** During non-traffic congestion hours, 92 percent of the City, except for an area southwest of Fire Station #3, is within the 8-minute travel time of an ERF assignment of four engines, two ladders, one rescue squad, and one Battalion Chief, which is compliant with the NFPA recommendations in Standard #1710.
- Finding #5:** Relocating Station #1 improves northwest City coverage.
- Finding #6:** The City's time-of-day and day-of-week calls for service demands are very consistent. This means the City needs to operate a fairly consistent 24/7/365 response system.
- Finding #7:** The performance of the City's DPS Communications Center, at 2:06 minutes for 90 percent of the EMS and fire emergencies, is slower than a best-practice recommendation of 1:30 minutes where the dispatch process queries the caller as to the severity of a medical emergency.
- Finding #8:** The Department's turnout times are only slightly over 2 minutes from station to station and only need slight monitoring for improvement.
- Finding #9:** The first-due unit travel times, Citywide, are better than or close to a best-practice goal of 4 minutes travel time, which is reflective of the good placement of the six fire stations. Performance this good in urban areas is almost nonexistent and Sunnyvale should feel very good about its fire unit response times and coverage.

- Finding #10:** The City’s *travel time / response time* for a minimum of four units to critical fires, known as the ERF, ranges in year 2015 from 6:38 to 10:53 minutes. Three of six stations’ jurisdictions have travel times that are slightly higher than 8 minutes, which, given the City’s road network design and traffic congestion at times, are near the best-practice recommendation of 8 minutes.
- Finding #11:** At present, none of the City’s fire units experience troublesome incident demand workload saturation, even hour to hour, during daylight hours when human activity is the greatest. However, the City is adding vertical and more dense development, which increases incident demand per square mile and may increase unit workload to the point where a company could be needed to cover the peak-hour workload.
- Finding #12:** In Sunnyvale, mutual aid, both given and received, is a small amount of incident volume. The modest amount of incident activity is routinely handled by the six fire stations. Stated this way, Sunnyvale is not dependent on its neighboring fire departments to handle routine, day-to-day events.
- Finding #13:** The DPS needs a second, dedicated, full-time, certified/licensed, and qualified EMS Program Clinical Supervisor and Educator, as a regular agency member and familiar with the items unique to a public safety operation, to handle the emergency medical services training and clinical oversight workload.
- Finding #14:** Sunnyvale fire station facilities are appropriately located to provide nationally recognized best-practice response travel times throughout nearly all areas of the City *during non-peak traffic congestion periods*.
- Finding #15:** Station #1 vehicle egress onto North Mathilda Avenue is regularly impacted by traffic congestion, particularly during commute hours.
- Finding #16:** All fire station facilities conform to regulatory requirements relative to seismic safety for essential services buildings.
- Finding #17:** All fire station facilities conform to nationally recognized best practices relative to smoke and carbon monoxide alarms, prevention of vehicle exhaust contamination, and standby emergency electrical power supply.
- Finding #18:** Fire station facilities range from zero to 56 years of age, averaging 44.33 years of age for all stations, and 53.2 years of age excluding the new Station #5.

- Finding #19:** Except for Station #5, the overall condition of all fire station facilities is adequate considering facility age and cumulative use impacts.
- Finding #20:** Except for Station #5, all stations lack secured parking areas.
- Finding #21:** Station #2 lacks secure indoor or covered parking for the duty Battalion Chief and reserve command vehicles.
- Finding #22:** Except for Station #5, all fire station facilities generally lack adequate storage space for equipment and supplies.
- Finding #23:** Except for Station #5, all fire station facilities lack adequate personal locker/storage space for assigned personnel.
- Finding #24:** Oxygen cylinder refilling and maintenance is conducted in the open fire apparatus room at Station #4. This potentially exposes medical equipment to particulate hazards from diesel exhaust. The filling station should be placed in a separate room.
- Finding #25:** Except for Station #5, although not required by law, all fire station facilities lack automatic fire sprinkler system protection.
- Finding #26:** Station #5 is a state-of-the-art public safety facility that will meet the Department's anticipated space and functional needs for many years.

1.6 RECOMMENDATIONS

- Recommendation #1:** The City should continue to provide the funding to maintain the existing Battalion Chief (Public Safety Captain) and Team Coordinator (Public Safety Lieutenant) coverage 24/7/365 with fully qualified and *experienced* Incident Commanders.
- Recommendation #2:** Citygate recommends that, as funds allow, restoring the second Rescue Operator to Rescue 42 be given priority consideration.
- Recommendation #3:** The City of Sunnyvale should consider adding a supervisory certified/licensed and qualified EMS Program Clinical and Educator position to the DPS dedicated to EMS program oversight, quality assurance, and quality improvement.

Recommendation #4: Citygate recommends that DPS maintain a careful watch on the amount of non-9-1-1 incident commitment time for at least six patrol units *every hour*. If major blocks of a shift on a predictable, repeated pattern show patrol cannot spare six officers to critical firefighting, then DPS should add patrol officers to *both* maintain proactive policing capacity as well as surge capacity to serious fire or EMS events.

Recommendation #5: **Adopt Deployment Measures Policies:** The City 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:

- 5.1** Distribution of Fire Stations: 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 City's DPS 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.
- 5.2** Multiple-Unit ERF 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 four engines, two ladder trucks, one rescue squad, six patrol PSOs, and one Battalion Chief totaling 20 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 1:30-minute dispatch time, 2-minute company turnout time, and 8-minute drive time spacing for multiple units in the most populated areas.
- 5.3** 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 City 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 6:30 minutes travel time or less, 90 percent of the time. After size-up and scene evaluation is completed, a determination will be made whether to request additional resources from the City's multi-agency hazardous materials response partnership.

- 5.4** 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 6:30 minutes travel time 90 percent of the time. 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.

- Recommendation #6:** As the City approaches build-out, it should consider the relocation of Fire Station #1.
- Recommendation #7:** Maintain fire station facilities to meet all applicable regulatory health and safety standards.
- Recommendation #8:** Consider relocating oxygen cylinder refilling and maintenance to a dedicated, secure, air-conditioned room free of dirt, oils, and other contaminants.
- Recommendation #9:** Consider retrofitting Fire Stations #1, #2, #3, #4, and #6 with automatic fire sprinkler systems.
- Recommendation #10:** Consider developing a long-range Facilities Master Plan that addresses, at a minimum, facility replacement or relocation and addition criteria, priority, timing, estimated costs, and funding options.

1.7 *NEXT STEPS*

The purpose of this assessment is to compare the City'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 basis from which to make recommendations for changes, if any, in fire station locations, equipment types, staffing, and headquarters programs.

Sunnyvale should begin by adopting updated and best-practices-based response time goals for the City and provide accountability for DPS personnel to meet those standards. The goals identified in Recommendation #5 meet national best practices. Measurement and planning as the City continues to evolve will be necessary for the City to meet these goals. Citygate recommends that the City's next steps be to work through the issues identified in this study over the following timelines:

1.7.1 Short-Term Steps

- ◆ Absorb the policy recommendations of this fire services study and adopt updated City performance measures to drive the deployment of firefighting and emergency medical resources.

1.7.2 Long-Term Steps

- ◆ Consider the expanded headquarters staffing suggestions in this study.
- ◆ Work towards a permanent replacement and relocation of Fire Station #1.