Standards of Coverage
Study and Risk Assessment
Montecito Fire Protection District

Executive Report
*Extracted*

November 12, 2014
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PART ONE

Executive Summary
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EXECUTIVE SUMMARY

The Montecito Fire Protection District (District) retained Citygate Associates, LLC to conduct an updated community risk assessment, evaluate the District’s fire station placement plan, and assess the District’s headquarters and support functions. Citygate was also retained to conduct an online community survey. Thus, Citygate is providing a comprehensive analysis of the District’s operations and capacity to meet the fire and emergency medical risks in the community.

To address all of these issues, Citygate’s work is presented across two volumes. **Volume 1** consists of four “Parts,” including: this Executive Summary that summarizes our findings and recommendations (*Part One*); an in-depth community risk assessment (*Part Two*); a Standards of Response Coverage (SOC) study that analyzes fire crew deployment (*Part Three*); a headquarters and support functions review (*Part Four*); and the community survey results (*Part Five*). **Volume 2** consists of two “Parts,” including: risk assessment exhibits (*Part One*); and deployment (SOC) map exhibits (*Part Two*).

**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 at all, they must be done so with the safety of the firefighters and citizens in mind.*

**CITYGATE’S OVERALL OPINIONS ON THE STATE OF THE DISTRICT’S FIRE STATION PLAN**

The District is difficult to serve with a small number of fire stations due to the mix of suburban areas at lower elevations and the higher hills leading onto the mountains. Given the District’s long and somewhat rectangular shape, and its location between the ocean and the mountains, the current two-fire-station model cannot provide best practice response times equitably to all developed areas of the District.

As this study will discuss, the District is challenged to protect the community against diverse and severe risks (in the case of wildfire). The District’s headquarters and support teams are appropriate to serve the needs of the firefighting, fire prevention, and emergency medical services programs the District provides. The community survey illustrates that the residents desire excellent fire protection and they understand the importance of response times as 64 percent of the respondents answered that response times were “Extremely Critical.” When asked which services should be enhanced, the top answer was “enhance wildfire mitigation efforts” followed closely by “improve emergency response times.”
Community Risk Assessment Summary

In collaboration with District staff, Citygate identified nine hazards with potential to affect Montecito as follows:

1. Building Fire
2. Drought / Water Supply
3. Earthquake
4. Flooding / Coastal Surge
5. Hazardous Material Release / Spill
6. Landslide / Coastal Erosion
7. Tsunami
8. Wildland Fire
9. Windstorm

Pursuant to a comprehensive risk analysis, Citygate finds, in brief, that Montecito has the following risk vulnerabilities: high to very high building fire occurrences; moderate to very high wildland fire occurrences; moderate to high hazardous material releases and/or spills; high risk of drought and earthquake occurrences; moderate windstorm and flooding occurrences; and low to moderate coastal erosion and tsunami occurrences.

The District has implemented an intensive vegetation reduction/modification program as an aggressive step to minimize both the occurrence and severity of impacts from a wildland fire, particularly along the northern edge of the District bordering native chaparral fuels, and along the eastern areas of the District bordering the Carpinteria-Summerland Fire Protection District. The District has also implemented interior fuel reduction/modification projects where it can reduce the intensity and potential spread of a wildland fire to a specific neighborhood area, as well as an aggressive defensible space program involving annual inspection of all District properties that has achieved a very high level of property owner compliance with mandated and recommended mitigation measures.

Standards of Coverage Study Summary

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 rescue ambulances) strategically located across a department. These units are tasked with controlling moderate emergencies, preventing the incident from escalating to second alarm or greater size. Larger incidents unnecessarily deplete department resources, as do multiple requests for service. 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.

In Part Three of this study, Citygate’s analysis of prior response statistics and geographic mapping reveals that two-thirds of the District has best practice recommended first-due unit fire station coverage, but not in east Montecito as was also identified in the District’s 2008 Site Selection Study. The maps provided in Volume 2 and the corresponding text explanation in Part Three describes 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, best practices for urban to suburban population density areas recommend that the first-due fire unit should arrive within 7 minutes of fire dispatch alerting the fire unit, 90 percent of the time.

Based upon our review and experience across other clients similar to the District, Citygate recommends the following fire station policy goals for the District:

- 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 higher-risk areas.

If the District wants to provide the three outcomes above, the District needs at least three fire stations across its geography.

**Response Coverage for East Montecito**

Based on the geographic coverage and response time measures in this study, east Montecito is beyond the response time reach considered a best practice for suburban fire and EMS incidents. Two-thirds of Montecito has best practice coverage and response times. While the population and building density is somewhat smaller in the eastern end of the District, building fire and wildland fire potential still exist. Any car fire, outdoor fire, or building fire can spread to the wildland areas. A wildland fire can start and spread from the Front Range anywhere in Montecito, not just within the reasonable response zone of the two stations.

While siting fire stations has been and always will be difficult in small land- and ocean-locked communities such as Montecito, Citygate believes the District Board and residents should have a constructive policy discussion based on the information in this study regarding the level of fire protection they wish to fund in east Montecito.
In Citygate’s opinion, the current deployment plan leaves the eastern section underserved for both the speed and weight of attack. Should a serious fire start in this area, it could more easily grow beyond control and spread to or from wildland areas, then placing the entire community at risk. The current deployment plan is somewhat like an infantry unit leaving a flank exposed and hoping that the enemy (fire) does not attack where the defense is weakest.

While the residents in east Montecito certainly have a voice in the location and size of a neighborhood fire station, the rest of the community also has a voice in determining the Fire Department’s spending plans and whether action should be taken to improve coverage in the eastern District areas that do not receive the same level of fire defense as the other two-thirds of the community.

An Alternative Deployment Option

While the District has discussed a third fire station for a considerable time in east Montecito, and this study shows that there is less coverage in that part of the District, Chief Hickman also identified and proposed another option: a three-station model, but in a different configuration.

Citygate observed that possibly lining up three fire stations in a linear method across the District would place the center station farther away from the bulge in the coast containing the highest population, risks, and emergency incident densities in the District. Considering the road network and risks in the District, a stronger deployment plan would be a triangle, with a station at each corner of the triangle.

Maps #16a and b in Volume 2 show the coverage result if Station 1’s fire unit was moved west closer to the population center at San Leandro Lane and San Ysidro Road. A third, single fire engine in a smaller, more residential station, would then be added in east Montecito.

The result is positive; first-due unit coverage becomes equitable at 7 minutes total response time District-wide. Multiple-unit coverage is improved at 11 minutes total response time, to all but the northeast most remote corner of the District. This is due to three engines traveling from inside the District and then the fourth engine only having to travel from one end or the other via mutual aid.

If this plan became a reality, additional options become available to solve under-met needs of the District:

1. The existing Station 1 can serve as an administrative office, small training site, and provide other support functions.

2. This “four site” plan then eliminates the need for the new east Montecito station to be larger for training functions as first proposed due to the severe space constraints at the two existing stations. In Citygate’s opinion, a larger fire station in east
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Part One—Executive Summary

Montecito would pull the other stations too far east for training given the call-for-service densities in the western half of the District.

3. The replacement Station 1 and a new Station 3 would only need to be large enough for a single fire company.

The District, in the near term, should adopt performance measure policies from which to set service expectations and, on an annual basis, monitor Fire Department performance as part of its annual budget considerations.

Headquarters and Support Systems Review Summary

A fire department of the District’s size needs to have a management team that is properly sized, adequately trained, and supported. There are increasing regulations to be dealt with in operating fire services, and the proper hiring, training and supervision of response employees requires an equally serious commitment to leadership and general management functions.

The District is very well organized, managed, equipped, and trained to provide community risk mitigation services pursuant to its mission. The District provides its own dispatching services that consistently exceed nationally-recognized performance standards. Although Citygate did not conduct a comprehensive training records review for this project, a cursory review suggests an effective training program that provides at least the minimum recommended training for firefighters in California. The District also has very effective fire prevention, public education and information programs, and its apparatus and physical facilities are very well maintained and functionally appropriate for current and near-term needs.

FINDINGS AND RECOMMENDATIONS

Citygate’s findings and recommendations are listed below by report theme and as such are numbered in sequential order by report “Part” (e.g., #2-1, #2-2, etc. for Community Risk Assessment (Part Two); #3-1, #3-2, etc. for Standards of Coverage Study (Part Three); #4-1, #4-2, etc. for Headquarters and Support Systems Review (Part Four)). Overall, there are 45 key findings and 21 specific action item recommendations in Parts Two through Four.

Community Risk Assessment

Findings

Finding #2-1: Montecito has a low historic incidence of building fires.

Finding #2-2: The Insurance Services Office has not completed a Public Protection Classification Program Community Survey for Montecito within the past ten years.
Finding #2-3: Approximately 14 percent of the fire hydrants within Montecito are incapable of delivering a minimum 500 gallons per minute as required by the District’s Fire Protection Plan.

Finding #2-4: The community of Montecito has significant access and egress impediments that can adversely affect emergency response times and evacuations.

Finding #2-5: Montecito has high to very high risk vulnerability to building fires.

Finding #2-6: Montecito has high risk vulnerability to drought occurrences.

Finding #2-7: Montecito has high risk vulnerability to earthquake occurrences.

Finding #2-8: Montecito has moderate risk vulnerability to flooding occurrences.

Finding #2-9: Montecito has moderate to high risk vulnerability to hazardous material releases and/or spills, particularly along U.S. 101 and railways.

Finding #2-10: Montecito has low to moderate risk vulnerability to landslide / coastal erosion occurrences.

Finding #2-11: Montecito has low to moderate risk vulnerability to tsunami occurrences.

Finding #2-12: The Santa Barbara region of Santa Barbara County, including Montecito, has a significant historical occurrence of wildland fires.

Finding #2-13: Montecito has moderate to very high risk vulnerability to wildland fire, particularly in the areas north of U.S. 101.

Finding #2-14: Montecito has moderate risk vulnerability to windstorm occurrences.

Finding #2-15: Santa Barbara County and the Montecito Fire Protection District have adopted current California codes with local amendments to minimize the occurrence of building fires and provide for the safety of building occupants.

Finding #2-16: The District has a strong training program, response capability, and pre-incident planning to reduce the severity of building fires.

Finding #2-17: The District has the appropriate training, response capability, mass notification systems, and pre-incident planning to minimize the impacts from a hazardous material release / spill.
Finding #2-18: The District has taken aggressive steps to minimize both the occurrence and severity of impacts from a wildland fire.

Finding #2-19: The District has adopted a comprehensive Community Fire Protection Plan, most recently updated in March 2014, to reduce vegetative fuel loading and related flammability in heavily vegetated areas of the District by removing and selectively eliminating dead and decadent vegetation.

Finding #2-20: The adopted Final Environmental Impact Report for the District’s Community Fire Protection Plan contains several biological, cultural, geological, and visual constraints on the removal and/or modification of vegetation.

Finding #2-21: The District has implemented an intensive vegetation reduction/modification program over the past several years to reduce the intensity and potential spread of a wildland fire, particularly along the northern edge of the District bordering native chaparral fuels, and along the eastern areas of the District bordering the Carpinteria-Summerland Fire Protection District. The District has also implemented interior fuel reduction/modification projects where it can reduce the intensity and potential spread of a wildland fire to a specific neighborhood area.

Finding #2-22: The District has an aggressive defensible space program involving annual inspection of all District properties, and has achieved a very high level of property owner compliance with mandated and recommended measures.

Finding #2-23: The District has a good wildland fire response capability supported by other local and regional fire agencies, strategic response force augmentation, an adopted evacuation plan, and multiple mass notification systems to minimize the impacts of all but the most severe wildland fires.

Recommendations

Recommendation #2-1: The District should consider requesting an updated Public Protection Classification Community Survey from the Insurance Services Office.

Recommendation #2-2: The District should update its pre-incident and target hazard plans at least every five years.

Recommendation #2-3: Strongly advocate for meaningful reduction of existing access/egress impediments wherever possible.
Recommendation #2-4: Aggressively seek water system improvements where available fire flow does not meet minimum District Fire Protection Plan standards.

Recommendation #2-5: The District should exercise its emergency notification systems and Evacuation Plan, including partner agencies, at least every 12-24 months.

Recommendation #2-6: The District should conduct a functional exercise with the Santa Barbara City Hazardous Materials Response Team at least annually.

Recommendation #2-7: Seek reduction to environmental constraints for vegetation removal/modification where possible, especially in those areas of the District adjacent to the native chaparral fuel beds.

Recommendation #2-8: Maintain existing vegetation reduction/modification projects to ensure sustained effectiveness.

Recommendation #2-9: Aggressively seek additional landowner agreements for vegetation removal/modification projects, especially in those areas of the District adjacent to the native chaparral fuel beds.

Recommendation #2-10: Aggressively seek additional neighborhood vegetation removal/reduction projects that will reduce wildland fire intensity/spread potential.

Recommendation #2-11: Aggressively seek additional vegetation removal, reduction, and maintenance funding sources.

Standards of Coverage Study

Findings

Finding #3-1: The District lacks published response time goals tied to specific outcomes by type of emergency. This is not congruent with best practices for emergency response time tracking. Updated deployment measures are needed that include 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, and 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 #3-2: 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, and command officers customarily needed to handle that type of incident based on fire department experience.

Finding #3-3: Using the current two fire station locations, and even all possible mutual aid, not all of the populated areas are within 7 minutes total response time of a fire station.

Finding #3-4: The coverage of the Effective Response Force (First Alarm) to serious fires is adequate in the most populated areas of the District, but insufficient for four-fire-engine coverage in the eastern areas of the District.

Finding #3-5: First-due and multiple-unit coverage at best practice suburban response times are insufficient in east Montecito. All areas do not have the same equity of coverage for the tax revenues paid to the District.

Finding #3-6: Given only two fire stations, where multiple unit incidents are needed at serious incidents or for simultaneous incidents, the District is co-dependent on mutual aid, which in east Montecito becomes more problematic if the Carpinteria-Summerland station is committed elsewhere and not immediately available.

Finding #3-7: The District’s time of day, day of week, and month of year calls-for-service demands are fairly consistent. This means the District needs to operate a fairly consistent 24/7/365 response system.

Finding #3-8: Given that Station 2 has longer travel times, partially due to assisting Station 1, the only way to lower travel times in Montecito would be to add a third unit east of Station 1 that could not only lower response times in east Montecito, but could handle some calls in the eastern side of Station 1 leaving it more available for calls in the center of the community. This also would mean that Station 2 would be called less to cover all of central and east Montecito when Station 1 is on an incident.

Finding #3-9: A three-engine configuration, staffed with a paramedic per engine 24/7/365, would lower paramedic response times significantly over that of one centrally-located squad and would increase the equity of access with every neighborhood having a paramedic based in its immediate area.
**Finding #3-10:** The District would be best served by operating a three-fire-station model in the shape of a triangle, relocating Station 1 closer to the coast. Doing so would best fit the topography.

**Recommendations**

**Recommendation #3-1:** The District should adopt comprehensive performance measures for the major types of emergencies to direct fire crew planning and to monitor the operation of the Department. The measures should take into account a realistic company turnout time of 2 minutes and 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. Citygate recommends these measures be:

3-1.1 **Distribution of Fire Stations:** To treat medical patients and control small fires, the first-due unit should arrive within 7 minutes, 90 percent of the time from the receipt of the 9-1-1 call in the fire dispatch center. This equates to 1-minute call handling time, 2 minutes company turnout time, and 4 minutes travel time in the most populated areas.

3-1.2 **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 at least 15 personnel should arrive within 11 minutes from the time of 9-1-1 call receipt in fire dispatch, 90 percent of the time. This equates to 1-minute call handling time, 2 minutes company turnout time, and 8 minutes travel time spacing for multiple units in the most populated areas.

3-1.3 **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 Fire Department response is to minimize or halt the release of a hazardous substance so it has minimal impact on the community. The first company capable of investigating a HazMat release at the operations level should be able to respond within 7 minutes total response time, or less than 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 District’s multi-agency hazardous materials response partnership.

3-1.4 **Technical Rescue:** Respond to technical rescue emergencies as efficiently and effectively as possible with enough trained personnel to facilitate a successful rescue. Achieve a travel time for the first company in urban to suburban areas for size-up of the rescue within 7 minutes total response time, or less than 90 percent of the time. Assemble additional resources for technical rescue capable of initiating a rescue within a total response time of 11 minutes, 90 percent of the time. Safely complete rescue/extrication to ensure delivery of patient to a definitive care facility.

**Recommendation #3-2:** The District and residents would improve first due unit and multiple unit coverage by locating a 3rd fire engine in east Montecito.

**Recommendation #3-3:** The District should consider a long-term strategy to operate a three-fire-station model in the shape of a triangle, relocating Station 1 closer to the coast. Doing so would best fit the topography.

**Recommendation #3-4:** The District should consider staffing all stations with paramedic engines to lower paramedic response times significantly throughout the District.

**Headquarters and Support Systems Review**

**Findings**

**Finding #4-1:** The District’s Fire Chief and Division Chief have extensive vocational experience in the fire service and have had active leadership roles on Type 2 Interagency Incident Management Teams. The District’s Fire Chief and Division Chief have completed the necessary educational requirements for California Fire Service Training and Education System (CFSTES) Chief Officer Certification; however, neither have a community college or undergraduate college degree, which is now a requirement of this certification process.

The District’s Fire Chief has also completed the Fire District’s Association of California (FDAC) Governance Academy, which provides board members
and fire chiefs the educational curriculum and tools to work effectively
together toward common goals.

Finding #4-2: A review of selected employee training records suggests that most District
response personnel meet recommended minimum training requirements.

Finding #4-3: The District does not have a Health and Safety Committee as recommended
by NFPA 1500 Standard on Fire Department Occupational Safety and Health
Program.

Finding #4-4: The District Dispatch Center consistently exceeds nationally recognized
emergency call processing and dispatch performance standards.

Finding #4-5: District fire apparatus are in excellent condition, very well maintained, and
very well suited and properly equipped to respond to expected risks.

Finding #4-6: The District’s mechanic does not possess professional certification as
recommended by NFPA 1071 Standard for Emergency Vehicle Technician
Professional Qualifications.

Finding #4-7: The District has not conducted annual tests of apparatus fire pumps in
conformance with NFPA 1911 Standard for the Inspection, Maintenance,
Testing, and Retirement of In-Service Automotive Fire Apparatus.

Finding #4-8: The District has strong reserves to fund replacement of current fire apparatus
and vehicles, as well to acquire additional fire apparatus and/or capital
equipment as needed.

Finding #4-9: District fire ladders are tested annually in conformance with nationally
recognized testing standards.

Finding #4-10: The District has been unable to test its fire hose in accordance with the annual
testing requirements of NFPA 1962 Standard for the Care, Use, Inspection,
Service Testing, and Replacement of Fire Hose, Couplings, Nozzles, and Fire
Hose Appliances since 2012 due to water use restrictions resulting from the
current severe drought.

Finding #4-11: District self-contained breathing apparatus (SCBA) are tested annually by a
certified contractor in conformance with nationally recognized standards.

Finding #4-12: District facilities are very well maintained, and are adequately designed and
sized to meet current and near-term functional needs.
Recommendations

Recommendation #4-1: Future job descriptions and recruitments for the Fire Chief or Division Chief positions should include a requirement for possessing a combination of a Bachelors or Masters degree in Public or Business Administration along with a Chief Officer Certification from the California Fire Service Training and Education System, or its equivalent; Fire Chief and Division Chiefs should also be encouraged and supported to attend appropriate professional training, including National Fire Academy classes and/or its Executive Fire Officer program.

Recommendation #4-2: The District should consider establishing an operational-level Health and Safety Committee that meets regularly to review all occupational injuries, illnesses, and accidents as recommended by the NFPA and industry best practices.

Recommendation #4-3: The District should consider conducting a Health and Safety program compliance evaluation in accordance with NFPA 1500 Annex B as a key step in executing an effective Health and Safety program.

Recommendation #4-4: The District should consider including possession of certain minimum professional certification(s), or the ability to obtain them within a reasonable established timeframe from date of employment, as part of the minimum requirements for the District’s mechanic position classification.

Recommendation #4-5: The District should consider encouraging and supporting the District mechanic to attain professional certification as recommended by NFPA 1071 Standard for Emergency Vehicle Technician Professional Qualifications.

Recommendation #4-6: The District should ensure that all fire apparatus pumps are tested annually in conformance with NFPA 1911 Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus.
CONCLUDING OPINION AND NEXT STEPS

While EMS dominates the emergency incident volume for most fire departments in the western United States, fire departments still exist fundamentally to stop the spreading of fire from building to building or from a wildland area to buildings and populations. While the public and firefighters who serve them desire to contain fires to only portions of buildings, even if they do not, the loss is an individual loss to the building’s occupants and insurance company.

However, if a fire spreads beyond the building or parcel of origin, it is a community loss. While communities do not like the modern era cost of firefighters “standing by” for a few fires, without that standby capacity, if those fires do occur and spread, the entire community can be at risk.

When potentially dangerous fires start, the speed and weight of a quick attack is paramount. If fires are not stopped with only a few fire crews they can become greater alarm conflagrations all too easily. Many communities try to raise fire service revenues as equally as possible across a region to deliver equitable coverage to similar populations and risks.

Equitable coverage typically consists of neighborhood fire stations that can provide the speed of attack needed to every neighborhood for small emergencies. Multiple stations can then fairly quickly mass together to handle serious events before they become greater alarm fires.

Next Steps

- The District’s Board of Directors and the community should absorb the findings of this study, in concert with previous District studies.
- If a suitable site can be found for a 3rd fire station in east Montecito, start the planning for a relocated Station 1 closer to the coast.
- If a 3rd fire station is not developed, do not relocate Station 1. In that case, the current site best provides coverage into east Montecito.
- Continue the District’s outstanding emphasis and programs on risk reduction, community education, and emergency alerting.