HARMONY GROVE VILLAGE SOUTH

APPENDIX L

FIRE PROTECTION PLAN

for the

DRAFT FINAL ENVIRONMENTAL IMPACT REPORT

PDS2015-GPA-15-002
PDS2015-SP-15-002
PDS-REZ-15-003
PDS2018-TM-5626
PDS2015-MUP-15-008
Log No.: PDS2015-ER-15-08-006

MAY 2018

Prepared for:
COUNTY OF SAN DIEGO
PLANNING & DEVELOPMENT SERVICES
5510 OVERLAND AVENUE, SUITE 310
SAN DIEGO, CALIFORNIA 92123

FINAL FIRE PROTECTION PLAN

INFORMATION FOR THE READER

This document is the Final Fire Protection Plan (FPP) for the proposed Harmony Grove Village South Project. No changes have been required to the body of this FPP.

A comment received on the Draft FPP, circulated from April 20 to June 20, 2017, noted that the "Regional Fire History Exhibit" in Appendix B to the FPP did not include the latest depiction incorporating the 2014 Cocos Fire burn area. That figure has therefore been replaced in this Final FPP with a more recent version obtained from CAL FIRE's Fire Resource and Assessment Program 2016.

In addition, it is noted that updated water service Project Facility Availability Form was provided by Rincon del Diablo Municipal Water District in March 2018. That form is now included in Appendix D to the FPP and replaces the 2015 form circulated with the Draft FPP.

Both of these amendments are clarifying are clarifying in nature. The less-than-significant CEQA significance conclusions provided in the Draft FPP remain. The additional information therefore provides clarification and additional documentation, but does not result in any significant new information requiring recirculation.

FIRE PROTECTION PLAN
Harmony Grove Village South
APNs: 235-011-06-00, 238-021-08 through 10

Prepared for:

Rancho Santa Fe Fire Protection District and County of San Diego

On behalf of Applicant:

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MAY 2018

Printed on 30% post-consumer recycled material.

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1 EXECUTIVE SUMMARY

This Fire Protection Plan (FPP) has been prepared for the proposed Harmony Grove Village South (HGVS) project, 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 approximately 111-acre project is located in the unincorporated portion of San Diego County in the community of Harmony Grove, approximately 2.5 miles west of Interstate 15 (I-15) and approximately 2.6 miles south of State Route 78 (SR-78). The project site is bounded by Escondido Creek to the north, Country Club Drive to the west, and the Del Dios Highland Preserve to the south. Existing rural and cluster residential development is located to the west and to the east. Harmony Grove Village, a 470 acre residential development is found immediately west and north of HGVS and is currently under construction. The HGVS project is located approximately 450 feet from Harmony Grove Villages major arterial intersection, Harmony Grove Road and Country Club Drive.

Currently, access to the project site is provided by Country Club Drive off of Harmony Grove Road and consists of a sub-standard Arizona crossing that serves existing residents to the west of the HGVS site. HGVS will improve the Arizona crossing to a bridge that exceeds County of San Diego public road standards. Fire protection will be provided from the new fire station being built in the Harmony Grove Village project to the north that is within 1.2 miles (2.7 minutes travel time) from the most distant portion of HGVS. The project will provide fair-share funding for fire and emergency medical response services through participation in a County Service Area (CSA) or through fire assessments. The San Diego County Fire Authority (SDCFA) is currently responsible for providing emergency services to the project through the Elfin Forest/Harmony Grove Volunteer Fire Department. The Rancho Santa Fe Fire Protection District (RSFFPD) has submitted an application to the Local Area Formation Committee (LAFCO) and it was approved, expanding the RSFFPD to cover the project area. The project's new station will be staffed by career personnel provided by the RSFFPD, which is currently providing response from a temporary station at the fire station site. The project includes a mix of up to 453 residential units, limited commercial, private recreational areas, manufactured slopes, landscaped areas, natural-appearing drainages, public trails, and biological open space that does not intermingle within the developed areas. The project would require the construction of on- and off-site infrastructure improvements associated with roads, water, and sewer. The HGVS project meets or exceeds all fire and building code requirements except as related to dead-end road lengths in which case the project will provide mitigation in order to receive a modification as allowed by the Fire Code. This FPP provides detailed discussion of the dead-end road length requirements and how the project meets the intent of the code through a layered and redundant fire protection and evacuation system.

The HGVS property lies within an area statutorily designated State Responsibility Area (SRA) "Very High Fire Hazard Severity Zone (VHFHSZ)," by CAL FIRE and recognized by the County of San Diego and RSFFPD. The site's vegetation is primarily non-native, disturbed grasses in the development area with Southern mixed chaparral on the steep slopes at the southern end of the property. Off-site, adjacent areas include chaparral to the south and disturbed/developed areas to the east, west and north. The area, like all of San Diego County, is subject to seasonal weather conditions that can heighten the likelihood of fire ignition and spread; however, considering the site's location, would be expected to result in spotty, potentially fast moving and primarily low- to moderate-intensity wildfire.

2 INTRODUCTION

This FPP has been prepared for the proposed HGVS project in unincorporated San Diego County, California. The purpose of the FPP is to assess the potential impacts resulting from wildland fire hazards and identify the measures necessary to adequately mitigate those impacts. As part of the assessment, this plan has considered the fire risk presented by the site including: property location and topography, geology (soils and slopes), combustible vegetation (fuel types), climatic conditions, fire history and the proposed land use and configuration. This FPP addresses water supply, access, structural ignitability and ignition resistive building features, fire protection systems and equipment, impacts to existing emergency services, defensible space, and vegetation management. This plan identifies fuel modification/management zones and recommends the types and methods of treatment that will protect this project and its essential infrastructure. In addition, this FPP recommends enhanced fire protection measures that the Harmony Grove Village South Homeowner's Association (HOA) and individual property owners will take to reduce the probability of structural ignition throughout the project.

This FPP is consistent with the County Consolidated Fire Code (2014 CCFC and 2014 CFC Ordinance #10337) and with the California Code of Regulations, Title 14, Fire Safe Regulations. Since the project is within SRA, Title 14 is applicable, and allows provisions for providing same practical effect for any non-conforming project features. This FPP is also consistent with the RSFFPD Fire Code (Ordinance 2014-01A) and the County of San Diego Guidelines for Determining Significance and Report Format, Wildland Fire and Fire Protection (2010).

The purpose of this plan is to generate and memorialize the fire safety requirements of the Fire Authority Having Jurisdiction (FAHJ), namely the SDCFA and RSFFPD, upon annexation. Recommendations for effectively mitigating identified impacts are based on site-specific characteristics and incorporate input from the project applicant and SDFCA/RSFFPD. This FPP incorporates applicable fire safety regulations and requirements and documents a selection of these regulations that are most pertinent to the Project's unique residential development and location.

2.1 Project Summary

2.1.1 Location

HGVS is located entirely within the unincorporated portion of San Diego County, known as Harmony Grove. The HGVS project site lies within Township 13 south, Range 2 west and Range 3 west in Sections 7, 12, 13, and 18 in the Escondido and Rancho Santa Fe U.S. Geological Survey, 7.5 minute quadrangles. The site is west of the City of Escondido, south of the City of San Marcos and northeast of the community of Rancho Santa Fe (Figure 1). The project is

approximately four miles southwest of the intersection of I-15 and SR- 78. The Elfin Forest Preserve is located approximately 0.9 mile to the southwest. The Harmony Grove Village, a Master Planned development, consisting of 468 acres that is being developed and is approved to include various residential opportunities, an equestrian center, a fire station, trails, parks and a town square, located directly north and west of HGVS.

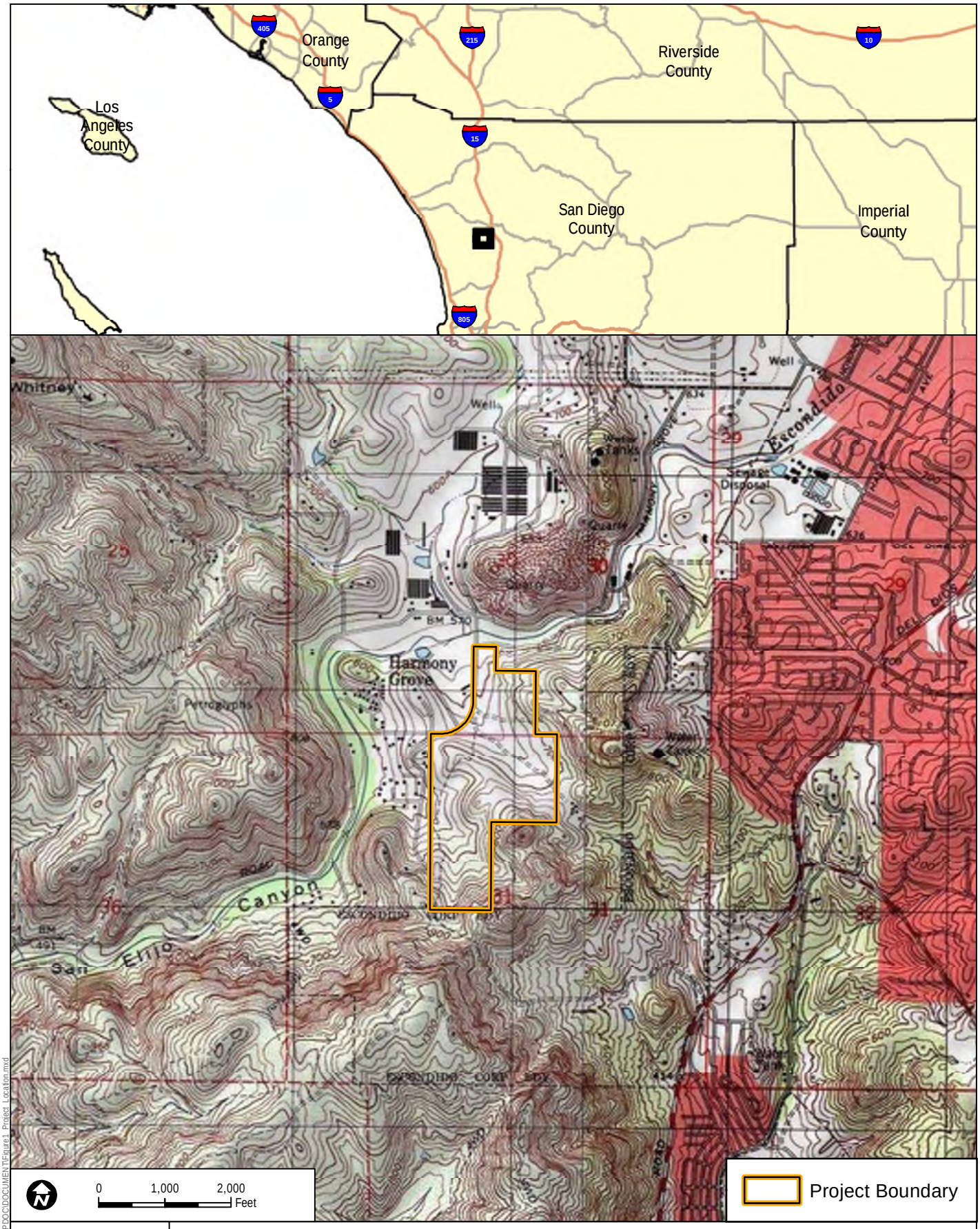
Figure 2 presents the project's site plan including property boundaries, roads, access points, and building locations. The HGVS project site is located on the following Assessor Parcel Numbers: 235-011-06-00, 238-021-08-00, 238-021-09-00 and 238-021-10-00. The entirety of the property lies within the SRA, VHFHSZ, as statutorily designated by CAL FIRE. Fire hazard designations are based on topography, vegetation, and weather, amongst other factors with more hazardous sites including steep terrain, unmaintained fuels/vegetation, and wildland urban interface (WUI) locations.

2.1.2 Project Description

The approximately 111-acre HGVS Project site is located approximately 450 feet from the primary arterial intersection in Harmony Grove: Harmony Grove Road and Country Club Drive (the latter is the project's wester edge). Del Dios Highlands Preserve is immediately south of HGVS, with a mix of historic cluster housing (Harmony Grove Spiritualist Association) and larger lot homes to the west and east. Harmony Grove Village is located to the north and west, across from County Club Drive and Harmony Grove Road, and is currently under construction. Primary access to the project site is provided by Harmony Grove Road and Country Club Drive.

The project proposes:

- A Tentative Map to subdivide the property into a maximum 453 lots;
- A Specific Plan to provide detail on proposed uses;
- A Re-zone from A70 (Limited Agriculture) to S88 (Specific Plan);
- A Community Plan Amendment to incorporate the proposed project into the Harmony Grove Village Specific Plan area; and
- A General Plan Amendment to include the VRTBD (Village Residential) land use designation; and
- A Major Use Permit for an on-site waste water treatment/water reclamation facility.



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SOURCE: USGS 7.5-Minute Series Rancho Santa Fe Quadrangle.

FIGURE 1

Project Location Map

HARMONY GROVE VILLAGE SOUTH FIRE PROTECTION PLAN

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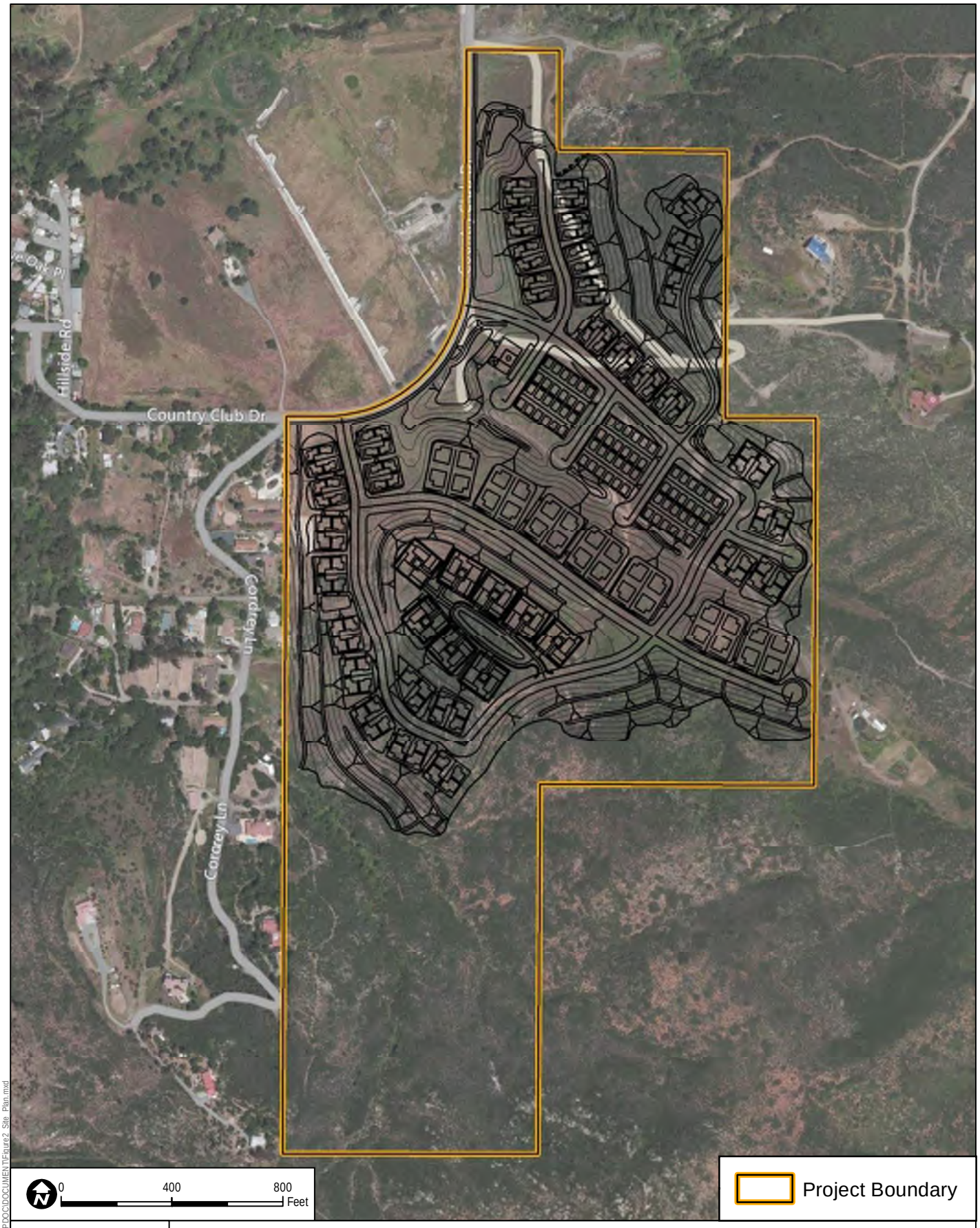

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SOURCE: BING 2014, Hunsaker & Associates 2014

FIGURE 2
Site Plan

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HARMONY GROVE VILLAGE SOUTH FIRE PROTECTION PLAN

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The project includes a mix of up to 453 residential units, limited commercial, private recreational areas, manufactured slopes, landscaped areas, natural-appearing drainages, public trails, fuel modification, and biological open space. The project would require the construction of on- and off-site infrastructure improvements associated with roads, water, and sewer. Appendix A provides photographs of the site in its current, undeveloped condition.

2.1.3 Environmental Setting

Dudek conducted a field assessment of the project site, including on-site and off-site adjacent areas, on September 30, 2014, in order to document existing site conditions and determine potential actions for addressing the protection of proposed structures on the site.

Assessment of the area's topography, natural vegetation and fuel loading, fire history, and general susceptibility to wildfire formed the basis of the site risk assessment. The field tasks included:

- Topographic features documentation
- Vegetation/fuel documentation and measurements
- Existing infrastructure evaluations
- Documentation of the existing condition
- Surrounding land use confirmations
- Necessary fire behavior modeling data collection
- Photograph documentation.

2.1.3.1 Topography

The Harmony Grove Village South project site is an irregularly shaped parcel that includes a relatively flat valley "floor" flanked by more rugged terrain to the south, east and west. The "valley floor" is uniquely surrounded by a series of ridgetops (ranging in size from just under 1,000' to just under 2,000') that encircle the valley floor. The majority of the site is relatively flat with approximately 77 acres ranging between zero and 25% slope. An estimated 33.5 acres are between 25% and 50% slope and there is 0.5 acre of extremely steep hillside that exceeds 50%. All of the slopes drain to the northwest towards Escondido Creek, which meanders through San Elijo Canyon to the southwest of the project site. Elevations on the site range from roughly 580 feet above mean sea level (amsl) in the northwestern portion of the property to just over 840 feet amsl in the southeastern portion of the project site.

2.1.3.2 Fuels

Based on the project's Draft Vegetation Map, (Helix Environmental Planning, 2014), there are 10 vegetation communities and land covers within the project site boundaries: Coast live oak woodland, Coastal Sage-chaparral Transition, Diegan Coastal Sage Scrub, Disturbed Habitat, Eucalyptus Woodland, Granitic Southern Mixed Chaparral, Mafic Southern Mixed Chaparral, Non-native Grassland, Non-native Vegetation, and Urban/Developed. The acreage of each of these vegetation communities or land covers are provided in Table 1 and illustrated in Figure 3.

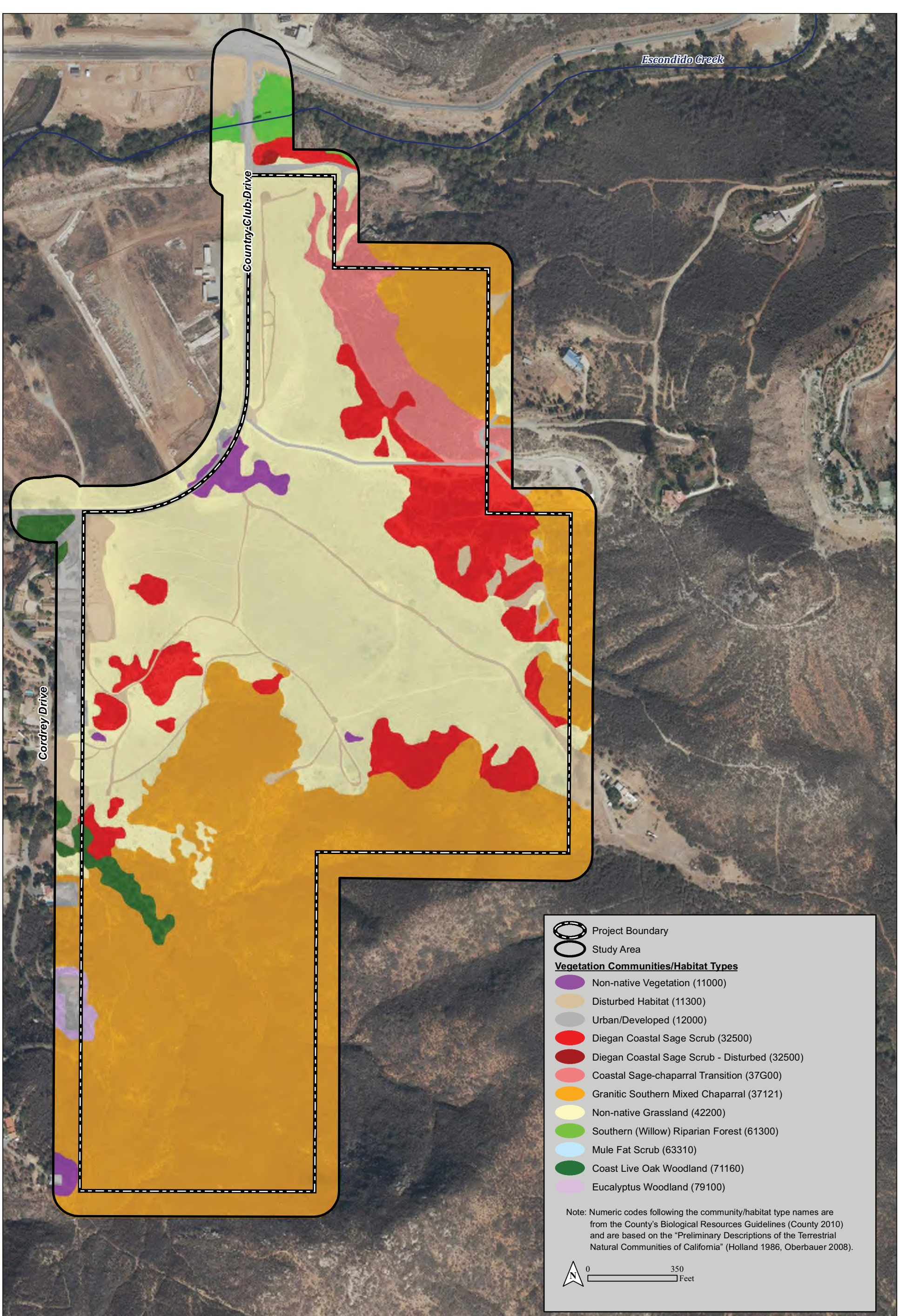
Table 1
Project Site Vegetation Communities and Land Covers

Vegetation Community/Land Cover	Acres
Coast Live Oak Woodland	1.146
Coastal Sage-chaparral Transition	4.479
Diegan Coastal Sage Scrub	10.876
Disturbed Habitat	2.379
Eucalyptus Woodland	0.260
Granitic Southern Mixed Chaparral	32.279
Mafic Southern Mixed Chaparral	14.074
Non-native Grassland	43.547
Non-native Vegetation	0.827
Urban/Developed Land	1.221
Total	**111.088**

Vegetation communities of concern are those that are more likely to facilitate fire spread that occur adjacent to the proposed development. Three off-site vegetation communities (Coast Live Oak Woodland, Diegan Coastal Sage Scrub, and Southern Mixed Chaparral) were identified as potentially facilitating fire spread toward project residences. The following descriptions provide an overview of these three vegetation types.

Coast Live Oak Woodland

This woodland is dominated by Coast live oak (*Quercus agrifolia)*, an evergreen oak that reaches 10–25 m in height. The shrub layer is poorly developed, but may include toyon (*Heteromeles arbutifolia*), *Ribes* spp., or laurel sumac (*Rhus laurina*). The ground cover component is continuous and dominated by annual grasses and several other introduced taxa. The Coast live oak woodland dominates the riparian corridor to the west of the site. The oak trees have experienced a recent fire (2014 Cocos Fire) and have many dead leaves in the canopies. Trunks are also blackened by the fire. Many of the trees are expected to recover while some will be lost.



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SOURCE: HELIX 2014

FIGURE 3
Project Site Vegetation

HARMONY GROVE VILLAGE SOUTH FIRE PROTECTION PLAN

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Diegan Coastal Sage Scrub

Diegan coastal sage scrub is one of two major shrub types in southern California, occupying xeric sites characterized by shallow soils. Coastal sage scrub is dominated by drought-deciduous shrub species with relatively shallow root systems and open canopies. This vegetation community often contains a substantial herbaceous component and leaf litter layer. Dominant species within Diegan coastal sage scrub on site include California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and black sage (*Salivia mellifera*). The height of the shrub layer is currently 2–3 feet. This vegetation type had a light build-up of grasses or forbs underneath the shrub canopies. Diegan coastal sage scrub habitat occurs to the east and southeast of the proposed development.

Southern Mixed Chaparral

Southern mixed chaparral is the most abundant vegetation type on the slopes to the south and west of the project site. Southern mixed chaparral is composed of broad-leaved sclerophyllous shrubs that can reach heights of 12 feet. The shrubs are generally deep rooted, with well-developed soil litter layer, and high canopy coverage. The composition of the southern mixed chaparral varies with the topography and exposure across the site. Dominant plant species in this vegetation community include chamise (*Adenostoma fasciculatum*), toyon (*Heteromeles arbutifolia*), Wart-stemmed ceanothus (*Ceanothus verrucous Nutt.*), black sage, and laurel sumac. The vegetative shrubs have a high percentage of dead woody material (roughly 50% to 60%) in shrub canopy due to drought condition.

2.1.3.3 Fuel Model Assignments

The area proposed for development will be converted to a lower flammability, ignition resistant landscape than current conditions. This conversion will include removal of primarily non-native grasses and construction of roads, structures, and irrigated, managed landscape vegetation with the project's construction. Areas outside of the proposed development footprint, such as those within the biological preserve areas and the furthest reaches of fuel modification areas in the thinning zone, can be classified primarily as a mix of Diegan coastal sage scrub, Southern mixed chaparral, and Coastal live oak riparian forest. Table 2 provides a summary of the vegetation and fuel types observed on site, as well as corresponding fuel model assignments for fire behavior modeling conducted for this project, as described in Chapter 3. Figure 3 presents vegetation distribution on the site. Appendix A provides photographs of the site and its vegetative fuels.

Table 2
Observed Off-Site Vegetative Fuels

Vegetation Type	Location	Fuel Model Assignment
Diegan coastal sage scrub	On west facing slopes to east of project site.	SCAL 18
Southern Mixed Chaparral	On all slopes surrounding project site. Most abundant vegetative type for Project area.	FM 4
Coast Live oak riparian forest	Oak forest occurs within Escondido Creek, just west of Project area.	FM 9

2.1.3.4 Fuel Loads

The vegetation described above translates to fuel models used for fire behavior modeling, discussed in Chapter 3 of this FPP. Variations in vegetative cover type and species composition have a direct effect on fire behavior. Some plant communities and their associated plant species have increased flammability based on plant physiology (resin content), biological function (flowering, retention of dead plant material), physical structure (leaf size, branching patterns), and overall fuel loading. For example, the native shrub species that compose the two vegetation types on site are considered to exhibit higher potential hazard based on such criteria.

Fuel Loading is important because the intensity of fire tends to increase with the weight or volume of the fuels burned (Biswell 1989). Fuel loading is measured in tons of fuel available per acre. All vegetative fuels have a continuous fuel bed comprised of live and dead woody material. The fuel bed heights ranged from 3–12 feet high. Fine fuel loading in coastal sage scrub is estimated to be 4 to 5 tons/acre, while that in Southern Mixed Chaparral is estimated at 7–10 tons/acre. Fine fuel loading (primarily leaf litter) for oak riparian areas is slightly lower than the sage scrub, estimated at 3.5 tons/acre.

2.1.3.5 Fire History

Fire history is an important component of a site-specific FPP. Fire history information can provide an understanding of fire frequency, fire type, most vulnerable project areas, and significant ignition sources, amongst others. Appendix B illustrates fire history for the Harmony Grove Village South project vicinity while Table 3 lists recorded fires dating to 1919. As presented, there have been numerous fires recorded by fire agencies in the direct vicinity of the project site, primarily associated with the open space preserves (Del Dios Highlands Preserve and Park and Elfin Forest Recreational Reserve) to the south of the Project area. One recorded fire has burned on the project site, occurring in 1997 (Del Dios Fire) and the Cocos Fire (2014) burned up to the northwest edge of the property. The average fire return interval for fires burning

within 3 miles of the project site is 7 years. Recorded wildfires within 3 miles of the Project range from 28 acres to 162,070 (Witch Fire) acres. However, the average fire size is 1,519 acres (not including the Witch Fire, 1943 Un-named Fire or fires smaller than 10 acres). As suggested by the data, a significant fire history exists in the vicinity of the project site but most wildfires are contained by initial or extended attack. Consistent with results throughout large portions of Southern California, Santa Ana wind driven fires present the highest risk of non-containment by initial or extended attack and the occurrence of a major incident. Fire history data was obtained from CAL FIRE's Fire and Resource Assessment Program (FRAP 2014) database.

Table 3
Fire History within Three Miles of the Project Site

Fire Year*	Fire Name	Interval (years)	Total Area Burned (acres)
1919	Un-named	N/A	6,693
1943	Un-named	24	40,248
1980	Elfin	37	47
1981	Outside Origin #2	1	4,325
1984	Questhaven	3	29
1985	Israel	1	28
1986	Harmony	1	41
1987	Del Dios	1	217
1988	Hodges #2	1	150
1988	Del Dios #2	0	37
1988	Outside Origin #11	0	247
1989	Harmony	1	143
1990	Paint	1	2,761
1994	Questhaven	4	65
1996	Harmony	2	79
1996	Harmony	0	9,359
1997	Del Dios	1	1073
2007	Coronado Hills	10	59
2007	Witch	0	162,070
2014	Cocos	7	1,995

* FRAP 2014, Cocos Fire perimeter and information obtained from Cal Fire incident website.

Based on fire history, wildfire risk for the project site is associated primarily with wind-driven fires originating near Lake Hodges (such as along Del Dios Highway) and burning or spotting onto the site from the south. Although a fire approaching from the west during more typical on-shore weather patterns is possible, it would typically occur with higher humidity and fuel moisture levels and lower average wind speed, resulting in a more manageable fire.

2.1.3.6 Climate

North San Diego County and the project area are influenced by the Pacific Ocean and are frequently under the influence of a seasonal, migratory subtropical high pressure cell known as the "Pacific High." Wet winters and dry summers with mild seasonal changes characterize the Southern California climate. This climate pattern is occasionally interrupted by extreme periods of hot weather, winter storms, or dry, easterly Santa Ana winds. The average high temperature for the project area is approximately 72°F, with daily highs in the summer and early fall months (July–October) exceeding 95°F. Precipitation typically occurs between December and March with average rainfall of 13 inches.

The prevailing wind pattern is from the west (on-shore), but the presence of the Pacific Ocean causes a diurnal wind pattern known as the land/sea breeze system. During the day, winds are from the west–southwest (sea) and at night winds are from the northeast (land), averaging 2 miles per hour (mph). During the summer season, the diurnal winds may average slightly higher (approximately 16 mph) than the winds during the winter season due to greater pressure gradient forces. Surface winds can also be influenced locally by topography and slope variations. The highest wind velocities are associated with downslope, canyon, and Santa Ana winds, which affect the HGVS site and the region.

Typically the highest fire danger is produced by the high-pressure systems that occur in the Great Basin, which result in the Santa Ana winds of Southern California. Sustained wind speeds recorded during recent major fires in San Diego County exceeded 30 mph and may exceed 50 mph during extreme conditions. The Santa Ana wind conditions are a reversal of the prevailing southwesterly winds that usually occur on a region-wide basis during late summer and early fall. Santa Ana winds are warm winds that flow from the higher desert elevations in the north through the mountain passes and canyons. As they converge through the canyons, their velocities increase. Consequently, peak velocities are highest at the mouths of canyons and dissipate as they spread across valley floors. Santa Ana winds generally coincide with the regional drought period and the period of highest fire danger.

2.1.3.7 Current Land Use

The HGVS site is currently undeveloped. The proposed development portions of the property primarily consist of disturbed ground, non-native grasses and invasive plants. There are two structure foundations on the site that will be removed during grading of the development. Much of the site is currently traversable by graded, dirt roads that take access from Harmony Grove Road and Country Club Drive. Additionally, two off-site parcels have an access easement through the east and south of the project boundary.

2.1.3.8 Proposed Land Use

The HGVS project proposes a mix of up to 453 residential units, limited commercial, private recreational areas, manufactured slopes, landscaped areas, natural-appearing drainages, public trails, and biological open space. The project would require the construction of on- and off-site infrastructure improvements associated with roads, water, and sewer.

The Project proposes:

- A Tentative Map to subdivide the property into a maximum 457 lots;
- A Specific Plan to provide detail on proposed uses;
- A Rezone from A70 (Limited Agriculture) to S88 (Specific Plan);
- A Community Plan Amendment to incorporate the project into the Harmony Grove Village Specific Plan area; and
- A General Plan Amendment to include the VRTBD (Village Residential) land use designation; and
- A Major Use Permit for an on-site waste water treatment/water reclamation facility.

The proposed land use improvements described above would be completed according to the San Diego County Consolidated Fire Code, and County Building Code in effect at the time of building plan submittal and would include ignition-resistive construction, interior sprinklers, required fire flow, and a designated fuel modification area, among other requirements as described further in this FPP.

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3 DETERMINATION OF PROJECT EFFECTS

FPPs provide an evaluation of the adverse environmental effects a proposed project may have from wildland fire. The FPP must provide mitigation for identified impacts to ensure that development projects do not unnecessarily expose people or structures to a significant loss, injury or death involving wildland fires. Significance is determined by answering the following guidelines:

Would the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

The wildland fire risk in the vicinity of the Project site has been analyzed and it has been determined that wildfires may occur in wildland areas to the west, east, south, and southwest of the project site, but would not be significantly increased in frequency, duration, or size with the construction of the project. The developing Harmony Grove project to the north has created a large low-fire risk area in alignment with north/northeast wind directions, reducing the fire threat at the Project site. The existing site includes numerous potential fire issues including unmaintained, non-native vegetation and Country Club Road provides limited access for approximately 75 residences to the west of HGVS. The Project would include conversion of fuels to developed land with designated landscaping and fuel modification areas and highly ignition resistant structures. As such, the site will be largely converted from readily ignited fuels to ignition resistant landscape.

The types of potential ignition sources that currently exist in the area include vehicles, roadways, illegal recreation users, and off-site residential neighborhoods. The project would introduce potential ignition sources, but would also include conversion of ignitable fuels to lower flammability landscape and include better access throughout the site, managed and maintained landscapes, , and generally a reduction in the receptiveness of the area's landscape to ignition. In addition, the Project would enhance access (both ingress and egress) through a multi-tiered approach. Fires from off-site would not have continuous fuels across this site and would therefore be expected to burn around and/or over the site via spotting. Burning vegetation embers may land on Project structures, but are not likely to result in ignition based on ember decay rates that would not impact the types of non-combustible and ignition resistant materials that will be used on site.

The Project would comply with applicable fire and building codes and would include a layered fire protection system designed to current codes and inclusive of site-specific measures that will result in a Project that is less susceptible to wildfire than surrounding landscapes and that would

facilitate firefighter and medical aid response as well as project resident evacuation in a wildfire emergency. Given the anticipated maximum fuel loading for the natural areas off site, resulting fire behavior modeling results, which closely mimic reported Fire behavior from the most recent fire in the area, the 2014 Cocos Fire, combined with the required ignition resistance construction the risk of wildfire damage to the project site's structures and its residents is considered low.

Would the project result in inadequate emergency access?

HGVS is requesting a modification to the 2014 San Diego County Consolidated Fire Code regarding maximum dead end road lengths. The project is requesting a General Plan amendment to re-zone the area into parcels that are less than 1 acre in size, resulting in an allowed maximum dead-end road length of 800 feet. The dead-end road that leads to the most distant structure on HGVS measures approximately 0.8 miles to the intersection of Harmony Grove and Country Club Drive, the first opportunity to travel in at least two separate directions. This request for modification is based on topographical, geological, and environmental conditions that make meeting the regulation unattainable. Potentially available alternatives for secondary access have also been evaluated and determined to be infeasible due to various constraints, as detailed in Appendix C. The project has developed an alternative approach that meets the intent of the code through the implementation of a list of specifically developed measures and features (detailed in Section 5.2.1.2 of this FPP). These measures and features provide the ability for the fire authority having jurisdiction to make findings that the intent of the code has been met and does not lessen health, life, and fire safety requirements.

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance service ratios, response times or other performance objectives for fire protection?

The project will be served by the not-yet-constructed, but approved fire station located within the developing Harmony Grove Village Project which will be staffed by RSFFPD. The new station will be approximately 1.3 miles from the most remote structure with an estimated travel time of less than three minutes. HGVS would receive very fast travel time from this fire station and can also be largely covered by less than 5 minute travel time by existing Escondido Fire Station #6. Truck coverage from Escondido Station #1 is within 8 minutes travel throughout the HGVS project.

These resources could be provided through automatic and mutual aid agreements, but will depend on the final configuration of the new fire station and which fire agency is providing operation. The following list depicts the closest fire departments and their respective travel times to HGVS.

- The proximity to multiple fire stations ensures firefighters will be able to respond in a timely manner and provide resources in the event of simultaneous incidents. The proximity to career fire departments with multiple stations and resources available within County standards is an important factor when a project is requesting a modification to the maximum allowable dead end road length. Further, NFPA 1710, sec. 5.7.6.2.1 requires the fire department to have enough firefighters to initiate a direct wildland attack within the first 10 minutes, as well as providing an incident commander and two firefighters on attack lines. As stated previously this project exceeds the minimal NFPA acceptable response standard with at least 4 career fire stations and a Battalion Chief within 10 minutes travel. NFPA 1141 was used to determine the following travel times (include the ISO travel time formula).

    1. The approved fire station within Harmony Grove Village is directly north of HGVS. The location is 1.3 miles total distance (to most distant structure) with a calculated travel time of 2.8 minutes.
    2. Escondido Fire Station # 6 is located at 1735 Del Dios Highway and is 2.8 miles away with a travel time of just over 5 minutes.
    3. Escondido Station #1 is located at 310 North Quince Street and is 4.2 miles away and has a travel time of 7.9 minutes.
    4. Elfin Forest / Harmony Grove Fire Station is located at 20223 Elfin Forest Road and is just under 5 miles away with a travel time of 9.1 minutes.

Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

The project will be served by Rincon del Diablo Municipal Water District (RDDMWD) and sufficient water supplies will be available to serve the project from existing entitlements and resources. The Rincon Water District requires new development to meet a dual 2500 gpm fire flow in the District for a 5,000 gpm, exceeding the code requirements by 100%. The pressures in the HGVS development will remain above 20 psi when meeting the fire requirements for the Rincon District. Appendix D includes the Project's Facility Water Service Letter.

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4 ANTICIPATED FIRE BEHAVIOR

4.1 Fire Behavior Modeling

Following field data collection efforts and available data analysis, fire behavior modeling was conducted to document the type and intensity of fire that would be expected on this site given characteristic site features such as topography, vegetation, and weather. Results are provided below and a more detailed presentation of the modeling inputs and results is provided in Appendix E. Note that the latest version of BehavePlus was selected to model the fire behavior for this project. While other fire behavior models are available and are appropriate for larger scale studies, BehavePlus provides the ability to utilize fine detail and select specific modeling locations. The specifically collected terrain and fuel data at this site exceeds the coarse data available from public data sources that one would use to model with FlamMap or other GIS based models. This modeling effort selected project locations that would represent "worst case" conditions due to slope, fuels and wind alignments. This facilitated project fire hardening efforts presented throughout this FPP.

4.1.1 Fuel Models

Fuel Models are simply tools to help fire experts realistically estimate fire behavior for a vegetation type. Fuel models are selected by their vegetation type; fuel stratum most likely to carry the fire; depth and compactness of the fuels; and percent of dead branches or foliage in shrub canopy. Fire behavior modeling was conducted for vegetative types that surround the proposed development. The vegetation types are represented primarily by three fuel models as shown in Table 1. Other fuel models may exist, but not at quantities that significantly influence fire behavior in and around the proposed development. Fuel models were selected from custom and Standard Fire Behavior Fuel Models: a Comprehensive Set for Use with Rothermel's Surface Fire Spread Model (Scott and Burgan 2005).

4.1.2 Fuel Model Output Results

Focused fire behavior modeling utilizing BehavePlus (v. 5.0.5) was conducted for the project site. A more detailed discussion of the BehavePlus analysis, including weather input variables, is presented in Appendix E. Note that the fuel models selected include original and more recent models and that the weather inputs are based on 44 years' of weather data required by SDCFA for use in FPP modeling efforts. Fuel model typing was completed in the field concurrent with site hazard evaluations.

Based on field analysis, four different fire scenarios were evaluated for the project site.

- **Scenario 1:** Peak fire weather with off-shore, Santa Ana winds and fire burning in southern mixed chaparral and coastal sage scrub along northeastern and eastern portions of project site.
- **Scenario 2:** Peak fire weather with off-shore, Santa Ana winds and fire burning in a canyon vegetated with southern mixed chaparral and coastal sage scrub to the southeast of project site.
- **Scenario 3:** Summer fire weather with on-shore winds and fire burning in the southern mixed chaparral along southwestern portion of project site.
- **Scenario 4:** Summer fire weather with on-shore winds and fire burning in the southern mixed chaparral and Coast live oak riparian forest along the western portion of the project site.

The unique terrain and fuel models used for BehavePlus modeling for the Harmony Grove Village South site are presented in Table 4, and the results of modeling efforts are provided in Table 5. Locations of BehavePlus model runs are presented graphically in Figure 4. Based on the BehavePlus analysis, worst-case fire behavior is expected in chaparral-coastal sage scrub fuel beds along the northeast, east, and southeast of the proposed development area under Peak weather conditions (represented by Scenarios 1 and 2). Under such conditions, expected surface flame lengths reach 84 feet during peak weather conditions with wind speeds of 40+ mph. Under this scenario, fireline intensities reach 86,008 BTU/feet/second with moderate to fast spread rates ranging from 2.0 to 17.0 mph. Fires burning from the west or southwest of the proposed development area and pushed by on-shore winds (Summer weather) exhibit less severe fire behavior, with flame lengths reaching 42 feet, fireline intensities reaching 18,922 BTU/feet/second and a spread rate reaching 4.3 mph in dense chaparral-Coast live oak riparian fuel beds.

Table 4
HGVS Fire Behavior Model Variables

Scenario	Weather	Fuel Model(s)	Slope	Aspect
1	Peak(Off-shore)	Chaparral-sage scrub(FM 4, SCAL 18)	10–30%	North and West
2	Peak (Off-shore)	Chaparral-sage scrub (FM 4, SCAL 18))	10–30%	North and Southwest
3	Summer (On-shore)	Chaparral (FM 4)	20–45%	North and Northeast
4	Summer (On-shore)	Oak riparian-sage scrub (FM 4, FM 9)	5–50%	East

Table 5
HGVS BehavePlus Fire Behavior Model Results

Model Runs (Scenario)	Flame Length (feet)	Fireline Intensity (Btu/ft/s)	Surface Rate of Spread (mph)
1	32.0 to 83.8	10,591 to 86,008	1.7 to 17.0
2	32.0 to 83.1	10,591 to 84, 540	1.7 to 16.7
3	22.7 to 41.7	5,040 to 18,922	1.1 to 4.3
4	3.2 to 39.0	70 to 16, 341	<1.0 to 3.7

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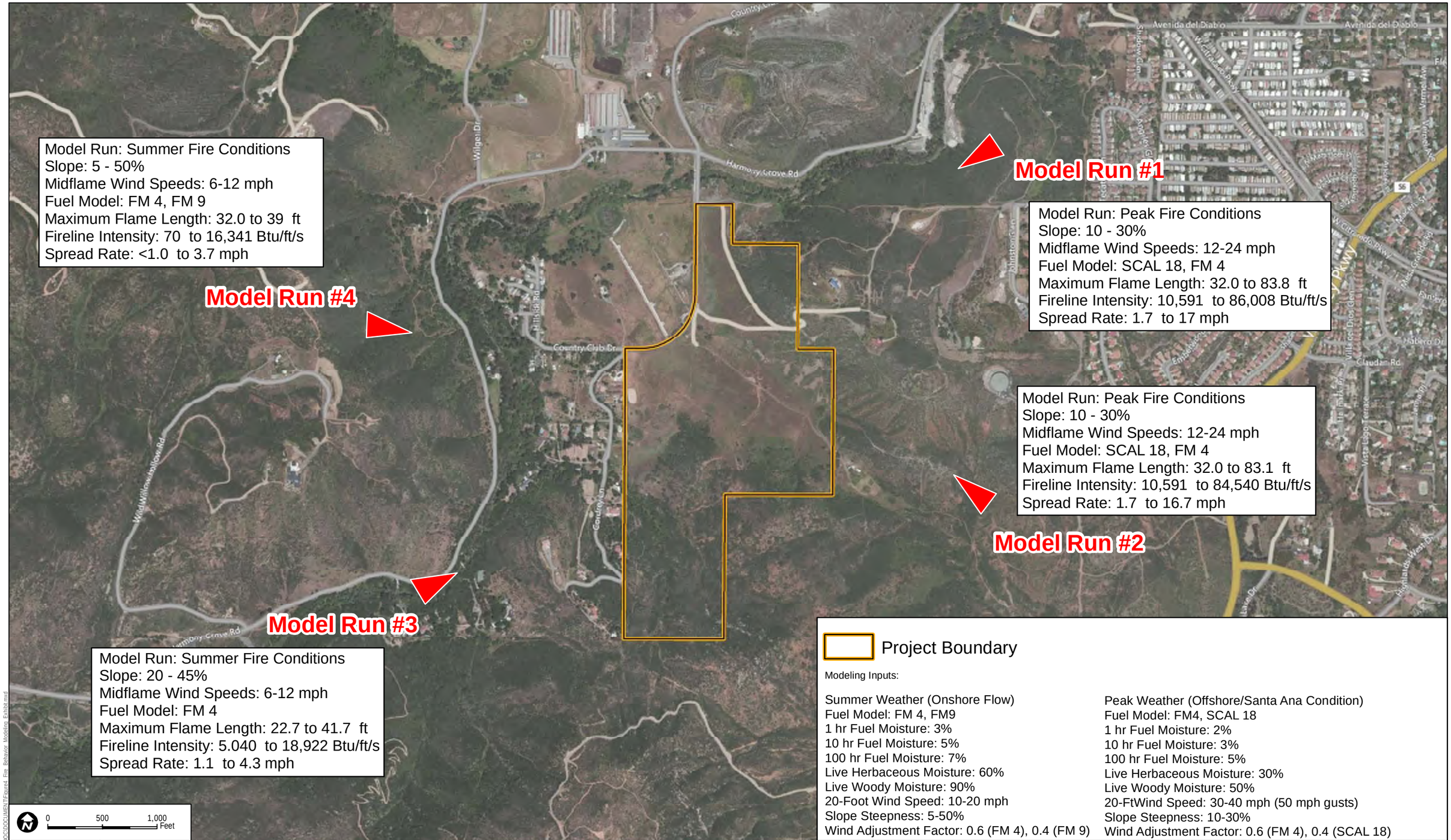

Project Boundary

Modeling Inputs:

Summer Weather (Onshore Flow)	Peak Weather (Offshore/Santa Ana Condition)
Fuel Model: FM 4, FM9	Fuel Model: FM4, SCAL 18
1 hr Fuel Moisture: 3%	1 hr Fuel Moisture: 2%
10 hr Fuel Moisture: 5%	10 hr Fuel Moisture: 3%
100 hr Fuel Moisture: 7%	100 hr Fuel Moisture: 5%
Live Herbaceous Moisture: 60%	Live Herbaceous Moisture: 30%
Live Woody Moisture: 90%	Live Woody Moisture: 50%
20-Foot Wind Speed: 10-20 mph	20-FtWind Speed: 30-40 mph (50 mph gusts)
Slope Steepness: 5-50%	Slope Steepness: 10-30%
Wind Adjustment Factor: 0.6 (FM 4), 0.4 (FM 9)	Wind Adjustment Factor: 0.6 (FM 4), 0.4 (SCAL 18)

DUDEK

8159

SOURCE: BING 2014

FIGURE 4

Fire Bahavior Modeling Exhibit

HARMONY GROVE VILLAGE SOUTH FIRE PROTECTION PLAN

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The results presented in Table 4 depict values based on inputs to the BehavePlus software and are not intended to capture changing fire behavior as it moves across a landscape. Changes in slope, weather, or pockets of different fuel types are not accounted for in this analysis. For planning purposes, the averaged worst-case fire behavior is the most useful information for conservative fuel modification design. Model results should be used as a basis for planning only, as actual fire behavior for a given location will be affected by many factors, including unique weather patterns, small-scale topographic variations, or changing vegetation patterns.

Based on the results of fire behavior modeling, a typical fire in the Project vicinity will be a sage scrub-chaparral fueled fire that moves quickly, burning with moderate to high intensity. The fire is anticipated to be a wind-driven fire from the east or north during the fall. Flame lengths in the fuels could reach 84 feet with spread rates reaching approximately 17 mph during an extreme weather event at the worst-case condition area modeled. Note that this result does not indicate that a wildfire in the area would produce an average of 84 feet flame lengths. Rather, the worst case weather conditions could produce flame lengths of 84 feet at the worst-case modeling location. A typical cause may be related to structure fires in the neighborhoods to the north and east or roadways (tossed cigarette, car fire, or electrical powerline arching).

4.2 On-Site Fire Risk Assessment

Given the climatic, vegetative, WUI, and topographic characteristics and fire history of the area, the project site, once developed, is determined to be subject to occasional off-site wildfires. Potential for off-site wildfire encroaching on, or showering embers on the site is considered moderate to high, but risk of ignition from such encroachments or ember showers is considered low based on the type of construction and fire protection features that will be provided for the structures.

Wildland fire from the east, south, or southwest is possible given the existence of open space reserve lands and ignition sources. The most significant wildfire threat currently is considered to be during Santa Ana conditions with wind-driven wildfire from the northeast/east. However, the Santa Ana threat is considered minimal post-development because there is a lack of wildland fuels to the northeast/east, which is currently being developed for the Harmony Grove Village project. The developed areas of the City of Escondido are located to the east. The most significant threat for this project would be a fire started west or southwest of the site in heavy native vegetation. This type of fire would also have the potential to produce embers and is subject to unstable wind patterns, resulting in eddies and wind/terrain assisted fire runs up side canyons and "chimneys[1]."

[1] Steep valleys, chutes, drainages, and similar terrain are sometimes referred to as chimneys.

The following description summarizes details regarding the site's fire environment and general risk from wildland fire.

- This property is within an area subject to occasional weather extremes that may facilitate wildfire ignition and spread;
- Terrain to the south and west of the project may facilitate the spread of fire due to steep, vegetated slopes.
- The predominant fuel type surrounding the project site is southern mixed chaparral. Fuel loading will be different for north vs. south facing slopes. The fuel load for a southern aspect at a "climax" condition (at community maturity) is considered lighter than on north-facing adjacent slopes based on the southern exposure, which results in hotter and drier conditions and less vegetation growth. Southern facing slopes also become more prone to ignition due to the same factors;
- Santa Ana winds coinciding with the late fall vegetation drying have resulted in some of the largest and most severe wildland fires (e.g., 2007 Witch Fire) in San Diego County and California. Fire history indicates wildfire has occurred on and in the vicinity of the project several times, as described in section 1.1.3.5.

5 ANALYSIS OF PROJECT EFFECTS

5.1 Adequate Emergency Services

5.1.1 Emergency Response

The San Diego County Fire Authority (SDCFA) is currently responsible for providing emergency services to the project through the Elfin Forest/Harmony Grove Volunteer Fire Department. The Rancho Santa Fe Fire Protection District (RSFFPD) has submitted an application to the Local Area Formation Committee (LAFCO) and it has been approved, expanding the RSFFPD to cover the project area. The project's new station will be staffed by career personnel provided by the RSFFPD from a temporary station until the new permanent station is constructed Emergency ambulance service for CSA 17 is outsourced to a private vendor. The approved new Harmony Grove Village Station is less than 1.3 miles to every structure proposed on the HGVS site and the engine can respond within three minutes travel time, which is within the County's General Plan response travel time standard of 5 minutes. Further, the requirements described in this FPP are intended to aid firefighting personnel and minimize the demand placed on the existing emergency service system. Appendix F provides the Project Facility Availability Form for Fire.

Generally, in San Diego County each agency is responsible for structural fire protection and CAL FIRE typically provides wildland fire protection within their area of responsibility. However, mutual aid agreements enable non-lead fire agencies to respond to fire emergencies outside their district boundaries. In the Project area, fire agencies cooperate on a statewide master mutual aid agreement for wildland fires and there are mutual aid agreements in place with neighboring fire agencies (north zone agencies and San Diego City) and typically include interdependencies that exist among the region's fire protection agencies for structural and medical responses, but are primarily associated with the peripheral "edges" of each agency's boundary. These agreements are voluntary, as no local governmental agency can exert authority over another.

Table 6 presents a summary of the location, equipment, staffing levels, maximum travel distance, and estimated travel time for the nearby stations that would respond to a fire or medical emergency at the HGVS project. Travel distances are derived from SANGIS Geographic Information System (GIS) road data while travel times are calculated using nationally recognized National Fire Protection Association (NFPA) 1710 and Insurance Services Office (ISO) Public Protection Classification Program's Response Time Standard.

Table 6
Summary of HGVS Responding Fire Stations

Station	Location	Equipment	Staffing	Maximum Travel Distance*	Travel Time**
Escondido FD Station 1	310 North Quince Escondido, California 92029	Paramedic Engine Truck Company Brush Engine Ambulance	27	4.24	7 min 52 sec
Escondido FD Station 6	1735 Del Dios Hwy Escondido, California 92029	Type 1 Engine Brush Engine Ambulance	15	2.76 miles	5 min 21 sec
Elfin Forest/Harmony Grove	20223 Elfin Forest Rd. Elfin Forest, California 92029	2- Type 1 Engines 2-Brush Engines BLS Ambulance	9	4.97 miles	9 min 6 sec
New Harmony Grove Station	Country Club Dr. Escondido, California 92029	TBD	TBD	1.28 miles.	2 min 50 sec

* Distance measured to most remote portion of project site.

** Assumes travel to the primary project's furthest structure in the southeast , and application of the ISO formula, T=0.65+1.7D (T = time and D = distance). The ISO response travel time formula discounts speed for intersections, vehicle deceleration and acceleration, and does not include turnout time.

The San Diego County General Plan utilizes a 5 minute response time goal for urban areas and up to a 20 minute or more response time for rural areas. The 5 minutes is for travel time and is based on the time typically involved in a room fire reaching the point of "flashover" where control is very difficult and the critical time following a heart attack or stroke for medical intervention. From a fire perspective, the ignition resistant features and interior sprinklers provided the project's residences will effectively minimize fires and extend the occurrence of flashover. Sprinklers have proven very effective at limiting interior fires to the room of origin, and by doing so, extending the time needed for firefighter intervention. The project is well within these critical response times. Travel time to the HGVS site for the first responding engine from the new station to the most remote area of the project is within 3 minutes. Secondary response would arrive within 5 to 5.5 minutes from Escondido Station 6.

5.1.1.1 Emergency Service Level and Capacity

Using San Diego County fire agencies' calculated 82 annual calls per 1,000 population, the project's estimated 1,410 residents (calculated based on 3.12 persons per dwelling; SANDAG 2013), would generate up to 115 calls per year (0.3 calls per day), most of which would be expected to be medical-related calls, consistent with typical emergency call statistics. These estimates are likely overly conservative due to the per capita call factors, which are based on an average of all demographics and sociological populations, including dense, urban areas which, on average, result in higher call volumes. A development like Harmony Grove Village South

would typically include a demographic that results in fewer calls, per capita, resulting in an overly conservative estimate. Populations associated with Harmony Grove Village and other surrounding neighborhoods would be expected to generate similar per capita call volumes. The station would not be considered a busy station until it averaged a call load of up to 7 to 10 calls per day. The project's contribution of 0.3 calls per day is considered insignificant.

5.2 Buildings, Infrastructure and Defensible Space

The County Consolidated Fire Code and Building Code, in addition to RSFFPD Ordinances govern the building, infrastructure, and defensible space requirements detailed in this FPP. The project will meet or exceed applicable codes or will provide alternative materials and/or methods acceptable to the fire authority having jurisdiction (dead end road length and minimal area of reduced top of slope setback for seven lots). The following summaries highlight important fire protection features.

Note: all underground utilities, hydrants, water mains, curbs, gutters, and sidewalks will be installed and the drive surface shall be approved prior to combustibles being brought on site. This may be accomplished in a phased manner corresponding to the construction phasing.

Note: Sec. 505.5 of the San Diego CCFC, Response map updates requires any new development which necessitates updating emergency response maps due to new structures, hydrants, roadways or similar features shall be required to provide map updates in a format compatible with current department mapping services and shall be charged a reasonable fee for updating all response maps. At a minimum, the map updates shall be provided in PDF or a CAD format approved by the FAHJ.

5.2.1 Fire Access

5.2.1.1 Primary

The primary project access for HGVS will be via a widened Country Club Drive that provides three travel lanes. This includes a three lane wide bridge constructed over Escondido Creek that also includes separated horse and pedestrian pathways.

5.2.1.2 Secondary/Emergency

Sec. 503.1.2 of the 2014 Consolidated County Fire Code provides the fire code official with the authority to require more than one fire apparatus access road based on the potential for impairment of a single road by vehicle congestion, condition of terrain, climatic conditions or other factors that could limit access. However, secondary access is not feasible at this site.

The feasibility of secondary access to the north, south, east and west of the project site was analyzed with both County staff and RSFFPD input. However secondary access routes have proven infeasible based upon this evaluation (Appendix C), which included an evaluation of 8 alternatives for secondary access. Alternative 4, which would require improving a privately owned off-site road that connects with Johnston Road and eventually intersects with Citracado Parkway to the east of the HGVS Project, was determined to be the option with the least physical challenges. Many of the other routes include a combination of steep terrain and environmental and biological habitat issues associated with building a road with a creek crossing. Also, the configuration of the emergency secondary access routes would necessitate a modification to the County's roadway standards. However, ultimately, all of the alternatives are infeasible due to the inability to obtain legal access rights from private property owners and the County's preference to avoid enacting eminent domain.

Since secondary access is not feasible given the constraints described above, the potential for impairment of a single road by vehicle congestion, condition of terrain, climatic conditions or other factors was evaluated. The project has developed an alternative approach for secondary access that meets the intent of the code through the implementation of a list of specifically developed measures and features described in the Findings and Mitigation section below.

A request for a modification from Section 503.1.3 requirements with respect to dead end road lengths is being requested for the project because of the topographical, geological, and environmental condition of the site that make compliance with this standard infeasible. Also, provision for a secondary access route is infeasible, as described in the preceding section (As described above, the typical mitigation for exceeding the dead end road length is to provide secondary access). Therefore project is proposing meeting the intent of the Fire Code through a combination of measures that provide a system of fire safety above and beyond the code requirements. One of the most significant measures is construction of roads on site that include an additional travel lane that is within 800 feet of all project structures. The additional travel lane provides additional capacity for evacuation and would occur throughout the project, would include Country Club Road from the southernmost project entrance northward to Harmony Grove Road, including the bridge over Escondido Creek. Once vehicles reach Harmony Grove Road, multiple options are available for egress, including to the north, east, and/or west. This enhanced road capability would be supplemented by a complete system of fire protection that includes a redundant layering of measures designed to keep roadways open and passable, and reduce the possibility that wildfire threatens the project. Details are provided in the following section.

When the strict application of the requirements set forth in Section 503.1.3, is impracticable, as previously discussed, the fire code official may grant a modification from such requirements. A modification may be granted when the modification is in compliance with the intent and purpose

of the code and such modification does not lessen health, life, and fire safety requirements. (SEC. 96.1.104.8. MODIFICATIONS)

The "Findings and Mitigation Conclusion" described below form the basis for the following decisions made by the fire code official: 1) an alternative approach for secondary access has been developed that meets the intent of the code through the implementation of a list of specifically developed measures, and features; and 2) the modification from Consolidated County Fire Code Section 503.1.3 is granted in that the intent and purpose of the fire code will be met by the project and such modification does not lessen health, life, and fire safety requirements.

Findings and Mitigation Conclusion

Summary of Findings and Mitigation for this Project

The Project, through this FPP, will provide alternative fire protection measures that are site specific and are designed specifically to address the modification from the dead end road length requirements being requested and the inability to provide secondary access for this project. These measures are considered to meet the intent of the code, as summarized in the following list:

Measure Exceeding the Code

In summary, the project is providing code-exceeding measures in various aspects of fire protection and safety that, combined, result in a highly defensible community, offers a means of equivalent egress, as well as contingency planning if evacuation from the site is considered unsafe. The following section provides details for each of the 25 measures that have been developed for this project. Among the most notable of these measures are:

1. A 3rd travel lane will be provided for the entirety of Country Club Drive from its intersection with Harmony Grove Road to the southernmost project entrance and will extend within the Project so that no structure exceeds 800 feet from that extra lane as an equivalent form of egress.
2. By providing over 7 times the number of parking spaces than what is required by SD County's Zoning Code, and implement the Parking Management Plan, the project will eliminate the potential for roadway obstructions.
3. The project is provided additional Fuel Modification by including: 1) site-wide landscaping (excludes any native fuel pockets within the community) and 2) 110 feet to nearly 130 feet of FMZ on the east side, and from 125 feet to nearly 200 feet of FMZ in the southwestern fuels, where the highest flame lengths were modeled.

4. The areas within the FMZ will be considered limited building zones and will require construction to Chapter 7A of the California building code (ignition resistant construction) for any sheds, gazebos, play equipment, or other structures.
5. The project's structures will be required to utilize code-exceeding ember resistant vents vs the .25 inch mesh that would typically be required as embers are considered the primary wildfire threat to this Project.

These and the other measures are discussed in detail in the following sections.

Access and Parking

Country Club Drive Designed To Include Three, 12-Foot Travel Lanes. Country Club Drive would be widened from its intersection with Harmony Grove Road to the southernmost HGVS project entrance to three 12 foot wide travel lanes (Appendix G) which would provide additional capacity for evacuation. The three access roads into the project from Country Club Drive provide the ability to move vehicles out while responding emergency personnel are inbound. In an emergency, two lanes can be designated for egress while one lane would remain available to responding emergency vehicles. The project's traffic engineer states that each lane can effectively handle 1,900 vehicles per hour. There are roughly 75 existing residential units that rely on Country Club Drive as their only means of ingress/egress. With the maximum unit site plan for HGVS, an additional 453 residences would be added. If a conservative estimate of three cars per household is used (the California average is roughly 2.7 vehicles – U.S. Census Bureau 2016), there would be a total of approximately 1,584 vehicles seeking egress, assuming worst case. The actual number of vehicles would likely be much lower than this. For example, if a fire occurred during the daylight hours, many of the vehicles would already be off-site. If a fire occurred at night, families are likely to evacuate in one or two vehicles. Conservatively assuming three vehicles per household are evacuating, , with one lane, all existing and proposed residences could evacuate within one hour and still be approximately 316 vehicles below the capacity. The extra evacuation lane essentially doubles the capacity and provides a significant buffer of 2,216 vehicles per hour over what would otherwise be necessary.

In terms of evaluating how the additional egress lane assists in the movement of people during an emergency, the following analysis provides perspective. It is not uncommon for it to require up to 90 minutes elapsed time from the time the decision is made to evacuate until all evacuees have left their occupancy of origin. Included in this time is dispatch notification to activate Reverse 911, police respond to the area, Reverse 911 calls are completed, and residents gather belongings and leave in their vehicles. If only 1 lane was available for egress at HGVS, it would be anticipated that the evacuation protocol (decision to evacuate, notification to initiate Reverse

911, police respond, and completion of Reverse 911) would take roughly 45 minutes and moving the worst case 1,828 vehicles out of the area would require just under one hour, for a total time of 1'45". This time can be reduced significantly with a second lane, as proposed for this project. The evacuation protocol time remains constant at 45 minutes, but the movement of 1,828 vehicles on two lanes cuts the nearly 1 hour to 30 minutes, for a savings of roughly 30 minutes for a complete evacuation when compared to the one lane scenario.

- **Extension of Three Lane Road into Project.** The three lane road will extend into the project such that no structure is more than 800 feet from the additional lane (Appendix G). This measure provides for wide roadways and is intended to satisfy the fire code requirement of 800 feet maximum dead end road length.
- **HGVS Exceeds Fire Code Requirements: No Gates or Speed Bumps.** No gates or speed bumps or humps would be allowed in this project. This would allow traffic flow (ingress and/or egress) to move more rapidly in the case of emergency.

  2014 Consolidated Fire Code Section 503.6 Security Gates – Exceeds code requirements by not allowing gates.
- **HGVS Parking Management Plan**. The project has been planned to far exceed the available resident and guest parking standards (Appendix H). The project will include two parking spaces for each residential unit. In addition, the project would be required under the SD County's Zoning Code requirements for parking to include 52 parking spaces for guests. However, the project far exceeds the County's parking requirements by providing 434 guest parking spaces, 382 spaces over the required level. The parking spaces conform to the County's Zoning Code requirements with respect to proximity to residences. In addition, a parking management plan will be prepared that requires the project to designate the club house parking area as the valet/shuttle staging area for all homeowners events exceeding 10 guests. Homeowners will need to obtain a parking permit to utilize any of the guest parking overnight. "No Parking" signs will be installed on designated streets within the project. Lastly, a contract with a towing company will be in place so that any vehicle that is illegally parked will be towed within a short timeframe. These efforts are designed to maintain the provided roads as unobstructed travel lanes so that emergency response vehicles are not hindered during responses.

Fuel Modification and Landscape

- **HGVS Exceeds Fuel Modification Zone Standards.** The structures will be a minimum of 100 feet from wildland fuels. Fuel Modification Zone setbacks exceed the County and RSFFPD standard 100 feet that is typically 50 feet irrigated and 50 feet thinned zones.

HGVS provides 75 feet of irrigated Zone 1 and a minimum of 25 feet of thinned Zone 2 (Appendix G). In some locations, particularly the southwestern and eastern sides of the project, the setbacks will vary between 110 feet and nearly 200 feet wide to focus FMZs where fire behavior is anticipated to be the most aggressive.

The entire project will include irrigated, Zone 1 Fuel Modification landscaping with no extension or intermingling of naturalized vegetation/fuels within the community.

- **HGVS Formal Landscape Plan – Fire Authority Review and Annual Inspections.** A formal landscaping plan would be required for the project. Landscaping would be inspected annually and maintained on an ongoing basis. Plan and landscape review would be by Rancho Santa Fe Fire Protection District's Fire Prevention Specialist/Urban Forester. This would assure that the use of highly flammable species is prohibited and that appropriate plant densities would be maintained. This would also reduce the impact of landscaping hanging into the roadways by reviewing size and location of trees and maintaining 13-foot, 6-inch vertical clearance for fire apparatus. This will also eliminate the possibility that the project's landscape, over time, loses its functionality for reducing and minimizing fire intensity and providing defensible space throughout the project.

  a. 2014 Consolidated Fire Code Section 4907.4, Landscape Plans – Rancho Santa Fe has staff to enforce this section of the Fire Code. More restrictive than the current code requirements.

  b. Annual weed abatement notices will be mailed to all property owners in the Fire District

- **Restricted Landscaping Adjacent Structures.** An important component of the landscape plan that is not currently required by the County Codes is in the area adjacent to stucco building structures' foundations. A 1 to 3 foot wide landscape free area would be provided to prevent flame impingement under the stucco along the weep screed and help prevent ember penetration into the structure stucco walls.

- **HGVS Trash Enclosure Exceed Building Code.** All trash enclosures would be located at least 10 feet from any structures.

  c. Trash enclosures are not addressed in the Building Code. Exceeds current code requirements.

Fire Flow – Water Availability

- **Fire Flow Exceeds County Requirement.** The Rincon Water District will provide water service for HGVS and requires that new developments must design the water system to deliver two simultaneous 2,500 gpm fire demands in the area of the project. Thus, the

water system will be designed to deliver 5,000 gpm during fire demands. The balance of the system's pump stations include back-up power and it is a gravity fed system with no lift stations.

2014 San Diego County Fire Code, Section 507.3 Fire Flow – Exceed Code by designing to 5,000 gpm.

- **HGVS Exceeds Fire Hydrant Code Requirement.** Additional fire hydrants would be placed every 300 feet along project streets. Fire Code requirement is 350 feet to the structure. The additional fire hydrants assist fire operations by reducing operational time to extinguish any fires.

  d. 2014 Consolidated Fire Code Section 507.5.1.1.1 Hydrant spacing - Exceeds Code Requirements of 350 feet.

Building Ignition Resistance

- **HGVS Exceeds Chapter 7A (California Building Code) Ignition-Resistant Building Standards.** The project will be subject to Chapter 7A ignition resistant building standards and will exceed those requirements in key areas:

  a. All ventilation for the structures for the development would require ember-resistant vents in addition to one-eighth screening. This exceeds current Building Code requirements.

     i. Vents for all structures will be ember resistant (Brandguard or O'Hagin)

     ii. Dryer vents will be ember resistant

  b. The fuel modification zones, including rear yard areas, will be considered limited building zones, which is not required by the code. This designation requires all structures, including sheds, gazebos, trellises, play equipment, and others to be constructed of ignition resistant materials per Chapter 7A of the California Building Code.

Emergency and Evacuation Planning

- **HGVS All Risk Emergency Preparedness Plan.** An All Risk Disaster and Emergency Preparedness Working Guide based on the "Ready, Set, Go"! model will be developed by the HOA for the project covering the following subjects:

  a. Preparing your home – landscaping and home.

  b. Preparing your communications – 911, contact information, telephone usage, email, radio stations, and useful links using the internet.

c. Registering home and cell phones with Reverse 911

d. Preparing yourself and family – emergency routes out.

e. Preparing for imminent evacuation.

f. Preparing your pets and animals.

g. Maps showing exit routes.

h. Main evacuation routes and public safe zones.

- **Community Evacuation Planning Coordination with Office of Emergency Services and Law Enforcement Agencies**. The project will work with evacuation coordinators at the San Diego County OES and San Diego Sheriff's offices. A key to any evacuation of a large number of people is controlling the intersections downstream of the evacuating population. To that end, evacuation routes available to the HGVS project will be identified and prioritized and key intersections mapped and shared with OES and the Sheriff's office. Integration of this information into pre-planned evacuation scenarios will assist these agencies in mobilizing the necessary number of officers to control these key intersections for movement of HGVS residents during an emergency situation.

Additional Provided Measures and Project Features That Reduce Risk and Are Integral Components of the Fire Protection System

Access and Roads

- **Availability of Alternative Evacuation Route.** Currently 3 to 4 off-site residences have access rights across the HGVS site (Appendix G) that allows these residences to connect to Country Club Drive. The current road does not meet the fire code, varying in width, surface, and grade. This road is accessible by typical passenger vehicles and connects with Johnston Road to the east, but includes a gate at the connection with Johnston Road. Access for these residences will continue to be provided through the HGVS site after development, but via an improved code conforming roadway. However, HGVS does not have reciprocal access rights through these adjacent properties that would allow HGVS access from the project site to Johnston Road to the east. Therefore, HGVS cannot propose using this road to provide secondary access from the project site to Johnston Road. But the roadway would be available for use to connect to Johnson Road (a public roadway to the east) in an emergency situation should Country Club Drive not be available.
- **HGVS New Bridge/Crossing.** The existing condition for the estimated 75 residential units that currently rely on Country Club Drive as their only ingress/egress will be improved from a fire safety perspective. The improvements to the existing Arizona

Crossing at Escondido Creek will provide year round access where historically, the roadway can be flooded. Also, the project provides a potential temporary refuge if early evacuation is not possible. The new bridge will include the "three-lane capacity," along with barrier separated pedestrian and equine pathways, and from this intersection, provides significant multiple evacuation routes (Appendix G).

- **HGVS Opticom Signaled Intersection.** Harmony Grove Road and Country Club Drive is a signaled intersection with Opticom traffic control system, which aids response to HGVS by enabling responding fire engines to control the signal for their continuation through the intersection or control the signal during an evacuation event.
- **HGVS Provides Three Separate Egress Points.** The project provides three separate access ways off of Country Club Drive (Appendix G). The first occurs as a paved service road 450 feet south of Harmony Grove Road adjacent to the HGVS waste water land use area. The second is an access into the community approximately 800 feet south of the first access. The third is approximately 400 feet south of the second. These three access ways are part of a looped interior road system so if one or both of the southern roads are blocked, the northern roadway is still accessible by all residents. Additionally, from an operational perspective, the three ingress/egress routes would enable residents to evacuate without compromising the ability of emergency responders to access the community. These three ingress/egress points are in addition to the alternative evacuation route to the east described in item 1 above.
- **HGVS Provides Signage/Way Finding Plan.** The project will provide a lighted directory at each project entrance to assist with navigation through the community. In addition, street signs will be customized for this project and will meet or exceed lettering size. The goal is to provide clear, easy to follow signage to aid emergency response.
- **HGVS Road Maintenance Funding Entity Defined.** A funding entity will be established to ensure that the private roads are maintained and available to emergency responders.

Emergency Planning

- **HGVS Shelter in Place Philosophy (Not Status).** The project will incorporate the same fire protection philosophies as Rancho Santa Fe's shelter in place communities, but will not seek shelter in place status. HGVS, like most new communities in San Diego County, will offer the last resort option of temporarily seeking refuge on site if early, safe evacuation is not possible
- **Continuity with Existing Urban Areas.** HGVS is an extension of HGV, located immediately contiguous (west and north) of HGVS. HGV is currently under construction

and will convert a large portion of the valley (project area is 500 acres and 742 homes) to low flammability, urban landscapes which will form a fire break for HGVS as well as providing multiple fire safe evacuation routes and potential temporary refuge areas for HGVS residents.

- **HGVS Community Building: Temporary Refuge/Staging Area**. A community building/club house will be provided that is roughly 5,000 square feet in size (Appendix G). Although not planned as an evacuation center, the building would be available for temporary refuge in the event that wildfire prevented an early evacuation from the site for a portion of the residents or fire agencies needed a staging location. A 5,000 square foot building could temporarily refuge up to 330 people for a short duration. The building would be provided:
    - Several large-panel television monitors discreetly located so those that are interested may track newscasts during an emergency event
    - Large computer monitors and capable computers for tracking fire incident status
    - Several computer terminals available for communicating via e-mail
    - Back-up power – battery banks that are "float" maintained and/or supported by solar panels
    - Second utility source or U.L.- listed diesel generator
    - Emergency preparedness kits to make brief stay as comfortable as possible

Fire Agency Response and Resources

- **HGVS Annual Fire Operation Contribution.** The project will contribute fair-share funding annually toward fire operations through participation in the RSFFPD's fee schedule. Additional one time funds would be generated in the form of Fire Fees and/or a developer agreement and would provide funding toward fire operations and safety.
- **HGVS Automatic- and Mutual-Aid Agreements.** Automatic and mutual aid agreements with neighboring fire agencies would enable truck company response to the site's 3 and 4 story structures, if needed. Escondido's truck company is a calculated 7 minutes 52 seconds from the most remote portion of the project.
- **HGV Fire Station Fast Response Travel Time to HGVS.** The planned fire station 1.3 miles to the north of the HGVS can provide response to all HGVS lots (including the most distant) within 2 minutes and 50 seconds. This is well below the General Plan's 5 minute travel time standard.

5.2.1.3 Entrances

Gates are not anticipated at the project's entrances. If gates are proposed elsewhere, all access gates will comply with CFC Section 503.6. Gates on private roads and driveways will comply with County and RSFFPD standards for electric gates including an emergency key-operated switch overriding all command functions and opening the gate. Gate setbacks from roadway and other code requirements will be required.

5.2.1.4 Dead Ends

Roadway cul-de-sacs will comply with the County's and RSFFPD's minimum 36-foot radius (72-foot diameter) cul-de-sac bulb standard. Where parking is provided within cul-de-sacs, the additional space is provided outside the 72-foot diameter bulb.

5.2.1.5 Width and Turning Radius

All proposed private streets will be built in compliance with, and in most cases, exceed the Fire Code road requirements, including a minimum unobstructed travel width of 24 feet. Where vehicles are allowed to park on one side of the street, the road width is 30 feet. Head-in parking is planned for some project roadways (Private Drives A, I, and J), and include an additional 18 feet of paved area outside the 12 foot travel lanes. Three 12 foot travel lanes are provided along Country Club Drive and Private Drive A to the point of intersection with Private Drives D and E. "No Parking" signs will be installed on one side of the street, once the asphalt is installed and prior to the beginning of construction of any structure. Turning radius for fire apparatus access roads will be 28 feet as measured on the inside edge of the improved width.

Fire Apparatus Access roads at the 4-story structures will include a widened area of 26 feet to allow for truck access and operations.

5.2.1.6 Grade

The maximum grade for new roads and driveways on HGVS will be in compliance with the Fire Code, not exceeding 20%. Should any sections of road or driveway exceed 15%, they will be constructed with Portland Concrete surface and provided heavy broom finish or equivalent surfacing and subject to Fire Department approval.

5.2.1.7 Surface

All project fire access and vehicle roadways will be in compliance with the Fire Code, including us of asphaltic concrete, except as noted above for grades exceeding 15%, and designed and

maintained to support the imposed loads of fire apparatus (not less than 75,000 pounds) that may respond, including Type I engines, Type III engines, ladder trucks, and ambulances. Access roads shall be completed and paved prior to issuance of building permits and prior to combustible construction occurring.

5.2.1.8 Vertical Clearance

Minimum unobstructed vertical clearance of 13 feet 6 inches will be maintained for the entire required width for all streets, including driveways that require emergency vehicle access.

5.2.1.9 Identification

Identification of roads and structures will comply with County and RSFFPD Fire Code, Section 505.1, as follows:

- Each of the project's three entrances will be provided a map directory and internal signage will be customized to provide clear, intuitive navigation within the Project.
- All structures shall have a permanently posted address, which shall be legible from the street. If it is not legible from the street, an address shall also be posted at street entrance to driveway and shall be visible from both directions of travel.
- Numbers shall be 4 inches high with 0.5-inch stroke.
- Numbers will contrast with background.

5.2.2 Water

Water service for the Harmony Grove Village South Project will be provided by Rincon del Diablo MWD and exceeds County requirements (Section 507.2/507.3). The water system will be public and metered. The water distribution system is designed to yield a minimum residual pressure of 40 pounds per square inch (psi) during peak hour demands and a minimum residual pressure of 20 psi during maximum day demands plus fire flow. The minimum fire flow requirements for the project will be dual 2,500 gpm at 20 psi, compliant with the requirements of the County and Rincon Water District, which requires dual 2,500 gpm capacity, exceeding the code requirement by 100%. Appendix D includes the Project's Facility Availability Letter for Water.

5.2.2.1 Hydrants

Hydrants shall be located along fire access roadways as determined by the SDCFA/RSFFPD Fire Marshal to meet operational needs, at intersections, at the beginning radius of cul-de-sacs, and

every 300 feet (on-center) of fire access roadways, exceeding the RSFFPD Code. Hydrants will be consistent with County/RSFFPD Design Standards (507.5.1.1.3).

A three-foot clear space (free of ornamental landscaping and retaining walls) shall be maintained around the circumference of all fire hydrants. Hydrants will be in place and serviceable prior to delivery of combustible materials to the site.

5.2.2.2 Fire Sprinklers

All habitable structures and garages will be provided interior residential fire sprinklers per County and RSFFPD Fire Code requirements. Automatic, internal fire sprinklers shall be in accordance with NFPA 13-D Automatic Fire Sprinkler System requirements. Multi-family units will utilize NFPA 13-R sprinkler systems, to code. The community/recreation building and any other commercial buildings will be equipped with automatic fire sprinkler designed and installed per NFPA 13.

5.2.3 Pre-Construction Requirements

Prior to bringing combustible materials onto the site, utilities shall be in place, fire hydrants operational, an approved all-weather roadway in place, and fuel modification zones established and approved. The phasing of these infrastructural components may coincide with project phasing, to the approval of the FAHJ.

5.3 Ignition Resistant Construction and Fire Protection Systems

All new structures will be constructed to County and RSFFPD Fire Code standards, including any rear-yard sheds, gazebos, play equipment, patios, or other. Each of the proposed buildings will comply with the enhanced ignition-resistant construction standards of the 2013 California Building Code (Chapter 7A). These requirements address roofs, eaves, exterior walls, vents, appendages, windows, and doors and result in hardened structures that have been proven to perform at high levels (resist ignition) during the typically short duration of exposure to burning vegetation from wildfires.

There are two primary concerns for structure ignition: 1) radiant and/or convective heat and 2) burning embers (NFPA 1144 2008, IBHS 2008, and others). Burning embers have been a focus of building code updates for at least the last decade, and new structures in the WUI built to these codes have proven to be very ignition resistant. Likewise, radiant and convective heat impacts on structures have been minimized through the Chapter 7A exterior fire ratings for walls, windows and doors. Additionally, provisions for modified fuel areas separating wildland fuels from structures have reduced the number of fuel-related structure losses. As such, most of the primary

components of the layered fire protection system provided the project are required by County, RSFFPD, and state codes but are worth listing because they have been proven effective for minimizing structural vulnerability to wildfire and, with the inclusion of required interior sprinklers (required in the 2010 Building/Fire Code update), of extinguishing interior fires, should embers succeed in entering a structure. Even though these measures are now required by the latest Building and Fire Codes, at one time, they were used as mitigation measures for buildings in WUI areas, because they were known to reduce structure vulnerability to wildfire. These measures performed so well, they were adopted into the code. The following project features are required for new development in WUI areas and form the basis of the system of protection necessary to minimize structural ignitions as well as providing adequate access by emergency responders:

1. Application of Chapter 7A, ignition resistant building requirements
2. Noncombustible exterior walls covering
3. Multi- pane glazing with a minimum of one tempered pane, fire-resistance rating of not less than 20 minutes when tested according to NFPA 257, or be tested to meet the performance requirements of State Fire Marshal Standard 12-7A-2
4. Ember resistant vents (recommend BrandGuard, O'Hagin or similar ember resistant vents)
5. Automatic, Interior Fire Sprinkler System to code for all habitable dwellings and garages
6. Modern infrastructure, access roads, and water delivery system.

5.4 Defensible Space and Vegetation Management

5.4.1 Fuel Modification

A fuel modification zone (FMZ) is an important component of a fire protection system for the project site. Fuel modification zones are designed to gradually reduce fire intensity and flame lengths from advancing fire by strategically placing thinning zones, restricted vegetation zones, and irrigated zones adjacent to each other on the perimeter of the WUI exposed structures. Because this site will utilize ignition resistant construction building materials, the proposed fuel modification areas are anticipated to provide adequate set back from naturally occurring fuels. The interior of the project will include an irrigated landscape that excludes the intermingling of native fuels. In other words, the entire developed area will be maintained, irrigated landscape that is ignition resistant (Appendix G). The perimeter of the project will include varying FMZ widths. At least 100 feet of fuel modification will be achieved for all lots and will include a minimum of 75 feet of irrigated Zone 1 and a minimum of 25 feet of thinned Zone 2. The adequacy of the provided FMZ widths is based on a variety of analysis criteria including predicted flame length, fire

intensity (BTUs) and duration, site topography, extreme weather, position of structures on pads, position of roadways, adjacent fuels, neighboring communities relative to the proposed project, type of construction, and additional fire protection features proposed.

Based on the predicted fire intensity and duration along with flame lengths for this project site and the provided brush management areas, the highest concern is considered to be from firebrands or embers as a principal ignition factor. To that end, this site, based on its location and ember potential, is required to include the latest ignition and ember resistant construction materials and methods for roof assemblies, walls, vents, windows, and appendages, as mandated by San Diego County Fire and Building Codes (Chapter 7A and 2014 Consolidated Fire Code). Ember resistant vents (BrandGuard, O'Hagin, or similar approved vent) will be utilized in all structures.

The individual lot owners will be subject to strict limitations, prohibiting owners from erecting combustible structures, including fences, trellises, arbors, play equipment, etc. as the most critical area for structure protection (besides ember protection) is the structure itself and the immediate landscaping area.

5.4.1.1 Fuel Modification Zone Requirements

As one layer of the fire protection system alternative measures for mitigating secondary access/long dead end road length constraints, the project will exceed the 2014 CCFC and 2014 CFC Ordinance #10337 that require that fuel modification zones be provided around every building that is designed primarily for human habitation. Decks, sheds, gazebos, freestanding open-sided shade covers and similar accessory structures less than 250 square feet and 30 feet or more from a dwelling, and fences more than 5 feet from a dwelling, are usually not considered structures for the establishment of a fuel modification zone. For this project, the entire FMZ area will be considered limited building zones, restricted to construction meeting the ignition resistant requirements of Chapter 7A of the California Building Code. Typically, Zone 1 is a 50 foot wide irrigated, low fuel zone. Zone 2 is a 50 foot wide thinned zone. Fuel modification zones on the HGVS project site will exceed these standards as follows:

1. The entire internal project area including between residential structures and building clusters shall be cleared of vegetation and re-planted with permanently irrigated fire-resistant plants. This results in the exclusion of native fuels within the development area and minimizes the likelihood of ignitions internal to the project.
2. Perimeter lots will include at least 100 feet of FMZ with an extended Zone 1 (from 50 feet to 75 feet) and a minimum of 25 feet of thinned Zone 2. This width is exceeded in the southwestern and the eastern portions of the project based on site fire risk assessments

and to eliminate pockets of fuel inside the property line (east side). The FMZ is extended to 150 feet wide in the southwestern Project area and nearly the same in the eastern.

3. The County/RSFFPD may provide lists of prohibited and recommended plants. This FPP includes a proposed list of suggested plants for FMZs (Appendix I) and prohibited plants (Appendix J).
4. The fuel modification zone will be located entirely on the HGVS property.
5. To ensure long-term identification and maintenance, permanent markers will be installed to identify the fuel modification zones on the perimeter of the developed areas. Ongoing inspections will be provided by RSFFPD to ensure annual maintenance occurs throughout the project's landscape and fuel modification areas.

Roadway Fuel Modification Zones

Roadway fuel modification is addressed in San Diego County and RSFFPD Fire Codes (Section 4907.2.1 - Fuel Modification of Combustible Vegetation from Sides of Roadways). RSFFPD's Fire Marshal may require a property owner to modify combustible vegetation in the area within 20 feet from each side of the driveway or a public or private road adjacent to their property to establish a fuel modification zone.

Special Fuel Management Issues

Trees may be planted within FMZs as long as they conform to Section 4907.3.1 - Trees of the County and RSFFPD Fire Codes. On the Project site, tree planting in the fuel modification zones and along roadways is acceptable, as long as they meet the following restrictions as described below and in the Vegetation Management Section:

- For streetscape plantings, fire resistive trees can be planted within provided parkways. Care should be given to the type of tree selected, that it will not encroach into the roadway, or produce a closed canopy effect.
- Crowns of trees located within defensible space shall maintain a minimum horizontal clearance of 10 feet for fire resistant trees. Mature trees shall be pruned to remove limbs one-third the height or 6 feet, whichever is less, above the ground surface adjacent to the trees.
- Dead wood and litter shall be regularly removed from trees.
- Ornamental trees shall be limited to groupings of 2–3 trees with canopies for each grouping separated horizontally as described in Table 7 (Table 4907.3.1 from County and RSFFPD Fire Codes).

- Riparian habitat enhancement maintenance/fuel modification will be provided at the Country Club Drive/Harmony Grove Road bridge crossing. This primary access route will be provided ongoing maintenance to the limits of the easement for removal of dead/dying plants, exotic/invasive species, and highly flammable species, as needed to remove fuels that would facilitate fire ignition and spread.

Table 7
Distance Between Tree Canopies by Percent Slope

Percent of Slope	Required Distances Between Edge of Mature Tree Canopies [1]
0–20	10 feet
21–40	20 feet
41+	30 feet

[1] Determined from canopy dimensions as described in Sunset Western Garden Book (Current Edition)

Specific Landscaping Requirements

The following requirements are provided for HOA-maintained fuel modification zones and individual homeowner yards. Each zone would include permanent field markers at the property line to delineate the zones, aiding ongoing maintenance activities that will occur on site. All landscaping shall be maintained by the homeowner and/or HOA and all maintenance requirements will be enforced by the HOA through the project's CCRs.

Plants used in the fuel modification areas or landscapes will include drought-tolerant, fire resistive trees, shrubs, and groundcovers. The plantings will be consistent with RSFFPD's Suggested Plant List for Defensible Space (Appendix I). The intent of the list is to provide examples of plants that are less prone to ignite or spread flames to other vegetation and combustible structures during a wildfire. Additional Plants can be added to the landscape plant material palette with the approval from the RSFFPD at the site design stage.

Landscape plans shall be in accordance with the following criteria:

1. All fire resistive tree species shall be planted and maintained at a minimum of 10 feet from the tree's drip line to any combustible structure. Non-fire resistive trees (including conifers, pepper trees, eucalyptus, cypress, and palms (*Washingtonia* and *Phoenix* species), shall not be allowed on site. A list of acceptable trees can be found in Appendix I.
2. Limit planting of large unbroken masses especially trees and large shrubs. Groups should be 2–3 trees maximum, with mature foliage of any group separated horizontally by at least 10 feet, if planted on less than 20% slope, and 20 feet, if planted on greater than 20% slope. If

shrubs are located underneath a tree's drip line, the lowest branch should be at least three times as high as the understory shrubs or 10 feet, whichever is greater.

3. All tree branches shall be removed within 10 feet of a fireplace chimney or outdoor barbecue.
4. Non-combustible surface (pavement, concrete, decomposed granite, etc.) shall be provided for pathways around structures for fire fighter access to side yards and backyards.
5. Combustible mulches and wood chips must be 12 inches away from any side of a combustible structure with weep screeds.
6. Irrigated wet zone (water conserving irrigation systems with efficient drip emitters and "smart" controllers and use of California Friendly landscape concepts)
7. No tree limb encroachment within 10 feet of a structure or chimney, including outdoor fireplaces.
8. Tree maintenance includes limbing-up (canopy raising) 6 feet or one-third the height of the tree, whichever is greater, and removal of dead foliage and branches.

Pre-Construction Requirements

- Perimeter fuel modification areas must be implemented prior to commencement of construction utilizing combustible materials.
- Existing flammable vegetation shall be reduced by 60% on vacant lots upon commencement of construction.
- Dead fuel, ladder fuel (fuel which can spread fire from ground to trees), and downed fuel shall be removed and trees/shrubs shall be properly limbed, pruned, and spaced per this plan.
- The remainder of the FMZs required for the particular lot shall be installed and maintained prior to combustible materials being brought onto any lot under construction.

Environmentally Sensitive Areas/Riparian Areas

Fuel modification in environmentally sensitive areas, if any are encountered, will require approval from the County and the appropriate resource agencies (California Department of Fish and Game and U.S. Fish and Wildlife Service) prior to any vegetation management activities occurring within those areas.

Prohibited Plants

Certain plants are considered to be undesirable in the landscape due to characteristics that make them highly flammable. These characteristics can be physical or chemical.

The plants included in the Prohibited Plant List (Appendix J) are unacceptable from a fire safety standpoint, and shall not be planted on the site unless otherwise approved by the RSFFPD.

Vegetation Management Compliance Schedule

All fuel modification area vegetation management shall be completed annually by June of each year and more often as needed for fire safety, as determined by RSFFPD. The project will be inspected annually by RSFFPD for compliance. The HOA shall be responsible for all vegetation management throughout the common areas of the project site, in compliance with the requirements detailed herein and RSFFPD requirements. The HOA shall be responsible for ensuring long-term funding and ongoing compliance with all provisions of this FPP, including vegetation planting, fuel modification, vegetation management, and maintenance requirements throughout the private portions of the project site. Individual property owners responsibilities will be enforced by the HOA through the CCRs that will incorporate the appropriate provisions described herein.

5.4.2 Top of Slope Setback

Structure setbacks are required from the top of slope according to Section 4907.1.3 of the RSFFPD Fire Code (Ordinance 2014-01A). Single-story structures require a setback of a minimum of 15 feet horizontally from top of slope to the farthest projection from a roof. Single-story structures are defined as being no taller than 12 feet above grade. Two-story structures require a setback of a minimum of 30 feet horizontally from top of slope to the farthest projection for a roof. Structures greater than two stories may require a greater setback when the slope is greater than 2 to 1.

This condition applies only to the structures located in the southwestern portion of the project (Appendix G). A total of seven lots may not be able to provide a full 30 feet of structure setback and these lots will be mitigated through alternative materials and methods. The intent of the code is to set back structures from vegetative fuel covered slopes to avoid an intersection with flames traveling up the slope. The identified lots where the setbacks cannot be fully provided are adjacent a manufactured slope that will be landscaped and managed and will include code exceeding fuel modification of 125 to nearly 200 feet wide as part of the alternative means of meeting the code. In addition, a non-combustible, six foot tall, heat-deflecting wall (lower 1 to 2

feet block wall and upper 4 to 5 feet dual pane, one pane tempered glazing) will be installed to provide additional deflection for these lots to compensate for the top of slope setbacks.

When buildings are set back from slopes, and a wall is placed at the top of slope, flames spreading up those slopes are deflected vertically and over the structure where cooling occurs, reducing the effects of convective heat on the structure. If a structure cannot be setback adequately, or where the slope is less than 30%, a noncombustible wall can help deflect the flames from the structure (NFPA 2005). The duration of radiant heat impact on the downhill facing side of the house is also reduced. An imaginary line extended along the slope depicts the path of the heat (hot air rises) and flame. The structure set back is important to avoid heat and/or flame intersection with the structure.

Heat-deflecting landscape view walls of masonry construction with fire-rated glazing that are six feet in height (roughly lower two feet masonry construction and upper three feet dual pane, one pane tempered glazing or equivalent and meeting Chapter 7A and/or DSFPD approval) will be incorporated at top of slope/edge of lot for lots where a full 30 feet of structure setback for the second story is not possible. The landscape walls provide a vertical, non-combustible surface in the line of heat, fumes, and flame traveling up the slope. Once these fire byproducts intersect the wall, they are deflected upward or, in the case where lighter fuels are encountered in the 150 to 160 foot wide FMZs, they are quickly consumed, heat and flame are absorbed or deflected by the wall, and the fuels burn peaks out within a short (30 second–2 minute) time frame (Quarles and Beall 2002). Walls like these have proven to deflect heat and airborne embers on numerous wildfires in San Diego, Orange, Los Angeles, Ventura, and Santa Barbara County. Rancho Santa Fe Fire Protection District, Laguna Beach Fire Protection District, Orange County Fire Authority, and others utilize these walls as Alternative methods based on observed performance during wildfires. This has led to these agencies approving use of non-combustible landscape walls as mitigations for reduced fuel modification zones and reduced setbacks at top of slope. These walls and are consistent with NFPA 1144 Standard for Reducing Structure Ignition Hazards from Wildland Fire – 2008 Edition, Section 5.1.3.3 and A.5.1.3.3 and International Urban Wildland Interface Code (ICC 2012). NFPA 1144, A.5.1.3.3 states: “Noncombustible walls and barriers are effective for deflecting radiant heat and windblown embers from structures.” These walls and barriers are usually constructed of noncombustible materials (concrete block, bricks, stone, stucco) or earth with emergency access openings built around a development.

6 CUMULATIVE IMPACT ANALYSIS

Cumulative impacts from multiple projects can cause fire response service decline and must be analyzed for each project. The HGVS and its proposed maximum 453 residential units and approximately 1,400 residents represent minimal anticipated increases in fire and emergency medical response needs. However, when considered cumulatively with other projects planned in the jurisdictional area, the cumulative impact is considered potentially significant.

Despite the generally low increase in the anticipated number of calls per year from the HGVS site, the project contributes to the cumulative impact on fire services, when considered with other anticipated projects within the primary response area. Without additional resources over time, the cumulative impact may result in a situation where the response capabilities erode and service levels decline. The project's contributions to fire resources through development impact fees and ongoing fair share allocations, such as assessments, along with state fire fees, combined with similar contributions from future development in the area are expected to result in funding that can be used for enhancing response capabilities and at least maintaining the current standards for firefighting and emergency response, if not improving them in this area of the County where there is a known gap. The approved fire station that will be built in Harmony Grove Village requires additional funding to cover annual operating costs. The HGVS project will provide fair-share funding through assessments, taxes, etc. which will help to close the financial gap that currently exists. Over the long term, it is anticipated that fire response in the area will be improved from today's status and RSFFPD will be able to perform its mission into the future at levels consistent with the County Consolidated Fire Code/RSFFPD Fire Code and the San Diego County General Plan.

The requirements described in this FPP, including ignition-resistive construction, additional fire protection systems, and fuel modification/vegetation management, are designed to aid firefighting personnel such that HGVS residents and structures are protected and impacts to the fire response system are minimal. Based on the type of wildfire anticipated/modeled for this area and the corresponding fire protection project features, including conformance with building and fire codes, provisions for alternative ingress/egress, ongoing maintenance of roads, infrastructure, vegetation management and defensible space results in a potentially significant, but mitigated cumulative impact.

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7 CONCLUSION

This FPP is being submitted with a specific request for an exception to the code standard for dead-end road requirements.

This FPP supports an application for project entitlement of the HGVS development project. It is submitted in compliance with requirements of the County's (and RSFFPD's) condition for FPP content. The requirements in this document meet or exceed fire safety, building design elements, fuel management/modification, and landscaping recommendations of the applicable codes. Where the project does not strictly comply with the Code, specifically with respect to dead end road length, alternative materials and methods have been proposed that provide functional equivalency as the code intent, as detailed in Section 5.

Fire and Building Codes and other local, county, and state regulations in effect at the time of each building permit application supersede these recommendations unless the FPP recommendation is more restrictive.

The recommendations provided in this FPP have been designed specifically for the proposed construction of structures adjacent the WUI zone at the HGVS project site. The project site's fire protection system includes a redundant layering of protection methods that have been shown through post-fire damage assessments to reduce risk of structural ignition and provide for at least equivalent emergency evacuation capabilities. Modern infrastructure will be provided along with implementation of the latest ignition resistant construction methods and materials. Further, all structures are required to include interior, automatic fire sprinklers consistent with CFC and CBC.

Fuel modification will occur throughout the project site, both internally and on exposed edges of the developed areas. The fuel modification zone will be maintained by the HOA, and inspected at least annually by the RSFFPD. Maintenance includes removing all dead and dying materials and maintaining appropriate horizontal and vertical spacing. In addition, plants that establish or are introduced to the fuel modification zone that are not on the approved plant list will be removed.

Ultimately, it is the intent of this FPP to guide, through code and other project specific requirements, the construction of structures that are defensible from wildfire and, in turn, do not represent significant threat of ignition source for the adjacent native habitat. It must be noted that during extreme fire conditions, there are no guarantees that a given structure will not burn. Precautions and mitigating actions identified in this report are designed to reduce the likelihood that fire would impinge upon the proposed structures. There are no guarantees that fire will not occur in the area or that fire will not damage property or cause harm to persons or their property.

Implementation of the required enhanced construction features provided by the applicable codes and the mitigating secondary access requirements provided in this FPP will accomplish the goal of this FPP to assist firefighters in their efforts to defend these structures, move people to areas away from emergency situations, and reduce the risk associated with this project's WUI location. For maximum benefit, the developer, contractors, engineers, and architects are responsible for proper implementation of the concepts and requirements set forth in this report. Homeowners are responsible to maintain their structures and lots as required by this report and applicable Fire and building Codes.

This FPP recommends that the homeowners or other occupants who may reside within the HGVS neighborhoods adopt a conservative approach to fire safety. This approach must include maintaining the landscape and structural components according to the appropriate standards and embracing a "Ready, Set, Go[2]" stance on evacuation. Accordingly, occupants should evacuate the residence and the area as soon as they receive notice to evacuate, or sooner, if they feel threatened by wildfire or structure fire in a nearby residence. Fire is a dynamic and somewhat unpredictable occurrence and it is important for residents to educate themselves on practices that will improve their home survivability and their personal safety.

[2] International Fire Chiefs Association "Ready, Set, Go" website link: http://wildlandfirersg.org/

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9 LIST OF PREPARERS

Project Manager/Lead Fire Protection Planner:

Michael Huff
Fire Protection Planner; San Diego County California Environmental Quality Act Consultant List
Dudek

FPP Preparation and Fire Behavior Modeling:

Michael Scott
Urban Forester/Fire Protection Planner
Dudek

Scott Eckardt
California Licensed Forester
Dudek

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APPENDIX A

Photograph Log

Photo Log

OCTOBER 10, 2014

Harmony Grove Village South
Photograph Log – for access roadways and proposed property location

Photograph 1. Looking North –Country Club Drive

Photograph 2. Looking South – Country Club Drive

Harmony Grove Village South
Photograph Log – Property Description

Photograph 3. Looking South from County Club Dr. to proposed property location

Photograph 4. Looking Southeast from Country Club Dr. to proposed property location

Harmony Village Grove South
Photograph Log – for access roadways and proposed property location

Photograph 5. Looking North from middle of property, Harmony Grove Village under construction

Photograph 6. Looking North from middle of property

Harmony Grove Village South
Photograph Log

Photograph 7. Looking East from middle of property

Photograph 8. Looking South-east from middle of property.

Harmony Grove Village South
Photograph Log

Photograph 9. Looking South from middle of property

Photograph 10. Looking North-west across property to Cocos Fire

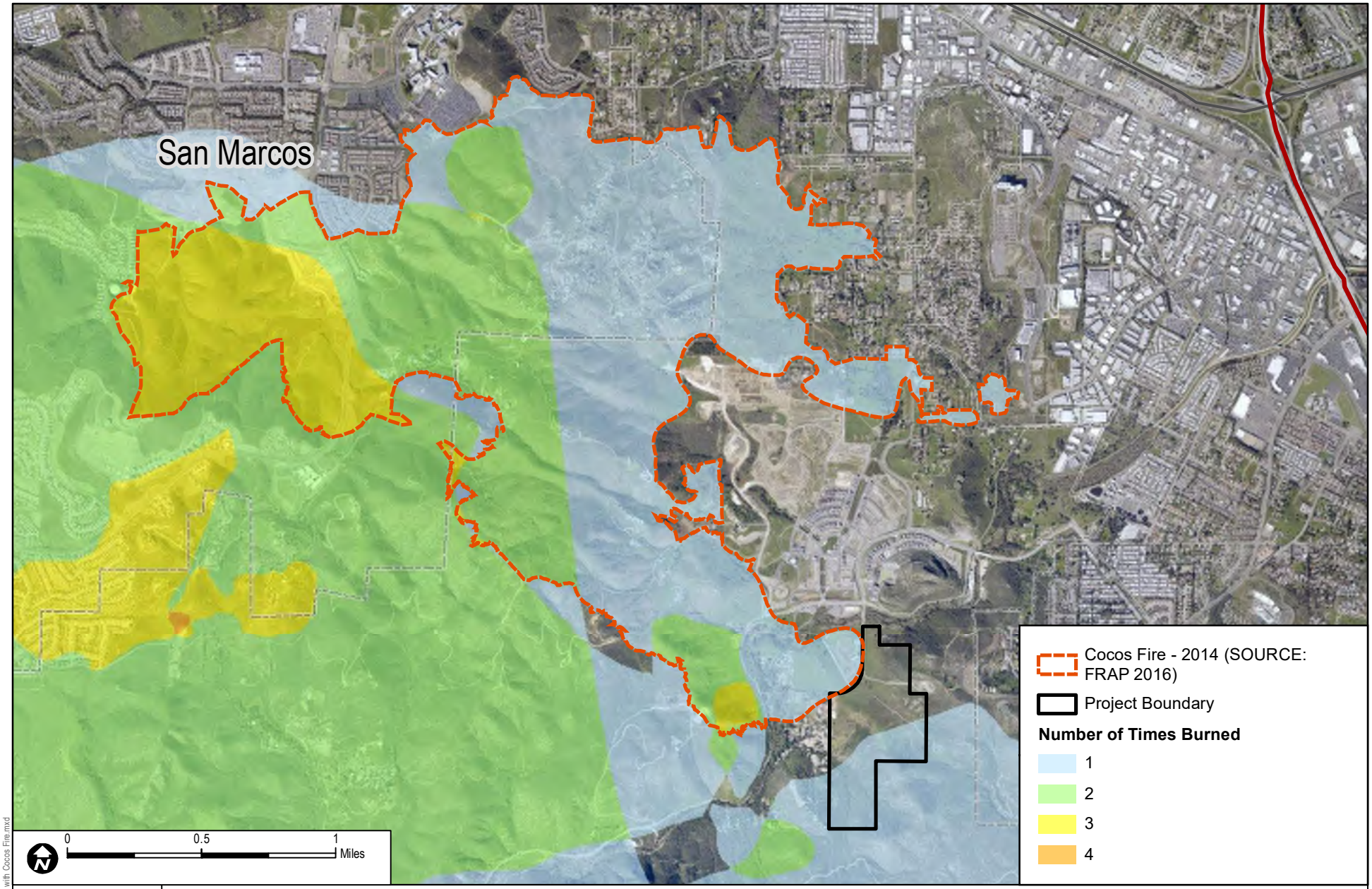
Harmony Grove Village South
Photograph Log

Photograph 11. Looking North-west

Photograph 12. Looking West from property, Homes use Country Club Drive for access / egress

APPENDIX B

Regional Fire History Exhibit



Path: U:\Appedix\B_FireHistory with Cocos Fire.mxd

DUDEK

SOURCE: BING MAPPING SERVICE; CALFIRE 2016

8159

Appendix B

Fire History Map and Cocos Fire Limits

HARMONY GROVE VILLAGE SOUTH FIRE PROTECTION PLAN

APPENDIX C

Secondary Access Feasibility Analysis

Appendix C.

Alternative Secondary Access Analysis

The secondary access alternative analysis presented in the following matrix identifies eight alternative routes that were evaluated for feasibility. Each of the alternatives was found to be infeasible for at least two of the five evaluation criteria, which included presence of: steep topography, wildland fuels. environmental issues, roadway distance to acceptable connections, and private ownership/easements. If any of the evaluation critiera were present, the alternative was given an “X” in that category box. However, the alternatives have not been ranked by level of infeasibility due to the individual, site-specific nature of each alternative and the fact that the presence of one issue for one alternative may make it more infeasible than another option with the presence of multiple issues. For example, Alternative 6 in the matrix indicates two of the evaluation criteria as present and constraining the alternative. It is not correct to assume that since there are only two boxes given an “X”, that it represents the easiest of the alternatives to implement. Despite Alternative 4 including four of five categories given an “X”, it may be considered the least infeasible of the alternatives because there is an existing road that has an easement over the HGVS project for residents living east of the project, and that also connects in a remote location to a public roadway (Johnston Road). The other present constraints may be considered less difficult to resolve (environmental and steep slopes, for example, since there is no creek crossing) for this alternative than for the other alternatives.

HARMONY GROVE VILLAGE SOUTH - FIRE PROTECTION PLAN ACCESS ANALYSIS

HGVS - Access Alternatives Analyzed*	Steep Topography	Wildland fuels	Environmental Issues	Roadway Distance	Ownership / Easements	Comments
1	X		X		X	This is the shortest potential alternative access at 470 feet that extends from the project's northwestern-most cul-de-sac northward to Harmony Grove Road. The route would require crossing privately-owned property, including Escondido Creek and includes a steep slope (approximately 57% max) to make grade at Harmony Grove Road. This would necessitate a bridge. This alternative includes overall average slope of an estimated 3%. This access is also within approximately 250 feet of the primary access road (County Club Drive) which according to County regulators, may not satisfy the intent of the dead end road standard for secondary access. Obtaining necessary approvals and easements from property owners along with environmental issues represent significant challenges for this option.
2	X		X		X	This alternative from the project's northeasterly cul-de-sac would require a 765 feet long road to Harmony Grove Road. This alternative includes steeper slopes including an initial down-slope to Escondido Creek, a creek crossing, and then a steep upslope to Harmony Grove Road. Maximum grade is estimated at 79% with an average of 35%, making this alternative more involved from a grading perspective. Obtaining necessary approvals and easements from property owners along with environmental issues represent significant challenges for this option.
3	X	X	X	X	X	Alternative 3 extends from the project's northern boundary to the east along an existing dirt road with one unimproved, natural land section. This roadway includes an approximately 3,000 feet long stretch, most of which is on steep slopes and within wildland fuels. This alternative would connect to the public, paved Johnston Road at the easterly end. Grade maximum is approximately 38% and averages about 12%. Obtaining easement rights is the largest issue for this alternative and the road would likely require design modifications.
4	X	X	X		X	Alternative 4 traverses an existing easement road that is currently used to provide access for residences located to the east of the HGVS project. The easement road extends 1,700 feet and includes a combination of two paved and one unpaved section. The easement leads to a portion of the roadway that has an IOD that connects the easement roadway to a public roadway. A sharp curve and steep slopes present grading challenges for this alternative, but easement rights and permissions are the primary barrier. This road is currently passable by vehicle, but is gated at two locations. Grade maximum is estimated at 10% and the road averages less than 10%. Easement rights and a road design modification are the largest challenges with this alternative.

5	X		X		X	Alternative 5 would extend existing Hillside Road (which intersects Country Club Drive to the west of the HGVS project) northward past the now vacant Spiritualist Center, across Escondido Creek and to Harmony Grove Road. The distance of this roadway would be 1,700 feet and includes steep areas with maximum estimated 38% grade and averaging 12%. A significant factor inhibiting this option is easement rights, with environmental and grading as nearly equal challenges.
6			X		X	Alternative 6 would extend Country Club Drive west of the project to the west across Escondido Creek, connecting with Harmony Grove Road. This segment would be approximately 650 feet long and include a maximum grade of approximately 27% and average of 10%. However, the creek crossing at this location is very problematic and would require significant engineering. Among the biggest factors making this option infeasible appear to be necessary approvals and easement rights from property owners and environmental challenges.
7	X	X	X	X	X	Alternative 7 would extend approximately 2,200 feet from the HGVS property's eastern boundary through wildland fuels, mid-slope and connect with an existing water tank roadway that eventually connects with Johnston Road. This alternative includes steep slopes (up to an estimated 37%) with an average slope of 13%. The mid-slope location of this alternative through significant wildland fuels along with very steep terrain would make this alternative challenging for wildland fire evacuations. Additionally, obtaining necessary property owner approvals/easements and environmental permitting would be significant barriers.
8	X	X	X	X	X	This alternative includes dual purposing a required trail extending from the HGVS property's southeast corner across County-owned Preserve land to Del Dios Highway. This road/trail would extend approximately 3,700 feet with maximum grades of approximately 27% and an average 9% grade. The slope is all downhill from the HGVS property. This alternative would require the County supporting dual purposing of the trail so that it could be constructed to support imposed loads of emergency vehicles and this alternative poses environmental concerns.

*Refer to the Attached Access Alternative Exhibits for location of each alternative

Steep Topography The access alternative route includes steep terrain that could not be made to accommodate a roadway that is acceptable to San Diego County without a roadway modification.

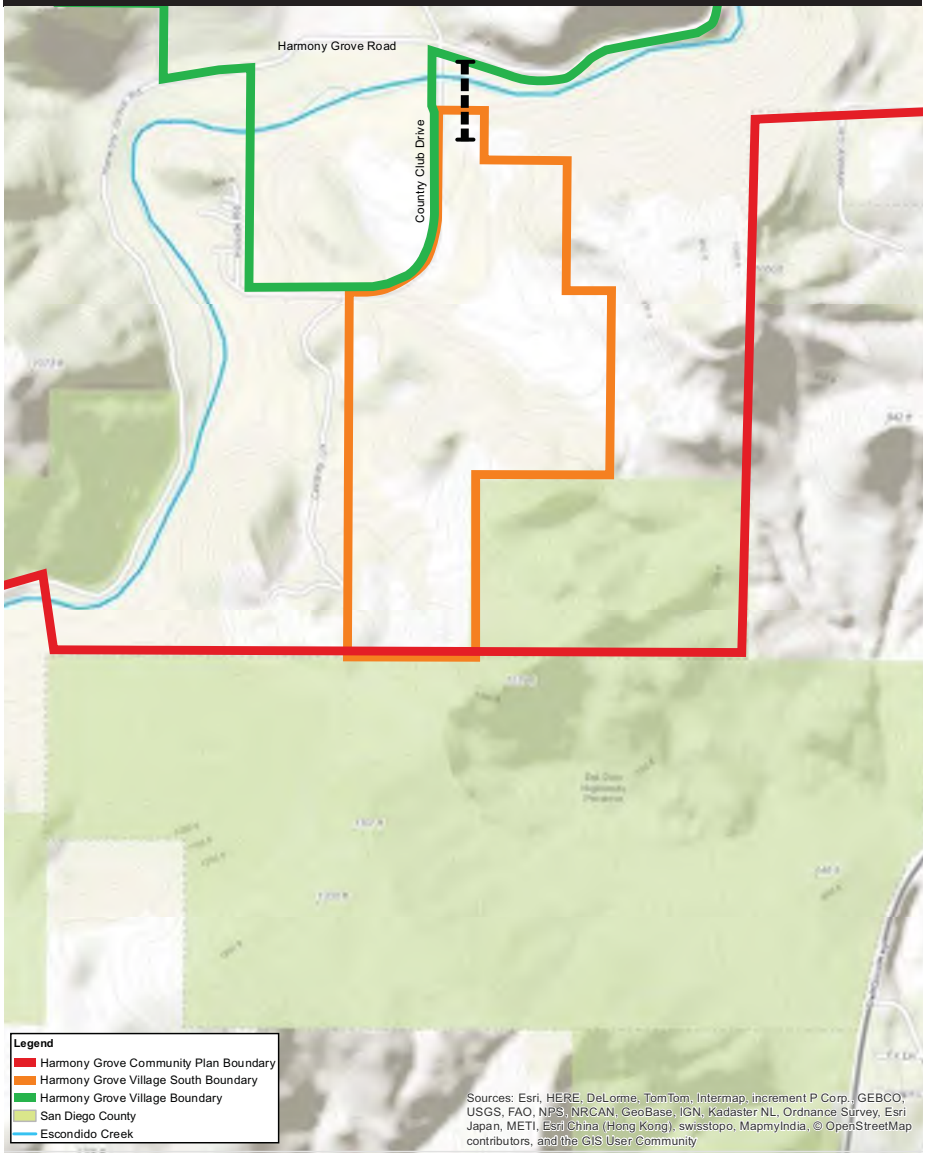
Wildland Fuels The access alternative route includes wildland fuels on both sides for over 75% of the travel distance. Wildland fuels adjacent roads will require fuel modification and ongoing maintenance and even then, may result in a travel route that will not be utilized during a wildfire emergency..

Environmental Issues The access alternative route includes extensive environmental concerns due to native habitats and/or a waters of the U.S./creek crossing, resulting in a significant environmental issues.

Roadway Distance Defined as the access alternative distance before reaching additional roadway options. These alternatives are typically combined with steep terrain and wildland fuels and shorter road lengths are preferred.

Ownership/Easements The access alternative route would require easements from private property owners who have been contacted and are unwilling to provide these easements. Another option would include application of eminent domain, which is not a preferred County approach.

ALTERNATIVE 1



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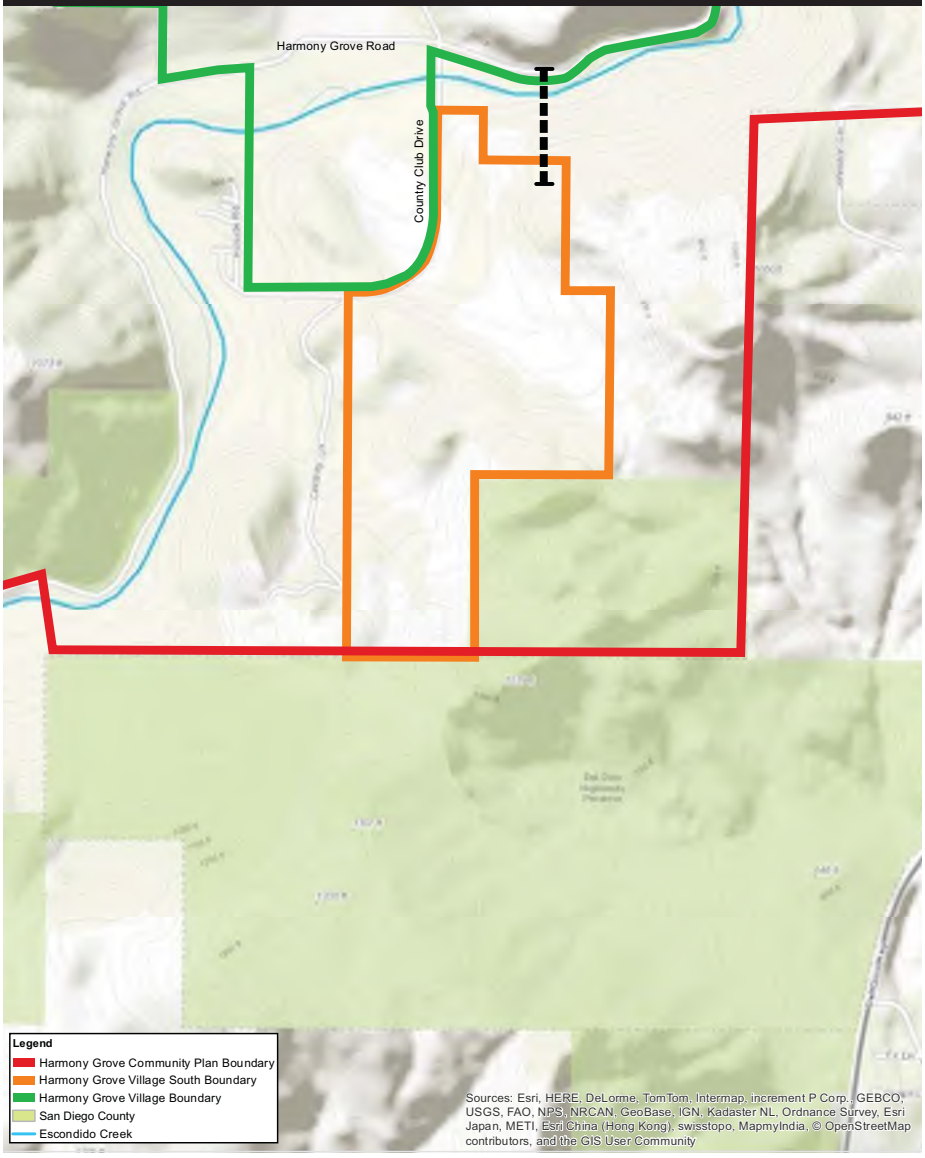

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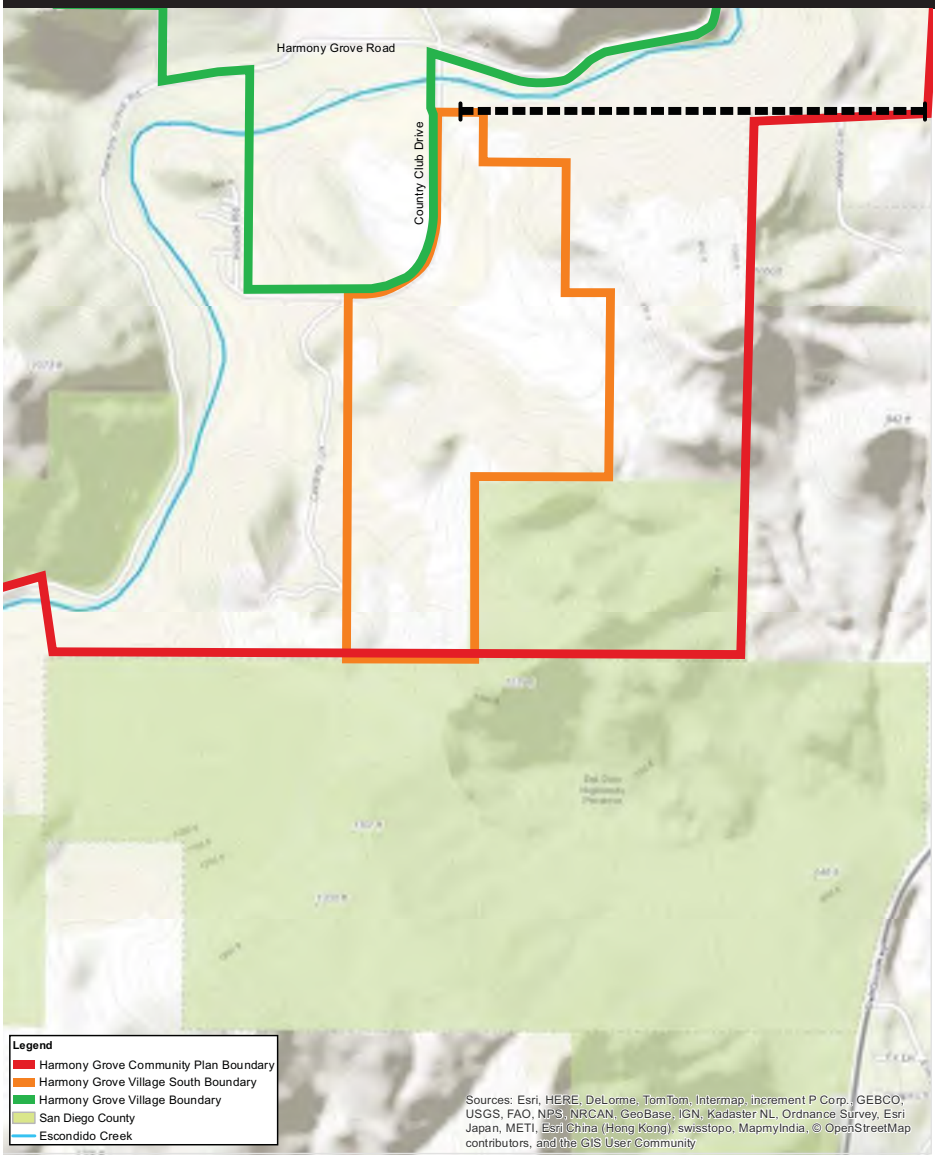

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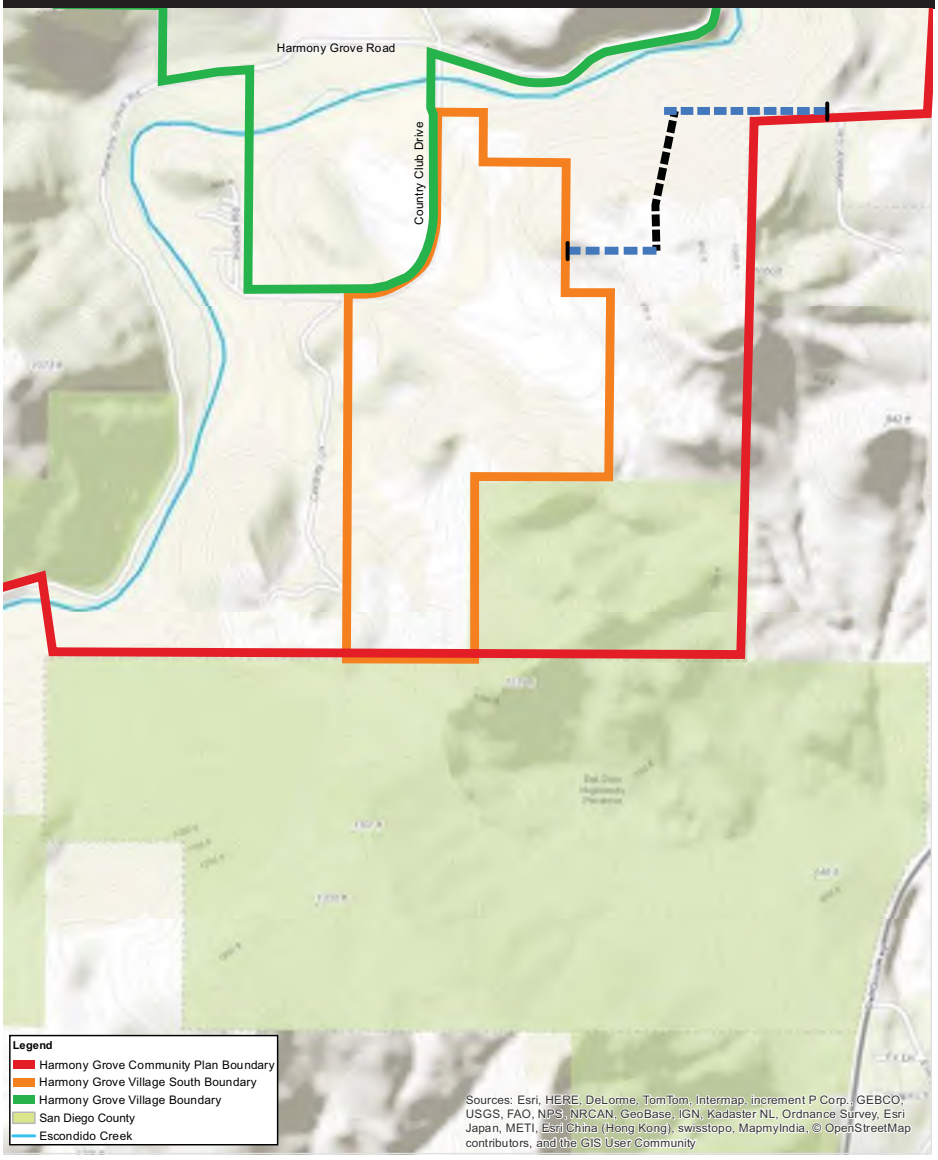

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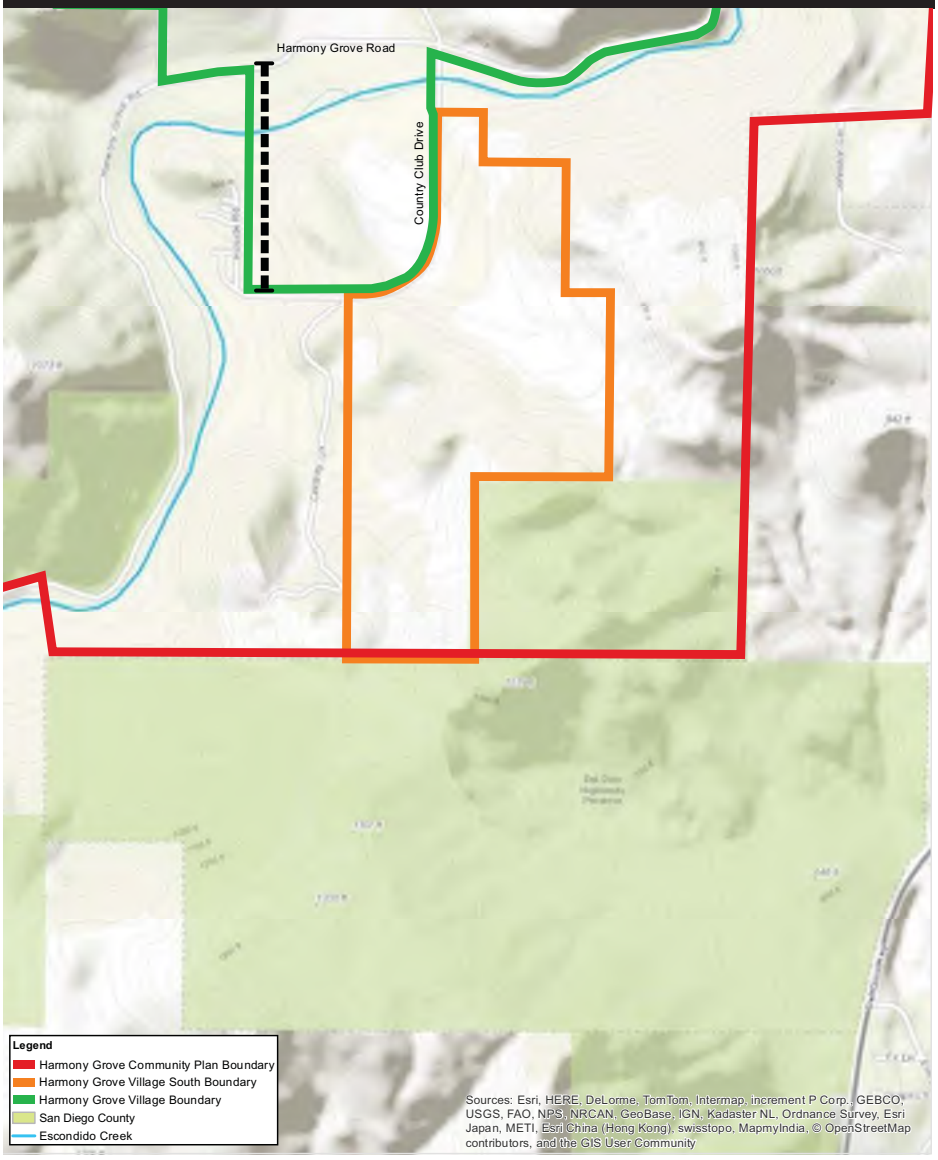

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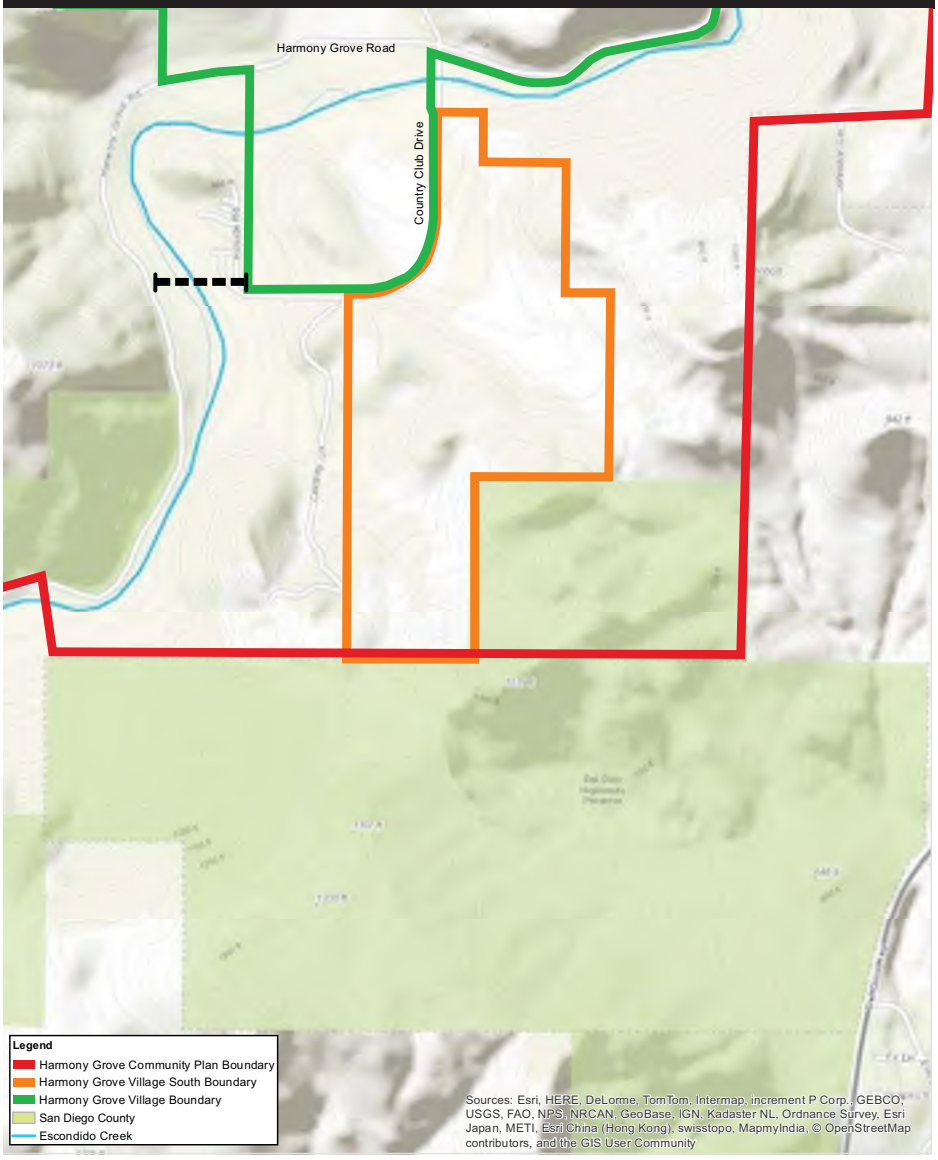

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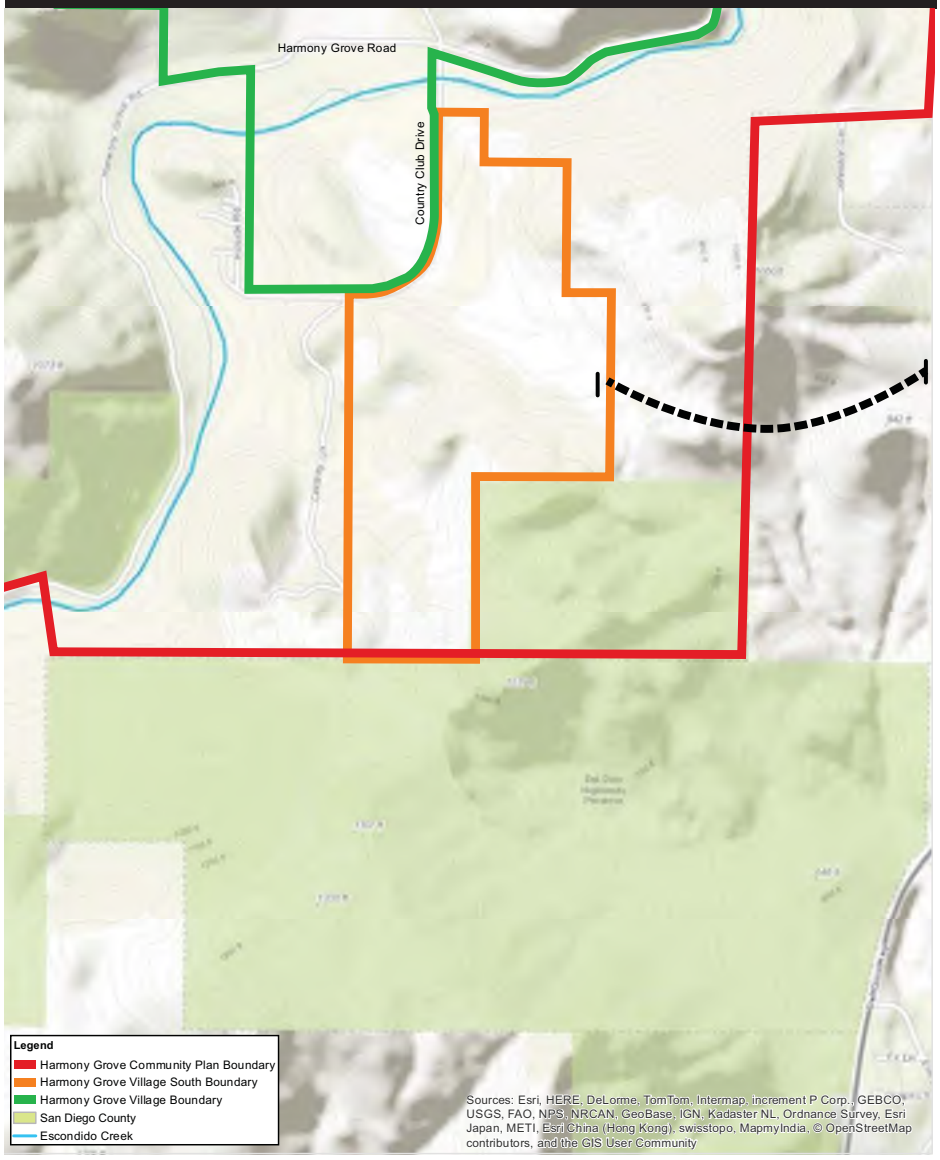
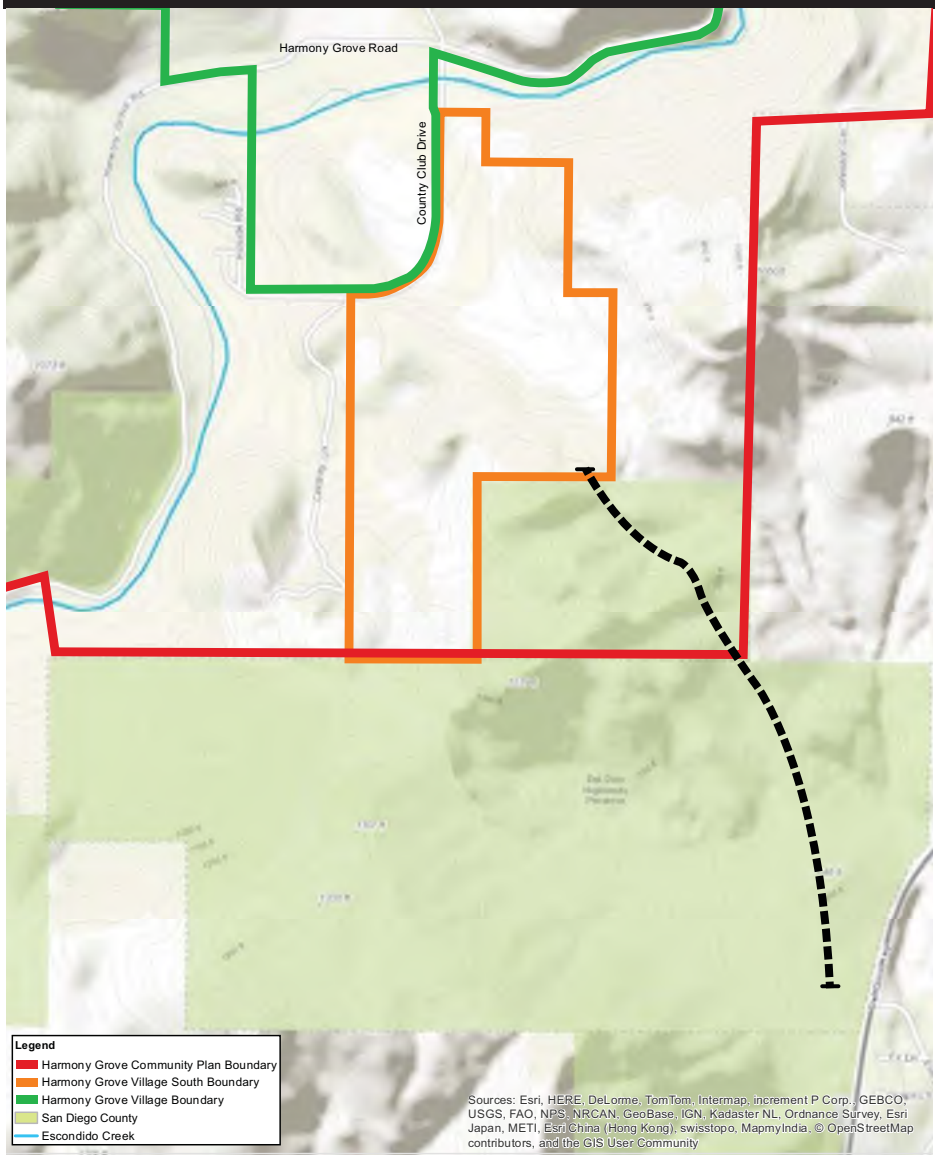


ALTERNATIVE 8



APPENDIX D

Project Facility Availability Form - Water

Rincon del Diablo Water

A Public Agency Serving the Greater Escondido Valley Since 1954

August 20, 2015

County of San Diego
Planning & Development Services
Zoning Counter
5510 Overland Ave., Ste. 110
San Diego, CA 92123

Subject: Project Facility Availability – Water
David Kovach, RCS Harmony Partners, APN 235-011-06, 238-021-08, 09 & 10

As you are aware, the Rincon del Diablo Municipal Water District (Rincon) filled out a Project Water Facility Availability Form for the subject project and included comments via an attached letter dated January 30, 2015 (January letter). Because of the continuing drought conditions, the County has requested that Rincon provide an update to the January letter. This letter, along with the January letter, shall provide our collective comments on the project.

On April 1, 2015, the Governor issued Executive Order B-29-15 proclaiming a continued state of drought emergency and mandated a 25% reduction in water use across the State. He further tasked the State Water Resources Control Board to develop guidance and regulations to obtain the 25% reduction.

The January letter referenced Rincon being in a mandatory Level 2 Drought Alert, where the district was not suspending the installation of new water meters for projects. Since the issuance of the Governor's Order, Rincon remains in a Level 2 Drought Alert but the ordinance has been modified where the availability of meters for projects are to be considered on a case-by-case basis. Therefore, the ability to serve this project will still depend on the drought conditions when the project is submitted for approval and will depend on restrictions placed by our water wholesalers, Metropolitan Water District and the San Diego County Water Authority, and subsequent actions by Rincon's Board of Directors.

We appreciate the opportunity to update our comments. If you have any questions or require additional information, please call.

Sincerely,

Randy Whitmann, Senior Engineer

County of San Diego, Planning & Development Services
PROJECT FACILITY AVAILABILITY - WATER
ZONING DIVISION

Please type or use pen

David Kovach, RCG Harmony Partners, LL (949) 300-6742
Owner's Name Phone

Kovach Group of Companies 2305 Historic Decatur Road Suite 100
Owner's Mailing Address Street

San Diego CA 92106
City State Zip

ORG_____ **W**
ACCT_____
ACT_____
TASK_____ AMT $_____
DATE_____
DISTRICT CASHIER'S USE ONLY

SECTION 1. PROJECT DESCRIPTION — TO BE COMPLETED BY APPLICANT

A. ☒ Major Subdivision (TM) ☒ Specific Plan or Specific Plan Amendment
☐ Minor Subdivision (TPM) ☐ Certificate of Compliance:_____
☐ Boundary Adjustment
☒ Rezone (Reclassification) from A70 & RR to S88 zone.
☐ Major Use Permit (MUP), purpose:_____
☐ Time Extension...Case No._____
☐ Expired Map...Case No._____
☒ Other GPA from SR0.5 to VR10.9 and SR0.5

B. ☒ Residential ..... Total number of dwelling units 453
☐ Commercial ..... Gross floor area_____
☐ Industrial ..... Gross floor area_____
☐ Other ..... Gross floor area_____

C. ☒ Total Project acreage 111 Total number of lots_____

D. Is the project proposing the use of groundwater? ☐ Yes ☒ No
Is the project proposing the use of reclaimed water? ☒ Yes ☐ No

Assessor's Parcel Number(s)
(Add extra if necessary)

235-011-06	
238-021-08	
238-021-09	
238-021-10	

Thomas Guide Page 1129 Grid C7

south of Harmony Grove Road & east of Country Club
Project address Street

San Dieguito Community Plan/Harmony Grove
Community Planning Area/Subregion Zip

Owner/Applicant agrees to pay all necessary construction costs, dedicate all district required easements to extend service to the project and COMPLETE ALL CONDITIONS REQUIRED BY THE DISTRICT.

Applicant's Signature: [signature] Date: 1/29/15

Address: 2305 Historic Decatur Road Suite 100 Phone: (949) 300-6742

(On completion of above, present to the district that provides water protection to complete Section 2 below.)

SECTION 2: FACILITY AVAILABILITY — TO BE COMPLETED BY DISTRICT

District Name: Rincon Del Diablo MWD Service area ID-1

A. ☒ Project is in the district.
☐ Project is not in the district but is within its Sphere of Influence boundary, owner must apply for annexation.
☐ Project is not in the district and is not within its Sphere of Influence boundary.
☐ The project is not located entirely within the district and a potential boundary issue exists with the _____ District.

B. ☒ Facilities to serve the project ☒ ARE ☐ ARE NOT reasonably expected to be available within the next 5 years based on the capital facility plans of the district. Explain in space below or on attached_____. (Number of sheets)
☐ Project will not be served for the following reason(s):_____

C. ☐ District conditions are attached. Number of sheets attached:_____
☐ District has specific water reclamation conditions which are attached. Number of sheets attached:_____
☒ District will submit conditions at a later date. See attached letter

D. ☒ How far will the pipeline(s) have to be extended to serve the project? Subject to analysis and looping req's.

This Project Facility Availability Form is valid until final discretionary action is taken pursuant to the application for the proposed project or until it is withdrawn, unless a shorter expiration date is otherwise noted.

Authorized Signature: [signature] Print Name Randy Whitmann

Print Title Senior Engineer Phone 760 745 5522 Date 1/30/15

NOTE: THIS DOCUMENT IS NOT A COMMITMENT OF SERVICE OR FACILITIES BY THE DISTRICT.
On completion of Section 2 and 3 by the District, applicant is to submit this form with application to:
Planning & Development Services – Zoning Counter, 5510 Overland Ave, Suite 110, San Diego, CA 92123

Rincon del Diablo Water

A Public Agency Serving the Greater Escondido Valley Since 1954

January 30, 2015

County of San Diego
Planning & Development Services
Zoning Counter
5510 Overland Ave., Ste. 110
San Diego, CA 92123

Reference: Project Facility Availability – Water
David Kovach, RCS Harmony Partners, APN 235-011-06, 238-021-08, 09 &10

Gentlemen:

The above referenced project lies within the Rincon Del Diablo Municipal Water District's (Rincon's) Improvement District 1 (ID 1) service area. At this time, it is eligible to receive water for fire and normal domestic use following completion of the required facilities, in accordance with all District Rules and Regulations.

Please be advised that in response to critical water issues throughout the State, on August 11, 2014, the Board of Directors of Rincon issued a mandatory Level 2 Drought Alert as defined in the Drought Response Plan (Ordinance No. 08-120) and as amended in Resolution No. 14-04. The amended Resolution provides that at this time, Rincon will not suspend consideration of water availability certifications for all commercial projects and residential projects of more than one home, but may consider that action at a later date. If the current drought continues, Rincon may be forced to re-evaluate the Level 2 Drought Alert and impose further restrictions such as the suspension of new potable water availability certifications and rescinding outstanding certifications. Therefore, Rincon will re-evaluate water availability for this project at the time the plans are submitted and we are requested to determine requirements necessary to serve the project. The drought levels in Rincon's Drought Response Plan support those set by our wholesaler, the San Diego County Water Authority.

If you have any questions or require additional information, please feel free to contact me.

Sincerely,

Randy Whitmann
Senior Engineer

1920 North Iris Lane, Escondido, CA 92026 **www.rinconwater.org** 760-745-5522 phone • 760-745-4235 fax

APPENDIX E

Fire Behavior Modeling Analysis

APPENDIX E
BehavePlus Fire Behavior Analysis

BEHAVEPLUS FIRE BEHAVIOR MODELING

Fire behavior modeling includes a high level of analysis and information detail to arrive at reasonably accurate representations of how wildfire would move through available fuels on a given site. Fire behavior calculations are based on site-specific fuel characteristics supported by fire science research that analyzes heat transfer related to specific fire behavior. To objectively predict flame lengths, spread rates, and fireline intensities, the BehavePlus 5.0.5 fire behavior modeling system was applied using predominant fuel characteristics, slope percentages, and extreme weather variables for the site.

Predicting wildland fire behavior is not an exact science. As such, the movement of a fire will likely never be fully predictable, especially considering the variations in weather and the limits of weather forecasting. Nevertheless, practiced and experienced judgment, coupled with a validated fire behavior modeling system, results in useful and accurate fire prevention planning information.

To be used effectively, the basic assumptions and limitations of BehavePlus must be understood.

- First, it must be realized that the fire model describes fire behavior only in the flaming front. The primary driving force in the predictive calculations is dead fuels less than one- quarter inch in diameter. These are the fine fuels that carry fire. Fuels greater than one inch have little effect while fuels greater than three inches have no effect on fire behavior.
- Second, the model bases calculations and descriptions on a wildfire spreading through surface fuels that are within six feet of the ground and contiguous to the ground. Surface fuels are often classified as grass, brush, litter, or slash.
- Third, the software assumes that weather and topography are uniform. However, because wildfires almost always burn under non-uniform conditions, length of projection period and choice of fuel model must be carefully considered to obtain useful predictions.
- Fourth, the BehavePlus fire behavior computer modeling system was not intended for determining sufficient fuel modification zone widths. However, it does provide the average length of the flames, which is a key element for determining “defensible space” distances for minimizing structure ignition.

Although BehavePlus has some limitations, it can still provide valuable fire behavior predictions which can be used as a tool in the decision-making process. In order to make reliable estimates of fire behavior, one must understand the relationship of fuels to the fire environment and be able to recognize the variations in these fuels. Natural fuels are made up of the various components of vegetation, both live and dead, that occur on a site. The type and quantity will depend upon the soil, climate, geographic features, and the fire history of the site. The major fuel groups of grass,

shrub, trees, and slash are defined by their constituent types and quantities of litter and duff layers, dead woody material, grasses and forbs, shrubs, regeneration, and trees. Fire behavior can be predicted largely by analyzing the characteristics of these fuels. Fire behavior is affected by seven principal fuel characteristics: fuel loading, size and shape, compactness, horizontal continuity, vertical arrangement, moisture content, and chemical properties.

The seven fuel characteristics help define the 13 standard fire behavior fuel models (Anderson 1982) and the more recent custom fuel models developed for southern California (Weise and Regelbrugge 1997). According to the model classifications, fuel models used in BehavePlus have been classified into four groups, based upon fuel loading (tons/acre), fuel height, and surface to volume ratio. Observation of the fuels in the field (on site) determines which fuel models should be applied in BehavePlus. The following describes the distribution of fuel models among general vegetation types for the standard 13 fuel models and the custom southern California fuel models:

- Grasses Fuel Models 1 through 3
- Brush Fuel Models 4 through 7, SCAL 14 through 18
- Timber Fuel Models 8 through 10
- Logging Slash Fuel Models 11 through 13

In addition, the aforementioned fuel characteristics were utilized in the recent development of 40 new fire behavior fuel models (Scott and Burgan 2005) developed for use in BehavePlus modeling efforts. These new models attempt to improve the accuracy of the standard 13 fuel models outside of severe fire season conditions, and to allow for the simulation of fuel treatment prescriptions. The following describes the distribution of fuel models among general vegetation types for the new 40 fuel models:

- Non-Burnable Models NB1, NB2, NB3, NB8, NB9
- Grass Models GR1 through GR9
- Grass-shrub Models GS1 through GS4
- Shrub Models SH1 through SH9
- Timber-understory Models TU1 through TU5
- Timber litter Models TL1 through TL9
- Slash blowdown Models SB1 through SB4

BEHAVEPLUS FIRE BEHAVIOR MODELING INPUTS

Vegetation/Fuels

To support the fire behavior modeling efforts conducted for this Fire Protection Plan (FPP), the different vegetation types observed on site were classified into the aforementioned numeric fuel models. The site and off site vegetation is dominated primarily by Diegan Coastal Sage Scrub (Fuel Model SCAL 18), Southern Mixed Chaparral (Fuel Model 4), and Coast Live Oak riparian forest (Fuel Model 9). Modeled areas include the chaparral-sage scrublands east and southeast, Southern Mixed Chaparral to the southwest, and chaparral-Coast Live oak riparian forest to the west of the Harmony Grove Village South site, totaling four model runs. These sites were selected based on the strong likelihood of fire approaching from these directions during an on-shore weather pattern (Model Runs 3 and 4) and during a Santa Ana wind-driven fire event (Model Runs 1 and 2). Table 1 provides a description of the fuel models used in BehavePlus analysis for this project.

Table 1
BehavePlus Fuel Models

Vegetation Type	Fuel Model
Diegan Coastal Sage Scrub	SCAL 18
Coast Live Oak Riparian Forest	9
Southern Mixed Chaparral	4

Weather

Fire behavior modeling conducted in support of this FPP utilized the guidelines and standards presented by the County of San Diego, Department of Planning and Land Use[1]. These guidelines identify acceptable fire weather inputs for extreme fire conditions during summer months and Santa Ana fire weather patterns. The County analyzed and processed fire weather from Remote Automated Weather Stations between April 15 to December 31 in order to represent the general limits of the fire season. Data provided by the County's analysis included temperature, relative humidity, and sustained wind speed and is categorized by weather zone, including Maritime, Coastal, Transitional, Interior, and Desert.

The prevailing wind pattern is from the west, but the presence of the Pacific Ocean causes a diurnal wind pattern known as the land/sea breeze system. During the day, winds are typically from the west–southwest (sea), and, at night, winds are from the northeast (land). During the

[1] County of San Diego Report Format and Content Requirements – Wildland Fire and Fire Protection (August 31, 2010). On-line at http://www.sdcounty.ca.gov/dplu/docs/Fire-Report-Format.pdf

summer season, the diurnal winds can be slightly stronger than the winds during the winter season due to greater pressure gradient forces. Surface winds can also be influenced locally by topography and slope variations. The highest wind velocities are typically associated with downslope, canyon, and Santa Ana winds.

In southern California the fire season typically starts in June as vegetation begins to dry out after winter and spring rains and typically ends in October, although fire weather may be present year round (Schroeder and Buck 1970). The highest fire danger for this area coincides with the Santa Ana winds. Santa Ana wind conditions are a reversal of the prevailing southwesterly winds that usually occur on a region-wide basis during late summer and early fall. They are dry, warm winds that flow from the higher desert elevations in the north through the mountain passes and canyons. As they converge through the canyons, their velocities increase. Consequently, peak velocities are highest at the mouths of canyons and dissipate as they spread across valley floors.

To evaluate potential fire behavior for the project site, Dudek utilized the BehavePlus (v. 5.0.5) fire behavior modeling software package to determine fuel moisture values and expected fire behavior for the site. The temperature, relative humidity, and wind speed data for the Transitional[2] weather zone were utilized for this FPP based on the project location. Reference fuel moistures were calculated in BehavePlus and were based on site-specific topographic data inputs.

Topography

The topography of the Harmony Grove Village South site is discussed in greater detail in the FPP. Slope is a measure of angle in degrees from horizontal and can be presented in units of degrees or percent. Slope is important in fire behavior analysis as it affects the exposure of fuel beds. Additionally, fire burning uphill spreads faster than those burning on flat terrain or down hill as uphill vegetation is pre-heated and dried in advance of the flaming front, resulting in faster ignition rates. Slope values for the project site were measured from site topographic maps and are presented in units of percent.

The fire behavior modeling input variables for the Harmony Grove Village South site are presented in Table 2. Locations for each modeling run are presented graphically in Figure 4 of the FPP.

[2] http://mappingsandiego.com/viewMap.html

Table 2
BehavePlus Fire Behavior Modeling Inputs

Input Name	Summer Weather (Onshore Flow)	Peak Weather (offshore/Santa Ana Condition)
1h Moisture	3%	2%
10h Moisture	5%	3%
100h Moisture	7%	5%
Live Herbaceous Moisture	60%	30%
Live Woody Moisture	90%	50%
Midflame Wind Speed (mph)	10-20	30-40 (gusts at 50 mph)
Slope Steepness	5-50%	10-30%

BEHAVEPLUS FIRE BEHAVIOR MODELING RESULTS

Fire behavior for the site was calculated in four different locations using worst-case fuels and topography (steepest slopes). Two of the modeling scenarios analyzed potential fire behavior along the northeastern and eastern edges of the proposed development (Model Runs 1 and 2) during peak fire weather conditions. The other two modeling scenarios (Model runs 3 and 4) analyzed potential fire behavior along the western and southwestern edges of the proposed development during summer weather conditions.

Three fire behavior variables were selected as outputs from the BehavePlus analysis conducted for the project area, and include flame length (feet), rate of spread (mph), and fireline intensity (BTU/feet/second). The aforementioned fire behavior variables are an important component in understanding fire risk and fire agency response capabilities. Flame length, the length of the flame of a spreading surface fire within the flaming front, is measured from midway in the active flaming combustion zone to the average tip of the flames (Andrews, Bevins, and Seli 2004). It is a somewhat subjective and non-scientific measure of fire behavior, but is extremely important to fireline personnel in evaluating fireline intensity and is worth considering as an important fire variable (Rothermel 1983). Fireline intensity is a measure of heat output from the flaming front, and also affects the potential for a surface fire to transition to a crown fire. Fire spread rate represents the speed at which the fire progresses through surface fuels and is another important variable in initial attack and fire suppression efforts. The information in Table 3 presents an interpretation of these fire behavior variables as related to fire suppression efforts. The results of fire behavior modeling efforts are presented in Table 4, below, as well as in Table 4 of the FPP. Additionally, identification of modeling run locations is presented graphically in Figure 4 of the FPP.

Table 3
Fire Suppression Interpretation

Flame Length (ft)	Fireline Intensity (Btu/ft/s)	Interpretations
Under 4 feet	Under 100 BTU/ft/s	Fires can generally be attacked at the head or flanks by persons using hand tools. Hand line should hold the fire.
4 to 8 feet	100-500 BTU/ft/s	Fires are too intense for direct attack on the head by persons using hand tools. Hand line cannot be relied on to hold the fire. Equipment such as dozers, pumpers, and retardant aircraft can be effective.
8 to 11 feet	500-1000 BTU/ft/s	Fires may present serious control problems -- torching out, crowning, and spotting. Control efforts at the fire head will probably be ineffective.
Over 11 feet	Over 1000 BTU/ft/s	Crowning, spotting, and major fire runs are probable. Control efforts at head of fire are ineffective.

Source: BehavePlus 5.0.5 fire behavior modeling program (Andrews, Bevins, and Seli 2004)

Table 4
BehavePlus Fire Behavior Modeling Results

Model Run	Fuel Model(s)	Flame Length (feet)	Fireline Intensity (Btu/ft/s)	Surface Rate of Spread (mph)
1	FM 4, SCAL 18	32.0 to 83.8	10,591 to 86,008	1.7 to 17.0
2	FM 4, SCAL 18	32.0 to 83.1	10,591 to 84,540	1.7 to 16.7
3	FM 4	22.7 to 41.7	5,040 to 18,922	1.1 to 4.3
4	FM 4, FM 9	3.2 to 39.0	70 to 16,341	<1.0 to 3.7

APPENDIX F

Project Facility Availability Form – Fire
(Provided by RSFFPD)

County of San Diego, Planning & Development Services
PROJECT FACILITY AVAILABILITY - FIRE
ZONING DIVISION

F

Please type or use pen

RCS Harmony Partners LLC 619.930.5435
Owner's Name Phone

2305 Historic Decatur Road Suite 100
Owner's Mailing Address Street

San Diego, CA CA 92106
City State Zip

ORG_____
ACCT_____
ACT_____
TASK_____
DATE_____ AMT $_____
DISTRICT CASHIER'S USE ONLY

SECTION 1. PROJECT DESCRIPTION — TO BE COMPLETED BY APPLICANT

A. ☒ Major Subdivision (TM) ☒ Specific Plan or Specific Plan Amendment
☐ Minor Subdivision (TPM) ☐ Certificate of Compliance:_____
☐ Boundary Adjustment
☒ Rezone (Reclassification) from A70 and RR to S88 zone.
☐ Major Use Permit (MUP), purpose:_____
☐ Time Extension...Case No._____
☐ Expired Map...Case No._____
☒ Other GPA

B. ☒ Residential... Total number of dwelling units 453
☐ Commercial.... Gross floor area_____
☐ Industrial..... Gross floor area_____
☐ Other..... Gross floor area_____

C. Total Project acreage 11.0 Total lots 242 Smallest proposed lot 0.03 ACRES

Assessor's Parcel Number(s) (Add extra if necessary)

235-011-06-00	
238-021-08-00	
238-021-09-00	
238-021-10-00	

Thomas Guide, Page_____ Grid_____

Project address Street

Community Planning Area/Subregion Zip

OWNER/APPLICANT AGREES TO COMPLETE ALL CONDITIONS REQUIRED BY THE DISTRICT.

Applicant's Signature: [signature] Date: 6.15.16

Address: 2305 Historic Decatur Road (Sea Level) Phone: 619.930.5435

(On completion of above, present to the district that provides fire protection to complete Section 2 and 3 below.)

SECTION 2: FACILITY AVAILABILITY — TO BE COMPLETED BY DISTRICT

District Name: Rancho Santa Fe Fire Protection District

Indicate the location and distance of the primary fire station that will serve the proposed project:
2604 Overlook Point Dr., 1.3 miles

A ☒ Project is in the District and eligible for service.
☐ Project is not in the District but is within its Sphere of Influence boundary, owner must apply for annexation.
☐ Project is not in the District and not within its Sphere of Influence boundary.
☐ Project is not located entirely within the District and a potential boundary issue exists with the _____ District.

B. ☒ Based on the capacity and capability of the District's existing and planned facilities, fire protection facilities are currently adequate or will be adequate to serve the proposed project. The expected emergency travel time to the proposed project is 2.85 minutes.
☐ Fire protection facilities are not expected to be adequate to serve the proposed development within the next five years.

C. ☐ District conditions are attached. Number of sheets attached:_____
☒ District will submit conditions at a later date.

SECTION 3. FUELBREAK REQUIREMENTS

Note: The fuelbreak requirements prescribed by the fire district for the proposed project do not authorize any clearing prior to project approval by Planning & Development Services.

☐ Within the proposed project _____ feet of clearing will be required around all structures.
☒ The proposed project is located in a hazardous wildland fire area, and additional fuelbreak requirements may apply. Environmental mitigation requirements should be coordinated with the fire district to ensure that these requirements will not pose fire hazards.

This Project Facility Availability Form is valid until final discretionary action is taken pursuant to the application for the proposed project or until it is withdrawn, unless a shorter expiration date is otherwise noted.

[signature] Tony J. Michel, Fire Chief (858) 756-5971 6-16-16
Authorized Signature Print Name and Title Phone Date

On completion of Section 2 and 3 by the District, applicant is to submit this form with application to:
Planning & Development Services – Zoning Counter, 5510 Overland Ave, Suite 110, San Diego, CA 92123

PDS-399F (Rev. 09/21/2012)

APPENDIX G

Fire Safety Master Plan

THREE-LANE BRIDGE

24' SERVICE ROAD

WASTE WATER LAND USE

PROPOSED THREE 12' LANES

IRRIGATED BRUSH MANAGEMENT ZONE 1

BRUSH MANAGEMENT ZONE 2

LIMITED BUILDING ZONE

IRRIGATED BRUSH MANAGEMENT ZONE 1

ROADSIDE FUEL MODIFICATIONS TO RIGHT-OF-WAY

COMMUNITY DIRECTORY

POTENTIAL EMERGENCY ACCESS ROUTE

PROPOSED HGVS CLUB COMMUNITY EVENT / VALET PARKING STAGING AREA

COMMUNITY DIRECTORY

ADDRESSING SIGNAGE

IRRIGATED BRUSH MANAGEMENT ZONE 1

BRUSH MANAGEMENT ZONE 2

100' BUILDING OFFSET

ADDRESSING SIGNAGE

BRUSH MANAGEMENT ZONE 2

IRRIGATED BRUSH MANAGEMENT ZONE 1

PVT. DRIVE A

PVT. DRIVE B

PVT. DRIVE C

PVT. DRIVE D

PVT. DRIVE E

PVT. DRIVE F

PVT. DRIVE G

PVT. DRIVE H

PVT. DRIVE I

Legend

- Fire Protection Area
- Brush Management Zone 1
  - •Min. 75' Irrigated Area Measured from Edge of Building Pad
  - •Irrigated Area Maintained and Thinned
- Brush Management Zone 2
  - •Min. 25' Beyond Zone 1 Where Zone 1 Does Not Extend to Property Boundary
  - •Thinned and Maintained
- 100' Building Offset Line (Standard Brush Management Requirement)
- Community Directory
- Addressing Signage
- Proposed Three-Lane Roadway
- 3 Lanes Provided for Egress
- 6-Foot High Fire Rated Wall

Harmony Grove Village South

Fire Safety Master Plan

Name: 4095_FireSafetyMasterPlan
Path: P:\4095\Engr\Exhibits\2014-12-10_Fire_Safety_Master_Plan
Date: 5/10/2016

GIS exhibits may be compiled from various sources with different levels of accuracy. For details on accuracy of this exhibit please refer to Meta Data provided.
Aerials eger Source: Globe Earth 2014, SanDAG 2012

0 50 100 Feet

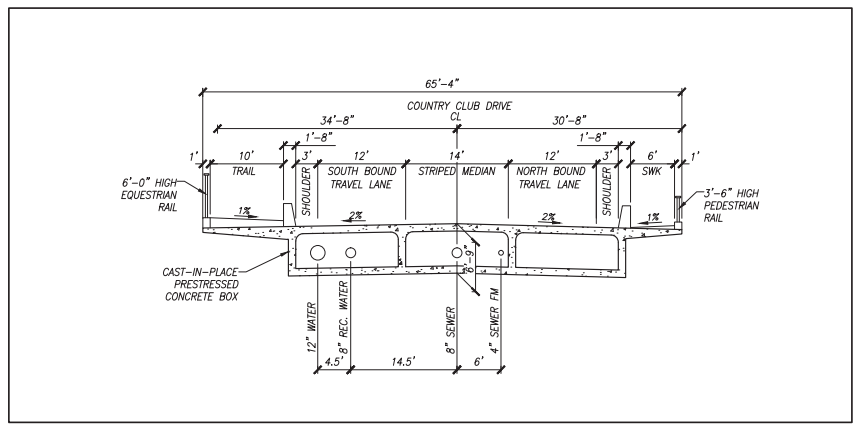
N

KOVACH GROUP OF COMPANIES

PROJECT DESIGN CONSULTANTS

APPENDIX H

Parking Analysis Exhibit



TYPICAL BRIDGE SECTION

(LOOKING NORTH)

NOT TO SCALE

SCALE: 1" = 80'

PARKING EVALUATION

SINGLE FAMILY DU's = 193 — PARKING IN UNITS = 386
MF DU's = 260 — PARKING IN UNITS = 520
PROVIDED TOTAL RESIDENT PARKING = 906

ZONING REQUIREMENTS: GUEST PARKING
0.2 PARKING SPACES PER MF DU = 260x0.2
= 52 REQUIRED

- ON-STREET GUEST PARKING (6'x22')
- ON-STREET GUEST PARKING ADDED FROM LAST PLAN (+90 SPACES)

PROVIDED BY THIS PLAN = 434 SPACES
- 52 REQUIRED GUEST
= 382 SPACES IN EXCESS OF ZONING REQUIREMENT

TOTAL NUMBER OF PARKING (GUEST AND RESIDENT) = 1,340

= 3 LANES PROVIDED FOR EGRESS

NOTE: MINIMUM OF 4' WIDE WALKWAYS

LEGEND:

81 NUMBER OF GUEST PARKING SPACES WITHIN 600' OF HOUSE

PEDESTRIAN ROUTE (600' MAX. LENGTH)

GUEST PARKING ADDED

GUEST PARKING WITHIN 600' OF EACH HOUSE (TYP.) SEE PARKING DESIGN MANUAL, S.D. COUNTY, PAGE 3, B. GENERAL PARKING GUIDELINES, 1a LOCATION, PER SECTION 6785 OF ZONING ORDINANCE " PEDESTRIAN ROUTE NOT MORE THAN 600' IN LENGTH"

PROJECT DESIGN CONSULTANTS
Planning | Landscape Architecture | Engineering | Survey
701 B Street, Suite 800
San Diego, CA 92101
619.235.6471 Tel
619.234.0349 Fax

HARMONY GROVE VILLAGE SOUTH

KOVACH GROUP OF COMPANIES

P:\4095\Engr\Exhibits\Parking Layout\4095 Parking Layout.dwg 2014-12-10

APPENDIX I

Suggested Plant List for Defensible Space

SUGGESTED PLANT LIST FOR A DEFENSIBLE SPACE

BOTANICAL NAME	COMMON NAME	Climate Zone
TREES		
Acer		
platanoides	Norway Maple	M
rubrum	Red Maple	M
saccharinum	Silver Maple	M
saccarum	Sugar Maple	M
macrophyllum	Big Leaf Maple	C/ (R)
Alnus rhombifolia	White Alder	C/I/M (R)
Arbutus		
unedo	Strawberry Tree	All zones
Archontophoenix		
cunninghamiana	King Palm	C
Arctostaphylos spp.**	Manzanita	C/I/D
Brahea		
armata	Blue Hesper Palm	C/D
edulis	Guadalupe Palm	C/D
Ceratonia siliqua	Carob	C/I/D
Cerdidium floridum	Blue Palo Verde	D
Cercis occidentalis**	Western Redbud	C/I/M
Cornus		
nuttallii	Mountain Dogwood	I/M
stolonifera	Redtwig Dogwood	I/M
Eriobotrya		C/I/D
japonica	Loquat	C
Erythrina caffra	Kaffirboom Coral Tree	I/M
Gingko biloba "Fairmount"	Fairmount Maidenhair Tree	I/D/M
Gleditisia triacanthos	Honey Locust	
Juglans		I
californica	California Walnut	C/I
hindsii	California Black Walnut	I/D/M
Lagerstroemia indica	Crape Myrtle	I
Ligustrum lucidum	Glossy Privet	C/I/M
Liquidambar styraciflua	Sweet Gum	I
Liriodendron tulipifera	Tulip Tree	
Lyonothamnus floribundus		C
ssp. Asplenifolius	Fernleaf Catalina Ironwood	C/I/D
Melaleuca spp.	Melaleuca	C/I
Parkinsonia aculeate	Mexican Palo Verde	
Pistacia	Chinese Pistache	
chinensis	Pistachio Nut	C/I/D

vera	Pistachio Nut	I
Pittosporum		
phillyraeoides	Willow Pittosporum	C/I/D
viridiflorum	Cape Pittosporum	C/I
Platanus		
acerifolia	London Plane Tree	All zones
racemosa**	California Sycamore	C/I/M
Populus		
alba	White Poplar	D/M
fremontii**	Western Cottonwood	I
trichocarpa	Black Cottonwood	I/M
Prunus		
xblireiana	Flowering Plum	M
caroliniana	Carolina Laurel Cherry	C
ilicifolia**	Hollyleaf Cherry	C
lyonii**	Catalina Cherry	C
serrulata ‘Kwanzan’	Flowering Cherry	M
yedoensis ‘Akebono’	Akebono Flowering Cherry	M
Quercus		
agrifolia**	Coast Live Oak	C/I
engelmannii	Engelmann Oak	I
** suber	Cork Oak	C/I/D
Rhus		
lancea**	African Sumac	C/I/D
Salix spp.**	Willow	All zones (R)
Tristania conferta	Brisbane Box	C/I
Ulmus		
parvifolia	Chinese Elm	I/D
pumila	Siberian Elm	C/M
Umbellularia californica**	California Bay Laurel	C/I

SHRUBS		
Agave	Century Plant	D
americana	Century Plant	D
deserti	Shawis Century Plant	D
shawi**		
Amorpha fruticosa**	False Indigobush	I
Arbutus		
menziesii**	Madrone	C/I
Arctostaphylos spp.**	Manzanita	C/I/D
Atriplex**		
canescens	Hoary Saltbush	I
lentiformis	Quail Saltbush	D
Baccharis**		
glutinosa	Mule Fat	C/I
pilularis	Coyote Bush	C/I/D
Carissa grandiflora	Natal Plum	C/I
Ceanothus spp.**	California Lilac	C/I/M
Cistus spp.	Rockrose	C/I/D
Cneoridium dumosum**	Bushrue	C
Comarostaphylis**		
diversifolia	Summer Holly	C
Convolvulus cneorum	Bush Morning Glory	C/I/M
Dalea		
orcuttii	Orcutt's Delea	D
spinosa**	Smoke Tree	I/D
Elaeagnus		
pungens	Silverberry	C/I/M
Encelia**		
californica	Coast Sunflower	C/I
farinose	White Brittlebush	D/I
Eriobotrya		
deflexa	Bronze Loquat	C/I
Eriophyllum		
confertiflorum**	Golden Yarrow	C/I
staechadifolium	Lizard Tail	C
Escallonia spp.	Escallonia	C/I
Feijoa sellowiana	Pineapple Guava	C/I/D
Fouqueria splendens	Ocotillo	D
Fremontodendron**		
californicum	Flannelbush	I/M
mexicanum	Southern Flannelbush	I
Galvezia		
juncea	Baja Bush-Snapdragon	C
speciosa	Island Bush-Snapdragon	C
Garrya		
elliptica	Coast Silktassel	C/I
flavescens**	Ashy Silktassel	I/M

Heteromeles arbutifolia**	Ashy Silktassel	I/M
Lantana spp.	Toyon	C/I/M
Lotus scoparius	Lantana	C/I/D
Mahonia spp.	Deerweed	C/I
	Barberry	C/I/M
Malacothamnus		
clementinus		
	San Clemente Island Bush Mallow	C
fasciculatus**		
	Mesa Bushmallow	C/I
Melaleuca spp.		
Mimulus spp.**	Melaleuca	C/I/D
Nolina	Monkeyflower	C/I (R)
parryi		
parryi ssp. wolfii	Parry's Nolina	I
Photinia spp.	Wolf's Bear Grass	D
Pittosporum	Photinia	All Zones
crassifolium		
rhombifolium		CI/I
tobira 'Wheeleri'	Queensland Pittosporum	C/I
undulatum	Wheeler's Dwarf	C/I/D
viridiflorum	Victorian Box	C/I
Plumbago auriculata	Cape Pittosporum	C/I
Prunus	Cape Plumbago	C/I/D
caroliniana		
ilicifolia**	Carolina Laurel Cherry	C
lyonii**	Hollyleaf Cherry	C
Puncia granatum	Catalina Cherry	C
Pyracantha spp.	Pomegranate	C/I/D
Quercus	Firethorn	All Zones
dumosa**		
Rhamus	Scrub Oak	C/I
alaternus		
californica**	Italian Blackthorn	C/I
Rhaphiolepis spp.	Coffeeberry	C/I/M
Rhus	Rhaphiolepis	C/I/D
integrifolia**		
laurina	Lemonade Berry	C/I
lentii	Laurel Sumac	C/I
ovata**	Pink-Flowering Sumac	C/D
trilobata**	Sugarbush	I/M
Ribes	squawbush	I
viburnifolium		
speciosum**	Evergreen Currant	C/I
Romneya coulteri	Fuschia-Flowering Gooseberry	C/I/D
Rosa	Matilija Poppy	I
californica**		
minutifolia		

	Salvia spp.**	California Wild Rose	C/I
	Sambucus spp.**	Baja California Wild Rose	C/I
	Symphoricarpos mollis**	Sage	All Zones
	Syringa vulgaris	Elderberry	C/I/M
	Tecomaria capensis	Creeping Snowberry	C/I
	Teucrium fruticans	Lilac	M
	Toxicodendron**	Cape Honeysuckle	C/I/D
	diversilobum	Bush Germander	C/I
	Verbena		
	lilacina	Poison Oak	I/M
	Xylosma congestum		
	Yucca**	Lilac Verbena	C
	schidigera	Shiny Xylosma	C/I
	whipplei		
		Mojave Yucca	D
		Foothill Yucca	I

GROUNDCOVERS		
Achillea**	Yarrow	All Zones
Aptenia cordifolia	Apteria	C
Arctostaphylos spp.**	Manzanita	C/I/D
Baccharis**		
pilularis	Coyote Bush	C/I/D
Ceanothus spp.**	California Lilac	C/I/M
Cerastium tomentosum	Snow-in-Summer	All Zones
Coprosma kirkii	Creeping Coprosma	C/I/D
Cotoneaster spp.	Redberry	All Zones
Drosanthemum hispidum	Rosea Ice Plant	C/I
Dudleya		
brittonii	Brittonis Chalk Dudleya	C
pulverulenta**	Chalk Dudleya	C/I
virens	Island Live Fore-ever	C
Eschscholzia californica**	California Poppy	All Zones
Euonymus fortunei		
‘Carrierei’	Glossy Winter Creeper	M
‘Coloratus’	Purple-Leaf Winter Creeper	M
Ferocactus viridescens**	Coast Barrel Cactus	C
Gaillardia grandiflora	Blanket Flower	All Zones
Gazania spp.	Gazania	C/I
Helianthemum spp.**	Sunrose	All Zones
Lantana spp.	Lantana	C/I/D
Lasthenia		
californica**	Common Goldfields	I
glabrata	Coastal Goldfields	C
Lupinus spp.**	Lupine	C/I/M
Myoporum spp.	Myoporum	C/I
Pyracantha spp.	Firethorn	All zones
Rosmarinus officinalis	Rosemary	C/I/D
Santolina		
chamaecyparissus	Lavender Cotton	All Zones
virens	Santolina	All Zones
Trifolium frageriferum	O’Connor’s Legume	C/I
Verbena		
rigida	Verbena	All Zones
Viguiera laciniata**	San Diego Sunflower	C/I
Vinca		
minor	Dwarf Periwinkle	M

VINES		
Antigonon leptopus	San Miguel Coral Vine	C/I
Distictis buccinatoria	Blood-Red Trumpet Vine	C/I/D
Keckiella cordifolia**	Heart-Leaved Penstemon	C/I
Lonicera		
japonica 'Halliana'	Hall's Honeysuckle	All Zones
subspicata**	Chaparral Honeysuckle	C/I
Solanum		
jasminoides	Potato Vine	C/I/D

PERENNIALS		
Coreopsis		
gigantean	Giant Coreopsis	C
grandiflora	Coreopsis	All Zones
maritime	Sea Dahlia	C
verticillata	Coreopsis	C/I
Heuchera maxima	Island Coral Bells	C/I
Iris douglasiana**	Douglas Iris	C/M
Iva hayesiana**	Poverty Weed	C/I
Kniphofia uvaria	Red-Hot Poker	C/M
Lavandula spp.	Lavender	All Zones
Limonium californicum		
var. mexicanum	Coastal Statice	C
perezii	Sea Lavender	C/I
Oenothera spp.	Primrose	C/I/M
Penstemon spp.**	Penstemon	C/I/D
Satureja douglasii	Yerba Buena	C/I
Sisyrinchium		
bellum	Blue-Eyed Grass	C/I
californicum	Golden-Eyed Grass	C
Solanum		
xantii	Purple Nightshade	C/I
Zauschneria**		
californica	California Fuschia	C/I
cana	Hoary California Fuschia	C/I
'Catalina'	Catalina Fuschia	C/I

ANNUALS		
Lupinus spp.**	Lupine	C/I/M

APPENDIX J

Prohibited Plant List

UNDESIRABLE PLANT LIST

The following species are highly flammable and should be avoided when planting within the first 50 feet adjacent to a structure. The plants listed below are more susceptible to burning, due to rough or peeling bark, production of large amounts of litter, vegetation that contains oils, resin, wax, or pitch, large amounts of dead material in the plant, or plantings with a high dead to live fuel ratio. Many of these species, if existing on the property and adequately maintained (pruning, thinning, irrigation, litter removal, and weeding), may remain as long as the potential for spreading a fire has been reduced or eliminated.

BOTANICAL NAME	COMMON NAME
Abies species	Fir Trees
Acacia species	Acacia (trees, shrubs, groundcovers)
*Adenostoma sparsifolium***	Red Shanks
*Adenostoma fasciculatum***	Chamise
Agonis juniperina	Juniper Myrtle
Araucaria species	Monkey Puzzle, Norfolk Island Pine
*Artemesia californica***	California Sagebrush
Bambusa species	Bamboo
Cedrus species	Cedar
Chamaecyparis species	False Cypress
Coprosma pumila	Prostrate Coprosma
Cryptomeria japonica	Japanese Cryptomeria
Cupressocyparis leylandii	Leylandii Cypress
*Cupressus forbesii***	Tecate Cypress
Cupressus glabra	Arizona Cypress
Cupressus sempervirens	Italian Cypress
Dodonea viscosa	Hopseed Bush
*Eriogonum fasciculatum***	Common Buckwheat
Eucalyptus species	Eucalyptus
*Heterotheca grandiflora***	Telegraph Plant
Juniperus species	Junipers
Larix species	Larch
Lonicera japonica	Japanese Honeysuckle
Miscanthus species	Eulalia Grass
*Muehlenbergia species***	Deer Grass
Palmae species	Palms
Picea species	Spruce Trees
*Pickeringia Montana***	Chaparral Pea
Pinus species	Pines
Podocarpus species	Fern Pine
Pseudotsuga menziesii	Douglas Fir
Rosmarinus species	Rosemary
*Salvia mellifera***	Black Sage
Taxodium species	Cypress
Taxus species	Yew
Thuja species	Arborvitae
Tsuga species	Hemlock
*Urtica urens***	Burning Nettle

** San Diego County native species

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