LAKE JENNINGS MARKET PLACE
FIRE PROTECTION PLAN

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Iteration	Date	Description
1	July 2014	Initial submission
2	November 2014	To incorporate County comments
3	January 2015	To incorporate County comments

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1.0 INTRODUCTION

This Fire Protection Plan (FPP) has been prepared for the Lake Jennings Market Place Project in accordance with the County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements – Wildland Fire and Fire Protection (2010). The purpose of this Fire Protection Plan (FPP) is to meet the requirements of the Lakeside Fire Protection District (LFPD) regarding fire safety in the urban-wildland interface for the Lake Jennings Village Project. The FFP is provided in accordance with Chapter 49 of the County Consolidation Fire Code which indicates that a Fire Protection Plan shall be required for all new development within the Urban-Wildland Interface. In addition, the purpose of the FPP is to assess the potential impacts resulting from wildland fire hazards and to identify the measures necessary to mitigate those impacts adequately.

As part of the assessment, this plan has considered the property location, topography, geology, combustible vegetation (fuel types), climatic conditions, and fire history. This plan addresses water supply, access (including secondary/emergency access, where applicable), building ignition and fire resistance, fire protection systems and equipment, impacts to existing emergency services, defensible space, and vegetation management in accordance with Chapter 49 of the County Consolidation Fire Code. The plan identifies and prioritizes areas for hazardous fuel reduction treatments and recommends the types and methods of treatment that will protect one or more at-risk communities and essential infrastructures. The plan recommends measures that property owners will take to reduce the probability of ignition of structures throughout the area addressed by the plan. When developing mitigation measures, the location, topography, geology, flammable vegetation, and climate were taken into consideration.

1.1 Project Location, Description, and Environmental Setting

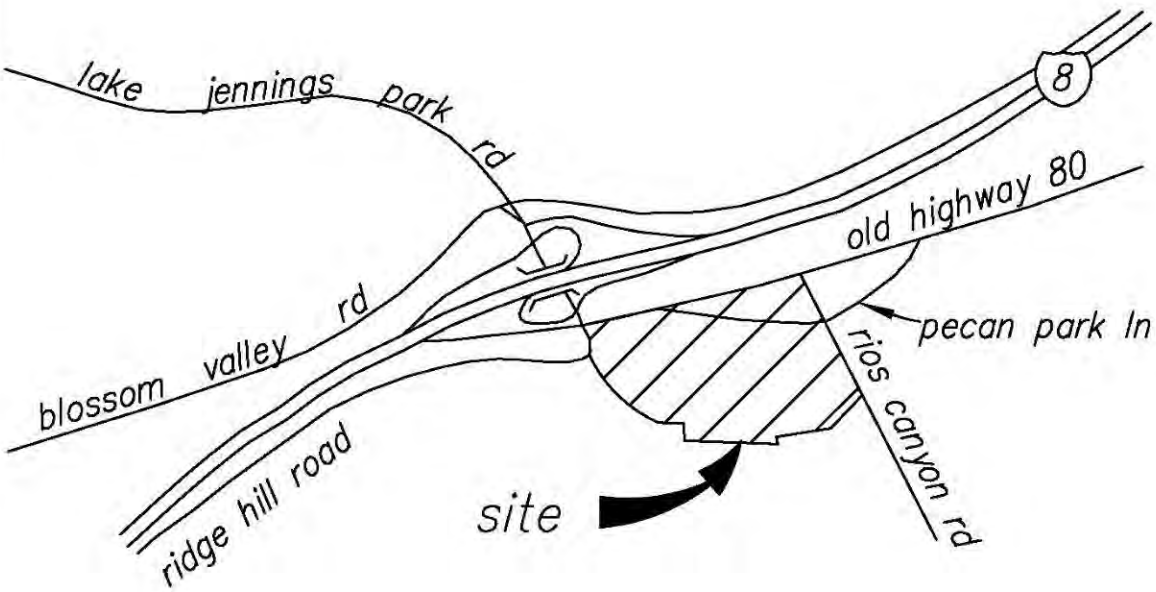
1.1.1 Project Location

The project is located in east San Diego County near the community of Lakeside, south of Old Highway 80, and east of Lake Jennings Park Road (Figures 1 and 2). The project site is mapped within the State Responsibility Area (Figure 3).

1.1.2 Project Description

The proposed project is a commercial shopping center located on an existing vacated site. Work to be done including supporting infrastructure such as sewer, road improvements and utilities, the vacation of an existing paved road, and dedication of a biological open space easement on an approximately 13.10-acre site.

Figure 1
Regional Location Map



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RC Biological Consultants	Vicinity Map	Figure 2

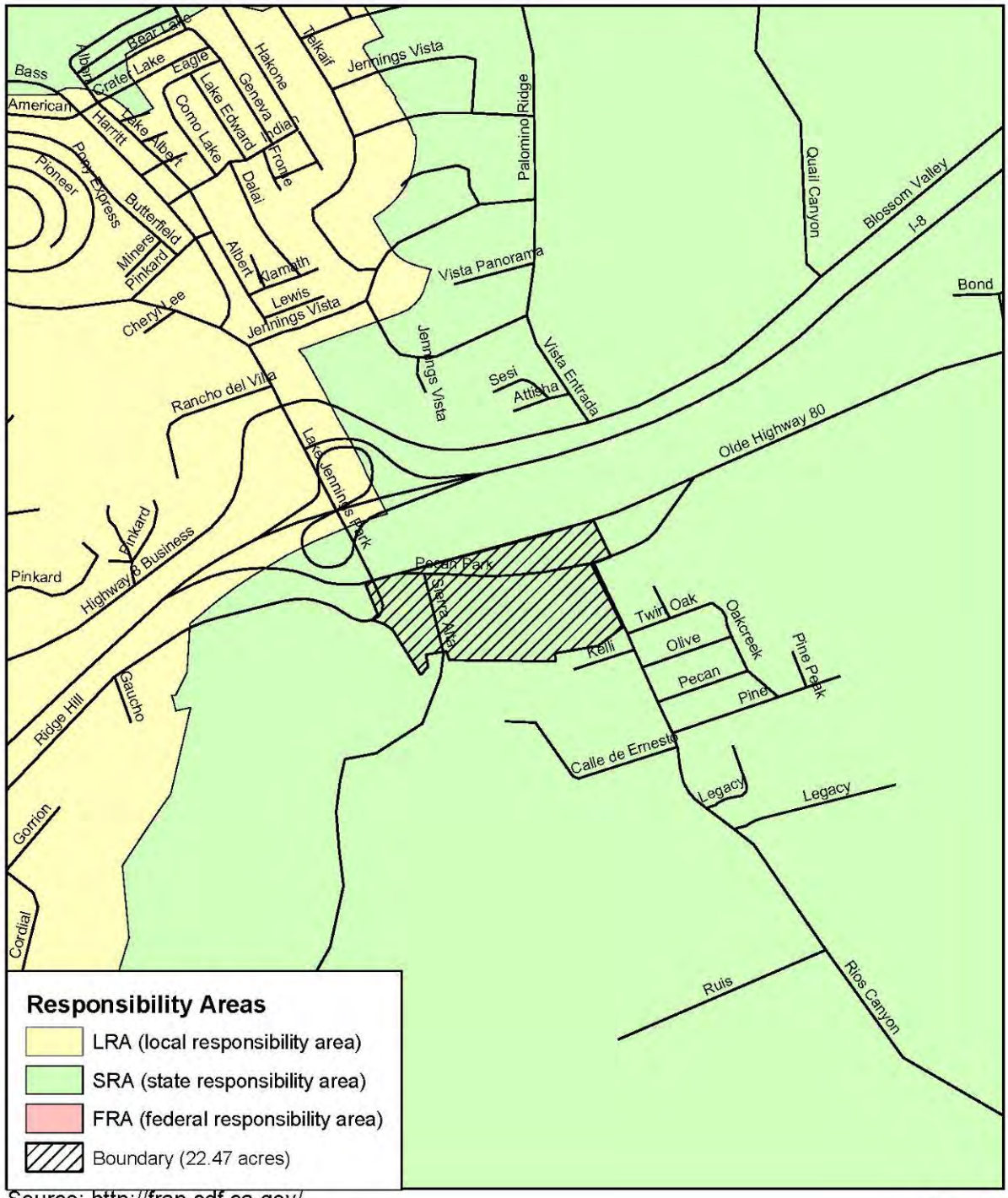

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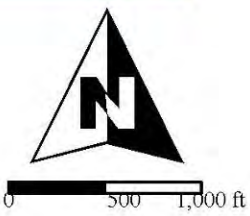
Figure 3
Responsibility Area Map
Lake Jennings Marketplace



Commercial Shopping Center

The project proposes to construct a commercial shopping center with 76,100 square feet (sf) of building area. The project would include six structures, all of which will be located on individual lots. The development will include the following:

1. Market Building (Building A – 43,000 sf) located along the east side of the project site.
2. Financial Building with drive through (Building B – 4,500 sf) located on the northeast intersection of Olde Highway 80 and the proposed signalized project entrance on Olde Highway 80.
3. Restaurant with drive through (Building C – 3,500 sf) located on the northwest intersection of Olde Highway 80 and the proposed signalized project entrance on Olde Highway 80.
4. Restaurant-Retail Building (Building D – 9,600 sf) located along the southern boundary of the project's developed area.
5. Gas Station with convenience store and car wash (42,210 sf pad) at the intersection of Olde Highway 80 and Lake Jennings Park Road, and Commercial Building (Building E – 3,000 sf) located directly south of the gas station.
6. Restaurant-Retail Building (Building F – 12,500 sf) located along the southern boundary of the project's developed area. Building F shares a common wall with Building D.

Trail Component

The project will construct a multi-use trail suitable for pedestrians and equestrian users. The trail will be 10 feet wide and constructed of decomposed granite material. The trail segments adjacent to the two public streets are proposed as standard trail pathways per the Park Lands Dedication Ordinance (PLDO). The trail segment within the open space lot will run along the southern edge of the development area (immediately north of the proposed open space area) within a 20-foot wide trail easement and will include a 10-foot wide treadway.

Access

The project requires four access points. One access point is from Ridge Hill Road located on the west side of the project and three others are located along Olde Highway 80: a right-in (only) approximately 200 feet east of the intersection of Olde Highway 80 and Lake Jennings Park Road; a full signalized project entry half way along the project frontage; and a second non-signalized project entry (right in–right out only) near the northeast corner of the property.

Walls and Signage

There will be a comprehensive coordinated sign program designed for the project. It includes a Freeway Pylon Display, Monument Center ID Displays, Monument Signage at the signalized entrance on Olde Highway 80, and a state required Gas Pricing Sign for the gas station, convenience store and car wash Pad.

Parking

The project proposes 389 parking spaces. The project parking is almost entirely located within the central portion of the site and will largely be out of the casual view of traffic on Lake Jennings Park Road and Olde Highway 80. The County of San Diego Zoning Ordinance requires a total of 389 parking spaces to be provided by the proposed project based on the size and uses proposed in the buildings. Therefore, the project meets the parking requirements of the County of San Diego Zoning Ordinance.

Landscaping Plan

A landscape plan has been prepared for the commercial part of the project. This landscape plan incorporates a variety of species that are intended to provide a visual buffer from Interstate 8 and be compatible with the riparian zone associated with Los Coches Creek. The plant palette reflects a selection of native plant material, which can naturally be found in riparian zones of Southern California.

1.1.3 Environmental Setting

The topography of the project vicinity is primarily wildland and residential with some commercial and light industrial areas. The project site falls within an Urban-Wildland interface. Developed lands surround the project site to the east, north, and west, and southern riparian forest borders the site to the south. Non-native grassland, oak trees, southern riparian forest, and urban developed occur on the project site. The Fire Threat Maps prepared by the California Department of Forestry show that the project site has a fire threat ranging from little or no threat throughout the majority of the site, to areas of moderate threat along the western, northeastern, and southwestern edges. The fire threat of surrounding land ranges from little or no threat to moderate and a small area to the south has a fire threat of high.

The project area consists of seven adjacent parcels (APNs: 395-250-08, 395-250-09, 395-250-15, 395-250-22, 398-110-09, 398-110-10, 398-110-75) totaling approximately 13 acres along Los Coches Creek, including an associated southern riparian forest and coast live oak trees. Developed areas onsite include a commercial business (recycling facility) and two existing, abandoned residential structures are located on the project site, one south of Pecan Park Lane and one north of Pecan Park Lane. Pecan Park Lane bisects the site from west to east, but will be vacated as part of the project. The site is bounded by Olde Highway 80 to the north, Old Rios Canyon Road to the east, Los Coches Creek to the south, and Lake Jennings Park Road to the west. Much of the

property was formerly cultivated, but these fields are now covered with dense, primarily non-native grasses.

The project area is generally flat, with elevations ranging onsite from 654 feet above mean sea level (AMSL) within Los Coches Creek in the southern portion of the creek, to 693 feet AMSL near the western portion of the property.

Along the southern boundary encompassing Los Coches Creek, southern riparian forest habitat is found onsite. Approximately 1.48 acres of this habitat occurs onsite. Black willow, arroyo willow, and California sycamore dominate this habitat. The presence of several exotics such as California pepper, pecan trees, and olive trees indicate the disturbed nature of this habitat. In addition, individual coast live oak trees occur toward the upper portions of the bank and above the top of the bank. This area will be included in the open space easement associated with the project.

The project site is surrounded by a variety of uses. East of the project site is a mobile home park. Development further east on Olde Highway 80 includes industrial uses (Freeway Industrial Park) and single family residential. The Freeway Industrial Park is on Bond Avenue between Olde Highway 80 and I-8. To the east/northeast of the proposed project, northeast of I-8, are open space areas and lower-density tract homes, including the equestrian-focused community of Blossom Valley, which consists of larger estate homes on large lots. This neighborhood and the eastern portion of the Flinn Springs neighborhood lie outside the urban limit line. Flinn Springs Park, a 40-acre day-use park owned and operated by the County of San Diego, is located approximately one mile east of the proposed project on Olde Highway 80. The Flinn Springs neighborhood also contains commercial and residential development.

To the south are riparian oak woodlands associated with Los Coches Creek, single-family residences along Kelli Lane, a 128-unit mobile home community, and open space. The areas to the south/ southeast of the project site include open space and orchards on steeply rising topography, with the communities of Crest, Dehesa, and Harbison Canyon several miles away on the other side of the ridge. These communities, which are not visible from the project site, are primarily lower-density residential areas that are equestrian-focused.

To the west of the site is a church (East Valley Christian Fellowship) and vacant land. The area to the northwest includes the communities of Lakeview, central Lakeside, Winter Gardens, and portions of the City of Santee. The area, bounded by Lake Jennings Park Road, I-8, and State Route (SR-67), is urbanized, with a blend of single-family residences, mobile-home parks, and commercial uses. The area to the west/southwest of the project area includes commercial and residential portions of the City of El Cajon. El Cajon is primarily developed to its eastern boundary with a blend of lower-density residential, mobile homes, open space, and commercial centers adjacent to I-8, which typify the area between the City of El Cajon jurisdictional line and the proposed project site.

I-8 and some commercial development along Olde Highway 80 are located to the north of Pecan Park Lane. This commercial development includes a 7-11 convenience store, a travel agency, a taco shop, an Italian restaurant, a liquor store, and a Burger King fast-food restaurant. Heading north from this intersection on Lake Jennings Park Road leads under the interchange, passing the properties developed with an ARCO gasoline station and a Jack-in-the-Box fast-food restaurant. The area to the north is central Lakeside, and includes over 100 single-family residences and approximately 400 mobile homes on rising topography. Lake Jennings County Park and additional open space areas lie farther to the north.

Climate

The County is divided into five climate zones from the coast to the desert (Climates of San Diego County, Agricultural Relationships, University of California, Agricultural Extension Service, and U.S. Weather Bureau). These climate zones are determined by several factors: proximity to the ocean, terrain, elevation, and latitude. Using the Koppen system, the metropolitan areas of Southern California have a Mediterranean climate, characterized by mild, sometimes wet winters and warm, very dry summers. The Mediterranean climate includes all coastal areas, valleys, and foothills. Annual precipitation amounts increase gradually from the coast to the mountain crests, then drop dramatically in the deserts. Most precipitation comes from winter storms between November and March. The site is located within the transitional climate zone. Average rainfall is 14 inches per year (Western Regional Climate Center).

2.0 GUIDELINES FOR THE DETERMINATION OF SIGNIFICANCE

Section 15382 of the State CEQA Guidelines states that a significant effect on the environment means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by a project, including land, air, and water. An affirmative response to, or confirmation of any one of the following guidelines, will generally be considered a significant effect related to wildland fire and fire protection as a result of the project, in the absence of evidence to the contrary:

1. The project cannot demonstrate compliance with all applicable fire codes.
2. A comprehensive Fire Protection Plan has been accepted, and the project is inconsistent with its recommendations.
3. The project does not meet the emergency response objectives identified in the Public Facilities Element of the County General Plan or offer feasible alternatives that achieve comparable emergency response objectives.

Based on the analysis in Sections 4.1 through 4.7, the following determinations can be made:

- The project will comply with all current California Fire and Building Codes as listed in Appendix A.

- This Fire Protection Plan has been prepared to ensure compliance with all applicable fire codes and emergency response objectives. This FPP assesses emergency services, water supply, fire access, fire modeling, vegetation and defensible space management, fire protection systems, and fuel modification. The project as it has been proposed is consistent with the recommendations of this FPP, including fuel modification requirements.
- The project meets the emergency response objectives identified in the Public Facilities Element of the County General Plan. As discussed in Section 4.1, Adequate Emergency Services, the project is located within the LFPD, which encompasses 50 square miles. Station No. 3 of the LFPD is located approximately 0.5 mile from the project site. The Project complies with the County's travel time requirements.

The project would result in a project direct or cumulative impact to fire safety if:

1. The project results in altered governmental facilities, or the need for new facilities, in order to maintain acceptable service ratios, response times, or other performance service ratios for fire protection service.
2. The project results in the exposure of 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.

Based on the assessment provided in Section 4.0, the project would not result in the need for new facilities for fire protection service and it would not result in the exposure of people or structures to a significant risk of loss, injury, or death involving wildland fires.

3.0 ANTICIPATED FIRE BEHAVIOR IN THE VICINITY

The project site is located in an area of topography consisting of gentle slopes and a range in elevation from 654 to 693 feet above mean sea level. The project site is mapped within an area of little to moderate fire threat, as identified by the California Department of Forestry and Fire Protection's Fire and Resources Assessment Program (FRAP), and this threat assessment is based on the combination of potential fire behavior (Fuel Rank) and estimated fire frequency (Fire Rotation), as shown in Figure 4. However, the surrounding land, including but not limited to Los Coches Creek, has a moderate to high fuel threat. In addition, the project site has been identified by CAL FIRE as within an area of very high fire hazard severity, which is based on factors such as fuels, terrain, weather, and the potential for causing ignitions to buildings. The project area is identified as unburned over the past 100 years according to the California Department of Forestry and Fire Protection, although major fires within the San Diego County area, such as Flinn (1986), Dunbar (1978) and Laguna (1970), occurred in the surrounding areas.

Modifications to the site resulting from implementation of the Project are anticipated to reduce fire hazard relative to pre-construction conditions. All buildings will meet fire code requirements intended to reduce risk of ignition. In addition, the revegetation site will be planted with low fuel mod plants with anticipated lower fire hazard than existing site conditions. The part of the site adjacent to Las Coches Creek will also be subject to removal of invasive exotic species, such as giant reed, that have higher fuel load and pose a greater fire hazard than the existing native riparian vegetation on site. Therefore, removal of such species should also reduce the fire potential of the site post-construction.

4.0 ANALYSIS OF PROJECT EFFECTS

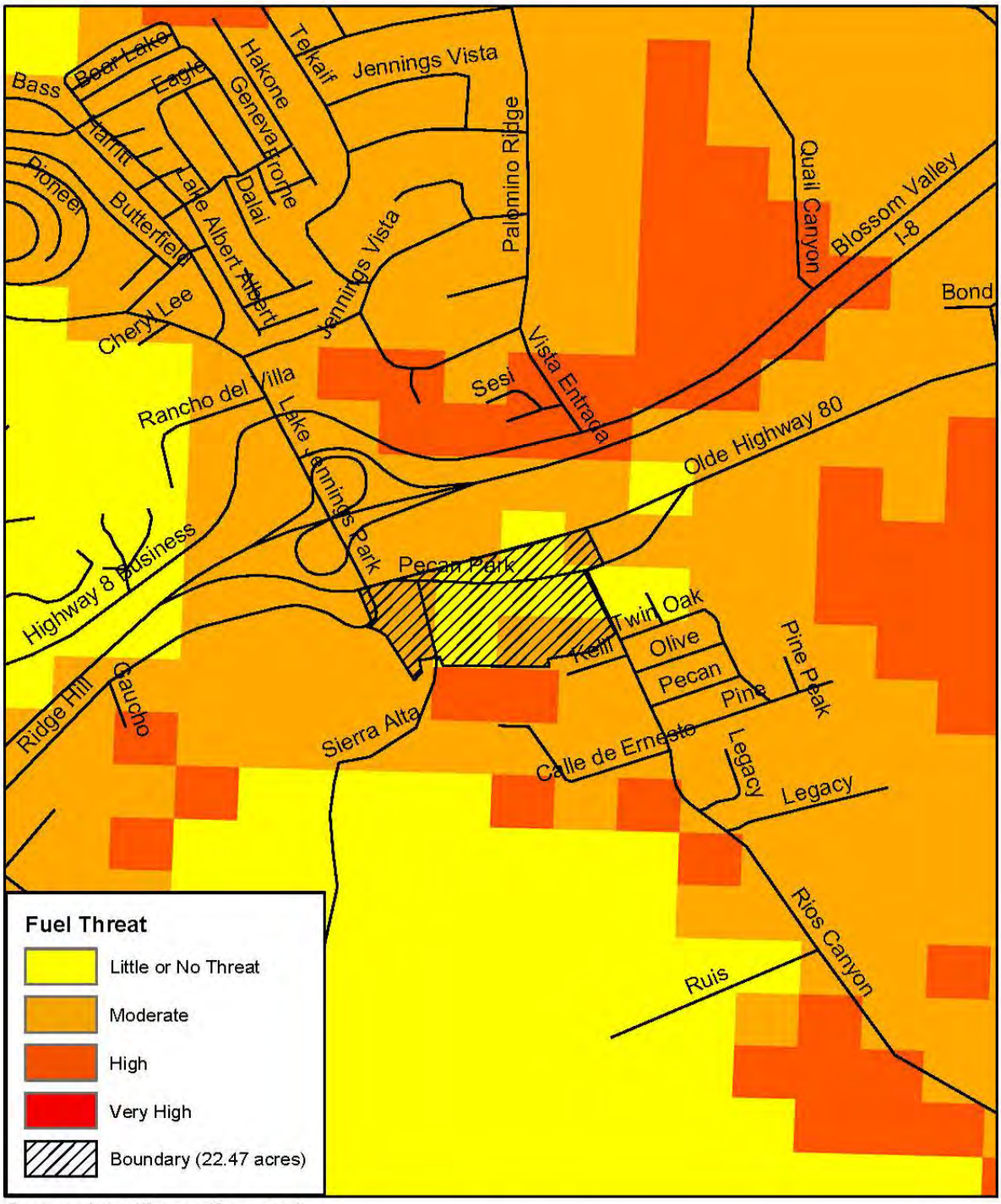
4.1 Adequate Emergency Services

The project site is located within the jurisdictional boundary of the Lakeside Fire Protection District (LFPD). The LFPD covers 50 square miles and has a population of 65,000 persons. LFPD Station No. 3 is located approximately 0.5 mile from the project site at 14008 Highway 8 Business. Equipment at this station includes a Type 1 Engine with a Rescue Company and aerial device, and a brush engine. Each of these trucks contains a three-member crew. The station also has two paramedics and a fire chief. Response time to the project site is three minutes (LFPD 2005). Additional fire protection resources are available from Station No. 26 on Oak Creek Road in the Blossom Valley area and from Station No. 1 on Riverview Street in downtown Lakeside.

4.2 Fire Access

Fire apparatus access roads are required in conformance with Section 903.2 of the County Fire Code. The fire apparatus access road(s) shall meet the following specifications:

1. Fire Apparatus Access Roads (also known as “Fire Lanes”) shall have a minimum unobstructed width of not less than twenty-four (24) feet.
2. Fire Apparatus Access Roads shall be provided with an approved driving surface such as Asphaltic base, prior to bringing any combustible building product onsite.
3. Any road widths less than thirty-six (36) foot improved paved width shall be posted with signs and red curbs with white stenciling indicating it is a Fire Lane that is plainly visible from a vehicle. This information shall be recorded as a covenant on the Parcel Map.
4. All gates or other structures or devices that could obstruct Fire Apparatus Access Roads or otherwise hinder emergency operations are prohibited unless they meet standards approved by the District, and receive specific plan approval.
5. Numbers and addresses shall be placed on all new or existing buildings in such a position as to be plainly visible and legible from the street or road fronting the property to the satisfaction of the LFPD.



Source: http://frap.cdf.ca.gov/

Figure 4
Fire Threat Map
Lake Jennings Village

4.3 Water

The project is located within both Helix and Padre Dam Water Districts. The project is proposing to annex the entire site into the Padre Dam Municipal Water District (PDMWD). The project has obtained a Service Availability letter from the PDMWD (Appendix B). Fire hydrants together with the required fire flow of 2,500 gallons per minute at 20 psi residual shall be installed in accordance with the PDMWD, the LFPD, and San Diego County Standards.

1. The number, type, and location of fire hydrants is to be determined by the LFPD prior to issuance of building permits.
2. On paved roads, a blue reflective pavement marker shall be installed to indicate the location of the fire hydrants.
3. Design of the water supply shall be submitted to the LFPD and the Padre Municipal Water District for approval prior to the issuance of a building permit.
4. The developer shall provide a letter from the PDMWD stating the required fire flow in gallons per minute is available to the site.
5. Water supply system and hydrants shall be installed and tested prior to bringing any combustible building product onsite.
6. Fire sprinkler systems are required for interior protection of all structures in accordance with the specifications of the National Fire Protection Association pamphlet #13. Automatic sprinklers shall also be provided in all areas beneath covered parking areas, garages, and trash enclosures.

The fire sprinkler system shall be supervised (monitored twenty-four hours a day) and provided with a local fire alarm that will notify all occupants on the activation of any flow of water or the operation of a manual pull station.

4.4 Ignition-Resistant Construction and Fire Protection Systems

The LFPD may require fire-resistive construction when allowing the fuel modification zone to be less than 100 feet in width from the structure, , or as an alternative to increasing fire flow as described in Section 903.4.5, or when the development is located above a slope that will influence fire behavior and with dense chaparral or highly combustible trees. Due to a proposed fuel management zone of 40 to 80 feet and the project site being located within the wildland-urban interface, all structures on-site shall be required to conform to the ignition-resistant standards of the County Building Code.

The project proposes the development of a commercial shopping center with 76,100 square feet (sf) of building area. The project would include six structures, all of which will be located on individual lots. The proposed buildings have been designed to use non-combustible materials, including stucco siding and tile roofs. The project is required to conform to existing regulations pertaining to fire safety, including Section 902.9 of the California Fire Code (CFC), as well as to the ignition-resistant standards of the County

Building Code. . In addition, all of the buildings for the project will be constructed in conformance with Chapter 7A of the County Consolidated Fire Code. A manual and automatic local fire alarm system shall be provided for each building or portion thereof in accordance with the most current edition of the California Fire and Building Codes.

A six-foot non-combustible block wall with stucco covering will be placed along the southern edge of development, adjacent to the equestrian trail to provide increased fire resistance and protection from the proposed open space. This wall is mapped on Figure 5.

4.5 Fire Fuel Assessment

Several factors were taken into consideration when developing the fuel modification zones and management of the zones, including topography, degree of exposure, lot size, and proximity to biological open space. In addition, the plan was developed with watershed protection and suitability of proposed plant species with regard to adjacency to biological open space as a consideration.

Developed habitat surrounds the project site to the east, north, and west, and southern riparian forest borders the site to the south (Figure 6). The project site has a fire threat ranging from little or no threat throughout the majority of the site, to areas of moderate threat along the western, northeastern, and southwestern edges (Figure 4). The fire threat of surrounding land ranges from little or no threat to moderate threat, and a small area to the south has a high fire threat.

The portion of the open space within 100 feet of the proposed structures is going to be re-vegetated with low fuel native plants as summarized here and described within the revegetation plan for the project. The revegetation site is located between the northern limits of open space and southern riparian forest (Figure 5). The revegetation area varies in width from 25 feet to 55 feet and will provide a low fuel native buffer for the southern riparian forest. The plan proposes a sparsely planted buffer to provide habitat suitable for raptor foraging. The revegetation area will be planted with a combination of container plants and hydro-seed mix to create a sparse shrub/grassland community. Additionally, invasive exotic plant species such as Arundo will be removed from the open space. This will be limited to the removal of plant species included on the California Invasive Plant Council (Cal-IPC) Invasive Plant Inventory (included in the Revegetation Plan) (Cal-IPC 2006). The purpose of the invasive exotic plant removal is to return the wetland to a healthy condition, which would also be less flammable then the current condition.

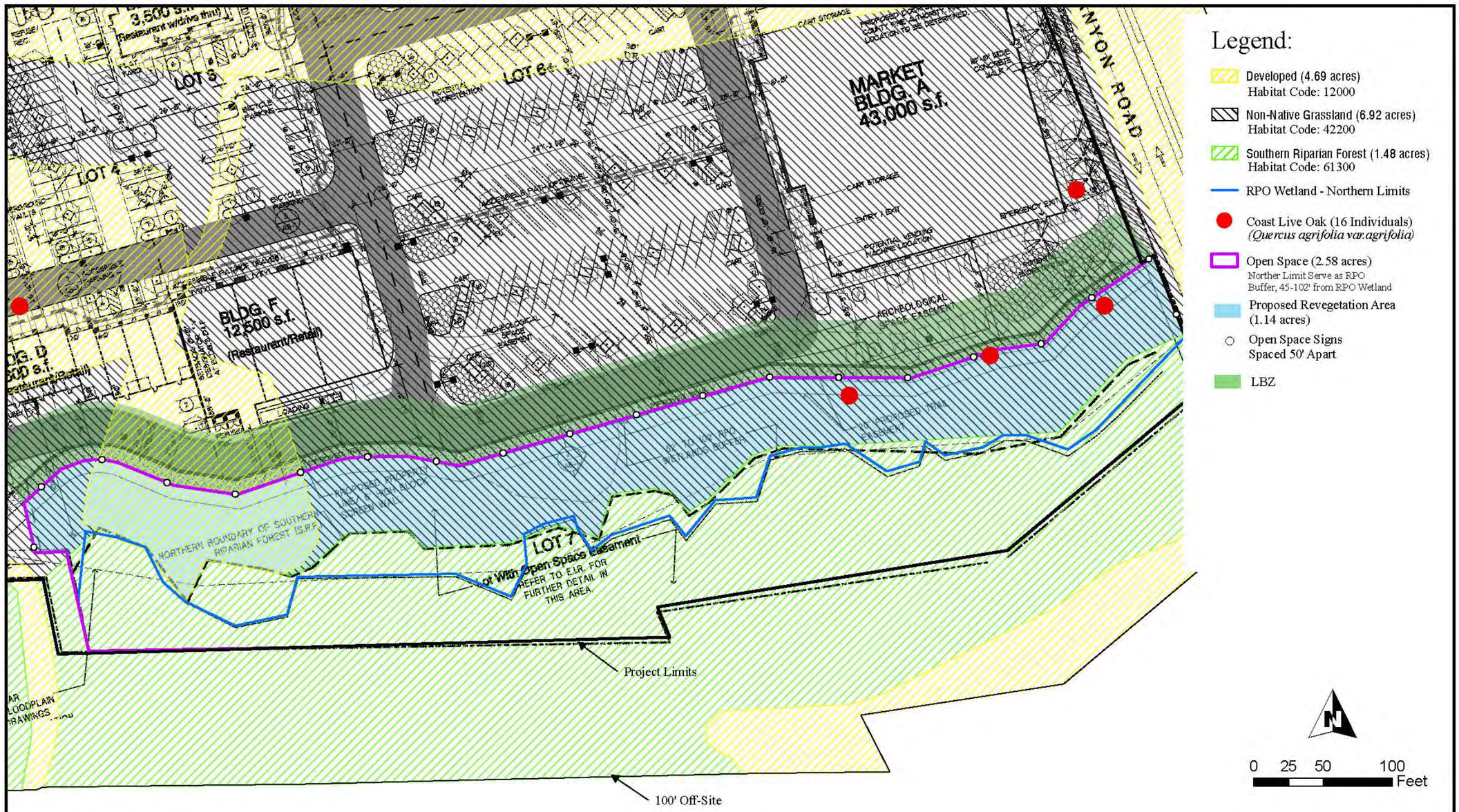
The plant palette will be composed of native plants suitable for the location of the project site. Factors taken into account when selecting the plants for the site included local climate, ability to naturalize, and low flammability. The following table identifies the plant palette for the 1.14-acre revegetation effort.

Table 1
Species Composition for the Proposed Revegetation Buffer

Species	Number/Acre	Number Planted	Size
Blue dicks (*Dichelostemma capitatum*)	1 lb/ac	1.14 lb	Seed
Blue-eyed grass (*Sisyrinchium bellum*)	1 lb/ac	1.14 lb	Seed
California blackberry (*Rubus ursinus*)	36/ac	41	1 Gallon
California rose (*Rosa californica*)	36/ac	41	1 Gallon
Douglas mugwort (*Artemisia douglasiana*)	1 lb/ac	1.14 lb	Seed
Deerweed (*Acmispon glaber*)	36/ac	41	1 Gallon
California poppy (*Eschscholzia californica*)	1 lb/ac	1.14 lb	Seed
Lupine (*Lupinus bicolor*)	1 lb/ac	1.14 lb	Seed
Purple needle grass (*Stipa pulchra*)	8 lb/ac	9 lbs	Seed
Owl's clover (*Castilleja exserta*)	1 lb/ac	1.14 lb	Seed
Sticky monkeyflower (*Mimulus aurantiacus*)	36/ac	41	1 Gallon

4.6 Fire Behavior Modeling

In order to determine the fuel threat posed by the vegetation being created within the open space on-site, fuel modeling was performed for the worst-case scenario, a Santa Ana Weather Condition with a wind of 70 miles per hour. Fuel modeling was performed using the USDA Forest Service BehavePlus Fire Modeling System Version 4.0 for three types of weather conditions: a Santa Ana weather condition, a peak weather condition, and a summer weather condition. Weather data for the Santa Ana, peak, and summer conditions were determined by the Standard Weather Parameters for the Transitional Zone (the zone the project is located in) from the County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements – Wildland Fire and Fire Protection (County 2010). Table 2 identifies the weather inputs for each of the three weather conditions.



RC **Biological Consulting, Inc.**	**Open Space Map** **for the Lake Jennings Marketplace** **January 2015**	**Figure 5**

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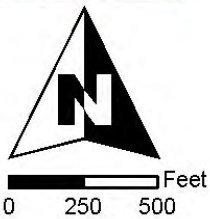
Aerial Access 2000

Figure 6
Surrounding Land Use
Lake Jennings Village



The modeling is summarized here and included as Appendix C. Two fuel models were run: GS2, which is a moderate load, dry climate grass/shrub habitat, and SCAL18, which is for coastal sage scrub. The GS2 model better represents the intended results of the revegetation; however, the coastal sage scrub model was also run for a more conservative estimate. Table 3 identifies the habitats and fuel models used to represent each habitat.

Table 2
Weather Inputs for the Transitional Zone

Period	Temperature (Fahrenheit)	Relative Humidity	Sustained Wind Speed (mph)
Santa Ana	109º	5-9%	28
Peak	109º	5-9%	41
Summer	109º	10-14%	19

Table 3
Habitats and Fuel Models

Habitat	Fuel Model	Description*
Dry Climate Grass/ Shrub	GS2	This fuel model is a moderate load, dry climate grass/shrub habitat.
Coastal Sage Scrub	SCAL 18	This fuel model has been developed for a common Southern California habitat, coastal sage scrub.

***** The complete model parameters are included as Appendix C.

The full results of the modeling are included in Appendix C. A summary of the results for each weather period is provided below.

Santa Ana Conditions

A Santa Ana weather condition is potentially the worst weather for fire. Santa Ana's typically occur from September to May. The fall Santa Ana's can create extremely dangerous fire conditions because they are associated with high temperatures, high winds coming from the north/northeast, and low humidity. They also occur after long periods of no rain when the vegetation is in a drought stress condition. The soft shrubs that compose habitats such as coastal sage scrub are semi-drought deciduous and have typically lost the majority of their foliage by the end of summer.

Modeling was performed using the Santa Ana weather conditions identified in Table 2 and the fuel model identified in Table 3. The model results are presented in Table 4.

Table 4
Results for a Santa Ana Fire

	Grass/Shrub	Coastal Sage Scrub
Flame Length	12'	29'
Rate of Spread (Chains/hour)	122'	114'

Peak Conditions

Peak conditions are the extreme conditions during a Santa Ana event. The peak winds represent the gusts that occur during a Santa Ana.

The fire behavior would be essentially the same as during a Santa Ana. However, the gusts could significantly increase the rate of spread and the distance that fire brands travel during the time that they are occurring.

Modeling was performed using the Santa Ana weather conditions identified in Table 2 and the fuel model identified in Table 3. The model results are presented in Table 5.

Table 5
Results for Peak Conditions

	Grass/Shrub	Coastal Sage Scrub
Flame Length	16'	34'
Rate of Spread (Chains/hour)	212'	162'

Normal Weather Conditions

Normal weather conditions consist of an onshore flow from the southwest. This condition has a lower temperature and higher humidity than does a Santa Ana condition.

A fire under normal conditions is typically a fuel driven fire. However, wind will also contribute to the rate of spread. A fire that started offsite to the south would also be influenced by topography. The winds would have to push the fire uphill.

Modeling was performed using the Santa Ana weather conditions identified in Table 2 and the fuel model identified in Table 3. The model results are presented in Table 6.

Table 6
Results for Normal Conditions

	Grass/Shrub	Coastal Sage Scrub
Flame Length	10'	25'
Rate of Spread (Chains/hour)	70'	81'

As can be seen from the modeling, the greatest anticipated flame length is from the vegetation burning during a peak Santa Ana fire. The resulting flame length would be 34 feet according to the modeling. The remaining flame lengths are less than 34 feet. The model is a conservative estimate of the flame lengths that can be anticipated on the project site. Actual fire behavior can be more or less intensive.

The results of the fire modeling indicate an average flame length of 16 feet for the Grass/Shrub model and 34 feet for the coastal sage scrub model. A minimum of 40 feet up to 80 feet of fuel modification is provided north of the six-foot non-combustible wall that will be constructed 10 feet north of the open space (Figure 7). The non-combustible wall will be constructed 10 feet north of the open space area and will be constructed of 8-inch block and finished with stucco. The 10 feet south of the wall and north of the open space will be an equestrian trail that will not contain any fuel and would result in a minimum of 40 feet and up to 80 feet in the fuel management zone (Figure 7). This distance is greater than the flame length for either model.

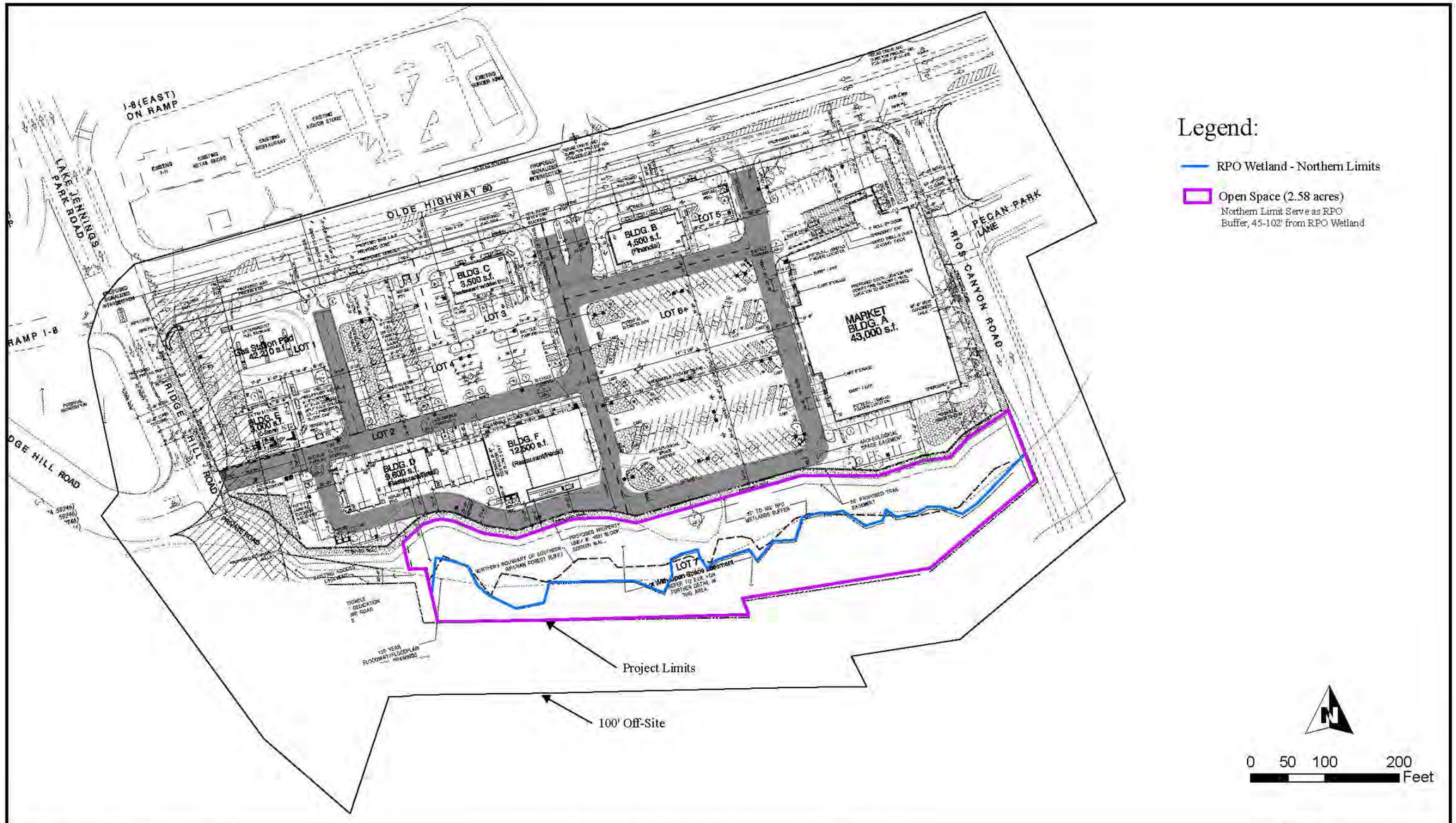
The use of fire resistive construction, the non-combustible wall, and fire sprinklers will reduce the potential for the structures to burn. Additionally, the fire would be pushed away from the structures under a Santa Ana condition. Therefore, the fuel modification zone for this project may include areas less than 100 feet in width adjacent to on-site open space. Several factors were taken into consideration when determining the fuel management zone, including topography, degree of exposure, parcel size, and proximity to biological open space.

4.7 Defensible Space and Vegetation Management

The fuel modification zone will be composed of fully landscaped and irrigated plantings north of the non-combustible wall and the 10-foot equestrian trail south of the wall (Figure 7). Plantings in this zone shall not create fire hazards near structures. The Conceptual Landscape Plan developed by James P. Beneditti, Landscape Architect (JPBLA) (Map Pocket) conforms with the required measures set forth in this plan. The following measures will ensure that fire hazards near buildings are reduced:

- Highly flammable plants adjacent to structures will be prohibited.
- Plants will only be selected from the County of San Diego “Acceptable Plants for a Defensible Space in Fire Prone Areas” included as Appendix D or other as approved by the Fire Marshal.
- Plants on the County’s Undesirable Plant List (Appendix E) shall not be planted.

Trees planted for perimeter screening may be clustered in groups of no more then three, with the mature foliage of any group separated by a minimum horizontal distance of 10 feet.



RC Biological Consulting, Inc.	**Fuel Management Zone for the Lake Jennings Marketplace** **January 2015**	**Figure 7**

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Irrigation

Permanent irrigation shall be provided in the fuel management zone. Irrigation within this area will conform to any applicable County Landscape Requirements.

Maintenance

Maintenance within this zone shall be performed year-round and shall include the following tasks:

- All portions of trees shall be removed a minimum distance of 10 feet, measured on a horizontal plane, with unobstructed clearance from ground level to the sky, from all chimneys or fireplaces installed or built on the proposed project site.
- Any portions of trees overhanging buildings shall be maintained free of dead wood or other dead vegetative matter.
- Vegetation thinning (“lacing”) of all trees, removal of dead vegetative matter, and trimming of hanging limbs shall be performed at a minimum of annually or on an as needed basis.
- Trees overhanging roads must be maintained with a minimum of 13'6″ of vertical clearance at all times.
- As maturity allows, tree limbs shall be trimmed to provide a minimum of 6 feet of vertical clearance between the limb and ground, or trimmed to provide clearance of three times the height of the understory plant material, whichever is higher.
- Roofs and drainage gutters shall be maintained free of needles, leaves and other dead vegetative matter.
- Trash and combustible debris shall be cleared from around structures.
- Irrigation systems will be maintained to ensure that they function properly and plantings are watered sufficiently to maintain succulent growth.
- Debris and trimmings produced by thinning and pruning shall be removed from the site.

4.8 Cumulative Impact Analysis

All of the cumulative projects fall within the service area of the LFPD. Like the currently proposed project, each of the cumulative projects will be required to pay Fire Service District Fees as a condition of project approval. The fees are proportionate to the size and type of development proposed. These fees are used by LFPD to add resources to their stations, including fire fighting equipment and staff as the demand for fire protection services increases. The payment of these fees will ensure adequate fire protection resources are available through LFPD to serve all projects in the area. Therefore, cumulative impacts related to the provision of fire protection services are determined to be less than significant.

Each of the cumulative projects, along with the currently proposed project, will be required to comply with existing regulations that pertain to fire protection, including the CFC, and the requirements of the LFPD. Therefore, these projects will be designed and constructed to minimize the potential for harm to people and structures due to fire. This would include adequate emergency access, selection of building materials, and fuel management (when applicable). Adherence to these requirements would reduce the potential for loss of life and property due to fire. Therefore, cumulative impacts related to this issue are determined to be less than significant.

5.0 MITIGATION MEASURES AND DESIGN CONSIDERATIONS

Per conditions in the Tentative Map, the project applicant shall be required to construct a six-foot non-combustible block wall with stucco covering along the southern edge of the development area, north of the trail, as shown on Figures 5 and 7. In addition, the project establishes a 40 to 80-foot fuel modification zone.

6.0 CONCLUSION

The project, as designed, will provide fire hydrants to meet the specification of the LFPD, PDMWD, and County of San Diego Standards. Based upon the analysis presented in Chapter 4, development of the project will not result in a significant impact to fire protection resources from the LFPD.

The provision of a six-foot masonry wall, as identified in the mitigation measure identified above in Section 5.0, will provide a non-combustible barrier between the open space area and the project development. Based upon the analysis in Section 4.8, cumulative fire safety impacts were determined to be less than significant. In conclusion, with implementation of project design features identified in Section 5.0, fire safety impacts will be reduced to below a level of significance.

7.0 LIST OF PREPARERS AND PERSONS AND ORGANIZATIONS CONTACTED

List of Preparers

Robin Church – RC Biological Consulting, Inc.
Shelly Austin – Senior Biologist, HDR, Inc.

List of Persons and Organizations Contacted

J. Charles Weber – Deputy Fire Marshal/Fire Captain, Lakeside Fire Protection District

8.0 REFERENCES

Cal-IPC. 2006. California Invasive Plant Inventory.

CEQA Guidelines. Section 15382. Significant Effect on the Environment.

County Consolidated Fire Code. 2001. Chapter 49.

County of San Diego. 2010. Guidelines for Determining Significance and Report Format and Content Requirements – Wildland Fire and Fire Protection.

Lakeside Fire Protection District. 2005.

USDA Forest Service BehavePlus Fire Modeling System Version 4.0. Patricia L. Andrews, Collin D. Bevins, and Rober C. Seli. July 2008.

Western Regional Climate Center. 2014. http://www.wrcc.dri.edu

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APPENDIX A

FIRE DISTRICT CORRESPONDENCE

County of San Diego, Planning & Development Services

PROJECT FACILITY AVAILABILITY - FIRE

ZONING DIVISION

F

Please type or use pen

SOUTH COAST DEVELOPMENT LLC 858-720-6675
Owner's Name Phone

PO BOX 1053
Owner's Mailing Address Street

SOLANA BEACH CA 92075
City State Zip

ORG_____
ACCT_____
ACT_____
TASK_____
DATE_____ AMT $_____

DISTRICT CASHIER'S USE ONLY

SECTION 1. PROJECT DESCRIPTION — TO BE COMPLETED BY APPLICANT

A.
- [x] Major Subdivision (TM)
- [ ] Minor Subdivision (TPM)
- [ ] Boundary Adjustment
- [x] Rezone (Reclassification) from RU15 to C36 zone.
- [ ] Major Use Permit (MUP), purpose:
- [ ] Time Extension...Case No.
- [ ] Expired Map...Case No.
- [x] Other GPA (VR15 TO GC-13) AND SITE PLAN
- [ ] Specific Plan or Specific Plan Amendment
- [ ] Certificate of Compliance:

B.
- [ ] Residential ..... Total number of dwelling units
- [x] Commercial ..... Gross floor area 76,100 SF
- [ ] Industrial ..... Gross floor area
- [ ] Other ..... Gross floor area

C. Total Project acreage 13.1 Total lots 8 Smallest proposed lot 20,529

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

395-110-9/10	395-110-75
395-250-08/09	395-250-15/22

Thomas Guide. Page 1232 Grid F5

OLD HWY 80 AND LAKE JENNINGS PARK RD
Project address Street

LAKESIDE
Community Planning Area/Subregion Zip

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

Applicant's Signature: Keith Gregory Date: JUNE 23, 2014

Address: PO BOX 1053 SOLANA BEACH, CA 92075 Phone: 858-720-6675

(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: Lakeside FPD

Indicate the location and distance of the primary fire station that will serve the proposed project:
Firestation 3, 14008 Hwy 8 Busines, 0.5 miles

A.
- [x] 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.
- [x] 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 1.5 minutes.
- [ ] Fire protection facilities are not expected to be adequate to serve the proposed development within the next five years.

C.
- [x] District conditions are attached. Number of sheets attached: 3
- [ ] 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.

- [x] Within the proposed project 100 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.

Authorized Signature	*Print Name and Title*	*Phone*	*Date*
James Pine	JAMES PINE, DFM	858.495.5434	7/15/14

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)

HERMAN REDDICK
PROGRAM MANAGER
(858) 974-5999
FAX (858) 467-9662

County of San Diego

Public Safety Group
San Diego County Fire Authority
5510 Overland Ave, Suite 250, San Diego, CA 92123-1239
www.sdcountyfire.org

SUSAN QUASARANO
PROGRAM COORDINATOR
(858) 974-5924
FAX (858) 467-9662

July 15, 2014

Vance and Associates
224 Seeman Dr.
Encinitas, CA 92024

Ref: **Project Facility Availability Form (399F)**
APNs 395-110-9/10, 395-250-08/09, 395-110-75, 395-250-15/22
Lake Jennings Market Place

Following are the County Fire Marshal's Office comments in response to a request for a Project Facility Availability Form, and are preliminary in nature.

FIRE ACCESS ROADWAYS - Road design

1. Fire access roadways shall be extended to within 150 feet of acceptable fire fighter/ hoseline access to all ground level exterior portions of proposed buildings.

2. Proposed on-site roadways will be designed to support the imposed load of fire apparatus (not less than 75,000 lbs).

3. A vertical clearance of not less than 13 feet 6 inches shall be maintained.

4. No construction involving combustible materials on the subject property can take place until fire access roads are installed and fully meet code requirements. (Exception: If prearranged with the fire authority having jurisdiction, asphalt paving may be installed with the exception of the final lift, which may be postponed until just before building final if desired for roadway cosmetic purposes.)

FIRE ACCESS ROADWAYS – Gates or other obstructions

Any gate or other obstruction which could delay or otherwise impede emergency response must meet County Consolidated Fire Code and be approved by the County Fire Marshal.

FUEL MODIFICATION ZONE

1. A fuel modification zone of not less than 100-foot is required around all structures, in accordance with the specifications of the County Consolidated Fire Code (unless modified per the recommendations of the Fire Protection Plan—see below).

2. The fuel modification zone must be established and maintained by thinning, clearing away or modifying combustible vegetation within the zone. The fuel modification zone may be re-planted with either approved irrigated, fire-resistant planting material or approved non-irrigated, drought-tolerant, fire-resistant plant material. Re-planting with approved plant material may be required for erosion control.
   EXCEPTIONS:
   a) Single specimens of trees, ornamental shrubbery or similar plants used as ground covers, provided that they do not form a means of rapidly transmitting fire from the native growth to any structure.
   b) Grass and other vegetation located more than 50 feet from buildings or structures and less than 18 inches in height above the ground need not be removed where necessary to stabilize the soil and prevent erosion.

3. This does NOT authorize clearing beyond property line.

4. Per section 4907.1.1 of the County Consolidated Fire Code, all structures must be setback a minimum of 30 feet from all Biological Open Space Easements.

FIRE PROTECTION – Automatic fire sprinklers

All new commercial buildings shall be equipped with fire sprinklers to NFPA 13 and County of San Diego standards.

FIRE PROTECTION – Fire Protection Plan

The project will be located in Very High Fire Hazard Severity Zone as determined by CAL FIRE FRAP mapping and will be adjacent a protected riparian area to the south of the project. A Fire Protection Plan shall be provided and be formatted per the County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements—Wildland Fire and Fire Protection.

WATER SUPPLY—Fire hydrants and water mains

1. Offsite and multiple onsite fire hydrants will be required to serve to the project—at locations to be determined by the County Fire Marshal.

2. Water main extensions may be required for the project and the water purveyor may require the looping of the water system to serve the project.

The fire flow capacity for the water main serving the fire hydrants shall be a minimum of 2,500 gallons per minute.

3. Fire hydrants are to be commercial-type with one 4-inch and two 2 ½ -inch ports. Fire hydrants are to have approved blue dot markers in the street.

BUILDING PLAN REVIEW (informational only)

1. At the time of building plan review, the Fire Marshal will check for fire code compliance with the County Consolidated Fire Code, County Building Codes, and other applicable standards. Plans will be reviewed for elements including (but not limited to):
    - Class A roofing
    - Non-combustible exterior walls
    - Dual pane/tempered or tempered glazing
    - Vent restrictions
    - Eaves enclosed, not vented

Additional requirements or modification of these requirements may result from more detailed review. Please call or email me if you have any questions or need clarification – (858) 495-5434 or James.Pine@sdcounty.ca.gov.

Sincerely,

James Pine, Deputy Fire Marshal
San Diego County Fire Authority
Public Safety Group

APPENDIX B

WATER DISTRICT SERVICE AVAILIBILITY FORM

COUNTY OF SAN DIEGO
DEPT. OF PLANNING & LAND USE

PROJECT FACILITY AVAILABILITY FORM

WATER

Please type or use pen

SOUTH COAST DEVELOPMENT LLC — Phone 858 720-6675
Owner's Name

PO BOX 1053
Owner's Mailing Address

SOLANA BEACH — CA — 92075
City — State — Zip

ORG
ACCT
ACT
TASK
DATE — AMT $
DISTRICT CASHIER'S USE ONLY

SECTION 1. PROJECT DESCRIPTION — TO BE COMPLETED BY APPLICANT

A. [X] Major Subdivision (TM) — [ ] Specific Plan or Specific Plan Amendment
[ ] Minor Subdivision (TPM) — [ ] Certificate of Compliance
[ ] Boundary Adjustment
[X] Rezone (Reclassification) from ___ to ___ zone
[ ] Major Use Permit (MUP), purpose
[ ] Time Extension Case No.
[ ] Expired Map Case No.
[ ] Other GPA AND SITE PLAN

B. [X] Residential — Total number of dwelling units 196
[ ] Commercial — Gross floor area
[ ] Industrial — Gross floor area
[ ] Other — Gross floor area

C. [X] Total Project acreage 13 Total number of lots 1

D. Is the project proposing the use of groundwater? [ ] Yes [X] No
Is the project proposing the use of reclaimed water? [ ] Yes [X] No

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

395	250	8,9,15 AND 22
398	110	9, 10 AND 75

Thomas Bros. Page 1232 Grid F5

Project address — Street
LAKESIDE
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 LEE VANCE — Date MAY 2, 2005

Address 224 SEEMAN DRIVE ENCINITAS CA 92024 — Phone 760-436-4593

(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 PADRE DAM MUNICIPAL WATER DISTRICT — Service area ESA, BV ZONE, I

A. [X] 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. [X] Facilities to serve the project [X] 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 1 (Number of sheets)
[ ] Project will not be served for the following reason(s):

C. [X] District conditions are attached. Number of sheets attached: 1
[ ] District has specific water reclamation conditions which are attached. Number of sheets attached:
[ ] District will submit conditions at a later date.

D. [ ] How far will the pipeline(s) have to be extended to serve the project?

Date 6-3-05 — Expiration Date 6-3-06 (One year from date of issuance unless district indicates otherwise.)

Authorized signature [signature] — Print name STEVE WESTON

Print title MANAGER OF DEVELOPMENT SERVICES — Phone 619-258-4635

NOTE: THIS DOCUMENT IS NOT A COMMITMENT OF SERVICE OR FACILITIES BY THE DISTRICT

On completion of Section 2 by the district, applicant is to submit this form with application to: Zoning Counter, Department of Planning and Land Use, 5201 Ruffin Road, San Diego, CA 92123

DPLU #399W (10/03)

12/07/2005 09:47 6194499469 PDMJD PAGE 01

Southcoast Dev.
(Old) Ralphs

FAXED 12-7-05

JUL 25 2006

COUNTY OF SAN DIEGO • DEPARTMENT OF PLANNING AND LAND USE

REQUEST FOR AGENCY RECOMMENDATION

Date: 7.18.05

Assessor's Parcel Number: 395-250-8, 9, 15, 22
398-110-9, 10, 75

Case Number: GPA 05-005, TM 5444
REZ 05-013, S05-047

Requested Response Date: 8.8.05

Project Location: Lake Jennings Park Road + Olde Highway 8

Attached to this transmittal is a project that was recently submitted to the Department of Planning and Land Use for the protection of the public health, safety and welfare. The Department is requesting an agency review and comment on the development application entered above. Please return this form and any written comments to the Project Processing Control Center of this Department within 20 days as indicated by the response date entered above. If there are any questions regarding this application or in completing this form, please contact the Project Processing Control Center at (858) 694-3292.

Please include the case file number on all correspondence

FOR SPECIAL DISTRICTS

FIRE DISTRICT
(WATER AGENCY)
SEWER AGENCY
SCHOOL DISTRICT

619-258-4636

Please review the proposal and provide this department with any additional information or conditions to be considered in project review.

No additional Comments at this time.

FOR COUNTY TAX COLLECTOR

Is the parcel delinquent?: Yes No (circle one)
Signature & date:

FOR COUNTY DEPARTMENTS

ANIMAL CONTROL	LIBRARY
AGRICULTURE	PARKS & RECREATION
ENVIRONMENTAL HEALTH	SHERIFF

Please review the project proposal and provide written comment of departmental concerns to be considered during discretionary review.

FOR OTHER GOVERNMENTAL AGENCIES

INCORPORATED CITY	APCD
DEPT. OF FISH AND GAME	CALTRANS
STATE AND FEDERAL FORESTRY	LAFCO
STATE DEPT. OF HEALTH	SANDAG
AND EDUCATION	RWQCB

This project may be in or adjacent to an area of concern to your jurisdiction. Please review the enclosed information and provide written comment as appropriate.

FOR PRIVATE UTILITY AND ENVIRONMENTAL GROUPS

Please review the enclosed information and provide written comment of concerns to be considered during discretionary review.

DPLU8521A (05/03)

5201 RUFFIN ROAD, SUITE B, SAN DIEGO, CA 92123-1666 • (858) 694-2960 • MS 0650 FAX: 1-800-407-6777 or (858) 694-2555

Dec 07 2005 9:56AM Vance and Associates 760-634-8127 p.2

PADRE DAM MUNICIPAL WATER DISTRICT

10887 Woodside Avenue, Santee, California 92071 - 619-448-3111

WATER AVAILABILITY ATTACHMENT
CONDITIONS OF APPROVAL

PROJECT NAME Southcoast Development For: TM 5179, Regina Center MAP NUMBER 5179 NOW 5444

A.P.N (s). For of 398-110-73, & 398-110-9 & 10, & 395-250-08, 09, 15, 22

FACILITIES

Domestic/irrigation service and fire hydrant requirements may determine if the proposed project will require a water main extension. If a water main extension is necessary, the following will be requirements to proceed with the project. The Developer / Property Owner shall:

[X] Prepare plans for a Potable Water system according to Padre Dam's Requirements.

[X] Provide the agreement and securities required by the County / City and/or Padre Dam to install the public water system required for the project.

[X] Install a Potable Water System per the Padre Dam Rules and Regulations and Standard Specifications.

[X] Pay for all installation and capacity fees for each meter connection, each lot, or each building. (As determined by project need prior to District providing service or an unconditional commitment letter)

[X] Install private/public potable water, reclaimed water and sewer lines with the required separation as determined by the Health Department and Padre Dam.

Padre Dam does not require that all lots be connected to the public water system. Alternate sources of water are under the jurisdiction of the County of San Diego, or the City of Santee.

EASEMENTS

[X] Developer shall dedicate to Padre Dam all necessary easements for that portion of the water system which is to be public

[X] Easements may be required by Padre Dam to allow for future main extensions to serve property beyond the boundaries of the map/project.

FACILITY COMMITMENT

[X] Adequate water facility commitment shall be committed prior to final project approval/map recordation and shall be available concurrent with project need. Unconditional Facility Commitment form will be signed upon payment of capacity and meter fees.

SPECIAL CONDITIONS

[X] Apply and pay for the costs of annexing all property within the project into the appropriate Padre Dam Improvement District(s). (If property outside the project's boundaries is required to be annexed into Padre Dam in order to provide service to the project, it will be the Developers/Property Owners responsibility for annexing this property.) Prior to water service, annexation of APN 398-110-73 to Padre Dam from Helix must be completed.

[X] Existing 16" water main in Pecan Park Lane must be relocated into Olde Hwy 80 from existing Rios Canyon Road on the east to future Rios Canyon Road on the west. The relocated pipeline will be upsized to 24". Padre Dam will pay for the cost of upsizing. Pipeline must be bid as both 16" and 24".

[X] Onsite water mains will be sized to accommodate required fire flows.

[X] Onsite water main will be looped by connections on the east to existing 20" pipeline in existing Rios Canyon Road, and connection on the west to new pipeline in future Rios Canyon Road.

[X] Existing 8" water main in Sierra Alta Way (now within the project area) must be relocated to future Rios Canyon Road and reconnected to the existing 8" water main on south side of project to maintain service to the existing customer south of proposed project.

[X] Padre Dam must provide approval of street vacation being requested.

[X] Water mains will need to be extended and relocated from Pecan Park Lane and Sierra Alta Way (8", 8" and 16"), to Old Highway 80 and Ridge Hill Road. Additional main extensions are determined by fire hydrant requirements. All irrigation water to be off a separate meter.

Prepared by Joni Cooley
E-33 R-7/93

Approved by: Steve Weston Sent

Date: 6-2-05

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APPENDIX C

FIRE MODELING

Fuel Model gs2

Fuel Model Number	122
Fuel Model Name	gs2
Fuel Model Type	Dynamic
Description	Moderate load, dry climate grass-shrub (D)
1-h Fuel Load	0.5 tons/ac
10-h Fuel Load	0.5 tons/ac
100-h Fuel Load	0 tons/ac
Live Herbaceous Fuel Load	0.6 tons/ac
Live Woody Fuel Load	1 tons/ac
1-h Surface Area/Vol Ratio	2000 ft2/ft3
Live Herbaceous Surface Area/Vol Ratio	1800 ft2/ft3
Live Woody Surface Area/Vol Ratio	1800 ft2/ft3
Fuel Bed Depth	1.5 feet
Dead Fuel Moisture of Extinction	15 percent
Dead Fuel Heat Content	8000 Btu/lb
Live Fuel Heat Content	8000 Btu/lb

Fuel Model SCAL18

Fuel Model Number	0
Fuel Model Name	SCAL18
Fuel Model Type	Static
Description	Sage / Buckwheat
1-h Fuel Load	5.5 tons/ac
10-h Fuel Load	0.8 tons/ac
100-h Fuel Load	0.1 tons/ac
Live Herbaceous Fuel Load	0.75 tons/ac
Live Woody Fuel Load	2.5 tons/ac
1-h Surface Area/Vol Ratio	640 ft2/ft3
Live Herbaceous Surface Area/Vol Ratio	1500 ft2/ft3
Live Woody Surface Area/Vol Ratio	640 ft2/ft3
Fuel Bed Depth	3 feet
Dead Fuel Moisture of Extinction	25 percent
Dead Fuel Heat Content	9200 Btu/lb
Live Fuel Heat Content	9200 Btu/lb

Inputs: SURFACE

Description		Lake Jennings Village Santa Ana
Fuel/Vegetation, Surface/Understory		
Fuel Model		gs2, SCAL18
Fuel Moisture		
Moisture Scenario		d111
Weather		
20-ft Wind Speed	mi/h	28
Wind Adjustment Factor		0.4
Wind Direction (from north)	deg	45, 90
Terrain		
Slope Steepness	%	2
Aspect	deg	180

Run Option Notes

Maximum reliable effective wind speed limit IS imposed [SURFACE].

Calculations are only for the direction of maximum spread [SURFACE].

Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations [SURFACE].

Wind and spread directions are degrees clockwise from north [SURFACE].

Wind direction is the direction from which the wind is blowing [SURFACE].

Output Variables

Surface Rate of Spread (maximum) (ch/h) [SURFACE]

Flame Length (ft) [SURFACE]

Notes

Lake Jennings Village Santa Ana
Surface Rate of Spread (maximum) (ch/h)

Fuel Model	Wind Direction (from north) deg	
	45	90
gs2	121.9	122.0
SCAL18	114.0	114.0

Lake Jennings Village Santa Ana

Flame Length (ft)

Fuel Model	Wind Direction (from north) deg	
	45	90
gs2	12.0	12.0
SCAL18	28.9	28.9

Discrete Variable Codes Used
Lake Jennings Village Santa Ana

Fuel Model

gs2	Moderate load, dry climate grass-shrub (D) (122)
SCAL18	Sage / Buckwheat

Moisture Scenario

d1l1	D1L1 - Very low dead, fully cured herb (3,4,5,30,60)

Inputs: SURFACE

Description		Lake Jennings Village Peak
Fuel/Vegetation, Surface/Understory		
Fuel Model		gs2, SCAL18
Fuel Moisture		
Moisture Scenario		d111
Weather		
20-ft Wind Speed	mi/h	41
Wind Adjustment Factor		0.4
Wind Direction (from north)	deg	45, 90
Terrain		
Slope Steepness	%	2
Aspect	deg	180

Run Option Notes

Maximum reliable effective wind speed limit IS imposed [SURFACE].

Calculations are only for the direction of maximum spread [SURFACE].

Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations [SURFACE].

Wind and spread directions are degrees clockwise from north [SURFACE].

Wind direction is the direction from which the wind is blowing [SURFACE].

Output Variables

Surface Rate of Spread (maximum) (ch/h) [SURFACE]

Flame Length (ft) [SURFACE]

Notes

Lake Jennings Village Peak

Surface Rate of Spread (maximum) (ch/h)

Fuel Model	Wind Direction (from north) deg	
	45	90
gs2	211.3	211.3
SCAL18	161.1	161.1

Lake Jennings Village Peak
Flame Length (ft)

Fuel Model	Wind Direction (from north) deg	
	45	90
gs2	15.4	15.4
SCAL18	33.9	33.9

Discrete Variable Codes Used
Lake Jennings Village Peak

Fuel Model

gs2	Moderate load, dry climate grass-shrub (D) (122)
SCAL18	Sage / Buckwheat

Moisture Scenario

d1l1	D1L1 - Very low dead, fully cured herb (3,4,5,30,60)

Inputs: SURFACE

Description		Lake Jennings Village Normal
Fuel/Vegetation, Surface/Understory		
Fuel Model		gs2, SCAL18
Fuel Moisture		
Moisture Scenario		d111
Weather		
20-ft Wind Speed	mi/h	19
Wind Adjustment Factor		0.4
Wind Direction (from north)	deg	225, 270
Terrain		
Slope Steepness	%	2
Aspect	deg	180

Run Option Notes

Maximum reliable effective wind speed limit IS imposed [SURFACE].

Calculations are only for the direction of maximum spread [SURFACE].

Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations [SURFACE].

Wind and spread directions are degrees clockwise from north [SURFACE].

Wind direction is the direction from which the wind is blowing [SURFACE].

Output Variables

Surface Rate of Spread (maximum) (ch/h) [SURFACE]

Flame Length (ft) [SURFACE]

Notes

Lake Jennings Village Normal

Surface Rate of Spread (maximum) (ch/h)

Fuel Model	Wind Direction (from north) deg	
	225	270
gs2	70.1	70.1
SCAL18	80.4	80.4

Lake Jennings Village Normal

Flame Length (ft)

Fuel Model	Wind Direction (from north) deg	
	225	270
gs2	9.3	9.3
SCAL18	24.6	24.6

Discrete Variable Codes Used
Lake Jennings Village Normal

Fuel Model

gs2	Moderate load, dry climate grass-shrub (D) (122)
SCAL18	Sage / Buckwheat

Moisture Scenario

d1l1	D1L1 - Very low dead, fully cured herb (3,4,5,30,60)

APPENDIX D

ACCEPTABLE PLANTS IN FIRE PRONE AREAS

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
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
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

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APPENDIX E

UNDESIRABLE 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

References: Gordon, H. White, T.C. 1994. Ecological Guide to Southern California Chaparral Plant Series. Cleveland National Forest.

Willis, E. 1997. San Diego County Fire Chief's Association. Wildland/Urban Interface Development Standards

City of Oceanside, California. 1995. Vegetation Management. Landscape Development Manual. Community Services Department, Engineering Division.

City of Vista, California 1997. Undesirable Plants. Section 18.56.999. Landscaping Design, Development and Maintenance Standards.

www.bewaterwise.com. 2004. Fire-resistant California Friendly Plants.

www.ucfpl.ucop.edu. 2004. University of California, Berkeley, Forest Products Laboratory, College of Natural Resources. Defensible Space Landscaping in the Urban/Wildland Interface. A Compilation of Fire Performance Ratings of Residential Landscape Plants.

County of Los Angeles Fire Department. 1998. Fuel Modification Plan Guidelines. Appendix I, Undesirable Plant List, and Appendix II, Undesirable Plant List.