

---

# Fire Protection Plan – Letter Report

# Cleveland Avenue

# Residential Project

# Escondido, California

---

SEPTEMBER 2025

*Prepared For:*

**ESCONDIDO FIRE DEPARTMENT**

1163 North Centre City Parkway,  
Escondido, California, 92026

*Applicant:*

**THE TRUE LIFE COMPANIES**

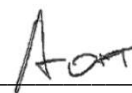
4350 Von Karman Ave., Suite 200,  
Newport Beach, California 92660

Contact: David Stearn

*Prepared by:*

**DUDEK**

687 S. Coast Highway 101, Suite 110  
Encinitas, California 92024



---

Austin Ott  
Fire Protection Planner, Urban Forestry + Fire Protection

# Table of Contents

| SECTION | PAGE NO.                                                                     |
|---------|------------------------------------------------------------------------------|
| 1       | Project Description.....2                                                    |
| 2       | Environmental Setting .....5                                                 |
| 2.1     | Location .....5                                                              |
| 2.2     | Topography .....5                                                            |
| 2.3     | Climate .....5                                                               |
| 2.4     | Vegetation .....6                                                            |
| 2.4.1   | Vegetation Dynamics.....6                                                    |
| 2.5     | Water Supply..... 10                                                         |
| 2.6     | Fire Access Roads ..... 10                                                   |
| 2.7     | Dead End Roads..... 11                                                       |
| 2.8     | Gates ..... 11                                                               |
| 2.9     | Driveways..... 11                                                            |
| 2.10    | Premises Identification ..... 12                                             |
| 2.11    | Fire Hydrants ..... 12                                                       |
| 2.12    | Fire Response..... 13                                                        |
| 2.13    | Ignition Resistant Building Construction..... 14                             |
| 2.14    | Fire Protection Systems – Automatic Interior Fire Sprinkler Systems ..... 15 |
| 2.15    | Defensible Space ..... 15                                                    |
| 2.15.1  | Landscaping Requirements ..... 17                                            |
| 2.15.2  | FMZ Measurements..... 17                                                     |
| 3       | Fire Behavior Modeling..... 21                                               |
| 3.1     | Fire Behavior Modeling Analysis..... 21                                      |
| 3.2     | Fire Modeling Summary ..... 24                                               |
| 3.3     | On-site Wildland Fire Risk Assessment..... 27                                |
| 4       | Emergency Pre-Planning – Evacuation ..... 29                                 |
| 5       | Conclusion ..... 30                                                          |
| 6       | References ..... 31                                                          |

## TABLES

|   |                                                                                          |
|---|------------------------------------------------------------------------------------------|
| 1 | Closest Responding Fire Stations Summary ..... 13                                        |
| 2 | Calculated Call Volume Associated with the Cleveland Avenue Residential Project ..... 14 |
| 3 | BehavePlus Fine Dead Fuel Moisture Calculation. .... 21                                  |



4      Fuel Moisture and Wind Speed Inputs ..... 22

5      Fuel Model Characteristics..... 22

6      RAWS BehavePlus Fire Behavior Model Results – Existing Conditions..... 23

7      RAWS BehavePlus Fire Behavior Model Results – Post Proposed Project Conditions..... 24

**FIGURES**

1      Project Vicinity Map.....3

2      Project Site Plan .....4

3      Vegetation Map .....8

4      Cal Fire Fire Hazard Severity Zones .....9

5      Fuel Modification Plan ..... 20

6      BehavePlus Fire Behavior Analysis Map..... 28

**ATTACHMENTS**

- 1      Representative Photographs
- 2      Fire History Map
- 3      Suggested Plant List

September 10, 2025

17591

LaVona Koretke, Deputy Fire Marshal  
City of Escondido, Fire Department  
1163 Centre City Parkway  
Escondido, California, 92026

**Subject: Fire Protection Plan – Letter Report for the Cleveland Avenue Residential Project,  
Escondido, California**

Dear Deputy Fire Marshal Koretke:

This Fire Protection Plan (FPP) – Letter Report demonstrates that the Cleveland Avenue Residential Project will be in compliance with applicable portions of the City of Escondido Fire Code which has adopted and amended the 2022 California Fire Code (CFC), including Chapter 49 (Municipal Code Chapter 11 – Fire Prevention and Protection, Article 2, Division 1, Ordinance 2022-04), and Section 4903 of the 2023 San Diego County Consolidated Fire Code (SDCCFC). The Escondido Fire Code and SDCCFC are more restrictive because of modifications that were reasonable and necessary because of local climatic, geographical and topographical conditions (Escondido Fire Department, 2023).<sup>1</sup> The Project will also be consistent with applicable sections of the 2022 California Building Code (CBC), including Chapter 7A (Municipal Code Chapter 6 – Building and Building Regulations, Article 3); and 2022 California Residential Code (CRC), including Section 337, as adopted by the City of Escondido and Escondido Fire Department (EFD). In addition to the above referenced codes, this FPP Letter Report shall be consistent with the EFD's Fire Prevention Division's Vegetation Management and Defensible Space requirements. The Project would be required to meet the most currently adopted codes at the time of Project building plan submittal. This FPP-Letter Report has been prepared as prescribed in the County's "Guidelines for Determining Significance and Report Format and Content Requirements for Wildland Fire and Fire Protection (County of San Diego 2010)" document. For purposes of this FPP- Letter Report, the Cleveland Avenue Residential Project will be referred to as the "Project".

The Project site is located within the City of Escondido, San Diego County, California. This FPP Letter Report evaluates and identifies requirements for water supply, fuel modification and defensible space, emergency access, building ignition and fire resistance, fire protection systems, and wildfire emergency pre-planning, among other pertinent fire protection criteria. The purpose of this plan is to generate and memorialize the fire safety requirements of the City of Escondido along with project-specific measures based on the site, its intended use, and its fire environment. The Project site is within the Escondido Fire Department's (EFD's) jurisdictional area. The EFD operates at least three fire stations that could respond to an incident on the site in under approximately seven minutes travel time, one of which could reach the site in under 5 minutes total response time (EFD Station 7). In addition, automatic/mutual aid agreements are in place with neighboring fire agencies to augment response, especially at the fringe area of EFD's jurisdiction. The closest existing fire station to the Project site is the EFD Station 7, located at 1220 North Ash Street, Escondido, California, approximately 2 miles from the development. EFD Station 7 includes one (1) Type 1 Fire Engine

---

<sup>1</sup> Escondido Fire Code: <https://www.escondido.gov/518/Fire-Code>

that is staffed daily by five (5) personnel including a Fire Captain, an Engineer, and a Firefighter Paramedic; and one (1) Rescue Ambulance, that is staffed daily with two (2) Paramedics.

Following extensive review of available digital site information, including topography, vegetation types, fire history, and the Project's site plan, Dudek fire protection planners conducted a field assessment of the Project in SEPTEMBER 2025. As determined during the analysis of this site and its fire environment, the proposed 29 lot residential development Project, in its current undeveloped condition, is considered to include characteristics that, under favorable conditions, have the potential to facilitate fire spread. Under extreme conditions, wildfires on the hillside to the east of the site could burn erratically and aggressively and result in significant ember production. Once the Project is constructed, the on-site fire potential will be lower than its current condition due to conversion of areas of wildland fuels to managed landscapes, extensive fuel modification areas, improved accessibility to firefighting personnel and equipment, and new structures built to the latest ignition resistant codes. However, it is anticipated that fire has the potential to encroach upon the Project site and subject the structures to wildfire. This FPP contemplates wildfire encroachment and provides specific requirements that will minimize the potential for structural damage.

Early evacuation for any type of wildfire emergency near the Project Site is the preferred method of providing for resident safety, consistent with the City's current approach. As such, each property owner will be individually responsible to adopt, practice, and implement a "Ready, Set, Go!" (Escondido Fire Department 2024)<sup>2</sup> approach to site evacuation. The "Ready, Set, Go!" concept is widely known and encouraged by the state of California and most fire agencies. Pre-planning for emergencies, including wildfire emergencies, focuses on being prepared, having a well-defined plan, minimizing potential for errors, maintaining the site's fire protection systems, and implementing a conservative (evacuate as early as possible) approach to evacuation and site uses during periods of fire weather extremes.

## 1 Project Description

The Cleveland Avenue Residential Project is an urban infill project in the City of Escondido (see Figure 1, Vicinity Map and Figure 2, Project Site Plan). The Project encompasses 10.378 acres in northern City of Escondido at APN 224-151-51-00. The Project proposes to develop 29 residential lots, two water quality basins, a utility lot, and a street lot. The site is located north of Cleveland Avenue and east of Conway Drive. The Project site is surrounded by single-family residential development, similar to the proposed Project. Currently, the Project site consists of undeveloped open space, primarily grassland vegetation types (see Figure 3, Vegetation Community Map), that is frequently mowed for fire prevention purposes.

Access to the Project would be from points on Cleveland Avenue and Conway Drive, both of which would connect to the internal "Street A". The existing Cleveland Avenue and Conway Drive are in compliance with the existing code for street width and allows for increased capacity, safety, and evacuation efficiency. Internal circulation includes Street "A", a 36 foot wide roadway. Street "B" is a 36-foot wide, approximately 325 foot long, dead-end roadway terminating in a cul-de-sac. All on-site fire access roads will be designed and maintained to support the imposed loads of fire apparatus (not less than 75,000 pounds) and will be consistent with code requirements for all weather paving surfaces (County of San Diego 2023).

---

<sup>2</sup> Escondido Fire Department Wildfire Safety & Evacuation - "Get Ready To Pack, Get Set To Leave, and Go!": <https://www.escondido.gov/716/Wildfire-Safety-Evacuation>



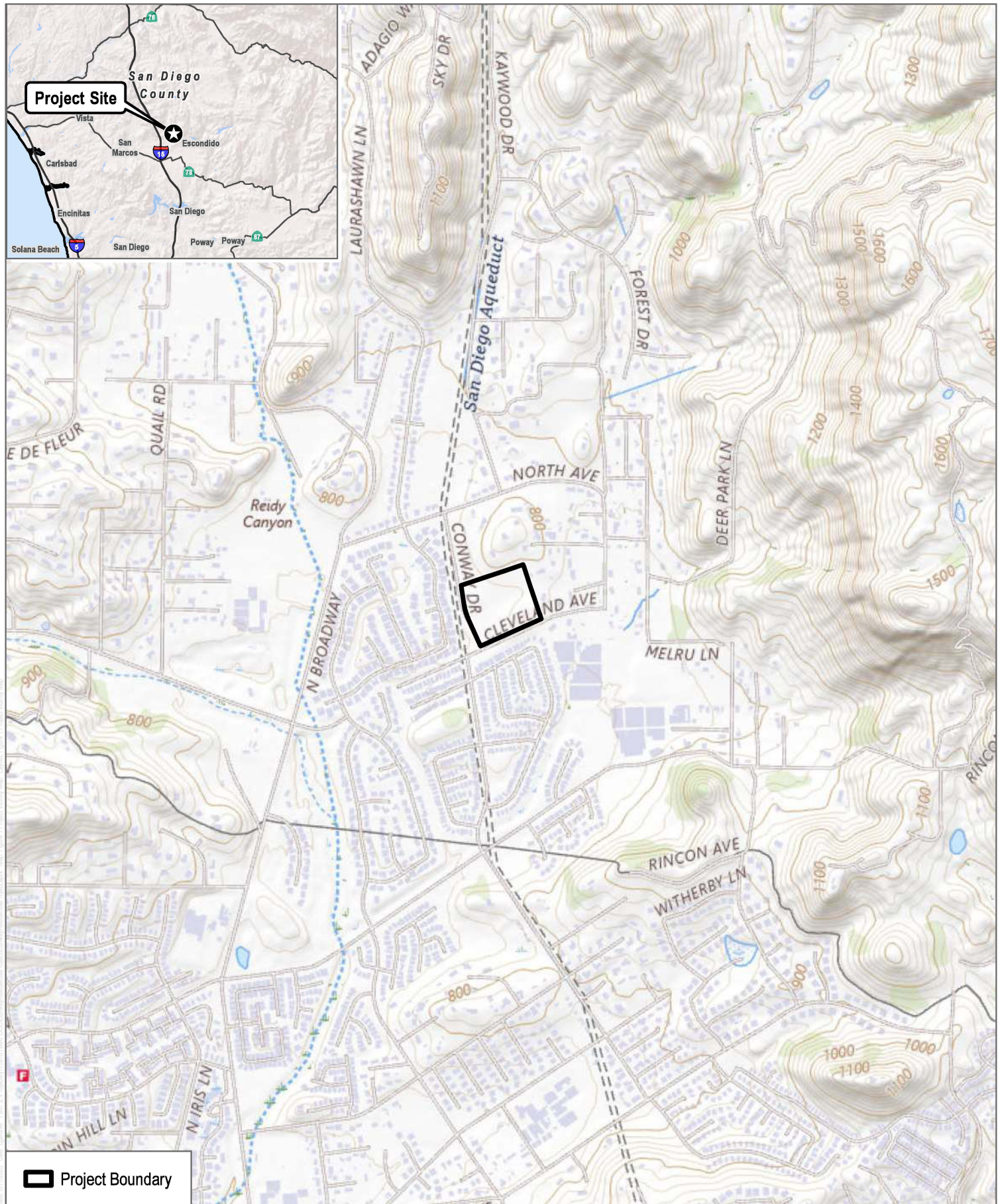
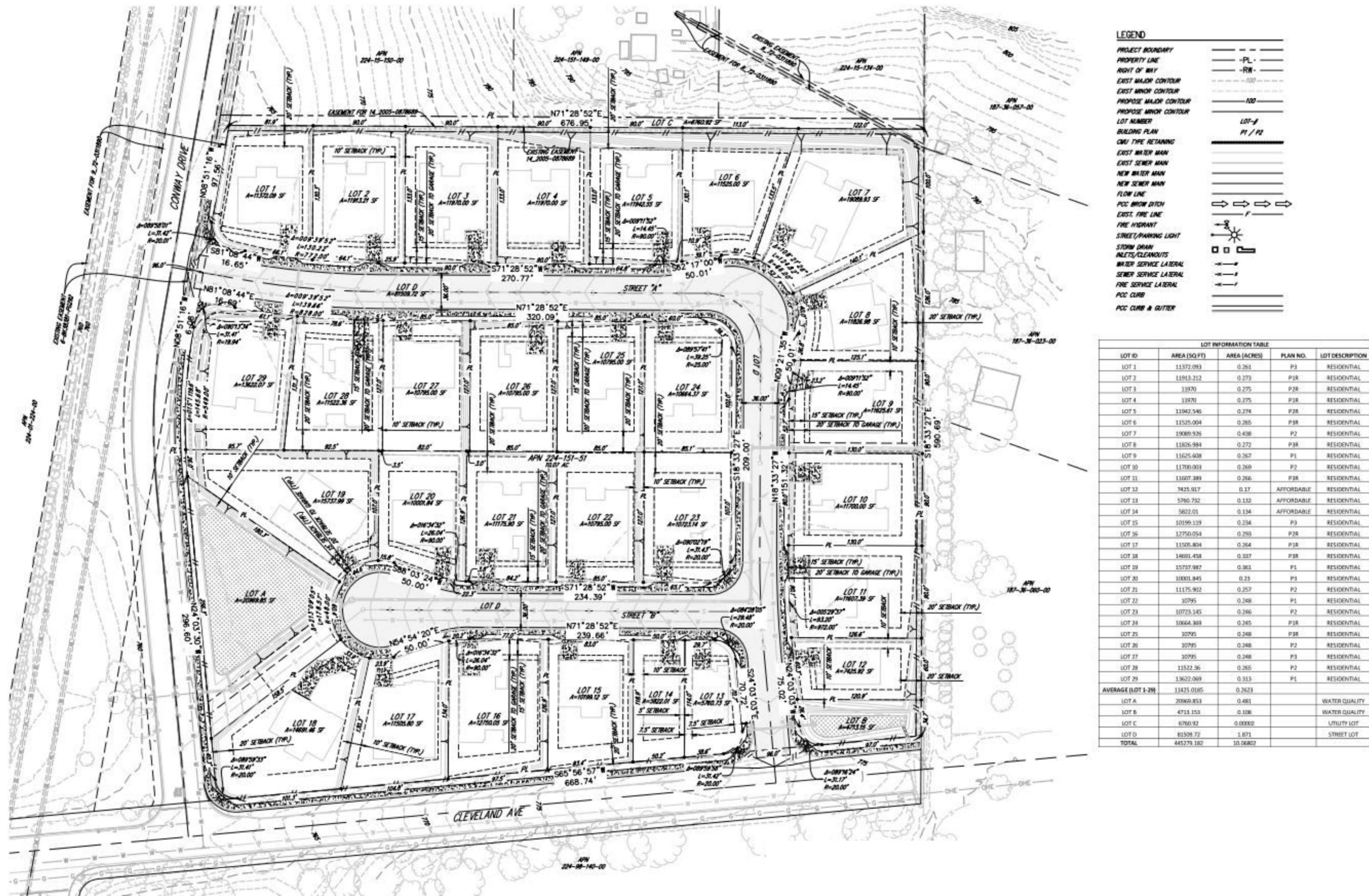


**FIGURE 1**  
**Project Vicinity Map**  
 Cleveland Residential Project





SOURCE: Excel Engineering 2025

**FIGURE 2**  
**Project Site Plan**  
Cleveland Residential Project



## 2 Environmental Setting

### 2.1 Location

As depicted in Figure 1, Project Location, the Project site is located within the City of Escondido (City), generally east of Interstate 15 (I-15), and bound by Cleveland Avenue to the south and Conway Drive to the north. The Project site is within APN(s) 224-151-51-00, within Section 33 and 34, Township 11 South, Range 2 West of the San Bernardino Meridian U.S. Geographical Survey 7.5-minute quadrangle map. The Project is surrounded by single family residential development, with some nearby agricultural land uses.

In its existing state, the Project site consists of open space, maintained grassland vegetation, with four single family dwelling units to the north of the site. This Project site is primarily grasslands, including California Ruderal Grassland and Meadow, and Western Warm Temperate Urban and Developed Herbaceous (see Figure 3, Vegetation Community Map) (refer to Attachment 1, Representative Site Photographs).

The Project site is designated as a Very High Fire Hazard Severity Zone (FHSZ) within a Local Responsibility Area (LRA) by the California Department of Forestry and Fire Protection (CAL FIRE) (see Figure 4, CAL FIRE Fire Hazard Severity Zone Map). CAL FIRE Fire and Resource Assessment Program (CAL FIRE 2024) fire history data indicates wildfires have occurred within a 5-mile vicinity of the Project site; however, there have been no recorded wildfires on-site. The most recent wildfire in the Project vicinity was the 2014 Cocos Fire, which burned approximately 1,995 acres. The largest wildfire in the Project vicinity was the 1969 Moosa Fire, which burned approximately 6,944 acres.

### 2.2 Topography

Topography influences fire risk by affecting fire spread rates. Typically, steep terrain results in faster fire spread up-slope and slower fire spread down-slope, unless downslope winds are influencing the fire. Flat terrain tends to have little effect on fire spread, resulting in fires that are driven by wind.

The Project site has an elevation of approximately 758 feet above mean sea level (amsl) on the southwestern corner of the property, near the Conway Drive and Cleveland Avenue intersection, to approximately 790 feet amsl in the northeastern corner of the site. Project site is comprised of relatively flat terrain.

### 2.3 Climate

Inland, northern San Diego County and the Project area's weather 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" (WRCC 2022a). 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 84°F, with average highs in the summer and early fall months (June–September) reaching 90°F. Precipitation typically occurs from December through March with annual rainfall averaging 12 inches (WeatherSpark 2025). 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 two miles per hour (mph). During the summer season, the diurnal winds may average slightly higher (approximately 14 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.

The Project area's climate has a large influence on the fire risk, as drying vegetation during the summer months becomes fuel available to advancing flames should an ignition be realized. 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 65 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 and dry 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. Santa Ana winds generally coincide with the regional drought period and the period of highest fire danger. The Project site is affected by Santa Ana winds from the north and east. The slopes are generally in alignment with the extreme Santa Ana wind events, which can influence fire spread by creating downslope and down canyon wind-driven fires.

## 2.4 Vegetation

Extensive vegetation type mapping is useful for fire planning, because it enables each vegetation community to be assigned a fuel model, which is used in a software program to predict fire behavior characteristics, as discussed in Section 3.12, Fire Behavior Modeling. Vegetation types on the Project site primarily include non-native grassland, non-native grassland: broadleaf-dominated, and urban/developed landscapes (RECON 2025). (Figure 3, Vegetation Communities).

### 2.4.1 Vegetation Dynamics

The vegetation described above translates to fuel models used for fire behavior modeling, discussed in Section 3.12 of this FPP Letter Report. 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 (bark thickness, leaf size, branching patterns), and overall fuel loading. For example, the native shrub species that compose the coastal sage scrub and mixed chaparral plant communities on site are considered to exhibit higher potential hazard (higher intensity heat and flame length) than grass dominated plant communities (fast moving, but lower intensity) if ignition occurred. The corresponding fuel models for each of these vegetation types are designed to capture these differences. Additionally, vegetative cover influences fire suppression efforts through its effect on fire behavior. For example, while fires burning in grasslands may exhibit lower flame lengths and heat outputs than those burning in native shrub habitats, fire spread rates in grasslands are often more rapid.

As described, vegetation plays a significant role in fire behavior and is an important component to the fire behavior models discussed in this report. A critical factor to consider is the dynamic nature of vegetation communities. Fire presence and absence at varying cycles or regimes disrupts plant succession, setting plant communities to an earlier state where less fuel is present for a period of time as the plant community begins its succession again. In summary, high-frequency fires tend to convert shrublands to grasslands or maintain grasslands, and fire exclusion

tends to convert grasslands to shrublands over time as shrubs sprout back or establish and are not disturbed by repeated fires. In general, biomass and associated fuel loading will increase over time, assuming that disturbance (e.g., fire, grazing, or farming) or fuel reduction efforts are not diligently implemented, which would not occur on this site due to the funded maintenance entity. It is possible to alter successional pathways for varying plant communities through manual alteration. This concept is a key component in the overall establishment and maintenance of the proposed FMZs for the Project Site. The FMZs will consist of irrigated and maintained landscapes that will be subject to regular “disturbance” in the form of maintenance and will not be allowed to accumulate excessive biomass over time, which results in reduced fire ignition, spread rates, and intensity. In contrast, conditions outside the fuel modification zones, where the wildfire threat will exist post-development (north of the project site), are classified as light fuel loads due to the classification as annually maintained grasslands.



Image Source: Nearmap (flown January 2025)



- Project Boundary
- 50-ft Survey Area

**Vegetation Communities**

- Non-native Grassland
- Non-native Grassland: Broadleaf-Dominated
- Urban/Developed



SOURCE: Recon 2025

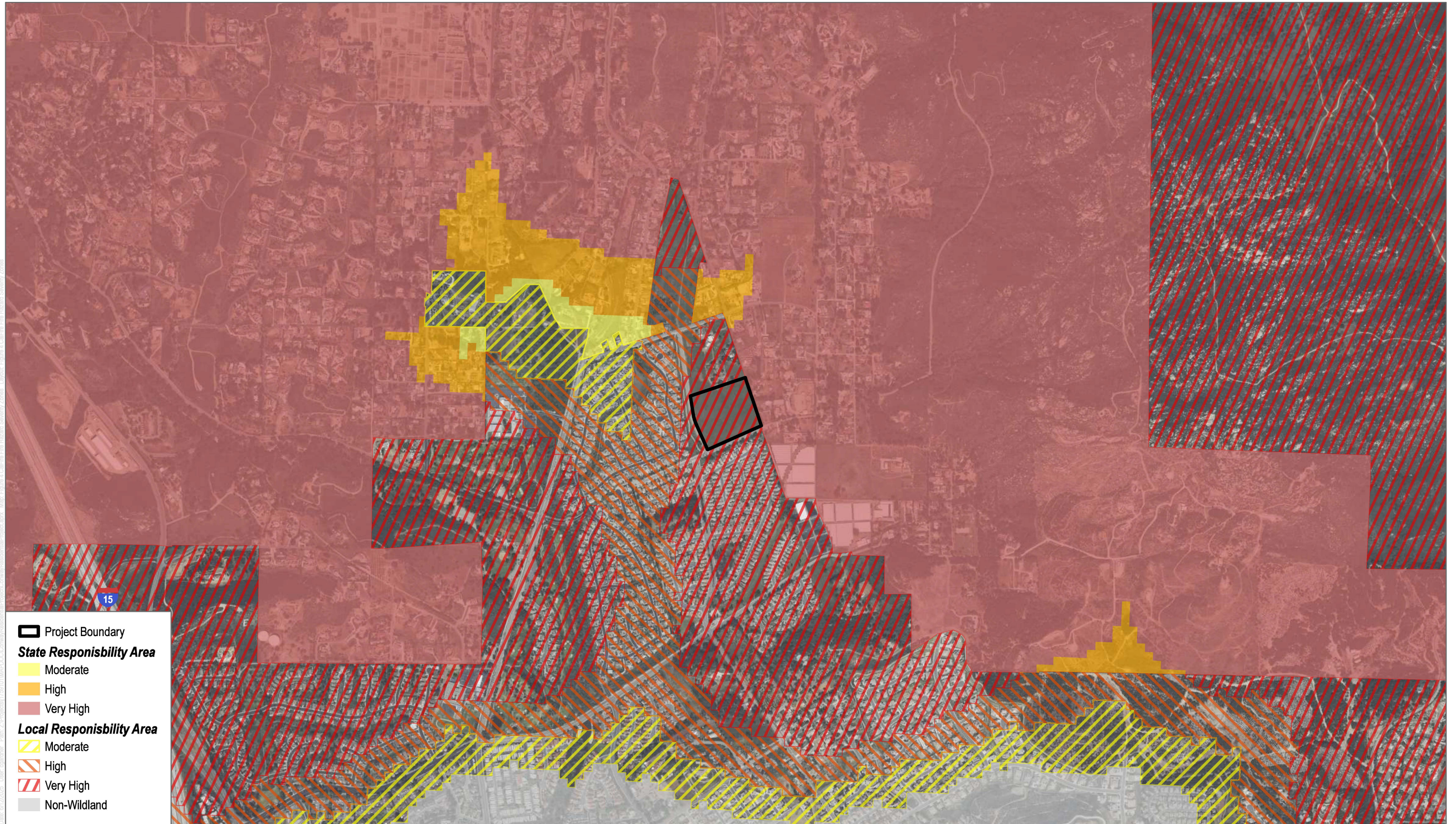
**DUDEK**



**FIGURE 3**  
**Vegetation Map**  
Cleveland Avenue Project



Date: 6/12/2025 User: capatiner Path: Z:\Projects\1739\01\MAP\POC\ConwayResidential\Project.aprx Map: Figure 4 CalFire Fire Hazard Severity Zones Layout: Figure 4 CalFire Fire Hazard Severity Zones



SOURCE: Bing Maps Imagery 2024; CalFire 2025

**FIGURE 4**

**Cal Fire Fire Hazard Severity Zones**



## Project Exposure to Wildland Fires

The Project is urban infill without a wildland interface, and therefore has minimal exposure to wildland fires, primarily through potential ember cast. The Project would address this potential threat through application of Chapter 7A of the 2022 California Building Code, or most currently adopted code year at the time of Project building plan submittal.

## 2.5 Water Supply

Water for the Project would be provided by the City of Escondido Water Division. On-site firefighting water needs will be met by various fire hydrants along Conway Drive. Additional fire hydrants may be proposed on site along Street "A" and Street "B" to the code specifications of the Escondido Fire Department, as discussed in Section 3.7.

## 2.6 Fire Access Roads

Site access, including fire lane, driveway, and entrance road widths, primary and secondary access, turnarounds, dead end lengths, signage, surface, and other requirements will comply with the City's roadway standards as identified in the most currently adopted Escondido Fire Code and California Building Code. The current codes that apply to the Project include the Escondido Fire Code which has adopted and amended the 2022 California Fire Code, California Code of Regulations, Title 24, Part 9 (Municipal Code Chapter 11, Article 2, Division 1; Ordinance No. 2022-04), and the 2022 California Building Code, including Chapter 7A (Municipal Code Chapter 6, Article 3). Fire access will be reviewed and approved by EFD prior to construction.

A lighted directory map, meeting current fire department standards, shall be installed at the driveway entrance to a residential project or a mobile home park, with more than fifteen (1) units (EFD Amendments, Section 505.3 – Directory Map). Furthermore, any new development which necessitates updated 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 to the EFD (EFD Amendments, Section 505.4 – Response Map updates).

The Project will be accessible by new roadways/driveways and would involve the construction of new residential structures, roadways, and would generate new trips to and from the Project site. Primary access to the Project site would be from a point on Conway Drive that connects to the proposed Street "A" and a point on Cleveland Avenue that connects to the proposed Street "A". The existing roadways leading to the Project site, Conway Drive and Cleveland Avenue are in compliance with the existing code for street width and allows for increased capacity, safety, and evacuation efficiency. Internal circulation includes a Street "A" that connects to both Conway Drive and Cleveland Avenue and is 36-feet wide. Street "B" is a dead end cul-de-sac that is 36 feet wide, and approximately 400 feet long, that terminates in a cul-de-sac with a 48-foot turning radius bulb. All on-site fire access roads will be designed and maintained to support the imposed loads of fire apparatus (not less than 75,000 pounds) and will be consistent with code requirements for asphaltic paving surfaces.

All on-site roads shall be constructed to the current City of Escondido and EFD road standards, including minimum 24-foot wide, unobstructed road widths. Turning radius for fire apparatus access roads will be 28 feet as measured on the inside edge of the improved width. No buildings will exceed 30 feet heights, so no additional widths for ladder



truck access would be required. Road grades will comply with the County of San Diego's Standards for Private Roads and Public Roads, per Section 503.2.7 of the Escondido Fire Code. Minimum vertical clearance of 13 feet 6 inches will be maintained for the entire required width of fire access roads.

All access and internal road surfaces will consist of asphalt pavement and would be capable of supporting the imposed loads of fire apparatus (not less than 75,000 lbs.). All proposed roads would be improved with asphalt pavement to facilitate on-site circulation for emergency vehicles. Additionally, the HOA and/or private property owners adjacent to the site's roads would maintain all roadside landscape in a fire safe condition.

## 2.7 Dead End Roads

The Project includes a dead-end Street "B" that terminates in a cul-de-sac. Street "B" is 36-feet wide, approximately 400 feet long, and has a code approved cul-de-sac, with a 48-foot turning radius. The code allowable dead end road length is 800 feet for this Project's lot sizes, thus the project meets the dead-end road length requirement and does not necessitate mitigating measures.

## 2.8 Gates

Any gates that will be proposed as part of the Project must comply with the Escondido Fire Code (Section 503.5.1) and EFD standards for electric gates. Setbacks from driveways and other code requirements will be required. Additional proposed gates for the project or on private driveways will comply with EFD standards for electric gates and the SDCCFC Section 503.6 including:

- Shall be equipped with an approved emergency key-operated switch overriding all command functions and opening the gate.
- Be equipped with an approved emergency traffic control-activating strobe light sensor or other device approved by the fire code official, which will activate the gate on the approach of emergency apparatus.
- Be provided with a battery backup or manual mechanical disconnect in case of power failure.

## 2.9 Driveways

All proposed structures are along project roadways. Driveways shall have a paved driveway meeting EFD requirements as follows:

1. Grades 15% or less with surfacing and sub-base consistent with EFD.
2. Driveways serving no more than two residential parcels will be 16 feet wide unobstructed with a fire apparatus turnaround.

## 2.10 Premises Identification

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

1. New and existing buildings shall be provided with approved address identification that shall be legible and placed in a position that is visible from the street or road fronting the property. Address identification characters shall contrast with their background. Address numbers shall be Arabic numbers or alphabetical letters.
2. Numbers shall not be spelled out and each character shall be not less than 4 inches high with a minimum 1/2-inch stroke width for single-family residential structures.
3. Address identification shall be maintained.
4. Streets and roads within the development shall be identified with approved signs and shall be installed at street intersections to the satisfaction of the EFD and the Department of Public Works.
5. Streets and roads will have street signs posted on non-combustible, weather resistant street signposts and shall be of an approved size. There will be street signs at the entrance to the development, all intersections, and elsewhere as needed subject to approval of the EFD Fire Chief.
6. Access roads to private lots to be completed and paved prior to issuance of building permits and prior to the occurrence of combustible construction.

As noted above, a lighted directory map, meeting current fire department standards, shall be installed at the driveway entrance to a residential project or a mobile home park, with more than fifteen (15) units (EFD Amendments, Section 505.3 – Directory Map). Furthermore, any new development which necessitates updated 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 to the EFD (EFD Amendments, Section 505.4 – Response Map updates).

## 2.11 Fire Hydrants

New fire hydrants shall be located along fire access roadways as determined by the EFD Fire Marshal to meet operational needs. Fire hydrants shall be located off of the largest main at intersection of mains, behind the sidewalk, every 250 feet on alternating side of the street, and within 50 feet of the fire department connection. Fire hydrants will be installed in accordance with the most currently adopted Escondido Standard Drawings and EFD Design Standards. A minimum of 3 feet of unobstructed clearance around all fire hydrants is required. Any fire hydrant installed within 3 feet of a vehicle accessible surface shall have guard posts installed, per San Diego Regional Standard WF-04. If a cul-de-sac or dead-end street is over 250 feet long, a fire hydrant is required at the beginning or end of the curb return of the bulb of the cul-de-sac, or within 100 feet of the end of the dead-end street (City of Escondido 2014). Hydrants will be consistent with EFD Design Standards (507.5.1). The fire hydrants provide enhanced firefighting capabilities in the vicinity of the Project by providing significant additional access to water connections. The fire hydrant fire valves shall be between 14 to 24 inches above grade, no closer than 4 feet nor further than 12 feet from the roadway, and 8 feet from combustible vegetation.



## 2.12 Fire Response

The Project site is located within the EFD's jurisdictional response area. Emergency response for the Project would be provided by Escondido Fire Department's (EFD) Escondido Fire Station 7, located at 1220 North Ash Street. Escondido is staffed by one (1) Fire Captain, one (1) Engineer, and one (1) Firefighter Paramedics and two (2) Paramedics<sup>3</sup>. Station 7's apparatus includes one (1) Type 1 Fire Engine and one (1) Rescue Ambulance. Station 7 is approximately 2.3 miles from the entrance into the development with a calculated travel time of approximately 4 minutes and 34 seconds<sup>4</sup>. Therefore, EFD can respond to the Project site within the City's adopted performance goal of responding to emergency calls with a first-due unit within 7 minutes and 30 minutes (5:00 minutes travel time), 90% of the time (Citygate 2017).

There are additional firefighting resources within the vicinity of the Project site, including EFD Station 3, located at 1808 North Nutmeg Street, Escondido and EFD Station 2, located at 421 North Midway Drive, Escondido. EFD Station 3 is approximately 2.7 miles from the Project site with a calculated travel time of 5 minutes and 14 seconds, and EFD Station 2 is approximately 3.6 miles from the Project site with a calculated travel time of 6 minutes and 46 seconds.

**Table 1. Closest Responding Fire Stations Summary**

| Station No.   | Location                                         | Maximum Travel Distance | Est. Travel Time*        |
|---------------|--------------------------------------------------|-------------------------|--------------------------|
| EFD Station 7 | 1220 N Ash St, Escondido, California 92027       | 2.3 miles               | 4 minutes and 34 seconds |
| EFD Station 3 | 1808 N Nutmeg St, Escondido, California 92026    | 2.7 miles               | 5 minutes and 14 seconds |
| EFD Station 2 | 421 N Midway Dr, Escondido, California 92027     | 3.6 miles               | 6 minutes and 46 seconds |
| EFD Station 1 | 310 N Quince St # 1, Escondido, California 92025 | 4.0 miles               | 7 minutes and 27 seconds |

**Note:**

\* Assumes travel at 35 mph travel speed and does not include donning turnout gear and fire dispatch time. Actual travel speeds are likely to be closer to 45 mph speed limits.

The Project proposes the development of 29 residential lots, which would generate a population of approximately 89 residents based on the average of 3.05 persons per household (SANDAG, 2023). In 2023, the EFD responded to a total of 18,979 calls<sup>5</sup>. The total population within the EFD service area is approximately 150,571 (SANDAG, 2023); therefore, the estimated number of annual calls per 1,000 population is 150 (generation rate of 0.150), the Project would potentially generate up to 13.35 calls per year (roughly 1.11 calls per month or 0.2567 call per week), most of which would be expected to be medical-related calls, consistent with typical emergency call statistics (Refer to Table 2 for call volume calculations).

---

<sup>3</sup> <https://www.escondido.gov/Facilities/Facility/Details/Fire-Station-7-31>

<sup>4</sup> Calculated using the nationally recognized RAND Corporation formula used by the Insurance Services Office (ISO) Public Protection Classification Program's Response Time Standard:  $(T=0.65 + 1.7D)$ , where T=time and D=distance).

<sup>5</sup> <https://cityofescondidoca.nextrequest.com/documents/29859715>

**Table 2 Calculated Call Volume Associated with the Cleveland Avenue Residential Project**

| Emergency Calls per 1,000 | Number of Residents | Avg. No. Calls per Year (89/1,000)x150 | Avg. No. Calls per Day (13.35/365) |
|---------------------------|---------------------|----------------------------------------|------------------------------------|
| 150                       | 89 (estimate)       | 13.35                                  | 0.036                              |

Service level requirements are not expected to be significantly impacted by the increase of approximately one call per month for the local fire response system. For example, EFD currently responds to roughly 52 call per day (18,979 calls per year, approximately 1,582 calls per month or 365 calls per week) in its primary service area split amongst 7 stations, so approximately 7 calls per day per station. For reference, a Fire Station that responds to 5 calls per day in an urban setting is considered average and 10 calls per day is considered busy. Therefore, the Project is not expected to cause a decline in the emergency response times. The requirements described in this FPP Letter Report are intended to aid firefighting personnel and minimize the demand placed on the existing emergency service system.

## 2.13 Ignition Resistant Building Construction

All new structures will be constructed to EFD and City of Escondido Fire Code standards. Due to its location within a Very High Fire Hazard Severity Zone, each of the proposed residential buildings will comply with the enhanced ignition-resistant construction standards of CBC Chapter 7A and Chapter 5 of the Urban-Wildland Interface code, or the most currently adopted code year at the time of project building plan submittal. 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. While these standards will provide a high level of protection to structures in this development and should reduce the potential for ordering evacuations in a wildfire, there is no guarantee that compliance with these standards will prevent damage or destruction of structures by fire in all cases.

There are two primary concerns for structure ignition: 1) radiant and/or convective heat and 2) burning embers (NFPA 1144 2008, Ventura County Fire Protection District 2011, 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 the EFD (City of Escondido Municipal Code, Chapter 6, Article 2) 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. While the Project would not be considered a shelter-in-place development, these structures would be intended



to provide temporary refuge as a contingency to evacuation should evacuation be considered less safe. Hardening each building against wildfire would require building features as follows:

- Application of Chapter 7A, ignition resistant building requirements
- New Class-A fire-rated roof and associated assembly. With the proposed Class-A fire-rated roof, there will be attic or void spaces above living spaces requiring ventilation to the outside environment. The attic spaces will require either ember-resistant roof vents or a minimum 1/16-inch mesh and shall not exceed 1/8-inch mesh for side ventilation (recommend BrandGuard, O'Hagin, or similar vents).
- Minimum 1-hour rated exterior walls and doors; one layer of 5/8-inch type X gypsum sheathing applied behind the exterior covering or cladding on the exterior side of the framing, from the foundation to the roof, for all exterior walls of each building.
- 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 (such as SaftiFirst, SuperLite 20-minute rated glass product), or be tested to meet the performance requirements of State Fire Marshal Standard 12-7A-2
- National Fire Protection Association (NFPA) 13D Automatic, Interior Fire Sprinkler System to installed for all buildings on the Project site.
- Modern infrastructure, access roads, and water delivery system.

## 2.14 Fire Protection Systems – Automatic Interior Fire Sprinkler Systems

All structures within the Project site will include the installation of an automatic, residential interior fire sprinkler system. Automatic internal sprinkler systems shall be in accordance with the National Fire Protection Association (NFPA) 13-D<sup>6</sup> and EFD requirements that are consistent with Section R313.3 of the 2022 California Residential Code, Chapter 9, Section 903 of the 2022 California Fire Code, and Section 602 of the Urban-Wildland Interface Code, or the most currently adopted code year at the time of project building plan submittal. The requirements for NFPA 13-D systems are two-fold. First, a one-hour vertical separation is required between individual living units from floor level to underside of roof. Secondly, each unit must have its own dedicated and properly sized water meter for the NFPA 13-D system.

All exterior overhangs four feet or more will require sprinkler coverage.

## 2.15 Defensible Space

An important component of a fire protection system for this Project is the provision for fire resistant landscapes and modified vegetation buffers. Fuel Modification Zones (FMZs) are designed to provide vegetation buffers that 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. FMZs are arguably more important when situated adjacent to older structures that were built prior to the latest ignition resistant codes and interior sprinkler

---

<sup>6</sup> NFPA 13D. Standard for the Installation of Sprinkler Systems in Detached Single Family Residential Occupancies. 2019 Edition.

requirements. All dwelling units on the Project site will be highly ignition resistant based on required construction design, materials, and methods. FMZs would be located on the perimeter of all structures.

The defensible space/fuel modification zones surrounding the structures will be consistent with EFD's Defensible Space Property Review Checklist and consist of up to 50 feet of irrigated, well-maintained landscape with fire-resistant plants (refer to Attachment 3, Suggested Plant List), Fuel Modification Zone 1 and up to 50 feet of 50% thinning of dead and diseased vegetation within Fuel Modification Zone 2. The following are requirements of Fuel Modification Zone 1 and 2:

- **Zone 0 Immediate Zone (0 feet to 5 feet)** - This is the area located from the exterior wall surface of the building extending 5 feet on a horizontal plane to Zone 1. This zone shall be constructed of continuous hardscape or limited fire-resistant plantings acceptable to the FAHJ. Vegetation in this zone shall not exceed 6-inches in height and irrigation is required. Removal of combustible materials surrounding the exterior wall area and maintaining area free of combustible materials. The use of mulch and other combustible materials shall be prohibited.
- **Zone 1 Intermediate Zone (5 feet to 50 feet)** - This zone is located from the immediate edge of Zone 0 extending out in a horizontal plane up to 50 feet. The zone shall consist of planting low growth, drought tolerant and fire resistive plant species. The height of the plants in this zone starts as 6-inches adjacent to Zone 0 and extending in a linear fashion up to a maximum of 18-inches at intersection with Zone 2. Vegetation in this zone shall be irrigated and not exceed 10 feet in height and shall be moderate in nature. Trees shall not exceed 30 feet in height and be limited or as approved by the FAHJ. Firewood inside this zone shall be piled a minimum of 30 feet away from all buildings and structures. Cords of firewood shall also be maintained at least 10 feet from property lines and not stacked under tree canopies drip lines. This Zone is a fully irrigated zone with a maintained landscape with trees, shrubs and other plantings that shall be fire resistive, and shall be spaced according to Figure 5, Fuel Modification Measurement Distance. Any dead or dying material shall be removed from this zone.
- **Zone 2 Extended zone (50 feet to 100 feet)** - This zone is located from the immediate edge of Zone 1 extending out in a horizontal plane for 50 feet for a total of 100 feet of fuel modification. This zone consists of planting of drought tolerant and fire resistive plant species of moderate height. Brush and plants shall be limbed up off the ground, so the lowest branches are 1/3 height of bush/tree/plant or up to 6 feet off the ground on mature trees. This area would be considered selective clearing of natural vegetation and dense chaparral by removing a minimum 50% of the square footage of this area. Weeds and annual grasses are to be mowed to a height of 4-6 inches. Any chipping that is done on site should be spread not to exceed 6 inches in depth. Trees may remain in the Zone 3 area provided that the horizontal distance between crowns of adjacent trees or tree groupings and crowns of trees and structures is not less than 10 feet.

The Project site will not be able to meet the 100 foot of defensible space requirement on the periphery of all proposed Project structures. All structures will be able to meet the Ember Resistant Zone, 0-5 feet from the structure. Zone 1, 5-50 feet, is impaired on all boundaries, though the Project is minimally able to achieve 25 feet of Zone 1 throughout the Project site. Zone 2 is impaired throughout the entire Project site (see Figure 5, Fuel Modification Plan). The FMZ measurements are discussed further in Section 3.11.2.

Further, as required in the Escondido Fire Code, from the exterior wall surface of the building extending 5 feet on a horizontal plane shall be constructed of continuous hardscape or limited fire-resistant plantings acceptable to the



FAJH. Vegetation in this space shall not exceed 6" to 18" in height and irrigation is required. Additionally, this space shall be free of combustible materials, and the use of mulch is prohibited.

The Cleveland Avenue Residential Project's Homeowners Association shall be responsible for ensuring long-term funding and ongoing compliance with fuel modification and maintenance requirements throughout the Project site's common areas. Private property owners will be responsible for maintenance within individual lots. All fuel modification area vegetation management shall be completed annually no later than June 1st of each year and more often as needed for fire safety, as determined by the EFD.

## 2.15.1 Landscaping Requirements

The following requirements are provided for FMZs. These zones are presented graphically in Figure 5. Plants used in the fuel modification areas or landscapes will include drought-tolerant, fire resistive trees, shrubs, and groundcovers. Suggested landscape plants are provided on the City of Escondido website. The intent of the plant 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. The addition of plant material to the approved list will be at the discretion of EFD. Landscape plans shall be in accordance with the following criteria:

1. Throughout the entire project site, all fire resistive trees (i.e., trees on the approved-City plant list) shall be planted and maintained at a minimum of 10 feet from the tree's drip line to any combustible structure. All non-fire resistive tree species, including conifers, pepper trees, eucalyptus, and acacia species shall be planted and maintained so that the tree's drip line at maturity is a minimum 30 feet from any combustible structure. Additionally, palm trees (*Phoenix* spp. and *Washingtonia* spp.) that have fibrous tissue or leaf stem bases along the trunk shall be planted and maintained no closer than 30 feet from the tree's drip line to any combustible structure. Front yard trees may be planted if they are from the approved City plant list.
2. For streetscape plantings, all non-fire resistive trees shall be planted so that the center of the tree trunk is 20 feet from the edge of curb. Fire resistive trees can be planted 10 feet from edge of curb to center of tree trunk as long as there is sufficient setback (a minimum of 15 feet to allow for canopy growth) to adjacent structures or closer if a narrow canopy tree species is selected. Care should be given to the type of tree selected, so that it will not encroach into the roadway, or produce a closed canopy effect.
3. Limit planting of large unbroken masses of trees and large shrubs. Groupings should be two to three trees maximum, with mature foliage of any group separated horizontally by at least 10 feet, if planted on less than 20% slope, and 20 feet, if planted on greater than 20% slope.
4. 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.
5. Existing trees can be pruned 10 feet away from roof, eave, or exterior siding, depending on the tree's physical or flammable characteristics and the building construction features.
6. All tree branches and palm fronds shall be removed within 10 feet of a fireplace chimney or outdoor barbecue.

## 2.15.2 FMZ Measurements

Zone 1, 5-50 feet, and Zone 2, 50-100 feet, are impaired throughout the entire Project site (see Figure 5, Fuel Modification Plan).

As evaluated in Figure 5, Fuel Modification Plan, Zone 0 is fully obtainable around all structures. Zone 1 and Zone 2 are impaired surrounding the majority of the Project site, although off-site FMZ equivalency absolves some of the fuel modification zone impairments as described herein. The following zone impairments are observed:

#### 2.15.2.1 Zone 1 Impairments

- Zone 1 is impaired at 25 feet from the structure along the southern boundary of the Project site. Cleveland Avenue borders the southern boundary of the Project site and provides an approximately 38-foot noncombustible fuel break adjacent to the Project site. The vegetation adjacent to the roadway is properly maintained and irrigated year-round, to EFD Vegetation Management standards, therefore, those areas are off-site FMZ equivalent. The adjacent land use beyond Cleveland Avenue is residential and also satisfies the intent of off-site FMZ equivalencies.
- Zone 1 is impaired at 36 feet from the structure on the eastern boundary of the Project site. The adjacent land use is residential and is bound to comply with the same defensible space requirements for the adjacent structure, therefore, this area is off-site FMZ equivalent. The Project will also construct 6-foot-tall CMU block wall at the property line, to further protect the Project site from a fire spreading on site from the east.
- Zone 1 is impaired at 34 feet from the structure on the western boundary of the Project site. The adjacent roadway, Conway Drive, is a 40-foot wide, code compliant roadway, which will serve as a fuel break adjacent to the Project site. Additionally, the ornamental grass to the west of Conway Drive is maintained and irrigated year-round, to EFD Vegetation Management standards. Therefore, the adjacent roadway, and maintained vegetation to the west of the Project site provides off-site FMZ equivalency. The adjacent land use beyond Conway Drive is residential and also satisfies the intent of off-site FMZ equivalencies.
- Zone 1 is impaired at 32 feet from the structure along the northern boundary of the Project site. At buildout, there will be an off site FMZ easement to the northwest of the Project site. The Project will maintain vegetation in this area. To the northeast of the Project site is a residential property, which is bound to comply with the same defensible space requirements for the adjacent structure, therefore, the area surrounding the adjacent structure is off-site FMZ equivalent. The Project will also construct 6-foot-tall CMU block wall 10 feet inwards from the property line, to further protect the Project site from a fire spreading on site. As noted in the fire behavior modeling section, a fire in the abated grass to the north would only be expected to produce 2.9 foot flames; the 6-foot-tall CMU block wall and on site Zone 1 will sufficiently interrupt fire progression from the north.

#### 2.15.2.2 Zone 2 Impairments

- Zone 2 is impaired in all areas listed above.
  - The adjacent land uses surrounding the Project to the south and west include paved roadways providing 40 and 38 feet of non-combustible roadway fuel breaks adjacent to the Project site, respectively. The vegetation adjacent to the roadways are properly maintained and irrigated year round, to EFD Vegetation Management standards, therefore, those areas are off-site FMZ equivalent.
  - The adjacent land uses surrounding the Project to the east, south, and west are residential and bound to comply with the same defensible space requirements for the adjacent structures, therefore, those areas are off-site FMZ equivalent. Further, the Project will also construct 6-foot-tall CMU block wall along the eastern property line, to further protect the Project site from a fire spreading on site from the east.

- At buildout, there will be an off site FMZ easement to the northwest of the Project site. The Project will maintain vegetation in this area. To the northeast of the Project site is a residential property, which is bound to comply with the same defensible space requirements for the adjacent structure, therefore, the area surrounding the adjacent structure is off-site FMZ equivalent. The Project will also construct a 6 foot tall CMU block wall 10 feet inwards from the property line, to further protect the Project site from a fire spreading on site.

While Zone 1 and 2 are impaired on all sides of the Project, the Project benefits from off-site FMZ equivalencies on the east, south, and west sides, and will achieve 100 feet of abatement to the north through FMZ maintenance agreement/easement. The property owner for the northern parcel is the same as the Project. It is important to note that the Project does not have a wildland interface; the nearest wildland is approximately 1,200 feet to the east. The parcel to the north of the Project could experience a vegetation fire, but the 100 foot FMZ achieved through easement/maintenance agreement and 6-foot-tall CMU block wall will provide sufficient fuels reduction and heat deflection to prevent the vegetation fire from contacting the Project.





SOURCE: Bing Imagery 2024; Open Street Map 2019



### 3 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 and adjacent to the Project Site given characteristic site features such as topography, vegetation, and weather. BehavePlus software package version 6.0 (Andres, Bevins, and Seli 2008), which is the industry standard, was utilized to analyze potential fire behavior within the moderate-load shrubs on the hillside south of the project site with assumptions made for pre- and post-project slope and fuels conditions. Results are provided below.

#### 3.1 Fire Behavior Modeling Analysis

An analysis utilizing the BehavePlus software package was conducted to evaluate fire behavior variables and to objectively predict flame lengths (feet), fireline intensities (BTU/feet/second), rate of spread (feet/minute), and spotting distance (miles) for four modeling scenarios. Modeling scenario locations were selected to better understand different fire behavior that may be experienced on or adjacent the site. These fire scenarios incorporated observed fuel types representing the dominant on-site and off-site vegetation to the north, west, and northeast, in addition to measured slope gradients, and wind and fuel moisture values derived from Remote Automated Weather Stations (RAWS) weather data sets for both the 50<sup>th</sup> percentile weather (summer, on-shore winds) and the 97<sup>th</sup> percentile weather (fall, off-shore winds). Weather and wind data for this Project were derived from the Valley Center RAWS Station (Station 045734). Weather and wind inputs for 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 (County of San Diego 2022a). These guidelines identify acceptable fire weather inputs for fire conditions during summer months and Santa Ana fire weather patterns. The County analyzed and processed 44 years of fire weather data from fire stations and Remote Automated Weather Stations (RAWS) 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.

As identified in the County’s guidelines, Dudek utilized the Fine Dead Fuel Moisture (FDFM) tool within BehavePlus fire behavior modeling software package to determine fuel moisture. The temperature, relative humidity, and wind speed data for the Transitional weather zone were utilized based on the project’s location. Reference fuel moistures were calculated in the FDFM tool and were based on site-specific topographic data inputs. Table 3 summarizes the FDFM inputs and the resulting fine dead fuel moisture values. Table 4 presents the fuel moisture and wind speed inputs for the fire behavior modeling efforts conducted for this analysis.

**Table 3. BehavePlus Fine Dead Fuel Moisture Calculation.**

| Variable                | 50th Percentile Summer Weather | 97th Percentile Peak Weather (Santa Ana) |
|-------------------------|--------------------------------|------------------------------------------|
| Dry Bulb Temperature    | 90–109 deg. F                  | 90–109 deg. F                            |
| Relative Humidity       | 10–14 %                        | 0–4 %                                    |
| Reference Fuel Moisture | 2 %                            | 1 %                                      |
| Month                   | May June July                  | May June July                            |
| Time of Day             | 12:00–13:59                    | 12:00–13:59                              |

**Table 3. BehavePlus Fine Dead Fuel Moisture Calculation.**

| Variable                 | 50th Percentile Summer Weather | 97th Percentile Peak Weather (Santa Ana) |
|--------------------------|--------------------------------|------------------------------------------|
| Elevation Difference     | Level (within 1,000 ft.)       | Level (within 1,000 ft.)                 |
| Slope                    | 0–30%                          | 0–30%                                    |
| Aspect                   | South/East                     | South/East                               |
| Fuel Shading             | Exposed (< 50% shading)        | Exposed (< 50% shading)                  |
| Fuel Moisture Correction | 0%                             | 0%                                       |
| Fine Dead Fuel Moisture  | 2%                             | 1%                                       |

**Table 4. Fuel Moisture and Wind Speed Inputs**

| Variable                             | 50th Percentile Summer Weather | 97th Percentile Peak Weather (Santa Ana)       |
|--------------------------------------|--------------------------------|------------------------------------------------|
| Fuel Models                          | GR1                            | SH5                                            |
| 1 h fuel moisture                    | 2%                             | 1%                                             |
| 10 h fuel moisture                   | 7%                             | 2%                                             |
| 100 h fuel moisture                  | 14%                            | 5%                                             |
| Live herbaceous moisture             | 52%                            | 30%                                            |
| Live woody moisture                  | 104%                           | 60%                                            |
| 20 ft. wind speed                    | 19 mph (sustained winds)       | 28 mph (sustained winds); wind gusts of 41 mph |
| Wind Directions from north (degrees) | 202                            | 68                                             |
| Wind adjustment factor               | 0.4                            | 0.4                                            |

**Note:** Wind speeds are taken from the San Diego County Fire Behavior Modeling Guidelines

Vegetation types, which were derived from the field assessment for the Project site, were classified into a fuel model. 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; and depth and compactness of the fuels. Fire behavior modeling was conducted for vegetative types that surround the proposed development sites. Fuel models were selected from *Standard Fire Behavior Fuel Models: A Comprehensive Set for Use with Rothermel's Surface Fire Spread Model* (Scott and Burgan 2005). Fuel models were also assigned to the perimeter fuel management areas to illustrate post-project fire behavior changes. Based on the anticipated pre- and post-project vegetation conditions, two different fuel models were used in the fire behavior modeling effort presented herein. Fuel model attributes are summarized in Table 5.

**Table 5. Fuel Model Characteristics**

| Fuel Model                    | Description                     | Location                                                              | Fuel Bed Depth (Feet) |
|-------------------------------|---------------------------------|-----------------------------------------------------------------------|-----------------------|
| <b>Pre-Project Conditions</b> |                                 |                                                                       |                       |
| GR1                           | Short, sparse dry climate grass | Represents the annual grasslands on and off the proposed Project site | 0.4                   |



**Table 5. Fuel Model Characteristics**

| Fuel Model                     | Description                  | Location                                                                                            | Fuel Bed Depth (Feet) |
|--------------------------------|------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------|
| SH5                            | High load, dry climate shrub | Represents the off-site scrub and chaparral fuels in the open space to the east of the Project site | 4-5 ft                |
| <b>Post-Project Conditions</b> |                              |                                                                                                     |                       |
| FM8                            | Compact Litter               | On-site Zone 1 and 2 fuel modification                                                              | 0.2 ft.               |
| GR1                            | Low load dry climate grass   | Off-site grassland adjacent to Project site                                                         | 0.4                   |
| SH5                            | High load, dry climate shrub | Off-site scrub and chaparral fuels in the open space to the east of the Project site                | 4-5 ft                |
| NB                             | Non-burnable                 | Paved areas throughout the proposed Project site.                                                   | 0 ft                  |

The results of fire behavior modeling analysis for pre- and post-project conditions are presented in Tables 6 and 7, respectively. Identification of modeling run (fire scenarios) locations is presented graphically in Figure 6, BehavePlus Fire Behavior Analysis exhibit.

**Table 6. RAWS BehavePlus Fire Behavior Model Results - Existing Conditions**

| Fire Scenarios                                                                                                                               | Flame Length <sup>1</sup> (feet) | Fireline Intensity <sup>1</sup> (BTU/feet/second) | Spread Rate <sup>1</sup> (mph) | Spotting Distance <sup>1</sup> (miles) |
|----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------|--------------------------------|----------------------------------------|
| <b>Scenario 1 (Pre-Project): 4% slope; Average summer winds (50th percentile onshore), sustained 19 mph wind, north of the site</b>          |                                  |                                                   |                                |                                        |
| Short, sparse grass (GR1) (Off site)                                                                                                         | 2.9                              | 57                                                | 0.4                            | 0.2                                    |
| <b>Scenario 2 (Pre-Project): 4.5% slope; Average summer winds (50th percentile onshore), sustained 19 mph wind, on site</b>                  |                                  |                                                   |                                |                                        |
| Short, sparse grass (GR1) (On site)                                                                                                          | 2.9                              | 57                                                | 0.4                            | 0.2                                    |
| <b>Scenario 3 (Pre-Project): 26% slope; Santa Ana winds (50th percentile onshore), sustained 28 mph wind (41 mph gusts) east of the site</b> |                                  |                                                   |                                |                                        |
| High load dry climate shrub (SH5) (Off site)                                                                                                 | 32.9 (40.3)                      | 11,273 (17,558)                                   | 3.5 (5.4)                      | 1.3 (2.0)                              |

**Notes:**

<sup>1</sup> Wind-driven surface fire.

<sup>2</sup> Values in parentheses represent the respective output in the presence of 41 mph gusts.

**Table 7. RAWS BehavePlus Fire Behavior Model Results - Post Proposed Project Conditions**

| Fire Scenarios                                                                                                                                | Flame Length <sup>1</sup><br>(feet) | Fireline Intensity <sup>1</sup><br>(BTU/feet/second) | Spread Rate <sup>1</sup><br>(mph) | Spotting Distance <sup>1</sup><br>(miles) |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|------------------------------------------------------|-----------------------------------|-------------------------------------------|
| <b>Scenario 1 (Post-Project): 4% slope; Average summer winds (50th percentile onshore), sustained 19 mph wind north of the site</b>           |                                     |                                                      |                                   |                                           |
| (Off site FMZ Equivalency) FM 8                                                                                                               | 1.9                                 | 22                                                   | 0.1                               | 0.1                                       |
| (Off site Fuels) GR1                                                                                                                          | 2.9                                 | 57                                                   | 0.4                               | 0.2                                       |
| (Paved Areas On site) NB                                                                                                                      | N/A                                 | N/A                                                  | N/A                               | N/A                                       |
| <b>Scenario 2 (Post-Project): 4.5% slope; Average summer winds (50th percentile onshore), sustained 19 mph wind, on site</b>                  |                                     |                                                      |                                   |                                           |
| (Zone 1 & 2 On site) FM8                                                                                                                      | 1.9                                 | 22                                                   | 0.1                               | 0.1                                       |
| (Paved Areas On site) NB                                                                                                                      | N/A                                 | N/A                                                  | N/A                               | N/A                                       |
| <b>Scenario 3 (Post-Project): 26% slope; Santa Ana winds (97th percentile onshore), sustained 28 mph wind (41 mph gusts) east of the site</b> |                                     |                                                      |                                   |                                           |
| (Off site Fuels in Open Space to the East) SH5                                                                                                | 32.9 (40.3)                         | 11,273 (17,558)                                      | 3.5 (5.4)                         | 1.3 (2.0)                                 |

**Note:**

<sup>1</sup> Wind-driven surface fire.

<sup>2</sup> Values in parentheses represent the respective output in the presence of 41 mph gusts.

The results presented in Tables 6 and 7 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, but the models provide a worst-case wildfire behavior condition as part of a conservative approach. 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 would be affected by many factors, including unique weather patterns, small-scale topographic variations, or changing vegetation patterns.

## 3.2 Fire Modeling Summary

The results presented in Tables 6 and 7 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.

The proposed Project site maintains similar slope and vegetation types on and off site. The fire behavior models have been run considering pre-Project and post-Project conditions. Under the summer weather conditions modeled in pre-Project Scenario 1, a fire burning through the grasslands to the north of the Project site would move at a low rate of speed (0.4 mph during sustained winds), produce low flame lengths (2.9 feet during sustained winds), and produce embers that could travel 0.2 miles during sustained winds.

While the proposed Project would be within range of the embers being produced during this scenario, the Cleveland Avenue Residential development would include structures with ignition resistant construction methods and materials as well as an ember-resistant Zone 0 around all structures. The fire modeled in this area within Scenario 1 would produce similar results to Scenario 2, a fire burning on site the proposed Project site, with the same average summer weather conditions. Such a fire would burn through the grasslands at a low rate of speed (0.4 mph during sustained winds), produce low flame lengths (2.9 feet during sustained winds), and produce embers that would travel 0.3 miles.

Under the extreme Santa Ana weather conditions modeled in pre-Project Scenario 3, a fire burning downhill through the shrublands and chaparral vegetation in the unmaintained open space to the east of the Project site, would move at a moderate to high rate of speed (3.5 mph during sustained winds, 5.4 mph during gusts), produce very high flame lengths (32.9 feet during sustained winds, 40.3 mph during gusts), and produce embers that could travel up to 2 miles during gusting winds. While the proposed Project would be within range of the embers being produced during this scenario, the Cleveland Avenue Residential development would include structures with ignition resistant, and non-combustible construction methods and materials as well as an ember-resistant Zone 0 around all structures. Any vegetation on site would be managed and irrigated and therefore has a much lower ignition risk potential than pre-project conditions.

If any of the fires modeled in pre-Project Scenarios 1 or 2 were to spread onto the proposed Project site following development of the Project, the resulting fire would be described by post-proposed Project Scenarios 1 and 2. Post-proposed Project Scenario 1 describes a fire igniting to the north of the Project during Project conditions and burning through the adjacent off-site fuels, and off-site fuel modification zones during average summer weather conditions. During such an event, fire behavior would vary according to the different vegetation present on site. In the off-site fuel modification zone areas that have been irrigated, mowed and maintained, there would be low flame lengths (1.9 feet during sustained winds), a low rate of spread (0.1 mph during sustained winds) and embers could travel 0.1 miles during sustained winds. Off site areas adjacent to the Project site that have not been further maintained would continue to produce low to moderate flame lengths (2.9 feet during sustained winds) and move at a low rate of speed (0.4 mph during sustained winds) and produce embers that could travel 0.2 miles under sustained winds.

Post-proposed Project Scenario 2 describes a fire burning on site during Project buildout conditions during average summer weather conditions. During such an event, fire behavior would vary according to the different vegetation present on site. In fuel modification zones and areas that have been irrigated, mowed and maintained, the fire behavior would remain the same as in Scenario 1 (1.9-foot flame lengths, 0.1 mph spread rate, and 0.1-mile spotting distance).

If the fire modeled in pre-Project Scenario 3 were to spread onto the proposed Project site following development of the Project, the resulting fire would be described by post-proposed Project Scenario 3. Post-proposed Project Scenario 3 describes a fire igniting in the unmaintained open space to the east of the Project during extreme Santa Ana weather conditions. During such an event, fire behavior would vary according to the different vegetation present. The off-site, unmaintained open space areas would continue to produce high flame lengths (32.9 feet during sustained winds, 40.3 feet during gusts) and move at a moderate rate of speed (3.5 mph during sustained winds 5.4 mph during gusts) and produce embers that could travel 2.0 miles under sustained winds.

Post-Project conditions in the on-site Project areas would result in a reduction of up to 1 foot in flame lengths and up to 0.3 mph in spread rates. As a result of the proposed fuel modification, the fire hazard presented by the site would be reduced compared to its current state. This means reduced fire risk for nearby residents. Further, the



anticipated surface fire would not be anticipated to transition to any proposed structures due to their planned ignition resistance and the proposed integration of the ember-resistant Zone 0. Flame lengths in off-site fuels will remain similar in pre and post Project conditions, producing maximum flame lengths of approximately 40 feet during extreme weather events with high wind gusts. The proposed Project structures will be at a minimum of 100 feet away from the nearest off-site fuels. Unmaintained fuels to the east of the Project site could pose a threat of fire ignition risk due to ember spread, but during post-Project conditions, the majority of wildfire risk would be reduced as vegetation is converted to paved and ignition resistant landscapes, and vegetation is regularly irrigated and maintained.

The following describes the fire behavior variables (Heisch and Andrews 2010) as presented in Tables 5 and 6:

### Surface Fire:

**Flame Length (feet):** The flame length 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.

**Fireline Intensity (Btu/ft/s):** Fireline intensity is the heat energy release per unit time from a one-foot wide section of the fuel bed extending from the front to the rear of the flaming zone. Fireline intensity is a function of rate of spread and heat per unit area and is directly related to flame length. Fireline intensity and the flame length are related to the heat felt by a person standing next to the flames.

**Surface Rate of Spread (mph):** Surface rate of spread is the "speed" the fire travels through the surface fuels. Surface fuels include litter, grass, brush and other dead and live vegetation within about 6 feet of the ground.

The information in Table 8 presents an interpretation of the outputs for five fire behavior variables as related to fire suppression efforts. The results of fire behavior modeling efforts are presented in Tables 6 and 7. Identification of modeling run locations is presented graphically in Figure 6 of the FPP.

**Table 8. 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.                                                                                                       |

### 3.3 On-site Wildland Fire Risk Assessment

Given the climatic, vegetative, topographic characteristics, and local fire history of the area, the Project site, once developed, may be subject to the occasional instance of wildfires in the Project vicinity. Potential for wildfire encroaching onto the Project is unlikely due to the lack of wildland interface, however showering embers on the site is possible, but the risk of ignition from such encroachments or ember showers is also considered low based on the type of construction, fuel modification zones, and fire protection features that will be provided for the structures.

Therefore, it will be critical that the latest fire protection technologies, developed through intensive research and real-world wildfire observations and findings by fire professionals, for both ignition resistant construction and for creating defensible space in the ever-expanding WUI areas, are implemented and enforced. The Cleveland Avenue Residential Project, once developed, would provide each structure with defensible space that would reduce projected flame lengths to levels that would be manageable by firefighting resources for protecting the site's structures, especially given the ignition resistance of the structures and the planned ongoing maintenance of the entire sites' landscapes.

Wildland fires are a common natural hazard in most of southern California with a long and extensive history. Southern California landscapes include a diverse range of plant communities, including vast tracts of shrublands, like those found adjacent to the Project site. Wildfire in this Mediterranean-type ecosystem ultimately affects the structure and functions of vegetation communities (Keeley 1984) and will continue to have a substantial and recurring role (Keeley and Fotheringham 2003). Supporting this are the facts that 1) native landscapes, from chaparral to grasslands, become highly flammable each fall; 2) the climate of southern California has been characterized by fire climatologists as the worst fire climate in the United States (Keeley 2004) with high winds (Santa Ana) occurring during autumn after a six-month drought period each year; and 3) homes embedded in natural and managed landscape vegetation in what may be accurately described as a wildland urban intermix. Based on this research, it can be anticipated that periodic vegetation fires or wildfires will occur in the designated open space areas adjacent to portions of the property site.



Table 5. RAWS BehavePlus Fire Behavior Model Results - Existing Conditions

| Fire Scenarios                                                                                                                           | Flame Length <sup>1</sup> (feet) | Fireline Intensity <sup>1</sup> (BTU/feet/second) | Spread Rate <sup>1</sup> (mph) | Spotting Distance <sup>1</sup> (miles) |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------|--------------------------------|----------------------------------------|
| Scenario 1 (Pre-Project): 4% slope; Average summer winds (50 <sup>th</sup> percentile onshore), sustained 19 mph wind, north of the site |                                  |                                                   |                                |                                        |
| Short, sparse grass (GR1) (Offsite)                                                                                                      | 2.9                              | 57                                                | 0.4                            | 0.2                                    |
| Scenario 2 (Pre-Project): 4.5% slope; Average summer winds (50th percentile onshore), sustained 19 mph wind, onsite                      |                                  |                                                   |                                |                                        |
| Short, sparse grass (GR1) (Onsite)                                                                                                       | 2.9                              | 57                                                | 0.4                            | 0.2                                    |
| Scenario 3 (Pre-Project): 26% slope; Santa Ana winds (50th percentile onshore), sustained 28 mph wind (41 mph gusts) east of the site    |                                  |                                                   |                                |                                        |
| High load dry climate shrub (SH5) (Offsite)                                                                                              | 32.9 (40.3)                      | 11,273 (17,558)                                   | 3.5 (5.4)                      | 1.3 (2.0)                              |

**Note:**  
<sup>1</sup> Wind-driven surface fire.  
<sup>2</sup> Values in parentheses represent the respective output in the presence of 41 mph gusts.

Table 6. RAWS BehavePlus Fire Behavior Model Results - Post Proposed Project Conditions

| Fire Scenarios                                                                                                                           | Flame Length <sup>1</sup> (feet) | Fireline Intensity <sup>1</sup> (BTU/feet/second) | Spread Rate <sup>1</sup> (mph) | Spotting Distance <sup>1</sup> (miles) |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------|--------------------------------|----------------------------------------|
| Scenario 1 (Post-Project): 4% slope; Average summer winds (50 <sup>th</sup> percentile onshore), sustained 19 mph wind north of the site |                                  |                                                   |                                |                                        |
| (Offsite FMZ Equivalency) FM 8                                                                                                           | 1.9                              | 22                                                | 0.1                            | 0.1                                    |
| (Offsite Fuels) GR1                                                                                                                      | 2.9                              | 57                                                | 0.4                            | 0.2                                    |
| (Paved Areas Onsite) NB                                                                                                                  | N/A                              | N/A                                               | N/A                            | N/A                                    |
| Scenario 2 (Post-Project): 4.5% slope; Average summer winds (50th percentile onshore), sustained 19 mph wind, onsite                     |                                  |                                                   |                                |                                        |
| (Zone 1 & 2 Onsite) FM8                                                                                                                  | 1.9                              | 22                                                | 0.1                            | 0.1                                    |
| (Paved Areas Onsite) NB                                                                                                                  | N/A                              | N/A                                               | N/A                            | N/A                                    |
| Scenario 3 (Post-Project): 26% slope; Santa Ana winds (97th percentile onshore), sustained 28 mph wind (41 mph gusts) east of the site   |                                  |                                                   |                                |                                        |
| (Offsite Fuels in Open Space to the East) SH5                                                                                            | 32.9 (40.3)                      | 11,273 (17,558)                                   | 3.5 (5.4)                      | 1.3 (2.0)                              |

**Note:**  
<sup>1</sup> Wind-driven surface fire.  
<sup>2</sup> Values in parentheses represent the respective output in the presence of 41 mph gusts.



Table 4. Wind and Weather Input Variables

| Model Variable                       | Summer Weather (50 <sup>th</sup> Percentile) On and Offshore Wind | Peak Weather (97 <sup>th</sup> Percentile) Offshore Wind |
|--------------------------------------|-------------------------------------------------------------------|----------------------------------------------------------|
| Fuel Models                          | GR1                                                               | SH5                                                      |
| 1 h fuel moisture                    | 2%                                                                | 1%                                                       |
| 10 h fuel moisture                   | 7%                                                                | 2%                                                       |
| 100 h fuel moisture                  | 14%                                                               | 5%                                                       |
| Live herbaceous moisture             | 52%                                                               | 30%                                                      |
| Live woody moisture                  | 104%                                                              | 60%                                                      |
| 20 ft. wind speed                    | 19 mph (sustained winds)                                          | 28 mph (sustained winds); wind gusts of 41 mph           |
| Wind Directions from north (degrees) | 202                                                               | 68                                                       |
| Wind adjustment factor               | 0.4                                                               | 0.4                                                      |
| Slope                                | 4%                                                                | 26%                                                      |

SOURCE: Bing Imagery 2024; Open Street Map 2019



## 4 Emergency Pre-Planning - Evacuation

Early evacuation for any type of wildfire emergency at the Project site is the preferred method of providing for resident safety, consistent with the EFD's current approach within San Diego County. As such, the Project would formally adopt, practice, and implement a "Get Ready to Pack, Get Set to Leave, Go!" approach to evacuation<sup>7</sup>. The "Ready, Set, Go!" concept is widely known and encouraged by the State of California and most fire agencies. Pre-planning for emergencies, including wildfire emergencies, focuses on being prepared, having a well-defined plan, minimizing the potential for errors, maintaining the Project site's fire protection systems, and implementing a conservative (evacuate as early as possible) approach to evacuation and Project area activities during periods of fire weather extremes.

---

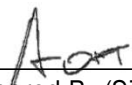
<sup>7</sup> <https://www.escondido.gov/716/Wildfire-Safety-Evacuation>

# 5 Conclusion

Based on the developed landscapes throughout the area and lack of wildlands, provisions for wide internal circulation roadways and 86-foot-wide cul-de-sacs at the end of ‘Street B’, along with the an under 5-minute total response time from EFD Station 7 (closest responding fire station), a code-compliant 40-foot wide Conway Drive and 30-foot wide Cleveland Avenue primary access roadways, lack of wildfire exposed roadways during an evacuation event, and minimal overall Project size and limited number of new residents and vehicles to the area, the Project is considered to meet the intent of the code.

Please feel free to contact me regarding this letter FPP and its conclusions.

Respectfully,

|                                                                                                                       |                                       |                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------|---------------------------------------|----------------------------------------------------------------------------------------------------------|
| <br>_____<br>Prepared By (Signature) | <u>June 26, 2025</u><br>_____<br>Date | Austin Ott, Fire Protection Planner,<br>Urban Forestry + Fire Protection<br>_____<br>Printed Name, Title |
|-----------------------------------------------------------------------------------------------------------------------|---------------------------------------|----------------------------------------------------------------------------------------------------------|

|                                        |               |                              |
|----------------------------------------|---------------|------------------------------|
| _____<br>Project Applicant (Signature) | _____<br>Date | _____<br>Printed Name, Title |
|----------------------------------------|---------------|------------------------------|

Att: 1 - Representative Photographs  
2 - Fire History Map  
3 - Suggested Plant List

## 6 References

- California Department of Forestry and Fire Protection (CAL FIRE). 2007. Fire and Resource Assessment Program. San Diego County Fire Hazard Severity Zones in State Responsibility Area. November 6, 2007.
- CAL FIRE. 2024. Office of the State Fire Marshal – Fire Hazard Severity Zones Database. Accessed December 2024. <https://osfm.fire.ca.gov/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones>
- Census. 2024. Quick Facts, Escondido City, California. Accessed December 2024. <https://www.census.gov/quickfacts/fact/table/escondidocitycalifornia/HSD410221>
- City of Escondido. 2014. Resolution 2014-08. Design Standards and Standard Drawings. April 2, 2014. Accessed September 2025. <https://pacificpipeline.com/wp-content/uploads/2015/05/ESCONDIDO-W-S-RW-SPECS-4-2-14.pdf>
- City of Escondido (City). 2024a. About the City of Escondido Fire Department. Accessed December 2024. <https://www.escondido.gov/158/About-Us>
- City. 2024b. City of Escondido Fire Code. December 2024. <https://ecode360.com/43257415#43257417>
- City of Escondido. Facilities Overview, Fire Station #7. <https://www.escondido.gov/Facilities/Facility/Details/Fire-Station-7-31>. Accessed SEPTEMBER 2025.
- County of San Diego. 2010. Guidelines for Determining Significance and Report Format and Content Requirements for Wildland Fire And Fire Protection. Department of Planning and Land Use. August 31, 2010. 62 pp.
- County of San Diego. 2023. Consolidated Fire Code. <https://www.sandiegocounty.gov/pds/docs/cosd-fire-code.pdf>. Section 503.2.3 Surface. Accessed SEPTEMBER 2025.
- Escondido Fire Department. Wildfire Safety & Evacuation – “Get Ready To Pack, Get Set To Leave, and Go!” <https://www.escondido.gov/716/Wildfire-Safety-Evacuation>. Accessed SEPTEMBER 2025.
- RECON. 2025. Biological Resources Letter Report for the Cleveland Avenue Residential Project, Escondido, California (RECON Number 10600.1)
- San Diego Association of Governments (SANDAG). 2023. Population and Housing Estimates City of Escondido. [https://adlsdasadsprodpublicwest.z22.web.core.windows.net/datasurfer/v23\\_1\\_sandag\\_estimate\\_2023\\_jurisdiction\\_escondido.pdf](https://adlsdasadsprodpublicwest.z22.web.core.windows.net/datasurfer/v23_1_sandag_estimate_2023_jurisdiction_escondido.pdf).
- U.S. Census Bureau. 2024. Quick Facts Escondido City, California. Population estimates, July 1, 2024. Accessed SEPTEMBER 2025. <https://www.census.gov/quickfacts/fact/table/escondidocitycalifornia/PST045224>
- WRCC (Western Regional Climate Center). 2022a. “Climate of California.” Western Regional Climate Center. Accessed December 2024. <http://www.wrcc.dri.edu/climate/narratives/california/> .
- WRCC (Western Regional Climate Center). 2023b. Period of Record Monthly Climate Summary, Escondido, California (042862). Accessed December 2024. <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca2862>



---

# **Attachment 1**

## Representative Photographs



Photo Location Map



**Photo 1.** Photo Location 1, looking north.



**Photo 2.** Photo Location 1, looking northeast





**Photo 3.** Photo Location 1, looking east.



**Photo 4.** Photo Location 1, looking southeast.



**Photo 5.** Photo Location 1, looking south.



**Photo 6.** Photo Location 1, looking southwest.





**Photo 7.** Photo Location 1, looking west.



**Photo 8.** Photo Location 1, looking northwest.





**Photo 9.** Photo Location 2, looking north



**Photo 10.** Photo Location 2, looking northeast.



**Photo 11.** Photo Location 2, looking east



**Photo 12.** Photo Location 2, looking southeast.





**Photo 13.** Photo Location 2, looking south.



**Photo 14.** Photo Location 2, looking southwest.





**Photo 15.** Photo Location 2, looking west



**Photo 16.** Photo Location 2, looking northwest.



**Photo 17.** Photo Location 3, looking north.



**Photo 18.** Photo Location 3, looking northeast.



**Photo 19.** Photo Location 3, looking east



**Photo 20.** Photo Location 3, looking southeast.





**Photo 21.** Photo Location 3, looking south



**Photo 22.** Photo Location 3, looking southwest.



**Photo 23.** Photo Location 3, looking west



**Photo 24.** Photo Location 3, looking northwest.

INTENTIONALLY LEFT BLANK

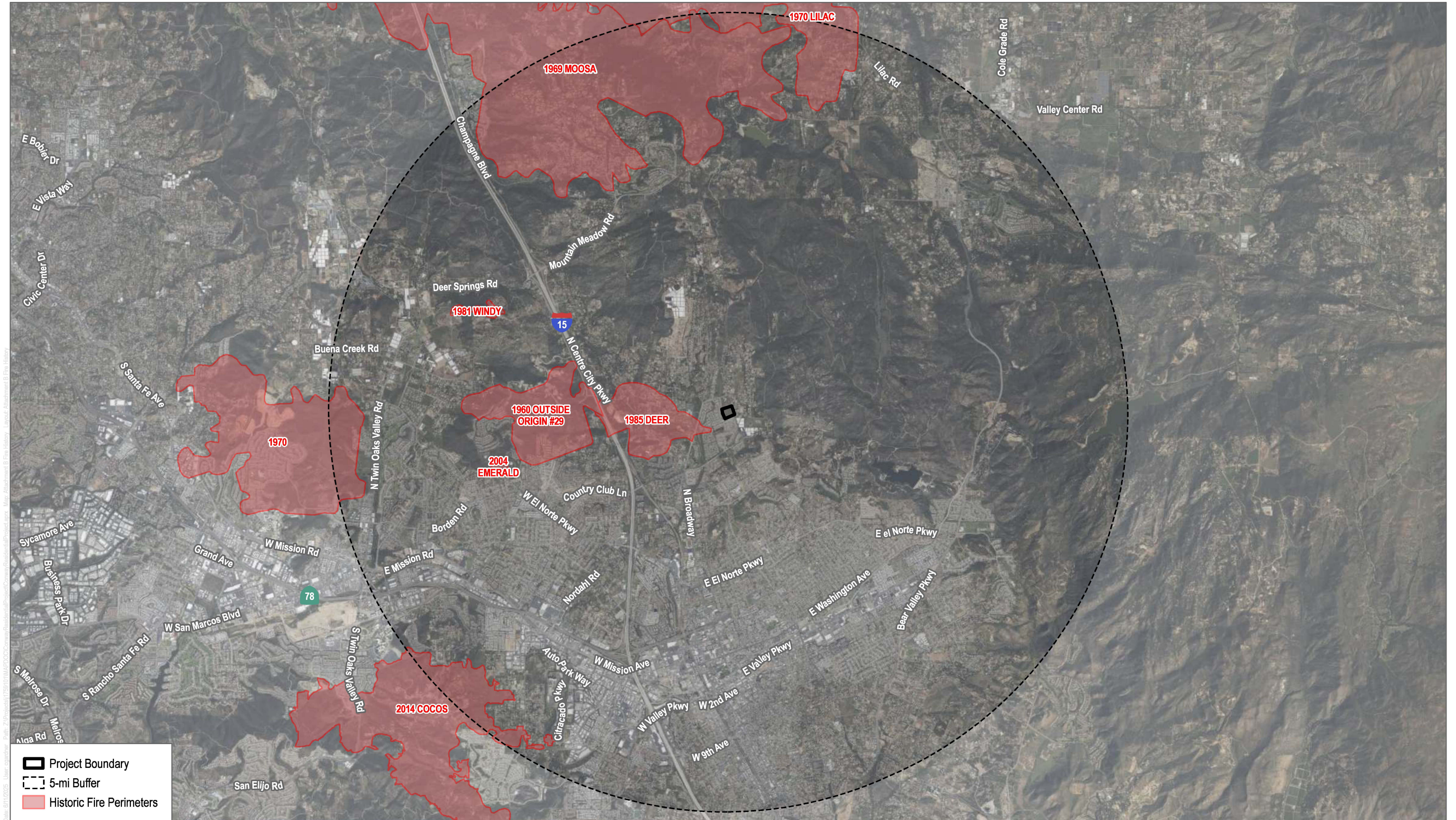


---

## **Attachment 2**

### Fire History Map





SOURCE: Bing Imagery 2024; Open Street Maps 2019; CalFire 2025



---

## **Attachment 3**

### Suggested Plant List



# CALIFORNIA NATIVE PLANT LIST



*Sustaining Native  
Plant Communities*

## Contributors



California Native Plant Society

[bewaterwise.com](http://bewaterwise.com)

Armstrong Garden Centers

Theodore Payne

County of San Diego



What are fire-resistant plants? Fire-resistant plants are those that do not readily ignite from a flame or other ignition sources. These plants can be damaged or even killed by fire; however, their foliage and stems do not significantly contribute to the fuel and, therefore, the fire's intensity. There are several other significant factors that influence the fire characteristics of plants, including plant moisture content, age, total volume, dead material, and chemical content.

***Fire-resistant does not mean fireproof!***



Even fire-resistant plants will burn if not well maintained. Be sure to keep all of your landscape plants healthy with appropriate watering, proper pruning, etc.

## SUGGESTED PLANT LIST FOR A DEFENSIBLE SPACE

| <u>BOTANICAL NAME</u>    | <u>COMMON NAME</u>         | <u>Climate Zone</u> |
|--------------------------|----------------------------|---------------------|
| <b>TREES</b>             |                            |                     |
| 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        | Hitchcock Alder            | C/I/M (R)           |
| Arbutus                  |                            |                     |
| unedo                    | Strawberry Tree            | All zones           |
| Archontophoenix          |                            |                     |
| cunninghamiana           | King Palm                  | C                   |
| Arctostaphylos spp.      | Manzanita                  | C/I/D               |
| rahea                    |                            |                     |
| armata                   | Blue Hesper Palm           | C/D                 |
| edulis                   | Guadalupe Palm             | C/D                 |
| Ceratonia siliqua        | Carob                      | C/I/D               |
| Cercidium floridum       | Blue Palo Verde            | D                   |
| Cercis occidentalis      | Eastern Redbud             | C/I/M               |
| Cornus                   |                            |                     |
| nuttallii                | Mountain Dogwood           | I/M                 |
| stolonifera              | Redtwig Dogwood            | I/M                 |
| Eriobotrya               |                            | C/I/D               |
| aponica                  | Loquat                     | C                   |
| Erythrina caffra         | Coralline Coral Tree       | I/M                 |
| Ginkgo biloba Fairmount  | Fairmount Maidenhair Tree  | I/D/M               |
| Gleditsia triacanthos    | Honey Locust               |                     |
| uglans                   |                            | I                   |
| californica              | California Almond          | C/I                 |
| hindsii                  | California Black Almond    | 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                 |                            |                     |
| chinensis                | Chinese Pistache           |                     |
|                          | 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                   |                          |               |
| obcordata                | Flowering Plum           | M             |
| caroliniana              | Carolina Laurel Cherry   | C             |
| ilicifolia               | Hollyleaf Cherry         | C             |
| lyonii                   | Catalina Cherry          | C             |
| serrulata                | Flowering Cherry         | M             |
| wanzan                   | Akebono Flowering Cherry | M             |
| yedoensis                |                          |               |
| 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       | risbane                  | 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     |
| shawii              |                       |       |
| Amorpha fruticosa   | False Indigobush      | I     |
| Arbutus             |                       |       |
| menziesii           | Madrone               | C/I   |
| Arctostaphylos spp. | Manzanita             | C/I/D |
| Atriplex            |                       |       |
| canescens           | Hoary Saltbush        | I     |
| lentiformis         | uail Saltbush         | D     |
| accharis            |                       |       |
| glutinosa           | Mule Fat              | C/I   |
| pilularis           | Coyote ush            | C/I/D |
| Carissa grandiflora | Natal Plum            | C/I   |
| Ceanothus spp.      | California Lilac      | C/I/M |
| Cistus spp.         | Rockrose              | C/I/D |
| Cneoridium dumosum  | ushrue                | C     |
| Comarostaphylis     |                       |       |
| diversifolia        | Summer Holly          | C     |
| Convolvulus cneorum | ush 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            | hite rittlebush       | D/I   |
| Eriobotrya          |                       |       |
| deflexa             | ronze Lo uat          | C/I   |
| Eriophyllum         |                       |       |
| confertiflorum      | Golden arrow          | C/I   |
| staechadifolium     | Lizard Tail           | C     |
| Escallonia spp.     | Escallonia            | C/I   |
| Fei oa sellowiana   | Pineapple Guava       | C/I/D |
| Fou ueria splendens | Ocotillo              | D     |
| Fremontodendron     |                       |       |
| californicum        | Flannelbush           | I/M   |
| mexicanum           | Southern Flannelbush  | I     |
| Galvezia            |                       |       |
| unceae              | a a ush-Snapdragon    | C     |
| speciosa            | Island ush-Snapdragon | C     |
| Garrya              |                       |       |
| elliptica           | Coast Silktassel      | C/I   |
| flavescens          | Ashv 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       |
|                           | arberry                         | C/I/M     |
| Malacothamnus clementinus |                                 |           |
|                           | San Clemente Island Bush Mallow | C         |
| fasciculatus              | Mesa Bushmallow                 | C/I       |
| Melaleuca spp.            | Melaleuca                       | C/I/D     |
| Mimulus spp.              | Monkeyflower                    | C/I (R)   |
| Nolina parryi             | Parry's Nolina                  | I         |
| parryi ssp. wolfii        | Wolf's Bear Grass               | D         |
| Photinia spp.             | Photinia                        | All Zones |
| Pittosporum crassifolium  |                                 | C/I       |
| rhombifolium              | Queensland Pittosporum          | C/I       |
| tobira heeleri            | Heeler's Dwarf                  | C/I/D     |
| undulatum                 | Victorian Box                   | C/I       |
| viridiflorum              | Cape Pittosporum                | C/I       |
| Plumbago auriculata       | Cape Plumbago                   | C/I/D     |
| Prunus caroliniana        |                                 |           |
| ilicifolia                | Carolina Laurel Cherry          | C         |
| lyonii                    | Hollyleaf Cherry                | C         |
| Punica granatum           | Catalina Cherry                 | C         |
| Pyracantha spp.           | Pomegranate                     | C/I/D     |
| uercus dumosa             | Firethorn                       | All Zones |
| Rhamus alaternus          | Scrub Oak                       | C/I       |
| californica               |                                 |           |
| Rhaphiolepis spp.         | Italian Blackthorn              | C/I       |
| Rhus integrifolia         | Coffeeberry                     | C/I/M     |
| laurina                   | Rhaphiolepis                    | C/I/D     |
| lentii                    |                                 |           |
| ovata                     | Lemonade Berry                  | C/I       |
| trilobata                 | Laurel Sumac                    | C/I       |
| Ribes viburnifolium       | Pink-Flowering Sumac            | C/D       |
| speciosum                 | Sugarbush                       | I/M       |
| Romneya coulteri          | Sauwobush                       | I         |
| Rosa californica          |                                 |           |
| minutifolia               | Evergreen Currant               | C/I       |
|                           | Fuschia-Flowering Gooseberry    | C/I/D     |
|                           | Matilija Poppy                  | I         |



|                       |                      |           |
|-----------------------|----------------------|-----------|
| Salvia spp.           | California Wild Rose | C/I       |
| Sambucus spp.         | 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          | Wash Germander       | C/I       |
| Verbena               |                      |           |
| lilacina              | Poison Oak           | I/M       |
| Yucca congestum       |                      |           |
| Yucca                 | Lilac Verbena        | C         |
| eschidigera           | Shiny Yucca          | C/I       |
| whipplei              |                      |           |
|                       | Moave Yucca          | D         |
|                       | Foothill Yucca       | I         |

## GROUNDCOVERS

|                          |                           |           |
|--------------------------|---------------------------|-----------|
| Achillea                 | arrow                     | All Zones |
| Aptenia cordifolia       | Apteria                   | C         |
| Arctostaphylos spp.      | Manzanita                 | C/I/D     |
| accharis                 |                           |           |
| pilularis                | Coyote ush                | 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                | rittonis Chalk Dudleya    | C         |
| pulverulenta             | Chalk Dudleya             | C/I       |
| virens                   | Island Live Fore-ever     | C         |
| Eschscholzia californica | California Poppy          | All Zones |
| Euonymus fortunei        |                           |           |
| Carrierei                | Glossy inter Creeper      | M         |
| Coloratus                | Purple-Leaf inter Creeper | M         |
| Ferocactus viridescens   | Coast arrel Cactus        | C         |
| Gaillardia grandiflora   | lanket 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 | lood-Red Trumpet Vine  | C/I/D     |
| eckiaella cordifolia   | Heart-Leaved Penstemon | C/I       |
| Lonicera               |                        |           |
| aponica Halliana       | Hall s Honeysuckle     | All Zones |
| subspicata             | Chaparral Honeysuckle  | C/I       |
| Solanum                |                        |           |
| asminoides             | 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 ells        | C/I       |
| Iris douglasiana      | Douglas Iris             | C/M       |
| Iva hayesiana         | Poverty eed              | C/I       |
| niphofia 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     |
| Sature a douglasii    | erba uena                | C/I       |
| Sisyrinchium          |                          |           |
| bellum                | lue-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 |





# Fire Resistant Native Plants with High Wildlife Value

Compiled by The Theodore Payne Foundation for Wildflowers and Native Plants, Inc.  
10459 Tuxford Street, Sun Valley, CA 91352 Phone: (818) 768-1802 <http://www.theodorepayne.org>

**Important Note:** All plants will eventually burn. There is no such thing as a fireproof plant. There are some plants that can retain moisture, even in dry areas, and are called fire resistant. This list is designed to identify some Californian native plants that are fire resistant and have wildlife value. These plants with few exceptions are listed as acceptable to plant in Fuel Modification Zones by Los Angeles County Fire. The purpose of this list is to help place fire resistant and wildlife important plants in areas where brush clearance can leave an area barren.

LA County approved plant list for Fuel Modification: [http://www.lacofd.org/forestry\\_folder/pdf/fmpg.pdf](http://www.lacofd.org/forestry_folder/pdf/fmpg.pdf)

## GROUNDCOVERS

- *Atriplex barclayana*. **Beach Carpet Saltbush**. A low growing form of saltbush (6" high, spreading). This saltbush provides good ground cover for soil erosion and provides seeds, salt and cover for wildlife.
- *Atriplex canescens*. **Four-wing Saltbush**. A low growing form of saltbush (1-2' high, 3' wide) that happily grows in the desert. It provides seeds, salt and cover for wildlife.
- *Baccharis pilularis* "Pigeon Point". **Dwarf Coyote Bush**. While not a "showy" plant, it does produce some flowers and has a deep root system, that provides good erosion control. It grows 12" to 18" in height. It adds cover and seeds for a variety of birds. (LA County Fire approved)
- *Monardella linoides viminea*. **Willow Coyote Mint**. This federally protected coyote mint grows up to 18" tall and prefers North facing (somewhat shaded) or riparian areas. It has a long blooming cycle, flowering through the summer and fall and is an attractant to hummingbirds and butterflies. Songbirds also eat the seeds.

## SHRUBS

- *Atriplex lentiformis breweri*. **Quail Bush**. A larger saltbush (4' high, 6-8' wide) that provides critical habitat for the California quail and other birds.
- *Galvezia speciosa*. **Island Bush Snapdragon**. This CNPS "rare" plant is from the Channel Islands and stays evergreen year round producing trumpet shape red flowers favored by hummingbirds. It grows in 18" to 24" in height and 3' to 5' in width. It also adds excellent cover for wildlife.
- *Isomeris arborea*. **Bladderpod**. A very drought tolerant shrub that forms yellow flowers and seedpods. (LA County Fire approved)
- *Mahonia nevinii* (aka *Berberis nevinii*). **Nevin's Barberry**. A federally endangered species, once common in the Verdugo Mountains, grows berries that are favored by many songbirds. The spiny leaves also add a protective cover. The shrub can grow up to 4' in height and 6' in width and is evergreen. (LA County Fire approved)
- *Mahonia*, *Aquifolium* and all subspecies. **Mahonia/ Barberry**. It's purple berries and yellow flowers are favored by many songbirds. The spiny leaves also add a protective cover. (LA County Fire approved)
- *Rhus laurina* (aka *Malosma laurina*). **Laurel Sumac**. While laurel sumac does have a high oil content, it has found to have a much higher incineration point than most other plants. It has been found to be one of the last plants to burn in fires. It provides important cover, food and nesting resource for many types of wildlife. A laurel sumac that has the lower third of it's branches pruned is considered fire-safe. It is a favorite shrub amongst warbler.
- *Mimulus* sp. "Big Tujunga" or "La Tuna". **Monkeyflower (local varieties)**. These two local varieties of Monkeyflower do well in the summer heat and provide pale to deep orange flowers. It grows 18" to 36" in height and 3' to 5' in width. The flowers and seeds provide wildlife value
- *Ribes aureum*. **Golden Currant**. This currant grows upright to 6' and is lacy in structure. In summers, it can go semi-drought deciduous, though with some water in will remain evergreen. It's berries offer a high wildlife value. (LA County Fire approved)
- *Rhus integrifolia*. **Lemonade Berry**. A very drought-resistant shrub that provides cover and food to wildlife. California Thrasher uses it's fruit and leaf material for nesting. It also is an excellent erosion control plant.
- *Symphoricarpos albus*. **Common Snowberry**. While not the favorite berry choice of most wildlife, it still gets eaten. Its root system is vigorous and deep enough to hold most banks. Snowberry has been seen on North-facing slopes in the full sun, though shaded areas such as under oaks is best.

## TREES

- *Heteromeles arbutifolia*. **Toyon**. This small tree is found readily in La Tuna Canyon. It is very drought tolerant and provides red berry for months that are a favorite amongst many birds found in the area.
- *Quercus agrifolia*. **Coastal Live Oak**. Oak trees are important wildlife resources and have actually been found to suppress fire.



Search

go

Quick Links

home

store locator

save water

Join Our Email List

Sign up to receive special offers and timely tips from your local garden experts.

First Name

Last Name

Email Address

Sign Up!

## Fire-Resistant Plant Guide

One of the first steps to firescaping is identifying plants with fire retardant abilities. Below is a sample of trees, shrubs, ground cover and perennials that are ideal plants for firescaping.

### Fire-Resistant Trees

Tree selection should be done with care as this is a plant that will be with you and your home for years to come.

- African Sumac (*Rhus lancea*)
- Ash (*Fraxinus* sp.)
- Carob (*Ceratonia seliqua*)
- California Sycamore (*Platanus racemosa*)
- Carrotwood Tree (*Cupaniopsis anacardiodes*)
- California Bay Laurel (*umbellularia californica*)
- Catalina Ironwood (*Lyonothamnus* sp.)
- Chinese Pistache (*Pistacia chinensis*)
- Coast Live Oak (*Quercus agrifolia*)
- Coral Tree (*Erythrina caffra*)
- Cork Oak (*Quercus suber*)
- Crape Myrtle (*Lagerstroemia indica*)
- Elm (*Ulmus* sp.)
- Flowering Cherry (*Prunus* sp.)
- Guadalupe Fan Palm (*Brahia edulis*)
- Honey Locust (*Gleditisa triacanthos*)
- King Palm (*Archontophoenix cunninghamiana*)
- Loquat (*Eriobotrya japonica*)
- Macadamia (*Macadamia* sp.)
- Maidenhair Tree (*Ginkgo biloba*)
- Manzanita (*Arctostaphylos* sp.)
- New Zealand Christmas Tree (*Metrosideros* sp.)
- Palo Verde Tree (*Parkinsonia* sp.)
- Paperbark Tree (*Melaleuca* sp.)
- Purple Leaf Plum (*Prunus cerasifera*)
- Silver Maple (*Acer saccharinum*)
- Strawberry Tree (*Arbutus unedo*)
- Sweet Gum (*Liquidambar stryiaiflua*)
- Toyon (*Heteromeles arbutifolia*)
- Tulip Tree (*Liriodendron tulipifera*)
- Victorian Box (*Pittosporum undulatum*)
- Western Redbud (*Cercis occidentalis*)
- White Alder (*Alnus rhombifoli*)

### Fire-Resistant Shrubs

- California Lilac (*Ceanothus* sp.)
- Bronze Loquat (*Eriobotrya deflexa*)
- Bush Morninglory (*Convolvulus cneorum*)
- Flannel Bush (*Fremontodendron* sp.)
- India Hawthorn (*Raphiolepis indica*)
- Lantana (*Lantana* sp.)
- Lilac (*Syringa vulgaris*)
- Matilija Poppy (*Romneya coulteri*)
- Mock Orange (*Pittosporum* sp.)
- Monkey Flower (*Mimulus* sp.)
- Natal Plum (*Carissa grandiflora*)
- Ocotillo (*Fouquieria splendens*)
- Pineapple Guava (*Feijoa sellowiana*)
- Pink Escallonia (*Escallonia* sp.)
- Rockrose (*Cistus* sp.)
- Rose (*Rosa hydrida*)
- Sage (*Salvia* sp.)
- Shiny Xylosma (*Xylosma congestum*)
- Silverberry (*Elaeagnus punge*)

### Fire-Resistant Ground Cover

- Creeping Coprosma (*Coprosma kirkii*)



Dwarf Myrtle (Vinca minor)  
Gazania (Gazania sp.)  
Lantana (Lantana sp.)  
Manzanita (Arctostaphylos sp.)  
Myoporum (Myoporum parvifolium)  
Periwinkle (Vinca major)  
Red Apple Ice Plant (Aptenia cordifolia)  
Rosea Ice Plant (Drosanthemum hispidu)

**Fire-Resistant Perennials**

Blue-Eyed Grass (Sisyrinchium bellum)  
Coral Bells (Heuchera sp.)  
Douglas Iris (Iris douglasiana)  
Golden-Eyed Grass (Sisyrinchium californicum)  
Lavender (Lavandula sp.)  
Red-Hot Poker (Kniphofia uvaria)  
Seafoam Statice (Limonium perezii)



# bewaterwise.com®

THE METROPOLITAN WATER DISTRICT of SOUTHERN CALIFORNIA and THE FAMILY of SOUTHERN CALIFORNIA WATER AGENCIES

[Home](#) | [Garden Spot](#) | [Rebates](#) | [Events](#) | [Contacts](#) | [Sitemap](#) | [Classes](#) | [Español](#)

Share |

Home + The Garden Spot + Fire-Resistant California Friendly® Plants + Fire-Resistant Plant List

## Fire-Resistant California Friendly Plants

[Shrubs](#) | [Trees](#) | [Perennials and Annuals](#) | [Groundcover](#)

### Shrubs



#### California Redbud

An interesting plant all year long, with magenta flowers on leafless stems in summer, followed by crimson seedpods and heart-shaped blue-green leaves. Deciduous, with yellow or red fall foliage falling away in winter to reveal smooth reddish brown trunks. Long lived, very drought tolerant, and flowers more profusely as it matures.



#### Monkeyflower (Mimulus)

This entire species is endorsed for use by San Diego County planners and the Los Angeles and Orange County fire departments. Be sure to check out the drought-tolerant varieties.



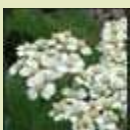
#### Ceanothus 'Concha'

This California lilac is a large shrub with a dense mass of dark green, 1-inch leaves, with dark blue clusters of flowers appearing in spring. Requires good drainage; can tolerate summer water. Grows to six feet.



#### Sage (Salvia)

Nothing evokes California quite like a sage-scented hillside. Beloved by hummingbirds and firefighters alike, the autumn sage pictured here is endorsed for use by the Orange County Fire Authority, while the [entire sage species](#) is endorsed by the Los Angeles County Fire Department.



#### Common Yarrow (Achillea millefolium)

It appears on fire-resistant lists for California Native Plant Society, Western MWD (zone 3), San Diego County, and Orange County fire. However it is not on the approved list for Los Angeles County fire. Yarrow also can be used as a groundcover if mowed.



#### French Lavender (Lavandula dentata)

Although not a true California native, this attractive drought-tolerant plant is endorsed for Zone B use in Los Angeles County, and also makes fire-resistant lists for the Inland Empire and Orange and San Diego counties.

### Trees



**Coast Live Oak**

Handsome shade tree. Round-headed with dense foliage, grows 20-70 feet tall. Smooth, dark grey bark, with leathery dark green leaves. Native to coastal central and Southern California.



**California Sycamore**

Sycamores have delighted generations of Californians, and this particular variety is endorsed for use by the Los Angeles and Orange County fire departments, plus San Diego County.



**Toyon (*Heteromeles arbutifolia*)**

A classic California native, it has white flowers in the summer and berries in the winter, it gets good marks from Los Angeles, Orange, San Diego and the Inland Empire.

**Perennials and Annuals**



**California Fuchsia (*Epilobium canum/californica*)**

This sprawling plant is one of the few perennials listed by Los Angeles, Orange and San Diego counties.



**Beard Tongue (*Penstemon palmeri*)**

This particular variety is native to the Southland, but the [entire species](#) has been embraced by native plant enthusiasts and firefighters alike, and is approved for use in L.A., Orange and San Diego counties.

**Groundcover**



**Wild Strawberry (*Fragaria chilolensis*)**

Looking for a low-growing plant that you can plant next to your home? This species has the rare distinction of being approved by Los Angeles County fire department for any zone in your yard.



## Pyrophytic Characteristics

HIGH PYROPHYTIC plants, shrubs and trees ignite and burn intensely and typically share certain characteristics:

- 1) They are usually blade-leaf or needle-leaf evergreens
- 2) They have stiff, woody, small or fine, lacey leaves
- 3) Their leaves and wood usually contain volatile waxes, fats, terpenes or oils (crushed leaves have strong odors)
- 4) Their sap is usually gummy, resinous and has a strong odor
- 5) They usually contain plentiful fine, twiggy, dry or dead materials
- 6) They may have hair covered leaves
- 7) They may have loose or papery bark
- 8) These plants flame (not smolder) when preheated and ignited with a match

## Defensible Space

Every home requires defensible space. Defensible space is the area around the home free from dangerous accumulations of flammable pyrophytic vegetation. This allows firefighters a safe working area from which to defend against an oncoming wildfire.

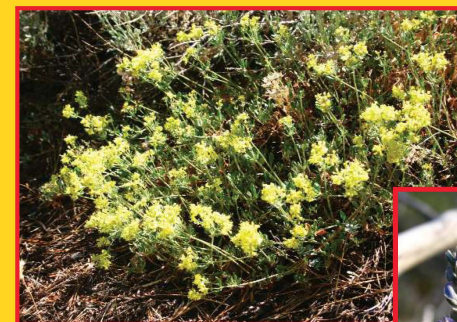
A firewise landscape includes LOW pyrophytic plants, shrubs and trees (those less likely to burn and slower to ignite), strategically placed and maintained to resist the spread of fire. It also, is a landscape maintained free of dead and dry plant materials, with living plants, shrubs and trees properly spaced and managed so they will not serve as ladder fuels during a wildfire.

## Understanding Pyrophytic

A plant, shrub or tree with HIGH PYROPHYTIC properties means they will ignite easily and burn intensely.

Understanding the characteristics of Xeriscape plants, native plants, shrubs and trees, will help determine the correct placement and proper selection of your plants. This will help to make your landscape more fire resistant and help your local firefighters protect your home during the threat of a wildfire.

HIGH PYROPHYTIC plants, shrubs and trees should be planted in areas further than 15 feet from a structure, including decks and patios. Maintenance of high pyrophytic plants, shrubs and trees should include removing all dead plant material. The crowns (lower branches) of shrubs should be raised at least 2 to 3 feet off the ground and limited to a single specimen with spacing between plants of 2 times the height of the tallest shrub, unless the shrub is isolated or heavily modified.



For more information on how to make your home more fire resistant, log on to [www.thinisin.org](http://www.thinisin.org)

*Working Together  
We Can Make the Big Bear Valley  
A More Fire Safe, Firewise Community.*



*Get In The Race For Defensible Space*

*City of Big Bear Lake  
Fire Department*

*This brochure was created in cooperation with  
the Big Bear Group of the Sierra Club*

## BIG BEAR Firewise Planting Guide



*Get In The Race For Defensible Space*

*City of Big Bear Lake  
Fire Department*

Many Xeriscape and native plants, shrubs and trees found in the Big Bear Valley are listed here, and are low in Pyrophytic properties (they **WILL NOT** easily ignite or burn intensely).

The Xeriscape and native plants, shrubs and trees listed that are in a **RED BOLD ITALIC TYPEFACE** & identified with the  icon are HIGH in PYROPHYTIC PROPERTIES (they **WILL** easily ignite or burn intensely).

 **HIGH PYROPHYTIC** plants, shrubs and trees should be planted in areas further than 15 feet from a structure, including decks and patios. Maintenance of HIGH pyrophytic plants should include removing all dead plant material. The crowns (lower branches) of shrubs should be raised at least 2 to 3 feet off the ground and limited to a single specimen with spacing between plants of 2 times the height of the tallest shrub, unless the shrub is isolated or heavily modified.

## Flowering Perennials

Alum Root  
Beardtongue  
Bergenia  
Blue Catmint  
Buckwheat - Sulphur-flowered  
Buckwheat - Wright's  
Coral Bells  
Daylily  
Dianthus  
Fuchsia - California  
Goldenrod - California  
Hollyhock  
Honeysuckle  
Iris - Bearded  
Jupiter's Beard

Lamb's Ears  
Lavender  
Mallow - Apricot  
Mint - Coyote  
Mint - Hummingbird  
Mojave Mound  
Penstemon - Beakflowered  
Penstemon - Bumblebee  
Penstemon - Firecracker  
Penstemon - Scarlet  
Phlox - Creeping  
Poppy - California  
Poppy - Oriental  
Poppy - Prickly  
Primrose - California Evening

Primrose - Fragrant Evening  
Rydberg's Horkelia  
Sage - Desert Purple  
Sage - Garden  
Sage - Meadow  
Sage - Rose  
Sage - Russian  
Sage - Silver  
Wallflower - Western  
Western Blue Flag  
Whirling Butterflies  
Yarrow - Moonshine  
Yarrow - Paprika  
Yarrow - Wooly

## Shrubs

**Bitter Brush** -   
Blue Mist  
Butterfly Bush  
Currant  
**Flannel Bush** -   
Gray Santolina (Lavender)

**Juniper Shrubs (any type)** -   
Lilac  
**Manzanita - Greenleaf** -   
**Mountain Mahogany (Ironwood)** -   
**Mountain Whitethorn** -   
Oregon Grape

**Sagebrush** -   
**Serviceberry** -   
Snowberry  
Wild Rose

## Trees

Black Oak  
**Incense Cedar** -   
**Jeffrey Pine** - 

**Juniper** -  (all types,  
including Western Juniper)  
**Leyland Cypress** - 

**Pinyon Pine** -   
**White Fir** - 





## Sources for Native Plants in Southern California

### Annual Plant Sales

### Sources for California Native Seeds and Bulbs

**CNPS San Diego Chapter Monthly Meetings**: We usually carry a small selection of native plants at our monthly meetings. New members who sign up at the meeting will receive a free gift. For more info contact us [info@cnpssd.org](mailto:info@cnpssd.org)

## Nurseries in the San Diego Area that Specialize in California Native Species

In addition to the following specialty nurseries, many other nurseries do grow and stock a limited choice of species.

Be aware that many lists of California Native Plants provided by non-speciality nurseries are not accurate.

If in doubt check on species on the Cal Flora [www.calflora.org](http://www.calflora.org) website or the San Diego Plant Atlas Project website [www.sdplantatlas.org](http://www.sdplantatlas.org)

If any readers learn of other nurseries in the Southern California region, please contact me - [Kay Stewart](#)

**Cal-Native Plants Nursery**, (Formerly Plants for Dry Places) 25735 Garbani Road, Menifee, CA (near Temecula) 92584, ph 909-301-8075/fax 909-301-8314. Specializing in natives under new ownership.

**\*\*new\*\* City Farmers Nursery**, San Diego. 40 different native plant species available with ability to special order 200 additional species and have them delivered within one week. 4832 Home Ave. San Diego CA 92105. 619-284-6358. Ask for Farmer Bill.

**\*\*new\*\* Cedros Gardens**, Solana Beach. 40 different native plant species available with ability to special order 200 additional species and have them delivered within one week. 330 South Cedros Ave., Solana Beach CA 92075. 858-792-8640. Ask for Mia or Matt.

**Coastal Sage Gardening**, 3685 Voltaire Street, (Ocean Beach), San Diego, CA 92106-1253, ph 619-223-5229. A garden shop with a selection of native plants and wildflower seeds. Owner John Noble will deliver plants from Tree-of-Life Nursery. Open weekends or by appointment, email [coastalsagegardening@cox.net](mailto:coastalsagegardening@cox.net)

**El Nativo Growers**, 200 S. Peckham Rd., Azusa, CA 91702-3238, ph 626-969-8449/fax 626-969-7299. Well-established wholesale grower, 500 species in sizes from 4" to 24" box for some trees; will contract grow.

**\*\*new\*\* El Plantio Nursery**, Escondido. 40 different native plant species available with ability to special order 200 additional species and have them delivered within one week. 1322 San Pasqual Valley Road, Escondido CA 92027. 760-745-8736.



**\*\*new\*\* Green Thumb Nursery**, San Marcos. 40 different native plant species available with ability to special order 200 additional species and have them delivered within one week. 1019 San Marcos Blvd. San Marcos CA 92069. Contact Jeff Funk. 760-744-3822.

**Las Pilitas Nursery**, Nelson Way at Old Highway 395, Escondido, CA 92026, ph 760-749-5930. The satellite of a 30-year old natives nursery near Morro Bay. Increasing variety, 1 to 5 gallon sizes. Retail, wholesale, contract grow, consulting, growing guide.

**Manzanita Native Plant Nursery**, 39397 Highway 94, Boulevard, CA 91905, ph 619-733-9843, [manzanitanursery@aol.com](mailto:manzanitanursery@aol.com). Most Saturdays or by appointment. Local California native conifers, penstemons and other interior natives and carries more familiar species and cultivars as well. Will contract grow.

**Matilija Nursery**, 8225 Waters Road, Moorpark, CA 93021, ph 805-523-8604, [matilijanursery@gtemail.net](mailto:matilijanursery@gtemail.net). Entertaining web site includes contests and details on the plants available. Wholesale and retail available.

**Mission Hills Nursery**, 1525 Fort Stockton Dr. San Diego, ph. 619-295-2808. Now has California Native Plants. Currently there are 40 species in stock but an additional 150 species are available for special order. For special orders, you can download the availability list at [www.moosacreeknursery.com/availability-list.pdf](http://www.moosacreeknursery.com/availability-list.pdf). The prices are very reasonable so stop by this weekend and check it out! Fausto, the owner, or Tiger the Manager will be happy to help with your native plant requirements.

**Moosa Creek Nursery**, 28435 Wilkes Road, Valley Center, CA 92082, Hank and Su Kraus, ph 760-749-3216, Grow plants from San Diego County chaparral and woodlands. Availability list on website and monthly plants.

**Native Plant Connection**, in the Descanso area, [juljanssen@yahoo.com](mailto:juljanssen@yahoo.com) , (619) 445-8771

**Rancho Jojoba Nursery**, 11935 Hwy 67, Lakeside, CA 92040, ph 619-561-0751/fax 619-504-2017, [allenj.k@sbcglobal.net](mailto:allenj.k@sbcglobal.net). Stocks and grows a wide variety of native plants, wholesale and retail.

**Rancho Santa Ana Botanical Garden**, 100 N. College Ave, Claremont, CA 91711-3157, ph 909-625-8767/fax 909-626-7670. Rancho Santa Ana Botanic Garden is devoted to the collection, cultivation, study, and display of native California plants and to graduate training and research in plant systematics and evolution. Native plants are sold during the Fall Sale on the first weekend of November, the Spring Sale on the first Saturday in April, and in the Garden Shop year-round except during the summer.

**Recon Native Plant Nursery**, Wholesale to the industry, 1755 Saturn Blvd. San Diego, CA 92154 Ph: 619-423-2284 Fax: 619-423-0632. Large grower of native plants to the Southwestern US. Current plant inventory available online, contract grow, and consulting. Plants grown at Recon now available at these retail locations: [Simpsons Garden Town](#) in Jamul, [Miramar Wholesale Nursery](#) (over 70 varieties in stock, ask for Wayne), [Walter Andersen Nursery](#) in Pt. Loma.

**\*\*new\*\* San Carlos Hardware**, San Carlos. 40 different native plant species available with ability to special order 200 additional species and have them delivered within one week. 7375 Jackson Drive, San Diego CA 92119

[Santa Barbara Botanic Garden](#), 1212 Mission Canyon Road, Santa Barbara, CA 93105, ph 805-682-4726 x127. Sells plants and seeds in the gift shop.

[Simpsons Garden Town](#) in Jamul

[Theodore Payne Foundation for Wildflowers and Native Plants](#), 10459 Tuxford Street, Sun Valley, CA 91352-2126, ph 818-768-1802. 80-year old nonprofit retail nursery sells California native plants, seeds and books. Over 300 native species for sale.

[Tree of Life Nursery](#), Mailing: PO Box 635, San Juan Capistrano, CA 92693; Physical: 33201 Ortega Highway, San Juan Capistrano, CA 92675, ph 949-728-0685, fax 949-728-0509. Wholesale, restoration, contract grow; retail Monday through Friday and most Saturdays. Over 600 types of native plants for landscaping and revegetation.

**\*\*new\*\*** [Walter Anderson](#), Poway. 40 different native plant species available with ability to special order 200 additional species and have them delivered within one week. 12755 Danielson Court, San Diego CA 92064. Contact David. 858-513-4900.

Updated January 2011

[Horticulture](#) | [Home](#)

*Dedicated to the Preservation of California Native Flora*

California Native Plant Society, San Diego Chapter  
c/o San Diego Natural History Museum - P.O. Box 121390, San Diego, CA 92112-1390