LILAC HILLS RANCH FIRE SERVICE RESPONSE CAPABILITIES ASSESSMENT

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EXECUTIVE SUMMARY

Dudek and Hunt Research Corporation were commissioned to conduct an assessment of the fire and emergency response capabilities of Deer Springs Fire Protection District (DSFPD) and California Department of Forestry and Fire Protection (CAL FIRE) by Accretive Investments, Inc., which is in the process of finalizing an Environmental Impact Report for a project currently situated within the DSFPD. The project is known as Lilac Hills Ranch (Project) and is located directly adjacent to CAL FIRE's Station 15. Upon the initial submittal of the project's Fire Protection Plan (prepared by Firewise2000), the DSFPD, CAL FIRE, and San Diego County Fire Authority (SDCFA) provided comments that seemed to indicate that the project could not be adequately serviced by the DSFPD and CAL FIRE, as currently configured. Therefore this assessment was conducted to determine whether DSFPD and CAL FIRE, augmented by neighboring fire agencies, have the capacity to provide fire services to the Project and other foreseeable projects.

This Capabilities Assessment is not a full Standards of Cover Analysis. Instead, this assessment focuses on the fire service (including emergency medical aid) configuration within the project vicinity including stations, staffing, apparatus, and response efficiency and considers the potential fire service impacts that the Project, and other foreseeable projects in the project area may have on the ability to provide acceptable levels of fire protection and emergency medical aid.

This assessment is based on available information obtained through public information requests, interviews with DSFPD and CAL FIRE staff, Geographic information system (GIS) response modeling, and understanding of basic response standards. Our methods include data gathering from public agency Web sites, detailed analysis of call volume statistics, DSFPD and CAL FIRE reconnaissance, and substantial interpretation of resulting information. This report relies on information provided or acquired during a brief timeframe but includes data that covers a seven year period for the DSFPD and CAL FIRE (certain data was requested from DSFPD but was not made available to Dudek and therefore could not be analyzed). Based on our evaluation of this data we have concluded that DSFPD and CAL FIRE have the existing capacity to respond to expected calls from the Project. In addition, we have developed recommendations for impact associated with the Lilac Hills Ranch Project and for the potential cumulative impact of other foreseeable, large development project(s) within the project area.

Response coverage from the area's Fire Stations was modeled using a GIS program that, based on specific inputs, analyzes the road network and determines the extents that can be reached by engines traveling at a pre-determined speed. This modeling results in illustrative graphics depicting the achievable response areas, the overlap areas, and most importantly, the gaps where service may be delayed.

ES.1 Summary of Findings

1. In summary, it is clear that the DSFPD and CAL FIRE's Station 15 have low call volumes with an average of 5.6 calls per day (1.4 calls per day/station) over the last several years. Fire Station 11 responds to the most calls, and averages 1.83 per day. Fire Station 15 responds to the fewest calls, averaging 1.0 per day over seven years and 0.73 in 2011. For perspective, a call volume of five calls per day is considered average and 10 calls per day would be considered a busy station in an urban environment. Based on this data, a conclusion drawn is that DSFPD and CAL FIRE's Station 15 would have the existing capacity to respond to expected calls from the proposed Lilac Hills Ranch project. In addition, the existing fire stations and resources in the DSFPD are currently located where they can respond to the highest population density areas in an efficient manner.
2. As with most fire agencies, a majority of the calls are for emergency medical aid. A total of 33% of DSFPD's and CAL FIRE's Station 15 calls are for medical response, which is lower than many fire agencies that commonly average 80% or more. Medical aid represents the highest call volume category in the District. All the stations within DSFPD and Miller provide emergency medical services. The DSFPD's engines staff a medic. Station 15 includes EMT level staffing.
3. The second and third leading categories for calls are for assisting other DSFPD Units and for canceled calls, respectively. A total of just over 1,500 calls per year are related to stations assisting other units while nearly 1,500 calls per year are canceled calls. Cancelled calls may still require initial or advanced phases of response, depending on when the call is canceled, but likely results in an elevated call volume total for the DSFPD, although data is not available to measure this anticipated call volume effect.
4. The call volume data indicates that the per capita call generation of permanent District residents is very high, roughly two times higher than surrounding agencies. It is possible that calls are inadvertently being recorded in more than one category, resulting in the higher call generation factor. Further analysis of the per capita call volume is recommended because based on the data available for analysis, it could not be determined why the per capita number is so high. Potential ramifications include a reduction in the District's annual call volume total to levels lower than the already low District-wide less than two calls per day per station. However, even when the higher than usual call generation factor was used, DSFPD and CAL FIRE still had existing capacity to respond to calls from the Project and had low call volumes, well below what would be considered busy fire stations. Although the existing number of vegetation fires is a small component of the overall call volume, a significant potential for extreme wildfire exists in the DSFPD. Much of the district has been considered by CAL FIRE and SDCFA as one of several major wildfire corridors in San

Diego County. The preservation of vast open space to the north and east, along with favorable terrain and weather patterns has resulted in catastrophic, uncontrollable wildfires. This type of wildfire may impact the DSFPD at some point.

5. Through the local FireSafe Council, DSFPD has proactively prioritized and implemented fuel/hazard reduction projects. Continuation of this effort at key locations, including throughout Hidden Meadows and large portions of the district's rural residential areas, will be necessary to minimize the impacts from a large wildfire.

6. The existing four fire stations in the DSFPD (including one CAL FIRE station) are currently located where they can respond to the highest population density areas in an efficient manner. The DSFPD includes minimal gaps in their coverage based on the County General Plan 10-minute response for the more rural areas and 5- minute travel time for the more urbanized areas. The General Plan Update establishes a service level standard for fire and first responder emergency medical services and the General Plan Update EIR assumed that the amount of time it would take to provide basic life support services can be estimated using fire response times (GPU EIR page 2.13-9.) This Capabilities Assessment analysis follows the same GPU-EIR standard. The current station distribution also provides good coverage when compared with NFPA 1710 4-minute travel time standards for first-due engine. Gaps in coverage are primarily related to roadless areas or at the fringes of the District where neighboring fire agencies would likely be first responding.

7. The existing DSFPD Station 11 is located to the south of the proposed project on Circle R Drive. The project includes a potentially gated emergency access along Covey Lane and Rodriguez Road from the east and a gated private road for additional ingress/egress off of Circle R Drive at Mountain Ridge Road for a portion of Phase 5. Using Covey Lane or Mountain Ridge Road, Station 11 cannot reach the project site within a 4- or 5- minute travel time. Engines from Station 11 can reach the southern portion of the Project within a roughly 7.5- minute travel time (including gates). Should Mountain Ridge Road be designated a public roadway and proposed gates not be utilized, roughly 7 lots can be reached within 5 minutes from Station 11. Engines from Station 11 can reach the northern portion of the Project (via I-15 to Old 395 to W. Lilac Road) within 6 minutes travel (to most remote point) or less, with 71 lots reachable within 5 minutes travel. A total of 85% of Phase 1 of the Lilac Hills Ranch Project can be reached by Station 11 within 5 minutes 50 seconds travel and up to 70% of Phase 2 can be reached by Station 11 within 6 minutes travel.

8. The existing Station 15 is located directly adjacent to the proposed development and can service 95% or more of the development within a 4-minute (NFPA 1710) and 100% of

the project within a 5- minute (SD County General Plan) travel time. The location of Station 15, regardless of association with DSFPD, is a critical point for emergency service (medical emergencies, vehicle accidents, and structure and wildland fires) in this portion of San Diego County and historical call volume indicates they do respond to these calls within the District.

9. Station 15 is an Amador Station – The Amador contract continues CDF staffing and station coverage through the winter "off season," resulting in year-round staffing of this facility. Amador contract funding is provided by San Diego County.
10. Deer Springs Fire Protection District revenue is derived from the following sources:
    a. County voluntary conveyance of parcel tax revenue: 10%
    b. County supplement: 16%
    c. Special Fire Suppression Assessment: 36%
    d. Special Fire Standby/Availability Fee: 36%
    e. Miscellaneous: 2%
11. Deer Springs Fire Protection District receives roughly $650,000 annually (2011-2012 total) from the SDCFA. This funding is currently believed to be used for funding the third firefighter position on two of the District's engines. Roughly $250,000 (in addition to the $650,000) is funded to CAL FIRE by SDCFA for funding the Amador contract for station 15 to remain fully staffed year-round. This funding is a SDCFA priority for fire protection in North San Diego County. The General Plan Update documented how the County is dependent on fire protection being provided through existing agreements with entities such as CAL FIRE. In fact the GPU is based upon the premise that fire services are provided throughout the County from fire districts that receive services from CAL FIRE, such as DSFPD, that contracts with CAL FIRE to provide those services. Based on the recent passage of Assembly Bill X1 29, Fire Prevention Fee, along with Proposition 30, sales income tax increase, it can be argued that the State and County funding will be more secure than prior to these fees/taxes, resulting in minimal probability that funding would not be available for DSFPD funding.
12. The Lilac Hills Ranch Project would generate $2.2 million dollars in fire mitigation fees through the five Project phases. At build out, the Project would generate just over $973,000 in Property tax (1%) related fire availability and fire suppression assessments. Thus Lilac Hills Ranch will pay the required assessments and property taxes for fire and emergency medical services.

13. The Lilac Hills Ranch Project would add an estimated permanent population of roughly 5,250 persons to the DSFPD. Considering all planned land uses, (including commercial, church, school, etc.) an estimated maximum average of just over 8,200 persons could be added to the District's existing 13,000. The calculated population of 8,200 persons is an aggregate total, which combines all phases and all uses together and is representative of the maximum potential number of persons on site, although it is anticipated to be a rare occurrence that this maximum population would be realized. Project phasing will include up to a 10 year build out. Phase 1 will include 352 units and an estimated 1,013 persons. Phase by phase units and populations are anticipated to be: Phase 2 – 466 units, 1,366 persons, Phase 3 – 460 units, 1,352 persons, Phase 4 – 171 units, 818 persons, Phase 5 – 297 units, 549 persons. At the project's build out, the calculated number of calls associated with Lilac Hills Ranch is 680, or 1.9 calls per day.

14. Public Resources Code 4142 – 4144 sets policy for CAL FIRE and provides for the current availability of Station 15 to be utilized to provide response to the area that includes the Lilac Hills Ranch Project. This is based upon the PRC 4143 which declares that the primary mission for CAL FIRE, including Station 15 is wildland fire suppression and prevention but it enables the "Director" to enter into agreements to provide for fire suppression duties if determined the contract would not jeopardize its wildland fire suppression and prevention mission. General Plan Goal S-5 promotes regional coordination among fire protection agencies. Board Policy I-84 (Public Facilities Availability Form) requires response times to be calculated in accordance with the standard established by General Plan Policy S-6.4, which provides that travel time be calculated from the closest fire station staffed year-round, publicly supported and committed to providing services. Station 15 meets this definition. DSFPD has indicated Station 11 as the "primary" station, which is not defined by any county document and is not referenced within the County's Board Policy I-84, General Plan Policy S-6.4, or other General Plan policies. In the County General Plan EIR, the County has calculated response times for over 50% of the County land area, solely in accordance with Policy I-84 regardless if the closest station is not within the fire district that a project is located within.

15. The current agreement between DSFPD and CALFIRE can be used to allow CAL FIRE to serve the Project from Station 15 provided assurances that the PRC requirements are preserved. This is consistent with the General Plan goal of regional coordination among fire protection agencies (Goal S-5). Policies S-5.1 and S-5.2 support this goal by encouraging regional coordination and supporting fire service provider agreements. In addition, this arrangement would be consistent with the acceptable mitigation measures set forth in the County's Guidelines for Determining Significance for Fire Protection. This arrangement is consistent with how CAL FIRE currently provides full-service fire

protection to many of the citizens of California through the administration of 145 cooperative fire protection agreements in 33 of the State's 58 counties, 30 cities, 32 fire districts and 25 other special districts and service areas. As a full-service fire department CAL FIRE responds to wildland fires, structure fires, floods, hazardous material spills, swift water rescues, civil disturbances, earthquakes, and medical emergencies of all kinds. Under the current contract between CAL FIRE and DSFPD, CAL FIRE provides emergency response including commercial, residential and wildland fire protection as well as EMT level emergency medical and rescue response.

16. Station 15 currently does not limit its response to wildland fire. The station responds to all types of calls, including structure fires, vehicle collisions, over-the-side rescues, along with vegetation fires under an existing Amador Agreement. The station responds to an average of one call per day (average over the last 7 years).
17. This report evaluated other potentially foreseeable projects within the District, including a previous application that may be resubmitted (Merriam Mountains) and the approved development just north of the DSFPD at SR-76 and I-15, which are within the DSFPD's 8-minute travel time response area. Both of these areas were evaluated because they could potentially include sizable populations that could affect DSFPD emergency service levels.
18. The District's current annual budget of $4.5 million compares to neighboring fire agency budgets poorly and favorably, depending on the category considered, as follows:
    a. Per Capita – DSFPD is second only to Rancho Santa Fe Fire Protection District at $350/person
    b. Per Call – DSFPD is just over the average at $2,300 per call (depending on the status of the actual call volume, this number could be substantially higher)
    c. Per Full Time Staff – DSFPD is third from the lowest at $175,000/staff
    d. Per Mi^2 Coverage Area – DSFPD is second to lowest, well below the other agencies at $\$96,000/mi^2$
    e. Per Station – DSFPD is the lowest in terms of dollars of budget per existing station at $1.3 million.

ES.2 Summary of Recommendations

Recommended permanent coverage for the Lilac Hills Ranch Project, was the result of analyzing the existing Fire Station distribution and concentration, Project size and anticipated population increase, current and forecasted call volumes, agreements with neighboring fire

agencies, available resources, and generated funding. One of the following options may be implemented by the project:

Option 1 The most efficient and cost-effective approach to providing fire services to Lilac Hills Ranch from the perspective of the overall fire delivery system would be for the DSFPD and CAL FIRE to service the project from existing stations (Station 15 and Station 11). This option would be based upon Miller Station providing fire and medical emergency services to the Project in the manner currently being provided within the District under the existing Amador Agreement (fire services during the offseason) and the Automatic Aid Agreement between Deer Springs Fire Protection District and North County Fire Protection District The existing Station 15's location is optimal for servicing the Lilac Hills Ranch Project. Specific augments would be provided so that the response capability of the station's engine company would be enhanced for the type of responses it would routinely receive. Lilac Hills Ranch would provide $XXXX to DSFPD for DSFPD to use to augment the fire and emergency medical services capabilities of Miller Station, which could include adding a cross-staffed Type I engine at this site. This amount would be in addition to the fire mitigation fees that will be paid to DSFPD pursuant to the Fire Mitigation Fee Ordinance. This option may also include a remodel of the existing station to add a dual bay engine room or to increase the living quarters.

CAL FIRE's Station 15 (Miller Station), is already currently providing first responder services to the immediate area and is located directly adjacent the development, would provide primary response to Lilac Hills Ranch (LHR) emergencies. The option includes significant savings for the County, more robust response capabilities for CAL FIRE, and benefits to a large population in north San Diego County. This would provide long-term value and savings to the County by resulting in roughly $673,000 in annual revenue in the form of LHR fire assessments that are above and beyond the anticipated expenses from the project that could be used for other County fire service priority projects. This available "excess revenue" could be used to offset the $650,000 in supplemental funding that the County currently provides to DSFPD or to fund the $250,000 Amador contract with CAL FIRE with funds left over for other fire service priorities.

Option 2 This option is based on the desire to have a separate DSFPD facility on the CAL FIRE Station 15 site in order for such facility to be completely independent from CAL FIRE. (Although the new facility would be staffed by CAL FIRE personal under contract with DSFPD.) This option would include an agreement between

DSFPD with CAL FIRE to either remodel Station 15 to co-locate and staff a DSFPD Type I paramedic engine on the site with the existing CAL FIRE station or the construction of a completely separate DSFPD station. The new station or remodel would accommodate an additional 3 person engine company with the third position being a reserve firefighter. The engine could be a reassigned engine from station 11 or a new engine purchased for the new facility. This option would cost significantly more than the one-time fire fees generated by the Project. However this option may enable San Diego County to cancel the $250,000 Amador Contract with CAL FIRE as there would be an engine company on the site year-round, minimizing the need for CAL FIRE's presence during the winter, "off-season" and enabling the County to reallocate the $250,000. This option includes a high level of cost, redundancy and inefficiency.

Option 3 Option 3 may be implemented in addition to Option 1, in-lieu of Option 1 or if an agreement cannot be reached between the County and/or DSFPD and CAL FIRE under option 2. Under Option 3, the developer could agree to build a neighborhood fire station within the community purpose facility site located within Phase 3 of the the Lilac Hills Ranch Project.A Type I paramedic engine with a 3 person crew and the third position as a reserve firefighter could be added at this station by DSFPD. The engine would either be reassigned from Station 11 or a new Type I purchased for the Station. A fire station at the Phase 3 site would be triggered prior to the issuance of the first building permit in Phase 3 or another date agreed to by DSFPD and the Developer. Interim fire service would be provided as described below. Ongoing annual expenses are anticipated to slightly exceed the annual assessments generated by the project, but as with Option 2, the Amador Contract could be cancelled under this option due to the presence of an engine company year round within close proximity to Station 15. A portion of the $250,000 could be reallocated to DSFPD to cover any costs that are above the revenues generated by the project.

Option 4 Option 4 may be implemented in conjunction with Option 1, in-lieu of Option 1 or 3, or if an agreement cannot be reached between the County and/or DSFPD and CAL FIRE under option 2. The Mountain Ridge Road Fire Station Alternative must be adopted under this Option. The developer would construct a fire station on a 2-acre site located on SFS-6 within Phase 5 in lieu of constructing the facility on the Phase 3 site The neighborhood fire station will be built prior to the issuance of the first building permit in Phase 5 or another date agreed to by DSFPD. Interim fire service would be provided as described below. This future fire station option

would include a permanent fire station in Phase 5 with the specifications detailed in Option 3 with regard to size, equipment, apparatus and staffing. The project would contribute generated fees and assessments toward construction of the fire station and the land would be dedicated free of liens and encumbrances.

Interim Fire Services. The interim period between start of construction and meeting the emergency service trigger point could be served by the following options:(1) constructing a temporary fire station within the Project, at any of the locations allowed in the Specific Plan, prior to the issuance of the 72nd residential building permit within Phase 1 or prior to the issuance of the first residential building permit in which such facility is needed in order to meet the General Plan's Travel Time standards for the Project, whichever occurs first, (2) providing alternative mitigation measures, if such measures are approved by the County as a part of the Project's approval, (3) receiving fire and emergency medical services from CAL FIRE, or (4) by another option determined appropriate by the County for providing such services. Temporary fire service located anywhere within the development is capable of responding to all areas of LHR within the General Plan 5 minute travel time standard.

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1.0 INTRODUCTION

This capability assessment has been prepared to assist the Deer Springs Fire Protection District (DSFPD), San Diego County and California Department of Forestry and Fire Protection (CAL FIRE) in determining current capability for responding to emergencies (fire, medical, vehicular, rescue, etc.) within its district and the potential response configurations that would result from the Lilac Hills Ranch Project. The purpose of this study is to assess the overall local fire station call loads, determine if large projects will cause adverse impacts, evaluate the current and proposed fire station configurations that result in efficient response coverage throughout the district, provide recommended actions for overall potential impacts on the fire service delivery system and identify the measures necessary to adequately address those impacts. As part of the assessment, this plan has considered the DSFPD location, topography, geology, demographics, risk factors, current call types and volume, resource distribution and concentration, automatic aid agreements, and standards for response coverage. This analysis is based upon the concept of meeting established service level goals for the types of emergencies routinely responded to in the DSFPD, particularly as it relates to response impacts from the Lilac Hills Ranch Project and its potential call load.

This report is not intended to provide a detailed analysis of every possible scenario for fire station locations and staffing. Dudek/Hunt Research have evaluated the existing conditions and have modeled potential scenarios and provided recommendations on the most logical and cost-effective solutions for providing response to the Lilac Hills Ranch Project given available information. Available data did not include existing CAL FIRE contracts or DSFPD planning strategies.

An existing budget comparison between DSFPD and several vicinity fire agencies has been conducted to determine the overall operating efficiency and establish a baseline for comparisons with post-Project budget conditions. The estimated fire mitigation fees and fire availability and suppression assessments have been calculated to assist in that effort. However, detailed financing analysis for the implementation of the recommendation(s) has not been provided. The potential cost for each of the recommended options has been estimated, but the ultimate way that funding is provided, whether through the required fees and assessments or by the other method identified in the options would need to be finalized.

The following sections provide an overview of the Lilac Hills Ranch Project and the DSFPD.

1.1 Lilac Hills Ranch Community Summary

1.1.1 Lilac Hills Ranch Project Description

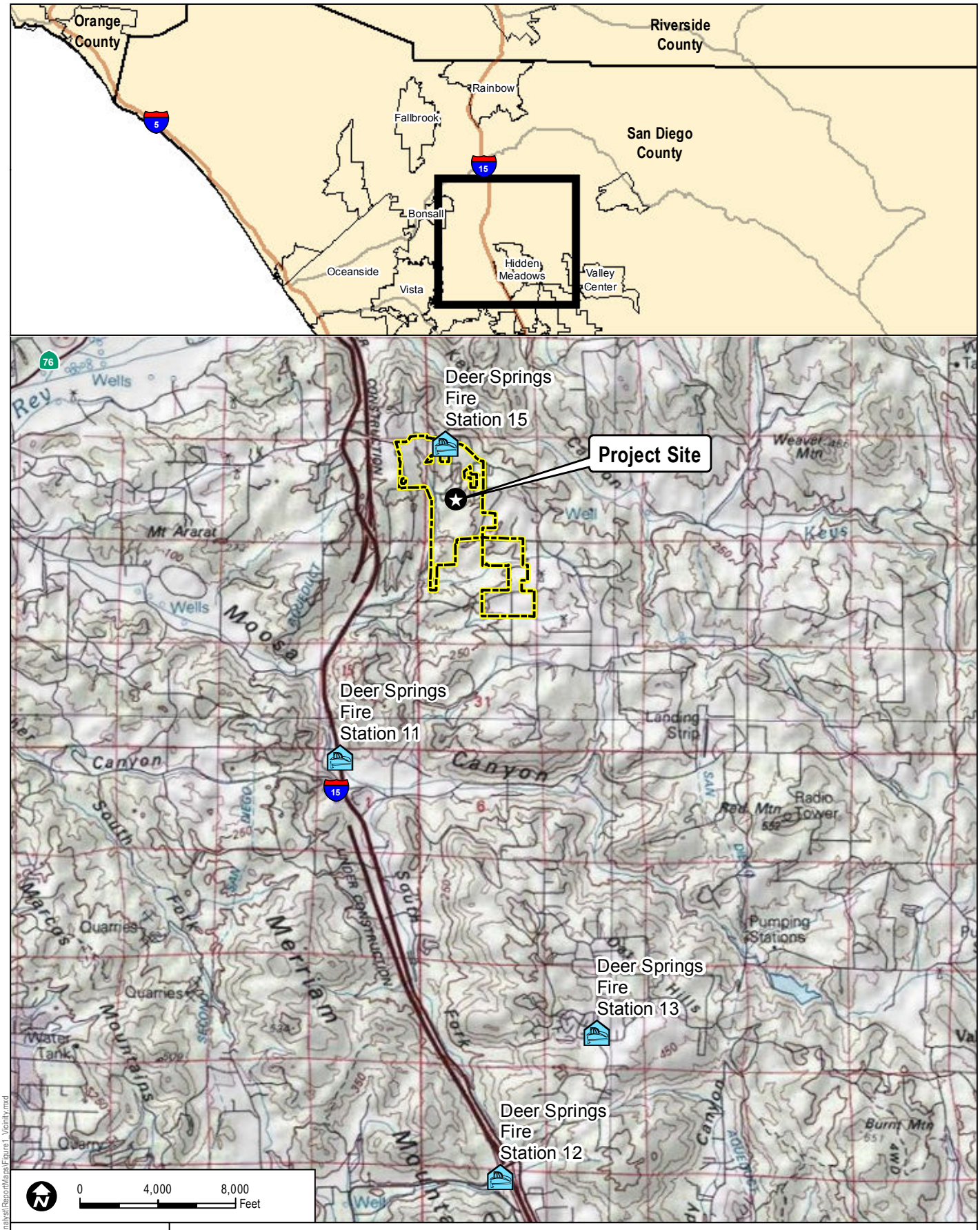
The Lilac Hills Ranch community proposes the development of a 608-acre mixed use pedestrian-oriented sustainable community within the unincorporated area of San Diego County (Figure 1). The proposed Specific Plan includes a residential component consisting of 1,746 homes with an overall density of 2.9 dwelling units per acre (du/ac) over the entire 608 acres. The planning areas with higher densities are located in the Town Center and in the two Neighborhood Centers. The Town Center and two smaller Neighborhood Centers also permit 90,000 square feet of specialty retail commercial-mixed uses, and Phases 4 and 5 include a 76.9-acre Senior Citizen Neighborhood component which includes: market rate, age restricted residential housing (a total of 468 dwelling units included in the 1,746 dwelling units above), and a 200 unit Group Residential and Group Care living facility on 6.5 acres. The Community will retain and promote some existing agricultural uses in specific areas within the project's open space system. Existing agricultural uses in the biological open space will be allowed to continue, and some existing and new agricultural uses will also be permitted in certain other development areas. The Community also includes an active park system with many public and private parks, public trails, and a school site. Also, proposed within the Community are a 50-room Country Inn, Civic Center, Private Recreation Center, Senior Center, Recycling Facility; a water reclamation facility; and other supporting infrastructure.

Discretionary approvals submitted concurrently with the Specific Plan include a General Plan Amendment (GPA) Rezone, two Tentative Maps (which include the Vacation of two Open Space easements), a Site Plan for the Implementing Tentative Map, a Major Use Permit for the Public Park (P-10), and the Water Reclamation Facility.

Residential Component: This Specific Plan proposes a residential community with a maximum of 1,746 homes. All of the areas designated VR 2.9 and Zoned RU (Urban Residential) on the two Community Plan Maps are included on 582.2 acres.

The actual density permitted by the Specific Plan is obtained by dividing the 1,371 single family lots by 582.2 acres which equals a density of 2.36 dwelling units per acre. There are single family detached residential areas in each of the five project phases. The single family residential areas in Phases 4 and 5 are age restricted.

An additional 375 residential units are located within the Town Center and two smaller Neighborhood Centers (25.8 acres total) that comprise the Commercial and Mixed Use areas zoned with the C34 (General Commercial-Residential). The Town Center and Neighborhood Centers include three Single Family Attached planning areas (SFA 1-3) that provide 164 dwelling units with an overall density of 20+ dwelling units per acre. Mixed use residential (211 units) comprises the remainder of the residential dwelling units in the C34 Zone.



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7449-01

SOURCE: USGS 7.5-Minute Series Quadrangle.

FIGURE 1

Vicinity Map

DEER SPRINGS FIRE PROTECTION DISTRICT CAPABILITIES ASSESSMENT

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Commercial and Mixed Use: The Community contains three distinct areas that provide 90,000 square feet of specialty commercial and office usable area in addition to the residential and other civic uses. This combined 17.3-acre area will have a Community Plan Land Use Designation of C-5 (Village Core Mixed Use) and C34 zoning (General Commercial-Residential). These activity nodes are distributed in the northern, central and southern portions of the Community. They have been specifically located to meet the standard for "walkable communities" by locating essential neighborhood commercial services within one-half-mile of all of the residential uses. A substantial number of the residential areas are actually within one-half-mile of two of the areas with commercial services.

School Site: A 12-acre school site is proposed within the Specific Plan project area.

Recycling Facility (RF): A Recycling Facility will be provided on-site per Section 6970-b of the Zoning Ordinance. The purpose of this facility is to provide waste recycling for project residents. Per the county Zoning Ordinance (2341), a Site Plan is required for this use.

On-Site Water Reclamation Facility (WRF): A Major Use Permit has been processed concurrently with the Specific Plan to provide treatment of effluent generated within the Community area. Implementation of the Major Use Permit or alternative treatment options will be determined by the Valley Center Municipal Water District (VCMWD).

Other Facilities and Uses: Additional elements of the proposed Community include a 13.5-acre public community park; private neighborhood and pocket parks many of which are available for use by the general public; multi-use trails; pathways, bike paths and bike lanes; active orchards and other agricultural uses; associated community facilities such as a private recreation facility, community/civic center, information center, Country Inn, and supporting infrastructure; as well as permanent preservation of biological open space. These other facilities will be located in the RU or C34 zone. Also included is a complete age restricted neighborhood for seniors with an Assisted Living component including a Group Residential – Group Care facility, and a Senior Center constructed on one of the private parks.

The Community is located in an area of agricultural uses together with existing residential and commercial uses. The Community will be designed in accordance with the guidelines, set forth in this Specific Plan. Community design features include landscaping throughout the Community, screening of the WRF and RF and lighting restrictions.

The proposed Community includes utilization of existing water wells pursuant to guidelines set forth by the VCMWD. The Community will construct on-site drainage facilities, including water quality treatment and hydro-modification basins, to protect against sedimentation resulting from

storm water runoff. The system includes Site Design, Source Control and Treatment, Best Management Practices, as well as the possibility for other Low Impact Development measures such as rain water harvesting and grey water utilization for each single family home. The Community will be developed to meet all applicable County Code requirements in regard to the provision of solar facilities.

Grading is expected to take place in a number of phases over a period of years. The Specific Plan text includes a phasing plan for the development of the Community's component parts which would be coordinated with the level of available services, including roads, water, wastewater, parks and fire.

Primary access to the Community will be provided via West Lilac Road, which connects to Old Highway 395 to the west of the Community. The proposed circulation plan for the Community includes both on-and off-site road improvements. Additional access will be provided via Covey Lane, Rodriguez Road and gated access to a portion of Phase 5 via Mountain Ridge Road as described in Section III.

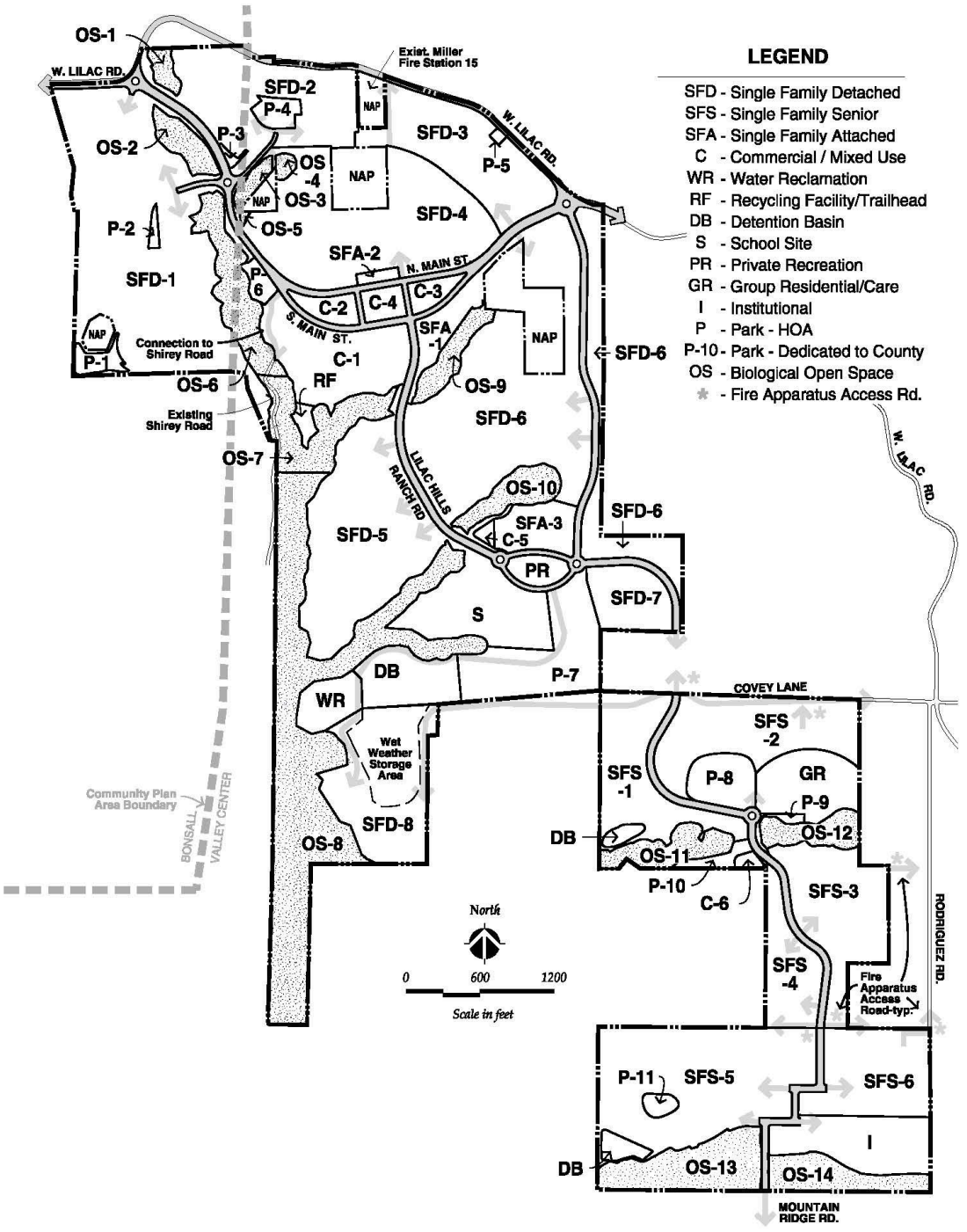
The Community is completely within the VCMWD. Fire protection systems will be consistent with VCMWD requirements. Groundwater may be used as an additional source of irrigation for orchards, common areas and landscaping within the Community pursuant to guidelines set forth by the VCMWD.

Project Phasing

The project is planned to be constructed in five phases over a period of up to ten years. Thus, agreements for emergency services is planned to be negotiated based on phasing, occupied units, and call volume demand thresholds. Planned phasing and land use categories are presented in Figures 2 and 3, respectively.

Estimated Project phasing will occur over an approximately ten year period. Phase 1 would include construction of 352 dwelling units along with parks and roadways. Completion of Phase 1 would result in an estimated 1,013 persons living in the community. Phase 2 includes 466 dwelling units along with commercial, office and inn space. Estimated population increase for residents is 1,366 persons. Phase 3 would include 460 dwelling units and a recreational facility, commercial, water reclamation, and a school. Estimated population of residents is 1,352 persons. Phase 4 includes construction of 171 dwelling units, single family senior, group care, and a senior center. Estimated resident population is 818 persons. Phase 5 includes 297 single family senior housing dwelling units with an estimated population of 549 persons. Total estimated number of residents is 5,098 persons.

Figure 2 Lilac Hills Ranch Land Use Categories/Product Types



Specific Plan Map

LILAC HILLS RANCH SPECIFIC PLAN

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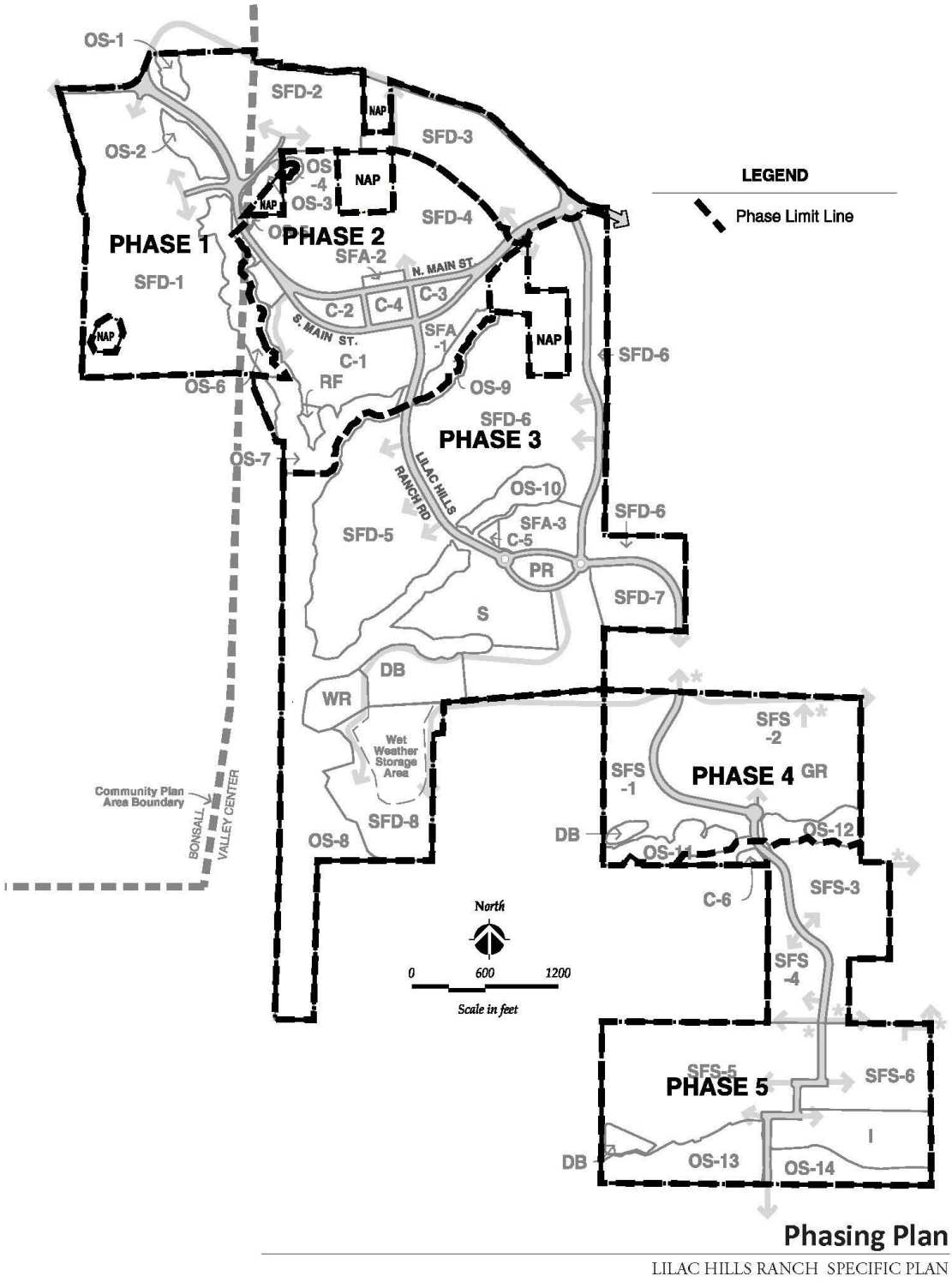
Figure 3 Proposed Project Phasing Plan



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The planning areas with higher densities are located in the Town Center (Phase 2) and in the Phase 3 Neighborhood Center. The specific plan includes a Town Center and two smaller Neighborhood Centers permitting 90,000 square feet of retail commercial-mixed uses, a 76.9-acre Senior Citizen neighborhood component (Phases 4 and 5) which includes: market rate residential housing (a total of 468 du included in the 1,746 du above), and Group Residential and Group Care living facilities (Phase 4).

The project proposes a 17.3-acre mixed-use commercial Town Center, near the center of the Community (Phase 2). The Community also proposes two Neighborhood Centers and a 12.0-acre school site is proposed within the Specific Plan project area (Phase 3). An RF will be provided on-site per Section 6970-b of the Zoning Ordinance and an on-site Wastewater Treatment Plant and Reclamation Facility are planned (Phase 3).

Other Facilities and Uses

Primary access to the Community would be provided via West Lilac Road, which connects to Old Highway 395 to the west of the Community and continues eastward and southward where it intersects with Circle R Drive before it heads eastward. Circle R Drive heads westward where it intersects Old 395 near Fire Station 11. West Lilac Road is a 24-foot-wide, paved, two lane road. Old Highway 395 is a minimum 40-foot-wide, paved, two lane road, and Circle R Drive is a 30 feet wide paved, two lane road. The proposed circulation plan for the Community includes both on-and off-site road improvements. All proposed roads are designed in accordance with the County of San Diego Consolidated Fire Code. All roads will meet or exceed the 28 feet driveway minimum horizontal radius with a minimum proposed horizontal radius of 100 feet. All proposed roads will meet or exceed the 20% maximum allowable grade and meet or exceed the minimum paved width requirement of 24 feet (14 feet lanes on roads with medians).

Additional emergency access will be provided via Covey Lane and Rodriguez Road. Each of these access points will be on private roads built to Fire District Standards and the County Consolidated Fire Code. Covey Lane will include automatic security gates. Rodriguez Road will provide secondary emergency access. Security gates and their design to facilitate emergency responder access are discussed in detail in Section 2.5.1. Covey Lane will be improved from West Lilac Road to the community's entrance (roughly 600 feet) to the County Consolidated Fire Code. Mountain Ridge Road provides a gated ingress/egress for a portion of Phase 5 to the south of the Project (restricted access to only southern half of the Phase 5 (*SFS-5 and SFS-6)* of the senior community and unrestricted access to the church site), and intersects with Circle R Drive.

The Community is within the VCMWD. The proposed Community is not expected to use groundwater except as a secondary source of irrigation for orchards and common area landscaping during drier and hotter periods of the year or otherwise provided by the VCMWD.

1.1.2 Community Fire Defensibility

The Lilac Hills Ranch community will be built to Chapter 7A, ignition resistant building standards for structures in the wildland urban interface. There are two primary concerns for structure ignition: 1) radiant and/or convective heat and 2) burning embers (NFPA 1144 2008[1], Ventura County Fire Protection District 2011[2], IBHS 2008[3], and others). Burning embers have been a focus of building code updates for at least the last decade, and new structures in the WUI built to these codes have proven to be very ignition resistant. Likewise, radiant and convective heat impacts on structures have been minimized through the Chapter 7A exterior fire ratings for roofs, walls, windows and doors. Additionally, provisions for modified fuel areas separating wildland fuels from structures have reduced the number of fuel-related structure losses. As such, most of the primary components of the layered fire protection system provided the Lilac Hills Ranch Project are required by City and state codes but are worth listing because they have been proven effective for minimizing structural vulnerability to wildfire and, with the inclusion of required interior sprinklers (required in the 2010 Building/Fire Code update), for extinguishing interior fires, should embers succeed in entering a structure. Even though these measures are now required by the latest Building and Fire Codes, until recently, they were used as fire hazard reduction measures for buildings in WUI areas, because they were known to reduce structure vulnerability to wildfire. These measures performed so well, they were adopted into the code. The following project features are required for new development in WUI areas and form the basis of the system of protection necessary to minimize structural ignitions as well as providing adequate access by emergency responders:

- Application of Chapter 7A, ignition resistant building requirements
- Ignition resistant exterior walls and doors
- Class A roof assemblies
- Multi- pane glazing with a minimum of one tempered pane, fire-resistance rating of not less than 20 minutes when tested according to NFPA 257

1 NFPA 1144. Standard for Reducing Structure Ignition Hazards from Wildland Fire. 2008. Technical Committee on Forest and Rural Fire Protection. Issued by the Standards Council on June 4, 2007, with an effective date of June 24, 2007. Approved as an American National Standard on June 24, 2007.

2 Ventura County Fire Protection District. 2011. Ventura Unit Strategic Fire Plan.

3 Institute for Business and Home Safety. 2008. Megafires: The Case for Mitigation. 48 pp.

- Ember resistant vents (recommend BrandGuard or similar vents)
- Sprinklers to code for all occupancies
- Modern infrastructure, access roads, and redundant water delivery system.

These required measures are anticipated to result in a fire safe community that will be less vulnerable to wildland and structure fires than most of the existing DSFPD communities.

1.2 Deer Springs Fire Protection District – Existing Condition

Dudek and Hunt Research conducted a Deer Springs Fire Protection District (District) evaluation on August 22, 2012. The District reconnaissance included documentation of the site's topography, vegetation/fuel, existing infrastructure (primarily roadways, conditions, grades), land uses, fire station distributions, fire station and apparatus inventory, and fire station interviews. In addition, Dudek performed research and review of relevant planning documents and District response statistics (spanning a period of seven years) as well as acquired digital GIS information necessary for conducting response modeling.

Of note, fire station staff was typically not available to discuss operations with Dudek/Hunt Research. When determined that we represented Accretive Investments, Inc., we were told that all questions would need to be provided to DSFPD through the Administrative Chief, who was on vacation at the time. Informal conversations with staff at two stations, Station 15 and Station 12, and inventory of stations and apparatus resulted in confirmation of available data. Follow up conversations with station staff resulted in some conflicting information from what was provided during the first contact. As such, provided information was not relied upon for this study's analysis and conclusions.

1.2.1 District and CAL FIRE Resources

CAL FIRE Station 15

Station 15 is a dated California Department of Forestry-type fire station consisting of an approximately 3,000-square-foot station (including engine room) located on a 2-acre parcel. It is located just outside and to the north of the proposed Lilac Hills Ranch Project with planned development on all sides but north (Figure 1). The station has a small engine room and may not meet the latest NFPA/OSHA standards. The engine there the day the District reconnaissance occurred was an older type III engine. The regular engine, a newer Type III, outfitted with Type I equipment to respond to vehicle collisions and vehicle over the side rescues, was called to an out of District fire and the reserve engine was moved up to cover as Station 15 is designated "move-up" status which provides for continuous coverage. Call records for a period of seven years

indicate that Engine 15 responds to all call types, including structural fires, vehicle collisions, and over-the-side rescues throughout the DSFPD and is an integral part of the DSPFD. Station 15 CAL FIRE crews are emergency medical technician (EMT) level medical first responders.

Station 11

Station 11 is the DSFPD headquarters. The station is located south of the Project along Circle R Road and Old Highway 395 (Figure 1). Next to Station 15, Station 11 is the second most critical station for the Lilac Hills Ranch Project. The Station currently houses two engines (Type I, one is a reserve) and a Private Mercy Paramedic Ambulance. The Station appeared to adequately serve as Fire Station and headquarters. The engines are staffed by a three-person CAL FIRE medic crew (one Paramedic), under contract.

Station 12

Station 12 is located off the I-15 freeway at Deer Springs/Twin Oaks Road (Figure 1). The Station houses one Type I and one Type III engine. The staffing is a 3 person CAL FIRE crew with a medic under contract. The Station appears adequate for its current response area.

Station 13

Station 13 is located within the Hidden Meadows community (Figure 1). The Station houses one Type 1 engine (and one reserve Type I engine) staffed by three CAL FIRE firefighters with a medic, under contract. The communities included within Station 13's area represent a serious wildland urban interface/intermix threat. The station is the newest DSFPD station, dedicated in 2008 and is in the best overall condition of the District's stations.

1.2.2 DSFPD Observations

DSFPD has no service company truck. The closest aerial ladder truck responds from Escondido Fire Department. This response would be via automatic aid. Distance to the District is within ISO requirements that automatic aid truck is within 5 miles of the District boundary. Note that there will be no buildings 35 feet or over within Lilac Hills Ranch and no buildings anticipated to require 3,500 gallons per minute fire flow, thus ladder truck response is not considered a necessity for this community.

The paramedic ambulance is staffed and operated by Mercy Ambulance. Mercy is currently under contract with Valley Center Fire Protection District, which also includes the DSFPD and an automatic aid agreement with North County Fire Protection District (NCFPD). A second ambulance would be available automatic aid from NCFPD Station 4, about 4 miles. The ambulance provides additional response to medical emergencies and provides transport to local hospitals.

The General Plan Update establishes a service level standard for fire and first responder emergency medical services and the General Plan Update EIR assumed that the amount of time it would take to provide basic life support services can be estimated using fire response times (GPU EIR page 2.13-9Because fire personnel respond to all emergency calls, and are typically the first responder on scene, many fire departments, including DSFPD, have staffed their engines with a paramedic position (one of the three engine company crew members). Paramedics receive advanced training and are allowed to perform more advanced life saving and patient care services.

Automatic Aid System

There is a closest unit boundary drop in effect for several fire agencies in north SD County. Units dispatched by Northcom include NCFPD, Vista, San Marcos, Escondido, Pala, Oceanside and Rancho Santa Fe. Vehicles have automatic vehicle locators (AVL), CAL FIRE, through SDCFA funding, is being outfitted and will soon have AVL's, if not already equipped, so that the dispatch center CAD system can locate and dispatch the closest units to the emergency. The dispatch center for the auto aid units is Northcom. Cal FIRE Monte Vista dispatch center dispatches the CAL FIRE operated DSFPD units. If automatic aid units are needed, Monte Vista notifies Northcom via a CAD system with very little delay. CAL FIRE dispatch center is the secondary PSAP. All 911 calls in DSFPD are routed to CAL FIRE first.

The stated Emergency Dispatch assignments from Monte Vista (per BC Darrin Howell personal communication 2012):

Structure Fire Call in Project Area:

- 4 engines
- 1 water tender
- Escondido truck
- light and air unit
- 1 medic unit
- 1 BC.

Closest resources respond. Likely results in 18 on scene plus the Medic unit. This would exceed the recommendation of NFPA 1710 for 14 firefighters on scene for a fire in a 2,000-square-foot, two story structure. This response could also handle a small commercial building fire.

Emergency Medical Call:

- 1 Paramedic engine
- 1 medic ambulance.

This would result in 5 firefighters on scene which is needed for a full cardiac arrest event.

Vegetation Fire:

- 2 closest engines
- 5 Type III CAL FIRE engines
- 1 air attack plane
- 2 air tankers
- 2 copters
- 2 hand crews
- 1 dozer
- 1 water tender
- 1 BC.

Beyond this initial response, virtually unlimited resources are available from CAL FIRE and the state Mutual Aid system.

1.2.3 District Population

As previously mentioned, the DSFPD's population is estimated at 13,000 with a per household population of 3.08 (San Diego County 2012). An estimated 30% (3,900) of this population is considered age 65 or older and 20% (2,600) are 14 or younger (DSFPD Community Wildfire Protection Plan 2005). District demographic details were not available to the authors at the time of this report.

1.2.4 DSFPD Setting

The Deer Springs Fire Protection District encompasses 47 square miles in northern San Diego County, straddling the I-15 corridor from just north of the I-15/Centre City Road intersection in the south to nearly the SR-76/I-15 intersection in the north. Fire protection and emergency medical services are provided under a contract with CAL FIRE. The District is characterized by primarily agriculture, rural residential, residential, and wildlands. The entire District is considered wildland urban interface or wildland urban intermix. The District's prominent topographical features are the Merriam Mountains, a coastal range reaching elevations of 2,100 feet above mean sea level extending roughly 6 miles north-south in the western portion of the District and Moosa Canyon, an approximately 6-mile-long, one-mile-wide, 500 feet deep canyon, just north of Hidden Meadows in the southern portion of the District.

The District includes a variety of land cover types, including native vegetation, riparian corridors, landscaping associated with developed areas, roadways, and a significant amount of orchards, flower fields, equestrian facilities, and related agriculture. The District includes steep slopes, winding roads, and several notable higher density or occupancy assets, as described below.

1.2.5 Assets at Risk

The District includes a 14-mile north-south section of Interstate 15, with two travel lanes in each direction, separated by revegetated, native plant areas. I-15 is a potentially major source of incidents requiring response from all District stations. Other notable sources of emergency calls are the Lawrence Welk Resort Time-Share facility and Champagne Village mobile home park in the central portion of the District, Hidden Meadows, a higher density community within a wildland intermix and interface setting in the southern portion of the District, and Castle Creek, a higher density residential community along Circle R Drive just north of Lawrence Welk Resort. Jesmend Dene, located at the extreme southern end of the District includes less dense residential development along the I-15 with interface to the east from an Escondido open space area. The North Broadway area in the southern extent of the District rounds out the higher density developed areas. North Broadway includes residential at varying levels and interface with Daley Ranch open space. Sullivan Middle School, located on W. Lilac Road is 2.5 miles from Station 15 and 3.8 miles from NCFPD Station 5 within NCFPD. Sullivan is not a high generator of calls, but is a key asset just north of the DSFPD, and based on the automatic aid agreement, Station 15 would in most cases, provide the fastest response.

1.2.6 DSFPD Risk Sources

Risks must be assessed based upon the potential frequency (probability of an incident occurring) and consequence (potential damage should an event occur). For example, a terrorist act has a low probability in the DSFPD; however, if a terrorist act occurs, the damage and the psychological impact are potentially very high. This same outlook regarding risk assessment can also be applied to natural disasters. For example, an earthquake generally does not occur along the same fault, affecting the same communities every year; but, if it does occur, the damage can be great. Conversely, medical emergencies happen every day. The overall potential damage from medical emergencies to the community as a whole is not nearly as significant as that from an earthquake or other natural disaster (though these individual incidents greatly affect those requiring the service). Planning future deployment strategies requires comparing the potential frequency and potential damage of events that may affect the community and service area.

The evaluation of fire risks must take into account the frequency and severity of fires and other significant incidents. Determining risk by analyzing past statistical information and projected growth in the service area is essential to the development of a workable fire department strategic plan. This document is not intended to be used as a strategic plan by the District, but does evaluate the type of risks that occur within the District, the frequency they occur, the ability to respond and how or if changes are necessary to accommodate new development. This plan can be used to aid the preparation of a DSFPD Strategic Plan that does not currently exist. The

relationships between probability and consequence and the community's adopted service level goals determine the needed concentration and the most efficient distribution of resources. Distribution is the number of resources placed throughout the District that will provide the most efficient service to the district. Concentration is the number of resources needed in a given area within the District. This varies depending on many factors including the number of events (calls) for service; the risk factors of the area; the availability, reliability, and timely arrival of secondary responding units; etc. The challenge facing any fire agency is funding the proper balance for the distribution and concentration of resources needed. As indicated in this report, the existing fire station distribution is considered to be well-positioned to service the District's current highest population centers. As such, response times to these areas, where most of the District's calls are generated, occur within an acceptable timeframe. Further, the lower call volume for each fire station indicates that there is capacity to service additional population with existing facilities and resources. Longer response times are associated with the District's large size and outlying, rural populations. Adding more stations within the District, would have fiscal impacts to the District because the number of parcels and generated taxes would need to t support additional stations and the call volume would be too low to justify adding stations to reduce travel times throughout the District. Utilizing existing facilities is considered an efficient use of resources that is consistent with the General Plan goal of regional coordination among fire protection agencies (Goal S-5). Policies S-5.1 and S-5.2 support this goal by encouraging regional coordination and supporting fire service provider agreements. For example, use of Miller Station, with augmented resources provided by the Project's fair share assessment and fees, would be consistent with this goal, resulting in a more capable emergency response facility that services Lilac Hills Ranch and continues its broader response to DSFPD calls as well as wildland firefighting and protection. This type of resource use would also be consistent with acceptable mitigation measures set forth in the County's Guidelines for Determining Significance for Fire Protection.

The DSFPD includes common risk types as well as heightened sources of risk. Common risks that result in emergency calls include accidental injuries (residential, vehicle, other), medical related incidents including heart attacks, strokes and other serious conditions and illnesses, accidental vegetation fires, and occasional structure fires. The DSFPD also includes a risk category that has a higher occurrence rate than commonly realized in other areas. Vehicle related incidents, including accidents and "over-the-side" rescues and hazardous spills along the freeway, occur at higher levels in DSFPD than in areas without a major freeway and numerous circulatory roadways that include steep-sided drop-offs. Roadside fires are also a possibility with spread into the adjacent wildlands possible. As discussed later in this report, it appears that vehicle related calls may be skewing the District's per capita call volume.

An additional risk category that may occur in any fire agency area, but that has an elevated potential to become extreme (low probability, high consequence) within DSFPD is uncontrollable wildfire. The District's terrain, native fuels, climate, and wildland exposures have resulted in CAL FIRE and SDCFA designating the area as one of San Diego County's wildfire corridors. Most of the District has not experienced a large wildfire for at least 50 years and some naturally vegetated areas have no recorded fire history (100 years or more). CAL FIRE's goal is to contain all wildfires within the first two hours to 10 acres or less 95% of the time. They have performed very well toward this goal, with the average over the last 10 years indicating that of 402 fires per year, successful containment of 95% of these fires to 10 acres or less has been achieved. The Lilac Hills Ranch Project will include large areas of irrigated landscape, paved roads to Fire District Standards and the San Diego County Consolidated County Fire Code Standards, parks, and ignition resistant developed area. These areas will include a reduced fuel situation that acts as a pseudo-fuel break, reducing wildfire intensity and spread rates.

1.2.7 Wildfire Behavior and Lilac Hills Ranch Project

Despite the potential for extreme wildfire in portions of the DSFPD, large areas have been converted to large lot, rural residential and agriculture (citrus, avocado, flowers, and others). This type of land use change, from native coastal sage scrub/chaparral to bare ground, landscaped, or irrigated agriculture areas is very prominent in the area surrounding, and including the Lilac Hills Ranch Project site. The area including just south of Circle R Drive northward to just north of Lilac Road, westerly along the San Luis Rey River Valley in the north to south of Camino Del Rey includes this type of conversion. Introducing humans in any environment will increase the likelihood of vegetation fire ignitions, but with the conversions of fuels that have occurred, large swaths of land cover have been converted from native fuels that will burn with high intensity and have proven to be uncontrollable during extreme weather, to a "treated" fuel condition that generally produces lower fire intensity and flame heights, and enables opportunities to defend structures and perform tactical attack operations.

The Lilac Hills Ranch Project and its vicinity currently include a fuel matrix that is most accurately modeled for fire behavior as grass, tree understory, and irrigated landscape. Because the fuels are not continuous, as one would find in uninterrupted native shrubland, include bare dirt between fuels, is dominated by annual grasses, irrigated flower fields, orchards of various maturity and condition, and well-spaced residences with irrigated landscape, fire behavior modeling results in low overall flame lengths and fire intensity. Exceptions are "jack pot" fuels where dead and dying vegetation, patches of native shrublands, poorly maintained groves, exotic fuels-dominated riparian areas, and older residential structures may produce extreme fire behavior in isolated areas on and adjacent to the Project.

Dudek conducted fire behavior modeling of the Project site and its immediate surroundings. The details of that modeling are available in the most recent draft of the Project's EIR. A summary of the modeling and results are provided in this report as they are pertinent to the DSFPD's response strategies and provide a new type of low-fuel landscape across a large area in the northern District extents that could become part of the District's wildfire response strategy.

Dudek utilized FlamMap fire behavior modeling software to visually represent the area's anticipated fire behavior. FlamMap software utilizes weather, fuels, and topography data within a geographic information system (GIS) in order to graphically depict potential fire behavior across the project site. A more detailed description is provided in the project's most recent EIR. Table 1 presents the weather and fuel moisture input variables used for fire behavior modeling efforts.

Table 1
Fire Behavior Weather and Fuel Moisture Inputs

Model Variable	Summer (Onshore Flow)	Peak (Off-shore/Santa Ana conditions)
1 h fuel moisture	3%	2%
10 h fuel moisture	5%	3%
100 h fuel moisture	7%	5%
Live herbaceous moisture	60%	30%
Live woody moisture	90%	50%
20-foot wind speed (mph)	19 mph	41 mph
Wind direction	225˚	45˚

FlamMap Fuel Model Outputs

One output grid files was generated for each of the four FlamMap runs, and represents flame length (feet) in existing and proposed site conditions during Summer and Peak weather scenarios. Flame length, the length of the flame of a spreading surface fire within the flaming front, is measured from midway in the active flaming combustion zone to the average tip of the flames4. It is a somewhat subjective and non-scientific measure of fire behavior, but is extremely important to fireline personnel in evaluating fireline intensity and is worth considering as an important fire variable[5]. The information in Table 2 presents an interpretation of flame length and its relationship to fireline intensity.

[4] Andrews, Patricia L., Collin D. Bevins, and Robert C. Seli. 2004. BehavePlus fire modeling system, version 3.0: User's Guide. Gen. Tech. Rep. RMRS-GTR-106 Ogden, UT: Department of Agriculture, Forest Service, Rocky Mountain Research Station. 132p.

[5] Rothermel, Richard C. 1991. Predicting behavior and size of crown fires in the northern Rocky Mountains. Research Paper INT-438. Ogden, Utah: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station.

Table 2
Fire Suppression Interpretation

Flame Length (feet)	Fireline Intensity (Btu/ft/s)	Interpretations
Under 4	Under 100	Fires can generally be attacked at the head or flanks by persons using hand tools. Hand line should hold the fire.
4–8	100–500	Fires are too intense for direct attack on the head by persons using hand tools. Hand line cannot be relied on to hold the fire. Equipment such as dozers, pumpers, and retardant aircraft can be effective.
8–11	500–1,000	Fires may present serious control problems—torching out, crowning, and spotting. Control efforts at the fire head will probably be ineffective.
Over 11	Over 1,000	Crowning, spotting, and major fire runs are probable. Control efforts at head of fire are ineffective.

Source: BehavePlus 3.0.2 fire behavior modeling program (Andrews, Bevins, and Seli 2004)

Maps depicting flame length values for the Summer and Peak weather scenarios are included in Figures 4 and 5. The fire behavior modeling results for the analysis area varies depending on topography and fuel type. As FlamMap utilizes site-specific digital terrain data (including slope, vegetation, aspect, and elevation data) slight variations in predicted flame length values can be observed based on fluctuations of these attributes across the landscape. As presented, wildfire behavior in each of the fuel types varies depending on weather conditions.

Modeling outputs generated during this analysis present similar fire behavior in some areas during Summer and Peak (Santa Ana) weather scenarios. This is unusual, but can be explained by the parameters that were used for the modeling, including available site data, fuel model classification, and the calculations conducted in the FlamMap software. For this analysis, fuel models were assigned to each previously mapped vegetation type for the site. The available vegetation mapping data accurately classified large areas of the site as either orchard or vineyard (43% of the site) or chaparral (12% of the site), which are the areas representing little change between Summer and Peak weather scenarios.

First, vegetation mapping for the site was focused on habitat-based classifications and less on fuel type. When classifying vegetation types into fuel models, efforts were made to most accurately represent the fuel type observed. However, the scale at which the vegetation mapping was conducted did not allow for small-scale fuel mapping within a larger vegetation type classification. For example, small pockets of tall grass or scrub within a larger area classified as orchard were not separated for this analysis. Second, the fuel model selected to represent orchards and vineyards was Fuel Model GR1, which represents short, dry climate grass. This model was selected as it was assumed that orchards and vineyards would be actively managed and that surface fuels would be maintained to represent the conditions found in Fuel Model GR1. This model assignment assumes no transition to a crown fire based on assumed higher fuel moisture content in irrigated orchard

trees and the extent of roads, landings, irrigated vegetation, flower fields, and other bare areas which serve to fragment the orchards and vineyards and isolate them from adjacent fuel beds. Lastly, the maximum flame length attainable via analysis in FlamMap and BehavePlus software for Fuel Model GR1 is 3.1 feet. The average flame length across the modeled area is accurately portrayed, but the "jack pot" fuels that would produce higher flame lengths, higher fire intensity, and generate more embers cannot be accurately forecasted.

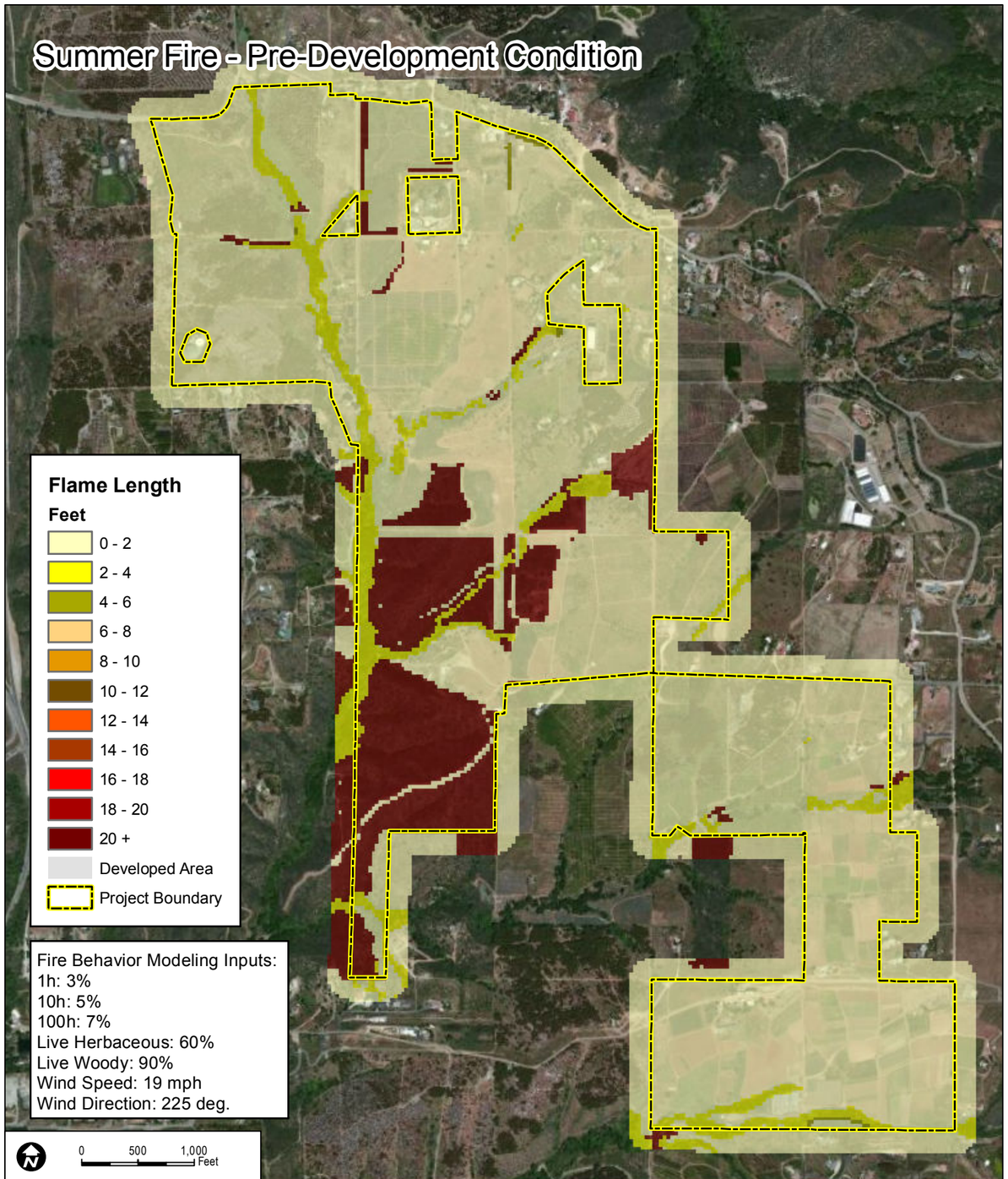
The flame length outputs for a Summer fire and for a Peak fire may be similar, therefore, differentiation may be difficult as depicted in Figures 4 and 5. Additionally, those areas classified as Fuel Model SH7 (chaparral) in the south-western portion of the site had flame length values in excess of 20 feet for both Summer and Peak fires. Since these results are classified in the same flame length range for Summer and Peak fires, visual differences of the change are not discernible, but wind driven fires would likely result in higher flame lengths, up to an estimated 45 feet.

As illustrated in Figures 4 and 5, with the Project, the Lilac Hills Ranch Project area would, in a sense, perform the function of a large fuel break within the District's northern service area. This community and its converted landscape may, during wildfire events, become a safety zone, a fire operations staging area, and/or a buffer for downwind properties.

The following sections focus on the DSFPD's emergency response resources and call volumes.

1.3 Current Fire Protection Status

Understanding the District's risks necessitates an equal understanding of its ability to respond to calls resulting from those risks. Therefore, it is necessary to determine the Fire District resources needed to respond to emergencies at a level that complies with local and nationally accepted standards of cover. Those standards include the San Diego County General Plan, Chapter 7 Safety Element, the National Fire Protection Association 1710 - *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, and the Insurance Services Office (ISO) standards. The purpose for identifying the current delivery system is for analyzing how efficiently the current system covers the District's emergency calls compared to the standards and then any resulting response gaps can be identified. This process starts with examining the most common community risk, the potential fire problem, target hazards, critical infrastructure, and an analysis of historic call data review.



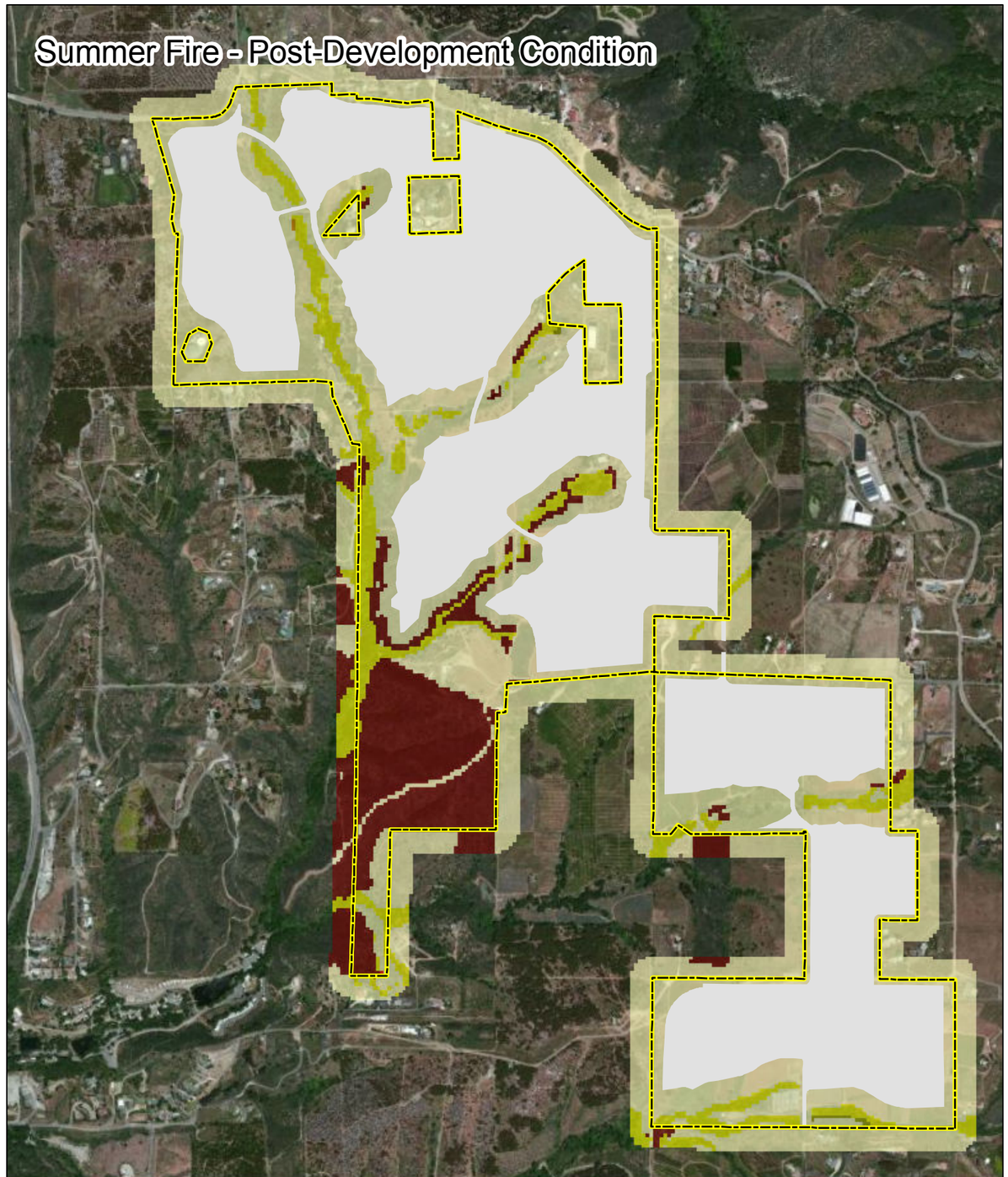


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FIGURE 4

FlamMap Fire Behavior Modeling - Summer Fire

DEER SPRINGS FIRE PROTECTION DISTRICT CAPABILITIES ASSESSMENT

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Fall Fire - Pre-Development Condition

Fall Fire - Post-Development Condition

Flame Length
Feet
- 0 - 2
- 2 - 4
- 4 - 6
- 6 - 8
- 8 - 10
- 10 - 12
- 12 - 14
- 14 - 16
- 16 - 18
- 18 - 20
- 20 +
- Developed Area
- Project Boundary

Fire Behavior Modeling Inputs:
1h: 2%
10h: 3%
100h: 5%
Live Herbaceous: 30%
Live Woody: 50%
Wind Speed: 41 mph
Wind Direction: 45 deg.

0 500 1,000 Feet

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7449-01

FIGURE 5

FlamMap Fire Behavior Modeling - Fall Fire

DEER SPRINGS FIRE PROTECTION DISTRICT CAPABILITIES ASSESSMENT

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1.3.1 DSFPD and CAL FIRE Current Delivery System

Table 3 provides a summary of the current fire and emergency medical delivery system in the DSFPD. There are three stations that are owned by DSFPD and staffed by CAL FIRE. The fourth station located in the District is CAL FIRE's Miller Station (Station 15). This station receives funding (provided by SDCFA) for extension of its use year round (Amador Contract) and DSFPD receives County funding for staffing of the third firefighter position on two of the District's engines. Station 15 is a "move-up" station, indicating that when the Station's engine is called to respond to a wildfire, a reserve engine is moved-up to cover that station.

The Cooperative agreement between CAL FIRE San Diego Unit and DSFPD includes staffing and response of Stations 11, 12, and 13 in Deer Springs. DSFPD utilizes generated fire fees and assessments to contract with CAL FIRE for staffing of its engines. In addition, DSFPD receives funding from the County to staff a third firefighter position on two of its engines. Furthermore, the County provides funding to CAL FIRE as part of the Amador Agreement to provide fire services during the offseason. The County and the Project's surrounding neighbors depend on CAL FIRE's Miller Station for fire protection and emergency medical services as evidenced by DSFPD's call records. CAL FIRE is described in the General Plan Update EIR Background Report as being responsible for fire response services within over 50% of the unincorporated County's total land area (Pages 2.13-7 and 8; Tab 3). CAL FIRE has an obligation to automatically respond to fire incidents pursuant to the Automatic Aid Agreement. Therefore, Station 15 is the actual closest fire station and it meets all of the criteria of a "station" from which to calculate such travel times from as set forth in General Plan Policy S-6.4. In addition, it would be inconsistent with the operational history and protocol documented in the existing contracts for the Project not to use Miller Station to determine the minimum travel time for the purposes of complying with General Plan Policy S-6.4. In fact, the County has used Station 15 as the closest fire station for purposes of determining response time for a project (West Lilac Farms) within the past year, which was approved by the Board of Supervisors with concurrence of the DSFPD. Details of the contracts were not available at the time of this report, so it is not clear what percent of the $3.84 million dollars paid to CAL FIRE annually is related to the Amador funding. However, it is our understanding that a total of roughly $900,000 is subsidizing the District with an estimated $650,000 for the third firefighter position on two engines directly to the DSFPD and $250,000 directly to CAL FIRE for avoiding shut-down of Station 15 during the winter months.

The agreement with CAL FIRE also includes response of all needed CAL FIRE resources including resources outside of the district. In addition, Mutual and Automatic aid agreements result in availability of response and coverage from other stations outside of the District. Theoretically, resources from throughout the state are available for major fires in the DSFPD. This was

demonstrated by the major response to the 2003 and 2007 San Diego County Fires, and including the Gavilan Fire in Fallbrook in February 2002 and the Rice Fire in October 2007. Therefore, there should be no shortage of resources to combat a major wildfire or other emergency.

Table 3
Deer Springs Fire Protection District Fire and Emergency Medical Delivery System

Fire Station	Address	Staffing	Apparatus
11 (Headquarters)	8709 Circle R Drive Escondido, California 92026 760.749.8001	3 Medic; plus 2 private medics on ambulance	2 type I engines and one medic ambulance
12	1321 Deer Springs Road Escondido, California 92069 760.741.5512	3; Medic	One Type I and one type III engine
13	10308 Meadow Glen Way West Escondido, California 92026 760.751.0820	3; Medic	2 type I engines
15 (Miller Station)	9127 West Lilac Road Escondido, California 92026 760.728.8532	3 EMT	1 type III partially equipped as type 1.

The Fire Chief at the time of this report's preparation is Chris Amestoy, who is a CAL FIRE Battalion Chief. All District fire stations are three-person companies and all, including Station 15, will respond to fire and medical emergencies in the District or adjacent jurisdictions through automatic aid.

Other neighboring fire jurisdiction fire stations include NCFPD Station 4 off old Highway 395, NCFPD Station 5 in Bonsall, two Valley Center Fire Protection District (VCFPD) Stations to the east, Vista Fire Department (VFD) station 5 light and air unit to the west, and Escondido Fire Department (EFD) Aerial Ladder truck at Escondido Station 1. This truck is the closest aerial ladder truck. There are no Service Ladder Companies or Service companies in the initial response automatic aid area. These stations respond under a "boundary drop" agreement that utilizes a computer system to dispatch response based on the closest unit. AVLs are a key component of this system and help ensure the closest unit is dispatched to emergency calls, regardless of the district/department boundaries.

In addition, the DSFPD ambulance service is currently located at Station 11. This is a paramedic ambulance operated by Mercy Ambulance Co. NCFPD will respond their ambulance if needed via automatic aid. There are additional Mercy ambulances in Valley Center and Pala.

1.3.2 DSFPD Incident Data

Emergency response data was provided by the DSFPD for the past seven years and includes partial year data for two of the years. The data is for all calls. Among the categories tracked by DSFPD are: medical aid, traffic collisions, vehicle fire, vegetation fire, structure fires, hazardous material response, false alarm, cancel, illegal burn, smoke check, PSA, mutual aid/assist out of District, assist within District, burn permit inspection. Note, an important component for determining historical and current response times to calls for first arriving engine and effective fighting force were not available for analysis, so no evaluation of the DSFPD overall performance to existing structures, vehicle accidents or medical aid calls could be performed.

The following sections provide DSFPD details on call volumes, by station over the period 2005 through 2011. As depicted, none of the stations is considered to have a heavy call volume, as averaged over the last 7 years (2005 through 2011). It is important to note that the accuracy of this information has not been substantiated because reported call volumes, when calculated on a per capita call generation basis were higher than normal and do not conform to regional and vicinity averages. A more detailed discussion of this anomaly is provided in Section 1.3.3.

Station 11

As presented in Table 4, Station 11 total calls has ranged from 610 calls in 2008 to 736 in 2011, averaging from 1.7–2.0 calls per day. The seven year average number of calls per day is 1.83. This is the busiest District station based on call volume, but is well below what would be considered a busy fire station. For perspective, a busy urban fire station may respond to 10 or more calls per day while an average station would respond to 5 calls per day. Rural stations respond to fewer calls, but are likely to have longer response times. Therefore, a busy rural station may respond to 5 or 6 calls per day.

Table 4
Station 11 Call Volume 2005 through 2011

Response within IA	Station 11						
	2005	*2006**	*2007*	*2008*	*2009*	*2010***	*2011****
Medical Aid = MA	258	30	290	284	307	51	27
Traffic Collision = TC	73	6	83	68	79	14	6
Vehicle Fire = VF	16	0	13	12	16	6	1
Vegetation Fire = VEG	6	0	4	11	7	0	0
Structure Fire = STR	4	0	5	3	6	1	0
Hazardous Material Response =HAZ	1	0	2	0	2	0	0

Table 4
Station 11 Call Volume 2005 through 2011

Response within IA	Station 11						
	2005	*2006**	*2007*	*2008*	*2009*	*2010***	*2011****
False Alarm = FA	40	7	44	38	46	4	9
Cancel = CA*****	52	1	115	69	61	6	9
Illegal Burn = IB	4	0	4	4	6	0	0
Smoke Check = SC	4	0	9	8	21	3	0
PSA	18	4	29	38	43	7	2
Mutual Aid/ Assist Out of District= MUT	33	0	15	30	31	2	1
Assist to other DSFPD Units	131	10	92	45	42	4	1
Burn Permit Inspections	0	0	0	0	0	6	0
Annual Total Responses	**640**	**58**	**705**	**610**	**667**	**104**	**736**
Total Calls Per Day	**1.75**	**1.87**	**1.93**	**1.67**	**1.83**	**1.76**	**2.02**
7 Year Average Calls Per Day	**1.83**						

* 2006 only includes data from December
** 2010 only includes 2 months of Station data (January and February)
*** 2011 only includes December station data and the remaining year's station data is provided in the final year data with no month by month accounting.
**** It is unclear which station 290 of the 303 canceled calls in 2011 were attributed. They have been distributed among the stations based on averages for recorded data that year

Station 12

As presented in Table 5, Station 12 has ranged between 453 (2008) and 691 (2007) calls per year, averaging between 1.24 and 1.89 calls per day, respectively. The seven year average call volume is 1.49 calls per day.

Table 5
Station 12 Call Volume 2005 through 2011

Response within IA	Station 12						
	2005	*2006**	*2007*	*2008*	*2009*	*2010***	*2011****
Medical Aid = MA	230	24	278	150	170	27	10
Traffic Collision = TC	79	5	78	42	64	8	6
Vehicle Fire = VF	24	0	22	19	21	2	1
Vegetation Fire = VEG	7	1	11	6	4	0	0
Structure Fire = STR	2	0	6	2	4	2	0
Hazardous Material Response =HAZ	0	1	3	1	1	1	1
False Alarm = FA	21	5	53	27	36	13	2
Cancel = CA*****	19	1	61	70	105	18	0
Illegal Burn = IB	5	0	6	7	3	2	0
Smoke Check = SC	10	4	16	9	10	3	0

Table 5
Station 12 Call Volume 2005 through 2011

Response within IA	Station 12						
	2005	*2006**	*2007*	*2008*	*2009*	*2010***	*2011****
PSA	33	1	45	14	17	2	2
Mutual Aid/ Assist Out of District= MUT	6	0	12	12	1	0	0
Assist to other DSFPD Units	141	16	100	94	59	3	10
Burn Permit Inspections	0	0	0	0	0	4	0
Annual Total Responses	**577**	**58**	**691**	**453**	**495**	**85**	**391**
Total Calls Per Day	**1.58**	**1.87**	**1.89**	**1.24**	**1.36**	**1.44**	**1.07**
7 Year Average Calls Per Day	**1.49**						

* 2006 only includes data from December
** 2010 only includes 2 months of Station data (January and February)
*** 2011 only includes December station data and the remaining year's station data is provided in the final year data with no month by month accounting.
**** It is unclear which station 290 of the 303 canceled calls in 2011 were attributed. They have been distributed among the stations based on averages for recorded data that year

Station 13

As depicted in Table 6, Station 13 has ranged between 445 (2011) and 527 (2009) calls per year. This equates to a 1.22 and 1.44 calls per day average, respectively. No data is available prior to 2008 as the Station was not in service prior to that date. The average number of calls per day from 2008 through 2011 is 1.23 calls.

Table 6
Station 13 Call Volume 2005 through 2011

Response within IA	Station 13						
	2005	*2006**	*2007*	*2008*	*2009*	*2010***	*2011****
Medical Aid = MA	N/A	N/A	N/A	35	46	5	13
Traffic Collision = TC	N/A	N/A	N/A	24	25	5	1
Vehicle Fire = VF	N/A	N/A	N/A	7	11	0	0
Vegetation Fire = VEG	N/A	N/A	N/A	15	24	1	0
Structure Fire = STR	N/A	N/A	N/A	1	1	0	1
Hazardous Material Response =HAZ	N/A	N/A	N/A	1	0	0	0
False Alarm = FA	N/A	N/A	N/A	14	11	6	1
Cancel = CA****	N/A	N/A	N/A	166	239	33	4
Illegal Burn = IB	N/A	N/A	N/A	7	8	1	0
Smoke Check = SC	N/A	N/A	N/A	17	13	0	0
PSA	N/A	N/A	N/A	3	2	3	0
Mutual Aid/ Assist Out of District= MUT	N/A	N/A	N/A	112	78	0	0

Table 6
Station 13 Call Volume 2005 through 2011

Response within IA	Station 13						
	2005	*2006**	*2007*	*2008*	*2009*	*2010***	*2011****
Assist to other DSFPD Units	N/A	N/A	N/A	81	69	2	6
Burn Permit Inspections	N/A	N/A	N/A	0	0	0	0
Annual Total Responses	**N/A**	**N/A**	**N/A**	**483**	**527**	**56**	**445**
Total Calls Per Day	**N/A**	**N/A**	**N/A**	**1.32**	**1.44**	**0.95**	**1.22**
7 Year Average Calls Per Day	**1.23**						

* 2006 only includes data from December
** 2010 only includes 2 months of Station data (January and February)
*** 2011 only includes December station data and the remaining year's station data is provided in the final year data with no month by month accounting.
**** It is unclear which station 290 of the 303 canceled calls in 2011 were attributed. They have been distributed among the stations based on averages for recorded data that year

CAL FIRE Station 15

As depicted in Table 7, Station 15 has ranged between 263 (2011) and 452 (2005) calls per year. This equates to a 0.72 and 1.24 calls per day average, respectively. The average number of calls per day from 2008 through 2011 is 1.00 calls.

Table 7
Station 15 (Miller) Call Volume 2005 through 2011

Response within IA	Miller						
	2005	*2006**	*2007*	*2008*	*2009*	*2010***	*2011****
Medical Aid = MA	19	7	29	116	141	18	3
Traffic Collision = TC	30	9	25	12	33	3	7
Vehicle Fire = VF	2	4	11	2	7	2	0
Vegetation Fire = VEG	6	9	15	2	8	0	2
Structure Fire = STR	2	0	9	2	4	3	1
Hazardous Material Response =HAZ	2	0	1	0	1	0	0
False Alarm = FA	16	11	23	20	34	4	0
Cancel = CA****	25	0	65	56	22	6	0
Illegal Burn = IB	8	3	3	5	1	0	0
Smoke Check = SC	3	0	7	6	13	4	4
PSA	5	0	4	26	19	2	0
Mutual Aid/ Assist Out of District= MUT	148	4	54	6	4	0	7

Table 7
Station 15 (Miller) Call Volume 2005 through 2011

Response within IA	Miller						
	2005	*2006**	*2007*	*2008*	*2009*	*2010***	*2011****
Assist to other DSFPD Units	186	0	157	54	15	0	5
Burn Permit Inspections	0	0	0	26	0	0	0
Annual Total Responses	**452**	**47**	**403**	**333**	**302**	**42**	**263**
Total Calls Per Day	**1.24**	**1.52**	**1.10**	**0.91**	**0.83**	**0.71**	**0.72**
7 Year Average Calls Per Day	**1.00**						

* 2006 only includes data from December
** 2010 only includes 2 months of Station data (January and February)
*** 2011 only includes December station data and the remaining year's station data is provided in the final year data with no month by month accounting.
**** It is unclear which station 290 of the 303 canceled calls in 2011 were attributed. They have been distributed among the stations based on averages for recorded data that year

Based upon the call volume and call type data provided by the District, and presented in Tables 4-7, calls generated by the Lilac Hills Ranch Project will not overload the closest responding units (Station 15 and Station 11) Station 11, the busiest station, averaged 2 calls per day and Station 15 averaged 0.72 calls per day in 2011. Medical calls are the largest component of the District's call volume, and reflects the District's population, 30% of which is in the "over 65" age bracket. Typical fire department, especially urban department's call volume includes 80% or more medical related responses. Residents over the age 65 collectively use over two times more EMS service as compared to younger population, and those over 85 collectively use over three times more EMS service (Blanda 2005). Urban fire companies are not considered overloaded until about 10 or more calls per day and rural stations may be considered busy with a slightly lower number of average daily calls than 10. On average, a Fire Station in an urban area can be expected to respond about 5 times per day or more.

1.3.2.1 Automatic Aid out of District

Based on the mutual aid/assist out of district totals for each of the District's Stations, Station 11 has averaged 22 assists per year (0.06/day), with only one assist in 2011. Station 15 has averaged 18 assists per year with an exception in 2005, when it assisted out of the District 148 times, but had only 5 out of district assists in 2011. It is unclear at the time of this report why so many out of District assists occurred in 2005, but may have been related to the Station's status within DSFPD or CAL FIRE and its response boundary. Because the seven-year average and the most recent year (2011) data indicates a low probability of a particular unit being out of the District, coupled with the overall low call volume in the District, multiple queuing of calls is anticipated to be a rare event. Monte Vista dispatch BC confirmed this (personal communication with Jim

Hunt 2012) indicating that currently, Multiple Queuing happens very infrequently and that with the AVLs, the next closest available unit is dispatched.

The Ambulance at Station 11 responds about 1.7 times per day that augments the fire and emergency medical services provided by the Dristict. It is common that about one-third of those calls (roughly 4 calls per week) would be actual advanced live support (ALS) calls. This is important to note because it indicates that the current call volume would not result in extended periods where the ambulance is not available or would result in an out of district ambulance being automatically dispatched for a response in the District. There are a total of five Mercy Ambulances in North San Diego County. This situation likely does occur on a limited basis, but would be very rare based on current call volumes.

1.3.3 Estimated Call Volume from Lilac Hills Ranch Project

The estimated incident call volume at build out from the Lilac Hills Ranch Project site is based on a conservatively calculated estimate from the maximum potential number of persons on site of 8,200 persons (applicant provided numbers). The calculated total of 8,200 people is an aggregate total, which combines all phases and all uses together and assumes they are all on site at one time. The resident population is just over 5,000 persons. However, to indicate the "worst-case" scenario, call volumes utilize the potential maximum population. This includes 1,746 residential units x 2.92 persons per unit, school, commercial/retail, elderly care facility, and all other land uses. When calculated based on square footage and California Fire Code occupancy standards and averaged over seven days/week, the average population is slightly higher, but is not qualified for this site and assumes a maximum occupancy. Therefore, the applicant provided numbers are used in this analysis.

The project's phasing schedule for the initial two phases includes 347 units and 468_units, respectively, with a total estimated population of 2,400. This population is calculated to produce up to 195 calls per year, or 0.53 per day, based on typical call volumes (San Diego County average 82 calls per 1,000 population). The actual call volume is expected to be lower based on the type of development and typical demographics, but a conservative estimate is provided. This call volume increase is minimal and when added to Station 15's current low call volume of 1.0 calls per day, is anticipated to enable response without compromising the station's wildland fire mission, especially since Phases 1 and 2 can also be substantially served by Station 11 under 6 minutes travel time. Should Station 15's engine be assigned to a distant wildland fire, then CAL FIRE would "move up" an engine to cover. Further, it may be possible that one of the District's other engines housed at Station 11 or 12 could be temporarily re-assigned to cover the northern portion of the District. In addition, through the automatic aid "drop boundary agreement," the closest unit, likely from NCFPD, would respond to incidents in the northern portion of DSFPD.

The DSFPD is currently operating three fire stations and Station 15 operates as a fourth district station, responding to all types of emergency calls. Based on the existing population of 13,000, the average number of persons served per station is 3,250. With construction of Phases 1 and 2, the District's population would increase to roughly 15,400, resulting in roughly 3,850 persons served per fire station. At build out, the District's population would increase to a calculated maximum of 21,200. The maximum number of persons served per station would be 5,300 under this scenario with an adjusted average population of roughly 18,000 (permanent residents) and 4,500 residents per station. This ratio of persons per fire station may be used as an indicator of how efficiently an area is being served, the type of area being served – urban vs. rural, and ultimately plays a large role in the per capita cost for service. High density, urban areas typically include a large number of persons per station. Rural areas typically include a lower number of persons per station. Table 8 compares DSFPD's maximum average call volume currently, at build out of Phases 1 and 2, and at Project build out with other San Diego County Fire Stations currently operating at a high level with similar or higher call volumes. The results indicate that with the Project, DSFPD and CAL FIRE will be able to absorb anticipated calls loads and still include the lowest persons served per station average and near the lowest average call volume.

Table 8
DSFPD's Response Projection Post-Construction of Phase 1 and 2 of Lilac Hills Ranch Compared to Other High Performing Fire Agencies/Stations

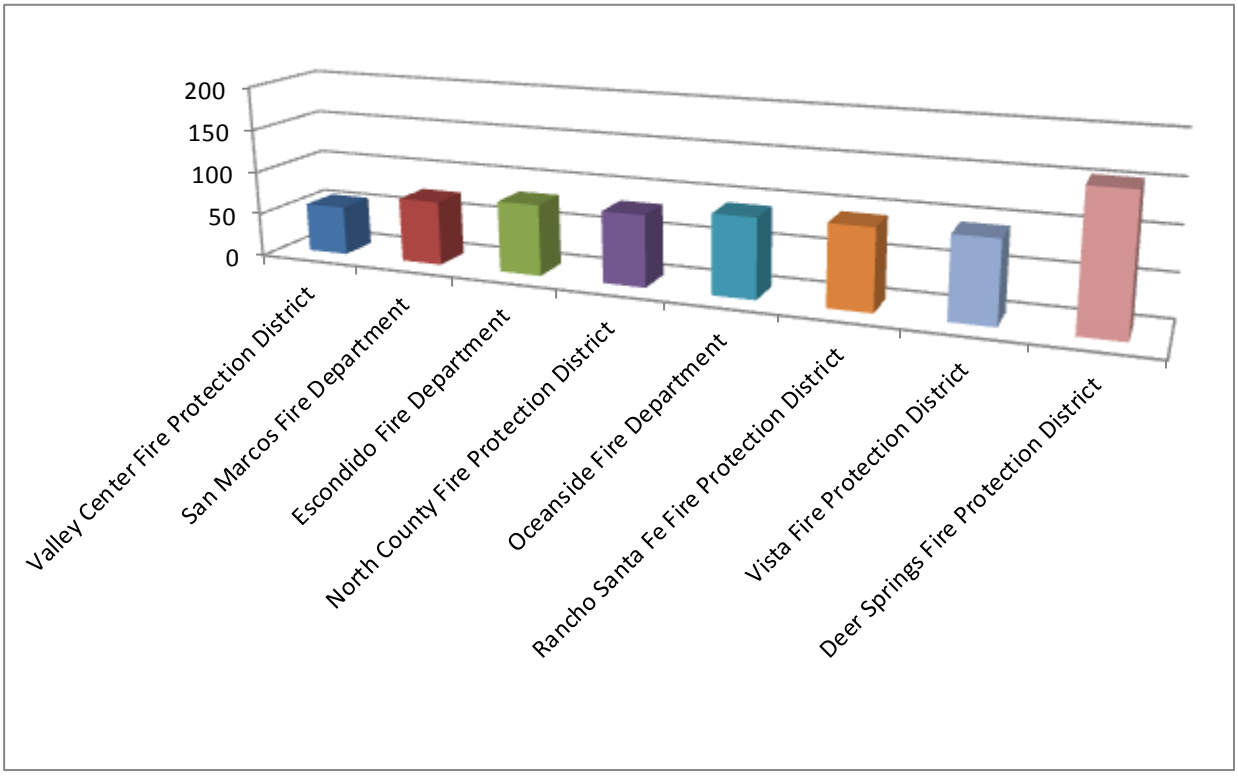
Fire Department/Stations	Average Call Volume*	Average Persons** Served/Station
DSFPD – 4 stations: Existing Condition	Average 1.4/day	3,250
DSFPD – 4 stations: Existing Condition + LHR Phases 1 and 2	Average 1.5/day	3,850
DSFPD – 4 stations: Existing Condition + LHR Project Build Out (maximum potential on-site)	1.8/day	5,300
Vista Fire Protection District – 6 stations	Average 4.8/day	19,000
City of San Marcos Fire – 4 stations	Average 4.8/day	23,750
City of Escondido Fire – 6 stations	Average 4.8 /day	20,857
Rancho Santa Fe Fire Protection District – 4 stations	Average 1.7/day	6,750
City of Oceanside Fire Department – 8 stations	Average 5.3/day	21,250
North County Fire Protection District – 6 stations	Average 1.9/day	8,333
Valley Center Fire Protection District	1.4/day	9,200

* Average call volume calculated by dividing the total number of annual calls by the number of fire stations serving those calls.
** Average persons served per fire station calculated by dividing total population by the number of fire stations within agency.

In order to project the build-out call volume, a per capita call generation figure of 0.1538 was calculated based upon current Deer Springs Fire District Incident data that indicates an average of just under 2,000 calls per year (based on full- year, District provided data only) and a District

population of 13,000 persons. Thus, the 13,000 persons currently residing in the DSFPD result in an average of 2,000 calls per year and the per capita call volume is 154 calls per thousand people. This per capita call generation number is considerably higher than any of the surrounding fire agency's call volumes and nearly twice as high as San Diego County's 10-year average per capita call generation factor. Figure 6 illustrates several vicinity fire agencies and their respective per capita (calls per thousand people) call volumes. As shown, DSFPD reports considerably more than, or in most cases, nearly double the calls of other agencies on a per capita basis. It is unclear why the per capita call volume is so high. It is possible that calls are inadvertently being categorized into more than one category, but further analysis of detailed call volume reports would need to be conducted to determine the source of this anomaly.

Figure 6 Comparison of Per Capita Call Generation (Per Thousand Persons) Among Several North County Fire Agencies



Possible reasons for the increased per capita call volume is related to I-15 and the large number of non-district residents that may generate calls for response by the DSFPD. However, based on the number of DSFPD calls related to vehicle collisions and vehicle fires, which has averaged over 12% of all calls over the last seven years, that alone does not account for the high volume. Because the per capita call volume is so high compared to other fire agencies, this possibly

results in a skewed per capita District call volume and lower actual daily call volumes than presented in the preceding and following report sections. However, further analysis of the District's call volume data would be necessary to determine if this is the case.

For comparison, Valley Center Fire Protection District's population of 23,000 generates 1,300 calls per year, or 57 calls per thousand people, NCFPD's population generates 82 calls per thousand, and Oceanside Fire Department's urban population generates 92 calls per thousand. San Diego County data indicates an average of 82 calls per 1,000 persons across a much larger area than any of the compared agency response areas, further supporting the suspected influence of the I-15 and other District-specific factors on the District's overall call volume.

Based on this analysis, and the typical call volume from other north county fire agencies, which average 81 calls per 1,000 persons, it is justified to utilize a normalized per capita call generation factor when calculating the Lilac Hills Ranch estimated call demand. Although there is a planned senior community and institutional care facility within the Project, they represent a small proportion of the overall population (297 senior units, roughly 600 residents and 200 institutional patients). As such, the standard per capita ratio is applicable because the number of calls that would be expected from the majority of the Project's population is anticipated to be lower than the standard County per capita call volume and offsets any increased call volume from these two Project housing types.

Otherwise, the resulting data is significantly misrepresented. For example, using the inflated per capita ratio, the estimated maximum potential on-site 8,200 persons residing, visiting, shopping, or going to school in the Lilac Hills site would generate a calculated 1,263 calls per year, or nearly 3.5 calls per day. It is not logical that a new development with modern infrastructure, ignition resistant structures, and likely a younger and wealthier socio-economic population would generate nearly twice the number of calls in DSFPD than it would in any other San Diego County district. Especially considering studies indicate that socio-economic factors have a direct relationship on the number and severity of incidents (Odom 2000). For example, fires occur disproportionately in areas which are economically depressed and are directly linked to the ability to afford appropriate housing, fire safety devices, and lack of general maintenance. All are contributing factors to higher rates of fire in areas with lower per capita income. Even using the lower average per capita number is considered conservative, as that number includes calls from a blend of all socio-economic distributions. Therefore, based on the 81 calls per 1,000 persons, the Lilac Hills Ranch Project would generate an estimated 664 calls per year, or 1.8 per day.

1.3.3.1 Closest Potentially Responding Station Call Volume Analysis

CAL FIRE's Station 15 (Miller Station) and DSFPD's Station 11 are the two closest fire stations that would respond to the Lilac Hills Ranch Project.

Miller Station

As mentioned, Station 15 is located practically within the development's northern area, with development slated to occur to the east, west and south of the station. As previously discussed, Station 15 currently averages about 1 call per day (263 calls or 0.72 calls per day in 2011). Miller Station currently responds to fewer than 500 residences/structures in its immediate response area (boundaries and parcels were not available for analysis at the time of this report, but estimates are based on aerial image review). A significant portion of Miller's response is currently medical aid and vehicle related calls. In fact, analysis of a three year period (2007–2009), indicates that of the 1,038 calls occurring over that period, 596, a full 57%, were related to medical aid, vehicle accidents or vehicle fires, and a large number of false alarms or canceled calls.

With the addition of the Lilac Hills Ranch Project within the first due area of Station 15 (primary response area), a total of 1,746 residences plus other large site structures at build out would be added to the stations current coverage responsibility. Station 15 is currently operating under an existing Amador Agreement which provides for year-round service and based on the current call volume statistics, is already responding to emergencies other than wildfire suppression/ prevention. With the build out of the Lilac Hills Ranch Project, the total call volume would increase from an average of one call per day to an average of up to 2.8 calls per day. Based on this analysis, even though the total call volume would increase by up to a factor of three, Station 15 would be able to absorb the additional calls generated by the Lilac Hills Ranch Project and would not be likely to change the focus and mission of the station from wildland fire/watershed health to structural fire protection and medical aid. As mentioned, a busy rural fire station may respond to 5 or 6 calls per day. With the projected calls from the Project, Miller Station would be roughly ½ of that call volume and would be "covered" by a reserve engine should the primary engine be assigned to a wildfire.

If CAL FIRE was to enter into a new agreement oramend its existing contract with DSFPD certain findings would need to be made or reaffirmed. The preparers of this report have reviewed PRC 4141 through 4145 and have spoken with CAL FIRE concerning interpretation of the Code and conclude that Station 15 would be able to continue its primary wildland fire mission while also serving the project.

Station 11

As mentioned, Station 11 is located to the south of the project. As previously discussed, Station 11 currently averages about 2 calls per day (736 calls or 2.02 calls per day in 2011). Station 11 currently responds to an estimated 800–1,000 residences/structures in its immediate response area (includes Castle Creek, Gopher Canyon, Lawrence Welk Resort/Champagne Village based on aerial image review). A significant portion of Station 11's response is currently medical aid and vehicle related calls. In fact, analysis of a three year period (2007 – 2009), indicates that of the 1,982 calls occurring over that period, 1,525, or 77%, were related to medical aid, vehicle accidents or fires, and false alarms or canceled calls. Station 11 (located at Old Highway 395 and Circle R Drive) can respond within 5 minutes to a portion of the Project's Phase 1 (extreme northwest corner of Project), totaling 73 units. A total of 85% of Phase 1 can be responded to within 5 minutes 50 seconds travel from Station 11. The entire Phase 1 can be responded to from Station 11 in 6 minutes and 10 seconds. Phase 2 lots would require additional travel time from Station 11, but it is estimated that roughly 60-70% of Phase 2 could be reached in less than 6 minutes travel time. The remainder of Phase 2 may require 7 minutes or longer from Station 11. Those portions that are beyond the 5 minutes travel time from Station 11 are located immediately adjacent to Station 15, which can serve 100% of the project within the 5 minute standard. In addition, the project will incorporate a number of Project features that augment the Project's fire safety: Station 11 can respond to the majority of the developed portions of the Project site within 8 minutes travel time, the timing suggested for effective fighting force for arrival. The additional response to Lilac Hills Ranch could result in an increase from 2.0 calls per day to 3.8 calls per day at build out. Based on this analysis, even though the call volume would be doubled, the Station would be able to absorb the additional calls generated by the Lilac Hills Ranch Project as a first responder to a portion of the site (5-minute travel time), or as a second due engine within 8-minutes travel time.

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2.0 STATION COVERAGE

A critical element in the assessment of any emergency service delivery system is the ability to provide adequate resources for anticipated fire combat situations, medical emergencies, and other anticipated events. Each emergency requires a variable amount of staffing and resources to be effective. Properly trained and equipped fire companies must arrive, deploy, and mitigate the event within specific timeframes if successful emergency event strategies and tactical objectives are to be met. Each event, fire, rescue operation, major medical emergency, disaster response, and other situations will require varying and unique levels of resources. For example, controlling a fire before it has reached its maximum intensity requires a rapid deployment of personnel and equipment in a given timeframe. Fire Companies can be out of the Fire District on vegetation fires during fire season. During those periods of time, move up companies will infill the district stations, as CAL FIRE has a responsibility to cover the stations and respond to calls in the Fire District from all of its stations in the District, as a function of the Cooperative Agreement with the District, as a function of Automatic and Mutual Aid agreements, and to control fires to Protect State Responsibility Areas.

The objective is to have a distribution of resources that is able to reach a majority of events in the timeframe as stated in the service level goals (County General Plan or other standard). There are many factors that make up the risk level, which would indicate the need for higher concentration of resources:

- Inability of occupants to take self-preserving actions
- Construction features
- Lack of built-in fire protection
- Hazardous structures
- Lack of needed fire flow
- Nature of the occupancy or its contents, etc.

From a population and call volume perspective, especially considering call volumes may be even lower than the analysis in this report indicates, it is difficult to justify more than three fire stations and the Miller Station. However, from an area and timely response perspective, other measures may be justified, as presented in the following sections. Further, it is important to note that for fires, the required ignition resistant construction, fuel modification and interior sprinklers act to mitigate the reliance on standard response times, enabling longer response travel times.

2.1 Response Reliability

Response reliability is defined as the probability that the required amount of staffing and apparatus will be available when a fire or emergency call is received. The response reliability of the DSFPD would be 100% if every piece of its apparatus were available every time an

emergency call was received. In reality, there may be times, however rare, when a call is received for a particular company but the company is already on another call. This requires a substitute (second-due) company to be assigned from another station. As the number of emergency calls per day increases, so does the probability that a needed piece of apparatus will already be busy when a call is received. Consequently, the response reliability of the fire department for that company decreases, which will have an impact on District travel times to emergencies. The size of the area that a station covers, the number of calls, the types of calls, and the population density all affect response reliability (CITYGATE 2010). The more densely populated, the more likely a second-due call will occur. An analysis of current response data can reveal variations in the response reliability among stations.

The critical responding fire resource is initial emergency response of the closest unit, which may require regional coordination among fire protection agencies and the use of fire service provider agreements. Most structure fires and vegetation fires are controlled or extinguished by the first arriving engine company. The modern Fire Service relies on the closest unit theory, rather than only responding units from a fire jurisdiction when there may be units from other jurisdictions adjoining a jurisdiction, which could arrive in less time. The Boundary Drop concept began in the City of Huntington Beach in 1971. One of the authors of this study, Jim Hunt, was instrumental in the design, implementation and management of that four City Boundary Drop. Such boundary drops have proven very efficient and cost effective throughout the Country.

The current rural setting in the northern portion of the District is allowed up to 10 minutes travel time in the County's General Plan. This 10 minute travel time response is not considered satisfactory for fire or medical aid calls, but is allowed due to the infeasibility of providing fire station distribution in rural areas that would meet the national standards. The funding available through property tax assessments designated for fire service in rural areas is generally not sufficient to fund a faster response time, and those living in rural areas accept a reduced service level. Thus, DSFPD coverage at a 10 minute travel time results in few gaps throughout the District, except where lack of roads occurs, and enables Station 11 to cover much of the Lilac Hills Ranch site and Station 15 to cover a large area to the north and a large area of overlap to the south, east and west. The Lilac Hills Ranch Project would require 5 minute travel time according to the General Plan. However, because the first arriving engine is critical for fire and medical emergencies, the remainder of this section focuses on selection of a response standard and analyzing station distribution and concentration.

2.1.1 San Diego County General Plan

The County's General Plan sets policy for fire protection services for development. It requires that new development demonstrate that fire services can be provided that meets the minimum

travel times identified in Table 9, Travel Time Standards from Closest Fire Station. (Fire stations must be staffed year-round, publicly supported and committed to providing service.)

Table 9
Travel Time Standards from the Closest Fire Station*

Travel Time	Regional Category (and/or Land Use Designation)	Rationale for Travel Time Standard**
5 minutes	Village (VR-2 to VR-30) and limited Semi-Rural Residential Areas (SR-1) Commercial and Industrial Designations in the Village Regional Category Development located within a Village Boundary	In general, this travel time standard applies to the County's more intensely developed areas, where resident and business expectations for service are the highest.
10 minutes	Semi-Rural Residential Areas (> SR-1and SR-2 and SR-4) Commercial and Industrial Designations in the Semi-Rural Regional Category Development located within a Rural Village Boundary	In general, this travel time provides a moderate level of service in areas where lower-density development, longer access routes and longer distances make it difficult to achieve shorter travel times.
20 minutes	Limited Semi-Rural Residential areas (>SR-4, SR-10) and Rural lands (RL-20) All Commercial and Industrial Designations in the Rural Lands Regional Category	In general, this travel time is appropriate for very low density residential areas, where full-time fire service is limited and where long access routes make it impossible to achieve shorter travel times.
>20 minutes	Very-low rural land densities (RL-40 and RL-80)	Application of very-low rural densities mitigates the risk associated with wildfires by drastically reducing the number of people potentially exposed to this hazard. Future subdivisions at these densities are not required to meet a travel time standard. However, independent fire districts should impose additional mitigation requirements on development in these areas.

* The most restrictive standard will apply when the density, regional category and/or village/rural village boundary do not yield a consistent response time standard.

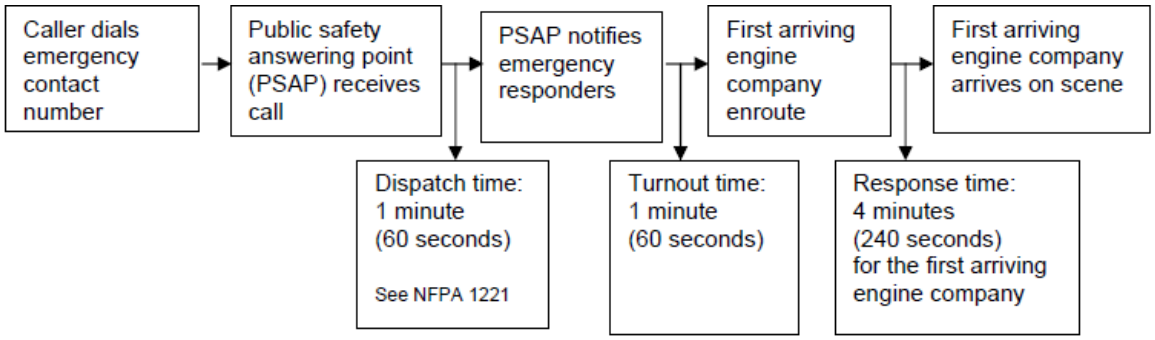
** Travel time standards do not guarantee a specific level of service or response time from fire and emergency services. Level of service is determined by the funding and resources available to the responding entity.

2.1.2 National Fire Protection Association Standard 1710.

The development of this standard, adopted in 2000, was the first organized approach to developing a standard, defining levels of service, deployment capabilities, and staffing levels for "substantially" career fire departments. NFPA 1710 provides the user with a template for

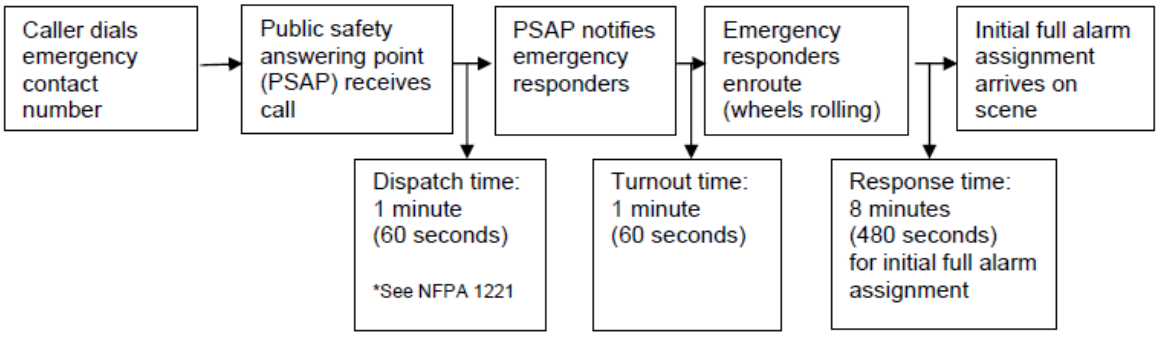
developing an implementation plan in respect to the standard. The NFPA 1710 standard set forth in concise terms the recommended resource requirements for fires, emergencies, and other incidents. (Note: NFPA 1710 travel time is 1 minute less than SD County's General Plan.). Figures 7 and 8 provide a graphic of the 1710 standard response time for initial arriving and full alarm response, respectively.

Figure 7 NFPA 1710 Initial Arriving Engine Company Travel Time Detail



* Flowcharts adapted from City of Fresno Fire Department Standards of Cover Report - 2007
** note – response time in Figure 8, 9, 10, and 11 flow charts designates travel time only

Figure 8 NFPA 1710 Full Alarm Assignment Travel Time Detail



Emergency Medical Service

There are three levels of EMS provision recognized in the NFPA 1710 standard:

1. First responder with automatic external defibrillator (AED)
2. Basic life support (BLS)
3. Advanced life support (ALS)

Figures 9 and 10 provide illustrations of the NFPA 1710 standard response time for first responder and advanced life support, respectively.

Figure 9 NFPA 1710 Emergency Medical First Responder Travel Time Detail

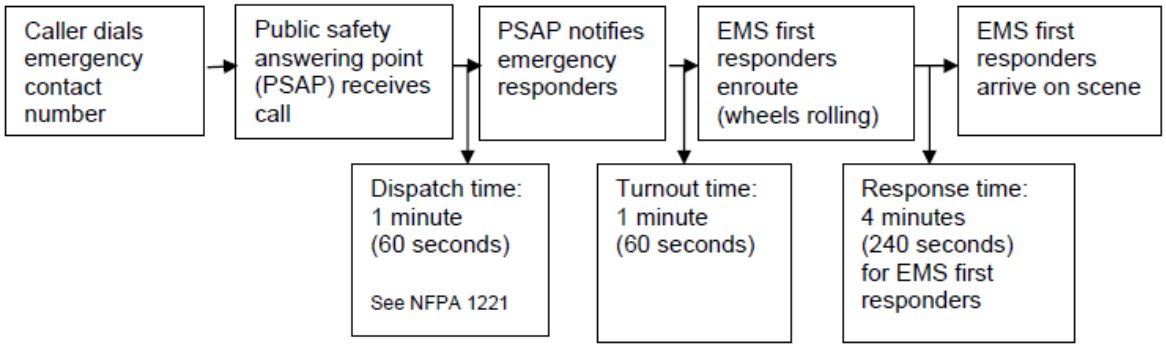
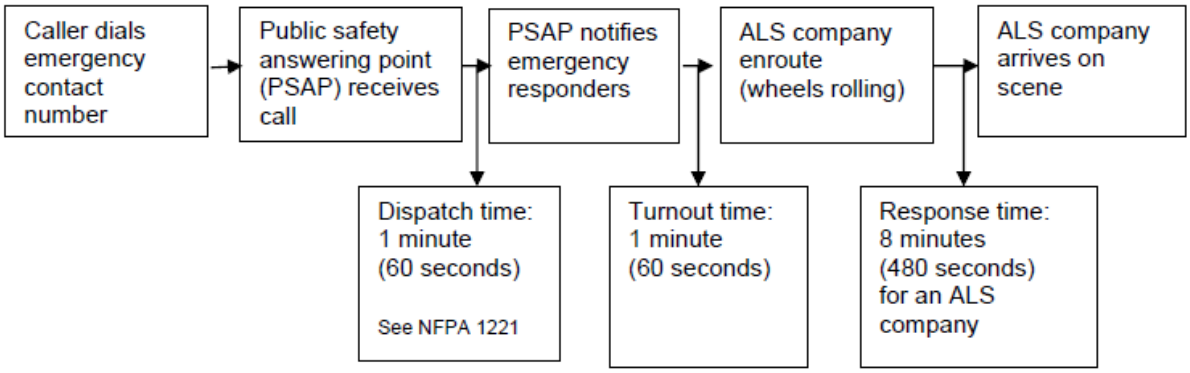


Figure 10 NFPA 1710 Advanced Life Support Response Travel Time Detail



2.1.3 Insurance Service Office Standards

In urban areas, the ISO Fire Department Grading Schedule aims for first due fire engine stations spaced 1.5 miles apart and ladder trucks spaced 2.5 miles apart, which, based on travel speeds would result in less than 4 minute travel time for first due engines and less than 8 minute travel time for first due ladder trucks. This standard is difficult to apply to rural settings like DSFPD, but provides a guideline for consideration and is important to the District's ISO rating, which affects insurance rates.

The ISO grades community fire defenses on a 10-point scale, with Class I being the best. Typically, urban areas are rated Class 3. There are no Class I Fire Departments in San Diego County, and there are not many throughout the nation. As population densities and risks decrease, so does fire protection. In rural areas, like most of DSFPD, there are not typically

infrastructure like water mains and fire hydrants, so water is not readily available and must be trucked to the emergency. Note that Lilac Hills Ranch will include a redundant supply of water including water district, recycled and well water. In emerging suburban and rural areas, fire departments are typically rated at Classes 5–9. Class 10 is a situation where no protection exists or the fire department is inadequately equipped or staffed. DSFPD is currently rated a 5/9.

Based on these local and nationally accepted guidelines, the standards of cover utilized in this analysis are as follows:

1. Arrive at all emergencies with the first arriving fire unit within 4 minutes driving time for 90% of all incidents. (NFPA 1710). San Diego County General Plan allows 5 minutes travel time and that scenario has been modeled for comparison purposes. This study uses the more conservative guideline (NFPA 1710), although the County's and NFPA's standards are more similar than first appear. It must be remembered that the travel times in NFPA 1710 are guidelines only, and allow a 90% quality factor. In other words, 10% of all calls may exceed the 4 minutes travel time. For fire emergencies, sprinklered structures, like all structures in Lilac Hills, prevents or delays flashover, the primary driver behind the response time standards. Additional available time is related to average driving speed. Models typically use an average of 35 MPH per ISO, actual speed may be more or less. It may be faster on major roads that are not winding. It could be slower on winding roads or roads in a subdivision. Medical emergencies still require a fast response for major medical issues. For example, for a heart attack or a stroke, response within 4–6 minutes from cessation of heart action or breathing raises the likelihood of a successful discharge from the hospital (4 minutes travel time and 2 minutes to receive and dispatch the call).
2. Each fire company should be staffed by 4 firefighters at the scene. (Not necessarily responding with each apparatus).
3. A ladder truck is required when 5 or more buildings are 3 or more stories, or 35 feet in height, or when any combination of the 5 buildings 3 or more stories, or 35 feet or more in height, or five buildings with fire flow exceeding 3500 GPM occurs. If an aerial ladder truck is not required, a service company (squad type vehicle) may be required for developments with commercial occupancies.
4. The first alarm responders should total 14 firefighters for a fire in a single, two-story, 2,000-square-foot home.
5. The entire first alarm response should arrive within 8-minute travel time, 90% of all incidents.

6. Paramedic level Emergency Medical services should arrive within 8 minutes travel time if a Basic Life Support level of service arrives in 4 minutes 90% of the time.
7. For wildland fires, per NFPA 1710; deploy total of 2 hand lines from 2 fire engines (1 each) using five firefighters within 10 minutes of arrival; 90% of calls.

Note: units responding can be via automatic aid assignment and do not necessarily have to be part of the DSFPD.

2.2 Response Assignments

The CAL FIRE Monte Vista Dispatch center provides dispatch for DSFPD and provided the following response assignment information. The typical emergency follows a response path similar to the following example:

Notification: The point at which an alarm is received. This transmittal may take the form of electronic or mechanical notification received and answered by central answering point.

911 Dispatch Processing Time: The time between the first ring of the 9-1-1 telephone at the dispatch center and the time the computer-aided dispatch (CAD) operator activates the station and/or company alerting devices.

Turnout Time: The interval between the activation of station and/or company alerting devices and the time when the responding crew is aboard the apparatus and the apparatus is beginning to roll toward the call as noted by the mobile computer terminal or notifies dispatch by voice that the company is responding.

Travel Time: The point at which the responding apparatus signals the dispatch center that they are responding to the alarm and ends when the responding unit notifies the dispatcher of its arrival on scene (via voice or mobile computer terminal notification).

On-Scene Time: The point at which the responding unit arrives on the scene of the emergency.

Initiation of Action: The point at which operations to mitigate the event begin. This may include size-up, resource deployment, and patient intervention.

Termination of Incident: The point at which units have completed the assignment and are available to respond to another request for service.

Total Response Time: Alarm processing time plus turnout time plus travel time.

When automatic aid units are needed, the Monte Vista Center CAD system contacts Northcom CAD system with no or little delay. Northcom then dispatches for the automatic aid companies using AVLs to dispatch the closest unit(s). CAL FIRE is in the process of installing AVLs in all apparatus with full deployment in the near future. (Emergency Dispatch assignments from Monte Vista (per BC Darrin Howell, personal communication 2012).

2.2.1 Structure Fire Call in Lilac Hills

The response weight should include: 4 Type I engines, 1 water tender, Escondido truck, light and air unit (Vista), 1 medic unit, and 1 BC. Closest resources respond. Results in an estimated 18 on scene plus the Medic unit. This would exceed the recommendation of NFPA 1710 for 14 firefighters on scene for a fire in a 2000 ft^2 2-story house. This response could also handle a small commercial building fire.

2.2.2 Vegetation Fire in Lilac Hills

The response weight should include: 2 closest engines, 5 Type III CAL FIRE engines, 1 air attack plane, 2 air tankers, 2 copters, 2 hand crews, 1 dozer, one water tender, 1 BC. This is a robust response. Beyond this initial response, virtually unlimited resources are available from CAL FIRE and the station Mutual Aid system.

2.2.3 Emergency Medical Call in Lilac Hills

The response weight should include: 1 Paramedic engine and one medic ambulance. This would result in 5 firefighters on scene which are needed for a full cardiac arrest event.

2.3 DSFPD Station Distribution (Including CAL FIRE and Auto Aid)

Dudek conducted an analysis of the response travel time/route and response coverage area of four existing fire stations providing service to DSFPD as well as automatic aid stations from nearby fire agencies to supplement an assessment of fire department response capabilities specifically associated with the proposed Lilac Hills Ranch master planned community. This assessment is based on County General Plan standards for fire and emergency medical response, which are both 5 minute travel, but also includes comparisons with the NFPA standards, which are 4 minute travel. Both analyses were conducted using Network Analyst tools within GIS software (ArcGIS 10) in combination with fire station location data and existing and proposed project road data. Output data from these analyses includes response routes (coded with response times) and response coverage areas, indicating the areas which can be reached by all modeled stations within allotted timeframes. In addition, Dudek modeled hypothetical fire stations in the extreme northwestern portion of the project site and the

southern portion of the site to confirm that an interim fire station could be positioned anywhere on the project site and comply with the General Plan's 5 minute travel time standard. The analysis, which indicates that the entire Project area can be reached within a 5 minute travel time no matter where the fire station is situated in the developed portion of the site, is provided in Figures 11 and 12.

For this assessment, all four of the existing fire stations and a conceptual on-site station at the Phase 3 and Phase 5 locations were modeled using 4, 5, and 8 minute travel time windows. Travel speeds were based on speed limits and varied by road type and ranged from 20 miles per hour (mph) (residential streets) to 60 mph (highways, major roads). Proposed roads within the Lilac Hills Ranch master planned community were coded with speed limits, which were based on a comparison of existing speed limits data for similar road types based on roadway classifications in the surrounding area. Speed limits were used in the modeling efforts discussed herein in order to more accurately represent response speeds, which are constrained by these road types.

Response modeling used an estimated call processing time in the dispatch center of 1 minute for 90% of calls (NFPA 1221) and an average of 1.33 minutes for turnout time in the fire station for 90% of fire calls and 1 minute for EMS calls (NFPA 1710; Section 4.1.2.1). The resulting 2.33 minutes plus a 4 minute travel time period for 90% of all calls results in a 6.33 minute response time. These are estimated standards. The Network Analyst modeling output files were utilized to generate the exhibits presented in Appendices A-1 through A-8, which depict fire station response capabilities assuming travel time and speed limit constraints.

Following compilation of all necessary data layers received from project applicants and acquired via publicly available sources, Dudek verified that all data layers were in the California State Plane Zone 6 coordinate system with units in feet. A network data set was then created utilizing ESRI's Network Analyst extension in the Arc Catalog module. The data set was created by merging the existing centerline street layer, acquired from SANGIS (2012), with the proposed Lilac Hills Ranch Project centerline street data, provided by project applicants, and assigning parameters to the created data set. Several parameters are available during the creation of a network data set and include elevation constraints, U-turn capabilities, curb approach direction and travel impedance. For the purposes of this analysis, no elevation constraint was applied to the data set. Elevation constraint parameters typically apply to an analysis of other network types and are not typically applied to transportation network analyses. Due to the emergency nature of the response scenarios modeled in this analysis, U-turns were permitted on every road. Curb approach determines on which side of the street the vehicle needs to approach and includes three options, left, right, or either. The 'either' option was selected for all roads in this analysis based on the emergency nature of the response situations. Finally, travel impedance was utilized to include the effect of speed limits on response time. A custom impedance value was created for

each road segment and was a function of road segment distance (miles) divided by speed (mph). This value was utilized in Network Analyst calculations for both modeling types and reflected the time necessary for a vehicle to cover the distance of the road segment.

Once the network data set parameters were finalized, the route analysis was run using the Network Analyst extension in ArcGIS 10. This function determines the best route between a minimum of two points based on the parameters chosen. In this analysis, five routes were analyzed to a point within the proposed Lilac Hills Ranch Project, and assumed three separate response scenarios, including a structure fire, a wildland fire with structural threat, and a medical aid response. The response routes included one from each of the four existing stations providing service to DSFPD (Stations No. 11, 12, 13, and 15) and the closest automatic aid station (NCFPD Station No. 4). For this analysis, travel speeds were based on road speed limits. A route analysis procedure was then run using Network Analyst for each station, with the fire station as the starting point, and a location within the Lilac Hills Ranch Project as the destination. For the structure fire and medical aid analyses, a central point within the Lilac Hills Ranch Project was selected for the destination point. For the wildland fire analysis, a point in the south-western portion of the Lilac Hills Ranch Project was selected for the destination point based on its proximity to more hazardous chaparral fuels adjacent to the site. Table 10 summarizes the distance from each of the existing stations to the proposed Project, along with the total driving time required to reach the site. The maps depicting these analyses are presented in Appendices A-1 through A-8 and include unique outputs based on the three emergency response scenarios and present different response actions based on the nature of the emergency.

Table 10
Fire Station Drive Times to Central Portion of Lilac Hills

Fire Station	Distance (miles)	Travel Time to Project (minutes to central location)	Comments
DSFPD - 11	5.27	6:37	This is the second closest DSFPD Station. Response would occur as part of DSFPD assist to round out effective fighting force; Response could occur from the south through a gated roadway, from the east via Covey Lane or from the North on Lilac Road; Response times do not meet 4 minute travel time, but does meet 8 minute travel time for portions of the site.
DSFPD - 12	9.47	10:56	This is the third closest DSFPD Station. Response would occur as part of DSFPD assist to round out effective fighting force; Response would be delayed due to distance
DSFPD - 13	11.06	13:37	Response would occur as part of DSFPD assist to round out effective fighting force; Response would be delayed due to distance
DSFPD - 15	0.98	1:41	CAL FIRE Station that is integrated into DSFPD and represents a critical component of the District's response system; responds to

Table 10
Fire Station Drive Times to Central Portion of Lilac Hills

Fire Station	Distance (miles)	Travel Time to Project (minutes to central location)	Comments
			all types of emergency calls
NCFPD - 4	5.10	6:42	Would respond to the Lilac Hills Ranch Project and is proximal; likely part of effective fighting force for structure fires
NCFPD - 5	6.85	12:11	Would respond to Lilac Hills Ranch Project, distance would limit its response timeliness; would likely respond on wildland fires.
EFD - 1	15.90	17:39	Would respond with truck company, as needed; distance limits the usefulness (15 minutes +) and the Lilac Hills Ranch Project includes no habitable buildings 35 feet or over; large commercial / senior care structure included and truck or service truck desirable
VCFPD (Station 72)	8.77	16:09	Valley Center Stations are staffed by CAL FIRE. Distance to Lilac Hills Ranch is excessive for initial response and the roads require slower speeds. Would probably respond on wildland fires.
VFD	10.86	14:09	Vista Fire Station would respond with light and air unit if available and requested; distance would prevent it from arriving sooner than 20 minutes

As indicated in Table 10, the driving times from DSFPD and vicinity fire stations to the Lilac Hills Ranch Project vary by station and assume response speeds are the same as designated speed limits. Clearly, the Station 15 location provides the fastest response times throughout the Project. Therefore, determining what response configuration from that location can feasibly be deployed so that CAL FIRE's mission is maintained while providing primary response to Lilac Hills Ranch represents an analysis priority for efficient and effective emergency service.

The next analysis involved running network models to determine the response area of each of the four existing fire stations within the DSFPD, the NCFPD Station No. 4 (Automatic Aid), and conceptual on-site fire stations located in the Phase 3 and Phase 5 sites. These models were generated to depict the geographical limits of the response area that can be reached by each fire station/engine within a designated travel time during an emergency response. These models account only for travel time from the fire station location. For this analysis, 4, 5, 8, and 10 minute response travel times were used for evaluation purposes, although not all of these times were used for modeling at each station. All response areas were created using the Network Analyst extension in Arc GIS 10 and the network data set previously created to analyze emergency response routes and response times. The model outputs depicting the response area for each of the aforementioned stations also utilized speed limit data for response speed. Additionally, model parameters applied to this analysis were the same as those applied to the response route analysis. The output from each of these analyses is an irregularly shaped polygon depicting the farthest extents, which can be reached from each station in a given

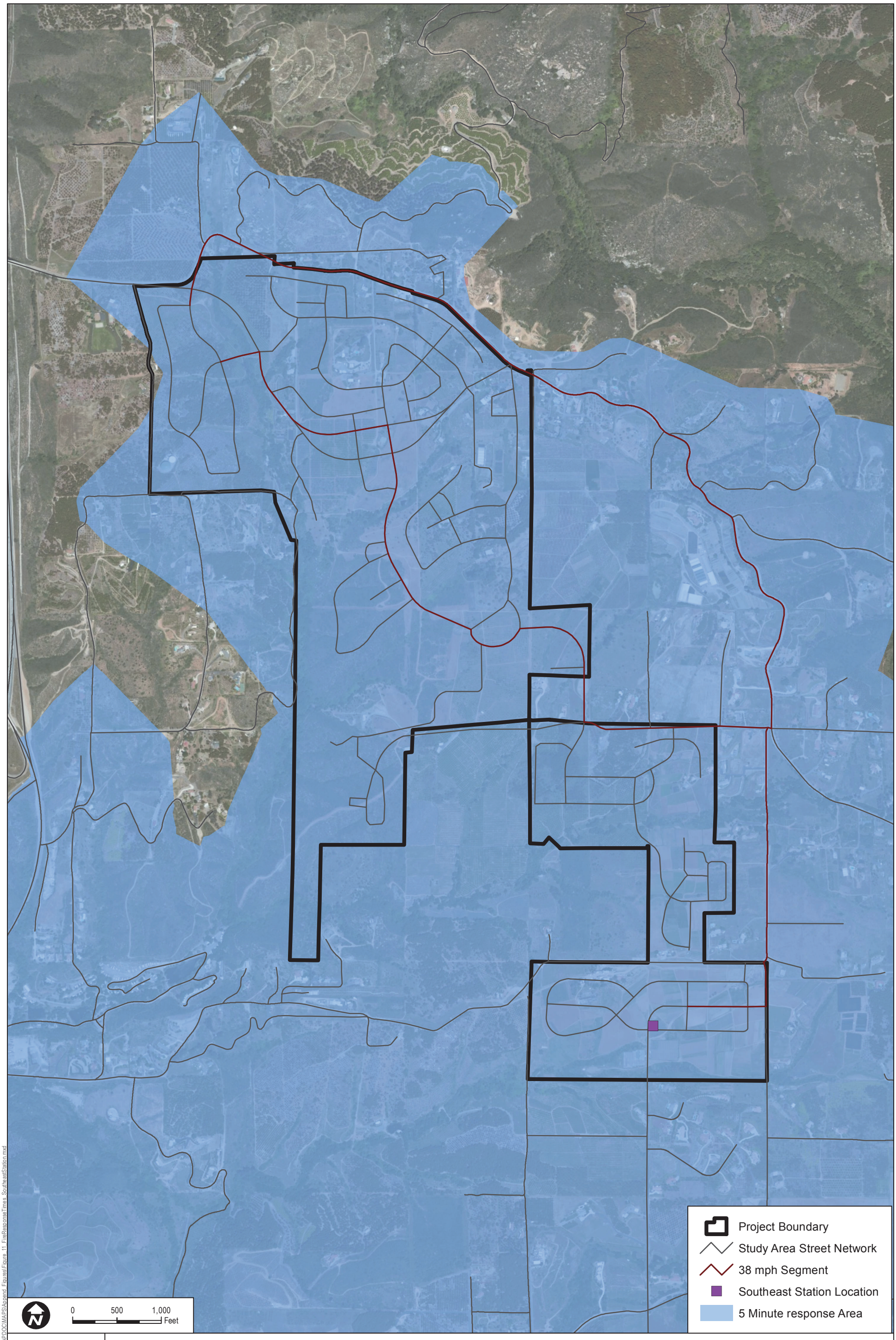
travel period while traveling at identified speed limits. Maps depicting the results of response area modeling are presented in Appendix A. Table 11 provides a summary of the coverage model exhibits in Appendix A-1 through A-8.

Table 11
Summary of the Fire Department Response Analysis Maps in Appendices A-1 through A-8

Map Number	Title	Description
A-1	DSFPD Coverage Area - 4 and 8 Minute Travel Time	4 and 8 minute response areas from DSFPD Stations 11, 12, 13, and 15
A-2	DSFPD Coverage Area - 5 Minute Travel Time	5 minute response area from DSFPD Stations 11, 12, 13, and 15
A-3	DSFPD Coverage Area - 4 and 8 Minute Travel Time with Automatic Aid	4 and 8 minute response areas from DSFPD Stations 11, 12, 13, and 15 and NCFPD Station 4 (Automatic Aid)
A-4	DSFPD Station 15 Coverage Area - 4, 5, and 8 Minute Travel Time	4, 5, and 8 minute response areas from DSFPD Station 15
A-5	Structure Fire Scenario	Response routes, distances, and times from DSFPD Stations 11, 12, 13, and 15 and NCFPD Station 4 to central location in Lilac Hills Ranch site
A-6	Wildland Fire Scenario	Response routes, distances, and times from DSFPD Stations 11, 12, 13, and 15 and NCFPD Station 4 to location in south-west portion of Lilac Hills Ranch site (adjacent chaparral fuels)
A-7	EMS Scenario	Response routes, distances, and times from DSFPD Stations 11 and 15 to central location in Lilac Hills Ranch site
A-8	Phase 3 Potential Future Station - 4 Minute Travel Time	4 minute response areas from potential on-site fire station
A-9	Phase 5 Potential Future Station – 5 minute Travel Time	5 minute response areas from potential on-site fire station in Phase 5

2.4 Response Gaps

The daily event is usually the routine that results in minimal losses, while significant events are less frequent. Toward the highest risk levels, the events are less frequent. If the risk management system is working in the community, a catastrophic loss should be an extraordinary event. The objective of a risk assessment is to reduce the truly serious loss to a very unusual event for the area served and involves trying to keep routine emergencies from becoming serious loss situations. The speed and weight, in terms of resources, of the response is a critical component of this incident strategy. The DSFPD includes the following response gaps where the speed and weight of a response does not meet protected needs to avoid routine incidents from becoming more serious.



DUDEK

7449-01

FIGURE 11

Southeast Station Response Area

DEER SPRINGS FIRE PROTECTION DISTRICT CAPABILITIES ASSESSMENT

NOTE: Drive times calculated using a 35 mph average speed except where indicated.

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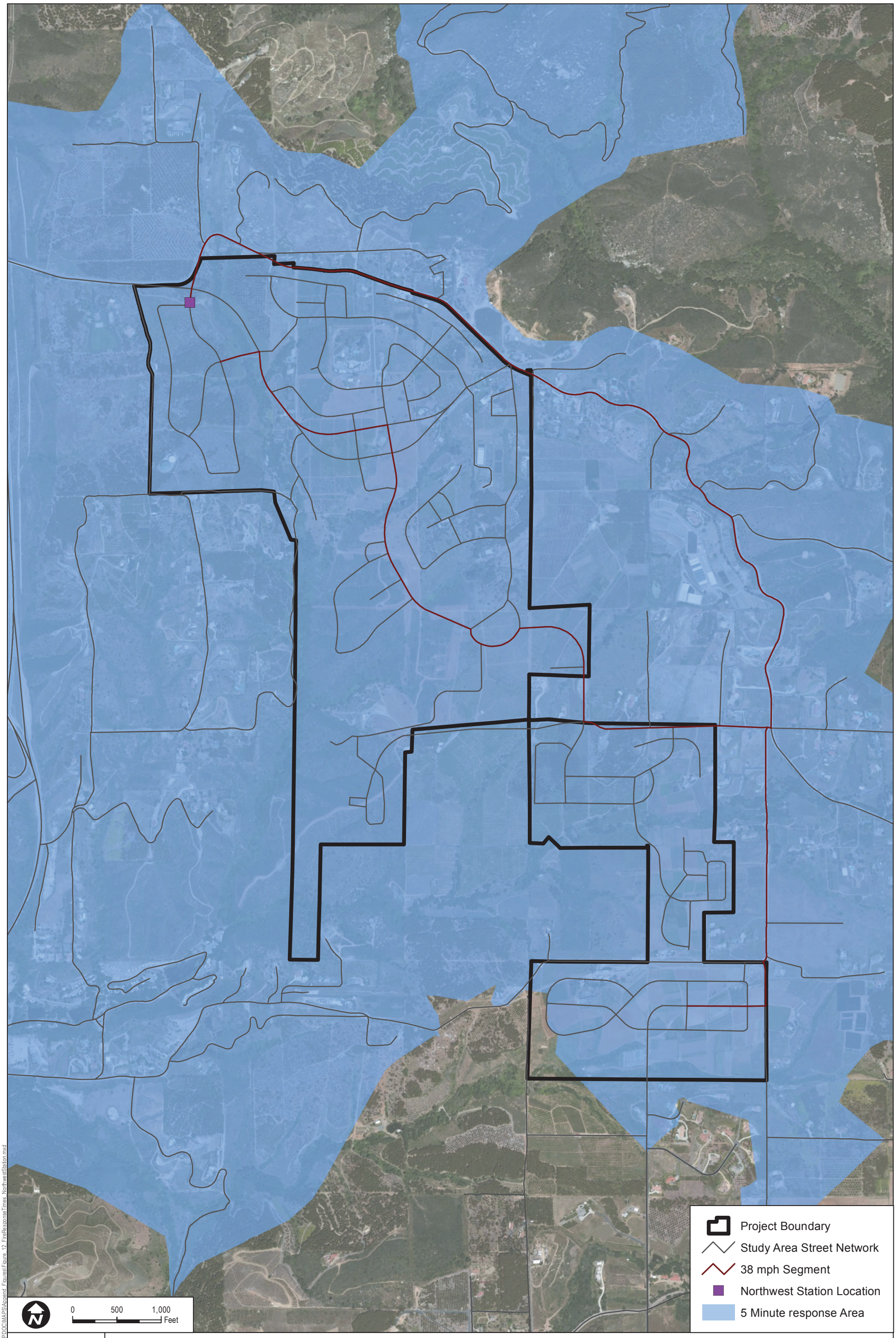

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7449-01

FIGURE 12

Northwest Station Response Area

DEER SPRINGS FIRE PROTECTION DISTRICT CAPABILITIES ASSESSMENT

NOTE: Drive times calculated using a 35 mph average speed except where indicated.

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Figure 13 provides the extents of the DSFPD jurisdiction. The response maps provided in Appendices A-1 – A-9 depict the central portion of the project, as the extreme edges of the District are assumed to have slower response coverage and would also be the first areas for response from neighboring agencies into the District.

Appendix A-1 provides depiction of NFPA 1710 4- and 8- minute travel times from each of the existing DSFPD stations. As illustrated, the fire stations and resources appear to be located where they can respond to the highest population density areas (Castle Creek, LWR/Champagne Village, Hidden Meadows, Jesmend Dene) in an efficient manner. Response gaps are associated primarily with roadless areas or where there are no road interconnections through private property to a public roadway. These areas are allowed a longer response time (10 minutes travel in the SDC General Plan). One large gap appears to be in the southwestern portion of the District, north and west of Station 12. San Marcos Fire Department would likely cover this area under automatic aid, but this scenario was not modeled as the focus of this study is in the northern portion of the District. The Lilac Hills Ranch Project is roughly 95% covered within a 4- minute travel time, and 100% covered within a 5-minute travel time from Station 15. Using stated speed limits as the engine response speed along the response route, Station 11 can respond within 5 minutes to a portion of the Project's Phase 1 (extreme northwest corner of Project), totaling 71 units (20%), when entering the project from the north, as depicted in Figure 14. A total of 85% of Phase 1 can be responded to within 5 minutes 50 seconds travel from Station 11. The portion of Phase 1 requiring over 6 minutes is the development area in the extreme northeast portion of Phase 1. Phase 2 lots would require additional travel time from Station 11, but it is estimated that roughly 60–70% of Phase 2 could be reached in under 6 minutes travel time. The remainder of Phase 2 may require 7 minutes or longer from Station 11. Modeling Station 11 response from the south, along Mountain Ridge Road indicates that a total of 7 lots can be reached within 5- minutes travel.

It is important to note that, although not officially written into response guidelines, interior sprinklers play an important role in facilitating longer response times. The National Research Council of Canada (NRCC) (2005) studied five new real estate developments with its risk cost assessment model, FiRECAM(TM) (Fire Risk Evaluation and Cost Assessment Model), to assess whether occupants in an apartment building with sprinkler protection but longer fire department response times were as safe as those in a building without sprinkler protection but a faster fire department response time. Using a three-story apartment building to represent the normal range of buildings in a residential community, the NRCC assessed the expected risk to life to the occupants with and without added sprinkler protection, and with two levels of fire department response. The results showed that sprinkler protection and existing fire department response times provide a better level of fire safety than no sprinkler protection and a shorter fire department response time. The benefits of sprinklers and compensation for longer response times is echoed by numerous studies and fire agencies, including Chandler (2007) in his study of requiring sprinklers for annexed

communities that lengthened response times from existing stations. Therefore, it is feasible from both call volume and response travel time perspectives that Station 11 can cover most of Phase 1 and portions of Phase 2 within reasonable response times, given the additional fire protection features available on the site. Emergency medical response is not affected by these fire protection features, so response times would be less flexible than for fire emergencies.

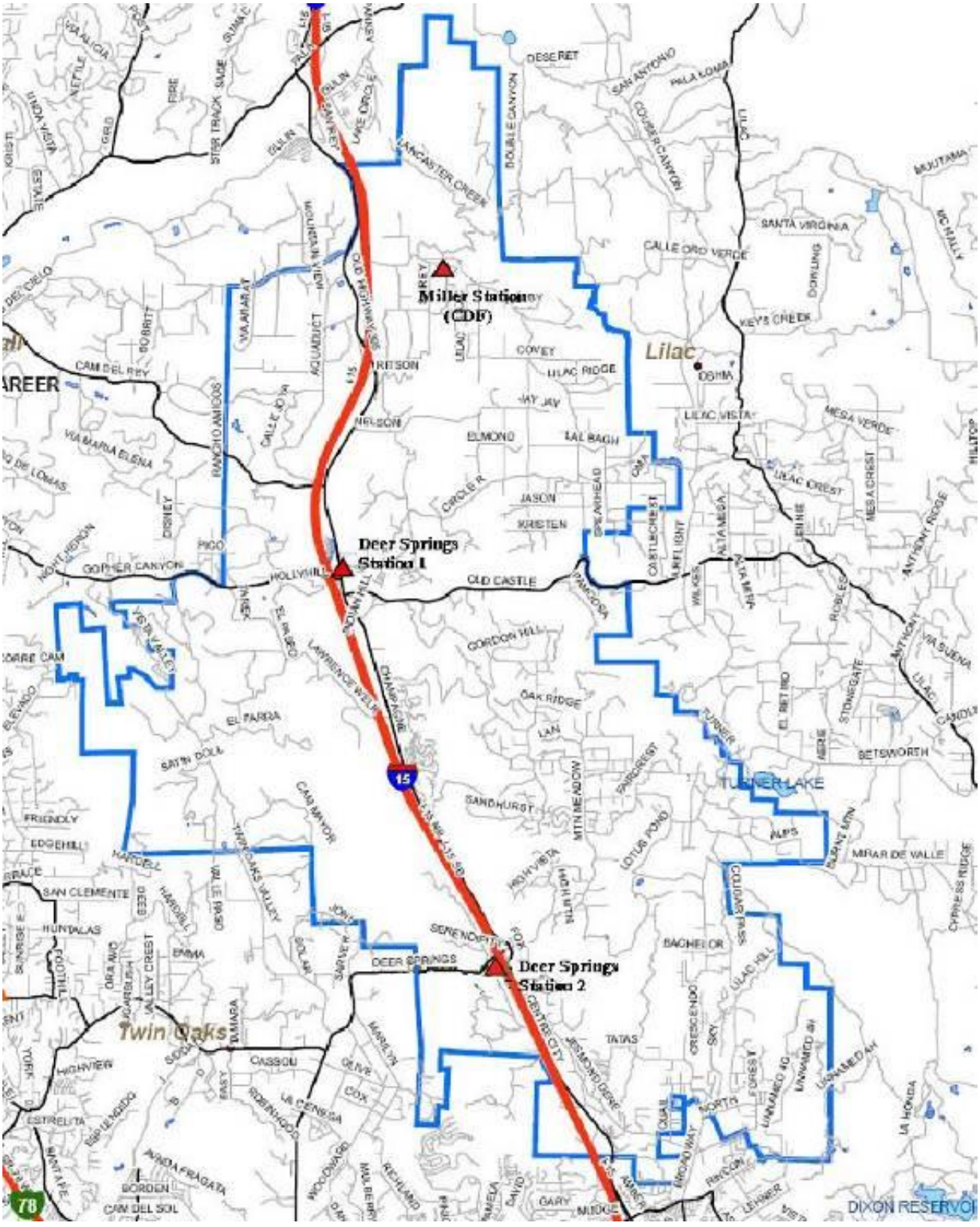
Appendix A-2 depicts the General Plan's 5-minute travel time coverage areas from each of the existing DSFPD stations. As illustrated, the 5-minute travel times continue to provide good overall coverage of the areas with the highest population densities. With regards to the Lilac Hills Project, Station 15 provides 100% coverage within 5 travel minutes. The areas not covered within a 5- minute travel time that are not in the Project area are primarily very rural areas where 10 minutes travel time is allowed by the General Plan.

Appendix A-3 indicates the automatic aid response for NCFPD's Station 4. Additional automatic aid from Valley Center, Pala, Vista, or Escondido are not included as response from these areas resulted in minimal DSFPD coverage within the 4- and 8-minute response times. NCFPD's Station 4's 8-minute travel time coverage overlaps an estimated 75% of DSFPD's Station 15's 4-minute travel time coverage, including roughly 70% of the Lilac Hills Ranch Project site.

Appendix A-4 illustrates the 4-, 5-, and 8-minute travel times from Station 15. As depicted, coverage from that station reaches into the NCFPD's jurisdiction, including 5-minute response into portions of Lake Rancho Viejo community and 8-minute response to the SR-76/I-15 interchange, the future site of a large community. To the south, Station 15 provides 5-minute and 8-minute travel time coverage as second-due to Station 11's primary 4-minute and 5-minute response area. This exhibit provides a visual representation of the appropriateness of the existing Station 15 location for servicing the Lilac Hills Project. The current station configuration serves the District's population centers well.

Appendix A-5 provides a depiction of a typical response to a structure fire within the Lilac Hills Ranch Project. The exhibit indicates where the response resources respond from and the overall weight provided, tracked by elapsed time. As indicated, responding stations/agencies include DSFPD Stations 15, 11, NCFPD Station 4, and DSFPD Station 12. Travel time of arrivals is 1:41, 6:37, 6:43 and 10:56, respectively. Total weight of response is projected to be just short of the NFPA 1710 standard at 12 firefighters within 8-minutes travel time. However, this response is considered adequate and when analyzing NFPA 1710, it does not consider the value of interior fire sprinklers for extinguishing fires in the insipient stage or the life safety benefits of these now mandatory structure features. Additional resources would respond if requested, but would be delayed beyond the 8-minute travel time.

Figure 13 Deer Springs Fire Protection District Boundary



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7449

SOURCE: SanGIS 2013

FIGURE 14

Lilac Hills Ranch Phase 1 Response Analysis from Station 11

LILAC HILLS RANCH

Path: Z:\Projects\7449\01MAPDOC\MAPS\Graphics\StudyFigure_14_Phase1Lots_ResponseTimes.mxd

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Appendix A-6 provides a depiction of a wildland fire within the preserved coastal sage scrub to the southeast of the Lilac Hills Ranch Project's developed areas. As indicated, responding stations include DSFPD Station 15, 11, NCFPD Station 4, and DSFPD Station 12. Travel times to the fire are 2:21, 6:50, 6:54 and 11:08, respectively. Additional resources would arrive on the scene from adjacent agencies beyond 10 minutes, but the initial attack by two engines within 10 minutes is consistent (meets or exceeds) standard of cover described in this study.

Appendix A-7 depicts a typical medical emergency call to the Lilac Hills Ranch Project site. As indicated, first due would be from Station 15 with other stations responding, including Mercy Ambulance from station 11. Station 15 arrives on scene at 1:41 travel time, meeting the standard of cover of initial basic response within 4- minutes travel time, which also meets the General Plan standard of 5 minutes travel. Station 11's ambulance arrives on site at 6:37 travel time, meeting the 8-minute travel time for advanced life support. Appendix A-8 provides the 4-minute travel time coverage from a conceptual on-site fire station located on the CPF site within the Neighborhood Center commercial area in Phase 3.The station has been located roughly in the middle of the project, near a major intersection that provides good access in all directions. As presented, and expected, an on-site station would be able to reach all of the developed portions of Lilac Hills Ranch Project within 4-minutes travel, and would provide additional coverage to the north, northwest, northeast, east and south. A fire station at this location would result in redundant coverage with Station 15 for large portions of Station 15's first response area and for a smaller portion of Station 11's response area in Phase 1. Redundancy and need for this station vs. Station 15 is discussed in more detail in Section 5.0

Should the Mountain Ridge Road Fire Station Alternative be approved, Appendix A-9 provides the 5-minute travel time coverage (County Standard) from the on-site fire station in Phase 5 The potential future station has been located along the primary access road on a two-acre site in the commercial area of the project. The model was run with proposed roadway gates and without gates, with each gate adding roughly 15 second delay (automatic gates will open within 15 seconds). If the Mt. Ridge road fire station alternative is approved, the road will be a dedicated public road and built to the County Consolidated Fire Code standards s. Public Roads cannot be gated. With or without gates, the station is capable of responding to the entire Lilac Hills Ranch project within the County's 5 minute travel time standard. The coverage areas are almost identical with or without gates due primarily to the area's road network's lack of north-south and east-west connector roads. The Phase 5 Station location includes less overlap with existing Station 15 than the proposed Phase 3 station location, but more overlap with Station 11 coverage area. Should both Phase 3 and Phase 5 include fire stations, the overlap between the two stations would be substantial and there would be additional overlap with both Stations 11 and 15.

2.4.1 Private Road Gates and Effect on Response

Under the proposed Project, three of the private access roads into the community are gated roads. These include Covey Lane, Mountain Ridge and Rodriguez Road. These roads are proposed to be gated as they lead into an area of the Project that houses 55+ senior families, independent living, assisted living and dementia care. These types of facilities are often gated for the security and protection of the senior residents. Covey Lane and Rodriguez Road will provide fire access and gating will be consistent with the code. The Fire Code (San Diego County Consolidated Fire Code Section 503.6), states that security gates or devices shall not be installed across a fire access roadway without the fire code official's approval. Gates are generally discouraged by fire agencies as they can slow emergency egress and responder ingress during an emergency. However, gates are allowed according to Fire District Standards and the County's Consolidated Fire Code when a reliable means of firefighter ingress and unobstructed egress is provided. Options for meeting these requirements can include personnel stationed at the gate on a 24-hour basis, strobe detectors, close proximity public safety radio transmissions, battery back-up with "lock open" on power failure, or key operated electric override switch (San Diego County 2010). Exiting through the gate(s) should be unobstructed and not require any activation measures unless the FAHJ assumes responsibility to activate the gate during times of emergency.

There are reliable gate opening options available that will eliminate any delays entering the project. For example, siren or radio activated gates provide a secure, reliable means of emergency entry without delays common to keyed entry gates. Appendices B and C provide details pertaining to siren and radio activated gates, respectively. These systems can be added to most gate opener devices and require no additional equipment for responding emergency personnel as they are already equipped with sirens and radios. To ensure that the gates do not cause an obstruction to ingress or egress during emergencies, a battery back-up would be provided. Battery back-up systems typically remain unused, but charged and if needed during a power outage, are designed to provide a large number of cycles (open/close) using battery power. The gates can also be programmed to remain open in the event of power outage. Appendix D includes specifications for one example automatic gate operator with battery back-up. Gates will be provided one of these systems or Knox key switch override systems along with an approved emergency traffic control-activating strobe light sensor (Opticom).

It is estimated that it takes about one minute to stop the fire engine, operate a KNOX key switch on a gate, get back in engine and go through gate. So the response to the gated areas would be delayed by 1 minute per gate. However, automated gates, such as those recommended herein, will require less time, roughly one-quarter to one-third the time to open and proceed through the gate as the gate can be triggered remotely by siren or radio and results in minimal delay related to the time for the gate to move from closed to open.

Covey Lane and Rodriguez Road include one gate each, thus an estimated 15 second delay would be experienced for responders from the south or east. Under the proposed Project, Mountain Ridge Road is an additional access road that would include a gate but will not be used as a fire access road. Mountain Ridge Road merely provides additional ingress/egress. Note that once the first engine is through the gate, it would be "blocked" open and any other responding engines would not have to stop at the gate. If the response is coming from the north, such as Station 15, then the initial response would not be delayed and the second-due engine would be delayed by about 15 seconds from the south. The response coverage in this analysis uses a 4-minute travel time in part to account for the worst-case potential gate delay, resulting in up to a 5-minute travel time (considering the possibility that a gate needs to be manually opened), consistent with the General Plan. Since the gates on Covey Lane and Rodriguez Road are on secondary emergency access roads, affecting second-due engine, rather than the main access road and the first-due engine, the 15-second delay is likely less important.

2.4.2 Decommissioning of CAL FIRE Station 15

This section briefly discusses the impact on the DSFPD if Station 15 were to be decommissioned or were otherwise not available to respond to emergency calls within DSFPD. This scenario is included in the analysis because of DSFPD's assertion that Miller station cannot be depended upon to provide coverage to the project. Currently, the Station provides critical coverage at the northern end of the District's jurisdiction. The Station provides 4- or 5- minute travel time response to an estimated 500 existing structures as well as providing response along I-15 and into Bonsall, VCFPD and southern NCFPD areas, along with others, as requested. The northern part of the District along with a high value asset – Sullivan Middle School and to some extent, the southern portion of NCFPD would be left uncovered within a 4- minute or 5-minute travel time. In terms of wildfire protection, the large open space to the north and east, much of which is in permanent conservation, represents a significant wildfire corridor, especially due to the terrain and Santa Ana wind alignment. Station 15 is situated in a key location for fast response to wildfire ignitions where time is critical for early containment and prevention of exponential fire spread.

Should Station 15 be decommissioned or unavailable, the impact on the remaining three Stations within the District would be primarily slower response times. Station 15's call volume of 1 call per day, with many of those calls being cancels or false alarms, could be absorbed by Station 11, due to its existing 2 calls per day load. With the drop boundary agreement in place, it is possible that NCFPD Station 4 or VCFPD Stations would realize an increase in call volume as they may be the closest Unit for some portions of Station 15's current response area.

The response modeling provided in Appendix E indicates the 4-minute, 5-minute and 8-minute travel time areas that can be covered by each of the District's remaining stations, focusing on the northern portion of the District. As depicted, Station 11 can cover the I-15 incidents up to about the West Lilac Road area to the north within a 4-minute travel time and results in very large coverage gaps to the north, and east and west of the I-15 corridor. Eight minute travel time coverage from Station 11 includes a relatively large area, but due to the road system and lack of interconnections, results in large coverage gaps where slower response times would be experienced. Without Station 15, and in the absence of an on-site station in either Phase 3 or Phase 5, the Project site and many of the surrounding areas would be left without response in 4 or 5 minutes travel time. NCFPD's stations are too far north or west to arrive sooner than 5 minutes to the Project and longer than eight minutes to the majority of the site and surrounding DSFPD parcels (Appendix E). Service would be provided to these north DSFPD areas through the automatic aid agreement, but the area would experience service decline.

The Lilac Hills Ranch Project would be serviced by the closest existing station – DSFPD Station 11, the fastest response would be five (northwest corner of Project) to 10 minutes travel time. This situation would be unacceptable for an urban master planned community that generates a calculated 1.9 calls per day. However, DSFPD could own a two-acre site within Phase 5 for a future fire facility that could be used to provide service to the Project or a fire facility could be constructed at the Phase 3 site.

2.4.3 General Plan Safety Element; S6.5

General Plan Policy S-6.4 requires new development to demonstrate that fire services can be provided that meet minimum travel times identified in Table S-1. The policy provides that: "Standards are intended to (1) help ensure appropriate development occurs in areas with adequate fire protection and/or (2) help improve fire service in areas with inadequate coverage by requiring mitigation for service-level improvements as part of project approval." If the appropriate emergency travel time cannot be met for a proposed discretionary project, as explained in the GPU EIR, the project can be approved if sufficient mitigation measures are included as a basis of approval of the project. In addition, the County's Guidelines for Determining Significance provides that where projects exceed these time requirements, the Director of Planning and Land Use may accept mitigation measures that include such measures as Automatic Aid Agreements or offer feasible alternatives that achieve comparable emergency response objectives (Pages 8 and 13). In addition, incremental Growth is allowed to occur until a new facility can be supported by development. (S-6.5). The intent of these provisions, not all of which are specifically set forth in the General Plan, is to explain that other measures, as well as developing technologies may result in a Project that achieves comparable emergency response objectives, even though travel times are technically longer than the travel time standards.

In this case, the Lilac Hills Ranch Project complies with the General Plan's travel time requirements. The entire project can be reached within five minutes travel time as provided by any of the alternatives described herein. However, even without the alternatives, the project may still be considered consistent with the General Plan by providing sufficient mitigation that can be used as the "basis of approval." Essentially, the sufficient mitigations offset the need for emergency response within the General Plan five minute standard for this type of community.

Sufficient mitigation measures provided the Lilac Hills Ranch Project include both required measures (such as interior fire sprinklers and ignition resistant construction) as well as project-specific measures. Required measures play a critical role in reducing vulnerability of structures and demands on responding fire agencies. These features assist the fire agency by reducing the need for immediate intervention and lengthening the response time.

Some of the important measures that assist in this role by providing sufficient mitigation include:

- The Project would provide $2.2 million in Fire Mitigation fees and $973,000 annually in assessments to DSFPD, CAL FIRE and/or San Diego County (depending on which potential option is selected for fire service) enabling acquisition of appropriate resources
- Over $250,000 is provided annually to CAL FIRE through San Diego County assistance for year round Station 15 availability
- Over $650,000 is provided annually to DSFPD by SDCFA for supplemented staffing
- Two existing fire stations (Station 15 and Station 11) can respond to the site within roughly 1–10 minutes travel (Station 15 can respond throughout LHR within 5 minutes travel)
- Approximately 70% of Phases I and II can be responded to in 6 minutes or less from Station 11. Station 15 can respond to over 95% of the Project within 5 minutes travel time
- Automatic aid "drop boundary" agreements are in place that enable closest unit to respond, even if from neighboring district/agency
- Ignition resistant structures and landscape exceeding code requirements that have proven to perform extremely well in wildfires
- Fire sprinklers in all structures which effectively extinguish interior fires over 96% of the time
- Fuel modification for every structure, including alternative measures where 100 feet is not possible

- Roads and access meeting San Diego County Consolidated Fire Code both internal and external
- Roadside fuel modification
- Long-term agriculture areas adjacent the site (reduced, irrigated fuels not native brush)
- No buildings 35 feet or taller minimizing or eliminating the need for a ladder truck
- On-Site EMTs at group care and dementia facilities
- Three emergency access roads in addition to primary access
- Automatic emergency gate operators on emergency access roads enabling access from unit cab
- Redundant water supply of district water, recycled water, grey water and well water
- Automated External Defibrillator's (AED's) installed in any high occupancy uses with staffing for use by trained administrators.

3.0 DSFPD BUDGET COMPARISON

This section provides an analysis of the DSFPD's annual operating budget and allocation of that budget between operations and administration. The DSFPD's annual budget was compared against several north county fire agencies. Data for this analysis was acquired from fire agency Web sites, city Web sites, or directly from the fire agencies via email and telephone communications.

The fire agencies selected for comparison with DSFPD are:

- Escondido Fire Department
- North County Fire Protection District
- Oceanside Fire Department
- Rancho Santa Fe Fire Protection District
- San Marcos Fire Department
- Valley Center Fire Protection District
- Vista Fire Department

These stations were selected based on their proximity to the DSFPD, their similarity in response area, similarity in structure, and/or based on their excellent service reputation.

Table 12 provides a summary of each fire agency's critical information utilized in this analysis. The fire agencies in this comparison include some variation in typical response areas, population densities, staffing, stations and apparatus, and total operating budgets. Variations in these agency attributes accounts for some of the variations in the results, as detailed below. However, the comparisons provide perspective on DSFPD's overall budget, operating efficiency, and the potential financial impact from the development of the Lilac Hills Ranch Project.

Table 12
Vicinity Fire Agency Comparisons with Deer Springs Fire Protection District

Department	Area (sq mi)	Full-Time Staff	Stations	Population	Calls	Apparatus	Budget
Vista Fire Department	36.5	78	6	114,000	10,616	8 engines, 1 truck, 3 paramedic, misc	$18,800,000
Escondido Fire Department	50	103	7	146,000	11,950	15 engines, 1 truck, 7 ALS (3 reserves)	$17,273,000
San Marcos Fire Department	33	79	4	95,000	7,035	4 engines, 1 truck, 4 ambulances	$10,900,000
Deer Springs Fire Protection District	47	26	4	13,000	1,835*	7 engines, 1 ambulance	$4,546,000

Table 12
Vicinity Fire Agency Comparisons with Deer Springs Fire Protection District

Department	Area (sq mi)	Full-Time Staff	Stations	Population	Calls	Apparatus	Budget
Rancho Santa Fe Fire Protection District	38	51	4	27,000	2,500	7 engines, 1 water tender, 3 ambulances	$11,000,000
Oceanside Fire Department	41	130	8	170,000	15,500	8 engines, 2 quint, 4 ambulances, 1 water tender, 1 rescue	$23,716,276
Valley Center Fire Protection District	84.5	13	2.5	23,000	1,300	4 engines, 1 rescue squad	$3,450,000
North County Fire Protection District	92	68	6	50,000	4,107	10 engines, 1 water tender, 1 quick attack, 1 rescue, 3 ambulance	$14,000,000

***Note:** The call volume reported appears to include an anomaly and may actually be lower, which would affect the comparisons in the following Section, most notably, the estimated Cost per Call number would increase proportional to the reduction in the call volume.

3.1 Total Budget

The total budgets for each fire agency vary from Valley Center Fire Protection District at $3.45 million to Oceanside Fire Department at $22.5 million. DSFPD's total budget is $4.55 million dollars for fiscal year 2011/2012. According to the district's budget, the majority of the costs are related to the CAL FIRE contract for staffing and apparatus, which is just over $3.84 million (84%) of the district's annual budget. A total of $0.27 million (6%) is allocated for "operations" and $0.29 million (6%) for "administrative." Based on this analysis, and depending on the actual use of the 6% of the budget for "operations," the overall administrative expenditure is less than that in most other districts.

3.1.1 Revenue

Revenue sources for fire agency budgets vary by the type of agency. For example municipal fire agencies (City of Escondido, City of Oceanside, City of San Marcos, City of Vista) typically include funding from a City General Fund that is sourced from a percentage of sales and parcel tax revenues along with other sources. Fire district funding is more complicated and includes a variety of potential sources. Sources include funding through County General Funds, fees from plan review, service zones, facilities districts, and some have approved special assessments/fees, which in some cases, provide the majority of revenue. State law allows fire protection agencies access to two primary sources of sustainable revenue–property tax and voter approved

assessment. Proposition 13 and SB 154 have had a significant impact on revenues of some special districts, limiting property tax increases and proportional share of generated taxes to districts with a pre-Prop 13 tax rates.

Table 13 provides a summary of the revenue sources from several north San Diego County fire agencies.

Table 13
Comparison of Fire Agency Revenue Sources

Fire Agency	General Fund (Sales and Parcel Taxes)	Special Fire Assessment/Benefit Fees/Melo Roos	Estimate of Revenue Source Allocation
Vista Fire Department	X	N/A	100% General Fund
Valley Center Fire Protection District	X	X	24% General Fund / 76% Standy Fee/Melo Roos-benefit fee CFD
Oceanside Fire Department	X	N/A	100% General Fund
Escondido Fire Department	X	X	98% General Fund / 2% Special Tax
San Marcos Fire Department	X	X	90% General Fund / 10% Melo Roos
Deer Springs Fire Protection District	X	X	10% General Fund / 74% Special Assessments/16% County Augment
North County Fire Protection District	X	N/A	100% General Fund
Rancho Santa Fe Fire Protection District	X	X	93% General Fund / 7% Benefit Fee

As noted in Table 13, Oceanside Fire Department and Vista Fire Department receive funding from typical General Fund sources, primarily through sales taxes, parcel taxes, and occupancy taxes with development services fees also providing revenue. The Cities of Escondido, Vista, and San Marcos fire departments receive the majority of their funding from General Funds, but in the case of Escondido, a small percentage of its overall budget is related to a special tax on 4,000 structures ($72/structure/year) located within the Rincon Del Diablo Improvement District. San Marcos includes Melo Roos funding at a relatively low level in addition to General Fund sources.

Fire Protection Districts vary, with some relying entirely on General Fund (non-special tax) revenue and others being primarily funded through voter approved taxes. NCFPD receives all of its revenue from non-special tax funds. Rancho Santa Fe Fire Protection District is primarily funded by non-special tax sources, with an approximately 7% benefit fee approved by voters. Valley Center Fire Protection District includes a Melo Roos/benefit assessment for annexed

land that consists of two taxes that generate roughly 33% of their annual budget. The only district in this comparison that receives most of its funding from special taxes is Deer Springs Fire Protection District, which receives roughly 10% of its budget from typical County General Fund sources. Reasons for the low parcel tax income are related to level of development in the District and Proposition 13/SB 154 and the fact that it is a post-Prop 13 District. The County voluntarily conveys a percentage of parcel tax to the District (along with others formed about the same time). The District receives another roughly 36% of its annual budget from a voter approved (1981) special fire standby/availability fee, 36% from a 2004 voter approved fire suppression assessment, 16% of its revenue from a County supplement and 2% from miscellaneous sources (interest, weed abatement, first responder, etc.). In March of 2011, the DSFPD approved a special Fire Mitigation Fee Program, which is intended to collect fees from new projects and hold in a fund for the sole purpose of providing capital facilities and equipment to serve new development.

3.1.2 Expenses

Comparing DSFPD's expenditures on salary related costs vs. non-salary related costs with that of five other vicinity fire agencies' (Vista, Oceanside, Escondido, Valley Center, and San Marcos), the results indicate that DSFPD is weighted heavier on the staffing salary expenses (88%) than on all other non-salary expenses (12%). Fire agencies and their salary related to overhead related cost ratios are summarized in Table 14. In general, the industry average ratio is 80/20, salary/non-salary expenses as a rule of thumb. The reasons for the higher ratio for DSFPD are unclear, since the majority of the salary costs are CAL FIRE staffing costs. The District appears to operate with lower overhead costs related to facilities and engine maintenance.

Table 14
Comparison of Fire Agency Budgets Allocated to Staffing vs. Overhead

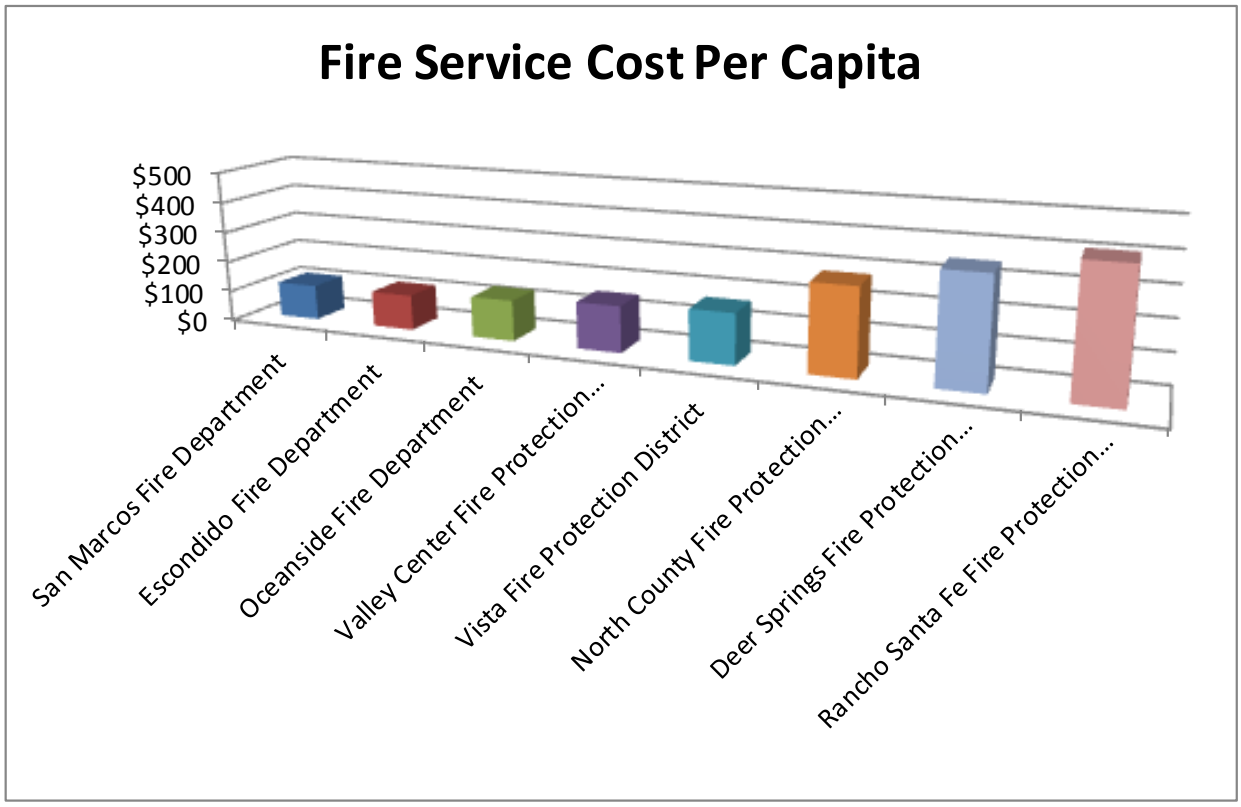
Fire Agency	Budget Allocated to Salary Related Costs	Percentage Salary Related Costs	Budget Allocated to Non-Salary Costs	Percentage Non-Salary Related Costs
Vista Fire Department	$12,693,616	68%	$6,106,384	32%
Valley Center Fire Protection District	$2,655,589	77%	$794,411	23%
Oceanside Fire Department	$18,409,167	78%	$5,307,109	22%
Escondido Fire Department	$14,887,265	86%	$2,385,735	14%
San Marcos Fire Department	$9,427,338	86%	$1,506,662	14%
Deer Springs Fire Protection District	$3,986,635	88%	$559,365	12%
Average %	N/A	80.5%	N/A	19.5%

Comparing the DSFPD's overall budget with other vicinity fire agencies' included in this assessment results in a shifting ranking, depending on the category being evaluated. Each evaluated category is provided a brief discussion in the following sections.

3.2 Cost per Capita

Based on the cost of the fire service per capita, DSFPD is second highest at $350 per protected citizen (Figure 15). Cost per capita ranges from $115/citizen in San Marcos and Escondido to $407/citizen in Rancho Santa Fe. The average cost per citizen for the eight evaluated agencies is $214. The cost per capita results suggest that municipal fire departments with a denser population are serviced more efficiently than the more rural fire districts.

Figure 15 Cost per Capita for Fire Service

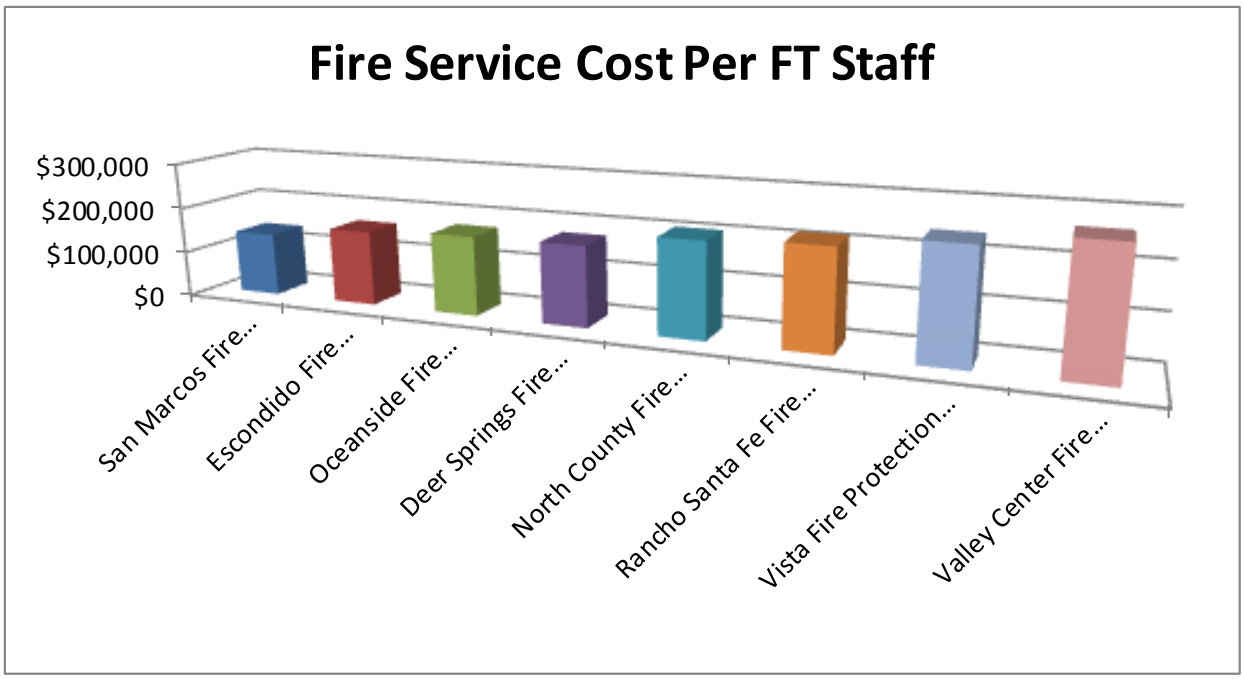


3.3 Cost per Full Time Staff

When compared on a cost to staffing ratio, the results indicate that DSFPD is one of the lower cost agencies in the comparison group at just over $174,000 per full time staff person (Figure 16). Cost per full time staff ranges from roughly $138,000 in San Marcos Fire Department to

$265,000 in the Valley Center Fire Protection District. The average cost per full time staff person for the eight evaluated fire agencies is $197,000. The results of the cost per full time staff person suggests again that municipal agencies, which are typically larger and have larger budgets, are able to more efficiently provide fire protection services than smaller, more rural agencies. Certain fixed costs that are common to all agencies are spread over more staff persons in the more urban agencies, resulting in lower overall costs when compared on a staffing basis. Optimizing the number of stations and staff is an important cost consideration for rural agencies.

Figure 16 Cost per Full Time Staff Person for Fire Service



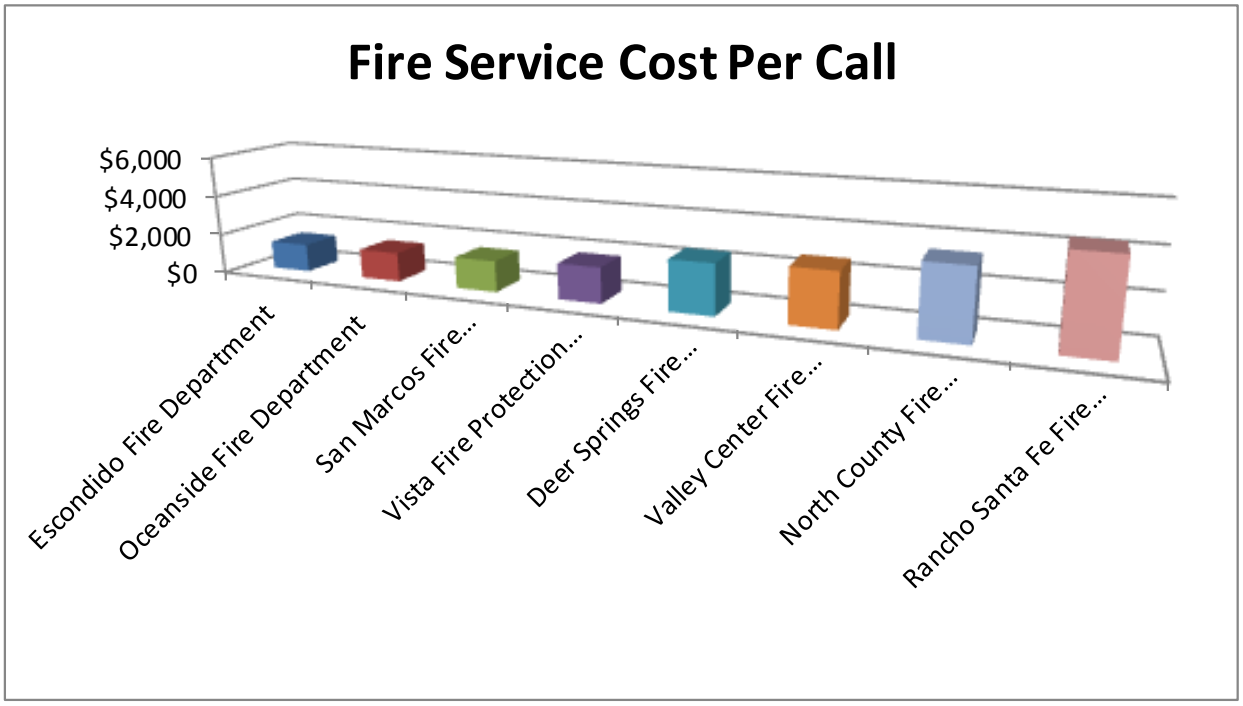
3.4 Cost per Emergency Call

When compared on a cost to emergency call basis, the results indicate that DSFPD is just over the average at roughly $2,500 per call (Figure 17). Cost per call ranges from roughly $1,400 in Escondido Fire Department to $4,400 in the Rancho Santa Fe Fire Protection District. Note: The call volume reported appears to include an anomaly and may actually be lower, which would affect the comparisons in the following Section, most notably, the estimated Cost per Call number would increase proportional to the reduction in the call volume. This anomaly would need to be further explored to determine the potential impact, if any.

The average cost per emergency call for the eight (nine) evaluated fire agencies is roughly $2,400. These results suggest that fire agencies with higher call volumes, usually the urban fire

departments, operate more efficiently because whether on a call or at a station, staff are paid and the more calls responded to, the lower the cost from a cost per call perspective.

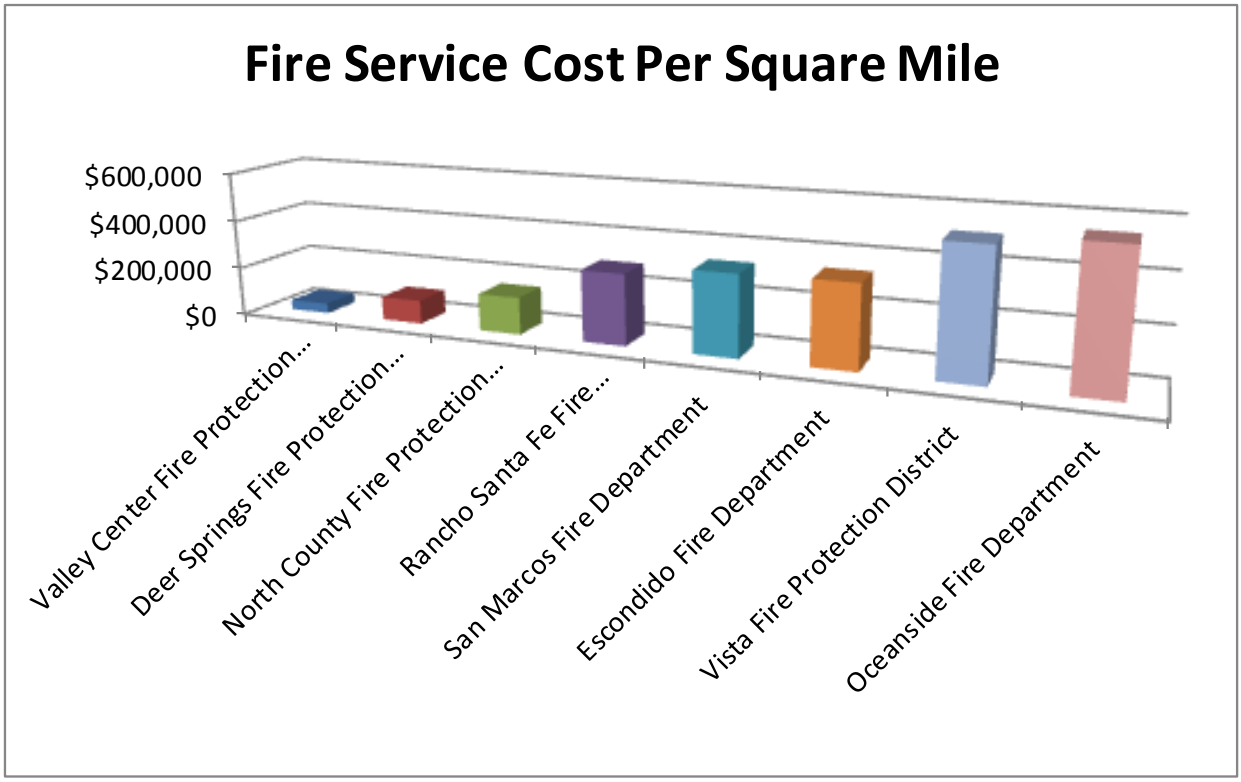
Figure 17 Cost per Emergency Call for Fire Service



3.5 Cost per Square Mile of Coverage Area

When compared on a cost to square mile of coverage area, the results indicate that DSFPD is below the average, second from the lowest cost at roughly $97,000 per mi^2 (Figure 18). Cost per mi^2 ranges from roughly $40,000 in Valley Center Fire Protection District (responsible for 84.5 mi^2) to nearly $550,000 in Oceanside Fire Department (responsible for 41 mi^2). The average cost per mi^2 for the eight (nine) evaluated fire agencies is roughly $288,000. The results indicate that agencies with larger service areas, particularly the more rural agencies, include lower costs when viewed from an "area protected" perspective. More compact, urban fire agencies protect more people and structures, but in a smaller total land area.

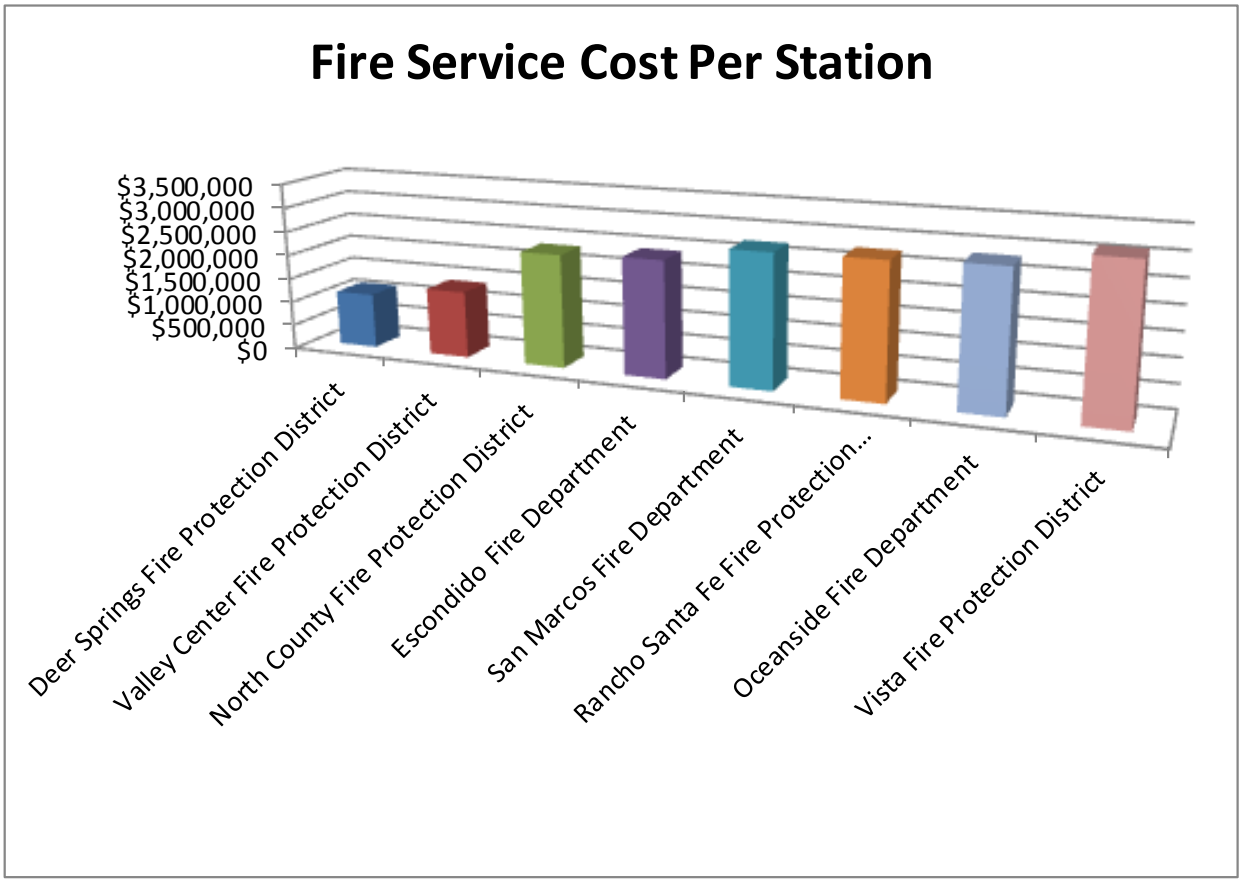
Figure 18 Cost per Coverage Area Square Mile for Fire Service



3.6 Cost per Agency Fire Station

When compared on a cost to fire station basis (i.e., overall annual budget divided by the number of fire stations), the results indicate that DSFPD is below the average, and the lowest cost of the agencies reviewed at roughly $1,137,000 per station, including the Miller Station (Figure 19). When the Miller Station is excluded from the calculation, DSFPD's cost per station is $1,515,000, second lowest behind Valley Center Fire Protection District. Cost per fire station ranges from roughly the low $1.1 million to $3.1 million in Vista Fire Department. The average cost per station for the eight evaluated fire agencies is roughly $2.3 million. The results do not clearly indicate a trend related to the number of fire stations resulting in higher per station costs except that the CAL FIRE Contract agencies (DSFPD and VCFPD) have lower per station costs and appear to be benefitting from the volume-based discounts realized through CAL FIRE.

Figure 19 Cost per Agency Fire Station for Fire Service



3.7 Project Financial Impact

Preliminary project estimates of total funding to the DSFPD or another entity that will result from the project's completion are summarized in Table 15. As presented, one-time fire mitigation fees of $2.2 million would be generated by the project's five phases. In addition, annual fees of $0.97 million would be provided through property tax assessments for fire standby and suppression. In addition, the recently passed Assembly Bill x1 29 State Responsibility Area Fire Prevention Fee would generate in the range of $0.2 million dollars annually for fire prevention activities. Because AB x1 29 appeals threaten to repeal the fee, and because it is not clear that the money will all be returned to the District, this significant amount of potential District funding is not included in this budget impact analysis.

The funding that would be generated by the Project could be utilized in a manner that couldbe determined through a cooperation between Accretive Investments, Inc. and DSFPD and/or

potentially between DSFPD and CAL FIRE. This report's analysis and conclusions provide direction on possible solutions for providing acceptable response to the Lilac Hills Ranch Project without creating a reduction in service to existing residents. The funding generated by the project will provide the ability to improve the distribution and concentration of resources, adding weight to the response resources and potentially providing funding to offset all or a portion of the SDCFA $250,000 funding of the Amador Contract with CAL FIRE and possibly creating substantial excess revenue for the County, depending on which option is considered.

Table 15
Fire District Funding Provided by the Lilac Hills Ranch Project

Phase	Ad-Valorem Taxes	Fire Standby/Availability Assessment	Fire Suppression Assessment	Fire Mitigation Fee
	(Annual Amount)	*(Annual Amount)*	*(Annual Amount)*	*(One Time Amount)*
1	36,411	$55,117	$103,547	$453,376
2	44,649	$72,366	$112,801	$480,378
3	43,548	$75,194	$135,632	$580,060
4	23,894	$28,314	$72,628	$298,448
5	30,825	$47,352	$90,979	$295,186
Subtotal	*179,329*	*$278,343*	*$515,587*	*$2,207,448*
Grand Total	**$973,259**			**$2,207,448**

Based on the District's current call volumes, which are low when compared to the industry standard, and the addition of up to 1.9 calls per day (mostly medical) anticipated from the Lilac Hills development, there is expected to be a measureable financial increase in the current operating costs with build out of the project. Property taxes and related assessments generated by the Project will cover the incremental costs associated with providing fire services to the Project with the District realizing a net increase in annual operating budget of $0.97 million dollars. In addition, the Project will generate $2.2 million dollars in fire mitigation fees at project build out to address the Project's proportional impact on capital facilities and equipment. Table 16 provides an analysis of the budgetary categories previously analyzed focusing on DSFPD currently vs. DSFPD at project build out should a fire service option within the District be enacted.

Table 16
Comparison of Deer Springs Fire Protection District Current Budget with Post-Lilac Hills Ranch Budget.

DSFPD	Budget	$/Capita	$/Call	$/Staff	$/Sq Mi	$/Station
Current Budget	$4,546,000	$350	$2,273	$174,846	$96,723	$1,136,500
With Lilac Hills Ranch Project	$5,347,000	$243	$1,959	$205,654	$113,766	$1,336,750

Depending on the final emergency service configuration selected for the Project, the generated assessment and mitigation fees will provide a surplus of funds to the District for both on-going annual assessments and for mitigation fees, as described in more detail in Section 5.

As presented, with the Lilac Hills Ranch Project:

- District's total budget increases from $4,546,000 to $5,519,000 (+18%).
- Per Capita cost is substantially decreased from $350 to $251 (-28%). The increased budget is spread over 22,000 people (a 70% increase in District), includes the addition of 9,000 people from the Lilac Hills Ranch Project.
- Per Call costs are reduced from $2,273 to $2,022 (-11%). Per call costs decreases because the number of persons in the Lilac Hills Ranch community are projected to generate lower number of calls per person than the District as a whole, since the population will include a high percentage of younger families.
- Per Staff costs are slightly increased from $174,846 to 183,967 (+5%). This number depends on the addition of full-time staff/firefighters based on the response coverage negotiated. With no additional staff, costs appear to go up, but in reality, reflect the larger budget divided by existing staff, i.e., there is more money in the budget but no additional staff to offset that amount. Should a response coverage be selected that increases the full time staff from 26 to 29, the per staff cost would be $190,310 and if full time staffing went to 35, the per staff costs would be $157,685.
- Per Mi2 Coverage area costs are increased from $96,723 to $117,426 (+21%). This cost changes directly proportional to the budget increase since the service area does not change. This does not represent an increase is total costs, but reflects the larger budget spread over the same area.
- Per Station costs are increased from $1.136 million to $1.380 million (21%). This cost changes directly in proportion to the budget increase since the number of stations does not change. This budget analysis will vary depending on the ability to service the Project with Station 15. If not, then an additional Station within the development may be necessary and the new cost per station would decrease by 6 % to $1.07 million.

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4.0 CUMULATIVE IMPACTS

Cumulative impacts from multiple projects within a fire protection district like DSFPD can cause fire response service decline and must be analyzed. The Lilac Hills Ranch Project represents a significant development that would increase the existing District population by up to a calculated 70%, from 13,000 to 22,000 at maximum calculated usage, and to 18,000 considering permanent residents. The resulting impact on fire services has been analyzed in detail within this report and despite the large population increase, the existing fire service delivery system is considered underutilized on a call volume basis, based on the results of this study's analysis and when compared to standard utilization rates for busy (5 or 6 calls per day for a rural station) fire stations. However, the system would need to be augmented to respond to a population change like that associated with the Project, as discussed further in the following Recommendations section of this report. Further, when considered cumulatively with other projects planned in the DSFPD's jurisdictional area or within automatic aid response areas, the cumulative impact is considered potentially significant.

The most significant foreseeable DSFPD project is in the southern/central portion of the District in the Merriam Mountains area. There is no current application for this area. However, the San Diego County Board of Supervisors, in June 2012, approved the project owner specific request of 1,200 units. Based on the size, substantial one-time fire mitigation fees and on-going property tax fire availability and suppression fees will be generated by a potential project, similar to the Lilac Hills Ranch Project. DSFPD Station 12 is located in close proximity to the southern end of this project and would be the first responder for fire and emergency medical calls to the entire site. Based on the currently low call volume at Station 12 and the proximity and low call volumes associated with Stations 13 and 11 as secondary responders, and the likely aid received by San Marcos Fire Department, the area may be able to be serviced by existing stations.

No other DSFPD significant, large master planned communities were identified as reasonably foreseeable. However, just north of the District (I-15 and SR-76), and within Station 15's 8 minute travel time response area, a large master planned community is being constructed. This population would be served primarily by NCFPD's Station 4. Certain portions of this community have been approved while others are still being entitled. This project includes several components including:

- Meadowood: 900 units, commercial, school
- Campus Park: 751 units
- Campus Park West: 355 units
- Palomar College Campus: up to 5,000 students

Based on the low anticipated call volume and the existing anticipated call volume, along with the new fire station proposed for this project, the cumulative impact is estimated to be below significant. In addition, each of these Projects will be required to show compliance with the five minute response time standard and will be required to mitigate its impacts by providing significant fire mitigation fees. The Projects will also provide fire availability and suppression assessments that are intended to enable the fire agencies to proportionally augment and enhance staffing, which would in turn off-set the growing population and call volume and result in a favorable condition.

5.0 RECOMMENDATIONS

DSFPD has indicated that it will be able to service the Lilac Hills Ranch Project, but only under District imposed conditions that have not been considered in context of future facilities that would be required to be provided by the proposed project or the overall fire service delivery system. To that end, this report seeks to provide options for DSFPD to provide service to the Lilac Hills Ranch Project.

The Project's contributions to fire resources through mitigating fees and ongoing property taxes and fire assessments, combined with similar contributions from future development in the Project area, are expected to result in funding that could be used for enhancing DSFPD's and/or CAL FIRE's response capabilities and at least maintaining the current standards, but likely enhancing firefighting and emergency response. Over the long term, it is anticipated that fire agencies will be able to perform their mission into the future at levels that exceed current standards.

5.1 Interim Fire Service Response

Temporary fire service may be provided in a variety of ways, including from existing stations such as Miller Station, or from a temporary, on-site station. The Project would provide for interim fire service that conformed with the County General Plan 5 minute travel time standard.

Potential Options for Interim Fire Service at Lilac Hills Ranch

Interim fire service, which includes emergency response for fires, medical emergencies, and rescues, amongst others, can be provided via any of a number of options until provisions for permanent fire service are triggered. This type of arrangement is utilized in many fire agency jurisdictions. Interim fire service is commonly provided for large master planned communities, like Lilac Hills Ranch until enough units have been permitted, constructed and occupied, related revenues are available to fund the station and call volumes are high enough to justify additional coverage. As build out occurs, there are typically very few calls generated by a project in its initial phases. The County General Plan requires that new development demonstrate that fire services can be provided that meets the 5 minute travel time coverage. These standards are intended to (1) help ensure development occurs in areas with adequate fire protection and/or (2) help improve fire service in areas with inadequate coverage by requiring mitigation for service-level improvements as part of project approval. Incremental Growth is allowed to occur until a new facility can be supported by development. (S-6.5). Lilac Hills Ranch has General Plan consistent response coverage through the 72nd unit from DSFPD's Station 11 and 100% coverage within 5 minutes by CAL FIRE's Miller Station. Beyond the 72nd unit, DSFPD's Station 11 would not be able to provide 5 minute travel time coverage.

Various solutions for interim fire service are available, including 1) providing service from an existing station, 2) entering an agreement with a neighboring fire agency with capacity to cover the project within acceptable timeframes, 3) providing other mitigation measures, if such measures are approved by the County as a part of the Project's approval, or 5) constructing a temporary station (usually a mobile home with a steel building or similar that serves as an engine bay) and siting it so that it can effectively respond to the developing project. Any of these options may be available to DSFPD for providing interim coverage of LHR and would conform with the General Plan Policies of allowing incremental growth to occur until a new facility can be supported by development and providing fire services within the 5 minute travel time.

Options for Interim Fire and Emergency Medical Service considered by this analysis include:

Miller Station

It has been established in this Capabilities Assessment that Miller Station is located where it can respond to the entire Lilac Hills Ranch Project site within 5 minutes, has capacity to respond to the calls that would be anticipated from LHR at build out, and would be a cost-effective fire and emergency response resource. This option provides the ability for DSFPD to consider fiscal ramifications into the equation by providing an interim service without provisions for an on-site interim fire station, which would require a considerable amount of funding that would otherwise be available for permanent fire service, and deciding on a longer term basis where they want to locate a permanent fire station in the future. I interim service from Miller could be provided in one of the following forms.

1. Miller Station would provide fire and medical emergency services to the Project in the manner currently being provided within the District under the existing Amador Agreement (fire services during the offseason) and the Automatic Aid Agreement between Deer Springs Fire Protection District and NCFPD. It would respond as it currently does as part of the response weight to any emergency within LHR. The interim period of coverage would be expected to generate a very low volume of any type of calls, but particularly structure fires. A Type I engine may be considered necessary and if so, then Option 2 (below) could be considered.
2. DSFPD could enter into an agreement with CAL FIRE to locate a Type I engine at Miller Station that could be cross-staffed by Miller's existing 3 person engine company. If a Type I reserve engine is available from DSFPD's fleet, LHR would in effect lease the engine for the interim period from DSFPD. The lease rate would essentially pay for the engine depreciation (roughly $50,000 per year) and operating costs. If a reserve engine is not available, LHR could purchase a Type I engine for DSFPD and to their specifications and it could be located at Miller Station for the existing CAL FIRE crew to cross-staff the engine

for use into LHR. Based on the existing engine room at Miller Station, either one of these options would likely require a temporary structure at the Miller site (such as a sturdy tent-garage commonly used for this purpose) and minor site driveway improvements to accommodate the engine.

On-Site Station

LHR could provide a temporary fire station (2,500 to 3,000 square feet manufactured home/mobile home) and a single bay, dual load engine room (1,500 square feet tent-garage). Staffing could be provided by DSFPD or, a more cost-effective approach would be to explore an agreement with SDCFA to utilize trained volunteers from their volunteer program. LHR would cover the cost of the volunteer daily stipend. A two person crew would suffice for the interim period considering Miller Station's close proximity and Station 11's ability to respond in a reasonable time frame. The interim engine could be, 1) a reserve engine from DSFPD leased by LHR, 2) a reserve engine from SDCFA leased by LHR, 3) a reserve engine from CAL FIRE leased by LHR, or 4) a new engine purchased by LHR that would remain with DSFPD once final fire station location/solution is determined.

As indicated in Figures 11 and 12, any location within the Project area is capable of responding to an emergency call within 5 minutes travel. Further, the LHR Specific plan allows for fire stations to be located within any use on site. Therefore, should an interim fire station be considered necessary, DSFPD and LHR would agree upon a location that would best provide coverage until permanent fire services were in place and this location could be anywhere on-site.

Implementation of the final fire service option, when temporary service was suspended and a permanent station constructed, would be based an appropriate trigger, such as prior to the first building permit in Phase 3, if the Phase 3 fire station is enacted or the first building permit in Phase 5, if the Mountain Ridge Road options is approved.

Mitigation Measures

Mitigation measures provided by the Lilac Hills Ranch Project would serve to enhance any interim fire service option chosen for the project. Mitigation measures such as interior fire sprinklers and ignition resistant construction as well as other project-specific measures can play a critical role in reducing vulnerability of structures and demands on responding fire agencies. These features assist the fire agency by reducing the need for immediate intervention and lengthening the response time.

5.2 Permanent Fire Service

Based on the fire service capabilities analysis outlined in this report, which has considered the District's unique response area, land uses, call volume and type, station distribution and concentration, automatic aid, budgets and required speed and weight of response, the authors of this report offer the following recommendations. In light of economic conditions over the last several years, which have led to substantial budget balancing issues for many fire agencies throughout California, with several in San Diego County, DSFPD included, it would not be prudent to unwisely utilize project-generated fire assessments and fees on duplicative fire and emergency medical services. The existence of CAL FIRE's Miller Station in close proximity to the project, and with the physical ability to respond to the entire project site within five minutes travel, must be strongly considered when determining a fire and medical emergency response approach either as a temporary basis or pursuant to the options listed below. Wasteful spending of generated funding on duplicative service would be a significant error that may not be realized in the short-term, but over the long term, would compound existing DSFPD and fire agency budget shortfalls. Therefore, the following recommendations seek to provide options for providing service that meets fire and medical emergency safety standards in an efficient manner.

Option 1. Station 15 Apparatus and Staffing Augmentation

The most efficient and cost-effective approach to providing fire services to Lilac Hills Ranch from the perspective of the overall fire delivery system would be for the DSFPD and CAL FIRE to service the project from existing stations (Station 15 and Station 11). This option would be based upon Miller Station providing fire and medical emergency services to the Project in the manner currently being provided within the District under the existing Amador Agreement (fire services during the offseason) and the Automatic Aid Agreement between Deer Springs Fire Protection District and NCFPD. The existing Station 15's location is optimal for servicing the Lilac Hills Ranch Project. Specific augments would be provided so that the response capability of the station's engine company would be enhanced for the type of responses it would routinely receive. Lilac Hills Ranch would provide a suitable level of funds to DSFPD for DSFPD to use to augment the fire and emergency medical services capabilities of Miller Station, which could include adding a cross-staffed Type I engine at this site. This amount would be in addition to the fire mitigation fees that will be paid to DSFPD pursuant to the Fire Mitigation Fee Ordinance. This option may also include a remodel of the existing station to add a dual bay engine room, or to increase the living quarters.

The existing Type III engine at Station 15 is designed for wildland fire response. It does not meet NFPA guidelines for structure fires (ladders, hose, etc.) and includes a smaller water capacity. Despite these limitations, this engine can still provide on-scene resources and personnel, as it does in its current capacity. Adding a Type I engine will provide more appropriate response to structure

fires, vehicle accidents, and medical aid in Lilac Hills. On medical or structure fire calls, the Type I engine would be used. On fire calls, the Type III engine would be used. With the addition of the Lilac Hills Ranch Project, a total of 1,746 residences plus other large site structures at build out would be added to the station's current coverage responsibility area. Station 15 is currently operating under an existing Amador Agreement to stay open year-round and based on the current call volume statistics, responds to emergencies in addition to wildfire suppression and prevention. With the build out of the Project, the total call volume would increase from one call per day to a total of 2.9 calls per day. Based on this analysis, even though the total call volume would increase by a factor of three, Station 15 even under the current condition would be able to absorb the additional calls generated by the Lilac Hills Ranch Project and would not be likely to change the focus and mission of the station from wildland fire/watershed health. In order for CAL FIRE to provide these services to LHR, they may require that certain findings would be made pursuant to the Public Resources Code The preparers of this report have reviewed PRC 4141 through 4145 and have spoken with CAL FIRE concerning interpretation of the Code and conclude that measures that would be available with the project, as described in the recommendations section of this report, would enable Station 15 to continue its primary wildland fire mission while also serving the project in this capacity and the PRC findings could be made.

This alternative is consistent with the General Plan goal of regional coordination among fire protection agencies (Goal S-5), as mentioned previously in this report. Further, GP Policies S-5.1 and S-5.2 support this goal by encouraging regional coordination and supporting fire service provider agreements. Further, the opening paragraph of this PRC echo the "good government" recommendations of the Governor's Blue Ribbon Fire Commission (California 2008) for co-cooperation of entities to maximize resources, as is being done at other CAL FIRE station sites in San Diego County and throughout the state, for similar reasons/scenarios. Based on historical call volumes and noting that a very small portion of Station 15's calls are related to vegetation fires, combined with the designation of Station 15 as a "move-up" station, where coverage would be provided even if the engine is out of District on a large fire, and considering that the current limited staffing would be augmented and that the "move-up" would mean only that personnel may be needed and not apparatus, it seems within reason that coverage would be provided at a level consistent with existing fire stations throughout the area. For example, any of the DSFPD's engine companies could be sent out of District to wildand fires. In these cases, CAL FIRE would determine where resources could be relocated into the District and Monte Vista dispatch would send the closest unit to calls within the District.

Based on CAL FIRE input, it is clear that CAL FIRE is capable and open to providing these services. CAL FIRE may need to be assured that their primary wildland fire protection mission will not be reduced or impaired, that funding for the Station will be sufficient to provide the services, and that the wildland fire mission would not be compromised would need to be secured

in an agreement. Assurance that these findings can be made may require additional resources at Station 15, as discussed above.

Under this alternative, the existing drop boundary mutual aid agreement would remain unchanged. Response to emergencies within LHR would be provided by Station 15 (one or both engines) as first responder, and DSFPD Station's 11 and 12, and NCFPD Station 4 would provide additional weight. Funding for the capital facilities under this option consists of the County disbursement of collected one-time fire feesto DSFPD and funds payable to CAL FIRE from DESFPD. Further, based on the cost estimate below, it is anticipated that there would be a surplus of annual revenues, above and beyond what is needed to add staffing and contribute to operations and maintenance at Station 15, which the County would have discretion over for County fire safety enhancements or for disbursement to Lilac Hills Ranch Project area mutual aid fire agencies (DSFPD, NCFPD) that would respond to project calls.

Timing for implementation of this option would be based on an agreed upon trigger such as a pre-determined occupied unit, a call-volume threshold (such as 1 call per day), or some other arrangement determined by the County.

Option 1 Estimated Cost

Miller Station Augment Fund: To be determined.

Fire Engine: To be determined.

Annual Recurring Expenses: To be determined.

Option 1 Estimated Cost: To be determined.

Option 2. Co-Location of DSFPD Station at Station 15

The second option would be co-location of a DSFPD engine company at a re-modeled or new Station 15, depending on cost efficiency, and equipping it with a Type I engine. This option inherently includes higher costs and inefficiency than Option 1 due to the duplication of engine company personnel and the fact that ongoing expenses associated with fire service are largely from salary costs. In this option, a new engine company would need to be housed at the site and this study assumes that they would co-locate in a new, larger station. From the perspective of the overall county wide fire services delivery system, this option provides duplicative service and capabilities as already provided by Station 15 at a much higher on-going financial cost with funding remaining with DSFPD, and no surplus fire assessment revenues to the County.

In addition to the CAL FIRE personal at Station 15, the new engine company would be a 3 person crew with one of those positions possibly being staffed by a Reserve Firefighter and with one paramedic. A Reserve program in DSFPD is recommended for implementation with this project. If a Reserve program is not established, a firefighter I would fill that position at greater cost to the District. As previously mentioned, the County currently provides $250,000 in Amador funding to CAL FIRE to continue "off-season" (winter months) staffing at Station 15. Under this Option, SD County would be able to cease funding of the Amador contract because a 24/7 engine company would be in the area which minimizes the need for the CAL FIRE engine during the winter "off-season." This savings would enable San Diego County to utilize the funding to offset the added expense of a new fire station and additional fire personal at the same location as Station 15 or to pay for other fire service priorities or unfunded projects.

Design of the station would be dependent on final agreement, with roughly 1,500 additional square feet would be necessary along with a second engine bay or perhaps a dual bay, double stacked engine room could be provided. Assuming a 7,000-square-foot station (2,500 ft^2 engine room and 4,500 ft^2 living quarters), costs are anticipated to be as follows:

Option 2 Estimated Costs

Fire Station:

- Engine room upgrade to accommodate two, double stacked Engine Bays: up to $1,125,000 (50x50 ft^2 x $450/$ft^2$)
- Quarters update to house additional 3 person Paramedic Assessment Engine company (in addition to existing 3 person EMT company): 4,500 square feet x $450/foot: $2,025,000
- Station Contingency – 15% = $315,000
- Total Station Estimated Costs: $3,465,000

Fire Engine:

- Type I Fire Engine: alternative 1 is to reassign a Type I engine from Station 11 with no additional cost to DSFPD
- Alternative 2 is to purchase a new Type I engine at $600,000

Annual Recurring Expenses:

- 15 year engine replacement: $40,000/year – only if a new engine is needed
- Incremental Station and Engine Operations/Maintenance/Administrative costs:$75,000/year

- 3 Person Medic crew (1 Reserve firefighter): $833,000/year or 966,000/year with a firefighter 1 instead of a reserve firefighter
- Total Estimated Annual Costs: $908,0000 to $1,081,000 (plus $40,000 if new engine is purchased and not re-assigned from Station 11)

Option 2 Estimated Cost: $3,465,000–4,065,000 one-time + $908,000 to $1,081,000 annually. However, it is expected that the medic engine will conduct several ALS transports per week, providing revenues of up to $100,000 per year, adjusting annual costs downward to roughly $800,000. The project's fair-share would be $2.2 million and therefore, additional funds would be needed, possibly phasing in improvements as other development funding becomes available.

Option 3. On-Site Fire Station in Phase 3

Option 3 may be implemented in addition to Option 1, in-lieu of Option 1 or if an agreement cannot be reached between the County and/or DSFPD and CAL FIRE under option 2. or in addition to Option 1, The developer could agree under this Option 3 to provide a fire station within the Lilac Hills Ranch Project's Phase 3. This option, based on our initial analysis, is not considered the best option in terms of efficiency, with Station 15 currently located so close to the Project and the overlap with Stations 15 and 11 that would result. However this would be a potential solution in order to avoid a response time gap throughout the Project if it is too difficult to amend existing agreements under Option 2. This option is financially more efficient than Option 2 due to the ability to construct a station off state property less expensively, but recurring annual costs would be consistent with Option 2. As previously mentioned, the County currently provides $250,000 in Amador funding to CAL FIRE to continue "off-season" (winter months) staffing at Station 15. Under this Option, SD County would be able to cease funding of the Amador contract because a 24/7 engine company would be in the area which minimizes the need for the CAL FIRE engine during the winter "off-season." This savings would enable San Diego County to utilize the funding for other fire service priorities or unfunded projects.

The fire station envisioned to serve this community would be a station similar to the neighborhood station provided for the Hidden Meadows community (Station 13) and many other stations in north San Diego County. This station will overlap with both Station 15 and Station 11 coverage areas. Fire stations support the needs of the fire department and the community in which they are located. They must accommodate various functions, including housing, recreation, administration, training, equipment and vehicle storage and maintenance, and hazardous materials storage.

Fire station design varies in some part depending on specific mission, i.e., the types of emergencies that will be responded to or the types of fires that will be fought. Usually, the facility differences

relate to the size of the firefighting apparatus and facility location. The location of the facility is largely driven by the need to minimize response time. Therefore, the Lilac Hills Ranch option for a fire station internal to the project includes positioning the station at a central location with good access to primary roadways within Phase 3, as indicated in Figure 20.

An estimated 4 person on duty crew Station should be about 3,000 square feet of livable space and designed to blend into the community (a 4 bedroom residence similar to those provided in the community would be adequate). The structure would also need an engine room of about 50 feet X 50 feet; or 2,500 square feet. The total land area for this type of station would be 25,000 square feet. Figure 21 provides conceptual details for a feasible fire station design given the 25,000-square-foot site and need for various fire station equipment, parking, fuel, and washing areas, amongst others. As the conceptual station designs indicate, the engine bay would be a two bay, double stacked bay, providing 4 spaces. The bay would include pull-through access, minimizing the need for additional driveway for turning around an engine upon return to the station. The site would include 8 parking spaces for firefighters and 2 spaces for the public. It would be a fully functioning fire station that is the equivalent of existing stations throughout similar areas of San Diego County.

For comparison, the existing DSFPD Station 13 site includes approximately 29,700 square feet, including landscape areas that total an estimated 3,300 square feet for a net fire station footprint of 26,400 square feet (estimated). Station 11, DSFPD headquarters, is situated on a 27,500-square-foot site, including roughly 3,500 square feet of landscaping. The existing DSFPD/CAL FIRE Station 15 includes roughly 27,300 square feet of paved/improved surfaces on roughly 2.2 acres. DSFPD Station 12 includes improved area of roughly 26,500 square feet, but includes significant driveway in that total as it is not a pull-through bay. Other north San Diego County rural fire stations occur on similarly sized sites, including NCFPD station 4, which includes roughly 24,000 square feet of improved area on a roughly 1.2-acre site. NCFPD Station 4 includes approximately 12,000 square feet of improved area, roughly 12,000 square feet of landscaping on an estimated 26,000-square-foot site. NCFPD Station 5 includes an approximately 27,500-square-foot improved site with about 3,000 square feet of that as landscaping. Valley Center Fire Protection District, Station 72 occurs on a 56,000-square-foot site with improved/useable areas of 38,000 square feet, but due to the driveways required for ingress/egress being shared, roughly 12,000 square feet of driveway and landscaping occur within this area, resulting in approximately 26,000 square feet for the useable area.

The applicant will pay its proportionate share of the cost of the station and land through the payment of the fire mitigation fees. Typically, providing a new fire station would not occur until a time when the call volume in the Lilac Hills Ranch Projectreaches 1 call per day or some other negotiated timeframe, as long as the General Plan travel time is met. Station 15 could also be

used as an interim facility, through an agreement, until such facility is built. Should station 15 not be available as an interim service provider, then an interim station could be provided on-site by the project applicant (out of funds obligated by fire fees and assessments), and in place until the appropriate trigger to provide for permanent fire service is funded.

Option 3 Estimated Costs

Fire Station:

- Estimated Land (25,000 ft^2): $150,000
- Station to accommodate two, double stacked Engine Bays: up to $612,500 to $900,000 (50x50 ft^2 x $450/$ft^2$)
- New Fire Station: 3,000 ft^2 x $245 to $360/$ft^2$: $735,000 to $1,080,000
- Station Contingency – 10% = $135,000 to $200,000
- Total Station Estimated Costs: $1,482,000 to $2,180,000

Fire Engine:

- New Type I Engine: $600,000

Annual Recurring Expenses:

- 15 year engine replacement: $40,000/year
- Station and Engine Operations/Maintenance/Administrative costs:$75,000/year
- 3 Person Medic crew (1 Reserve firefighter): $833,000/year to $966,000/year with firefighter 1 instead of reserve
- Total Estimated Annual Costs: $948,000 to $1,081,000

Option 3 Estimated Cost: $2.1 million to $2.8 million one-time + $948,000 to $1,081,000 annually. It is expected that the medic engine will conduct several ALS transports per week, providing revenues of up to $100,000 per year, reducing the annual costs proportionately. A more detailed summary of anticipated costs follows.

Figure 20 Estimated Location of Fire Station Site

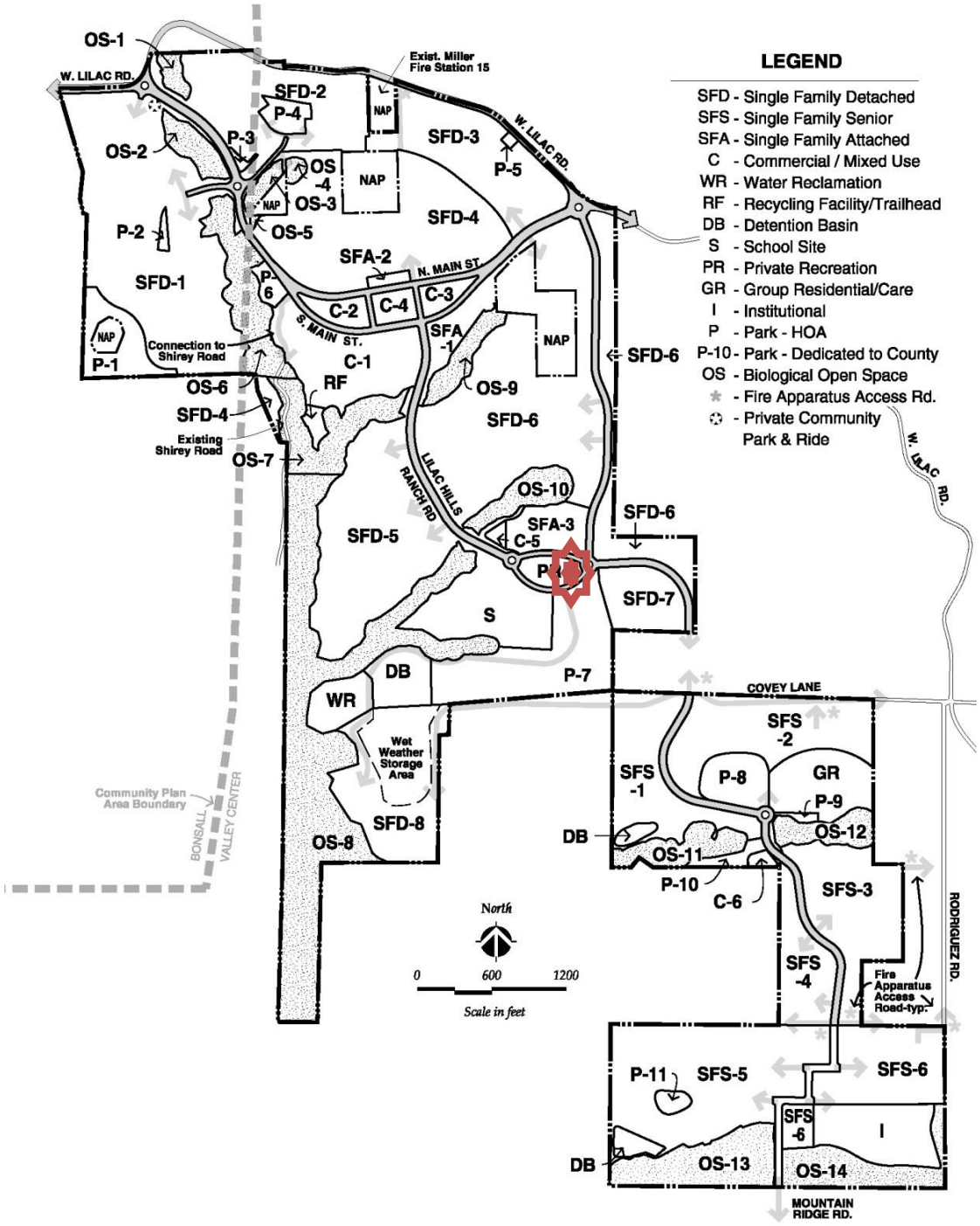

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Figure 21 Fire Station Design

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Option 4. On-Site Fire Station in Phase 5

If the Mountain Ridge Fire Station Alternative is approved, a fire station could be located within the Lilac Hills Ranch Project's Phase 5. Initial modeling, utilizing the proposed road network and speeds at or just above the typical 35 mph speed enables 5 minute coverage of every project structure. This option, like Option 3, is not considered the best option in terms of financial efficiency, with Station 15 currently located so close to the Project and the overlap with Stations 15 and 11 that would result. However this would be a potential solution that may offer DSFPD flexibility in terms of reconfiguration of existing station locations. This option would be best implemented with Mountain Ridge Road converted to a public roadway and provide improvements that will meet the DSFPD Fire Standards and the Consolidated Fire Code. This option would also be enhanced with the removal of the proposed gates once the road was made a public road. This option is financially more efficient than Option 2 due to the ability to construct a station off state property less expensively, but recurring annual costs would be consistent with Options 2 and 3. The developer would provide the two-acre site and available fire fees and assessments would be used to construct a station consistent with Option 3.

Option 4 Estimated Costs

Fire Station:

- Estimated Land (two acres): $200,000 Station to accommodate two, double stacked Engine Bays: up to $612,500 to $900,000 (50x50 ft^2 x $450/$ft^2$)
- New Fire Station: 3,000 ft^2 x $245 to $360/$ft^2$: $735,000 to $1,080,000
- Station Contingency – 10% = $135,000 to $200,000
- Total Station Estimated Costs: $1,482,000 to $2,180,000

Fire Engine:

- New Type I Engine: $600,000

Annual Recurring Expenses:

- 15 year engine replacement: $40,000/year
- Station and Engine Operations/Maintenance/Administrative costs:$75,000/year
- 3 Person Medic crew (1 Reserve firefighter): $833,000/year to $966,000/year with firefighter 1 instead of reserve.
- Total Estimated Annual Costs: $948,000 to $1,081,000

Option 4 Estimated Cost: $2.1 million to $2.8 million one-time + $948,000 to $1,081,000 annually. It is expected that the medic engine will conduct several ALS transports per week, providing revenues of up to $100,000 per year, reducing the annual costs proportionately. A more detailed summary of anticipated costs is found below.

Example Funding Calculation – Option 3

One Time Expenses

Fees associated with construction of the fire station are based on costs of similar stations and a square footage price of $250 to $360. This price may be reduced by the developer, but is considered conservative for providing cost estimates. Costs associated with the purchase of a fire engine are based on actual costs incurred by local fire agencies within the past three months for a similarly equipped, engine. Actual costs may vary.

Fire Station: 5,500 square feet (including living quarters and engine bays and a 10% contingency fee): up to $2.2 million.

Fire Engine: New Ferrara Type I engine, equipped: $600,000

One-time expenses to construct and place an engine within a community fire station are estimated to be at maximum $2.8 million. This exceeds the calculated $2.2 million that will be generated by the project at build out.

Ongoing Expenses

This Funding calculation assumes CAL FIRE's Schedule A contract salary and benefit packages, augmenting the fire apparatus engineer position with a paramedic ($30,000 per year more for 3 medic/engineers), and replacing the firefighter II position with a reserve firefighter. Table 17 indicates Fire Station salary costs.

Table 17
Fire Station Salary Costs

Position	Salary	Benefits and Additional Overhead	Total Per Position	Annual Total (X3 Positions)
Captain	$97,908	$47,412	$145,320	$435,960
Fire Apparatus Engineer/Medic	$89,152	$36,648	$125,800	$377,400
Reserve firefighter	Stipend	Stipend	Stipend	$20,000
Optional firefighter 1 (instead of reserve)	36,000	$14,800	$50,800	$152,400
Total	**$187,060**	**$84,060**	**$271,120**	**$833,360 to $965,760**

Based on DSFPD's actual budgeted line items for station related costs, the following additional estimated costs along with an approximated administration expense are estimated.

- Office supplies: $1,250
- Office equipment: $1,500
- Engine equip/maintenance repairs: $2,000
- SCBA supplies/maintenance: $1,250
- Miscellaneous supplies and services: $2,000
- Fire hose replacement: $2,500
- Telephone, cell, etc.: $2,000
- Station maintenance/repairs: $5,000
- Utilities: $12,000
- Computer service/software: $3,000
- PPE maintenance and repair: $4,000
- Medical supplies and Drugs: $4,500
- Diesel: $8,000
- General Administrative: $26,000
- **Total:** $75,000

* Fire engine depreciation is not included in this estimate as it is not verifiable if a new engine would be needed for this project or whether an existing DSFPD Type I engine would be located at this site, in which cases, depreciation is already being accounted. Should a new engine be needed, annual depreciation, assuming a 15 year useful life, would be expected to cost an estimated $40,000/year.

The total ongoing maintenance costs associated with the on-site fire station in Option 3 includes staff salary and overhead costs of $833,000 (to $965,760) and related operating costs of $115,000, totaling $948,000 to $1,081,000. However, it is expected that the medic engine may conduct several ALS transports per week, providing revenues of up to $100,000 per year. The operations and maintenance of the station are within or near the generated revenues from the project and the additional response capability benefits to the District, neighboring districts, and future projects must be considered as justification for the station. It may also be possible to allow the Miller Station Amador Contract to expire, enabling a portion of the $250,000 in current County funding to CAL FIRE to be re-assigned to DSFPD to allow further benefits to the District, and the remainder (estimated at $273,000 per year) to be available for other County fire priorities and a proportional savings to the County without loss of area fire and emergency medical coverage during the "off-season."

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6.0 ESTIMATED FUNDING TO IMPLEMENT

The Project can be conditioned to provide one of the Options discussed in the preceding section which will allow the project to meet the Response Standards set forth in the General Plan. The following analysis describes general funding for implementation of the Recommended Options.

Depending on the option selected, The Lilac Hills Ranch Community will participate in the County of San Diego's DSFPD's Fire Mitigation Fee program. The Project will fund its fair share of fire facilities within the DSFPD through payment of this fee. If Option 1 is selected, the fair share funding could be provided to San Diego County for disbursement to CAL FIRE or DSFPD and other fire agencies, per a final agreement. The Fire Mitigation Fee is presently calculated at $14.97 per benefit unit and totals $2.2 million.

The dedication of land for the public safety site, if required, may be credited against the total Fire Mitigation Fee obligation. Table 18 depicts the Fire Mitigation Fees anticipated to be generated by the project.

Table 18
Lilac Hills Ranch Project Fire Fees to District.

Phase	Fire Mitigation Fee *(One Time Amount)*
1	$453,376
2	$480,378
3	$580,060
4	$298,448
5	$395,186
Grand Total	**$2,207,448**

In addition to the fee programs described above, the DSFPD (or CAL FIRE through San Diego County) will receive 1.8989% or 1% of property taxes, fire standby/availability assessments, and fire suppression fees generated from the Lilac Hills Ranch Project, or an estimated $973,000 per year to fund staffing and operations, increasing the District's current totals (Standby Fee - $1.47 million and Fire Suppression Fee - $1.45 million) by 27%.

Depending on which of the presented options, or another hybrid option, is selected for fire service, there could be a surplus of assessments and fees and annual fees available to offset a portion of the SDCFA funding that may be unavailable to the DSFPD in any given year. For example, if Option 1 were implemented, preliminary estimates indicate that a total of nearly

$673,000 per year thereafter would be available from the annual assessments in excess of the needed amount to implement the option. This significant "excess revenue" from LHR under Option 1 could be utilized to offset a the $650,000 currently supplemented to DSFPD by SDCFA or to cover the $250,000 Amador contract paid to CAL FIRE, or for payments to CAL FIRE for providing fire services to LHR, or for other fire service priorities.

If either Option 2, 3 or 4 are selected, the County could benefit by the potential to end the current $250,000/year Amador Contract funding, freeing that money to be used for DSFPD funding or other fire service priorities. Additionally, a Reserve firefighter program, as recommended in this study, would potentially be capable of replacing the full-time positions that are currently funded by SDCFA at two DSFPD stations if/when that funding ceases.

Other sources for funding fire and EMS facilities and ongoing staffing and maintenance costs, if necessary, include local, state, and federal grants and loans, establishment of a County Service Area assessment district and/or formation of a CFD.

7.0 STUDY LIMITATIONS

The recommendations provided in this Fire Services Capabilities Study are the result of an unbiased assessment of the existing DSFPD area response system and how the Lilac Hills Ranch Project may impact that system.

This document is designed to provide information on fire service operations and integrated risk management planning. It is not intended to be a stand-alone document but to be used in conjunction with DSFPD area strategic planning documents to determine the best use of the available funding for servicing the Lilac Hills Ranch Project and improving the capabilities of the fire services in the area. While this Capabilities Assessment provides an overview of risk assessment, deployment of resources and an analysis of current and projected performance, the strategic plan outlines the resources needed to address current deficiencies and future service demands.

This report is based on available data and information provided from publicly available resources, personal interviews, and reconnaissance of the DSFPD. Assumptions have been made in order to complete this analysis and the accuracy of those assumptions is based on the available information. This report provides recommended options for fire service availability, but is not intended to be considered the only potential options to accomplish the stated goal of servicing the Lilac Hills Ranch Project while minimizing impacts to the existing fire services.

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8.0 LIST OF PREPARERS

Project Manager and Author

Michael Huff
Fire Protection Planning Consultant; San Diego County CEQA Consultant List
Dudek

Michael Huff is Manager of Dudek's Urban Forestry + Fire Protection Planning team with 20 years' professional experience as a natural resources planner and 15 years as a fire protection planner. His education includes a BS in Forest Management/Fire Ecology and he maintains certifications as a wildland fire ecologist, arborist, and forester. Mr. Huff is an approved Fire Protection Planning Consultant and is listed on the San Diego County CEQA consultant qualified list. He specializes in preparation of Fire Protection Plans, hazard reduction plans, fire management plans, cumulative impact studies, and emergency response plans. He is particularly focused on complex and controversial projects that require creative solutions and collaboration with the fire authority. Mr. Huff also has a strong background in tree management, forest management and woodland restoration planning. He conducts tree and landscape assessments, fuel modification zone inspections, analyzes large data sets, and develops comprehensive management programs for cities, developers, school districts, and other private and public entities. Mr. Huff has developed a fire protection planning practice throughout California working on marquee development projects on 30,000+ acre sites as well as assisting municipalities, counties, special districts, and homeowners with fire protection planning.

Standards of Cover and Fire Service Technical Expert

Jim Hunt
Fire Protection Planning Consultant; San Diego County CEQA Consultant List
Hunt Research Corporation

Jim Hunt is a retired firefighter/fire officer and President of Hunt Research Corporation. He has 49 years of experience in the field of Fire Protection and Emergency Response. He spent 16 years as an active firefighter including experience at three major Southern California Fire Departments. He achieved rank of Fire Battalion Chief. He has 33 years as a Fire Protection Consultant involved in Fire Protection Planning, Fire Code and Building Code compliance, plan reviews, Hazardous Materials planning, code compliance, Emergency Planning, Fire Department management and Fire Station location studies for Fire Agencies and Community Fire Protection Planning. He has served as Adjunct Faculty member of the FEMA National Fire Academy and the California State Fire Marshal's Fire Academy. He is an approved CEQA Fire Protection Consultant for County of San

Diego. Mr. Hunt holds AA and BS Degrees in Fire Science and an AA degree in Police Science. He is also a graduate of the UCSB Hazardous Materials Management program and holds a lifetime Community College teaching credential in Fire Science.

GIS Fire Behavior Modeling and Response Coverage Modeling

Scott Eckardt
Registered Professional Forester
Dudek

Scott Eckardt is a Registered Professional Forester, ISA Certified Arborist, and AFE Certified Wildland Fire Manager with Dudek specializing in fire protection planning, oak woodland and forest management and mitigation planning, habitat restoration, urban forest management, and GIS analysis and modeling. He is responsible for project and plan development, field data collection and mapping, fire and fuel hazard assessments, geographic data and image processing, GIS analysis, fire behavior modeling, fire department response modeling, and long-term project management and reporting. He is responsible for preparing fire protection plans, wildland fire management plans, forest and resource management plans, oak woodland and forest mitigation plans, and CEQA technical documents. He holds a bachelor's degree in forestry and natural resources management from California Polytechnic State University, San Luis Obispo, and a master's degree in geography from California State University, Long Beach. His graduate research focused on the effect of wildfire frequency on vegetation community boundaries for a study area in the Santa Monica Mountains of Southern California.

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APPENDIX A-1

DSFPD Station Coverage – 4 Minutes/8-Minutes Travel Time (NFPA 1710) Coverage Area

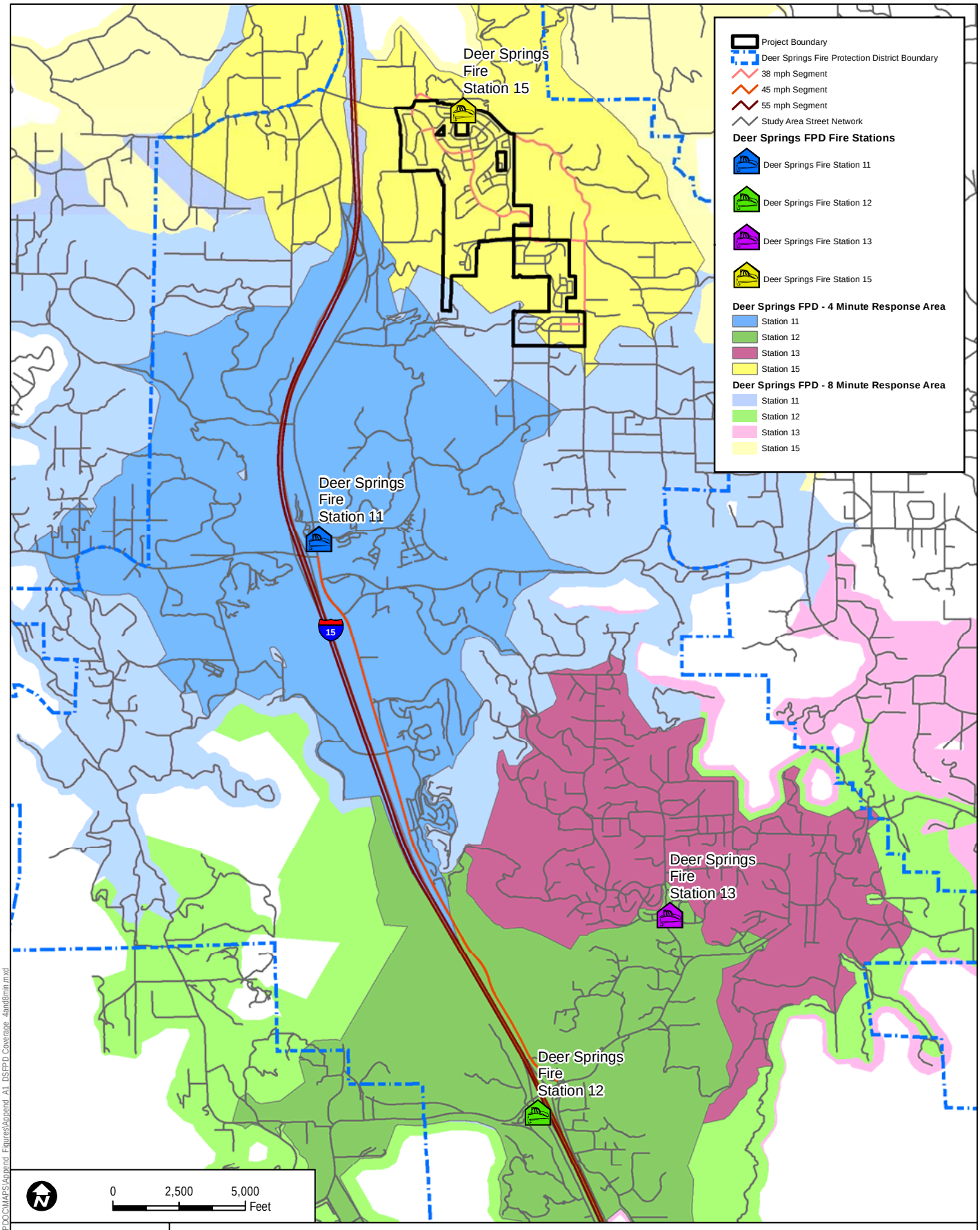

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FIGURE A-1

DSFPD Coverage Area - 4 and 8 Minute Travel Time

DEER SPRINGS FIRE PROTECTION DISTRICT CAPABILITIES ASSESSMENT

NOTE: Drive times calculated using a 35 mph average speed except where indicated.

APPENDIX A-2

DSFPD Station Coverage – 5 Minutes Travel Time (SD County General Plan) Coverage Area

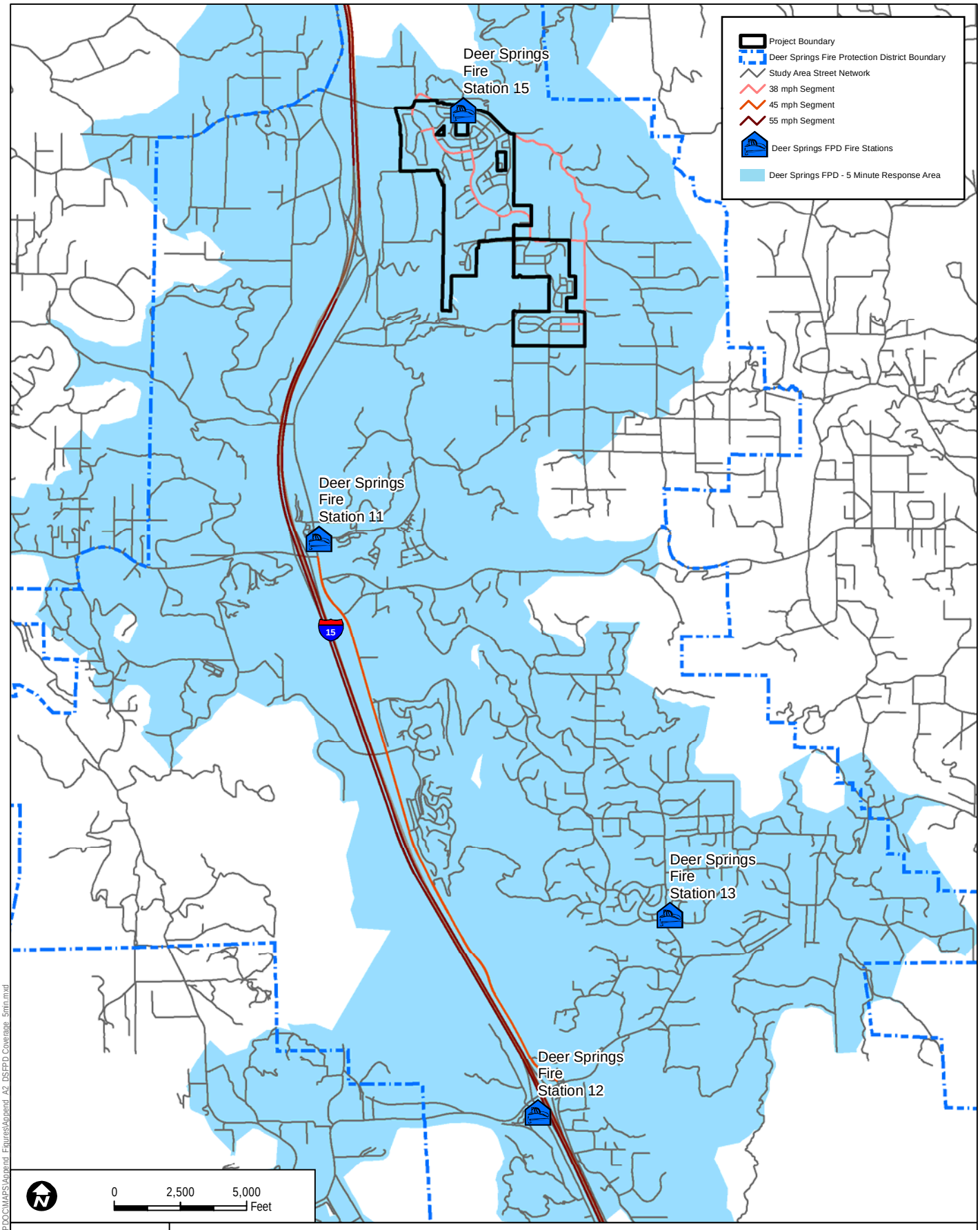

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FIGURE A-2

DSFPD Coverage Area - 5 Minute Travel Time

DEER SPRINGS FIRE PROTECTION DISTRICT CAPABILITIES ASSESSMENT

NOTE: Drive times calculated using a 35 mph average speed except where indicated.

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APPENDIX A-3

DSFPD with Auto Aid Station – 4 Minutes/8 Minutes Travel Time Coverage Area

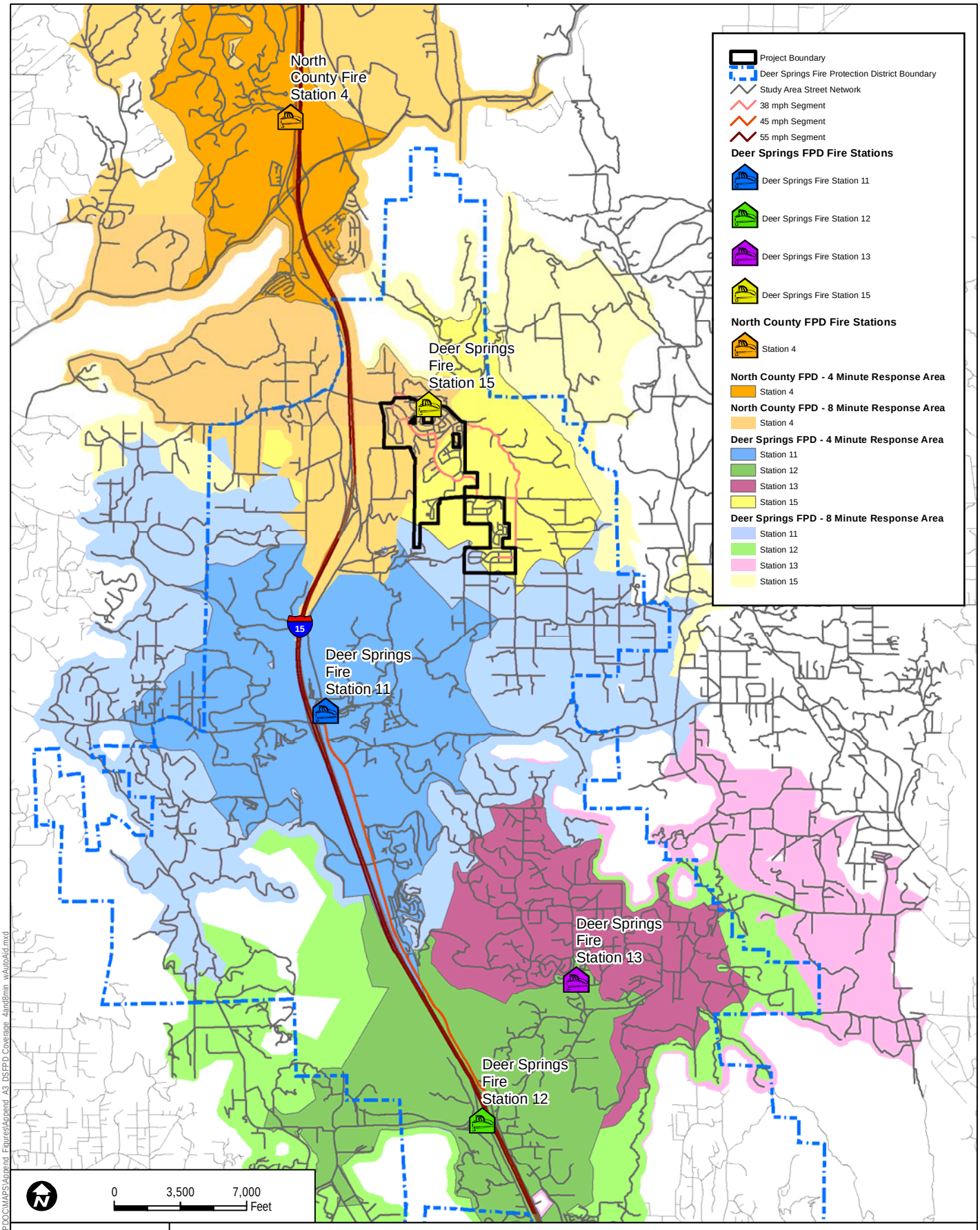

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FIGURE A-3

DSFPD Coverage Area - 4 and 8 Minute Travel Time with Automatic Aid

DEER SPRINGS FIRE PROTECTION DISTRICT CAPABILITIES ASSESSMENT

NOTE: Drive times calculated using a 35 mph average speed except where indicated.

APPENDIX A-4

Station 15 – 4 Minute/5 Minute/8 Minute Travel Time Coverage Area

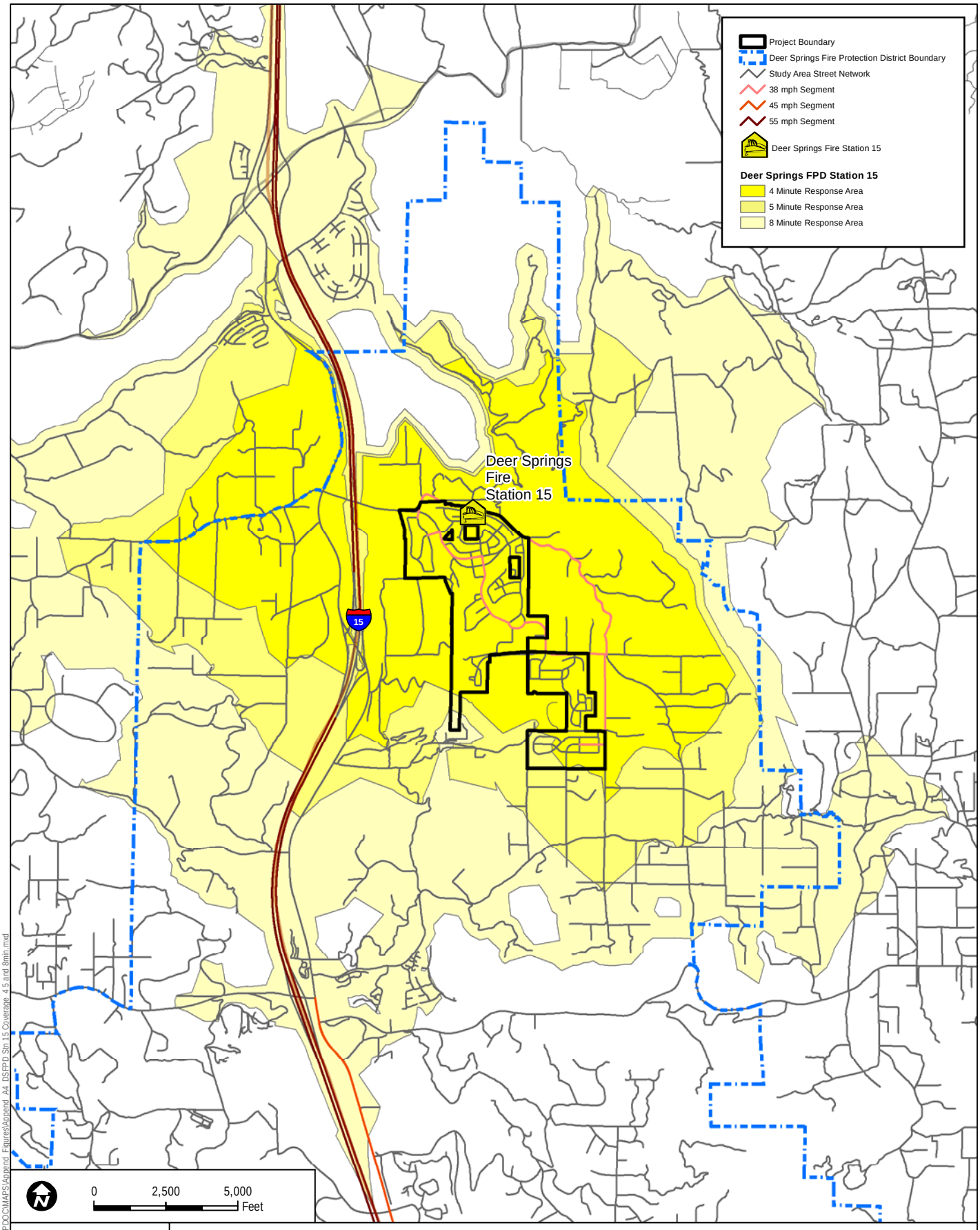

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FIGURE A-4

DSFPD Station 15 Coverage Area - 4, 5, and 8 Minute Travel Time

DEER SPRINGS FIRE PROTECTION DISTRICT CAPABILITIES ASSESSMENT

NOTE: Drive times calculated using a 35 mph average speed except where indicated.

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APPENDIX A-5

Situation #1: Fire in Lilac Hills Ranch Structure

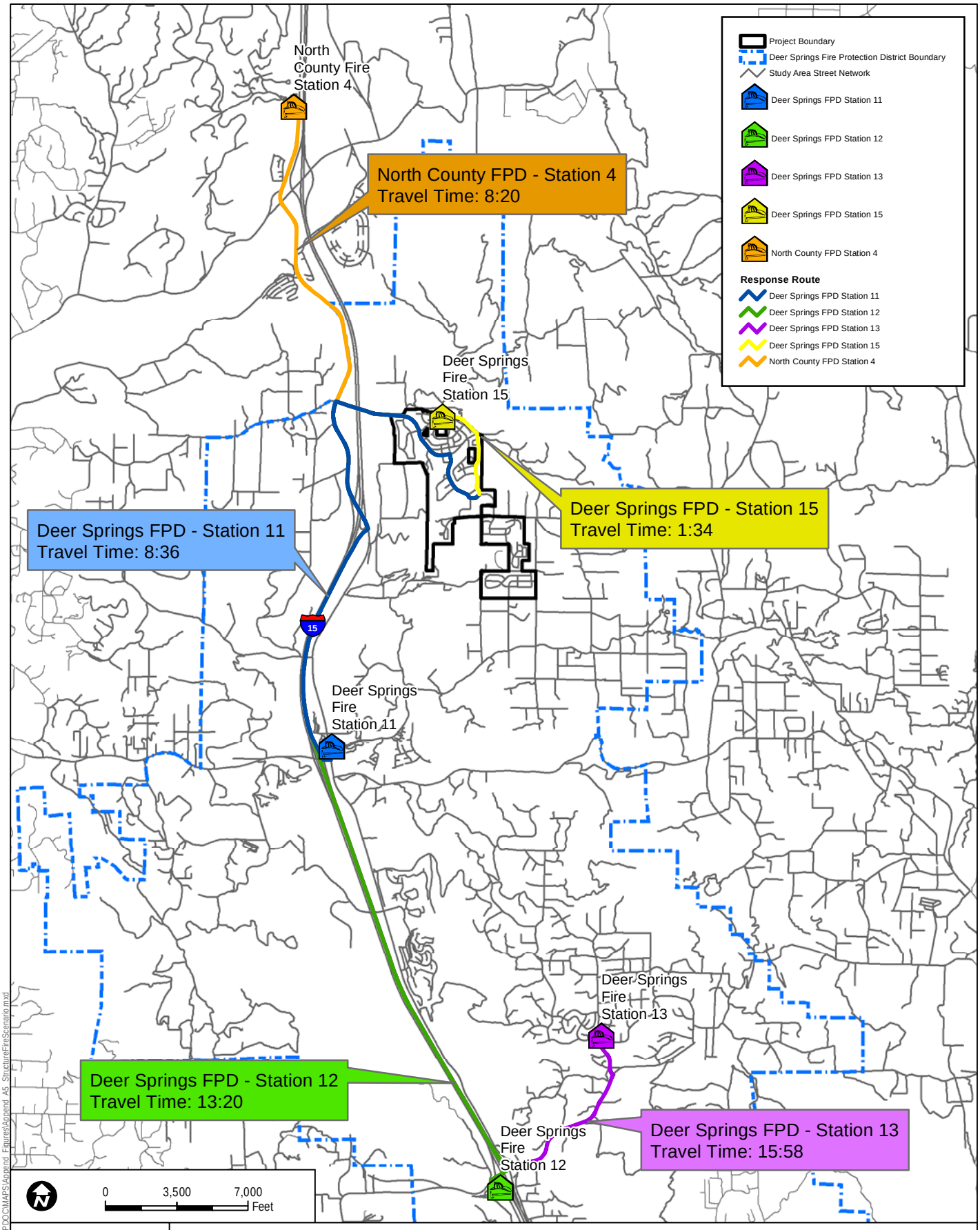

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FIGURE A-5

Structure Fire Scenario

DEER SPRINGS FIRE PROTECTION DISTRICT CAPABILITIES ASSESSMENT

APPENDIX A-6

Situation #2: Wildland Fire Threatening Lilac Hills

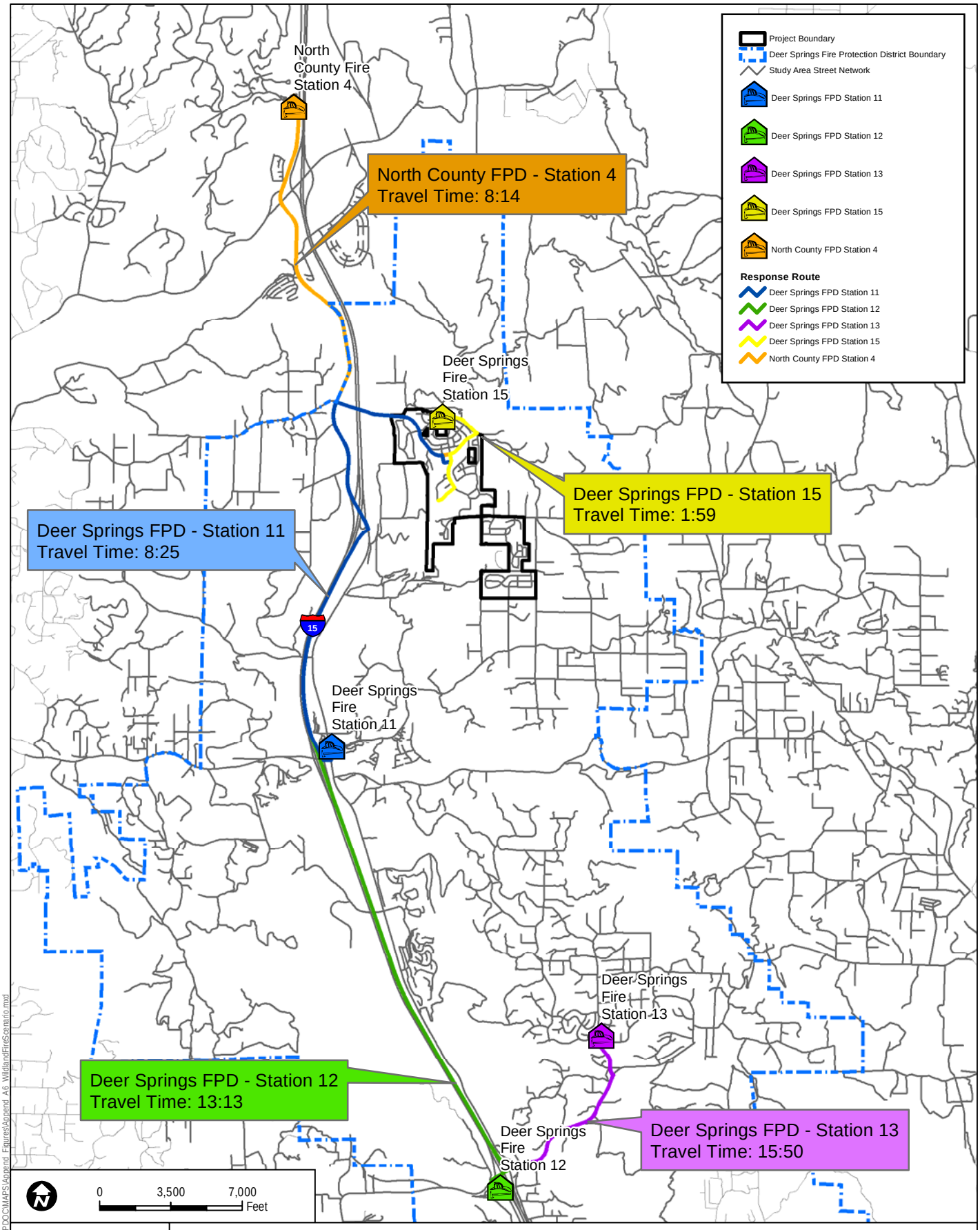

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FIGURE A-6

Wildland Fire Scenario

DEER SPRINGS FIRE PROTECTION DISTRICT CAPABILITIES ASSESSMENT

APPENDIX A-7

Situation #3: Medical Response in Lilac Hills Ranch

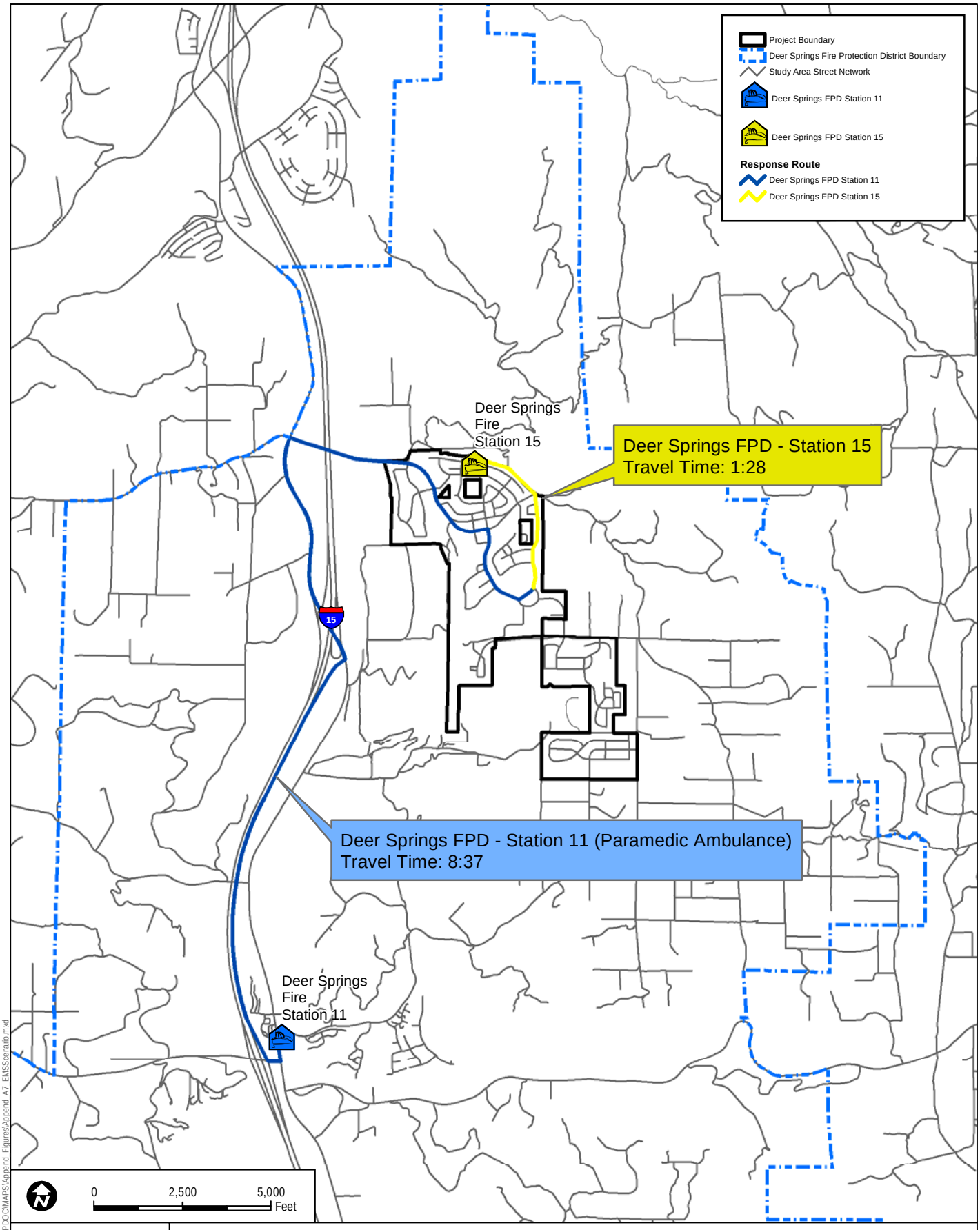

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FIGURE A-7

EMS Scenario

DEER SPRINGS FIRE PROTECTION DISTRICT CAPABILITIES ASSESSMENT

APPENDIX A-8

Phase 3 On-Site Station – 4 Minutes Travel Time Coverage

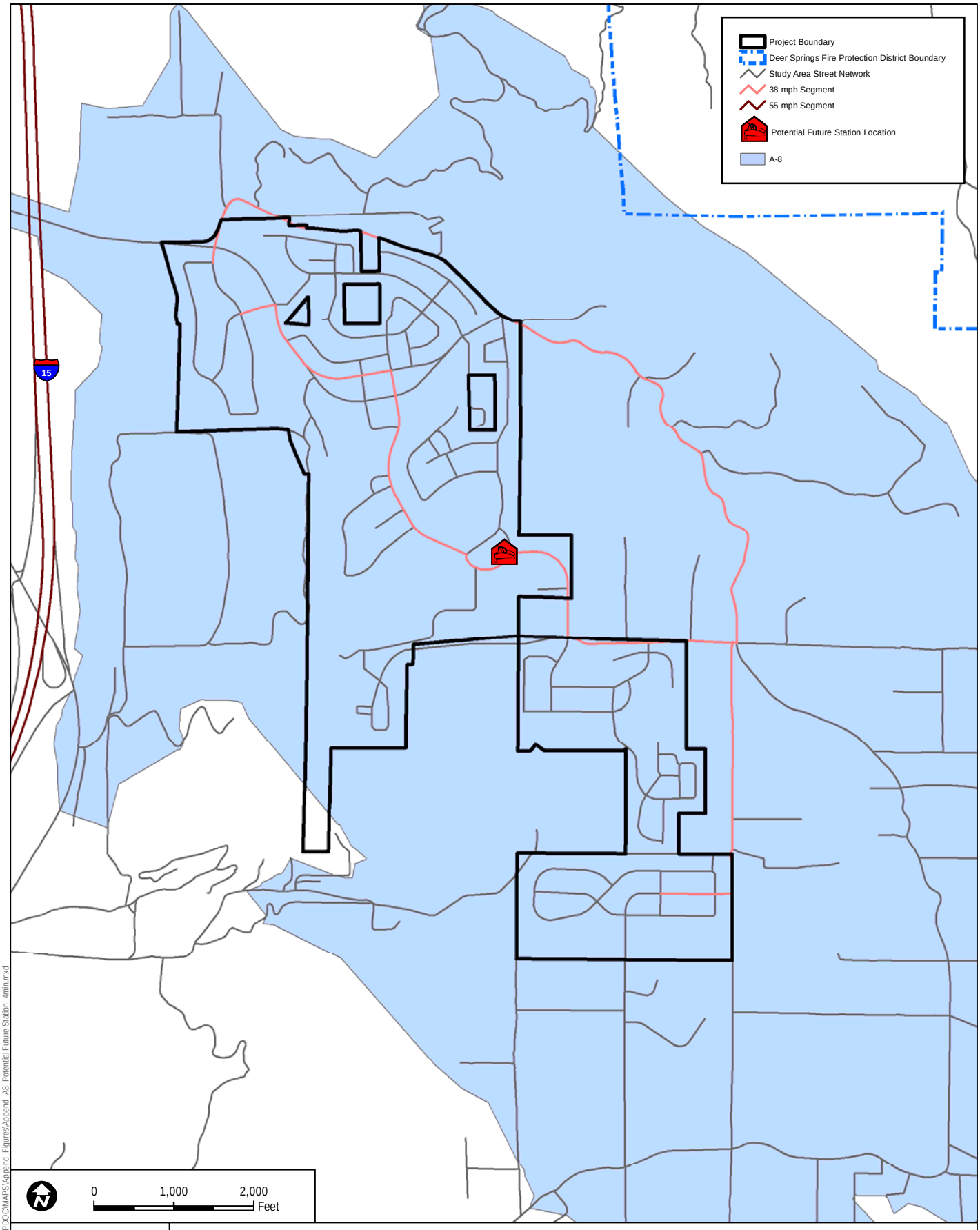

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FIGURE A-8

Potential Future Station - 4 Minute Travel Time

DEER SPRINGS FIRE PROTECTION DISTRICT CAPABILITIES ASSESSMENT

NOTE: Drive times calculated using a 35 mph average speed except where indicated.

Path: Z:\Projects\7449\01\MAPDOC\MAPS\Append FiguresAppend A8 Potential Future Station 4min.mxd

APPENDIX A-9

Phase 5 On-Site Station – 5 Minutes Travel Time Coverage

Project Boundary
Study Area Street Network
38 MPH Segment
Gate Locations
Phase 5 Station Location

Phase 5 Station Service Area

5 Minute Service Area
10 Minute Service Area

0 1,000 2,000 Feet

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SOURCE: ESRI 2013, San GIS 2012

FIGURE A-9a

Phase 3 Station Response Area- Route A

DEER SPRINGS FIRE PROTECTION DISTRICT CAPABILITIES ASSESSMENT

NOTE: Drive times calculated using a 35 mph average speed except where indicated. Gates assume 15 second of additional travel time.

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Project Boundary
Study Area Street Network
38 MPH Segment
Gate Locations
Phase 5 Station Location

Phase 5 Station Service Area

5 Minute Service Area
10 Minute Service Area

0 1,000 2,000 Feet

SOURCE: ESRI 2013, San GIS 2012

FIGURE A-9b

Phase 3 Station Response Area- Route B

NOTE: Drive times calculated using a 35 mph average speed except where indicated. Gates assume 15 second of additional travel time.

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MARCH 2014

DEER SPRINGS FIRE PROTECTION DISTRICT CAPABILITIES ASSESSMENT

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APPENDIX B

Siren Activated Gate Operator

SOS® Siren-Operated Sensor

800-767-4283 www.sosgate.com

Technical Specifications

Basic Concept

The Siren-Operated Sensor (SOS) is designed to respond swiftly to the "YELP" mode of all standard sirens. A reminder decal is provided to be placed on each entry gate. Responders already own their siren. This device represents Public Safety without spending Public Funds. The SOS is the nation's most widely used Uniform Emergency Gate Access.

Installation and Testing

Since all gate operators use 9 to 30 Volts AC or DC for their electronic controls, this source can easily be used to power the mini requirements of the SOS. A demonstration "YELP audio CD is provided, along with instructions, with each SOS sold.

Technical Specifications

The Frequency response of the Siren-Operated Sensor is from 900Hz to 6Khz. The SOS relies on a time-varying frequency input in this range. This, plus proprietary techniques, allows the microprocessor to respond to the siren's "YELP" with a dry relay closure in 2.5 seconds.

- The SOS uses an unidirectional microphone. Alignment is not necessary.
- Range of the SOS is adjustable – 5 to 50 feet or more. A potentiometer located on the PC Board provides this adjustability. The SOS is not affected by ambient light.
- The PC board is mounted in a 3.5" x 4.7" x 2.4" weather-tight enclosure.
- The unit weight is approximately 8 oz.
- The power requirements are 9-30 Volts AC or DC with approximately .1 mA Draw.
- Programmable to be momentary relay activation , 15 minute hold, or Latch.

Warranty

The SOS has a five year warranty when installed according to the manufacturer's Specifications.

APPENDIX C

Radio Triggered Gate Operator

Access as Quick as

Click, Click. . .You're In!

WITH CLICK2ENTER,

YOUR MOBILE OR PORTABLE RADIO IS THE KEY

• Click2Enter taps the state-of-the-art electronics now designed into modern scanner radio technology to give public safety personnel (Law Enforcement, Fire, Ambulance/ Rescue or any authorized user) a quick, safe, reliable and stealthy means to activate gates and security control mechanisms using their portable or mobile radios.

• Click2Enter does away with the cumbersome keys, remote control actuators and access control codes required by other systems because every emergency response vehicle already has the "key"–their radio transmitter (mobile or portable). No need to buy extra equipment or modify your radios.

• The technology is secure. Public safety agencies are issued FCC-assigned radio frequencies for restricted use only. Possession of transmitting devices by non-authorized personnel is tightly controlled and transmitting on those frequencies by outsiders is against the law (both Federal and State statutes).

• Click2Enter responds only to the frequencies and sub-audible private line codes currently programmed into its memory. Editing those frequencies can be done with any RS-232 keyboard interface and standard modem protocol software.

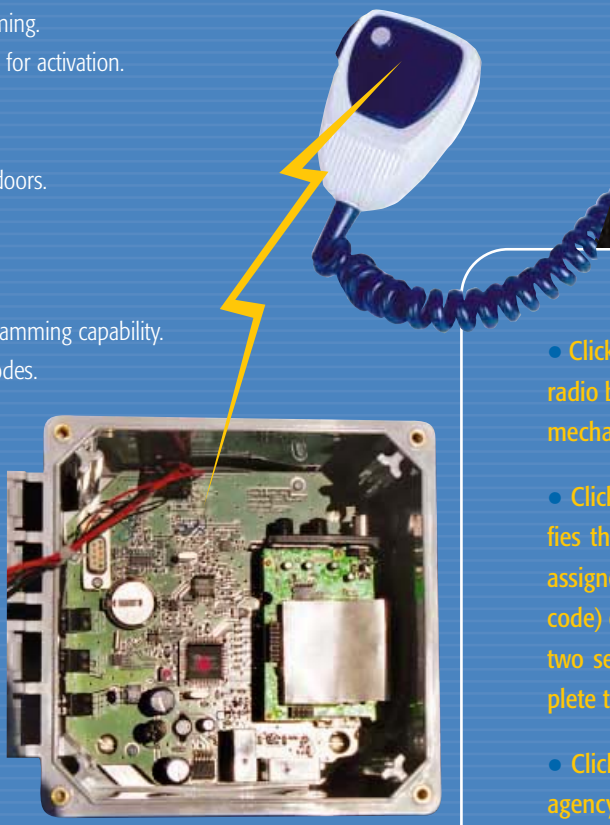
• You now have near-instant access to secure areas to deal with emergencies as they occur. To activate the Click2Enter, the operator must be proximate to the device. A single or double pulse of your radio transceiver is all that is required to initiate immediate entry.

Innovative Reliable Flexible Safe Quick

ACCESS USING YOUR TRANSMITTER RADIO
for **PUBLIC SAFETY** *and* **AUTHORIZED USERS**

Click2Enter, Inc.
U.S. Patent #5,955,947 and #5,903,216
PO Box 1532 Sonoma, CA 95476
Tel 707 939-3800 Fax 707 996-3739
info@click2enter.net
www.click2enter.net
Toll Free
877-939-3800

Click2Enter-I SPECIFICATIONS



- Scanner/receiver radio.
- Variable activation range via programming.
- One or two radio transmission "clicks" for activation.
- 50 channel capacity.
- Mutual aid compatible.
- Independent relay control for roll-up doors.

- Bright activation LED and power LED.
- Time/day/agency memory recall.
- CTCSS, PL/DPL private line (PL) programming capability.
- Auto detect and load of private line codes.
- Compatible with analog or digital radio transmitters, using private line sub-audible transmissions.
- Will operate with carrier only for use with digital radio systems.
- Able to use talk around carriers (car to car) of trunk line radio systems. Also able to operate in on-trunk mode.
- Able to receive radio transmissions to include 900 MHz bands.
- Able to use aircraft AM band frequencies for airport access control operations.
- Latch open and close features.
- Enhanced user-programmable latch open feature lets you specify gate open periods from one minute to unlimited.
- Ability to handle high power mobile transmitters and lower power hand held portable transmitters.

- Proprietary programming software built into each unit.
- Field programmable using a Windows CE PDA or laptop computer.
- Programmable via RS-232 interface.
- User-selected PIN for security of programmed frequencies.
- Able to capture and exhibit activation data log, via software.
- Computer software programmable using standard terminal emulation software (Hyper-Terminal).

- Ability to adapt and use 12V to 24V DC (Click2Enter-I power will be a regulated 12V DC).
- Lightning surge current protected (current/surge limiting circuit).
- Reflective logo for night identification.
- Unit enclosed in a NEMA Type 4 box, with security screws supplied.
- Relay or dry contact ready.
- Extra set of relay contacts to activate a multitude of devices.
- Separate device available to perform external test/operation of Click2Enter-I.
- Five year manganese dioxide lithium battery for memory backup.
- Retrofit kits available for operation beyond temperature range specifications (hot & cold).

- Click2Enter adapts the technology inherent in most radio broadcast equipment to work as a radio control mechanism, but one with built-in security features.

- Click2Enter will authorize access only after it verifies the FCC-assigned carrier frequency and agency assigned sub-audible communication (private line code) of the transmitter seeking entry. (It takes one or two separate radio pulses and verifications to complete the authorization sequence.)

- Click2Enter can afford access to any public safety agency as long as their frequencies are programmed into its memory, thus solving the mutual aid problem which limits the effectiveness of competing devices.

- Programming the Click2Enter is easy. All you need is an RS-232 keyboard interface and standard modem protocol software.

C2E

Click2Enter®

Click2Enter, Inc.
TOLL FREE
877-939-3800

APPENDIX D

Automatic Gate Operator with Battery Backup

NEW

L-3

SLIDE GATE OPERATOR

1600LBS CAPACITY

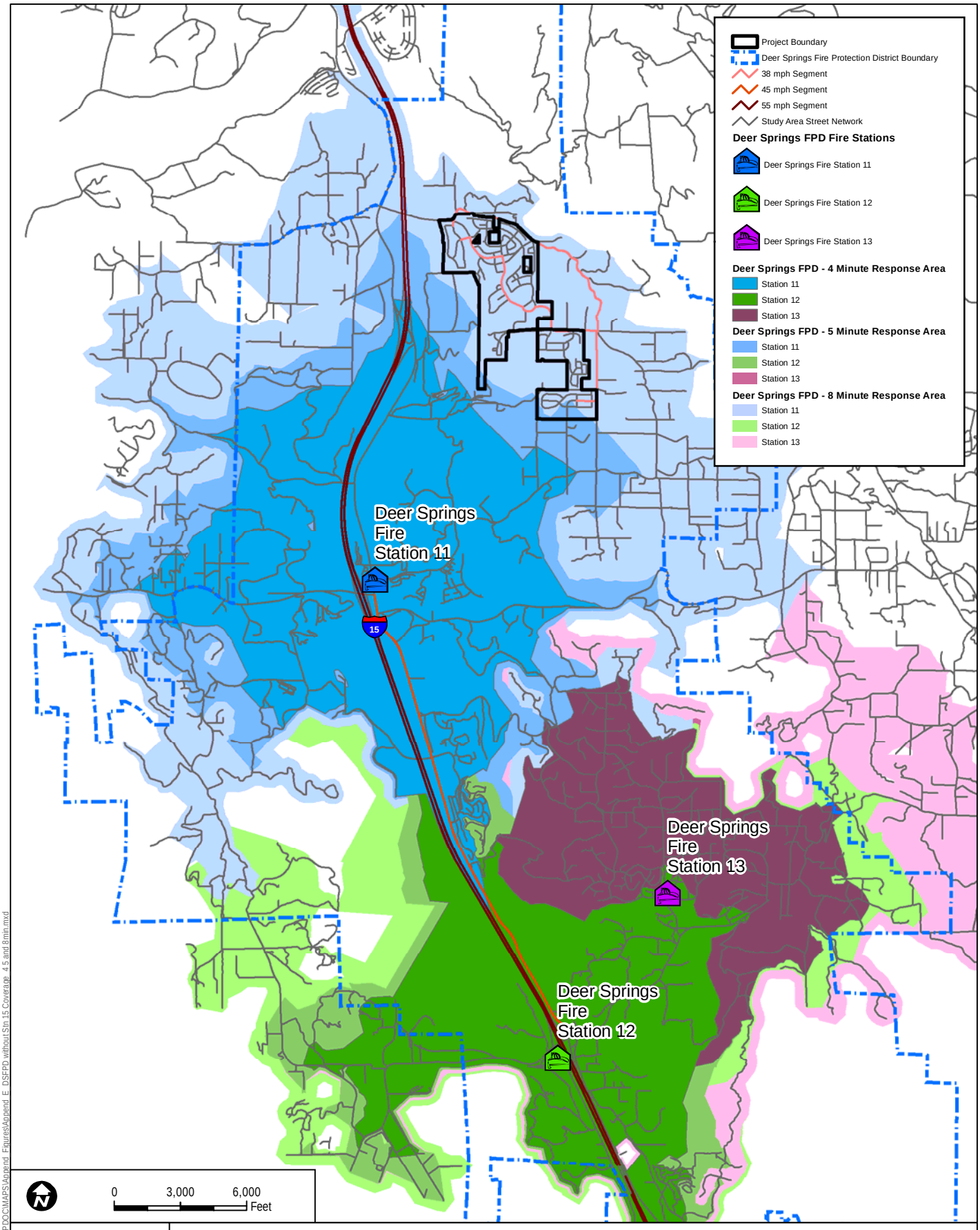
VIKING
ACCESS SYSTEMS™

RESIDENTIAL AND COMMERCIAL

CLASS I, CLASS II, CLASS III, AND CLASS IV VEHICULAR GATE OPERATOR

APPENDIX E

Station 15 Decommissioning –
Remaining Station Coverages



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DUDEK

7449-01

FIGURE E

DSFPD Coverage Area - 4, 5, and 8 Minute Travel Time

DEER SPRINGS FIRE PROTECTION DISTRICT CAPABILITIES ASSESSMENT

NOTE: Drive times calculated using a 35 mph average speed except where indicated.