5.7 Hazards and Hazardous Materials

This section provides an analysis of the hazards and risks to the public and the environment posed by the Proposed Project by hazardous materials and particularly wildfire. The term "hazardous materials" refers to hazardous substances and wastes. A "material" is defined as hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local regulatory agency, or if it has characteristics defined as hazardous by such an agency.

This section provides an analysis of potential soil or water contamination from oil well operations. Further discussion of the potential for soil or water contamination from hazardous materials is detailed herein.

This section also analyzes the impact of wildfire hazard within the Project Area, on the surrounding community and the region, and on emergency response and emergency evacuation. A wildfire hazard section has been prepared for this DEIR because the project is within a State Responsibility Area – Very High Fire Hazard Severity Zone (VHFHSZ) as designated by the County of Orange, the Orange County Fire Authority (OCFA), and the California Department of Forestry and Fire Protection (CAL FIRE) (Exhibit 5-63 – Orange County Fire Authority Unincorporated Yorba Linda and La Habra Ember/Fire Hazard Severity Zones).

The Project Area has historically experienced wildfires, the most recent being the 2008 Freeway Complex Fire, which burned the entire Project Site and ultimately consumed more than 30,000 acres, destroyed or damaged 381 structures – including 187 residences – at a cost of more than $16.1 million dollars.[10]

Acronyms used in this section:

ACOE	Army Corps of Engineers
AMSL	above mean sea level
AQMD	Air Quality Management District
CAL FIRE	California Department of Forestry and Fire Protection
CC&Rs	Covenants, Conditions, and Restrictions
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
DEIR	Draft Environmental Impact Report
DOGGR	California Department of Conservation, Oil, Gas, and Geothermal Resources
ESA	Phase 1 Environmental Site Assessment
FCF Report	Freeway Complex Fire Preliminary Report
FMZ	fuel modification zone
FPEP	Fire Protection and Emergency Evacuation Plan
MWD	Metropolitan Water District
NEAPS	Northeast Area Planning Study
OCFA	Orange County Fire Authority
OCSD	Orange County Sheriff's Department
RAP	Remedial Action Plan
SCE	Southern California Edison
SOI	Sphere of Influence
USFWS	U.S. Fish and Wildlife Service
VHFHSZ	Very High Fire Hazard Severity Zone
WUI	wildland urban interface
YLWD	Yorba Linda Water District

[10] Orange County Fire Authority, Freeway Complex Fire Preliminary Report, December 2, 2008

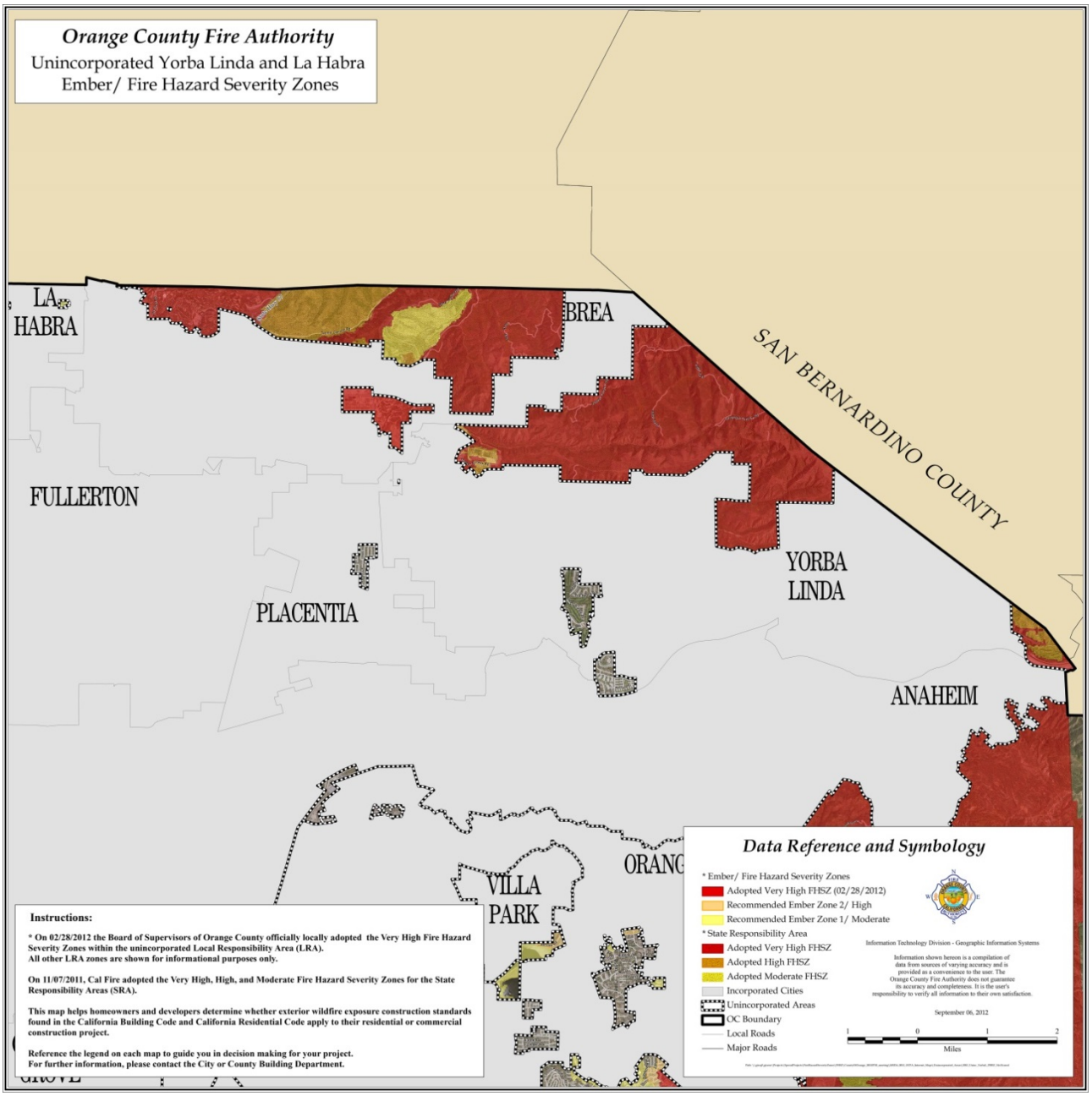


Exhibit 5-63– Orange County Fire Authority Unincorporated Yorba Linda and La Habra Ember/Fire Hazard Severity Zones

This was the largest fire in Orange County since the Green River Fire in 1948.[11] Prior to the 2008 Freeway Complex Fire, the most notable and devastating events were the 1980 Carbon Canyon Fire (14,613 acres), the 1980 Owl Fire (18,332 acres), the 1982 Gypsum Fire (19,986 acres), and the 2006 Sierra Peak Fire (10,506) acres.[12] This section is based on the "Phase I Environmental Site Assessment Report" (Phase I ESA) prepared by American Geotechnical, Inc. and dated July 2012 (Appendix I in this DEIR), the "Fire Protection and Emergency Evacuation Plan" (FPEP) prepared by Dudek and dated June 2013 (Appendix J in this DEIR), and the "Preliminary Water Report for Option 1 and Option 2," dated June 2013 (Appendix P in this DEIR).

5.7.2 Existing Conditions

1. Project Setting and Existing Use

The Project Site is located in an unincorporated area of Orange County, within the Sphere of Influence (SOI) for the City of Yorba Linda (City). Specifically, the Project Site is situated north of the SR-91 Freeway, southwest of Chino Hills State Park, and adjacent to existing residential development in the City. The project is east of San Antonio Road and north of Stonehaven Drive. The Project Site is currently undeveloped, with the exception of oil well operations in the western portion of the site. Although the site has been used historically for grazing, its major use today is open space, water transmission for the Metropolitan Water District (MWD) and the Yorba Linda Water District (YLWD), energy transmission associated with the Southern California Edison Company (SCE), and oil operations from three existing oil wells located in the southwestern area of the site. Grading on the site consists of dirt roads and pads for oil extraction equipment and general access to the property, as well as to the SCE transmission corridor.

2. Topography

The Project Site is within the Puente-Chino Hills range, just north of the north end of the Santa Ana Mountains, and is aligned east-west with the downslope end of the site facing the flatlands of Santa Ana Canyon and the City. The Project Site includes a variety of terrains, including steep slopes, rolling hills, and narrow V-shaped ravines. The topography of the Project Area is dominated by three ridgelines. The most significant ridgeline occupies the northern portion of the Project Area and is bordered on the north by an unnamed drainage. The central portion of the Project Area contains two east-west tending ridgelines.

The topography on-site and off-site is situated such that winds may be accelerated as they enter the rugged terrain from on-shore or off-shore directions. Further, this area is

[11] Orange County Fire Authority "After Action Report, Freeway Complex Fire, November 15, 2008," page 7; http://www.wildlandfire.com/docs/2008/lessons-learn/freeway-cplx-aar.pdf (accessed July 2013)

[12] Orange County Fire Authority "After Action Report, Freeway Complex Fire, November 15, 2008," page 10; http://www.wildlandfire.com/docs/2008/lessons-learn/freeway-cplx-aar.pdf (accessed July 2013)

subject to seasonal Santa Ana winds that are enhanced as they are funneled into the SR-91 corridor to the south of this site.

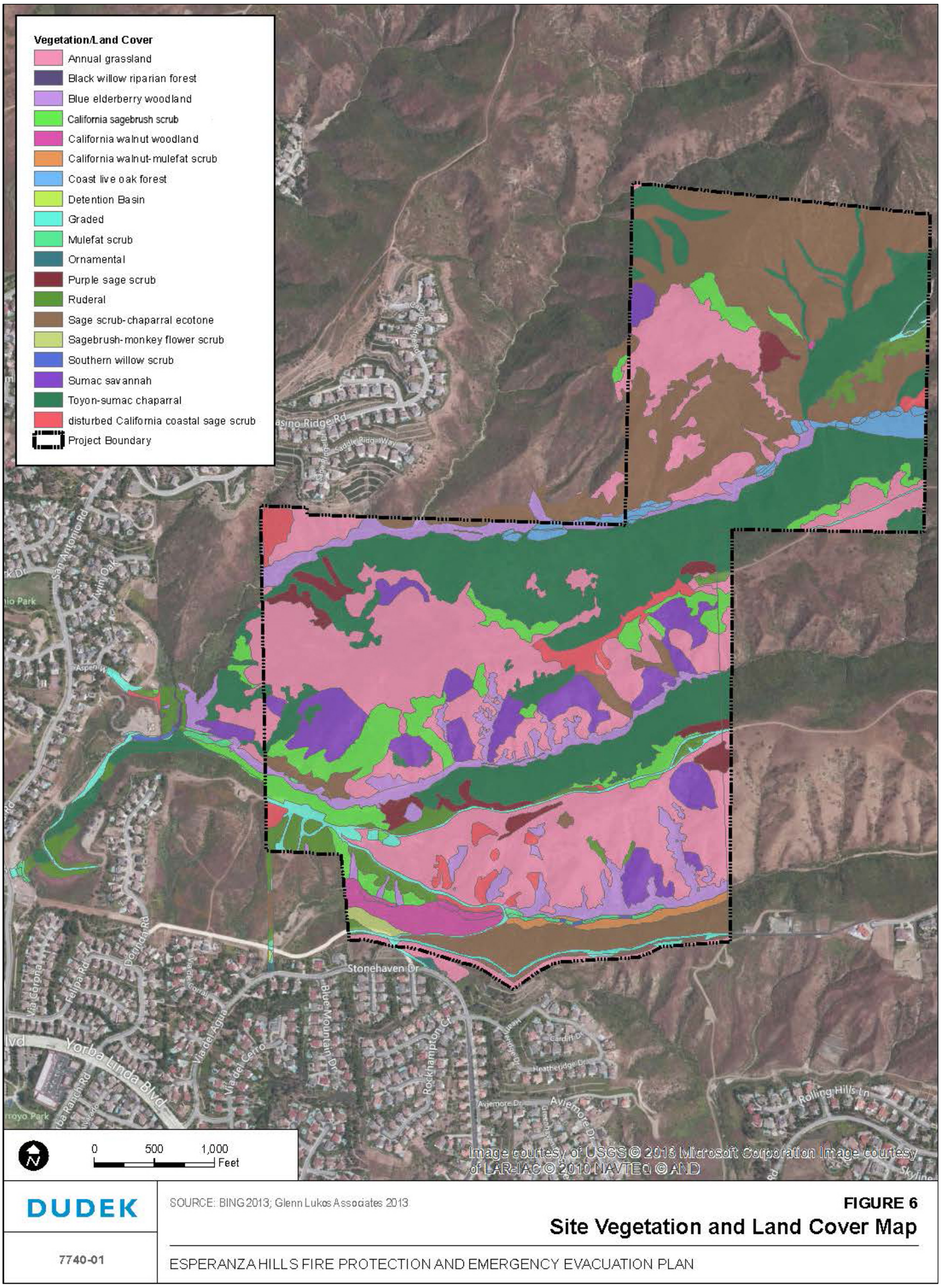
Slopes on the site vary, ranging from moderately to steeply sloped, up to 55% along drainage walls in the steeper canyons. The site elevations range from approximately 600 feet above mean sea level (AMSL) in the extreme southwestern portion of the Proposed Project near Blue Mud Canyon to approximately 1,540 feet AMSL in the northeastern portion of the property. The property slope trends north to south and east to west.

Topography affects wildfire movement and spread. Steep terrain typically results in faster fire spread due to pre-heating of uphill vegetation. Flat areas typically result in slower fire spread, absent windy conditions. Topography may form unique conditions that result in concentrated winds or localized fire funneling, such as saddles, canyons, and chimneys (land formations that collect and funnel heated air upward along a slope). Similarly, terrain may slow the spread of fire. For example, fire generally moves slower downslope than upslope. Terrain may buffer or redirect winds away from some areas based on canyons or formations on the landscape.

3. Vegetation

The Project Site supports a diverse mix of habitats/land use types including non-native grasslands with locally dominant stands of coastal sage scrub currently dominated by bush mallow and other fire followers (following the 2008 Freeway Complex Fire) and chaparral with limited areas of riparian habitat and walnut woodland. The Project Site also includes disturbed habitats characterized as ruderal and disturbed/developed areas. A complete description of existing vegetation is found in Section 5.3, Biological Resources (beginning on page 5-91). The Biological Resources section describes a Study Area of approximately 504.20 acres, which encompasses the entire 468.9-acre Project Site, as well as off-site impact areas of an additional 35.26 acres.

The majority of the vegetation on the Study Area is represented by annual grasses and chaparral-dominated plant communities. In total, the various sage scrub vegetation types account for 192.55 acres (38.2%) of coverage on the site. Annual grassland and non-native grasslands make up 136.10 acres (27.0%) of the 504.20 acres. Toyon-sumac chaparral accounts for 118.14 acres (23.4%) and occurs throughout the site on the more mesic (moist), north-facing slopes. Woodlands account for 44.2 acres (9.0%). Non-fuel areas that will not burn (dirt roads and bare ground) occur on 10.17 acres (2.0%) of the site and are located primarily along ridge tops for access to oil extraction equipment and SCE transmission lines. The Proposed Project's vegetation and land coverage is illustrated in Exhibit 5-64 – Site Area Vegetation and Land Cover Map. 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.



DUDEK

SOURCE: BING 2013; Glenn Lukos Associates 2013

FIGURE 6

Site Vegetation and Land Cover Map

7740-01

ESPERANZA HILLS FIRE PROTECTION AND EMERGENCY EVACUATION PLAN

Exhibit 5-64 – Site Area Vegetation and Land Cover Map

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.

The vegetation types, amount of vegetation (acres), and percentage of total area are summarized in Table 5-7-1 below.

Table 5-7-1 Study Area Vegetation and Land Cover Types – Esperanza Hills

	Acres	Percent Coverage
Vegetation Type		
Annual grassland	136.1	27.0%
Black willow riparian forest	0.19	0.04%
Blue elderberry woodland	31.28	6.2%
California sagebrush scrub	28.70	5.7%
California walnut woodland	6.37	1.3%
California walnut-mulefat scrub	2.70	0.5%
Coast live oak forest	6.36	1.3%
Disturbed California sagebrush scrub	10.32	2.0%
Mulefat scrub	1.93	0.3%
Purple sage scrub	10.14	2.0%
Ruderal	15.93	3.2%
Sage scrub-chaparral ecotone	95.02	18.9%
Sagebrush-monkey flower scrub	1.21	0.2%
Southern willow scrub	0.52	0.1%
Sumac savannah	28.78	5.7%
Toyon-sumac chaparral	118.14	23.4%
Land Cover Type		
Graded	10.17	2.0%
Total	504.20	100%

Vegetation plays a significant role in fire behavior, and is an important component to the fire behavior models used to predict fire behavior. Fire presence and absence at varying cycles or regimes disrupt plant community succession, setting succession progress back to an earlier state, as was experienced on this site during the 2008 Freeway Complex Fire. Succession is a natural process within plant communities. High frequency fires tend to gradually convert shrublands to grasslands or maintain grasslands, while fire exclusion tends to convert grasslands to shrublands. In general, biomass and associated fuel loading will increase over time, assuming that disturbance (fire, grazing) or fuel reduction efforts are not diligently implemented.

4. Climate

As with most of southern California, the Proposed Project Area is influenced by the Pacific Ocean and is frequently under the influence of a seasonal, migratory subtropical high pressure cell known as the Pacific High. Wet winters and dry summers, with mild seasonal changes, characterize the southern California climate. This climate pattern is occasionally interrupted by extreme periods of hot weather, winter storms, or dry, easterly Santa Ana winds. The average annual high temperature

for the site (near the City) is approximately 77°F, with average highs in the summer and early fall months (July through October) reaching 88°F. The average precipitation for the area is approximately 14.4 inches per year, with the majority of rainfall concentrated in the months of January (2.99 inches), February (3.10 inches), and March (2.37 inches), while smaller amounts of rain are experienced during the other months of the year.

The prevailing wind pattern is from the west, but the presence of the Pacific Ocean causes a diurnal (i.e., day/night) wind pattern known as the land/sea breeze system. During the day winds are typically from the west–southwest (sea), and at night winds are from the northeast (land). During the summer season, these diurnal winds can be slightly stronger than the winds during the winter season due to greater pressure gradient forces. Surface winds can also be influenced locally by topography and slope variations. The varied topography on and around the Project Site may affect wind velocity and patterns. The highest wind velocities are typically associated with downslope, canyon, and Santa Ana winds.

Typically, the highest fire danger is produced by the high-pressure systems that occur in the Great Basin area of the western United States, which result in the "Santa Ana winds" of southern California. Sustained wind speeds recorded during recent major fires in Orange County exceeded 30 mph and may exceed 50 mph during extreme conditions. The Santa Ana wind conditions are a reversal of the prevailing south-westerly winds that usually occur on a regionwide basis during late summer and early fall. Santa Ana winds are warm winds that flow from the higher desert elevations in the north through the mountain passes and canyons. As they converge through the canyons, their velocities increase. Consequently, peak velocities are highest at the mouths of canyons and dissipate as they spread across valley floors. This is especially noticeable through the SR-91 Freeway corridor just south of the Project Site where the Santa Ana River forms a steep-sided "tunnel" through the Santa Ana Mountains. Winds commonly are accelerated through this corridor, which interfaces with open space areas to the south and east of the Project Site. Santa Ana winds generally coincide with the regional drought period and the period of highest fire danger.

5. Regional Fire Setting

The proposed Project Site is adjacent to the Chino Hills State Park to the north and east. The open space areas preserved within the Chino Hills State Park are not currently managed under an approved, directed fire management plan. Native sage and chaparral communities will likely continue converting to grasslands as the shrub layer is degraded from frequent fires. This will have the benefit of reducing the fire intensity associated with wildfires, but it is not a preferred situation, because grasses are more readily ignited and will result in more frequent fires.

Additionally, the topography of the Santa Ana River corridor to the south of the Project Site has the potential to funnel Santa Ana winds as they pass through the narrow canyon section between Coal Canyon and Scully Hill, thereby increasing local wind speeds and increasing wildfire hazard in the region. Also of concern is a Santa Ana

wind-driven fire burning within adjacent open space that may result in embers landing on the undeveloped Project Site and adjacent residential neighborhoods. Ember-caused ignitions rely on embers landing in a susceptible fuel bed (e.g., dry grass), but may also ignite unprotected structures directly if they penetrate roofing and siding (e.g., via roof vents).

6. Fire History

The most recent large event wildland fire, the 2008 Freeway Complex Fire, burned most of the Chino Hills, including the entire Project Site. The Freeway Complex Fire started on November 15, 2008 as a vegetation fire located adjacent to the westbound SR-91 Freeway west of the Green River off-ramp. The 2008 Freeway Complex Fire, after merging with a second fire, burned into portions of several cities, including Anaheim, Brea, Corona, and Yorba Linda. A total of 381 structures were damaged or destroyed in the fire. Following similar findings of large fire events over the last decade, the OCFA concluded in their "After Action Report" that homes lost were primarily those that were of older, more vulnerable construction methods and materials and primarily from embers that penetrated into attic spaces. Conversely, newer homes performed well due to the ignition-resistant construction standards that were formally adopted in the City in 1996 and that have become increasingly more restrictive as a result of the code updates occurring in 2001, 2003, and 2007. Of the 187 residential structures that were lost in the 2008 Freeway Complex Fire, none within the fire perimeter had been built to at least the 1996 Special Fire Area codes enacted by the City.

Fire history data provides valuable information regarding fire spread, fire frequency, ignition sources, and vegetation/fuel mosaics across a given landscape. One important use for this information is as a tool for pre-planning a tactical defense position, by knowing what type of fire burned on the site and how a fire may spread. According to available data from CAL FIRE, only three fires have burned within the Project Site since the beginning of the historical fire data record. These three fires (the Santa Ana Canyon Fire in 1943, the Owl Fire in 1980, and the Freeway Complex Fire in 2008) each burned the entirety of the property. This fire occurrence interval on-site indicates that vegetation, terrain, and potentially suppression efforts have played a role in the low number of fires on the Project Site.

There are several barriers and non-fuels on the north side of the SR-91 Freeway that likely result in limited vegetation ignitions toward the Proposed Project Area. This is consistent with historical fire records, which indicate that roughly 90% of wildfires occur on non-Red Flag Warning days and account for about 10% of the acreage burned. The other 10% of the wildfire occurrences coincide with Red Flag Warning days and account for 90% of the acreage burned.

Exhibit 5-65 – Fire History Map indicates the frequency, locations, and areas burned by wildfires in the general vicinity of the Proposed Project. There is a strong association between wildland urban interface (WUI) roadways. Seven fires have burned within one mile of the Project Site over the historic fire data record, all of which exceeded 1,000 acres in total size.

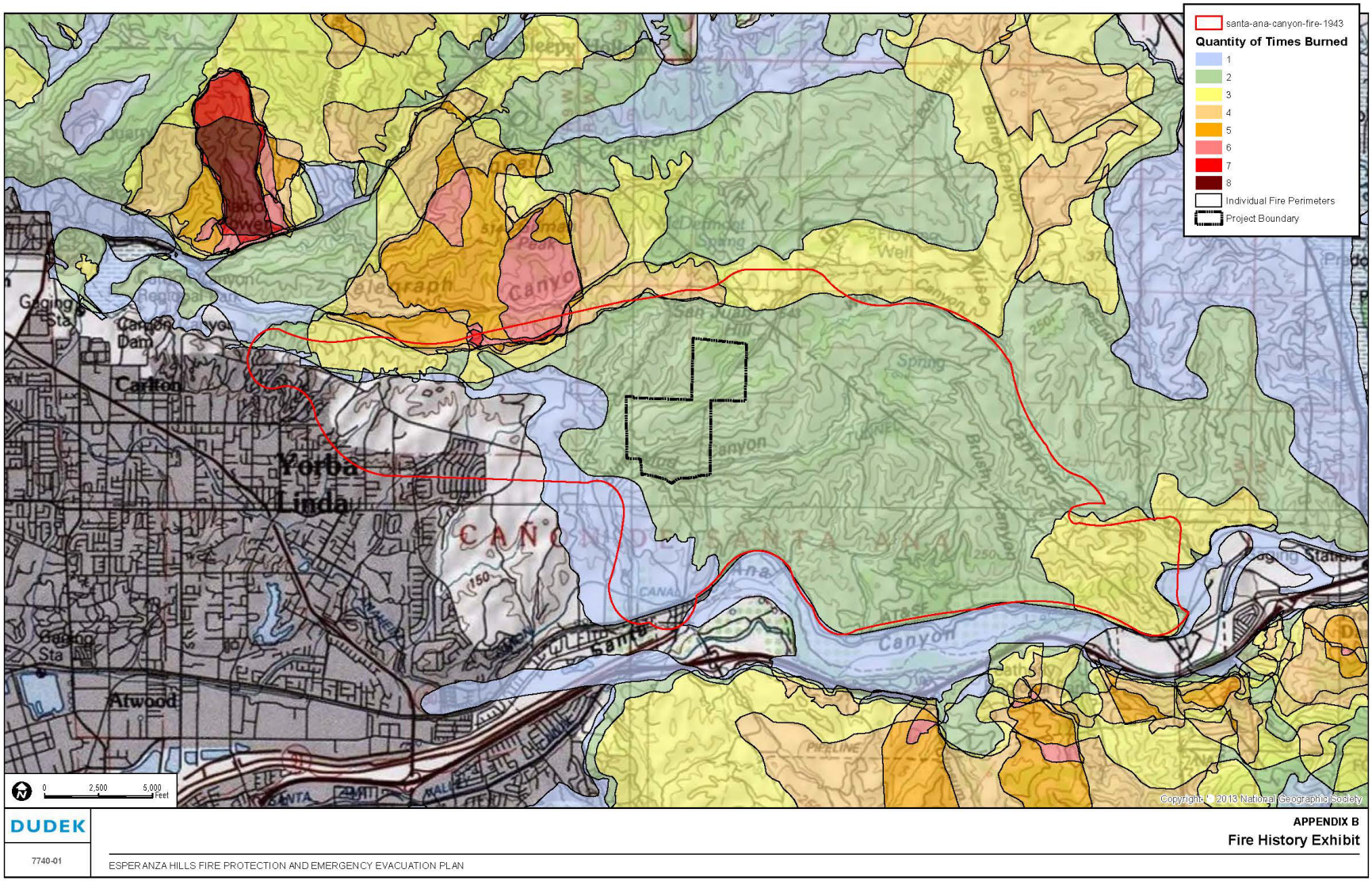


Exhibit 5-65– Fire History Map

Table 5-7-2 below summarizes 13 fires that have burned within two miles of the Project Site over the recorded fire history period.

Table 5-7-2 Fire History within Two Miles of Project Site

Fire Year*	Fire Name	Interval (years)	Area Burned (acres)
1943	Santa Ana Canyon Fire	N/A	9,375
1948	Green River Fire	5	53,080
1959	La Vida Fire	11	610
1967	Paseo Grande Fire	8	51,076
1978	Soquel Fire	11	3,934
1980	Owl Fire	2	18,332
1982	Gypsum Fire	2	18,332
1985	Telegraph Fire	3	1,635
1985	Shell Fire	0	2,367
1990	Yorba Fire	5	7,883
2002	Blue Gum Fire	12	497
2005	Yorba Linda Fire	3	1,079
2008	Freeway Complex Fire	3	30,305

*FRAP 2003

Based on an analysis of this fire history data set, specifically the years in which the fires burned, the average interval between wildfires in the area was calculated to be 5.5 years with intervals ranging between 0 years (multiple fires in the same year) and 12 years. Based on this analysis, it is expected that portions of the Chino Hills will be subject to wildfire at least every five to six years, with the realistic possibility of shorter interval occurrences. Further, the proximity of the Proposed Project to large expanses of open space to the north and east in Chino Hills State Park and potential ignition sources along SR-91, SR-71, La Palma Avenue, Carbon Canyon Road, and portions of Yorba Linda Boulevard contribute to increased wildfire hazard in the existing condition of the Project Site.

7. Fire Risk Assessment for Undeveloped Site

Predicting wildland fire behavior is not an exact science due to the many variables that must be considered. As such, the movement of a fire will likely never be fully predictable, especially considering the variations in weather, the limits of weather forecasting, and the weather that is often "created" by firestorms. Nevertheless, practiced and experienced judgment, coupled with a validated fire behavior modeling system, results in useful and accurate fire information.

The fire risk assessment is based on the results of the FlamMap model, a geographic-based fire behavior modeling system as described in the FPEP. FlamMap utilizes fire spread equations and provides a geographical presentation of fire behavior outputs as it applies the calculations to each pixel in the associated GIS landscape. Summer weather conditions (onshore flow) and more extreme fall weather conditions (off-shore, Santa Ana winds conditions) were modeled for the existing site condition and the proposed post-development site condition. To be used effectively, the basic

assumptions and limitations of fire behavior modeling applications must be understood.

- First, it must be realized that the fire model describes fire behavior only in the flaming front. The primary driving force in the predictive calculations is the dead fuels less than 0.25 inches in diameter. These are the fine fuels that carry fire. Fuels greater than one inch have little effect, while fuels greater than three inches have no effect on fire behavior.
- Second, the model bases calculations and descriptions on a wildfire spreading through surface fuels that are within six feet of the ground and contiguous to the ground. Surface fuels are often classified as grass, brush, litter, or slash.
- Third, the software assumes that weather and topography are uniform. However, because wildfires almost always burn under non-uniform conditions, creating their own weather, length of projection period and choice of fuel model must be carefully considered to obtain useful predictions.
- Fourth, fire behavior computer modeling systems are not intended for determining sufficient fuel modification zone/defensible space widths. However, it does provide the average length of the flames, which is a key element for determining defensible space distances for minimizing structure ignition.

A critical factor to consider is the dynamic nature of vegetation communities. The FlamMap model was used to predict fire behavior for existing conditions. Fire behavior can be predicted largely by analyzing the characteristics of fuels. Fire behavior is affected by seven principal fuel characteristics: fuel loading, size and shape, compactness, horizontal continuity, vertical arrangement, moisture content, and chemical properties.

Table 5-7-3 below provides a description of seven fuel models coded for the site that were subsequently used in the on-site FlamMap analysis for the Proposed Project.

Table 5-7-3 Existing On-Site Fuel Model Characteristics

Fuel Model	Description	Land Cover Classification	Canopy Cover
0	Non-burnable	Graded	0
1	Tall grass	Annual grassland, ruderal, sumac, savannah	0
8	Closed timber litter	Southern willow scrub	50%-80%
9	Hardwood litter	Coast live oak forest	50%-80%
GS2	Moderate load, dry climate grass-shrub	Blue elderberry and walnut woodland, mulefat scrub, black willow riparian forest	0
SCAL 18	Coastal sage scrub	Sage and monkeyflower scrub, purple sage scrub, California sagebrush scrub	0
SH5	High load, dry climate shrub	Toyon-sumac chaparral	0

The FlamMap model predicts potential flame length (feet) conditions during summer and peak weather scenarios. Flame length, the length of the flame of a spreading surface fire within the flaming front, is measured from midway in the active flaming combustion zone to the average tip of the flames. It is a somewhat subjective and non-scientific measure of fire behavior, but is extremely important to fire line personnel in evaluating fire line intensity and is worth considering as an important fire variable.

Table 5-7-4 below presents an interpretation of flame length and its relationship to fire line intensity.

Table 5-7-4 Fire Suppression Interpretation

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

Given the climatic, vegetation, and topographic characteristics of the analysis area, along with the fire behavior modeling results, the undeveloped Project Site is considered vulnerable to wildfire starting in, burning onto, or spotting onto the site. Based on the FlamMap modeling conducted for the existing Project Site, maximum flame lengths during a summer fire (50th percentile weather) are modeled at 19 feet, and maximum flame lengths during a fall fire (97th percentile weather) are modeled at 41 feet.

Therefore, in the existing condition, the undeveloped Project Site is considered vulnerable to wildfire starting in, burning into, or spotting into the site fuels as it did during the 2008 Freeway Complex Fire. The location's proximity to off-site wildland areas that are prone to fire, such as the Chino Hills State Park, numerous ignition sources and climatic, vegetation, WUI location, and topographical characteristics of the area, along with the fire history and fire behavior modeling results, combine to heighten the risk of wildfire. Under favorable weather conditions, a lower intensity fire can move through the non-indigenous grass ground cover, burning quickly but with lower flame lengths. Areas that will re-vegetate (succession) with sage scrub have the potential to produce moderate to high intensity fire. Under extreme conditions, catastrophic wildfire could result as grass/understory fires burn into ladder fuels or heavier fuels, driven by high winds. A typical cause for wildfire may be related to roadways (tossed cigarette, vehicle accidents, catalytic converter, or car fire), power lines, unattended teenagers/children, arson, or gas powered mowers, trimmers or other equipment.

8. Water Supply and Capacity

The Project Site is currently undeveloped, and there is no water distribution system servicing the site. The YLWD is the water purveyor for the Project Site. A complete description of the area water distribution system and capacity is included in Section 5.12, Public Services (beginning on page 5-493 of this DEIR). During the comment period for the Notice of Preparation, several letters were received from residents in the area of the Proposed Project concerning inadequate water supply for firefighting in the Project Area during the 2008 Freeway Complex Fire. The OCFA in its "Freeway Complex Fire Preliminary Report" (FCF Report) dated December 2, 2008 provides a summary of water supply issues during the Freeway Complex Fire that hindered its ability to protect structures in the Project Area. The FCF Report concludes that even a single-structure fire can overstrain a well-functioning water system, and in the case of the 2008 Freeway Complex Fire dozens of structures needed to be defended. In wildland events such as the 2008 Freeway Complex Fire, water hydrants are used to fill water tenders and the fire engine water tanks that are used during mobile suppression efforts. At 2:00 p.m. on November 15, 2008, several fire companies reported encountering low or no water pressure in various locations in the Hidden Hills area that is southeast of the Project Site, including Hidden Hills Road, Mission Hills Lane, High Tree Circle, Fairwood Circle, Green Crest Drive, and Skyridge Drive. The FCF Report states, "With homes burning on multiple fronts, Strike Team Leaders directed companies to move to areas that had available water."

The FCF Report states the YLWD responded into the area quickly, but was not able to immediately determine the reason for the pressure loss. By 5:00 p.m. the water pressure had been improved sufficiently enough to permit filling of water tenders. It was later determined that the fire hydrants in the upper portion of Hidden Hills, which were served by a pump system rather than a gravity fed system, failed. Three electrical pumps stopped working because of a wiring short, and the emergency gas powered pumps overheated quickly and stopped working.

9. Community Evacuation Planning

In its FCF Report the OCFA provides a summary of community evacuations. The fire started at 9:07 a.m. along the westbound SR-91 Freeway, west of the Green River off-ramp. By 10:20 a.m. the first alert was sent to the OCFA Emergency Communications Center to advise the City that evacuations should be initiated in the areas of Brush Canyon (northwest of the ignition point) and that the fire would be upon those homes within 30 minutes. At 10:31 a.m. the first reports are received that the fire was spotting and homes were threatened on Bighorn Mountain Way in the City (north of Brush Canyon area). At 10:39 a.m. an OCFA helicopter confirmed that homes on Bighorn Mountain Way, Blue Ridge Drive, and Evening Breeze Drive were threatened. The OCFA estimated that 9,000 homes in the City were eventually evacuated along with approximately 24,000 people. The FCF Report states that as residents began to evacuate, traffic gridlocked in some areas as emergency apparatus tried to enter the neighborhoods while residents tried to exit. The FCF Report states that law

enforcement agencies do not have legal authority to force residents to evacuate, but they may restrict residents from entering evacuation areas. The FCF Report concludes that determining where and when to evacuate is difficult and has its own set of risks and benefits. There was no loss of life or serious injury to residents as a result of the 2008 Freeway Complex Fire.

Residents in the area of the Project Site have provided comments in conjunction with the Notice of Preparation for this DEIR. Many comments were received concerning road congestion during emergency evacuation. The commenters stated that Stonehaven Drive, Via del Agua, San Antonio Road, and Yorba Linda Boulevard were blocked with vehicles attempting to leave the area that hindered timely evacuation. Evacuation of residents delayed fire responders from getting into the area. Comments were also received concerning the lack of evacuation notice and emergency personnel.

The Orange County Office of Emergency Services is responsible for the Community Evacuation Plan. Currently, the City has not completed its Community Evacuation Plan. After the 2008 Freeway Complex Fire, the OCFA adopted the "Ready, Set, Go!" program to educate citizens in fire-prone areas and centers on preparation and early evacuation. The concept includes attention to being "Ready" for wildfire by pre-planning, being "Set" through ongoing preparedness training, and implementing the "Go" by implementing evacuations well-before the community is directly threatened. Wildfires are most likely to approach from the north/northeast/east, where wildland fuels are present. Areas to the west/northwest/southwest are predominantly urban areas in the City. Decisions regarding wildfire behavior and the corresponding time available before fire threatens the community are made by fire officials involved in the Incident Command System that is established for all significant wildland fires and may include OCFA, CAL FIRE, the Office of Emergency Services, and other fire or law enforcement officials. Road closures and traffic control are among the tasks performed by local law enforcement. Orange County has initiated Alert OC; residents can sign up to have messages sent to cell phones in order to directly inform them of emergency evacuation events. The County also uses Reverse 911 and radio and television news sources.

The evacuation routes have been designed in accordance with specifications from the OCFA. In addition, an internal emergency access plan was designed as depicted on Exhibit 5-76 (page 5-319) and Exhibit 5-77 (page 5-321). The Orange County Sheriff's Department has also prepared an area evacuation plan designed to move traffic off Yorba Linda Boulevard and through local neighborhoods. The plan is included as Exhibit 5-66 – Evacuation Plan, Orange County Sheriff's Department.

10. Oil Well Operations

Oil well operations have the potential of releasing hazardous contaminants that can impact surrounding soils and groundwater, and releasing methane gas. Oil wells are subject to regulations and oversight of the California Department of Conservation, Oil, Gas, and Geothermal Resources (DOGGR).

A Phase I ESA was prepared for the Project Site that researched 15 federal records and 11 state standard environmental records, and 90 additional available environmental records and databases to evaluate the environmental risk. Records reviewed and site investigation identified five above-ground storage tanks with associated pipelines, seven wells located within the project southerly boundary, three "active" wells, and four "inactive or previously abandoned" wells shown on Exhibit 5-67 – On-Site Oil Well Location Plan. Well sites 1, 5, and 9 have active oil pumping activity. Well sites 13, 14, 15, and 24 are abandoned, and the approximate well locations were identified in the field by previously graded pads on the hillsides (and the presence of concrete tie-downs). No physical evidence of well casing or piping or well production concrete pads was observed at these abandoned sites. It is unknown if the well casings remain intact below the ground surface or how the wells were capped.

A Phase II ESA will be prepared identifying abandoned well locations, hidden pits, or accumulations of drilling mud. The Phase II ESA will verify regulatory compliance with previously abandoned wells.

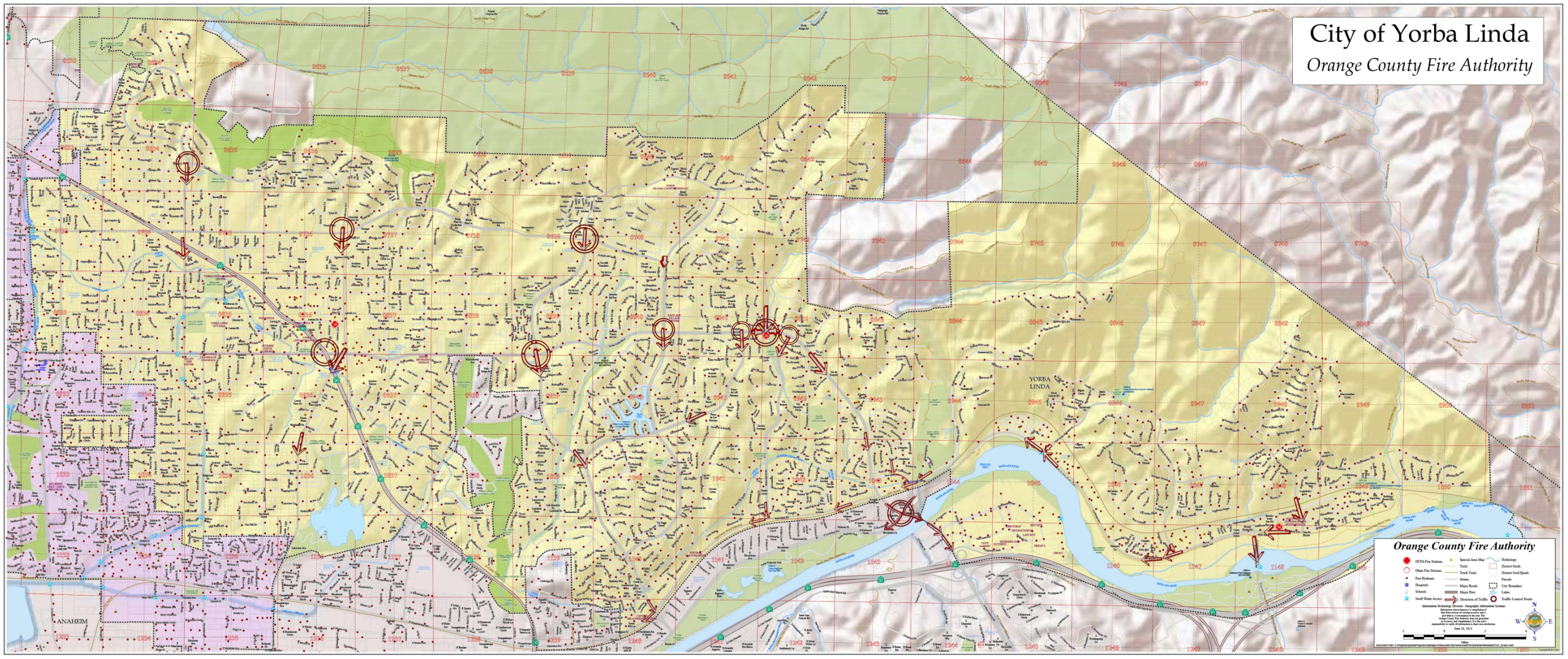


Exhibit 5-66 – Evacuation Plan, Orange County Sheriff's Department

Exhibit 5-67 – On-Site Oil Well Location Plan

Table 5-7-5 below provides a summary of field observations of the on-site oil wells.

Table 5-7-5 Oil Well Observations for Contaminants

Item or Condition	Observed Evidence	No Evidence Observed	Comments
Hazardous Substances and Petroleum Products	☒	☐	Oil overfill, oil spillage, miscellaneous oil leaks, and oil-stained soil were observed in the immediate vicinity of the oil wells, storage vessels, and conveyance piping.
Storage Tanks and Related Equipment	☒	☐	Approximately ten above-ground storage tanks and associated active and inactive piping were observed on the Site.
Odors	☒	☐	Petroleum odors were noted in the vicinity of the oil wells, piping, and storage tanks. One mobile carbon vapor treatment system was observed adjacent to a large mobile storage tank at Well 2.
Standing Surface Water or Other Pools of Liquid	☐	☒	
Products or Other Unidentified Contents	☐	☒	
Transformers or Equipment containing Polychlorinated Biphenyls (PCBs)	☐	☒	A high-tension power line was observed in the eastern portion of the property. However, no transformers or potential sources of PCBs were noted.
Pits, Ponds, or Lagoons	☐	☒	No visible surface evidence of drilling mud pits typically associated with oil well drilling and production.
Stressed Vegetation (other than from insufficient water)	☐	☒	
Evidence of Mounds, Depressions or Graded Areas Suggesting Trash or Other Solid Waste Disposal	☐	☒	
Waste Water or any Discharge (including storm water) into a Drain, Ditch, or Stream on or Adjacent to the Site	☐	☒	
Wells (active, inactive, or abandoned)	☒	☐	Three active oil wells were observed and the locations of four abandoned oil wells were identified by level graded drilling pads.
Septic Systems or Cesspools	☐	☒	
Drains and Sumps	☒	☐	Associated with oil pipelines and adjacent to storage tanks.
Prior structures	☐	☒	
Roads, Tracks, Railroad Tracks, or Spurs	☒	☐	The Site is traversed by numerous unpaved dirt access roads.

Table 5-7-6 below provides a summary of well reference number, well condition, operator, and oil well lease information within the Project Site.

Table 5-7-6 Summary of On-Site Oil Wells

Well Number	Existing Well Condition	DOGGR Database Well Operator Name	DOGGR Database Well Lease Name
1	Active	Gary A. Darnell, Trust	CRA Texas A.U.W.C.
5	Active	Santa Ana Canyon Dev. Corp.	Reeves
9	Active	Santa Ana Canyon Dev. Corp.	Reeves
13	Abandoned	Petrominerals Corp.	Anaheim Union Water Co.
14	Abandoned	Terra Resources, Inc.	Westpet-Texas A.U.W.C.
15	Abandoned	Petrominerals Corp.	Anaheim Union Water Co.
24	Abandoned	Petrominerals Corp.	Anaheim Union Water Co.

5.7.3 Regulatory Setting

The applicable existing regulations concerning fire protection are:

- 2010 California Building and Fire Codes, Chapter 7A, Materials and Construction Methods for Exterior Wildfire Exposure. These regulations focus primarily on preventing ember penetration into homes, a leading cause of structure loss from wildfires
- 2010 California Fire Code, Chapter 49, Wildland Urban Interface Fire Access. The purpose of this code is to provide minimum standards to increase the ability of a building to resist the intrusion of flame or burning embers being projected by a vegetation fire and contributes to a systematic reduction in conflagration losses through the use of performance and prescriptive requirements
- 2010 California Residential Code, Section 237 as adopted by the County of Orange regulates residential building construction concerning materials and methods for fire resistance for Orange County.
- Orange County Fire Authority Vegetation Management Guidelines, Guideline C 05 establishes the standards for fuel modification zone design for new construction. A fuel modification zone is a strip of land where combustible vegetation has been removed and/or modified and partially or totally replaced with more adequately spaced, drought-tolerant, fire-resistant plants in order to provide a reasonable level of protection to structures from wildland and vegetation fires. The OCFA requires a minimum width of 170 feet of fuel modification that is characterized as Zone A, B, C and D. Zone A is level 20-foot structure setback zone, Zone B is a minimum 50-foot irrigated zone, with an additional 100-foot minimum of vegetation thinning zones (Zones C and D). The minimum width of a fuel modification area in some cases increases due to type of terrain and/or type and mass of vegetation. Alternative materials and methods can also be approved by the OCFA in situations where the project

cannot meet the requirements of the fuel modification guideline for total distance of the zones, alternate plant species, or horizontal spacing/grouping distances.

The City has also adopted the 2010 California Fire Code.

5.7.4 Thresholds of Significance

For the purposes of this DEIR, the thresholds of significance for evaluation of project impacts are based upon suggested criteria from the County of Orange Environmental Checklist and the California Environmental Quality Act (CEQA) Environmental Checklist found within Appendix G of the CEQA Guidelines. This project would result in a significant impact if it would:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area
f) For a project within the vicinity of private airstrip, would the project result in a safety hazard for people residing or working in the project area
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan
h) Expose people or structures to a significant risk or loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands

5.7.5 Project Impacts Prior to Mitigation

1. Project Description

The Proposed Project consists of the development of single-family residential homes on 468.9 acres. The Proposed Project is being evaluated for two conceptual site plan options that primarily differ by their main entry into the Project Site. Proposed development for Option 1 is 334 homes, whereas Options 2 would include 340 homes. At build-out, all development options would consist of a gated entrance with low-density residential and estate lots. Project components include up to 13.9 acres of

parklands and roughly 7 miles of trails, including pedestrian, bicycle, and equestrian trails with access points to permit non-vehicular access to the Chino Hills State Park and surrounding open space areas. The Project will retain approximately 230.8 acres of open space, including 146.9 acres of natural open space and 83.9 acres of landscaping as part of a fuel modification plan. As part of a private community, a homeowners' association will be established to manage and maintain streets, landscaping, parks, and community-wide fuel modification zones (FMZs).

Entry into the Project Site will be through one of two options. Option 1 (Exhibit 5-68) would provide a primary connection from Stonehaven Drive, a residential connector road, south of the Project Site along an existing dirt road that historically has been used by oil well operators, the OCFA, the YLWD, SCE, Chino Hills State Park, and neighboring residents for vehicular and foot access into the Project Area. The proposed Option 1 improved fire apparatus access road would be constructed in a 50-foot easement on the western boundary of the Yorba Trails property extending south through the proposed Cielo Vista project to Via del Agua.

Option 2 (Exhibit 5-69) proposes a primary residential entry road to the west of the Project Site via Aspen Way, which intersects San Antonio Road, a residential collector street. The proposed Option 2 improved fire apparatus access road would align with the existing dirt road from Stonehaven Drive across Blue Mud Canyon in approximately the same alignment as an existing dirt road that historically has been used by oil well operators, the OCFA, the YLWD, SCE, Chino Hills State Park, and neighboring residents for vehicular and foot access into the Project Area.

Fire protection has been a key element in the design of the Proposed Project. Development of the Proposed Project will affect the vegetation distribution pattern across the Project Site with large areas being converted to lower flammability landscapes, such as irrigated, maintained landscapes and ignition-resistant structures. This significant change results in a reduction of roughly 70% of the native fuels that would otherwise remain on the Project Site. The Proposed Project's design includes fire protection systems that result in a redundant layering of fire protection design components that have been found to reduce risk of structure ignition and prepare residents for early evacuation as well as assist emergency personnel during wildfire emergencies.

Provisions for continuous maintenance will be addressed in the Esperanza Hills Homeowners' Association's Covenants, Conditions, and Restrictions (CC&Rs) for common areas and individual properties. "Maintenance" refers to anything needed to maintain the fuel modification area in a fire-safe condition as required by the OCFA, including periodic removal of undesirable and combustible vegetation, replacement of dead and dying fire-resistant plantings, maintenance of the operational integrity and programming of irrigation systems, and preservation of identification markers. The HOA will contract with the OCFA to perform annual inspections at the expense of the HOA.

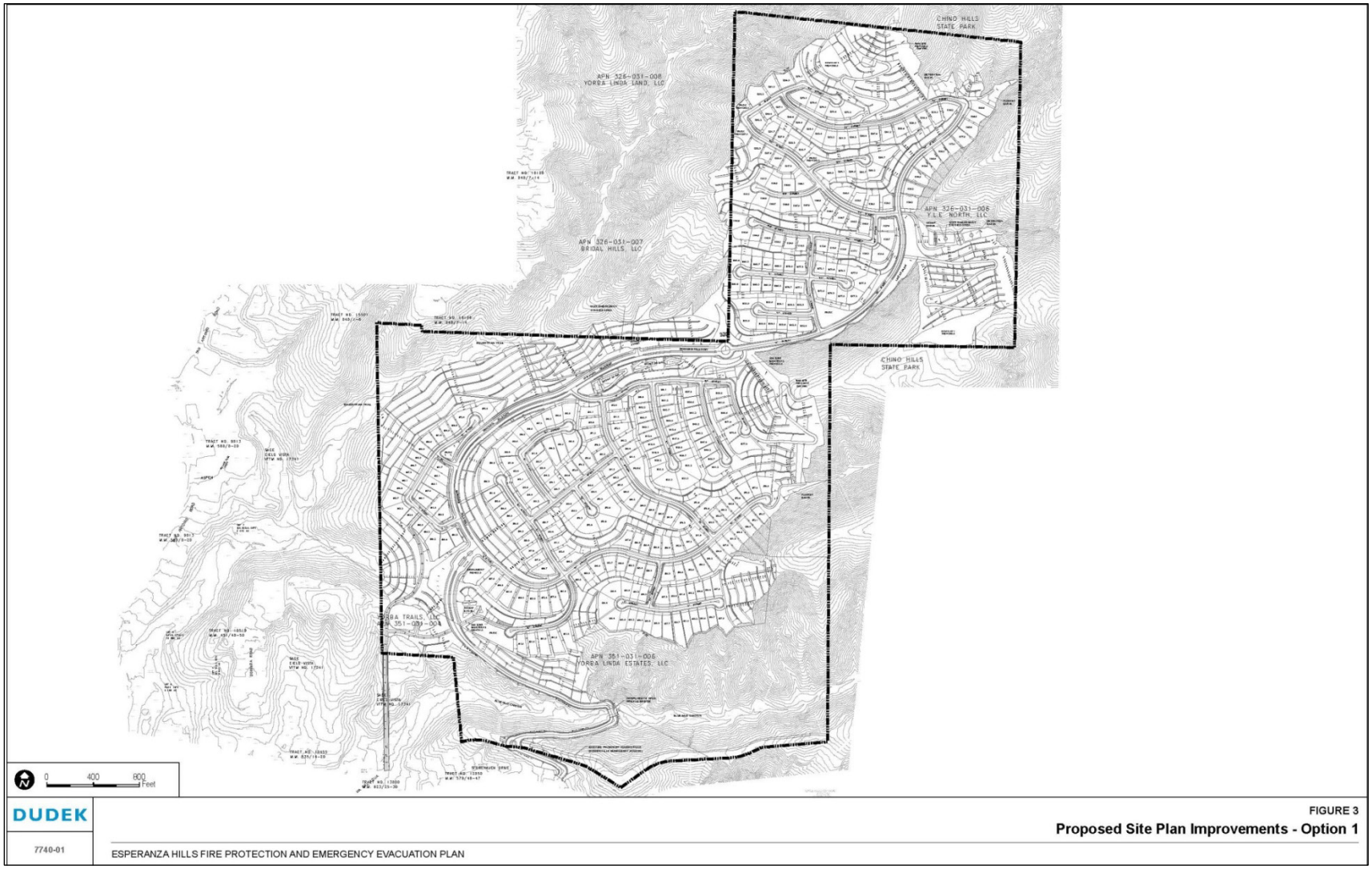


Exhibit 5-68 – Site Plan Option 1

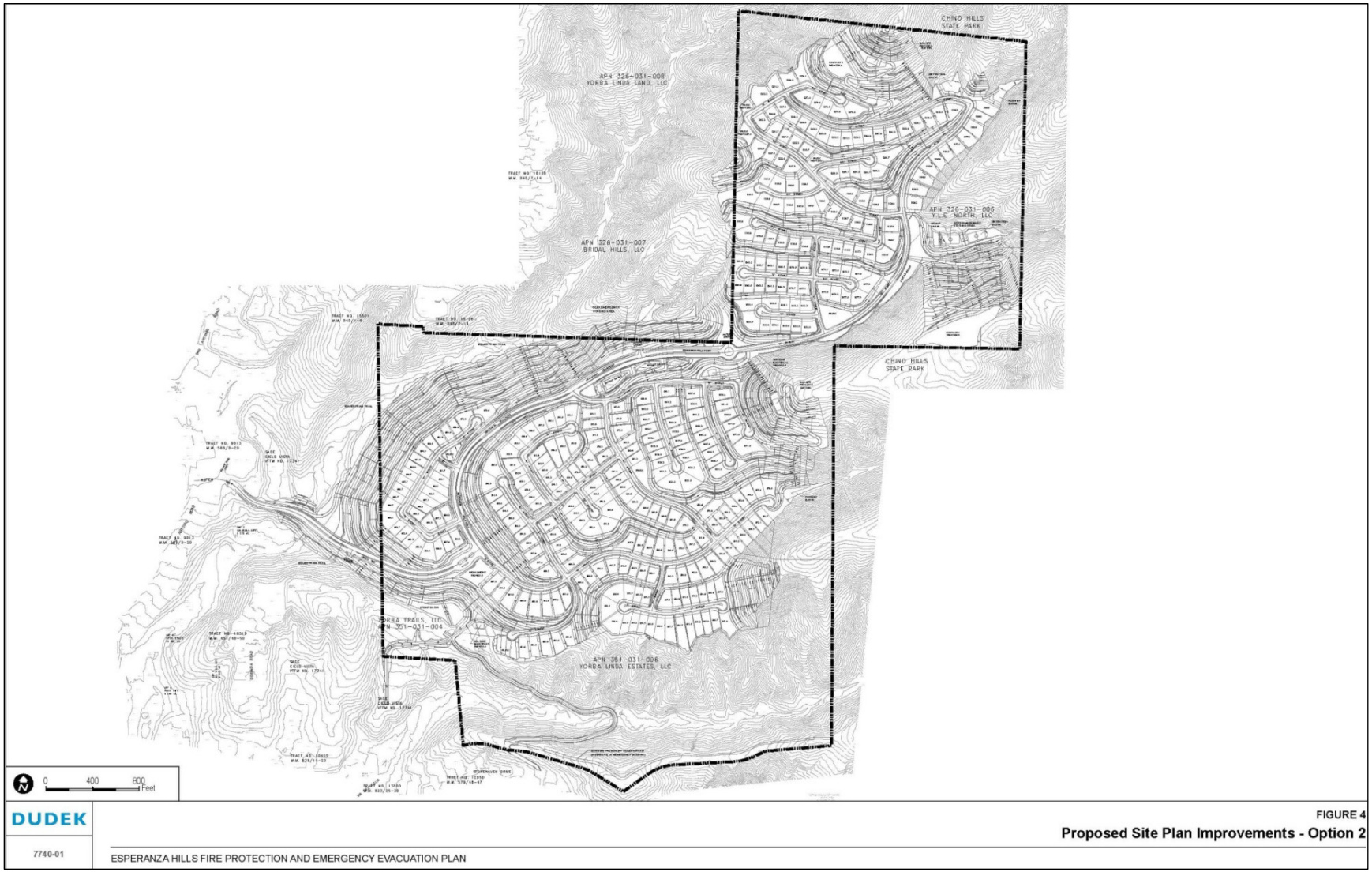


Exhibit 5-69 – Site Plan Option 2

The fire protection systems for the Proposed Project are described below.

a. Fuel Modification Plan

The proposed fuel modification areas are designed to be a minimum of four times the predicted (modeled) maximum flame lengths (97th percentile) and up to eight times wider than the predicted flame lengths (50th percentile). The fuel modification area works in tandem with the other components of the fire protection system including ignition-resistant construction, interior automatic fire sprinklers (with attic heads in each structure), infrastructure upgrades, and water supply, among others, to provide enhanced ignition resistance and protection for the site's structures.

The fuel modification proposed with the development of the Proposed Project consists of Zone A, B, C and D and is graphically presented for Option 1 as Exhibit 5-70 – Conceptual Fuel Modification Plan, Option 1 and Option 2 as Exhibit 5-71 – Conceptual Fuel Modification Plan, Option 2. Zone A is 20 feet wide and contained within the private lot and is an irrigated structure setback zone. Zone B is 50 feet wide and is an irrigated zone. Zones C and D are each 50 feet wide and include the thinning or removal of plants and are non-irrigated zones.

Vegetation management requirements will be implemented at commencement and throughout the construction phase. Vegetation management will be performed pursuant to the OCFA on all lots or areas prior to the start of work and prior to any import of combustible construction materials. Adequate fuel reductions will occur through thinning, mowing, or blading around all grading, site work, and other construction activities in areas where there is flammable vegetation.

The OCFA's approved plant palette and a prohibited plant list are found in Appendix E and Appendix F, respectively, of the FPEP (Appendix J in this DEIR).\

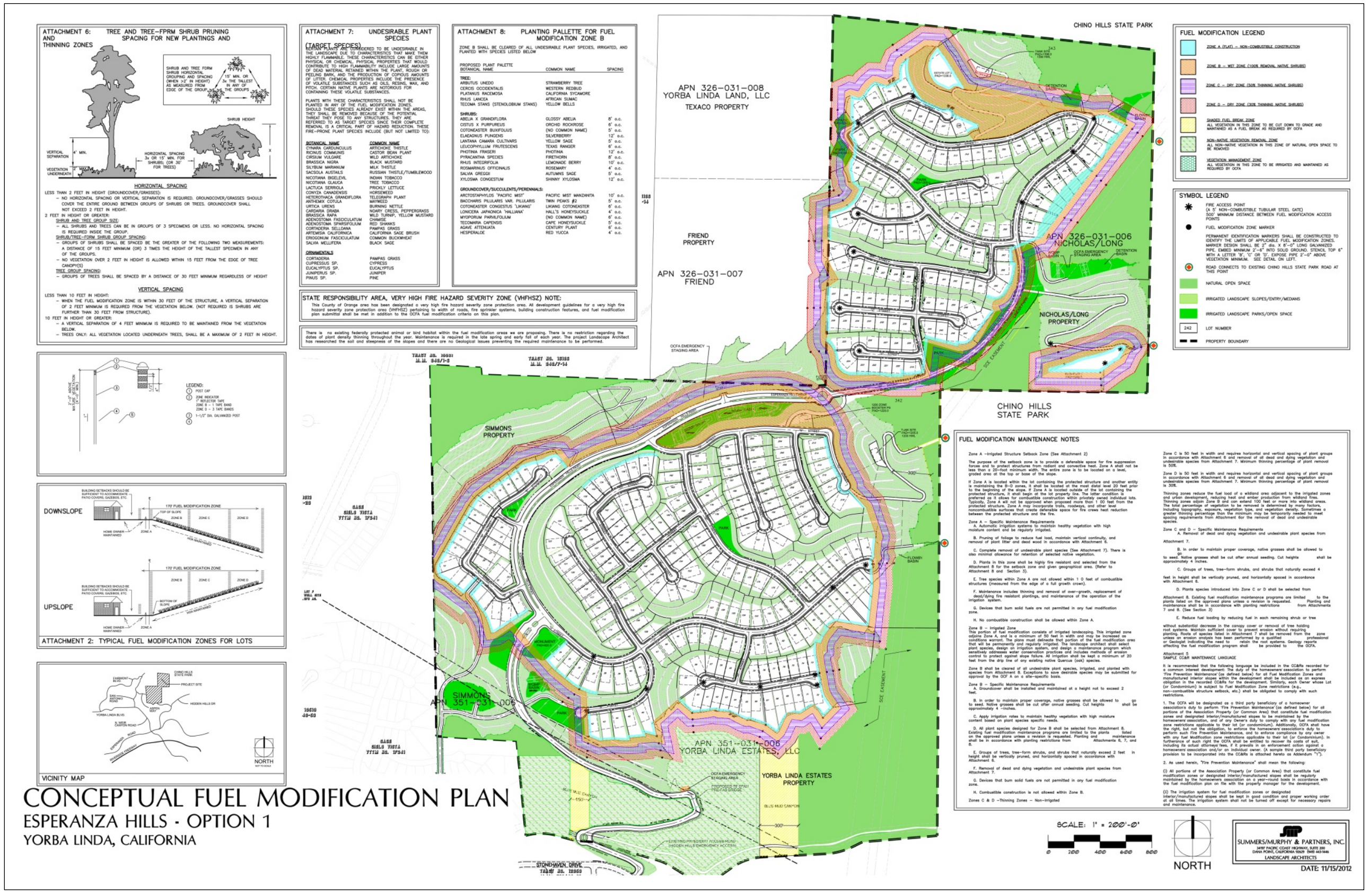


Exhibit 5-70 – Conceptual Fuel Modification Plan, Option 1

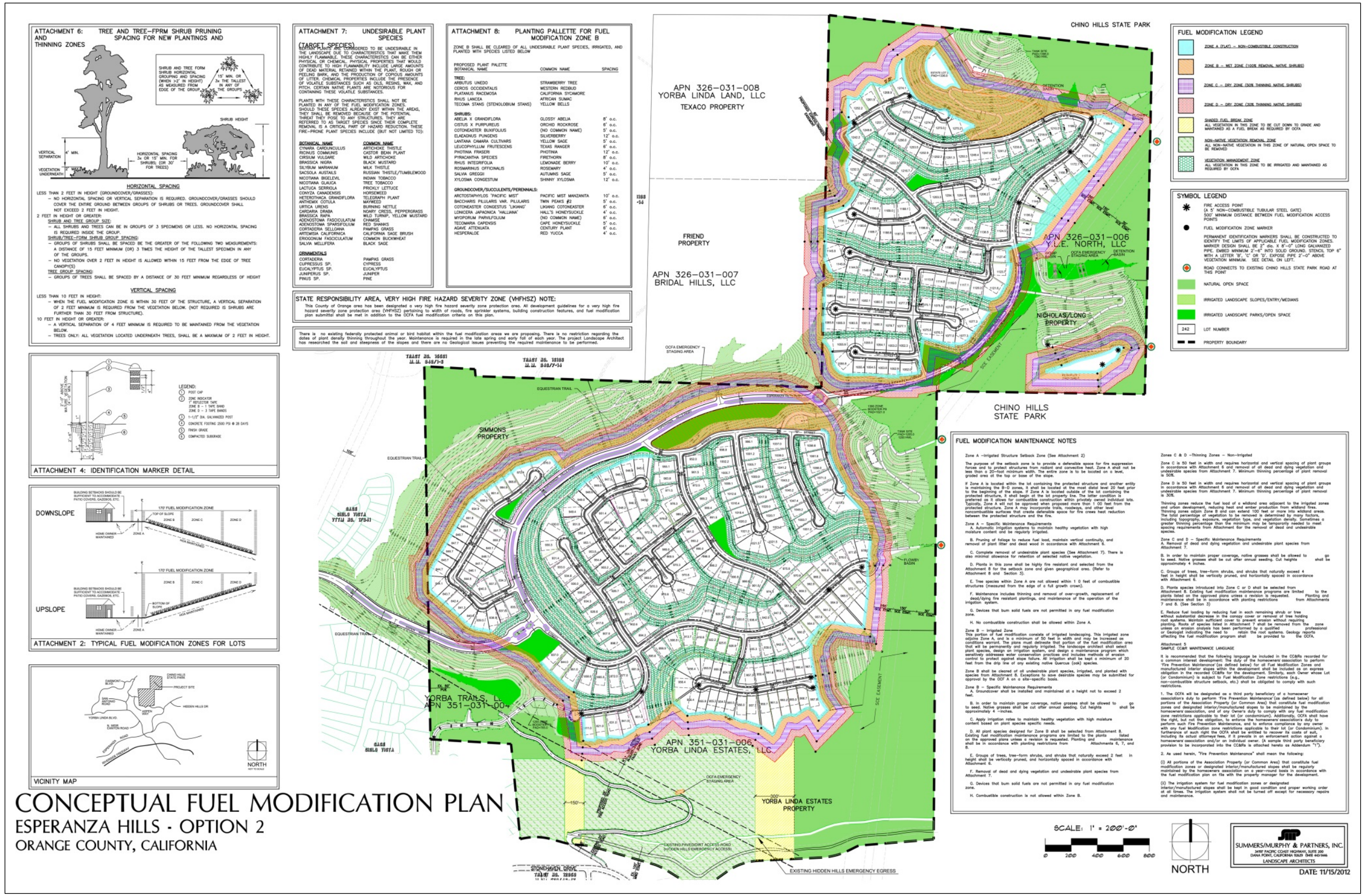


Exhibit 5-71 – Conceptual Fuel Modification Plan, Option 2

1) Zone A – Irrigated Structure Setback

Zone A is applied throughout the site and along the perimeter of the development area. Zone A will be 20 feet wide and contained within private lots. This zone will be planted with drought-tolerant, fire-resistive plants from the OCFA's approved plant palette. Zone A includes the following key components in addition to the OCFA Zone A requirements (project fuel modification plan details requirements for each zone):

- Automatic irrigation system throughout the FMZ to maintain hydrated plants without over-watering or attracting nuisance pests.
- Trees and tree-form shrub species not allowed within 10 feet of combustible structures (measured from the edge of a full growth tree canopy or crown). Back yard/side yard areas are set back from the fuel modification areas by a typical Zone A and shall be maintained to Zone A standards.
- Maintenance including ongoing removal and/or thinning of undesirable combustible vegetation, replacement of dead/dying plantings, maintenance of the programming and functionality of the irrigation system, regular trimming to prevent ladder fuels.
- A minimum of 36 inches of horizontal clearance and unlimited vertical clearance around the exterior of the structure (360°) provided for firefighter access. Within this clearance area, landscape such as low ground covers and shrubs are permitted so long as their placement and mature height to do not impede firefighter access, consistent with the purpose of this guideline.
- No combustible construction (structures) allowed in Zone A (first 20 feet from structure).
- No permanent or portable barbeques/grills, fire pits, fireplaces or other flame generating devices permitted within 10 feet of plants/vegetation.
- Mulch within first 5 feet from structure restricted to non-flammable materials such as stone, rock, concrete, bare soil, or other non-flammable material.
- Vegetation landscaping from the OCFA-approved Fuel Modification Plant List.

2) Zone B – Irrigated Zone

Zone B is an irrigated zone that adjoins Zone A, and is a minimum of 50 feet in width. Zone B shall be cleared of undesirable plant species and re-planted with drought-tolerant, fire resistive plant material from the OCFA approved plant list. Irrigation systems shall be designed and maintained to address best water conservation practices and include methods of erosion control to protect against slope failure. All irrigation shall be kept a minimum of 20 feet from the drip line of all native oak species. Specific maintenance requirements are as follows:

- Automatic irrigation system throughout the FMZ to maintain hydrated plants without over-watering or attracting nuisance pests.
- Grasses shall be cut to four inches in height. Native grasses can be cut after going to seed.
- Trees and tree-form shrub species that naturally grow to heights that exceed 2 feet shall be vertically pruned to prevent ladder fuels.
- Maintenance including ongoing removal and/or thinning of undesirable combustible vegetation, replacement of dead/dying plantings, maintenance of the programming and functionality of the irrigation system, regular trimming to prevent ladder fuels (fuels – primarily vegetation – that provide vertical continuity between vegetation layers – ground, shrub, and overstory strata – thereby allowing fire to carry from surface fuels into the crowns of the trees or shrubs).
- No combustible construction (structures) allowed within Zone B.
- No permanent or portable fire pits, fireplaces or other flame generating devices that burn wood.

3) Zone C and D – Thinning Zones (Non-Irrigated)

Thinning Zones reduce the fuel load of a wildland area adjacent to Zones A and B, and thereby, reduce heat and ember production from wildland fires. Thinning zones adjoin Zone B and extend 100 feet into the WUI. For the Proposed Project, Zone C is 50 feet and requires a minimum of 50% thinning or removal of plants. Zone D is 50 also feet in width and requires a minimum of 30% thinning or removal of plants. Zone C and D specific maintenance requirements are as follows:

- Grasses shall be cut to four inches in height. Native grasses can be cut after going to seed.
- Trees and tree-form shrub species that naturally grow to heights that exceed 4 feet shall be vertically pruned to prevent ladder fuels.

- Maintenance including ongoing removal and/or thinning of undesirable combustible vegetation, replacement of dead/dying plantings, and regular trimming to prevent ladder fuels.
- Plant species introduced into Zone C and D shall be selected from the approved OCFA plant list
- Reduce fuel loading by reducing fuel in each remaining shrub or tree without substantial decrease in the canopy cover or removal of tree holding root systems. Maintain sufficient cover to prevent erosion without requiring planting. Root systems of undesirable species will be removed unless a geology report indicates the need to retain them for soil stability/erosion control.

In environmentally sensitive areas that contain sensitive habitat, cultural sites, riparian areas, biological buffer areas, and/or detention basins, permission will be needed from the County, and the appropriate resource agencies (e.g., the California Department of Fish and Wildlife (CDFW), the U.S. Fish and Wildlife Service (USFWS), and the U.S. Army Corps of Engineers (ACOE)) prior to any vegetation management activities occurring in order to protect sensitive areas.

The majority of the FMZs will be located within the boundaries of the Proposed Project Site, except for Lots 7, 8, 9, 224, 225, 236, 237, 253, 254, and 278 in Option 1 (highlighted on Exhibit 5-72 – Lots with Off-Site Fuel Modification Zones, Option 1). Lots 224, 225, 236, 237, 253, 254, and 278 have received off-site fuel modification easements from the Bridal Hills, LLC property owner. However, at the time of the preparation of this DEIR, a fuel modification easement had not been secured from the Cielo Vista property owner for Lots 7, 8, and 9.

Lots 8, 9, 10, 224, 225, 236, 237, 253, 254, and 278 in Option 2 will require off-site fuel modification as highlighted on Exhibit 5-73 – Lots with Off-Site Fuel Modification Zones, Option 2. Fuel modification easements have been granted for Lots 224, 225, 236, 237, 253, 254, and 278 from the property owner of the Bridal Hills, LLC property. At the time of the preparation of the DEIR, a fuel modification easement had not been granted for Option 2, Lots 8, 9, and 10 from the Cielo Vista property owner. Therefore, these lots (Option 1, Lots 7 through 9, and Option 2, Lots 8 and 9) do not conform to the OCFA's fuel modification standards.

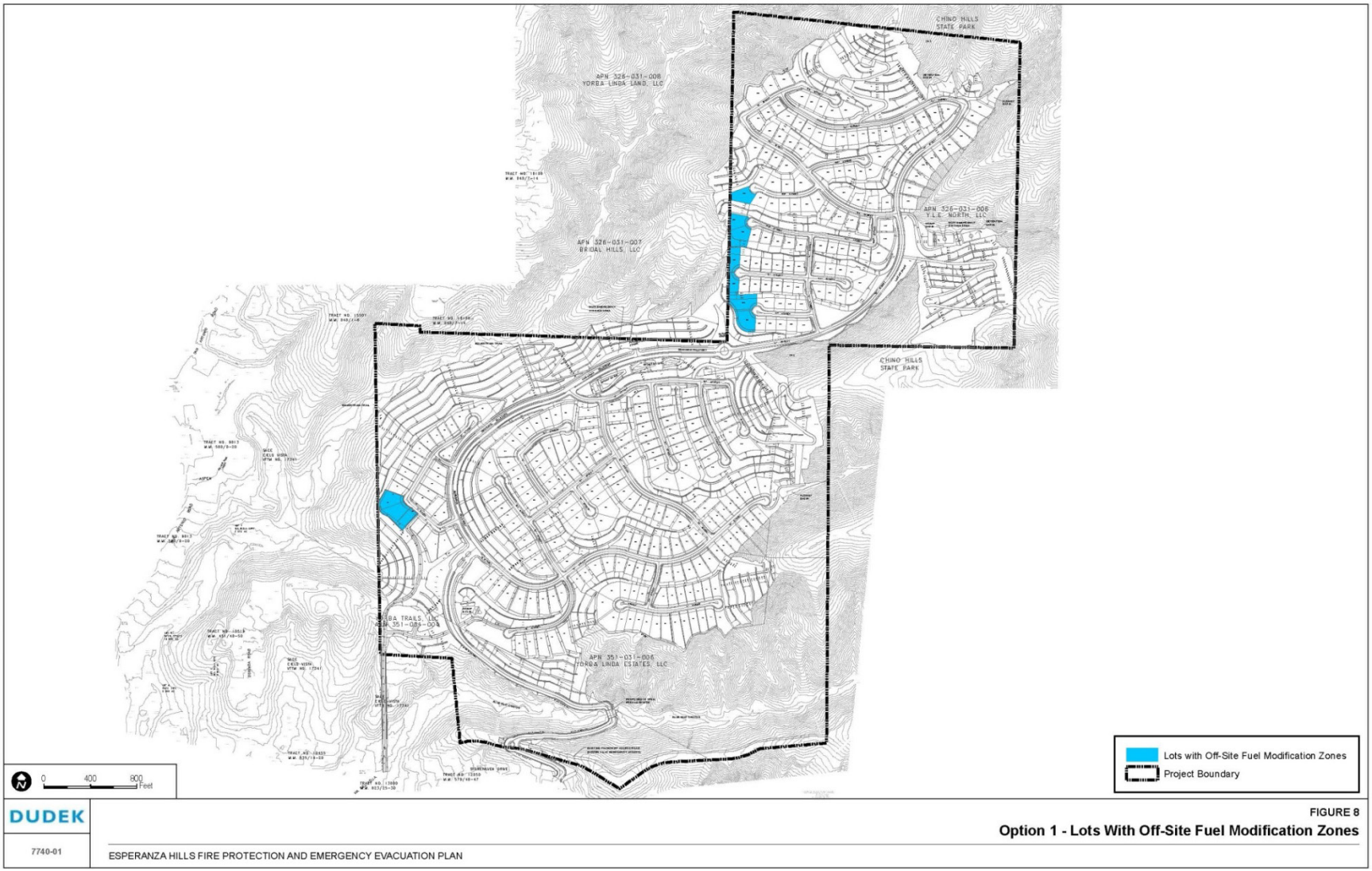


Exhibit 5-72 – Lots with Off-Site Fuel Modification Zones, Option 1

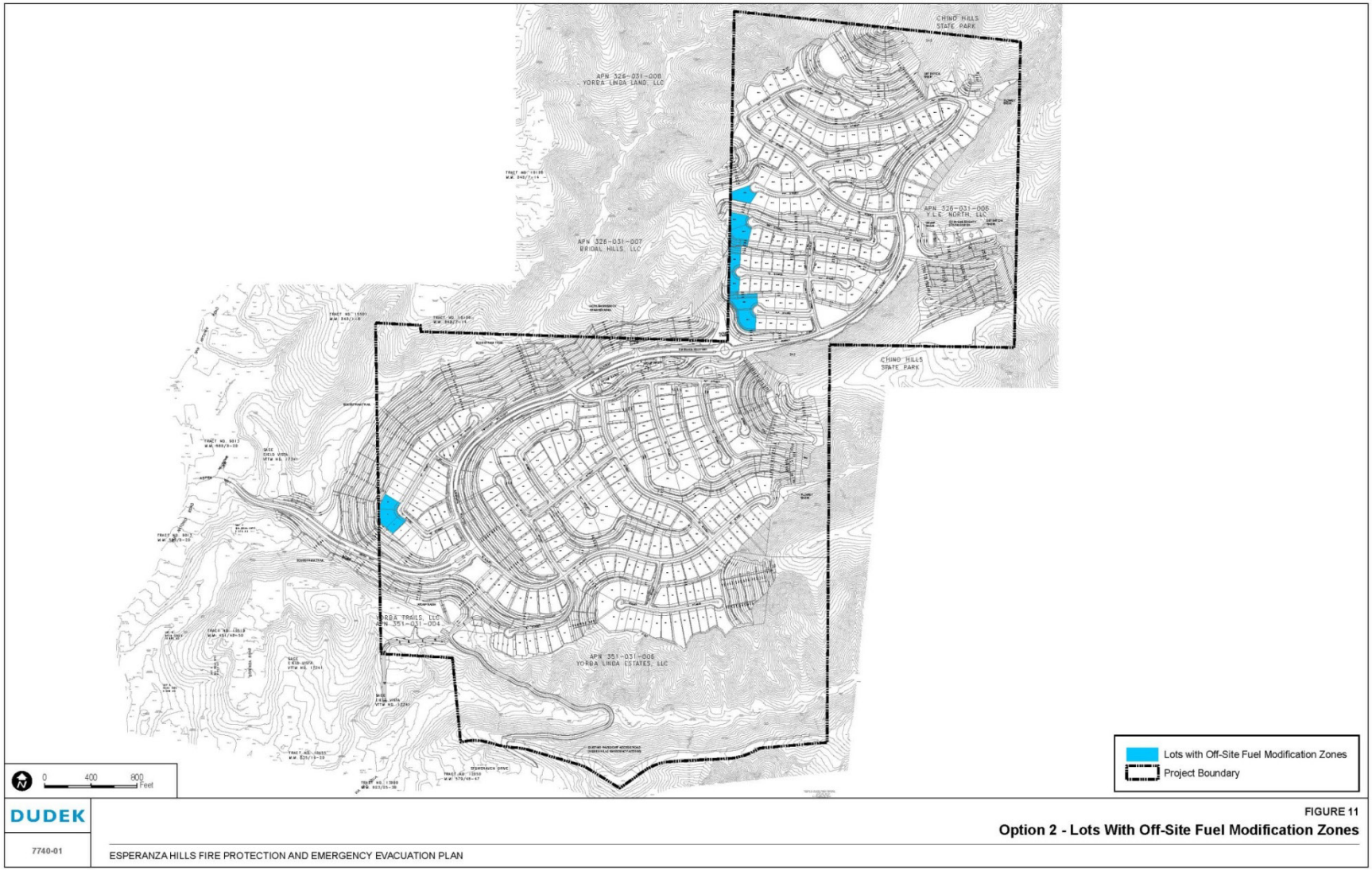


Exhibit 5-73 – Lots with Off-Site Fuel Modification Zones, Option 2

Alternative FMZss are proposed for the three affected lots (Lots 7, 8, and 9 in Option 1, and Lots 8, 9, and 10 in Option 2). In order to retain the lots, which are important for the financial viability of the project, the project's Alternative Materials and Methods letter incorporates a layered, redundant system including a combination of permanently irrigated, fire-resistant landscaping which provides for a minimum of 20 feet of Zone A along with a total of approximately 157 feet (Lot 7), 140 feet (Lot 8), and 150 feet (Lot 9) of FMZ. Option 2 includes similar achievable FMZs, except for lots 8, 9, and 10, as described for Option 1. This enables each lot to include a back yard area outside the FMZ, starting at the structure and extending across the flat pad to Zone A and a heat-deflecting landscape wall at the top of slope.

A series of retaining walls has been incorporated into the Proposed Project design that will provide vertical separation from the off-site native fuels below (Exhibit 5-74 – Esperanza Hills Lot 7 – Fuel Modification Section and Exhibit 5-75 – Esperanza Hills Lot 8 – Fuel Modification Section). In addition, the design of the structures on these lots will include the addition of dual-pane/both panes tempered windows, focused homeowner education, and annually inspected FMZs in compliance with OCFA requirements. The Esperanza Hills Homeowners' Association (HOA) will contract with the OCFA to perform regulation inspections. These measures are anticipated to provide at least an equivalent level of protection to the OCFA's standard requirements for FMZs.

b. Strategic Fuel Breaks

Fuel breaks are provided on the south and southwestern portions of the property within Blue Mud Canyon. The fuel break includes maintained fuel reduction and in effect, becomes an extension of the formal FMZ provided for the project. This fuel break will significantly affect fire behavior (spread rates and intensity) in this portion of the canyon and is expected to provide substantial benefits for neighborhoods south and west in the City. Exhibit 5-70 (page 5-301) and Exhibit 5-71 (page 5-303) along with Exhibit 5-80 – FlamMap Fire Behavior Analysis, Option 1 - Flame Length Fall Fire (page 5-327) and Exhibit 5-81 – FlamMap Fire Behavior Analysis, Option 2 - Flame Length Fall Fire (page 5-329) discussed under Fire Risk Assessment below, illustrate the effect this fuel break has on fire behavior.

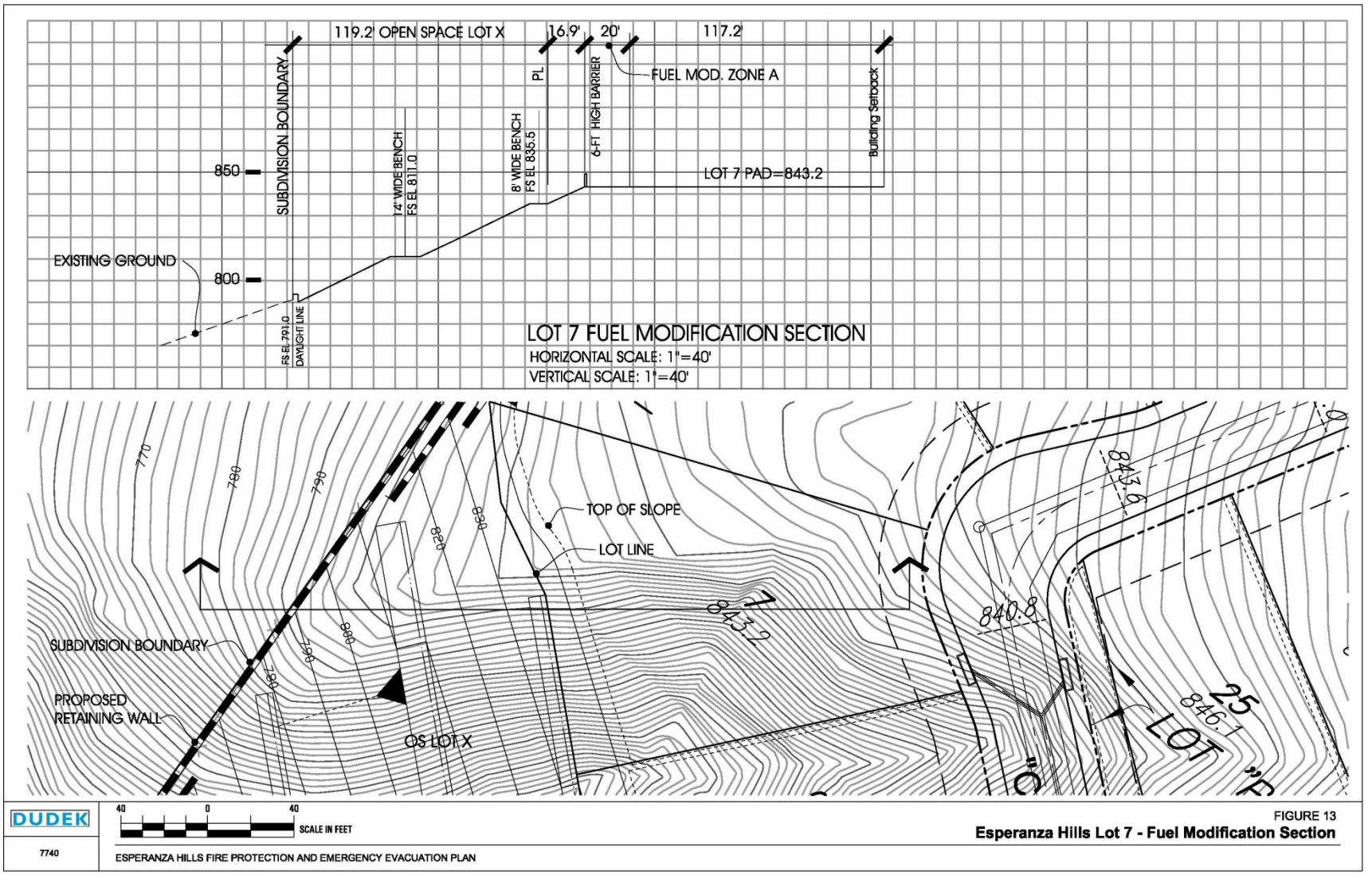


Exhibit 5-74 – Esperanza Hills Lot 7 – Fuel Modification Section

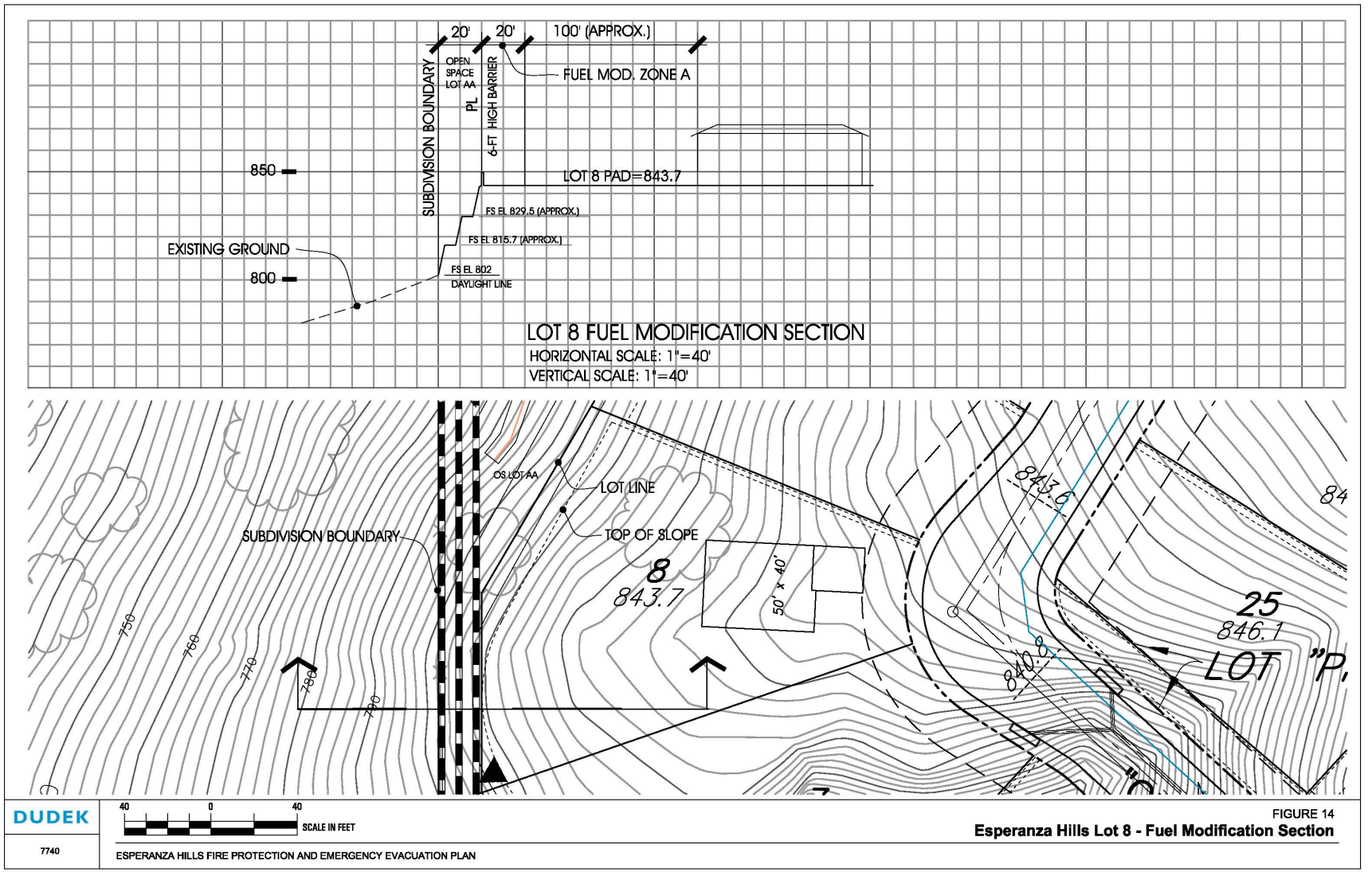


Exhibit 5-75 – Esperanza Hills Lot 8 – Fuel Modification Section

c. Roadside Fuel Modification Zones

Roadside FMZs will be provided and maintained for all project roads and designated fire department access roads. Roadside FMZs will be 10 to 20 feet wide from edge of road on both sides of roadways adjacent natural open space areas. The types of fuel modification and maintenance required for roadsides throughout the Proposed Project include:

1. No use of prohibited plants
2. No continuous tree canopies (canopies must be interrupted through tree spacing of 20 feet between mature canopies).
3. Grass will be mowed to 4 inches.
4. No dry grass within fuel modification zone.
5. Single specimen trees, fire-resistive shrubs, or cultivated ground cover (such as green grass, succulents, or similar plants) may be used, provided they do not form a means of readily transmitting fire.
6. Trees may be placed within the Roadside Vegetation Management Zones. The following criteria must be followed:
    a. Tree spacing to be 20 feet between mature canopies (30 feet if adjacent to a slope steeper than 41%).
    b. Trees must be limbed up one-third the height of mature tree or 6 feet, whichever is greater.
    c. No tree canopies lower than 13 feet 6 inches over roadways.
    d. No tree trunks intruding into roadway.
    e. No trees will be planted that are listed on the Prohibited Plant List (Appendix F to the FPEP in Appendix J to this DEIR). No flammable understory is permitted beneath trees. Any vegetation under trees to be fire resistive and kept to 2 feet in height or below, and no more than one-third the height of the lowest limb/branch on the tree.
    f. No tree limbs/branches are permitted within 10 feet of a structure.
    g. No vegetation found on the Prohibited Plant List (Appendix F to the FPEP in Appendix J to this DEIR) will be planted or remain in this zone.

d. Parks and Greenways

Fire Safe Vegetation Management is recommended within parks and other greenway areas in compliance with the guidelines in this plan.

1. Grasses must be maintained/mowed to 4 inches.
2. Types and spacing of trees, plants and shrubs, to comply with the criteria in this plan.
3. Areas will be maintained free of down and dead vegetation.
4. Trees to be properly limbed and spaced and will not be of a prohibited type.

5. No species from the Prohibited Plant List included (Appendix F to the FPEP in Appendix J to this DEIR).

e. Interior Manufactured Slopes

Interior slopes will be considered "Vegetation Management Areas." Features of these internal slopes will include:

1. The irrigation and maintenance requirements of standard fuel modification zones apply to these areas.
2. The area is completely irrigated or the area is adequately separated from structures.
3. There is a noncombustible setback zone of 20 feet from all structures (see Zone A requirements).
4. Only trees and shrubs from the Fuel Modification Zone Plant List, and planted in accordance with spacing requirements, can be used within the first 30 feet from any structure.
5. Selected palm species must be a minimum of 30 feet from all structures (measured from mature canopy growth to the structure) and planted in clusters of no more than 5 to 7 trees per cluster with 30 feet between clusters. The areas between the clusters may be planted with allowable plants.
6. Vegetative under-story must not create a fuel ladder or create the potential for ground fires. Trees shall be limbed up to three times the height of the under-story vegetation height or no vegetation taller than 2 feet in height within 15 feet of trees is allowed.
7. Any plants proposed from the OCFA undesirable list shall be reviewed through an Alternate Means of Protection process to determine the plants suitability, including spacing requirements, within the project boundary area.

f. Vacant Parcels and Lots

1. Vacant Lots will not be required to implement vegetation management strategies until construction begins. However, perimeter Vegetation Management Zones must be implemented prior to commencement of construction utilizing combustible materials.
2. Prior to any construction, grading, digging, installation of fences, the outermost 30 feet of the lot is to be maintained as a Vegetation Management Zone. Install fence at edge of pad adjacent habitat areas.
3. Existing flammable vegetation will be reduced by 60% on vacant lots upon commencement of construction on each lot; no vegetation clearing in adjacent open space will occur.

4. Dead fuel, ladder fuel (fuel which can spread fire from ground to trees), and downed fuels will be removed and trees/shrubs will be properly limbed, pruned and spaced per this plan.
5. The remainder of the Vegetation Management Zones required for the particular lot will be installed and maintained prior to combustible materials being brought onto any lot under construction.

g. Summary of Project Design Features

The Proposed Project has been designed with fire protection as a fundamental objective. There are two primary concerns for structure ignition: 1) radiant and/or convective heat and 2) burning embers. 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 exterior fire ratings for walls, windows, and doors.

The Proposed Project structural and infrastructural fire protection components will comply with the 2010 California Building Code and the 2010 Fire Code, as adopted by the OCFA or the latest codes in place at the time of construction. The 2010 Fire Code includes key features that are required for new development in WUI areas and form the basis of the system of protection necessary to minimize structural ignitions as well as provide adequate access by emergency responders:

- Application of 2010 California Building Code Chapter 7A, ignition resistant building requirements
- Minimum one-hour rated exterior walls and doors
- Multi- pane glazing with a minimum of one tempered pane
- Ember resistant vents (recommend BrandGuard, O'Hagin, or similar vents)
- Interior, automatic fire sprinklers exceeding code for occupancy type (the Project will also include attic heads, above and beyond the existing requirement)
- Modern infrastructure, access roads, and water delivery system
- 170 feet of maintained fuel modification areas (alternative materials and methods for three lots)
- Fire apparatus access roads throughout the community and three strategic fire apparatus staging areas
- Emergency ingress/egress plans for evacuation and entry of emergency vehicles simultaneously have been incorporated into the circulation design of the Project, and roads have been designed so that residents will have various alternative routes for evacuation

The HOA for the Proposed Project will be required to finance and maintain FMZs, comply with planting palette regulations, be subject to annual compliance inspections by the OCFA, formally adopt, practice and implement a

"Ready, Set, Go!" approach to site evacuation that includes distributing educational information to residents, holding evacuation planning meetings, and creating a resident notification system to distribute information about wildfire and emergency procedures. The emergency evacuation plan is discussed in greater detail below.

h. Water Capacity/Availability

The water supply for fire protection will be a looped public water system provided by the YLWD and will be designed and installed to its standards. The YLWD prepared the Northeast Area Planning Study (NEAPS) in March 2013 (NEAPS) to study the water demand and system requirements from the developments of the Proposed Project and the proposed Cielo Vista project. The NEAPS states that water supply for the Proposed Project will be taken from the Little Canyon Reservoir, which is fed by the Fairmont Pumping Station. Additional discussion on water supply and distribution system is located in the Section 5.15, Utilities and Service Systems (beginning on page 5-625 of this DEIR).

The Proposed Project includes the construction of two underground water reservoirs in Planning Area 1 and Planning Area 2 that will provide a combined storage capacity of 1.3 million gallons to meet the needs of peak residential water use and gravity-fed flow to on-site hydrants. Each reservoir will be resupplied by a pump that is sized to replenish the reservoir within a 24-hour period. This results in adequate on-site and off-site redundant water supply for residential and emergency use. The addition of a gravity-fed firefighting water supply will directly address issues concerning the loss of water to hydrants during the 2008 Freeway Complex Fire.

The Proposed Project has been designed to be consistent with OCFA standards for fire hydrant locations and spacing. The Proposed Project will provide the minimum fire flow storage of 1,500 gallons per minute for a 2-hour duration with a minimum residual pressure of 20 pounds per square inch to meet OCFA's and YLWD's fire flow requirements for single-family residential developments. OCFA normally allows a reduction to the fire flow requirements for developments that have incorporated fire sprinkler systems, specific building construction types, fuel modification, fire breaks, and other special fire protection measures. However, OCFA has indicated that it will not allow credits or reduction on the fire flow requirements for this project, because it is located in a Very High Fire Hazard Severity Zone (VHFHSZ).

Mitigation measures U-1 (page 5-649) and U-2 (page 5-649) requiring a Pre-Annexation Agreement and an Agreement with the YLWD for water and sewer services are included herein to ensure the water services and supply will be provided for the project.

i. Project Emergency Plan

The Proposed Project will include a Community Evacuation Plan that utilizes information from Orange County and San Diego Office of Emergency Services and will require the update of Orange County's Community Evacuation Plan and eventually included in the City's Community Evacuation Plan when it is completed. The Community Evacuation Plan includes hazard identification, a description of the area's environment, mitigation strategies, law enforcement, fire agencies and contact information, homeowner education materials, preparedness checklist, route planning, and specific procedures for early evacuation and contingency on-site refuge. Wildfire emergency response procedures will vary depending on the type of wildfire and the available time in which decision makers from the OCFA and law enforcement can assess the situation and determine the correct evacuation alternative.

Evacuation of residents would typically occur during large wildfire events that, due to weather patterns and difficulty in gaining control, could threaten the community, but are distant enough that evacuation from the Proposed Project Area is possible. For example, the 2008 Freeway Complex Fire, which occurred during extreme weather conditions (Red Flag Weather with 8% humidity, and 43 to 50 mph wind), took more than three hours to reach the easterly boundary of the Project Site. This type of fire behavior history and modeling information is used by the Incident Command for aiding evacuation declarations. Law enforcement and fire officials involved with the Incident Command System set up for a wildfire would evaluate the wildfire event and determine at which point relocation of various potentially affected areas would occur and whether it would be a partial or community wide evacuation. The Proposed Project will allow consideration of partial evacuation because of the ember-resistant and fire-hardened construction for the structures and implementation of FMZs around the structures. Residents nearest the fire front could be partially evacuated to structures on-site away from the fire front. Also, because of the ember-resistant and fire-hardened structures within the FMZs, the residents could shelter within their homes if wildfire is immediate or roadways are blocked, although evacuation away from the area is the preferred option.

Allowances for adequate time will be a key factor in determining the evacuation timeframe so that the roads do not become congested. The Proposed Project includes emergency vehicle staging areas in three locations, allowing five fire trucks in each of two areas and one for one engine with access to fire hydrants. Fire fighter access will be a key priority and the array of dedicated fire apparatus access roads in the Proposed Project refer to Exhibit 5-76 – Emergency Ingress/Egress Plan, Option 1 and Exhibit 5-77 – Emergency Ingress/Egress Plan, Option 2, which depict the Proposed Project ingress in the event of a wildfire. Additional discussion on fire apparatus access roads and staging is located in Section 5.12, Public Services (beginning on page 5-493 of this DEIR).

Evacuation trigger thresholds have been established for the Proposed Project based on review of fire behavior, fire spread rates, fire progression, and spotting occurrence during the 2008 Freeway Complex Fire and other local wildfires and fire behavior modeling, on-site population, area roadways, and potential loading. The recommended trigger for the Proposed Project evacuation/closure is:

- Red Flag Warning Period: When there is an active wildfire burning west of the SR-71 Freeway and north of the SR-91 Freeway and south of Highway 142 (Carbon Canyon Road) within the Puente Hills (Exhibit 5-78 – Potential Evacuation Trigger Threshold – Red Flag Warning Period) that coincides with declared Red Flag Warning periods, or when ordered to evacuate by fire or law officials, whichever occurs first, the Proposed Project will conduct an evacuation out of the area, or a partial on-site relocation if directed by fire/law officials. Although wildfires can occur any time of the year, they are more likely to become uncontrollable during the period of roughly May through November, coinciding with the high fire season and particularly during Red Flag Warning weather.
- Non-Red Flag Warning days: When there is an active wildfire burning within a 2.5-mile sphere of the community (Exhibit 5-79 – Potential Evacuation Trigger Threshold – Non-Red Flag Warning Period) or when ordered to evacuate by fire or law officials, whichever occurs first, the community will conduct an evacuation out of the area or a partial relocation if directed by fire/law officials.

In addition, the Orange County Sheriff's Department has developed a plan for the City and the adjacent area for evacuation procedures that include the Alert OC Reverse 911 messaging system, a helicopter public address system alert, public address announcements via patrol cars, door-to-door alerts, and a controlled traffic plan to move traffic off Yorba Linda Boulevard with entry to the area by vehicles prohibited.

In the event that a wildfire scenario would not allow enough time to safely evacuate the Proposed Project, which is considered a rare possibility, an on-site relocation alternative to evacuation is included in the emergency evacuation planning. Fires igniting within the southern portion of the Chino Hills, off the SR-91 Freeway or in Chino Hills State Park, under Red Flag Warning conditions (such as from a vehicle accident, arson, electrical distribution line, or wind-borne embers from a distant wildfire) and driven by wind and rapid spread rates, or backed-up roadways due to heavy evacuation, vehicle accident or other issues may require an alternative to off-site evacuation if extreme spotting occurs. The Proposed Project's residents would receive notification from Alert OC or radio and television news sources. Once aware of a fire, the community's pre-planned and practiced emergency response would be initiated. The OCSD is notified by OCFA, and their area evacuation plan is implemented.

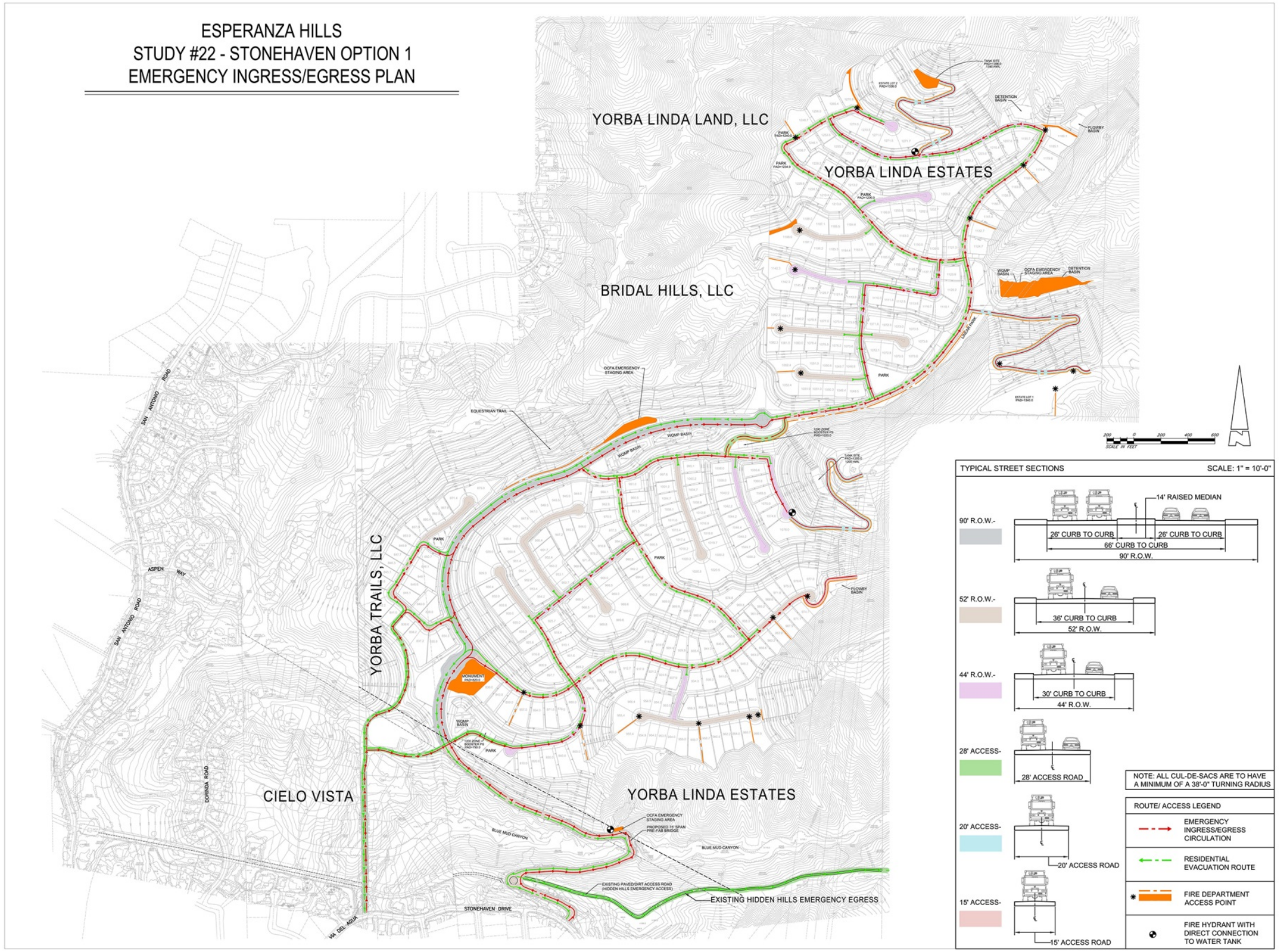


Exhibit 5-76 – Emergency Ingress/Egress Plan, Option 1

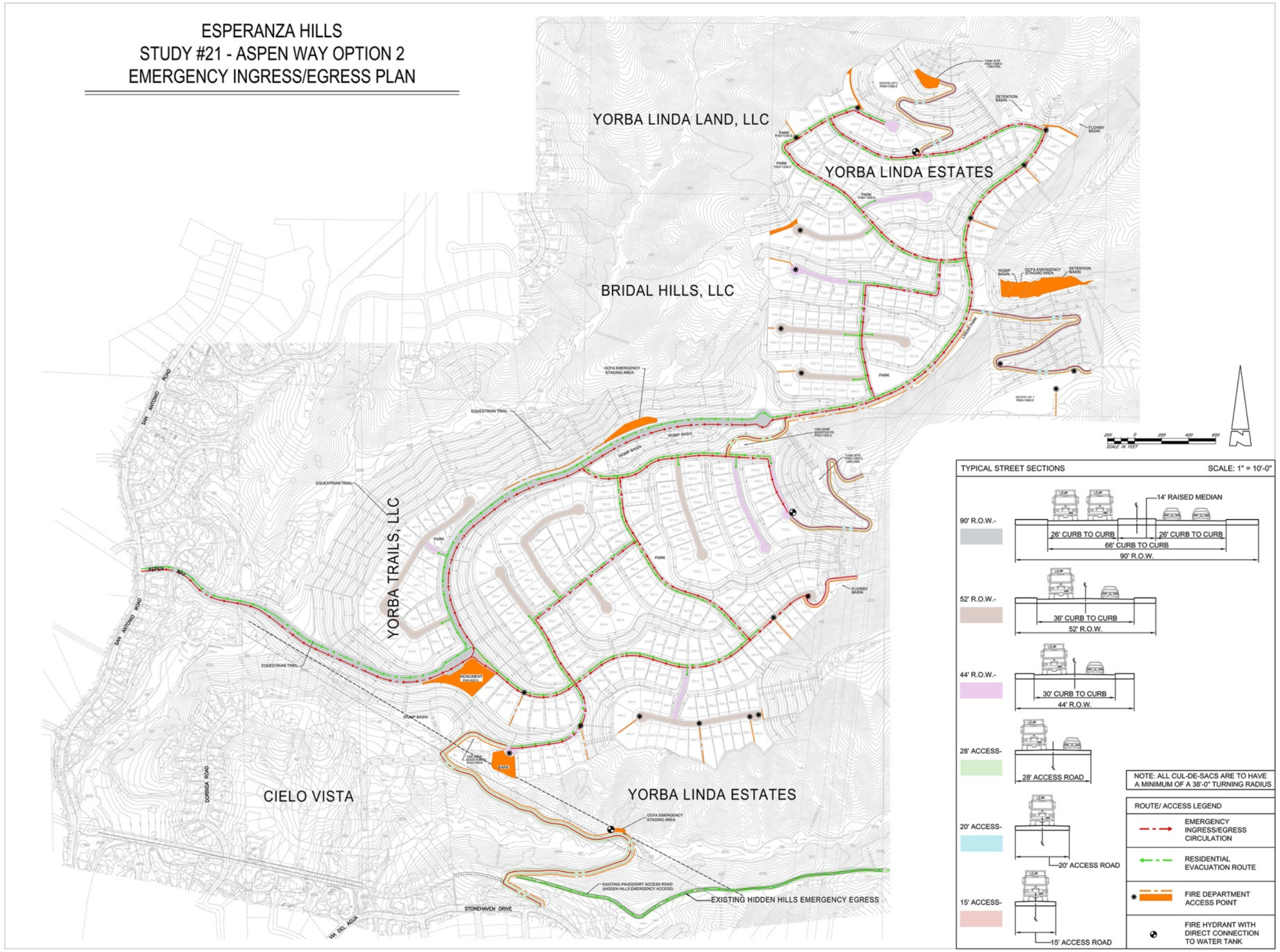


Exhibit 5-77 – Emergency Ingress/Egress Plan, Option 2

Exhibit 5-78 – Potential Evacuation Trigger Threshold – Red Flag Warning Period

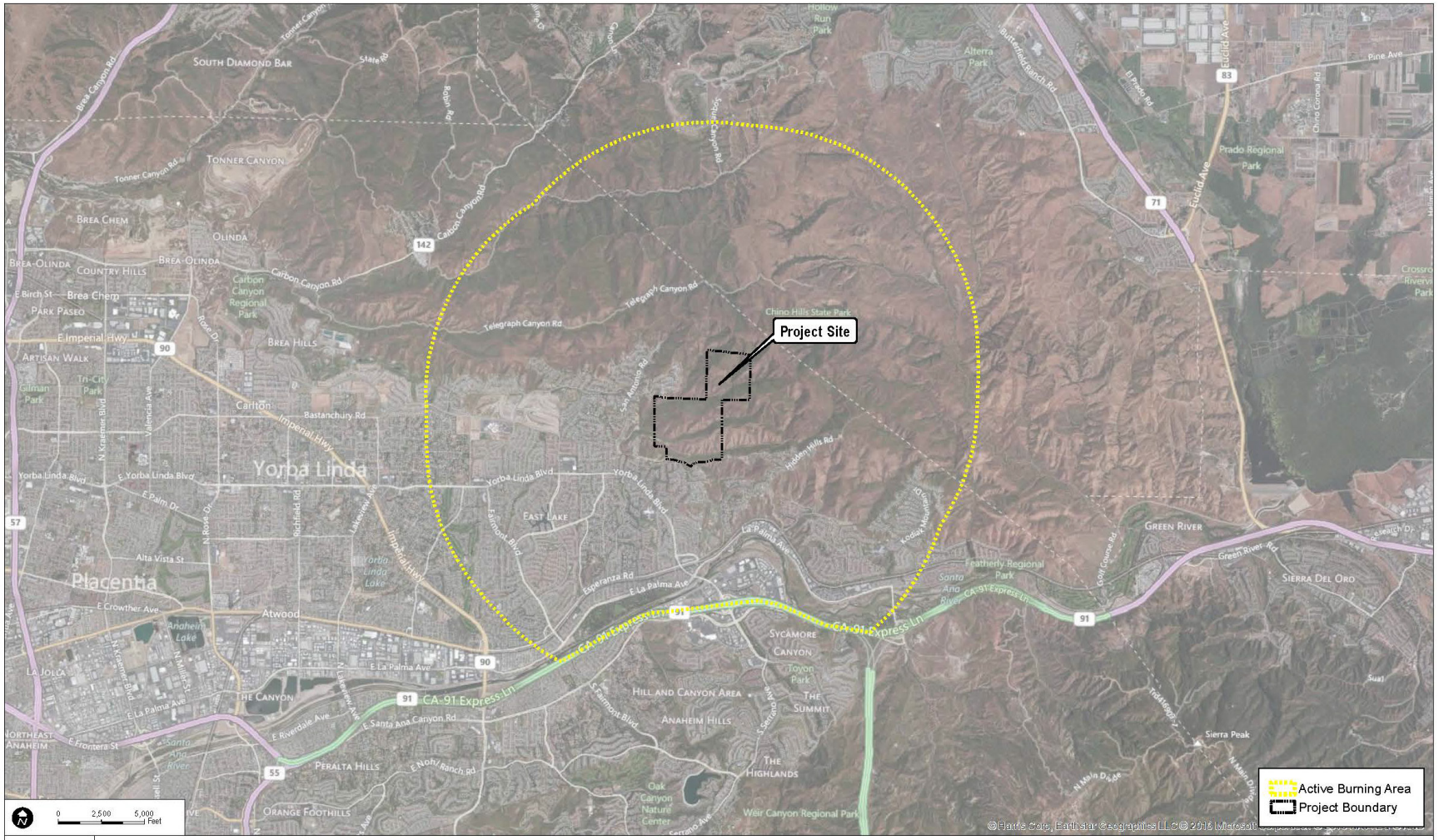


Exhibit 5-79 – Potential Evacuation Trigger Threshold – Non-Red Flag Warning Period

Priority evacuation procedures would be implemented immediately. However, if fire and law enforcement personnel determine that a higher risk to people exists during off-site evacuation options than if people were to temporarily seek protection inside their well-protected homes, the contingency on-site relocation plan will be initiated in communication with local fire authorities (when possible).

Residents cannot be mandated to follow on-site relocation directions, but resident education and training information will be provided and reinforced to raise awareness of the potential danger and potential options during a wildfire emergency. It is anticipated that law enforcement or fire officials would be involved with the decision to remain on-site, and therefore, should one or more residents refuse to remain on-site, they will be urgently apprised of the danger on the roadway and the need to remain in their home (or an alternate interior structure if they live in a perimeter home).

2. Fire Risk Assessment

To analyze post-development fire behavior for Options 1 and 2, separate fuel models were created using the existing vegetation coverage and reclassifying fuels based on location within the proposed development. All fuels within areas proposed for conversion to non-fuel types (e.g., roads and driveways) were reclassified as Fuel Model "0" to represent developed, non-combustible land uses.

Table 5-7-7 below provides a description of 10 fuel models coded for the post-development site condition that were subsequently used in the on-site, post-development FlamMap analysis for the Proposed Project.

Table 5-7-7 Project Fuel Model Characteristics – Post-Development

Fuel Model	Description	Land Cover Classification	Canopy Cover
0	Non-burnable	Development	0
1	Short grass	Grassland, ruderal, savannah	0
5	Brush	Fuel modification zone D	0
8	Closed timber litter	Irrigated slopes, FMZ A, southern willow scrub	21%-50% (irrigated slopes), 0 FMZ A
9	Hardwood litter	Coast live oak forest	50%-80%
SCAL 18	Sage/buckwheat	Scrub	0
GR1	Short, sparse dry climate grass	Parks, FMZ B	21%-50% (parks), 0 (FMZ B)
GS2	Moderate load, dry climate grass-shrub	FMZ C, woodlands, mulefat scrub	0
SH5	High load, dry climate shrub	Chaparral	0
TU2	Moderate load, humid climate timber-shrub	Shaded fuel break	21%-50%

Flame length analysis was conducted using FlamMap model for both options. Exhibit 5-80 – FlamMap Fire Behavior Analysis, Option 1 - Flame Length Fall Fire maps the expected estimated flame length post-development for Option 1. Exhibit 5-81 – FlamMap Fire Behavior Analysis, Option 2 - Flame Length Fall Fire maps the expected estimated flame length post-development for Option 2. Once constructed, the Proposed Project's on-site fire potential will be significantly lower than in its existing condition. Flammable landscapes will be converted to ignition-resistant materials including protected structures, maintained and irrigated landscapes, roadways, parks, and other managed landscapes. Likewise, the fire risk in the general vicinity, especially to the south, east, and west, will be reduced. The Proposed Project converts fuels that carried fire and produced significant embers during the 2008 Freeway Complex Fire that ultimately resulted in structure loss to managed landscapes.

The significant canyons (particularly Blue Mud Canyon) that helped funnel the fire toward the City will be significantly improved (from a fire and habitat perspective) through restoration activities to remove non-native, flammable vegetation and provide native, riparian vegetation and also, in key areas, to create large fuel modification areas (fuel breaks) that were strategically located with the assistance of the OCFA and that will result in reduced fire intensity and spread rates along the southern project boundary in Blue Mud Canyon. Although implementation of the Proposed Project will greatly reduce the potential of wildfire emanating from the Project, given the climate, topography, and WUI, there is a potential for significant project impact from wildfire if not mitigated.

3. Emergency Response

Fire protection, suppression, inspection, and paramedic emergency medical services for the Proposed Project and the City are provided by the OCFA as described in Section 5.12, Public Services (beginning on page 5-493 of this DEIR). The OCFA's response time goal is for the first unit to arrive on scene within five minutes for 80% of the emergency calls for service. The OCFA has identified the potential need to increase capacity at existing Fire Station 10 in order to meet the potential needs of the Proposed Project. However, the FPEP states that fire service levels are not expected to be significantly impacted, as adding .17 calls per day is not anticipated to be a significant impact on Station 10's ability to serve Esperanza Hills or existing communities within its primary response area. The FPEP found that the Proposed Project is not expected to cause a decline in the OCFA overall response times or service level. Currently, Stations 10 and 53 can respond within 10 minutes, meeting the OCFA's goal for effective emergency response. In the event the OCFA disagrees with the recommendations contained within the FPEP, the Project Applicant will be required to enter into a Secured Fire Protection Agreement that will specify the Project Applicant's pro-rata fair share funding of capital improvements necessary to establish adequate fire protection facilities and equipment and/or personnel.

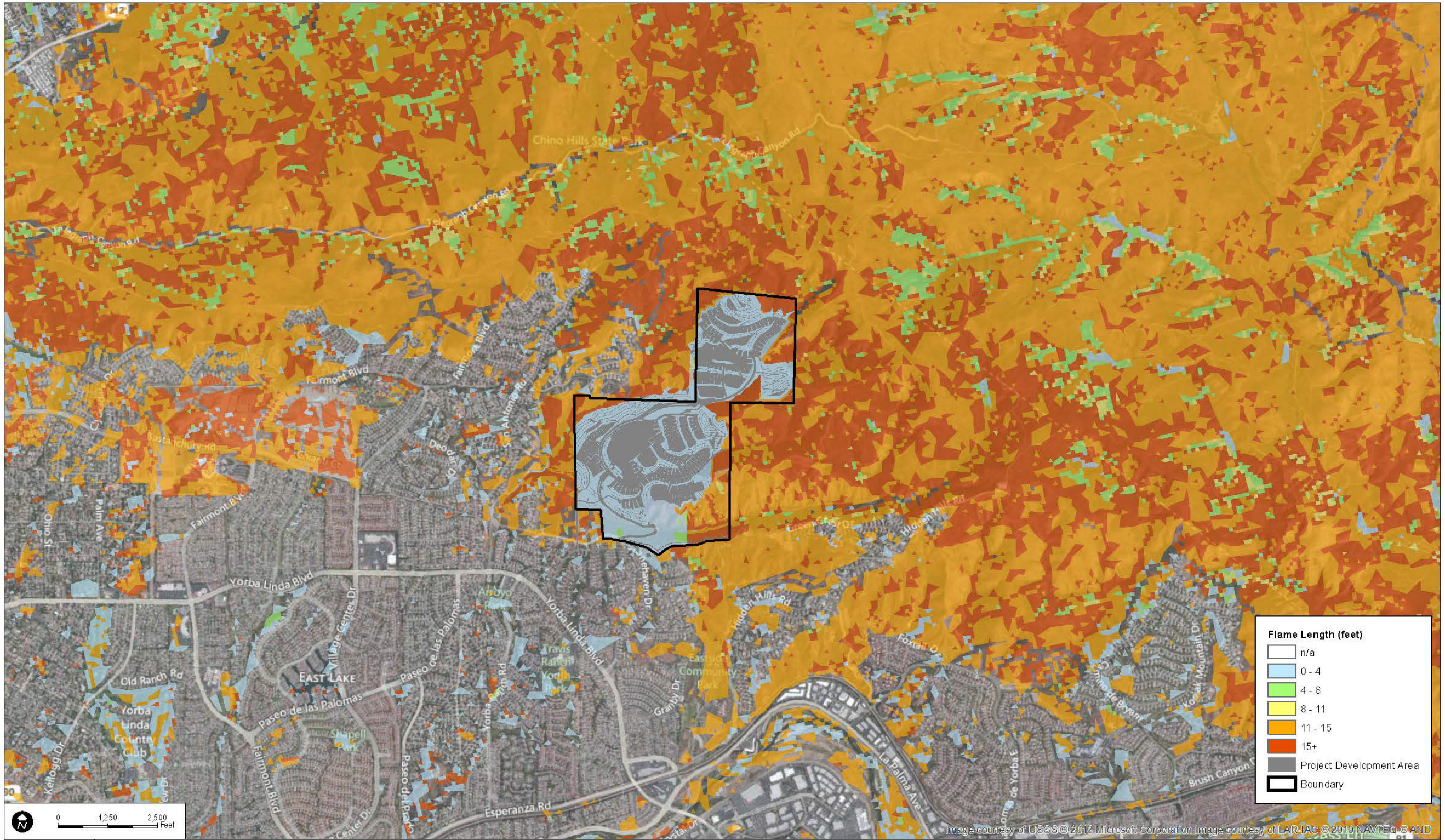


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FIGURE 7

FlamMap Fire Behavior Analysis, Option 1 - Flame Length, Fall Fire

ESPERANZA HILLS FIRE PROTECTION AND EMERGENCY EVACUATION PLAN

Exhibit 5-80 – FlamMap Fire Behavior Analysis, Option 1 - Flame Length Fall Fire

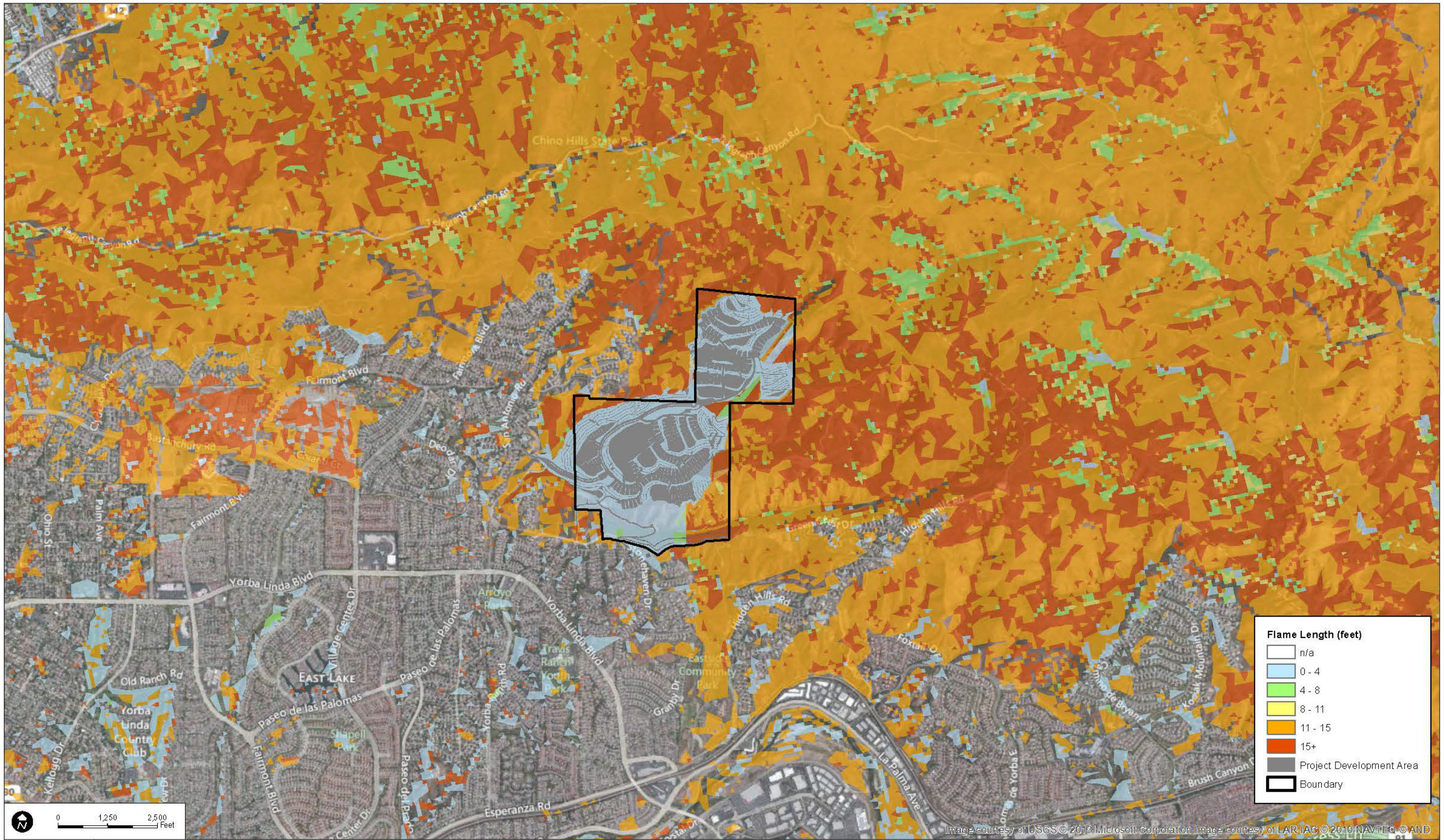

Exhibit 5-81 – FlamMap Fire Behavior Analysis, Option 2 - Flame Length Fall Fire

The current fair share funding fee is $600 per dwelling unit, which would result in a total of $204,000 for the maximum proposed 340 residential units. Mitigation has been included in Section 5.12, Public Services (beginning on page 5-493 of this DEIR) and included herein to ensure that the fee requirements are met.

4. Hazardous Materials

Hazardous materials associated with construction (short term) are regulated by the County of Orange during the building permit application process and regulation of hazardous materials is part of the 2010 Fire Code. The contractor is required to list any hazardous materials associated with construction and submit the form to the OCFA. The use of hazardous materials and potential release is not anticipated for the construction of the Project. There is a potential of accidental spill of fuel from construction equipment. Project design features concerning accidental spill of fuel from construction equipment are listed in Section 5.7.6, Project Design Features (page 5-332).

The Proposed Project itself does not have the potential to result in a significant hazard due to the transport, disposal, accidental upset, or storage of hazardous materials, because the 340-residence subdivision proposed will result in the normal use and storage of household materials, and no industrial or commercial uses are included in the project.

Residents of the Proposed Project will have the opportunity, free of charge, to dispose of any household hazardous waste at the Orange County Household Hazardous Waste collection facility located in Anaheim at 1071 N. Blue Gum. Yorba Linda Disposal, the waste service provider, provides a complete list of prohibited materials that cannot be placed in trash containers and must be disposed of at hazardous waste collection centers. The Anaheim Collection Center also is a receiving site for household e-wastes. Design features have been incorporated into the project to prevent the storage of pesticides and fertilizers on-site as part of best management practices under Section 5.7.6, Project Design Features (page 5-332).

5. Oil Well Operations

The OCFA has adopted guidelines (Guideline C-02 Requirements for the Construction of Structures Adjacent to Oil Wells) that apply to any structure within 100 feet of an oil well. No structure will be within 100 feet of an oil well. DOGGR provides regulations regarding placement of structures on abandoned well sites. The Proposed Project will be consistent with all regulations regarding active and abandoned wells.

The operation of oil wells, including above-ground storage tanks, have the potential of accidental or unauthorized release of oil or hydrocarbon product if disturbed during development of the property. A discussion of grading impacts on oil well operation is found in Section 5.5, Geology and Soils (beginning on page 5-203 of this DEIR). Hazardous emissions of oil or hydrocarbon product if disturbed during development of the property would be significant without mitigation. Hazardous emissions of

combustible gas/methane due to normal oil well operations would be significant without mitigation.

The Project Applicant shall ensure that a Phase II ESA is prepared identifying abandoned well locations, hidden pits, or accumulations of drilling mud. The Phase II ESA will verify regulatory compliance with previously abandoned wells. Mitigation Measure Haz-3 herein requires such preparation.

In the event the oil wells are closed, a Remedial Action Plan (RAP) will be prepared consistent with state law to address appropriate remedial measures required by the closure(s).

The two oil wells located in the southwest portion of the site may continue to operate on-site, pending the proposed development of the Cielo Vista project to the west. When the proposed Cielo Vista project receives approval of its proposed Area Plan, oil operators have the right to relocate the two oil wells to a drilling pad on the adjacent proposed Cielo Vista project, and will be required to cease production and abandon the wells pursuant to DOGGR regulations. Another well is located near the western boundary of the property owned by Yorba Linda Estates, LLC. There is litigation pending in Orange County Superior Court over the validity of the lease for that well. If the litigation is successful, the well will be abandoned at the expense of the current operator. If that lease is found to be valid, the well will continue to operate so long as it produces in accordance with the lease. The locations of all wells are depicted in Exhibit 5-67 – On-Site Oil Well Location Plan (page 5-293).

Any development over areas where there are abandoned wells depicted on Exhibit 5-67 as #13, #14, and #15 have to also satisfy DOGGR requirements.

5.7.6 Project Design Features

The following design features have been incorporated in to the Proposed Project:

PDF 17 The Proposed Project includes that the Esperanza Hills HOA will provide a list of approved and prohibited plant pallet to all buyers in a Private Property Owners' Guide for Fire Safe Vegetation Management on private lots. The HOA will be responsible for enforcement.

PDF 18 The Proposed Project includes a Precise Fuel Modification Plan that has been developed to provide a landscape transition area along the interface between residential development and adjacent open space to provide wildfire protection.

PDF 19 The Proposed Project includes that all new power lines will be underground, for fire safety during high wind conditions or during fires on a right of way which can expose above-ground power lines.

PDF 20 The Proposed Project includes that fuel management activities will be completed annually by June 1 and more often as needed for fire safety, as determined by the OCFA.

PDF 21 The Proposed Project includes that all structures will be in strict, ongoing compliance with all County and other applied Fire and Building Code requirements.

PDF 22 The Proposed Project includes that the HOA will maintain FMZs annually by June 1 and more often as needed for fire safety as determined by the OCFA.

PDF 23 The Proposed Project includes that the HOA will implement emergency evacuation routes in accordance with the approved Community Evacuation Plan. The Community Evacuation Plan includes a provision for annual review by residents through organized meetings and education outreach by the HOA.

PDF 24 The Proposed Project includes that automatic fire sprinkler systems will be installed for all homes, including in all attic spaces.

PDF 25 The Proposed Project includes a Fire Master Plan that has been approved by the OCFA providing enhanced construction features in certain areas adjacent to FMZs. These include enhanced fire sprinkler systems and construction features per California Building Code Chapter 7A.

PDF 26 The Proposed Project includes wildfire education materials will be distributed annually to each resident and annual evacuation planning meeting will be held by the HOA.

PDF 27 The Proposed Project includes that all site access, emergency access, road widths and turn outs will comply with the requirements of the OCFA and the approved Fire Master Plan.

PDF 28 The Proposed Project will include access gates that will comply with the Fire Code. Public roads will not be gated, per the Fire Code. Any gates on any private roads or on private driveways will be as follows, complying with the OCFA standards for electric gates.

- Access gates will be equipped with a KNOX key switch, which overrides all command functions and opens the gate for entrance of emergency vehicles into the area. Gates serving more than 1 parcel will be equipped with sensors for detecting emergency vehicle "Opticom" strobe lights from any direction of approach. Strobe detection and key switches will be provided on the interior and exterior of gates.
- Switches will be dual keyed, or two switches provided, for Fire and Law Enforcement.
- Gate activation devices will be equipped with a battery backup or manual mechanical disconnect in case of power failure.

5.7.7 Mitigation Measures

Haz-1 Prior to the issuance of building permits the Project Applicant shall provide a Combustible Gas/Methane Assessment Study for review and approval by the OCFA. The Project Applicant shall submit and obtain OCFA approval for a Methane Control Plan to control the release of combustible gas/methane from operation oil wells in the event that measurable quantity of methane gas is identified in the Combustible Gas/Methane Assessment Study.

Haz-2 Prior to the issuance of grading permits the Project Applicant shall ensure that a Phase II ESA is prepared for review and approval by the Manager of OC Planning. The Phase II ESA shall identify the abandoned well locations, and any hidden pits or accumulations of drilling mud in the vicinity of the wells. The assessment shall include a review of available well logs and abandonment documentation in order to verify regulatory compliance of previously abandoned wells. In the event pits are encountered during the Phase II ESA investigation or during grading, the pits will be sampled for hazardous substances and will be disposed of at a certified hazardous waste facility.

Haz-3 Prior to the issuance of grading permits, the Project Applicant shall ensure that an RAP is prepared for the previously abandoned oil wells to address the appropriate measures consistent with state law.

Haz-4 Prior to the closure of any existing oil wells, the Project Applicant shall ensure that the operators of the oil wells prepare an RAP to address appropriate measures for closure consistent with state law.

Haz-5 Prior to the issuance of any grading permit that results in the disturbance of any vegetation, the Project Applicant shall submit a Fire Master Plan for review and approval by the OCFA. The Fire Master Plan shall be based on the Esperanza Hills FPEP and shall contain details regarding evacuation roads, including road surface type, firefighting staging areas, emergency secondary access, turning radii, vegetation clearance buffers along roadways, exits, and locations of hydrants and reservoir.

Haz-6 Prior to the issuance of any occupancy permit, the Project Applicant shall submit a Community Evacuation Plan (CEP) for the Project for review by the OCFA and the OCSD and approved by the OCFA. The CEP will incorporate the information on community plans from the Orange County Office of Emergency Services and the San Diego Office of Emergency Services. The Esperanza Hills FPEP shall be the basis of the CEP, which shall include provisions for:

- Pre-fire planning and preparations
- Post-fire recovery actions
- Communications/registering with Alert OC (Orange County's Reverse 911 system and sign-up for cell phone/text notice)
- Prevention (maintenance of fuels around buildings, gutter and roof clearance, vent protection)
- Emergency contact numbers

- Annual evacuation training schedule
- Fire Prevention Measures during High Fire Danger and Red Flag Warning periods
- Annual review and update requirements
- Wildfire Emergency Evacuation Plan Details
- On-site partial relocation versus off-site evacuation
- Revisions/updates to the CEP shall be reviewed and approved by OCFA

Haz-7 Prior to the recordation of the final tract map, the Project Applicant shall record the deed restrictions for each residential lot. The deed restriction shall include any portion of the FMZs on the private lot, approved plant palettes, and prohibitions regarding combustible structures, including fencing and other accessory structures. Deed restrictions will run with the land and be conveyed to any subsequent owner of the private lot. The Esperanza Hills HOA will be responsible for enforcement.

Haz-8 Prior to the recordation of the Final Tract Map for Lots 7, 8, 9, 224, 225, 236, 237, 253, 254, ad 278 in Option 1 and Lots 8, 9, 10, 224, 225, 236, 237, 253, 254, and 278 in Option 2 that include an FMZ that extends beyond the private lot or development, the Project Applicant shall obtain written legal permission in the form of a Fuel Modification Easement from any off-site landowners. The Fuel Modification Easement shall be recorded for each lot. In any situations where the FMZ extends into biological open space or other sensitive biological areas, or other areas controlled by the County and/or resource agencies, formal written permission shall be obtained from all applicable agencies.

Haz-9 Prior to the issuance of building permits, the Project Applicant shall prepare a Private Property Owners' Guide for fire-safe vegetation management, which shall be distributed by the Esperanza Hills HOA to each new home buyer. The Guide shall be based on the Orange County Fire Authority Vegetation Management Guidelines as approved in the Fuel Modification Plan approved by the OCFA. Periodic inspections by the OCFA shall be at the expense of the Esperanza Hills HOA.

Haz-10 Prior to the recordation of the final tract map, the Project Applicant shall submit the Project Covenants, Conditions, and Restrictions (CC&Rs) to the Manager of OC Planning for review and acceptance by County Counsel and will include:

- A reference to the Esperanza Hills FPEP to ensure compliance with the features with the plan. The HOA is required to enforce compliance with the Plan. Owners of private lots will be notified in the project's CC&Rs and property disclosures that they are prohibited from conducting any vegetation management activities outside their private property.
- Provisions for continuous maintenance of common areas by the Esperanza Hills Homeowners' Association and individual properties by owners. Maintenance refers to anything needed to maintain the fuel modification area in a fire safe condition as required by the OCFA, including periodic removal of undesirable, combustible vegetation; replacement of dead and dying fire-resistant plantings; maintenance of the operational integrity and

programming of irrigation systems; and preservation of identification markers.

- A provision that the HOA is responsible for and has the authority to ensure long-term funding, and ongoing compliance with all provisions of the approved Fire Master Plan and Community Evacuation Plan, including vegetation planting, fuel modification, vegetation management, and maintenance requirements on all private lots, parks, common areas, roadsides, and open space under their control (if not considered biological open space). Any water quality basins, flood control basins, channels, and waterways should be kept clear of flammable vegetation, subject to the environmental restrictions.
- A provision that the HOA will annually fund and obtain an inspection and report from an OCFA-approved Wildland Urban Interface Fire Safety Inspector in June, certifying that vegetation management activities throughout the Project Site have been performed pursuant to the approved Fire Master Plan.

Haz-11 Prior to the issuance of building permits, the Project Applicant shall submit to the Manager of OC Planning plans demonstrating a water system for the Project capable of handling the minimum fire flow storage of 1,500 gallons per minute for a 2-hour duration with a minimum residual pressure of 20 pounds per square inch.

Haz-12 Prior to issuance of building permits, the Project Applicant shall provide a plan that depicts the appropriate number of fire hydrants and their specific locations to be constructed for each phase of development for review and approval by the OCFA Fire Marshal.

Haz-13 Prior to ground disturbance in environmentally sensitive areas that contain sensitive habitat, cultural sites, riparian areas, biological buffer areas, detention basins, etc., the Project Applicant shall obtain written permission from the OC Planning Manager, and the appropriate resource agencies (e.g., the CDFW, the USFWS, and the ACOE) prior to any vegetation management activities occurring.

Haz-14 Prior to the issuance of any building permit for access gates the Project Applicant shall submit for review and approval by the OCFA access gate plans consistent with the applicable Fire Code, and all operated gates shall be equipped with emergency opening devices approved by the OCFA.

5.7.8 Level of Significance after Mitigation

Implementation of the Proposed Project will not result in a significant hazard to the public or the environment through the transport, use, or disposal of hazardous materials, because the 340-residence subdivision will result in the normal use and storage of household materials, and no industrial or commercial uses are included in the Project. Therefore, the impact is less than significant concerning this topic.

The project has the potential for accidental release of combustible gas/methane from continued operation of on-site oil wells. Mitigation Measures Haz-1, Haz-2, and Haz-3 have been incorporated into the Project. Mitigation includes a Combustible Gas/Methane Assessment Study to assess release of combustible gas/methane, implementation of a Methane Control Plan if a measurable quantity of methane is detected, and preparation of an RAP prior to any oil well closure. With implementation of these mitigation measures, project impacts related to accidental release of hazardous materials into the environment are less than significant.

The Proposed Project will not produce hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter of an existing school. The Proposed Project involves the construction of single-family residential homes, and no hazardous or acutely hazardous materials, substances, or waste will be emitted by the normal operation of the Project. Oil wells within the Project Site have the potential to emit hazardous emissions. However, no existing or proposed schools are located within one-quarter mile of the Project Site and, therefore, the project impact is less than significant.

The Project is not located on a site that is included on a list of hazardous materials sites compiled pursuant to *California Government Code* §65962.5; therefore, the project impact is less than significant.

The Proposed Project is not located within an airport land use plan or within two miles of a public airport or public airport use that would result in a safety hazard for people residing or working in the Proposed Project. Therefore, the project impact from airport hazard is less than significant.

The Proposed Project is not located in the vicinity of a private airport that would result in a safety hazard for people residing or working in the Proposed Project. Therefore, the project impact from private airport hazard is less than significant.

The Project will not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Mitigation Measures Haz-5 and Haz-6 have been incorporated into the Project requiring preparation and implementation of a Community Evacuation Plan. Compliance with the OCFA Ready, Set, Go! Program requires early evacuation, and the HOA is required to conduct annual training of the project residents regarding evacuation procedures.

The City has not prepared a Community Evacuation Plan; however, the Esperanza Hills Community Evacuation Plan can be incorporated into the Yorba Linda Community Evacuation Plan when it is drafted. The Proposed Project also includes a mitigation measure that requires a Secured Fire Protection Agreement with the OCFA that will specify the Project Applicant's pro-rata fair share funding of capital improvements necessary to establish adequate fire protection facilities and equipment and/or personnel for the project. Therefore, with mitigation, project impacts to implementation of or physical interference with an adopted emergency response plan or emergency evacuation plan are less than significant.

The Project has a potential to expose people or structures to a significant risk of loss, injury, or death involving wildfire given the climate, topography, and wildland-urban interface. The project will greatly reduce the potential of wildfire because the project is subject to the 2010 California Building Code and the 2010 Fire Code, which require strict regulations for ember- and ignition-resistant structure construction. The FMZs work in tandem with the other components of the fire protection system including interior automatic fire sprinklers (with the added attic heads in each structure), firefighting staging area, emergency access, and water flow and supply to provide protection for the site's structures. Implementation of the Proposed Project will reduce areas of native vegetation on the Project Site resulting in less burnable fuels, which reduces project impact of wildfire starting on the site.

Mitigation Measures Haz-7 through Haz-14 have been incorporated into the project to implement OCFA FMZs that surround the project, require fuel modification easements from adjacent property owners and fuel modification area deed restrictions, require educational material on fire-safe vegetation management to homeowners, require project CC&Rs provisions and notice on vegetation management and funding of annual Fire Safety inspection of FMZs, require adequate fire hydrants and water capabilities, and project entry gates that meet OCFA standards for entrance during emergency. With implementation of project design features and mitigation measures the likelihood of exposing people or structures to fire hazards will be reduced to a level of less than significant.

5.7.9 Cumulative Impacts

There are 13 active and 12 abandoned wells within the Project Area that are located on the Project Site, the Cielo Vista site, and within the surrounding community as shown on Exhibit 5-67 – On-Site Oil Well Location Plan (page 5-293 above). These existing oil wells have the potential of creating a significant hazard to the public or the environment through the accidental release of combustible gas/methane from continued operation of oil wells located within the Proposed Project and the Cielo Vista property. Operation of oil wells is subject to DOGGR regulations and oversight. The Project does not add to this cumulative impact, because Mitigation Measure Haz-1 has been incorporated into the Project requiring a Combustible Gas/Methane Assessment Study to assess release of combustible gas/methane. Mitigation includes mitigation of a Methane Control Plan if a measurable quantity of methane is detected. With implementation of this mitigation measure, project cumulative impacts related to accidental release of hazardous materials into the environment is less than significant.

The Proposed Project, as well as other proposed and/or foreseeable future projects in the area, will place additional homes within the wildland-urban interface zone, exposing residents to significant risk or loss, injury, or death involving wildfire. The project design and mitigation measures are included to reduce risk of wildfire compared with the existing condition. Implementation of the Proposed Project will convert a large area of highly flammable vegetation to lower flammability landscapes, such as irrigated, maintained landscapes and FMZs that result in a reduction of native

vegetation by 70%, significantly reducing the Project Site's fuel sources for a wildfire. The Proposed Project is designed with fire-hardened structures that are ember resistant, resulting in a significant reduction in the Project Site's being a source of embers into the surrounding area from on-site burning structures. Development of the Proposed Project will result in off-site YLWD water system improvements and Proposed Project water infrastructure improvements that will not only meet the demand of the future developments in the area but will also improve the water service reliability and fire protection for the surrounding area.

An Esperanza Hills Community Evacuation Plan will be prepared that includes a partial evacuation option that allows fire command to selectively evacuate homes within the Proposed Project in the case of wildfire. This will result in fewer impacts to roadways during community evacuation events. The partial evacuation included in the Esperanza Hills Community Evacuation Plan will allow the option for residents to shelter within their homes or in homes not on the direct fire line, resulting in fewer impacts to roadways for emergency evacuation of the surrounding community in the event evacuation is less safe or not practical. The impact to the existing roadway system during community evacuation will further be reduced because the Proposed Project will implement the OCFA Ready, Set, Go! Program so residents are knowledgeable regarding 1) preparing before the threat of a wildfire so their homes are "ready" to evacuate in case of fire; 2) packing their vehicles with emergency items and staying aware of news from local media and the local fire department so they are "set" to evacuate; and 3) knowing when to leave, what to take, and where to "go" while evacuating during a wildfire. The residents of the Proposed Project will know that their homes have been constructed to resist ignition and that FMZs will hinder the spread of wildfire into their homes, resulting in orderly evacuation from the community. As previously discussed, the OCSD has developed an evacuation plan for the area that will direct and reduce traffic on the main evacuation routes.

The Proposed Project includes emergency vehicle staging areas in three locations; two locations will be designed for five fire trucks in each, and one location will be designed for one engine. Access to fire hydrants that are gravity fed directly from the water reservoirs to be constructed on-site will aid firefighting for the surrounding community, because the firefighting equipment will be placed near the wildland areas and Chino Hills State Park.

Conditions adjacent to the Project Site at Chino Hills State Park, where the wildfire threat will exist post-development, are classified as medium to heavy fuel loads due to the dominance of shrubs. Shrub cover, although less likely to burn in the first 20 years following establishment during typical weather conditions, will burn at any age under extreme fire events. Once established, shrub cover will increase in volume and, after approximately 20 years, the hazard will increase with fuel age. The Proposed Project's redundant layers of fire protection systems, including FMZs, provide protection against wildfires spreading from Chino Hills State Park and significantly reduce the Project Site as an ignition source.

Implementation of the Proposed Project will result in lower fire hazard risk than currently exists at the undeveloped Project Site and will provide fire risk reduction benefits for the surrounding communities, including the City. Cumulative impacts associated with the implementation of the Proposed Project along with other future and proposed developments (Cielo Vista and Bridal Hills, LLC) are less than significant. The OCSD evacuation plan takes into account the Proposed Project and the proposed Cielo Vista and Bridal Hills developments.

5.7.10 Unavoidable Adverse Impacts

The development plan with incorporation of the design features and mitigation measures for the Proposed Project will not result in an unavoidable adverse impact to the public or the environment through the reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Mitigation requiring an assessment of combustible/methane gas from operating wells has been included in the Project that reduces this impact to a less than significant level.

The Proposed Project will not result in an unavoidable adverse impact of exposure of people to wildfire or structures to a significant risk or loss, injury, or death involving wildland fires, including where wildland is adjacent to urbanized areas. Although the Proposed Project is within the WUI, the Project includes design features and mitigation measures that reduce the impact to a less than significant level.