

**LILAC HILLS RANCH
FIRE PROTECTION PLAN
For The
ENVIRONMENTAL IMPACT REPORT**

**CASE NUMBER: 3992-10-025 (MPA); KIVA PROJECT: 09-0112513
Deer Springs Fire Protection District
County of San Diego**



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EXECUTIVE SUMMARY

This Fire Protection Plan (FPP) for the proposed Lilac Hills Ranch development has been prepared to evaluate the level of potential fire hazard affecting or resulting from the proposed project and the methods and measures proposed to minimize that hazard. The FPP identifies and prioritizes the measures necessary to adequately reduce the fire risks of the project. The FPP also evaluated the consistency of the proposed project with applicable fire protection regulations. The FPP has considered the property location, topography, geology, combustible vegetation (fuel types), climatic conditions, and fire history. It considers water supply, access, structure ignitability, fire resistive building materials for residential structures, technical guidance for protection of commercial structures, fire protection systems and equipment, impacts to existing emergency services, defensible space, and vegetation management.

The proposed Lilac Hills Ranch community is a 608 acre mixed use pedestrian oriented sustainable community, comprised of 59 contiguous properties within the northern unincorporated area of San Diego County approximately one quarter mile from the Interstate 15 corridor on the east side with freeway access off the Old Hwy 395 interchange. The project site is located to the south and west of West Lilac Road with State Route 76 to the north, downtown Valley Center 10 miles to the east, downtown Escondido 16 miles to the south, and Interstate 15 and Old Highway 395 to the west (see Figure 1). The Lilac Hills Ranch project is located entirely in the Escondido zip code (92026) and primarily within the westernmost portion of the Valley Center Community Planning Area (CPA), although a small portion is within the Bonsall Subregional Plan Area. From the northwest project corner, West Lilac Road serves as the northern and eastern boundary of the project site, while Circle R Drive is less than a 1/2 mile south of the project Boundary. From the southwest project corner, the western boundary of the project runs along Shirey Road and extends to Standel Lane, which serves as the northwestern project boundary. The project is within Township 10 South, Range 3 West, Section 24, and Township 10 South, Range 2 West, Sections 19 and 30, on the USGS 7.5' Pala and Bonsall quadrangles.

The proposed Specific Plan includes a residential component consisting of 1,746 homes with an overall density of less than 2.9 dwelling units per acre (du/ac). This project is planned to be constructed in five phases. Agreements for emergency service are based on phasing, occupied units, and call volume demand thresholds. Planned phasing and land use categories are presented in APPENDIX 'P'. The proposed Specific Plan includes varying lot sizes, a neighborhood-serving commercial village center, an active park/village green, retail uses, and a school site. Also, proposed on-site are a recycling and buy back facility; a water reclamation facility; active orchards and other supporting infrastructure. A rezone is proposed to implement the Specific Plan by changing the existing Use Regulations, Development Regulations, and Special Residential Land Use Designation and the A70 (Limited Agricultural) Zoning. The project would also include the submittal of a Master Tentative Map, Implementing Tentative Map, Site Plan (s) and/or Major Use Permit(s).

The Deer Springs Fire Protection District (DSFPD) encompasses the entire site within its boundaries, and the applicant will work with the nearby fire agencies, including DSFPD and CAL FIRE to provide fire service for the project. This FPP must be submitted to the Deer Springs Fire Protection District (DSFPD) and the San Diego County Department of Planning and Land Use (DPLU) for review and comments. It provides a proposed menu of fire protection requirements which would be imposed when each lot within a phase is developed, and recommends standards that will guide detailed design for each phase of development and each lot within each phase.

This plan is consistent with DSFPD's Ordinance No. 2010-01 and County guidance and referenced material in the 2011 Consolidated Fire Code, Guidelines for Determining Significance, and applicable State of California requirements. All detailed phase plans shall comply with the requirements of the County Consolidated Fire and Building Codes. The Valley Center Municipal Water District will serve the water needs for this general commercial and residential project. This water supply will meet the requirements of the San Diego County

Consolidated Fire Code and the County of San Diego Fire Code for a commercial/business/residential development.

In addition, this FPP provides fuel modification requirements to mitigate the exposure of people or structures to a significant risk of loss, injury or death from wildland fires. Fuel modification will be achieved by removing, clearing, or modifying combustible vegetation and other flammable materials from the edge outward from all structures in accordance with the County Fire Code and with approval of DSFPD. Where the standard 100 feet of fuel modification cannot be met entirely within the boundary of the project or where adjacent to preserved interior native fuels, alternative measures that achieve the same level of protection as fuel modification are proposed, consistent with the fire code, including, but not limited to: 1) utilization of adjacent irrigated and managed agricultural crops (orchards, commercial flower fields, etc.) as a dual-purpose fuel modification/crop production area; 2) customized fuel modification zones based on site-specific fire behavior modeling and fire environment analysis (i.e., areas with flat terrain, grass or other light fuels, justify reduced fuel modification areas); 3) enhanced ignition-resistant construction methods and the use of other non-combustible features, i.e., parking lots, sidewalks, concrete patios, decorative rock, natural boulders on-site, and similar landscape features; and 4) fire-barrier walls where structures face off-site native flammable fuels along the northeast, northwest, and southwest boundary

Ignition-resistant construction required by Chapter 7A of the Building Code for all structures will provide significant protection in this very high fire hazard zone. Ignition-resistant construction requirements provide critical structure improvements for surviving a worst case scenario fire. Also, the FPP requires that ignition-resistant construction would apply to mitigate the ignitability of all future proposed structures and projections (exterior balconies, carports, decks, patio covers, unenclosed roofs and floors).

Lastly, plant species used in the landscape must follow those listed in the approved plant list in APPENDIX 'A' – San Diego County Approved Plant List For High Fire Hazard Areas. Highly flammable, non-fire resistive vegetation will be removed and prohibited from being replanted within the fuel modification areas. Three specific non-fire resistive plants that will not be permitted to grow in the Fuel Management Zones, even as specimen plants, because of their flammability, are as follows:

- California sagebrush, *Artemisia californica*;
- Flat-topped buckwheat, *Eriogonum fasciculatum*; and
- Black sage, *Salvia mellifera*.

Lilac Hills Ranch Project
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1.0 INTRODUCTION

This Fire Protection Plan (FPP) has been prepared for the Lilac Hills Ranch Community (hereafter referred to as Community). The purpose of the FPP is to evaluate the Project location's potential fire hazard and the potential fire risk resulting from the proposed project. Further, this FPP details the methods proposed to minimize potential fire risk. This FPP also evaluated the consistency of the proposed project with applicable fire protection regulations. As part of the assessment, the plan has considered the property location, topography, geology, combustible vegetation (fuel types), climatic conditions, and fire history. The plan addresses water supply, access (including secondary/emergency access where applicable), structural ignitability and ignition resistive building features, fire protection systems and equipment, impacts to existing emergency services, defensible space, and vegetation management. The plan identifies areas for hazardous fuel reduction treatments and recommends the types and methods of such treatment. The plan recommends measures that property owners will take to reduce the probability of ignition of structures throughout the development addressed by this plan.

An initial field visit was conducted on August 31, 2011, to evaluate lot layout, primary and secondary access road locations, hazardous fuels and topography. Additional field evaluations occurred by the project's fire protection planning team throughout 2011 and 2012 as necessary to collect information and familiarize with the site.

1.1 Project Location

The proposed Lilac Hills Ranch community is a 608 acre mixed use pedestrian oriented sustainable community, comprised of 59 contiguous properties within northern unincorporated San Diego County approximately one-quarter mile from the Interstate 15 corridor on the east side with freeway access off the Old Hwy 395 Interchange. The project site is located to the south and west of West Lilac Road with State Route 76 to the north, downtown Valley Center 10 miles to the east, downtown Escondido 16 miles to the south, and Interstate 15 and Old Highway 395 to the west (see Figure 1). The Lilac Hills Ranch project is located entirely in the Escondido zip code (92026) and primarily within the westernmost portion of the Valley Center Community Planning Area (CPA), although a small portion is within the Bonsall Subregional Plan Area. From the northwest project corner, West Lilac Road serves as the northern and eastern boundary of the project site, while Circle R Drive is less than a one-half mile south of the project Boundary. From the southwest project corner, the western boundary of the project runs along Shirey Road and extends to Stadel Lane, which serves as the northwestern project boundary. The project is within Township 10 South, Range 3 West, Section 24, and Township 10 South, Range 2 West, Sections 19 and 30, on the USGS 7.5' Pala and Bonsall quadrangles.

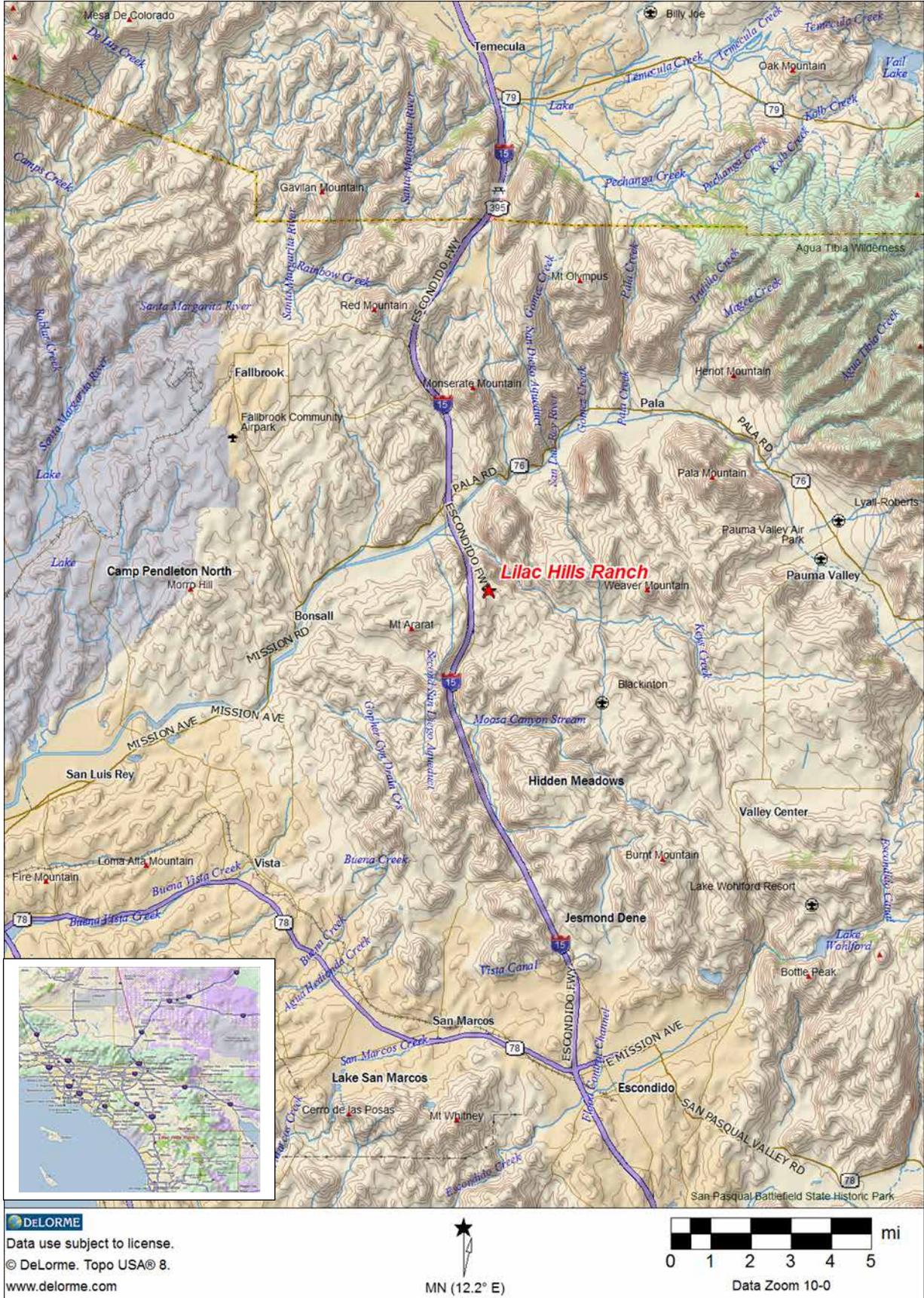


Figure 1 – Vicinity Map

1.2 Project Description

The proposed Specific Plan includes a residential component consisting of 1,746 homes with an overall density of less than 2.9 dwelling units per acre (du/ac). However, the project is planned to be constructed in five phases. Thus, agreements for emergency service are based on phasing, occupied units, and/or call volume demand thresholds. Planned phasing and Roadway Circulation are presented in APPENDIX ‘G’ – Phasing Exhibit and Roadway Circulation.

Phase 1 would include construction of approximately 352 dwelling units along with parks and roadways. Completion of Phase 1 would result in an estimated 1,045 persons living in the community. Phase 2 includes 466 dwelling units along with commercial, retail, office, civic center, information center and a 50-room Country Inn. Estimated population increase for residents is 1,384 persons. Phase 3 would include 460 dwelling units and a recreational facility, commercial, water reclamation, and a school. Estimated population of residents is 1,366 persons. Phase 4 includes construction of 171 dwelling units, single family senior, group care, and a senior center. Estimated resident population is 508 persons. Phase 5 includes 297 single family senior housing dwelling units with an estimated population of 882 persons.

The highest density is located in the Town Center (Phase 2). The Specific Plan includes a Town Center and two smaller Neighborhood Centers permitting 90,000 square feet of retail, commercial and office uses, a 174-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 Community also includes a park system with one public park and multiple private parks, public trails, and a K-8 school site. Also, proposed within the Community are a Recycling Facility; a Water Reclamation Facility; and other supporting infrastructure (varying phases). The Community’s open space system is proposed to retain some of the existing citrus and avocado groves within the disturbed areas, along with 103.6 acres of sensitive biological/wetland habitat.

The project proposes a 14.4-acre mixed-use commercial Town Center, near the center of the Community (Phase 2). The Community also proposes two Neighborhood Centers and a 12-acre school site is proposed within the Specific Plan project area (Phase 3). A Recycling Facility will be provided on-site per Section 6970-b of the Zoning Ordinance and an on-site Waster Reclamation Facility are planned (Phase 3).

The Lilac Hills Ranch Specific Plan Map shows the Community divided into 46 Planning Areas (excluding areas designated for open space, roads, common areas, slopes, etc) with 18 types of land uses ranging from Single Family Detached to Manufactured Slopes. The Phasing Map (APPENDIX ‘G’ - Phasing Plan with Roadway Circulation) shows how the Community has been divided into five phases with Phase 1 at the north and Phase 5 in the southeast corner of the Community. The Table below shows the Land Use Summary by Phase provides a detailed breakdown by Phase, for each of the land use types, including acreage numbers and, where appropriate, number of dwelling units.

TABLE "3"
SPECIFIC PLAN - LANDUSE DISTRIBUTION

PHASE 1			
AREA	LAND USE	ACRES	DU'S
SFD1	SINGLE FAMILY DETACHED	31.8	176
SFD2	SINGLE FAMILY DETACHED	15.8	86
SFD3	SINGLE FAMILY DETACHED	15.0	90
P1	PARK - HOA	1.6	N/A
P2	PARK - HOA	0.5	N/A
P3	PARK - HOA	0.3	N/A
P4	PARK - HOA	0.3	N/A
P5	PARK - HOA	0.2	N/A
P6	PARK - HOA	0.1	N/A
P7	PARK - HOA	0.2	N/A
OS1	BIOLOGICAL OPEN SPACE	1.4	N/A
OS2	BIOLOGICAL OPEN SPACE	3.2	N/A
OS3	BIOLOGICAL OPEN SPACE	1.3	N/A
OS4	BIOLOGICAL OPEN SPACE	0.7	N/A
OS5	BIOLOGICAL OPEN SPACE	0.1	N/A
OS6	BIOLOGICAL OPEN SPACE	8.4	N/A
	NON-CIRCULATING ROAD	13.7	N/A
	CIRCULATING ROAD	7.7	N/A
	COMMON AREAS/AG	6.1	N/A
	MANUFACTURED SLOPES	13.1	N/A
SUBTOTAL		121.5	352

PHASE 2			
AREA	LAND USE	ACRES	DU'S
SFD4	SINGLE FAMILY DETACHED	18.3	196
SFA1	SINGLE FAMILY ATTACHED	3.0	47
SFA2	SINGLE FAMILY ATTACHED	0.6	12
C1	COMMERCIAL/MIXED USE	10.1	121
C2	COMMERCIAL/MIXED USE	2.3	46
C3	COMMERCIAL/MIXED USE	2.0	44
RF	RF/TRAILHEAD	0.6	N/A
P8	PARK - HOA	2.0	N/A
P9	PARK - HOA	0.8	N/A
OS7	BIOLOGICAL OPEN SPACE	9.0	N/A
OS9	BIOLOGICAL OPEN SPACE	3.6	N/A
	NON-CIRCULATING ROAD	8.0	N/A
	CIRCULATING ROAD	13.6	N/A
	COMMON AREAS/AG	0.8	N/A
	MANUFACTURED SLOPES	14.9	N/A
SUBTOTAL		89.6	466

PHASE 3			
AREA	LAND USE	ACRES	DU'S
SFD5	SINGLE FAMILY DETACHED	16.1	95
SFD6	SINGLE FAMILY DETACHED	51.0	242
SFD7	SINGLE FAMILY DETACHED	5.0	10
SFD8	SINGLE FAMILY DETACHED	5.8	8
SFA3	SINGLE FAMILY ATTACHED	4.3	105
C4	COMMERCIAL/MIXED USE	0.5	0
WR	WATER RECLAMATION	2.4	N/A
DB	DETENTION BASIN	6.6	N/A
WWS	WET WEATHER STORAGE	8.1	N/A
S	SCHOOL	12.0	N/A
PR	PRIVATE RECREATION	2.0	N/A
P10	PARK - DEDICATED TO COUNTY	12.0	N/A
OS8	BIOLOGICAL OPEN SPACE	44.2	N/A
OS10	BIOLOGICAL OPEN SPACE	4.8	N/A
	NON-CIRCULATING ROAD	8.2	N/A
	CIRCULATING ROAD	8.7	N/A
	COMMON AREAS/AG	3.3	N/A
	MANUFACTURED SLOPES	28.0	N/A
SUBTOTAL		223.0	460

PHASE 2	SPECIALTY COMMERCIAL	55,000	sq. ft.
	OFFICE	25,000	sq. ft.
	COUNTRY INN	50	units

PHASE 3	PRIVATE RECREATION CENTER	40,000	sq. ft.
	SPECIALTY COMMERCIAL	4,000	sq. ft.
	OFFICE	3,500	sq. ft.

PHASE 4	GROUP RESIDENTIAL/CARE	200	units
PHASE 5	SPECIALTY COMMERCIAL	2,500	sq. ft.

PHASE 4			
AREA	LAND USE	ACRES	DU'S
SFS1	SINGLE FAMILY - SENIOR	12.1	81
SFS2	SINGLE FAMILY - SENIOR	17.8	90
GR	GROUP RESIDENTIAL/CARE	6.5	N/A
DB	DETENTION BASIN	1.0	N/A
P11	Park - HOA SENIOR CENTER	3.3	N/A
P12	PARK - HOA	0.4	N/A
OS11	BIOLOGICAL OPEN SPACE	5.3	N/A
OS12	BIOLOGICAL OPEN SPACE	4.3	N/A
	NON-CIRCULATING ROAD	2.8	N/A
	CIRCULATING ROAD	3.0	N/A
	COMMON AREAS/AG	1.3	N/A
	MANUFACTURED SLOPES	3.7	N/A
SUBTOTAL		61.5	171

PHASE 5			
AREA	LAND USE	ACRES	DU'S
SFS3	SINGLE FAMILY - SENIOR	10.6	72
SFS4	SINGLE FAMILY - SENIOR	6.9	38
SFS5	SINGLE FAMILY - SENIOR	16.0	128
SFS6	SINGLE FAMILY - SENIOR	12.5	59
C5	COMMERICAL/MIXED USE	0.4	0
I	INSTITUTIONAL	10.7	N/A
DB	DETENTION BASIN	1.8	N/A
P13	PARK - HOA	0.1	N/A
P14	PARK - HOA	1.0	N/A
P15	PARK - HOA	1.0	N/A
OS13	BIOLOGICAL OPEN SPACE	10.8	N/A
OS14	BIOLOGICAL OPEN SPACE	6.5	N/A
	NON-CIRCULATING ROAD	13.0	N/A
	CIRCULATING ROAD	4.6	N/A
	COMMON AREAS/AG	8.7	N/A
	MANUFACTURED SLOPES	7.8	N/A
SUBTOTAL		112.4	297

OVERALL			
AREA	LAND USE	ACRES	DU'S
SFD	SINGLE FAMILY DETACHED	158.8	903
SFS	SINGLE FAMILY - SENIOR	75.9	468
SFA	SINGLE FAMILY ATTACHED	7.9	164
C	COMMERCIAL/MIXED USE	15.3	211
WRF	WATER RECLAMATION	2.4	N/A
RF	RECYCLE FACIL/TRAIL HEAD	0.6	N/A
DB	DETENTION BASIN	9.4	N/A
WWS	WET WEATHER STORAGE	8.1	N/A
S	SCHOOL	12.0	N/A
PR	PRIVATE RECREATION	2.0	N/A
GR	GROUP RESIDENTIAL/CARE	6.5	N/A
I	INSTITUTIONAL	10.7	N/A
P	PARK - HOA	11.8	N/A
P	PARK - DEDICATED TO COUNTY	12.0	N/A
OS	BIOLOGICAL OPEN SPACE	103.6	N/A
	NON-CIRCULATING ROAD	45.70	N/A
	CIRCULATING ROAD	37.6	N/A
	COMMON AREAS/AG	20.2	N/A
	MANUFACTURED SLOPES	67.5	N/A
TOTAL		608	1746

EXISTING DWELLING UNITS TO REMAIN

- 128-280-27 9151 W. Lilac Rd.
- 128-290-07 9153 W. Lilac Rd.
- 128-440-02 32444 Birdsong Dr
- 128-290-74 32236 Shirey Rd.
- 128-280-42 9007 West Lilac Road
- 128-290-69 9419 West Lilac Road
- 128-440-14 9553 Lilac Walk
- 128-440-06 9383 West Lilac Road
- 128-280-37 9307 West Lilac Road
- 128-440-05 9381 West Lilac Road
- 128-440-22 9435 West Lilac Road
- 128-280-10 9167 West Lilac Road
- 127-072-38 8709 West Lilac Road
- 128-290-09 9431 West Lilac Road
- 129-010-68 9883 West Lilac Road
- 129-300-09 00000 Rodriguez Road

1.3 General Land Use Designations, Land Uses and Site Improvements.

The project is located entirely within the Deer Springs Fire Protection District (DSFPD) and DSFPD will be responsible for providing fire service to the project. This FPP was submitted to DSFPD and the San Diego County Department of Planning and Land Use (DPLU), in accordance with the San Diego County requirements. The FPP describes the requirements and standards that will be imposed on the development. This plan is consistent with County guidance and referenced material in the 2011 San Diego County Consolidated Fire Code, the most recent Guidelines for Determining Significance (2010) and applicable State of California requirements. All detailed phase plans shall comply with the then-current requirements of the County Fire and Building Codes at the time they are submitted. Detailed site plans for each lot shall reference and include the recommendations and standards in this plan as may be modified to address the actual proposed development. All detailed site plans shall comply with the then-current requirements of the District and County Fire and Building Codes at the time they are submitted.

The Community is located entirely within the boundaries of the Valley Center Municipal Water District (VCMWD). Imported water and sewer service would be provided by the Valley Center Municipal Water District. In order to provide sewer service, the project may complete one of the following: construct a new water reclamation facility on-site, or use the existing Lower Moosa Canyon Water Reclamation Facility (P73-018) located south of the project site off Circle R Lane. The extension of sewer and water utilities will be required by the project.

1.4 Environmental Setting

The project vicinity includes larger parcel (1 acre and larger) single family residences in a rural/semi-rural area dominated by small agricultural operations. The area's native fuel beds have been largely converted to irrigated agriculture with remnant native fuels in a patchy mosaic across the landscape. In general terms, the Community and adjoining properties are similar in topography, and dominated by irrigated and maintained agricultural vegetation, including floricultural species, avocado, citrus, and small amounts of other agricultural resources, orchards and small riparian woodland. The area is best categorized as a wildland urban intermix (structures are intermixed with wildland fuels) where no consistent interface is present. Most of the area includes landscapes that support low to highly flammable vegetation. The following sections discuss the surrounding land use, topography, climate, vegetation, and fire history.

1.4.1 Topography and Uses

The topography of the area consists of a series of rolling hills dissected by drainage courses and a valley bottom that drain primarily to the south and southwest. Elevations across the site range from 960 feet MSL at the highest to 590 feet MSL at the lowest. The drainage courses on the site convey storm water and urban/agricultural runoff. Both intermittent and ephemeral drainages occur on the site.

The major drainage courses (wetlands) and steeper slopes will be placed into open space easements with each phase of development. The largest of the drainage courses are located primarily along the western boundary and involve phases 1, 2 and 3 of the development. Two other major drainages are within Phases 4, and 5. See APPENDIX 'I' – Specific Plan-Site Plan for the location of the proposed open space on-site. Terrain affects fire behavior and the types of fire protection features that will be required. For example, the steeper slope areas allow faster combustion of fuel in the upslope direction. As a general rule with other factors constant, it can be assumed that the steeper slopes on-site would contribute to faster fire speed.

1.4.2 Climate

The County is divided into five climate zones from the coast to the desert: Maritime, Coastal, Transitional, Interior, and Desert (Climate Zones in San Diego County, Guidelines for Determining Significance, Wildland Fire and Fire Protection). These climate zones are determined by several factors: proximity to the ocean, terrain, elevation, and latitude. Southern California has a Mediterranean climate, characterized by mild, sometimes wet winters and warm, very dry summers. The Mediterranean climate includes all coastal areas, valleys and foot hills. Annual precipitation amounts increase gradually from the coast to the mountain crests, then drop dramatically into the deserts. Most precipitation comes from winter storms between November and March. The Lilac Hills Ranch site is located in the transitional climate zone. The Valley Center RAWS station is the nearest RAWS station within the Transitional climate zone.

The following chart represents the typical weather of a hot summer day in the Transitional Climate Zone, Santa Ana and “peak” (or worst case fire weather/climate conditions) elements for this Fire Protection Plan:

Period	Temperature	Relative Humidity	Sustained Wind Speed	Burning Index (99%)
Summer	90-109°F	10-14%	19 mph	119
Santa Ana	90-109°F	5-9%	28 mph	145
Peak	90-109°F	5-9%	41 mph	-

The BehavePlus 4.0.0 Fire Modeling Program (to be discussed later in this plan) utilizes fuel moisture levels in both live and dead vegetation, projected wind, topography and vegetation type to determine fire behavior. Temperature is not an input. Large fires may occur at much lower temperatures than shown above. Relative humidity of less than 5 percent may also occur.

The Burning Index listed above is an indicator of the relative difficulty of fire control and is part of the National Fire Danger Rating Program. The higher the number, the more intense and severe a wildfire would be burning under the weather conditions described.

Mean precipitation for the Lilac Hills Ranch site is 11.38 inches per year and the mean average air temperature for the site for a year is approximately 63 degrees. The mean maximum wind gusts are 41 mph, with gusts of 100 mph recorded during the 2007 Rice Fire. Wind gusts, precipitation and temperature, particularly in a regional context, will significantly impact wildland fire.

The most critical fire weather wind pattern in the project area would be an off-shore wind from the north/northeast, typically referred to as a Santa Ana wind. Such wind conditions are usually associated with strong (> 60-MPH), hot, dry winds with very low (<15%) relative humidity. Santa Ana winds are caused by high-pressure weather systems and can occur any time of the year. However, they generally occur in the late fall (September through November). This is also when non-irrigated vegetation is at its lowest moisture content.

The typical prevailing summer time wind pattern is out of the south or southwest and normally is of a much lower velocity (5-19 MPH with occasional gusts to 30-MPH). It is associated with higher relative humidity readings (> 30% and frequently more than 60%) due to a moist air on-shore flow from the ocean.

All other (northwest, south, west) wind directions may be occasionally strong and gusty. However, they are generally associated with cooler, moist air and often have higher relative humidity (> 40%). They are considered a serious wildland fire weather condition when wind speeds reach > 20 MPH.

1.4.3 Fire History

This general area has a history of burning from wildland fires, as does most of the County. A fire history map was created by utilizing the California Fire Planning and Mapping Tools, available from the California Fire Alliance web site at <http://cafirealliance.org/> (See Figure 3). This map only contains large (100+ acres) wildfires unless there were unusual circumstances. This information helps determine the frequency of wildfire and the likely vegetation cover during such events. For fire behavior planning purposes, climax vegetation (Fuel Model SCAL18 & FM sh7) is utilized for worst case scenarios. **FIREWISE 2000, Inc.** did not find that any large fires burned the project area in the last 50 years. The data indicates that in the last 50 years, there have been several large fires around the project site to the north, east and south (see Figure 3). For example, the Rice Fire of 2007 burned 9,472 acres during a worst case wildfire scenario.

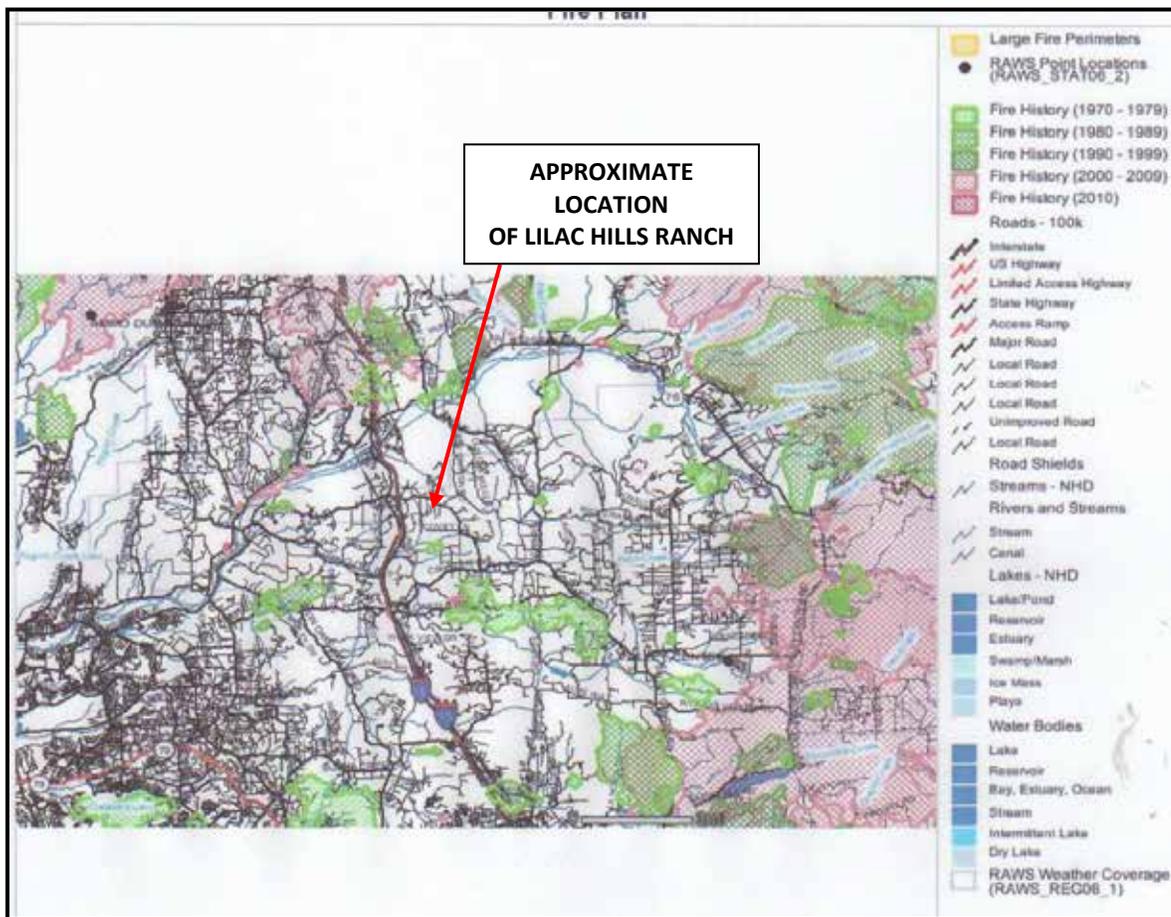


Figure 1 - Fire History Map

The wind factor is a key to the spread of wildfires in southern California. Embers from fires driven by high winds (Santa Ana winds) can start new spot fires up to 1.5 miles away from the ‘front’ of the original fire. The maximum distance of ‘1.5 miles’ is the canonical wisdom; it apparently is larger in some cases. A home on Queenston Drive in Escondido burned 22 October 2007 when an ember from 2 miles away landed on its wood shake roof. This is a minimum distance, since the fire never burned closer than two miles to this house (San Diego Union Tribune, 1 November 2007, NI-1). Spot fires spread in the direction of the wind, and in turn can start new spot fires in whatever direction the wind is blowing.

In summary, any wind or topography driven wildfire burning under a northeast (Santa Ana) wind pattern creates a very high wildland fire hazard, especially for wildland fires starting off-site north

and northeast of the project. The primary threat during this scenario would be flying fire brands. In

addition, a typical fire day with a southwest wind will create a high wildland fire hazard. Fuel treatment and setback will all but eliminate direct fire impingement and radiant heat from around the perimeter of the structures. Strict building code standards will similarly minimize the likelihood that embers ignite the project's ignition resistant structures.

Fire ecology research has shown that the natural fire regime for the shrub lands and forests in San Diego County is one of frequent small fires and occasional large fires. However, over the last 100 years the natural fire process has changed due to fire suppression policies, the introduction of invasive plant species that burn readily (i.e., eucalyptus and palm trees), and the increasing human ignition sources from associated with building and living within the wildland-urban interface areas. Thus, fires may occur at any time and in most areas of San Diego County, are occurring at higher frequencies than historically. However, fire readiness and response capabilities have at least maintained pace if not exceeded this rate, as evidenced by CAL FIRE's 95% success rate at keeping wildfires under 10 acres in size.

2.0 GUIDELINES FOR THE DETERMINATION OF SIGNIFICANCE

This FPP evaluates the fire hazard of the area and its potential affect on the project as well as the potential increased hazard that may result from the proposed project. In addition, this FPP evaluates the methods proposed to minimize potential hazard. This FPP also evaluates the consistency of the proposed project with applicable fire protection regulations. As part of the assessment, the plan has considered the property location, topography, geology, combustible vegetation (fuel types), climatic conditions, and fire history. The plan addresses water supply, access (including secondary/emergency access where applicable), solar structural ignitability, protection systems and equipment, impacts to existing emergency services, and vegetation management.

The FPP will consider factors such as; the modification of fuels, fire access, water supply, the use of ignition-resistant construction to protect people and structures from exposure to wildfire events, and the fire service response capacity and response time. The FPP was prepared in accordance with the County of San Diego Guidelines for Determining Significance for Wildfire and Fire Protection.

2.1 People and Structures Exposure to Fire

This FPP evaluates the proposed community and its survivability in a worst case scenario of northeast winds with gusts of 60 MPH (Santa Ana winds) and 'rare event' 30-MPH southwest winds during a wildland wildfire event in the area. It also documents fuel modification requirements in combination with the non-combustible construction materials and other fire protections systems for the protection of life and property within this proposed community.

2.2 Fire Apparatus Access Roads

The primary fire apparatus access roads to the Lilac Hills Ranch project will be via two ingress/egress points to an upgraded, relocated West Lilac Road on the north side of the development. In addition, access will be available from Covey Lane on the project's eastern boundary off of West Lilac Road. Project adjacent portions of West Lilac Road and the portions of Covey Lane from the project to West Lilac Road will be improved to San Diego County Public Road Standards, complying with travel lane width, grade, surface, radius, and other requirements.

The interior project road circulation will be will be constructed to San Diego County Private Road Standards and will provide unimpeded fire apparatus access throughout the project.

An additional emergency ingress/egress road is provided to/from the southern portion of the project via existing Mountain Ridge Road and Rodriguez Road. Mountain Ridge Road is accessed from Circle R Road, and Rodriguez Road is accessed via Covey Lane. These roads will meet County Private road standards for fire apparatus access and will be gated. These ingress/egress roads and all the interior project road circulation will be constructed to San Diego County Private Road Standards and will provide unimpeded fire apparatus access throughout the project. Private Road Standards are similar to public road standards with few exceptions.

2.3 Water Supply

The Valley Center Municipal Water District has agreed to serve the water needs for this general commercial and residential project. Therefore, the water supply meets fire emergency water needs, including water sprinkler system (and meters) for all facilities on the project site. Hydrants will be installed for each Phase prior to the allowance of combustibles on the active project site.

2.4 Ignition Resistant Construction and Fire Protection Systems.

This FPP evaluates ignition-resistant construction related to protecting new structures from an approaching wildfire. These construction standards provide a high level of protection to structures built in the wildland/urban interface area when completed in combination with other fire protections systems within this proposed development.

3.0 ANTICIPATED FIRE BEHAVIOR IN THE VICINITY

As statutorily designated, fire severity is zoned as “Very High” Fire Severity for some portions of the project vicinity, and “Moderate” for the remainder. These designations indicate that there is not a consistent fuel bed and current land uses have interrupted and converted native fuels to lower flammability/intensity land uses. Several scenarios were evaluated to determine the potential fire behavior of a wildland fire that might occur in the vicinity of the Lilac Hills Ranch Project. Fire Behavior calculations were used to assist in the determination of suitable fuel modification requirements and adequate vegetation treatment and maintenance widths. The distances and requirements are delineated as Fuel Modification Zones (FMZ)

3.1 On-Site Vegetation

Historic. The historic vegetation on the majority of the proposed development boundaries includes Coastal sage scrub, Southern coast live oak riparian woodland and southern mixed chaparral. These vegetation types are characterized as high and very high load, dry climate brush. In these vegetation types, a high percentage of dead material is typical in mature stands. This is due to the effects of the local Mediterranean climate where warm wet winters promote new growth followed by long, hot and very dry summer seasons which significantly affect plant moisture. Occasionally, multi-year droughts cause significant parts of these plants to die back. All of these plants are adapted to the intense wildfires for species regeneration. The on-site, wildland fire threat is largely removed with development of the project and conversion of vegetative fuels to lower flammability urban development. The areas adjacent the developed areas are the primary focus of this modeling effort as these native and agricultural vegetated areas and their potential affect on the project can be mitigated with implementation of the required fuel modification and fire protection features outlined in this FPP.

**Photo 1 –
Example
of Native
Vegetation in
Project
area**



For fire modeling purposes, these historic and dominant plant communities best characterize the predominant fuel types that would tend to result in fire spread and were used for conservative-based fire modeling purposes.

Existing. The existing condition is a result of disturbance from decades of agricultural activity. The primary agricultural activities found in the immediate area include orchards, vineyards, row crops, and nursery operations.

The Biological Resources Report for Lilac Hills Ranch by RECON Environmental states that existing vegetation on the site is a mosaic of native habitat patches and agricultural uses. Most native habitat occurs primarily along the drainage courses where riparian type communities (significantly invaded by non-native species) and on some of the steeper terrain on the western and southwestern portions of the Community where remnant native coastal sage scrub and/or chaparral persist. For fire modeling purposes, the historic and dominant plant communities are best characterized as coastal sage scrub (SCAL18) and southern mixed chaparral (sh7 FM – very heavy load, dry climate shrub).

A total of sixteen primary habitat types and vegetation communities were identified by the project's biological resources technical report. The largest areas of native habitat is southern mixed chaparral, with southern coast live oak riparian woodland, southern willow riparian woodland, and southern willow scrub occurring within the drainages. The developed areas consist primarily of scattered rural residences with ornamental landscaping. Roughly 75% of the property is mapped as agriculture, developed or disturbed.

The vegetation communities identified by the RECON survey identifies the vegetation on the project site at present. In an undisturbed environment, the historic native vegetative communities would predominately have been coastal sage scrub, southern coast live oak riparian woodland and mixed southern chaparral. Therefore, in the absence of ongoing manipulations, these vegetation communities would return over time. The anticipated exposure to natural fuels by the project will remain in the planned open space areas within and adjacent the development. These open space corridors will have the potential to result in fire spread, however, the project will restore some of the open space areas to remove flammable non-native species (peppers, eucalyptus, palms, arrundo, etc), will include higher fuel moistures due to drainage locations, and will include a maintenance agreement to remove dead and dying vegetation as well as non-native species that may establish over time. In addition, Fuel Management Zones (FMZs) supplemented by required fire protection features would create acceptable wildfire protection for all structures within this development.

In summary, wind or topography driven wildfires burning under a northeastern (Santa Ana) wind pattern from the north, northeast or east creates a moderate to high wildland fire hazard, especially for wildland fires starting north and/or east of the project site. Also, a “rare event” 30 MPH southwest wind will create a low to moderate wildland fire hazard. However, the vegetation on the north and eastern exposure of the development are lighter fuels and adjacent to small rural residential parcels and agricultural crops, resulting in reduced fire intensity and slower rates of spread. The worst case on-site fuel loading scenario is found in the northwest, west, and southwest exposure. These exposures are from planned fuel loads and steeper slopes. However, with the proposed fuel modification treatments, fire protection features, “*firewise*” landscaping, and the use of ignition resistive building construction standards, the wildfire threat will be mitigated to less than significant levels. As a result, the potential loss of any structure due to direct flame impingement, wind driven embers, or radiant heat around the perimeter of any planned inhabitable building is extremely low. Although this project is not considered a shelter-in-place community, and the state-adopted “Ready, Set, Go” policy for early evacuation will be thoroughly supported and promoted to all residents, visitors and guests, there will be opportunities for residents to safely remain in their homes or another on-site building/location should evacuation be considered too dangerous.

3.2 Off-Site Vegetation

Historic. The historic vegetation communities listed as the dominant fuel loads would be similar to the historic on-site vegetation. In a wildland fire the native vegetation provides the fuel, which usually includes both living and dead vegetation. However, wildfire in the wildland urban intermix areas is spread through both native and non-native vegetation as well as other combustible objects, including older, vulnerable homes, outbuildings, and debris. Land uses and resulting vegetation on adjacent properties consist of similar agricultural uses as those found on the majority of the project site.

Existing. The off-site area surrounding the Lilac Hills Ranch presently consists of residential communities with agricultural crops (orchards, vineyards, row crops, and nursery operations), and interspersed islands of native vegetation.

Northern Boundary. There is a large area of native vegetation north of West Lilac Road located in the Draft MSCP Pre-Approved Mitigation Area, single family dwellings, orchards, and other agricultural activities. The fuel modification and hazard abatement associated with the existing single family dwellings, agricultural activities, and a County maintained road provide significant protection from wildfires along this boundary. The greatest risk from this exposure would be firebrands generated from the area of native vegetation and/or the fuels associated with the existing single family dwelling parcels to the north of West Lilac Road during a worst case scenario of late fire season northeast Santa Ana Winds. As previously mentioned, firebrands/embers can be carried a long distance (potentially one mile or more) by fire drafts or strong Santa Ana winds and may ignite the on-site open space fuels or other combustible materials that are receptive to burning.

Eastern Boundary. The vegetation on the eastern exposure of the development has much lighter fuels. Also, the eastern boundary of the development is adjacent to single family dwellings and with a large portion contiguous to roads and road easements, and existing agriculture crops and activities (orchards, commercial flower field and other agricultural activities). The road and managed and irrigated agriculture provides significant fuel modification that results in less ignition prone vegetation and reduced fire intensity and spread rates, resulting in sufficient mitigation from wildfires along this boundary exposure.

Southern Boundary. The exposure along the eastern side of the southern boundary is part of a narrow strip of disturbed southern willow scrub which occurs along a drainage course. On-site agricultural activities, the placement of a church and attendant facilities, access roads, and adequate space to provide fuel modification, will provide fire protection for this part of the southern boundary exposure.

Western Boundary. A riparian woodland vegetation community occurs along most of the western border of the main project area and along tributary east-west drainages in the central portions of the site. Also, southern mixed chaparral vegetation occurs as large, relatively undisturbed patches in the northwest, central, and southern portions of the project area on the western-facing slopes. Dominant plant species for the southern mixed chaparral vegetation include chamise, mission manzanita, hoary-leaved ceanothus, black sage, California buckwheat, and laurel sumac. A wildland fire threat for the development would be from a fire approaching from the south, southwest or west exposures in off-site and on-site highly flammable native and non-native vegetation along these exposures. This threat would be the greatest during a typical late fire season with above average 30 MPH southwest wind conditions. Fuel modification zones meeting code requirements, a non-combustible wall, roadways and a maintained park facility will be applied along this boundary to provide the fire buffer required to protect ignition-resistant structures along this exposure from late fire season wildfires during 30 MPH southwest wind conditions.

As stated above, the agricultural related land uses and structural hazard abatement practices provide significant fuel modification and fire protection buffers around the perimeter of the Lilac Hills Ranch property and have been considered as part of the overall wildfire risk and need for full fuel modification zones, consistent with San Diego County’s Guidelines for Determining Significance – Wildland Fire and Fire Protection (2010). Figure 3 below illustrates the significance of fire buffers which are provided by these adjacent and contiguous land uses along the north and northeast boundary. This is particularly significant for fire protection during strong winds (Santa Ana Winds) which occur in the late fire season.

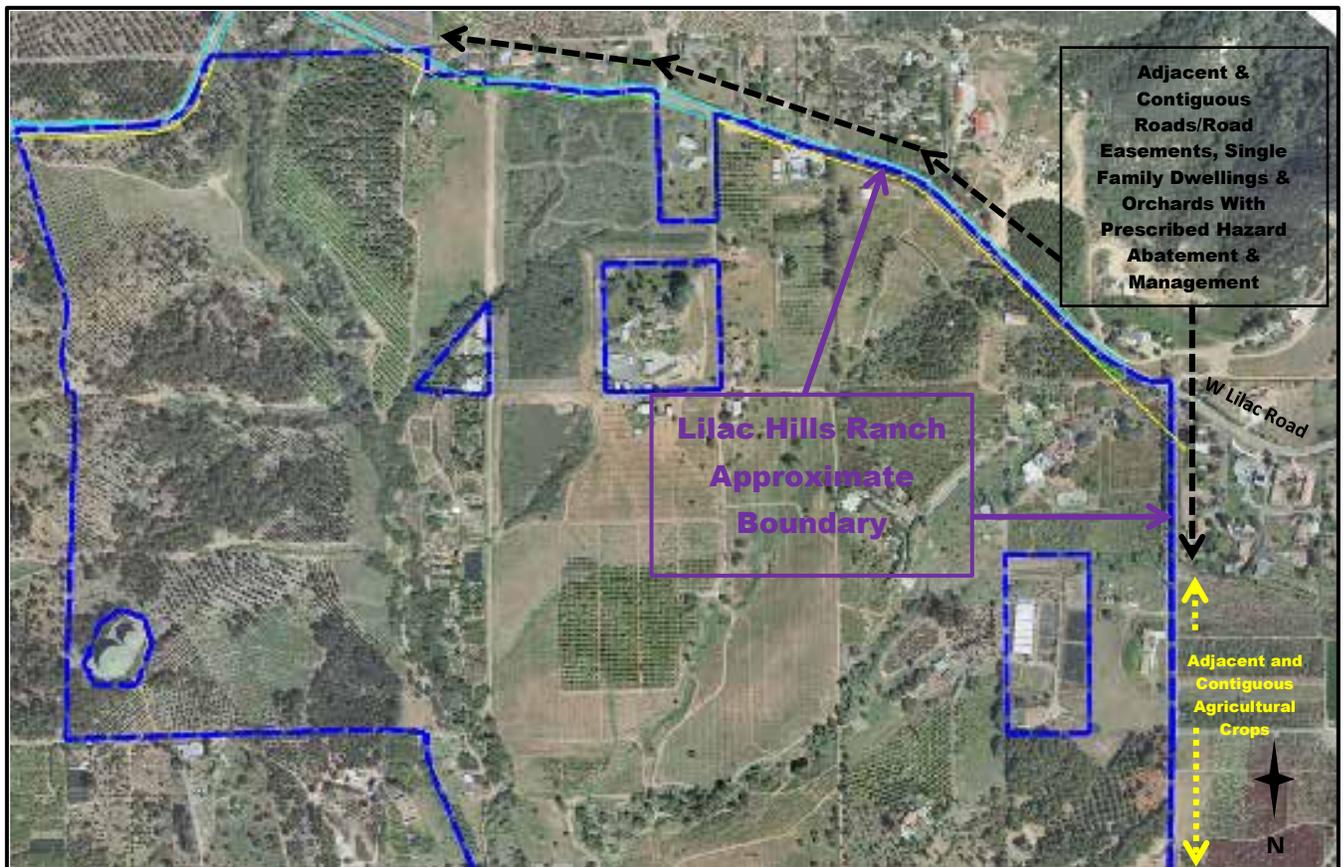


Figure 3 – Aerial Photo Illustrating Adjacent and Contiguous Off-Site Land Uses on Northeast Corner of Property

3.3 Wildland Fire Behavior Assessment

3.3.1 Fuel Modeling.

The minute by minute movement of a wildland fire is never totally predictable, and is certainly not predictable from weather conditions forecast many hours before the fire. Nevertheless, practice and experienced judgment in assessing the fire environment, coupled with a systematic method of calculating fire behavior, yields surprisingly good results (Rothermel, 1983).

The primary driving force in the fire behavior calculations is the dead fuel, less than one-fourth inch in diameter. These are the fine fuels that carry the fire. Fuels larger than 1/4-inch contribute to fire intensity, but not necessarily to fire spread. The BehavePlus 4.0.0 fire model describes a wildfire spreading through surface fuels, which are the burnable materials within six (6') feet of the ground and contiguous to the ground.

Fuels larger than three (3") inches in diameter are not included in the calculations (Andrews 1986). Regardless of the limitations expressed, experienced wildland fire managers can use the BehavePlus 4.0.0 modeling system to project the expected fire intensity (expressed as Btu/ft/sec), rate-of-spread (feet/minute) and flame lengths (feet) with a reasonable degree of certainty for use in Fire Protection Planning purposes. Of these three fire behavior projected flame length is the most critical in determining structure protection requirements.

The BehavePlus 4.0.0 Fire Behavior Prediction and Fuel Modeling System by Patricia L. Andrews and Collin D. Bevens is one of the best systematic methods for predicting wildland fire behavior. The BehavePlus 4.0.0 fire behavior computer modeling system was developed by USDA–Forest Service research scientists at the Intermountain Forest Fire Laboratory, Missoula, Montana, and is utilized by wildland fire experts nationwide. Because the model was designed to predict the spread of a fire, the fire model describes the fire behavior only within the flaming front. The results of the modeling calculations are summarized in APPENDIX 'E'.

The BehavePlus 4.0.0 Fire Modeling System has been used to predict the wildland fire behavior (rate-of-spread, and flame length) for the northern and western boundary vegetative fuels. The BEHAVE: Fire Behavior Prediction and Fuel Modeling System–Burn Subsystem, Part 1 by Patricia L. Andrews, is one of the best systematic methods for predicting wildland fire behavior. The BEHAVE fire behavior computer modeling system was developed by USDA–Forest Service research scientists at the Intermountain Forest Fire Laboratory, Missoula, Montana, and is utilized by wildland fire experts nationwide. Since the model was designed to predict the spread of a fire, the fire model describes the fire behavior only within the flaming front.

The **FIREWISE 2000, Inc.** evaluation team used the computer based BehavePlus 4.0.0 Fire Behavior Prediction Model to make the fire behavior assessments and projections for the hazardous vegetative fuels on the areas in proximity to the proposed site for the Lilac Hills Ranch facility (see APPENDIX 'E' for actual calculations). Four (4) worst case fire scenarios are displayed based on 'worst case' fire weather assumptions for the project area. Each fire scenario displays the expected Rate of Fire Spread (expressed in feet per minute), Fire Line Intensity (expressed in BTU's/foot/sec, and Flame Length (expressed in feet). These fire behavior parameters are calculated for the following scenarios: 1) untreated fuels in a worst case scenario northeast Santa Ana winds in coastal sage scrub fuel model, 2) treated fuels in late fire season northeast Santa Ana winds, 3) untreated fuels in above average 30 MPH southwest wind conditions in southern mixed chaparral, 4) treated fuels in above average 30 MPH southwest winds, 5) untreated fuels two in a worst case scenario for northeast Santa Ana winds in southern mixed chaparral fuel model, and 6) treated fuels in northeast Santa Ana winds, 7) untreated fuels in southwest 30 MPH southwest winds, and 8) treated fuels in 30 MPH southwest winds. The Tables below include the calculation inputs used in the BEHAVE Plus program which were obtained from project site observations and fuel levels typically observed during the local fire season.

In order to provide wildland fire protection measures for this project, fire behavior parameters were calculated for the hazardous native vegetation/fuels historically located on- and off-site. These calculations

will be the basis for recommended fuel modifications for the project site development. The existing on-site and off-site fuels will also be considered in evaluating the wildfire threat to this proposed development.

Normal weather conditions consist of an onshore flow from the southwest. This condition has a lower temperature and higher humidity than does a Santa Ana condition. A fire under normal conditions is typically a fuel driven fire. However, wind will also contribute to the rate of spread. A summer fire coming from the southwest would be burning uphill and as a result would get a run on the project site. The late fire season strong non-typical southwest winds and the late fire season northeast winds (Santa Ana winds) create the dangerous and severe conditions for wildfires. Modification and/or elimination of hazardous fuels and the reduction of fuel loading are key to “*firewise*” planning.

In order to project the fire behavior benefit for the proposed fuel modifications for the project, worst-case scenarios were used in the modeling system to project fire behavior variables. Scenario 1 is a 60-MPH northeast wind (Santa Ana winds) in the SCAL18 Fuel Model historic fuels and then expected fire behavior in fuels that have been modified (treated) for favorable fire behavior variables within this fuel load. Scenario 2 is a late fire season, strong, non-typical (30-MPH) southwest winds in the SCAL 18 Fuel Model and the expected fire behavior after they have been modified (treated) for favorable fire behavior variables within this fuel load. Scenario 3 is a 60 MPH northeast wind in the southern mixed chaparral fuel model and the expected fire behavior after fuel modification (treated) in this fuel load. And, Scenario 4 is 30-MPH southwest wind in mixed chaparral fuel model and the expected fire behavior after fuel modification in this fuel load.

The worst-case climate parameters and assumptions used for the fire behavior modeling process were as follows:

- 1-Hour Fine Fuel Moisture of2%
- 10-Hour Fuel Moisture of..... 3%
- 100-Hour Fuel Moisture.....5%
- Live Herbaceous Fuel Moisture.....30%
- Live Fuel Moisture.....50%

Other site characteristics used for Fire Behavior modeling are as follow:

- **Slopes.** The existing slopes for the majority (approximately 91.2 percent) of the entire site range from 0 to 30 percent. This range of slopes includes 110 acres between 0 and 10 percent, 141.1 acres between 10 and 15 percent, and 306.4 acres between 15 and 30 percent. There are also 54.5 acres that are 30+ percent and are the steeper and more gullied locations generally in the west and southwest area of the site (from *Slope Analysis* by Landmark Consulting). These steeper locations would not be developed but would create an overall concern and fire threat to the development.

The range of on-site site slopes will change when the final grading is completed for the development. The representative slope used with the fire behavior model for the slopes prior to development is 20 percent. The fire behavior model representative slope used for the final grading landscape is 10 percent. The exception is that the slopes on the western perimeter area is estimated to average 40 percent. The analysis in fire scenario 5 utilized this slope percentage.

- **Fuel Model.** The majority of the on-site and off-site fuels are coastal sage scrub (SCAL 18) and southern mixed chaparral, and will be used to represent the brushland vegetation predominately and historically found on-site and off-site. The historic native fuels on the project site have been modified significantly by past agricultural activity. However, for purposes of evaluating worst case scenario it was assumed that the disturbance to the site were discontinued and the site would revert quickly to some form of a disturbed coastal sage scrub community. In the majority of the areas used for

agricultural purposes over several decades, the vegetation would likely revert to disturbed lands or non-native grassland.

3.3.2 Fire Behavior Modeling Summary

The following tables summarize the expected wildland fire behavior for the fuel model found within and adjacent to the proposed LHR development under the worst case scenarios. Tables 2 thru 5 display the expected Rate of Fire Spread (expressed in feet per minute), Fireline Intensity (Btu/ft/sec) and Flame length (feet) for four different BehavePlus 4.0.0 – Fire Behavior Prediction and Fuel Modeling System fuel model computer calculations. All of these calculations are based on forecast vegetation conditions of a typical SCAL 18 Fuel Model-Coastal Sage Scrub and Fuel Model sh7 (very heavy fuel load, dry climate Fuel Model). Variables were slope, projected wind speed, and anticipated weather.

Four (4) different fire scenarios are presented based on “worst case” fire weather assumptions for the project area. Each fire scenario displays the expected Rate of Fire Spread (expressed in feet per minute), Fireline Intensity (expressed in British Thermal Units per foot per second) and Flame Length (expressed in feet). For the longest flame lengths along the north and south exposures, separate BehavePlus 4.0.0 predications were made for the treated fuels following the completion of the required fuel modification work. The tables also include the calculation inputs used in the BehavePlus 4.0.0 program which were obtained from project site observations and fuel moisture levels typically observed during the local fire season.

Fire Behavior Summary Tables. The four worst case fire scenario behavior calculations are summarized in table 6 thru 9, including the reduction in flame length that fuel treatment in Thinning Zone B will provide.

Table 2 – Fire Scenario 1 Summary

Fire Scenario 1–60 MPH Northeast Wind, in coastal sage scrub (SCAL18)		
North and Northeast Exposures		
<u>Prior to Fuel Treatment</u>	VS.	<u>After Fuel Treatment</u>
Rate of Spread: 1,104 ft/min		Rate of Spread: 79 ft/min
Fireline Intensity: 22,467 BTU/ft/sec		Fireline Intensity: 934 BTU/ft/sec
Flame Length: 44.1 Feet		Flame Length: 15.6 Feet

Table 3 – Fire Scenario 2 Summary

Fire Scenario 2–30 MPH Southwest Wind, in coastal sage scrub (SCAL18)		
Southwest and West Exposures		
<u>Prior to Fuel Treatment</u>	VS.	<u>After Fuel Treatment</u>
Rate of Spread: 104 ft/min		Rate of Spread: 79 ft/min
Fireline Intensity: 22,467 BTU/ft/sec		Fireline Intensity: 934 BTU/ft/sec
Flame Length: 32.1 Feet		Flame Length: 8.6 Feet

Table 4– Fire Scenario 3 Summary

Fire Scenario 3–60 MPH Northeast Wind, in southern mixed chaparral (sh7)		
North and Northeast Exposures		
<u>Prior to Fuel Treatment</u>	VS.	<u>After Fuel Treatment</u>
Rate of Spread: 494.8 ft/min		Rate of Spread: 60.9 ft/min
Fireline Intensity: 22905 BTU/ft/sec		Fireline Intensity: 891 BTU/ft/sec
Flame Length: 45.6 Feet		Flame Length: 10.2 Feet

Table 5 – Fire Scenario 4 Summary

Fire Scenario 4–30 MPH Southwest Wind, in southern mixed chaparral (sh7) North and Northeast Exposures		
<u>Prior to Fuel Treatment</u>	VS.	<u>After Fuel Treatment</u>
Rate of Spread: 223.1 ft/min		Rate of Spread: 26.8 ft/min
Fireline Intensity: 10327 BTU/ft/sec		Fireline Intensity: 324 BTU/ft/sec
Flame Length: 31.6 Feet		Flame Length: 6.4 Feet

Table 6 – Fire Scenario 5 Summary

Fire Scenario 5–30 MPH Southwest Wind, in southern mixed chaparral (sh7) North and Northeast Exposures		
<u>Prior to Fuel Treatment</u>	VS.	<u>After Fuel Treatment</u>
Rate of Spread: 236.2 ft/min		Rate of Spread: 28.0 ft/min
Fireline Intensity: 10936 BTU/ft/sec		Fireline Intensity: 342 BTU/ft/sec
Flame Length: 32.4 Feet		Flame Length: 6.6 Feet

In addition to BehavePlus fire behavior modeling for this project, Dudek’s fire protection planners completed a FlamMap Fire Behavior Modeling for the proposed development. FlamMap provides the ability to model the anticipated fire behavior across a landscape based on site-specific data whereas BehavePlus provides fire behavior predictions at specific point locations. Dudek’s analysis states that wildfire behavior in chaparral fuel beds on and adjacent the Project site is expected to be of moderate to high intensity during extreme, Santa Ana weather conditions with maximum sustained wind speeds of 56 mph and low fuel moistures. Based on the observed fuel beds east of the project site, a relatively high-intensity fire can be expected during extreme weather conditions, with flame lengths reaching approximately 43 feet and peak intensity of over 20,000 Btu/ft/s. The report then states this type of fire would be relatively short-duration as vegetative fuels are consumed rapidly, and there would not be a sustained source of heat and or flame associated with site-adjacent wildland fuels. The analysis further notes that the site’s fuels would be converted and reduced to ground cover on most of the Project area, resulting in proportionately reduced fire behavior. The post-project fuel modification areas would provide a significant reduction in the potential for fire ignition as well as the flame length, spread rate, and intensity of fires should ignition occur (See APPENDIX ‘J’ – FlamMap Analysis – Dudek 2013).

4.0 MITIGATION MEASURES AND DESIGN CONSIDERATIONS

The Lilac Hills Ranch development is planned to be completed in 5 phases (See APPENDIX ‘G’ – Phasing Exhibit). For each implementing Tentative Map (Map “B”), defined as a map containing individual lots that will be developed with structures that is submitted to the County for approval, will provide mitigation measures and design considerations for those Implementing Tentative Map(s). For example, the projected plan is to initiate construction of Phase 1 and possibly 4 in 2014. For those phases, the Implementing Tentative Maps will be approved prior to implementation. The timing of construction for phases 2, 3 and 5 will be determined at a later time but those Implementing Maps will then be submitted to the County for approval of the mitigation measures and design considerations.

4.1 Adequate Emergency Services

The Deer Springs Fire Protection District (DSFPD) is the Fire Authority Having Jurisdiction (FAHJ). The DSFPD was established pursuant to state law to provide an effective level of fire protection and emergency medical services for the preservation of life and property within the District in which Lilac Hills Ranch is located. The District covers an area of approximately 47 square miles and serves a population estimated at

13,000. The District is funded through special District assessments, County fees, and tax allocations and supplemented by State and Federal grants. There are four fire stations located in the DSFPD; Station 11 (District Headquarters) at 8709 Circle R Drive, Escondido, CA 92026, Station 12 at 1321 Deer Springs Road, San Marcos, CA 92069, Station 13 at 10308 Meadow Glen Way East Escondido, CA 92026 and CAL FIRE Station 15 (Miller Station) at 9127 West Lilac Road, Escondido, CA 92026. Station 15 is the closest fire station, surrounded on three sides by the project. Station 11 is the next closest fire station.

Firefighting services for the District are provided via contract by CAL FIRE (California Department of Forestry and Fire Protection). 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. APPENDIX 'M' provides the Automatic Aid Agreement between Deer Springs Fire Protection District and North County Fire Protection District and APPENDIX 'N' is the County of San Diego-Department of Purchasing and Contracting Contract 515388 Amendment no. 2 – Deer Springs Fire Protection District for Use of Fire Protection Funds.

DSFPD Preparedness and Firefighting Capability Provided by the Deer Springs Fire Protection District. Initial response to all fire, medical and associated emergencies within the District, including the 14-mile stretch of Interstate 15, is the responsibility of the Deer Springs Fire Protection District. The District currently provides staffing for the following resources within the District:

- 3-Type 1 Front Line Engines (one at Station 11, two at Station 13, and 1 at Station 12)
- 2-Type 3 Wildland Brush Engines (one located at Station 12 (not staffed) and one at CAL FIRE Station 15 (Miller))
- 1-Paramedic ALS (Advanced Life Support) ambulance is staffed and housed at DSFPD Station 11 under contract with Mercy Ambulance Service, Inc.
- 23 Full-Time Firefighters
- 2 District Administrative Employees
- 1 Fire Marshal
- 1 Chief

Following is a summary of DSFPD's record of responses and call volumes for all fire stations (including CAL FIRE's Miller Station) within the District for 2005 thru 2011:

Table 7 - 2005 – 2011 Response Data Summary for Deer Springs Fire Protection District
(Table Developed From Data Provided By Deer Springs Fire Protection District)

CY	Summary of Data For CY 2005 Thru 2011				TOTAL FOR YEAR
	STATION 11	STATION 12	STATION 13 ***	MILLER	
2005	602	590	---	452	1644
2006 *	58	58	---	47	163
2007	705	691	---	403	1799
2008	610	453	307	483	1853
2009	667	495	302	527	1991
2010 **	98	81	42	56	277
2011	615	443	404	373	1835
Station Total Responses For CY 2005-2011	3355	2811	1055	2341	9562
Calls per 24-Hr Shift For CY 2005-2011	1.74	1.46	0.91	1.22	3.74

* Analysis Reflects Data Only For Month of December

** Analysis Reflects Data Only For Months of January and February

*** Analysis Reflects Data Collected After Station Was Opened

The response data in Table 7 above indicates that DSFPD averages 3.74 calls per 24-hour shift for all stations (including the CAL FIRE Miller Station). The data is for seven years and thereby does show the variation of responses over a longer period of time. The data also indicates that a very large volume of responses for DSFPD is for medical aid (37%), traffic collisions (11%), and cancelled calls (17%). Based on this data, it is evident that DSFPD would have the existing capacity to respond to expected calls from the proposed Lilac Hills Ranch project (see APPENDIX ‘L’ - 2005–2011 Response Data for Deer Springs Fire Protection District).

The call volume and call type data provided by the District, and presented in the District Capabilities Assessment (Dudek & Hunt 2013), indicates that the closest responding units (Station 15 and Station 11) will not be overloaded with incidents due to the build out of the Lilac Hills Ranch Project. As the table below indicates, in comparison with other north County fire agencies, DSFPD will be able to absorb anticipated call loads and remain the North County Fire Agency with the fewest persons served per station and among the few districts that average less than two calls per station per day.

The additional response to Lilac Hills Ranch could result in an increase from 2.0 calls per day to 3.9 calls per day at build out. Based on this analysis, even though the call volume would be doubled, the Stations would be able to absorb the additional calls generated by the Lilac Hills Ranch at build out.

**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	3,880
DSFPD – 4 stations: Existing Condition + LHR Project Build Out	1.8/day	5,350
Vista Fire Protection District – 6 stations	Average 4.8/day	19,000
City of San Marcos Fire – 4 stations	Average 4.6/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.

Closest Fire Station Under General Plan Standard

Emergency Response Requirement and Initial Emergency Travel Times for DSFPD and CAL FIRE.

The emergency response objective is identified in the Safety Element of the County General Plan. Lilac Hills Ranch must demonstrate that fire services can be provided that meet the minimum travel time identified in the Safety Element. Travel time is defined as the estimated time it will take for the “closest fire station” to reach the furthest structure in a proposed development project. (Policy S-6.4) Travel time is determined by measuring the most direct reliable route with consideration given to safe operating speeds for heavy fire apparatus. Travel time does not include reflex or reaction time, or on-scene size-up and set-up prior to

attacking the fire, all of which are critical precursors of actual fire fighting. The emergency travel times for fire stations in the immediate area are based on NFPA 1142, Standard on Water Supplies for Suburban and Rural Fire Fighting; 2007 Edition Table C.11 (b).

An accepted provision of fire protection services for all calls is to attain the following response time goals (or provide a level of fire protection functionally equivalent to that provided by such response times):

- Total response time for deployment and arrival of the first-in engine company for a fire suppression incident should be within 5 minutes. Add one minute for turnout time and one minute for dispatch time.
- Total response time for deployment and arrival of the full first alarm assignment for a fire suppression incident should be within 8 minutes. Add one minute for turnout time and one minute for dispatch time.

The “closest” fire station to Lilac Hills Ranch is CAL FIRE’s Station 15 (Miller Station) at 9127 West Lilac Road, located adjacent to the development and approximately 2.3 miles from the furthest structure when the development is fully construct. Miller Station consists of a 3,000 square foot station located on a 2-acre parcel and is staffed by a three member crew. This station receives District funding from the San Diego County Fire Authority, for extension of its use during the non-fire season under and Amador contract (see APPENDIX N – County of San Diego and CalFire Fire Protection Reimbursement Agreement Amendment, No. 3CA77059, dated April 15, 2011). The travel time from this station to the furthest structure when all phases of the proposed development are completed would be approximately 4.5 minutes, below the 5 minutes travel time requirement (see Figure 5 below).

Primary Fire Station Listed in Project Facility Availability Form

The Project Facility Availability Form (PFAF) from DSFPD (see APPENDIX E) indicates that Station 11, located at 8709 Circle R Drive, Escondido, CA, would be the “primary” station to serve Lilac Hills Ranch. Station 11 is located at Old Highway 395 and West Lilac Road and is approximately 4 miles from the northwest access point of the development and 2.6 miles from the southern access point via the Circle R Drive-Mountain Ridge Road emergency service route.

DSFPD also has two other stations, Station 12 at 1321 Deer Springs Road, San Marcos, CA and Station 13 at 10308 Meadow Glen Way East, Escondido, CA, which are within approximately 17 and 20 minutes travel time, respectively. In addition, the DSFPD has established several mutual and automatic aid agreements with surrounding fire departments such as CAL FIRE, North County Fire Protection District, and Valley Center Fire Protection District. The North County Fire Protection District, Station 4, located at 4375 Pala Mesa Drive, Fallbrook, CA, is 3.8 miles and approximately 7.1 minutes travel time to the project (See APPENDIX N - County of San Diego-Department of Purchasing and Contracting Contract 515388 Amendment no. 2 – Deer Springs Fire Protection District for Use of Fire Protection Funds). In addition, the closest unit/drop boundary agreement, with automatic vehicle locators on every engine, enables dispatch to locate and send the closest unit, regardless of agency.

Travel Times from Miller Station Site and Fire Station 11

The proposed development has five phases of construction (See Exhibit G-Phasing Exhibit with Road Circulation Plan). The construction of Phases 1 and 2 is projected to begin in 2014, but the timeline beyond these phases is to be determined. This FPP evaluates the adequacy of emergency service routes for phases 1 and 2 through build out. Table 8 below provides emergency travel distances and times under the travel time standard set forth in the General Plan (from the closest fire station-Miller Station) and from the primary response fire station described in the Project Facility Availability Form (Station 11) by phases of development. It should be noted that the chart shows alternate emergency service routes for phases 3 and 4.

Table 8 – Proposed Emergency Travel Distance and Times Summary

STATION	PHASE (Sequence of Proposed Construction & Emergency Service Route Based on Phase of Development)	EMERGENCY ACCESS ROUTE <u>1/</u> <u>2/</u>	DISTANCE TO FURTHEST STRUCTURE (miles)	TRAVEL TIME Minute(s)
Cal Fire Station 15 (Miller)	1 & 2	Via West Lilac Road-interior Circulation Roadways	0.6	1.7
	3	West Lilac Drive-Interior Circulation Roadways	1.2	2.7
	4	West Lilac Drive-Interior Circulation Roadways	1.9	3.9
	5	Via West Lilac Drive-Interior Circulation Roadways	2.3	4.5
DSFPD Station 11	5	Via Circle R Drive-Mountain Ridge Road	2.9	5.6
	4	Via Circle R Drive-Mountain Ridge Road	5.1	9.3
	3	Via Circle R Drive-W Lilac Road- Covey Lane	4.5	8.35
	1 & 2	Via Old Hwy 395 and West Lilac Rd	4.7	8.6
	4	Via Circle R Drive-W Lilac Road- Covey Lane	5.2	9.4
	3	Via Old Hwy 395 and West Lilac Rd	5.25	9.5
North County Fire Protection District Station 4	1 & 2	Via Old Hwy 395 and West Lilac Rd	4.2	7.8
	3	Via Old Hwy 395 and West Lilac Rd	4.75	8.7
	4	Via Old Hwy 395 and West Lilac Rd	5.3	9.7
	5	Via Old Hwy 395 and West Lilac Rd	5.65	10.3

1/ Preferred Emergency Access Route Based on Construction Phase of Development

2/ Distance and time to the furthest structure within the development or phase of development

Table 8 illustrates that after the initial construction of phases 1 and 2, the construction of successive development phases will provide additional improved emergency routes/access points, and improved on-site roadway circulation for fire apparatus.

In addition, as shown in the Capabilities Assessment prepared by Dudek (2013), 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 53 units. A total of 75% of Phase 1 can be responded to within 5 minutes 50 seconds and 100% can be responded to within 6 minutes travel from Station 11. Phase 2 lots, due to road layout, can be responded to within 5 minutes 50 seconds travel from Station 11. These Phases are minimally beyond the 5 minutes travel time from Station 11, but are 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:

1. Ignition resistant structures built to code that have proven to perform extremely well in wildfires;
2. Fire sprinklers in all structures which effectively extinguish interior fires over 98% of the time and extend the time of "flash-over", resulting in more time for responding firefighters;
3. Fuel modification for every structure;
4. Roadside fuel modification;

5. Automatic aid “drop boundary” agreements in place enable closest unit to respond, even if from neighboring district/agency;
6. Roads and access meeting San Diego County Private Road Standards (internal) and public road standards (external);
7. Long-term agriculture areas adjacent the site (reduced, irrigated fuels not native brush)
8. No buildings 35 feet or taller, and no buildings requiring 3,500 gpm fire flow, minimizing or eliminating the need for a ladder truck, without the approval of the Fire District;
9. Redundant water supply of district water, recycled water, grey water and well water; and,
10. Automated External Defibrillator’s (AED’s) installed in any high occupancy uses with staffing for use by trained administrators.

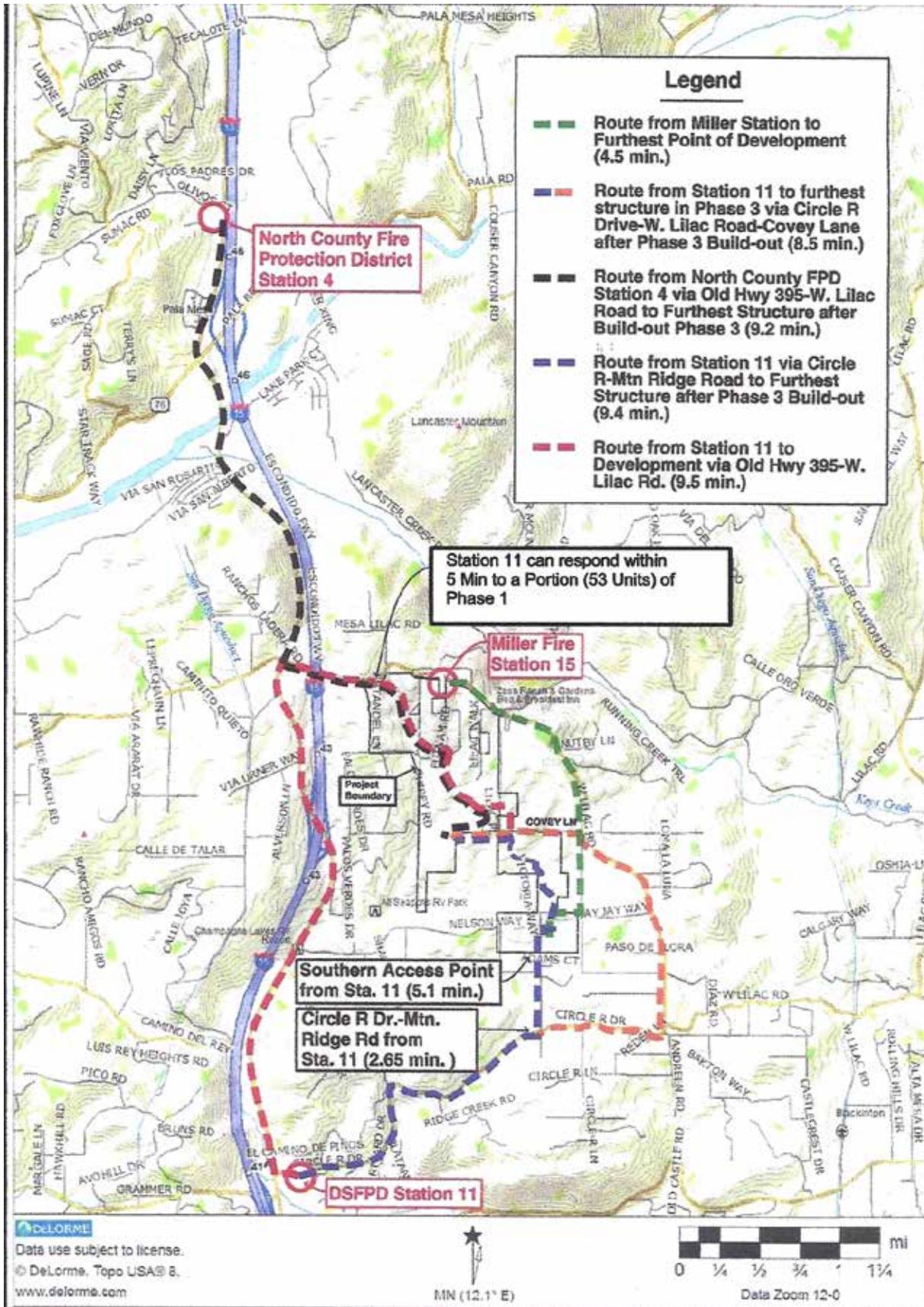


Figure 5 - Emergency Service Routes Map

Summary

Lilac Hills Ranch must demonstrate that fire services can be provided that meet the minimum travel time identified in Policy S-6.4. Travel time is defined as the estimated time it will take for the “**closest fire station**” to reach the furthest structure in a proposed development project. (Policy S-6.4).

The “closest” fire station to Lilac Hills Ranch is CAL FIRE’s Miller Station at 9127 West Lilac Road, located adjacent to the development and approximately 2.3 miles from the furthest structure when the development is fully constructed. The travel time from this station to the furthest structure when all phases of the proposed development are completed would be approximately 4.5 minutes, below the 5 minutes travel time requirement (see Figure 5 below).

DSFPD identified Fire Station 11 as the “primary” fire station for the project in the Project Facility Availability Form (DPLU J-399F Form). Travel times from Station 11 can be found in Table 8 above and in Dudek and Hunt’s DSFPD Capabilities Assessment, and do not meet the time standards identified by the County General Plan.

However, with any of the options listed below, the project will meet the County’s travel time requirement:

1. **Option 1:** This option includes DSFPD and/or SDCFA and CAL FIRE agreeing that CAL FIRE’s Station 15 (Miller Station), would provide primary response to project emergencies. This option would include a new fire station or a remodel of the existing Station 15 site, and a new Type I engine. This would require a new agreement between DSFPD and/or SDCFA, and CALFIRE.
2. **Option 2:** This option would include a new separate DSFPD fire station on the CAL FIRE Station 15 site in order for such facility to be completely independent from CAL FIRE. 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 CAL FIRE or the construction of a completely separate DSFPD station. The new station or remodel would accommodate an engine from station 11 or a new engine purchased for the new facility. This would require an amendment to the existing Amador Agreement with CAL FIRE.
3. **Option 3:** If an agreement cannot be reached between SDCFA and/or DSFPD and CAL FIRE (Option 1) or between DSFPD and CAL FIRE (Option 2), a new fire station would be constructed within the Lilac Hills Ranch Project. A Type I paramedic engine would be added at the station. The engine could either be reassigned from Station 11 or a new Type I purchased for the Station. The construction of a new fire station would be triggered upon the construction of any lot outside the 5 minute response time, equivalent to the 54th unit in Phase 1. If DSFPD agrees, a temporary on-site fire station could be constructed at the same trigger.

Each of these options would result in emergency fire and medical response throughout the Lilac Hills Ranch project within the County travel time requirements.

4.2 Fire Apparatus Access

A comprehensive circulation plan provides access to the Lilac Hills Ranch Community and improves vehicular circulation in the vicinity of the project area in accordance with County standards and guidelines. Within Lilac Hills Ranch, private streets will provide multiple access routes (See Exhibit G – Phasing Exhibit With Roadway Circulation). West Lilac Road is designed to comply with County Mobility Element standards for public streets. All other streets within the Community are private, and will be designed and developed per the special standards established by the specific plan to reflect the traditional character and rural theme of the Community. The Community street system in Phases 1 through 3 will generally be available to the public traveling from the adjacent public road system. The Community street system in Phases 4 and 5 is proposed to be gated and not open to the public except during emergencies and in accordance with the County Consolidated Fire Code.

To minimize impediments to fire apparatus access, the circulation network shall be designed according to the County public and private road standards and in compliance with CFC Sec. 503.2.1 (see APPENDIX 'G' - Phasing Exhibit, Project Internal Circulation Map and Access Exhibit Map). The needs of truck traffic and loading activities for proposed commercial structures and fire apparatus shall be incorporated in the design of the roadways.

The primary access to the Lilac Hills Ranch project will be via two ingress and egress points from West Lilac Road, an existing public road located along the north boundary of the project site (See APPENDIX 'G' - Phasing Exhibit, Project Internal Circulation, and Access Exhibit). The initial development of Phases 1 and 2 will include two ingress and egress points to West Lilac Road connecting to internal roads for access throughout the development. Development of phases 3 thru 5 will also include internal roads and will include one additional fire apparatus access point via Covey Lane and an additional gated emergency ingress/egress private roads via Rodriques Road and Mountain Ridge Road. These private roads will be improved to San Diego County Private Road Standards. The following specific requirements are outlined, but not all inclusive, for fire apparatus access per the DSFPD Fire Code and the County Consolidated Fire Code:

- 4.2.1** Fire apparatus access roads shall have an unobstructed improved width of not less than 24 feet, and will be maintained at all times. Fire apparatus access roads will not be obstructed in any manner, including the parking of vehicles. Specific interior roadways will be designated 'fire access roadways' or 'fire lanes'. All standards for apparatus access roads will follow APPENDIX 'D' of the California Fire Code. Roadway infrastructure for each Phase (first and/or second pavement lift) will be installed prior to the allowance of combustibles on the project site.

One-way fire apparatus access roads will include 14 foot wide improved surface/travel lane.

- 4.2.2** Access points to pockets of islands of open space/flammable vegetation shall be provided and identified for fire and emergency service apparatus (See APPENDIX G – Project Internal Circulation, Figure 24).
- 4.2.3** Emergency vehicle turnarounds shall be provided on 'fire lanes' exceeding 150 feet in length. In this development, turnarounds must be approved by the DSFPD, especially for aerial ladder trucks if multiple story structures are proposed (see APPENDIX 'K' - lot configurations and conceptual layouts). **NOTE:** no buildings 35 feet or taller are proposed for this project, without approval of DSFPD).
- 4.2.4** Fire apparatus access road shall extend within 150 feet of all portions of a structure and all portions of the exterior walls of the first story of the building as measured by a route around the exterior of every building in the development.
- 4.2.5** All roads shall be provided with an approved driving surface for all phases of development prior to building permit issuance, construction and/or bringing combustible building products onto each parcel.
- 4.2.6** Gates proposed for this development shall be in compliance with DSFPD guidelines and County Consolidated Fire Code, Section 503.6. A gate across a fire access roadway shall be equipped with an approved design feature for opening the gate for access by the fire department or other law enforcement. Specifically, the project proposes to include gates controlling public access to Phases 4 and 5, which will be developed as a Senior Citizen Neighborhood. Private streets with gates are features of a number of major developments approved by the County of San Diego, some of which are still undergoing development, including the Rancho Cielo, Castle Creek, Montecito Ranch, Woods Valley Ranch, and The Crosby Specific Plans, as documented in the Dudek (2013) Study. Any gate or barrier across a fire access roadway shall have specific plans reviewed and approved by DSFPD prior to installation.

The following gate design features are suggested for gates across fire access roadways, at the discretion of the DSFPD:

1. KNOX Gate: Key operated dual switch device on the date, which overrides all other controls so the gate can be opened by the Fire Department or law enforcement using a KNOX key. Each fire engine and law enforcement vehicle would be provided with a KNOX key.
2. KNOX Box: Installation of a box which contains a KNOX padlock for manual access.
3. SOS Siren: This device would activate a gate within 2.5 seconds when the “yelp feature” on siren is used, or 4.5 seconds from when a standard siren is deployed. A sign will be placed on gates stating “Emergency vehicles; operate siren to open gate.”
4. Click 2 Enter Device: This device opens the gate upon the clicking of a mobile radio in an emergency vehicle or portable radio. The device is activated by the FCC assigned radio frequencies which are assigned to public safety agencies for restricted use only.

Other optional features may include:

1. Backup (battery) or solar power
2. Access control motors that accept and interface with various third party accessories
3. Design provisions to open if bumped by a fire engine, and a hidden “break glass” manual release
4. Gates programmed to remain open in the event of power outage

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 the engine, and go through gate. So the response to the gated areas, if using a KNOX key switch, would be delayed at maximum by 1 minute per gate. However, automated gates (recommended), will require less time, roughly 1/4 to 1/3 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.

- 4.2.7 The road and street grade standard for fire apparatus shall not exceed 20 percent, and any roadway over 15 percent shall be a concrete surface with a deep broom finish perpendicular to the direction of travel to enhance traction.
- 4.2.8 Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus of not less than 75,000 pounds and will be provided with an approved surface such as asphalt, concrete or pavers so as to provide all-weather driving capabilities.
- 4.2.9 **Secondary Access and Dead End Roadways.** The development in combination with designated and marked ‘fire lanes’ shall provide adequate secondary access. There will be two public access points on the northwest corner of the project and one in the northeast area, both off West Lilac Road. Successive proposed phases of development will include two access points via Covey Lane and an additional gated emergency ingress/egress via Mountain Ridge Road. The maximum length of a dead-end road, including all dead-end roads accessed from that dead-end road, shall not exceed 800 feet.
- 4.2.10 Roadway design features (speed bumps, speed humps, speed control dips, traffic calming devices, etc.) which may interfere with emergency apparatus responses shall not be installed on fire access roadways, unless they meet design criteria approved by DSFPD.

4.2 Water Supply

Water supply will meet the water supply requirements of the San Diego County’s Consolidated Fire Code and the Fire Code for a commercial/business/residential development. Following are specific requirements.

- 4.3.1 All fire hydrants shall be installed and serviceable by all acceptable code standards prior to delivery of combustibles for each development phase(s).
- 4.3.2 For single-family dwellings, fire hydrants shall be installed at intersections, at the beginning radius of cul-de-sacs, and every 300 feet from structures, regardless of parcel size. In multi-family, commercial and industrial zones, fire hydrants shall be installed at intersections, at the beginning radius of cul-de-sacs and every 300 feet from structures, regardless of parcel size. All fire hydrants will be of bronze construction, including all internal parts except seats.
- 4.3.3 An approved fire hydrant/water supply system shall be capable of supplying 2500 gallons per minute fire flow for 2 hours (California Fire Code and the Consolidated Fire Code for the County of San Diego). Waterlines for fire control must be capable of supplying this required demand through the hydrants, plus the largest fire sprinkler demand, plus any domestic use supplied from that line.
- 4.3.4 When an on-site waterline serves more than two hydrants, the line must be looped, providing two hydraulically remote points of connection with the water district lines. The interior loop must have isolation valving, such that not more than two hydrants and/or sprinkler systems are between isolation points. If the onsite fire water system for a building is a private loop, the two points of connection are needed to the public supply and appropriate fire department connections.
- 4.3.5 Fire hydrants shall be located along 'fire lanes' and all structures and other improvements shall be reached with a maximum hose pull of 150 feet, or as approved by the DSFPD.
- 4.3.6 Each hydrant for this development shall have one 4-inch and one 2-1/2-inch outlets. In some instances DSFPD may require a fire hydrant to have other combinations of 4 inch and 2½ inch outlets. Fire protection systems service meters shall be a minimum of one inch (1") and separate from the domestic supply.
- 4.3.7 The DSFPD approval shall be required for on-site hydrant and fire service waterline based on the final building construction location, type and largest building size.
- 4.3.8 All hydrants shall be located along an access roadway and shall not be closer than 50 feet from structures.
- 4.3.9 Fire hydrants shall be located with blue reflective raised pavement markers at approved locations for each hydrant
- 4.3.10 All buildings shall be fully protected with automatic fire sprinkler systems. The installation of the sprinkler systems shall meet NFPA 13 and 13D Standards. The 2010 California Building Standards Code published July 1, 2010, with an effective date of January 1, 2011, requires automatic fire sprinkler systems for all new one-and two-family dwellings and townhouse construction statewide.

4.4 Defensible Space and Vegetation Management

Fire resistant landscape management is the act of converting native vegetative fuels from a highly flammable and high fire intensity state to a more fire resistant and low fire intensity condition. Fire resistant landscaping has been proven to be very effective treatment for minimizing structure losses due to wildland fire radiant heat.

The County's Consolidated Fire Code and the California Fire Code require a Fuel Management Zone (FMZ), within 100 feet of structures, to the extent possible, for each Implementing Tentative Map that is submitted to the County for approval. Implementing the following measures for the management of flammable vegetation would provide acceptable management of flammable vegetation for wildfire protection of structures within each phase of this development:

- 4.4.1 Implement and maintain a standard to provide an irrigated Zone A (low fuel volume/defensible space) and a selectively thinned non-irrigated Zone B around each residential and commercial structure, and along roadways as described herein.
- 4.4.2 A long-term interior open space fuel modification treatment plan and fire resistant landscaping criteria to be deployed around all planned structures as described herein.
- 4.4.3 For the benefit of the community, the fuel modification and maintenance of common areas would be under the control of a homeowners association or other common ownership, established in perpetuity.
- 4.4.4 Alternative measures that achieve the same level of protection may be used, including 1) Additional ignition-resistant construction methods and other non-combustible features, i.e., parking lots, sidewalks, concrete patios, decorative rock, natural boulders on-site, and similar landscape features; 2) fire-barrier walls; and, 3) condition for focused fire protection plan for any area with a reduced fuel modification zone should off-site fuels (which are currently agriculture) convert to native shrubland.
- 4.4.5 A wildland fire hazard rating assessment and calculations of the expected fire behavior, in the event a wildland fire should occur within the off-site and on-site native and non-native vegetation.

4.5 Fuel Modification Zone(s) for This Development

On-site, up to 100-foot Fuel Management Zone (FMZ) will be maintained from the edge of the designated wetland areas within the development per the fuel management plan. In some locations, the fuel management zone is reduced to 50 to 70 feet, and those structures are provided additional fire protection features providing the same function as a full 100 feet of fuel modification. The perimeter buffer and on-site FMZs would consist of a 50-foot irrigated zone, or in some cases, the FMZ may be 100 feet of actively managed irrigated agricultural crops/orchard per the fuel management plan. The area 50 feet from the edge of all structures in the development would be cleared of all vegetation that is not fire resistant and re-planted with irrigated fire-resistant landscaping. The actively managed irrigated agricultural crops/orchards, presently located within the development may also be integrated into the zone. This would be defined as Zone A.

In the area between 50 to 100 feet from the edge of structure, all dead and dying vegetation shall be removed (in some areas, this zone may also be the actively managed irrigated agricultural crops/orchards. Maintenance of fuel treatment zones is highly important. Latham (1989) found that ember ignitions were primarily a function of ground fuels, especially litter depth. Also important to ignition of a ground fuel is moisture content, size of the litter material as well as the mineral content of the dead vegetation. To the benefit of the eventual homeowners, ground fires burn with less intensity than an aerial fuel. However, a ground fire may carry to adjacent aerial fuels which is a concern.

Most of the fuel modification zone includes an 8 feet wide trail located roughly in the middle of the fuel modification area that will be maintained free of vegetation. This vegetation free area provides an enhanced “fire break within a fuel break”, resulting in decreased flame length and heat reduction, particularly for non-wind driven fires.

Where native vegetation does exist adjacent to this zone, native vegetation may remain provided that the vegetation is modified so that combustible vegetation does not occupy more than 50 percent of the square footage of this area. This would be defined as Zone B (see Figure 6 – Illustration of Defensible Space Zones).

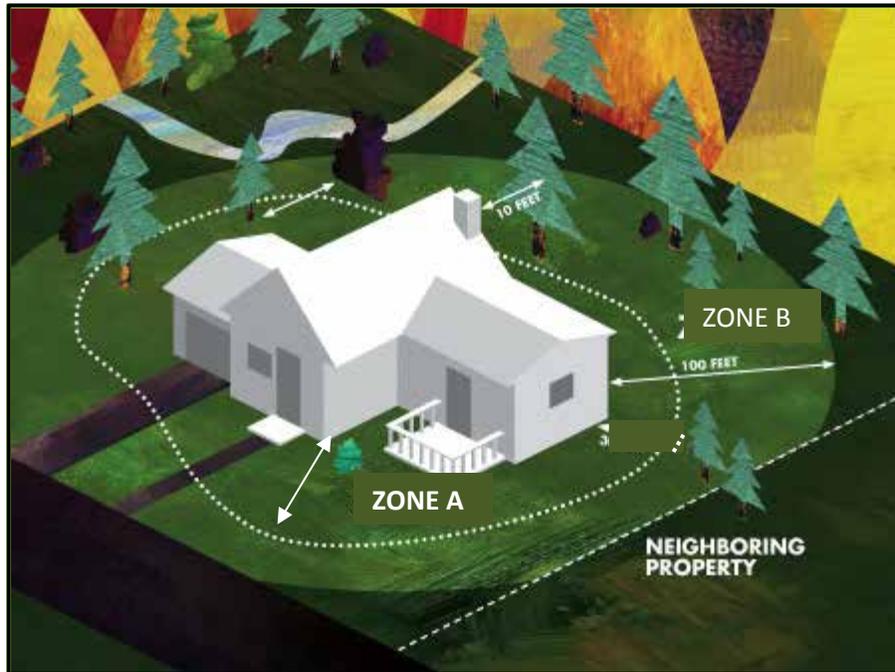


Figure 5 - Illustration of Defensible Space Zones

The FMZ shall be a minimum of a 100-foot area surrounding and extending in all directions from all structures, in which flammable vegetation or other combustible growth is cleared away or modified, except for:

- Single specimens of trees or other vegetation that are well-pruned and maintained.
- Grass and other vegetation located more than 50 feet from the structure and less than 18 inches in height above the ground.
- All ornamental landscaping that is consistent with San Diego County Wildland Urban Interface plant list (see APPENDIX 'A')
- Identified areas where reduced fuel modification zones have been established based on site-specific fire behavior modeling in addition to off-site fuelbeds (primarily agriculture) and where additional fire protection features to harden structures will be employed.
- Irrigated agriculture

Buildings or structures in a hazardous fire area must be set back 100 feet from the property line and shall meet the requirements in the above paragraph, to the extent possible. Enhanced fire-resistive construction measures shall be used to mitigate fire, including the elimination of vents and skylights on structures facing natural fuel and open space areas on-site and off-site native flammable fuels. Roadways, parking lots, sidewalks, concrete patios, decorative rock, natural boulders on-site, and similar landscape features may be included as objects that will not support fire. Other alternative measures that achieve the same level of required protection may be used, including, but not limited to one of the following: 1) utilize adjacent irrigated and managed agricultural crops (orchards, commercial flower fields, etc.); 2) fuel modification and hazard abatement required and completed around structures by adjacent landowners to meet fire code on their property and which is contiguous with the development; 3) DSFPD hazard abatement requirements for fuel modification and hazardous abatement 50 feet along the perimeter of adjacent properties, 4) additional ignition-resistant construction methods, non-combustible features, i.e., roadways and right-of-way modified fuels, parking lots, sidewalks, etc.; 5) fire-barrier/deflection walls; or, 6) a recorded easement acquired from adjacent landowners for the purpose of maintaining required fuel modification (there is no off-site clearing proposed). However, if off-site clearing is proposed in the future, the easements must be provided before the project can move forward).

The proposed project shall also provide fuel modification on either side of public roadways, pursuant to the County's Consolidated Fire Code and the California Fire Code for clearance of brush and vegetative growth from roadways. This requirement shall modify combustible vegetation in the area within 10 feet from each side of a road or driveway to establish a fuel modification zone on fire apparatus access roads and driveways. This requirement for modified fuel combustible vegetation shall also apply to off-site private ingress and egress roadways.

FMZ's for the Lilac Hills Ranch Development will be determined as a part of the site plan review for the development of each phase. If the level of development within the overall project increases, these zones would be revisited at the time of site plan review to determine if less stringent requirements may be more appropriate due to these circumstances. When the final FPP for the development is completed, a detailed Fuel Treatment Location Map will illustrate the placement of the zones for each developmental phase.

4.5.1 Fuel Modification Zone A - Irrigated

The following specific requirements are outlined, but not all inclusive, for Zone A.

- 4.5.1.1** This Zone shall be irrigated (micro-irrigation acceptable when overhead irrigation may cause erosion). It includes all manufactured slopes. Landscaping material from the approved plant list (see APPENDIX 'A') required or in an approved landscape plan and approved by the Fire Marshal.
- 4.5.1.2** All undesirable non-native vegetation (see APPENDIX 'B') shall be removed. Also, no plants on the California Exotic Pest Plant Council's list of "Exotic Pest Plants of Greatest Ecological Concern in California as of October 1999" or more recent version shall be planted.
- 4.5.1.3** Vegetation may include single or cluster (no more than two to three plants/tree) of trimmed fire resistant native and ornamental plants.
- 4.5.1.4** Dense plant masses adjacent to the structures and at bases of trees and tree clusters shall not be placed in this Zone. Vegetation must be low growing, fire resistive, deep rooted, drought tolerant plantings to maintain erosion control and soil stability, especially on manufactured slopes.
- 4.5.1.5** Active irrigated agriculture, native or ornamental trees can be retained within this fuel modification zone. They shall be pruned to maintain a vertical separation of approximately 10 feet above underlying shrubs or groundcover. Pruning of the shrubs will minimize the impact of the tree pruning.
- 4.5.1.6** Trees may be planted and/or maintained as individual specimens, or clustered. Groups should be two to three trees maximum, with mature foliage of any group separated horizontally by at least 10 feet, if planted on less than 20 percent slope, and 20 feet, if planted on greater than 20 percent slope.
- 4.5.1.7** Tree canopies shall not be allowed to overhang the roof of any structure; the outer edge of the canopies of mature trees will be a minimum of 10 feet from the building eaves, and free of all dead or dying parts. All the dead material must be pruned out of all vegetation on a regular basis. Trees and vegetation should not be planted in areas where fire truck access is impaired, should not impair or obstruct the use of fire department ladders.
- 4.5.1.8** Mulches, chips and other small multi-cuttings (cut to less than two inches in diameter and four inches in length) shall be evenly spread over the area no more than 4 inches, at least 50 feet from structures. This can be used to maintain soil moisture and prevent grass and weed encroachments within the treated areas. Regular maintenance, vegetation pruning, and irrigation to establish drought tolerant, fire-resistive landscaping are very important in this Zone.
- 4.5.1.9** Construction materials, firewood, and other combustible materials shall not be stored in unenclosed spaces beneath buildings or structures, or on decks or under eaves, canopies or other projections or

overhangs. Storage may occur in the defensible space located a minimum of 30 feet from structures and separated from the crown of trees by a minimum of 10 feet, measured horizontally.

- 4.5.1.10 Ornamental plants will not be planted or allowed to become established within this Zone, unless shown in the Recommended Plant Lists in APPENDIX ‘A’ (or in an approved landscape plan and approved by the Fire Marshal).
- 4.5.1.11 Plants in this Zone will not include any pyrophytes that are high in oils and resins. Exception: All non- fire resistive trees, including conifers, pepper trees, eucalyptus and acacia species shall be planted and maintained so that the tree’s drip line at maturity is a minimum of 50 feet from any combustible structure.
- 4.5.1.12 Ornamental plants will not be planted or allowed to become established within this Zone, unless fire resistive trees, including conifers, pepper trees, eucalyptus and acacia species shall be planted and maintained so that the trees drip line at maturity is a minimum of 50 feet from any combustible structure.
- 4.5.1.13 Non- flammable patios, walkways, rock, driveways and gravel can be used to break up fuel continuity within this Zone.
- 4.5.1.14 If shrubs are located underneath a tree’s drip line, the lowest branch will be at least three times as high as the understory shrubs or 10 feet, whichever is greater.
- 4.5.1.15 Trees may be planted and/or maintained as individual specimens, or clustered with 2 to 3 trees in a single cluster; crowns of mature trees shall maintain a minimum horizontal clearance of 10 feet for fire resistant trees and 30 feet for non-fire resistive trees; and avoid planting trees directly uphill or one another. The following table 4907.3.1 from the County Consolidated Fire Code defines the distance between mature tree canopies by percent slope.

**TABLE 4907.3.1
DISTANCE BETWEEN TREE CANOPIES**

Distance between Tree Canopies by Percent Slope	
Percent of Slope	Required Distances Between Edge of Mature Tree Canopies (1)
0 to 20	10 feet
21 to 40	20 feet
41 plus	30 feet

4.5.2 Zone B Fuel Modification – Non-Irrigated

Zone B is the remaining 50 feet of fuel management adjacent to flammable vegetation. Roads and other “non-structure” improvements are allowed in this zone. Zone B fuel management shall be applied to all roadways, including private controlled access roadways; i.e., Covey Lane and Mountain Ridge Road (Lilac Hills Ranch would be responsible for these two private roadways only where the development is adjacent to these private roadways and DSFPD would enforce the minimum fuel modification requirements on the other private properties being serviced by the private roads). Zone B can either be cleared in conformance with Zone A above, or selectively cleared and modified as described below.

- 4.5.2.1 Zone B is an area 50 to 100 feet (or more) away from any structure where the fuel volume will be removed or thinned by 50 percent, including the removal of undesirable species.
- 4.5.2.2 Irrigation will be used only if needed to establish and maintain fire-resistive landscaping.
- 4.5.2.3 As the native vegetation cover in Zone B is reduced, there is a very high probability that the openings will be dominated with non-native weed or grass species. Therefore, all grasses and weeds are to be

mowed or weed-whipped to a 4-inch stubble height by June 1st of each year or when the fuels become cured, whichever occurs first.

- 4.5.2.4** Any vegetative biomass (debris and trimmings) produced by thinning and pruning shall be removed from the site or converted to mulch by chipping and evenly distributed to a maximum depth of four (4) inches. This mulching concept helps to maintain soil moisture for the designated plants, reduces the growth of annual grass and minimizes soil erosion.
- 4.5.2.5** The area on each side of the improved width of highways, private roads, and driveways shall comply with the requirements of a fuel modification zone. For newly constructed roads, the vegetation shall be modified/reduced by 50 percent for 30 feet on either side of the road.
- 4.5.2.6** The following native species will not be permitted to grow in this zone even as specimen plants because of their flammability:
- California sagebrush, *Artemisia californica*;
 - Flat-topped buckwheat, *Eriogonum fasciculatum*; and,
 - Black sage, *Salvia mellifera*.

4.5.3 Fuel Maintenance

Maintenance within the zones shall be performed year-round and include the following:

- 4.5.3.1** Prune and thin trees around structures to decrease fuel volume, retain succulent growth and to provide adequate clearance between structures and plants, as required in the County Consolidated Fire Code.
- 4.5.3.2** Tree branches overhanging roofs shall be removed.
- 4.5.3.3** Trash and combustible debris shall be cleared from around structures, and removed from roofs and rain gutters.
- 4.5.3.4** Irrigation systems will be maintained to ensure that they function properly and plantings are watered sufficiently to maintain succulent growth.
- 4.5.3.5** The responsibility for the fuel modification maintenance defined below shall remain with each lot owner and any subsequent owners, and a maintenance agreement through a Home Owner Association to remove dead and dying vegetation, non-native species that may establish over time, and general compliance with the fuel modification requirements the common areas.

Fuel Modification Zones Analysis – DUDEK

Dudek conducted an analysis of fuel modification zones which analyzed the fire behavior across the project site and compared it against the proposed development footprint, product type and proposed structure setbacks (See APPENDIX J – Fuel Modification Zones Analysis – DUDEK). This analysis was used to support the analysis of Section 4.4 – Defensible Space and Vegetation Management in this FPP.

4.6 Ignition Resistant Construction and Fire Protection -Residential

Ignition-resistant construction for all structures will provide significant protection in this very high fire hazard zone. Ignition-resistant construction requirements will provide critical improvements to all types of structures for them to survive a worst case scenario fire storm in this area. Another significant requirement will be that

the maintenance and repair of these proposed structures will be with the same ignition-resistant materials and construction features. Also, the FPP requires that ignition-resistant construction will apply to mitigate the

ignitability of all future proposed residential structures and projections (exterior balconies, carports, decks, patio covers, unenclosed roofs and floors).

All structures within a wildland-urban interface as defined in the County Building Code must be built using ignition-resistive construction methods (Building Code (Title 9, Division 2, Chapter 1 of the San Diego County Code of Regulatory Ordinances). Construction requirements must meet all then-current County and State of California Building Codes (Chapter 7A) requirements for construction in wildland areas. Ignition-resistant building requirements found in the County Building Code (more restrictive than the California Building Code) will significantly reduce the threat of wildfire for this development, especially the flying embers entering a structure, landing on a receptive fuel and starting a new fire.

Following are specific fire-resistive building features that shall be applied to all structure construction that will be implemented at the site plan or building permit stage:

4.6.1 All structures within the Lilac Hills Ranch project shall be built with a Class A roof assembly, including a Class A roof covering (per CBC Chapter 7A). It should be noted that recent testing has found that solar panels mounted within about 5 inches of a Class A roof assembly may nullify the Class A rating of the assembly.

4.6.2 All exterior walls on all sides of the buildings shall be constructed with one-hour fire resistant building materials, and protected with two-inch nominal solid blocking between rafters at all roof overhangs and under the exterior wall covering. Wood siding of 3/8-inch plywood or 3/4-inch drop siding is permitted, but must have an underlayment of 1/2-inch fire-rated gypsum sheathing that is tightly butted or taped and mudded, or other ignition-resistive materials approved by the Fire Authority Having Jurisdiction (FAHJ) and/or the Planning Authority Having Jurisdiction (PAHJ).

4.6.3 All vents (roof, foundation, combustion-air, etc.) shall resist the intrusion of flames and embers or shall be protected by louvers and 1/8" non-combustible, corrosion-resistant mesh. Turbine attic vents shall be equipped to allow rotation in only one direction (County Building Code 704A.2.1). Attic ventilation shall also comply with the requirements of the California Fire Code.

Exception: Where a 100-foot fuel modification zone from a structure to the project site boundary cannot be met in the northeast and southwest corner of the property, all vents shall provide ventilation while trapping flames and embers before they enter the home (e.g., use of vents produced by Vulcan or Brandguard or any simular vents).

4.6.4 Attic ventilation openings or ventilation louvers will not be permitted in soffits, in eave overhangs, between rafters at eaves, or in other similar exterior overhanging areas in this wildland/urban interface area.

Exception: Where a 100-foot fuel modification zone from a structure to the project site boundary cannot be met in the northeast and southwest corner of the property, all vents shall provide ventilation while trapping flames and embers before they enter the home (e.g., use of vents produced by Vulcan or Brandguard).

4.6.5 All eaves of roof overhangs shall be enclosed (boxed eaves) on all sides with non combustible materials or constructed with heavy timber such as 2x starter board and 3x6 rafter tails.

4.6.6 Structure openings: Louvers, ventilators, or openings in walls, roofs, attics, and underfloor areas having headroom less than four (4) feet in height which are not fitted with sash or doors shall be covered with wire screen. The screen covering of such openings will be of corrosion-resistant metal or

other approved material that offers equivalent protection, and will have a maximum mesh of one-eighth (1/8) inch.

- 4.6.7** All projections (exterior balconies, stairs, covers, unenclosed roofs and floors, and similar architectural appendages and projections) shall be of non-combustible construction, one-hour ignition resistive construction on the underside, or heavy timber construction. When such appendages and projections are attached to exterior fire-resistive walls, they shall be constructed to maintain the fire-resistive integrity of the wall.
- 4.6.8** All glass or other transparent, translucent or opaque glazing materials, including skylights, shall be constructed of tempered glass or a dual glazed windows with minimally one pane of tempered glass.
- 4.6.9** Fences and other structures less than 5 feet from a building shall be non-combustible construction, heavy timber or fire retardant pressure treated wood.
- 4.6.10** All rain gutters, down spouts and gutter hardware shall be constructed from metal or other noncombustible material to prevent wildfire ignition along eave assemblies.
- 4.6.11** Gutters shall be designed to reduce the accumulation of leaf litter and debris that contribute to roof edge ignition.
- 4.6.12** Exterior door assemblies will conform to the performance requirements of standard SFM 12-7A-1 or will be of approved non-combustible construction, or solid core wood having stiles and rails not less than 1 3/8 inches thick with interior field panel thickness no less than 1 1/4 inches thick, or will have a fire-resistance rating of not less than 20 minutes when tested according to ASTM E 2074.
- 4.6.13** All windows to be screened shall be provided with mesh metal or similar non-combustible window screens to prevent embers from entering the structure during high wind condition.
- 4.6.14** Any damaged or replacement window, siding, roof coverings, and specific non-combustible wall shall meet or exceed the original intent of the fire protection discussed in this Plan.
- 4.6.15** Buildings and structures will be set back a minimum of 30 feet from property lines and open space easements unless the County Zoning Ordinance requires a greater minimum. When the property line abuts a roadway the setback will be measured from the centerline of the roadway.
- 4.6.16** Fire protection tactical operations for proposed two-story residential structures will be based on structures less than 35 feet in height, unless approved by the fire district.

4.7 Protection of Commercial and Civic Structures, School, Senior Citizen Neighborhood and Other Facilities and Emergency Trail Access

The proposed project includes commercial, civic structures, schools, and senior citizen neighborhood within the development. Three-story structures are proposed but will not exceed 35 feet in height, with access to the third floor from the second floor. Based on maximum height of structures, none of the structures would be required to meet mid-rise structure fire code requirements there are applicable fire protection requirements that shall be required to ensure that proposed and future buildings on this site meet specific construction features. Guidance to mitigate fire protection measures and to mitigate structural firefighting risks for individual commercial/structure and other public facilities will be established in accordance with the requirements of the County Consolidated Fire Code and California Building Code. The County of San Diego and the DSFPD will review all proposed building plans for compliance with the requirements of fire codes and this Fire Protection Plan.

Following are specific requirements, not all inclusive, for commercial, industrial, school, age-restricted community, and other public facilities structures on this development:

- 4.7.1** Buildings shall be protected throughout by an automatic fire sprinkler system designed and installed in conformance with the latest edition of NFPA 13 and in accordance with the following:
- 4.7.2** A shut-off valve and a water flow alarm shall be provided for each floor of structures. Each shut-off valve and water flow alarm shall be electronically supervised.
- 4.7.3** Smoke detectors shall be connected to an automatic fire alarm system and shall be installed in accordance with the latest edition of NFPA 72.
- 4.7.4** An approved and listed, automatic and manual, fully addressable and electronically-supervised fire alarm system shall be provided in conformance with the California Building Code.
- 4.7.5** Stairway enclosures shall be continuous and shall fully enclose all portions of the stairway. Exit enclosures shall exit directly to the exterior of the building or include an exit passageway on the ground floor leading to the exterior of the building. Each exit enclosure shall extend completely through the roof and be provided with a door that leads onto the roof.
- 4.7.6** School grounds may be fenced and gates therein may be equipped with locks, provided that safe dispersal areas based on three square feet per occupant are located between the school and the fence. Such required safe dispersal areas shall not be located less than 50 feet from school buildings.
- 4.7.7** The project's extensive trail system is accessible by emergency responders via numerous access points throughout the Lilac Hills Ranch community. The largest distance to a roadway access point from any point along the proposed trail is 765 feet in Phase 1. Access points are called out in the Trail Plan for Phase 1. The trail system has not been designed for the latter phases of the development. However, similar access point spacing will be provided (See APPENDIX 'P' – Trails Plan-Phase 1 Access Points).

The following checklist for design concepts may be utilized to ensure that future commercial buildings meet specific performance standards required by the DSFPD that may exceed what is normally required by standard California building codes. This list is provided to memorialize the requirement or design measure, to help mitigate the structural firefighting risk, and to notify the applicant, engineer, architect, and future lot owners, what will be required in these future buildings.

- ✓ Applicable fire protection and building construction related codes and standards for commercial, industrial, and public facilities
- ✓ Maximum allowable height of buildings for existing fire apparatus capability
- ✓ On-site fire protection water system, required fire flow, on site hydrants, and fire sprinkler systems
- ✓ Sprinkler risers and flow alarms and signals
- ✓ Fire detection and fire alarm systems where required by CFC and where needed in large buildings to provide early detection
- ✓ Fire department sprinkler connection locations
- ✓ Wet standpipes where needed in large buildings based on travel distances exceeding 150 feet from doors
- ✓ Site access and on-site fire access roads
- ✓ Identification of onsite fire lanes and provision of signage
- ✓ Clear paved setbacks from property lines to allow fire engine and fire truck operations
- ✓ Protection for trash chutes and trash storage
- ✓ Heating Ventilation and Air Conditioning (HVAC) System controls for firefighter use
- ✓ High piled stock requirements
- ✓ Firefighter access doors for high piled stock
- ✓ Firefighter foot access around buildings
- ✓ Roof access for firefighters through parapets and mansards
- ✓ Addressing and identification of buildings

- ✓ Geographical directories
- ✓ Smoke removal provisions
- ✓ Private or public motor fuel dispensing, if applicable
- ✓ Hazardous materials storage, use and handling; interior and exterior, if applicable
- ✓ Maximum allowable quantities for hazardous materials (define/discuss CFC requirement in general, and threshold for becoming an 'H' occupancy)
- ✓ Exterior storage, and interior storage
- ✓ Fire alarms, water flow alarms and monitoring
- ✓ Exits and emergency/standby power
- ✓ Portable extinguishers
- ✓ Combustible decorations, displays and combustible storage
- ✓ No smoking signs
- ✓ Signs on exterior doors to electrical panel rooms, riser rooms, etc NFPA hazard signals
- ✓ Solar panels on roofs
- ✓ Natural gas shutoffs
- ✓ Emergency plan and equipment
- ✓ Fire prevention program
- ✓ Construction fire safety
- ✓ Fire command center in larger buildings (CFC Section 508)
- ✓ Pre-emptive traffic devices at signalized intersections
- ✓ Emergency responder radio coverage in buildings (CFC section 510)
- ✓ Special requirements for vehicles operating in buildings

The following fire protection and building construction related codes are listed so that architects, engineers, contractors, and owners are aware of their potential applicability.

- 2010 California Fire Code (CFC) including but not limited to Chapter 9 for Fire Protection Systems, Chapter 23 for High Piled Stock; Chapter 27 for Hazardous Materials; and, Chapter 34 for Flammable and Combustible Liquids.
- 2010 California Building Code
- County Building Code
- Fire District and County Fire Codes
- National Fire Protection Association (NFPA) standards as may be applicable including:
 - NFPA 10-- Fire extinguishers
 - NFPA 13--Fire sprinkler systems
 - NFPA 14 – Standpipes
 - NFPA 20--Fire Pumps (if needed but doubtful due to high water system pressures)
 - NFPA 70--National Electrical Code
 - NFPA 72--Fire Alarms
 - NFPA 90A--Air Conditioning and Ventilation Systems
 - NFPA 110--Emergency and Standby Power Systems

4.8 Additional Requirements

- 4.8.1** Single-story structures shall be setback a minimum 15 feet horizontally from top of a slope to the farthest projection from a roof. A single-story structure shall be less than 12 feet above grade. A two-story structure shall be setback a minimum of 30 feet horizontally from top of slope to the farthest projection from a roof.
- 4.8.2** Where a bridge or an elevated surface is part of a fire apparatus access road, the bridge shall be constructed and maintained in accordance with AASHTO HB-17. Bridges and elevated surfaces shall be designed for a live load sufficient to carry the imposed loads of fire apparatus. Vehicle load limits and clearance limitations shall be posted at both entrances to bridges when required by the fire code

official.

- 4.8.3** Brush and other flammable vegetation will be removed prior to commencing any construction activity. During construction at least 50 feet of clearance around the structures will be kept free of all flammable vegetation as an interim fuel modification zone during construction of structures.
- 4.8.4** Any disputes of individual yard landscaping with regard to interpretation of this Fire Protection Plan (FPP) shall be decided by DSPD's Fire Chief and Fire Marshal. The Fire Marshal's decision shall be final and binding for the development.
- 4.8.5** This plan and its recommendations should be incorporated by reference into the final project Supplemental Environmental Impact Report.
- 4.8.6** A lighted directory of the development noting building numbers, solar panel designations (if applicable), etc. shall be installed near the entrance with approval from the DSFPD.

4.9 Fuel Treatment Location Map

Each developmental phase will include a Fuel Treatment Location Map which will show the location of all proposed fuel modification treatment locations and other mitigation measures for the known locations of structures within the development. For this FPP, Exhibit 1 illustrates the recommended fuel modification treatment locations to provide adequate fuel modification requirements for the development.

5.0 CONCLUSIONS

This FPP evaluated the adverse environmental effects that the proposed Lilac Hills Ranch residential and commercial development may have from wildland fire and to properly mitigate those impacts to ensure that this development does not unnecessarily expose people or structures to a significant risk of loss, injury or death involving wildland fires.

5.1 Emergency Response

Lilac Hills Ranch must demonstrate that fire services can be provided that meet the minimum travel time identified in Policy S-6.4. Travel time is defined as the estimated time it will take for the "closest fire station" to reach the furthest structure in a proposed development project. (Policy S-6.4).

The "closest" fire station to Lilac Hills Ranch is CAL FIRE's Miller Station at 9127 West Lilac Road, located adjacent to the development and approximately 2.3 miles from the furthest structure when the development is fully construct. The travel time from this station to the furthest structure when all phases of the proposed development are completed would be approximately 4.5 minutes, below the 5 minutes travel time requirement (see Figure 5).

DSFPD identified Fire Station 11 as the "primary" fire station for the project in the Project Facility Availability Form (DPLU J-399F Form).

Travel times from Station 11 can be found in Table 8 above and in Dudek and Hunt's DSFPD Capabilities Assessment, and do not fully meet the time standards identified by the County General Plan. However with any of the options listed above in section 4.1, the project will meet the County's travel times irregardless of

which station is used to measure response time. The project analysis detailed in Dudek's DSFPD Capabilities Assessment indicates that certain improvements to the existing fire response system would allow fire and emergency medical services to be provided to LHR within the travel times identified in the General Plan.

5.2 Emergency Road Access

The emergency road access (Fire Apparatus Access Roads) requirements for this project shall be adequate and fire code compliant in terms of access and construction standards for roadways. San Diego County Public Road Standards will apply to roadway improvements along West Lilac Road and a portion of Covey Lane. San Diego County Private Road Standards will apply to all interior roads.

In addition, emergency access to the extensive trail system will be provided at numerous points throughout the community.

5.3 Fire-Resistive Building Materials

The required (SDCCFC 2011) ignition-resistant construction for all structures will provide significant protection in this very high fire hazard zone. The ignition-resistant construction requirements provide critical improvements to structures for minimizing ember penetration and resisting potential heat exposure, resulting in a very high survival rate during a worst case scenario fire storm in this rural area. In addition, the FPP requires that ignition-resistant construction will apply to mitigate the ignitability of all future proposed structures and projections (casitas, storage sheds, exterior balconies, carports, decks, patio covers, unenclosed roofs and floors, etc.).

5.4 Fuel Management Zones

The requirements of this FPP provide the fuel modification standards which mitigate the exposure of people to a significant risk of loss, injury or death. The setback area and fuel modification criteria prescribed provide a defensible space zone for fire suppression forces and will protect structures from radiant and convective heat. The project includes a few areas where fuel modification zones are less than 100 feet wide. However, the project is provided with customized fuel modification based on site specific fire behavior modeling and risk assessments. In these areas, off-site, adjacent land uses and overall fuel densities and terrain justify less than 100 feet of fuel modification zone, but will also be subject to other compensating measures (FireWise2000, Inc Fire Protection Plan 2013), which have been evaluated to be sufficient based on adjacent flame lengths and heat intensity.

The project demonstrates compliance with applicable fire regulations, including but not limited to the California Fire Code, California Code of Regulations, County Fire Code, or the County Consolidated Fire Code.

5.5 Cumulative Impact Analysis

Cumulative impacts from multiple projects within DSFPD can cause fire response service to decline and must be analyzed. The Lilac Hills Ranch Project represents a significant development that would increase the existing District population by 5,135 people. 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 but may need to be augmented by DSFPD to respond to the type of District population change (as discussed in *the Deer Springs Fire Protection District Capability Assessment by DUDEK and Hunt Research Corp, June 2013*). The DSFPD Capability Assessment further states that besides the Lilac Hills Ranch project: 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 would 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. Based on the currently low call volume at Station 12 and the proximity and low call volumes associated with Stations 13 and 11, the area may be able

to be serviced by existing stations, depending on the northerly extents of any development on the Merriam Mountains property and the type and size of the Project that may impact the ability to respond within 4 or 5 minute travel times for first-due and 8 minutes for second-due.

The Capability Assessment also found that no other DSFPD significant, large master planned communities were identified as reasonably foreseeable. However, just north of the DSFPD and within Station 15's 8 minute travel time response area, a large master planned community is being constructed in the North County Fire Protection District at the corner of I-15 and SR-76. 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

The “closest” fire station to Lilac Hills Ranch is CAL FIRE's Miller Station at 9127 West Lilac Road located adjacent to the development and approximately 2.3 miles from the furthest structure when the development is fully constructed. The travel time from the Miller Station site to the furthest structure when all phases of the proposed development are completed would be approximately 4.5 minutes, which is below the 5 minutes travel time requirement (see Figure 5). DSFPD identified Fire Station 11 as the “primary” fire station for the project in the Project Facility Availability Form (DPLU J-399F Form). Response times from Station 11 can be found in Table 8 and in Dudek and Hunt's DSFPD Capabilities Assessment, and do not meet the time standards identified by the County General Plan. The analysis provided by this FPP and the Deer Springs Fire Protection District Capability Assessment, the options listed above in section 4.1 would ensure that the project would meet the County's travel time and fire service requirements (*from Deer Springs Fire Protection District Capability Assessment by Dudek and Hunt Research Corp, June 2013*).

The Assessment focused on the DSFPD's current configuration including stations, staffing, apparatus, and response efficiency and considered the potential fire service impacts that the Project, and other foreseeable projects in the DSFPD.

If the recommendations in this Plan are implemented, this development will not expose people or habitable structures to a significant risk of loss, injury or death. Following the recommendations would also decrease the risk of loss for surrounding existing uses. As proposed, the project is not anticipated to contribute to a significant cumulative impact relative to wildland fire risk.

6.0 LIST OF PREPARERS, PERSONS, AND ORGANIZATIONS CONTACTED

6.1 List of Preparers

The principal author and preparer of this Deer Springs Fire Protection Plan is C. Douglas Pumphrey, Senior Wildland Fire Associate of **FIREWISE 2000, Inc.** and certified by David C. Bacon, President of **FIREWISE 2000, Inc.** and a San Diego County DPLU certified wildland fire consultant.

6.2 List of Persons Contacted During the Course of this Project

Randy Goodson, CEO, Accretive Investment, Inc.
 Jon Rilling, Vice President, Accretive Investment, Inc.
 Ann Moore, Esquire, Norton Moore and Adams
 Chris Amestoy, Fire Chief, Deer Springs Fire Protection District
 Cathey Michna, Fire Marshal, Deer Springs Fire Protection District
 Mark Brencick, Landmark Consulting
 Gerald Scheid, Senior Biologist, RECON
 Monique Chen, Chen Ryan Associates

Rikki Schroeder, RMA Consultants
Michael Huff, Dudek