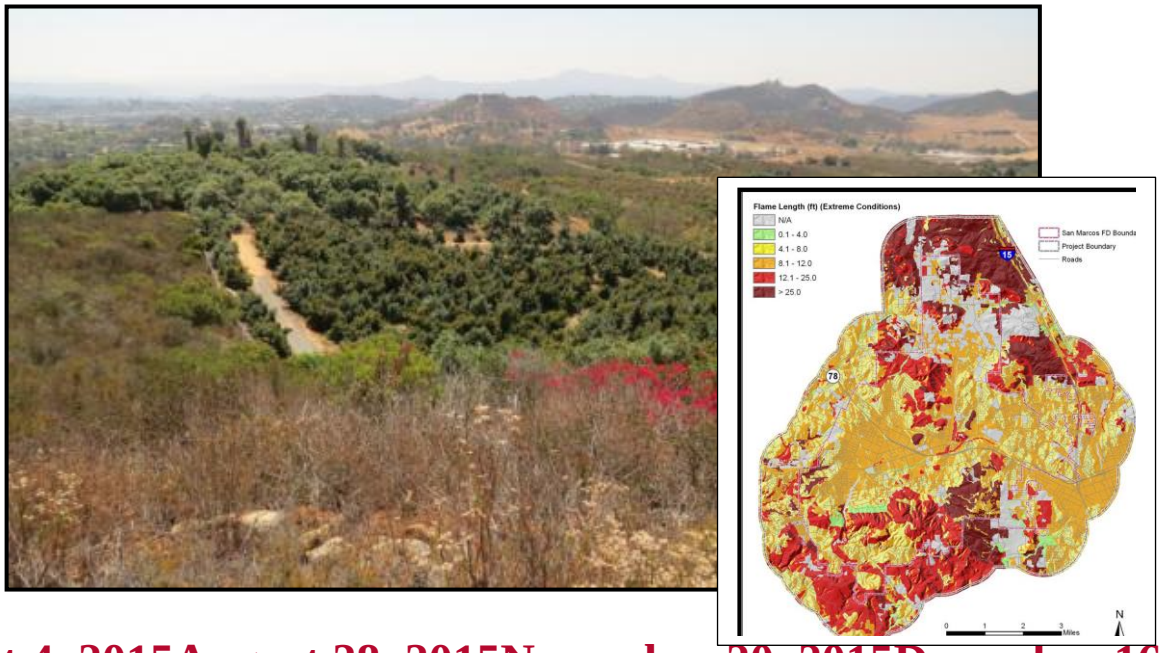
Valiano
FIRE PROTECTION PLAN

TRACT TM 5575 RPL

San Marcos Fire Department and Fire Protection District
County of San Diego



~~August 4, 2015~~~~August 28, 2015~~~~November 20, 2015~~**December 16, 2015**

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EXECUTIVE SUMMARY

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

The Valiano Specific Plan is a single family residential development on approximately 230 acres ~~within an area called Eden Valley, which is part of~~in an unincorporated area of North County San Diego. The majority of the development is within the community of Eden Valley; the southern portion of the development is within the community of Harmony Grove. The Valiano Specific Plan is situated adjacent to the City of San Marcos (population 83,000) to the north and west, and Escondido (population 143,000) to the north and east.

The property is located approximately one mile south of the Highway 78 and the Nordahl exit. From the Nordahl exit head south on Nordahl to Country Club Drive, Country Club Drive to Hill Valley Drive. On Hill Valley Drive (west) you enter the north end of Valiano Specific Plan. Located to the northeast of the property a short distance is a light industrial business park and high density mobile home park; to the west are single family homes; to the east are semi-rural single family homes and small equestrian facilities; and, to the south is a 742 unit residential project under construction known as Harmony Grove Village.

When fully developed, Valiano will provide 326 residential units on varying lot sizes in small groupings of homes within five neighborhoods. Valiano will include single-family detached homes ranging from 1,400 to 4,000 square feet.

The land plan was designed with respect to the existing natural resources and topography where the roadways meander through the natural setting. Valiano will include walking and hiking on multi-purpose trails; equestrian uses on trails and turnouts; open space with passive park settings; and, a community recreation center all within a semi-rural atmosphere and setting.

The San Marcos Fire Department (SMFD) encompasses the entire site within its boundaries~~, and the applicant will work with the SMFD to provide fire service for the project~~, except APN 232-500-24 which is located within the jurisdiction of County Service Area (CSA) No. 107. This parcel within CSA 107 is to be annexed into the SMFPD as a condition of the project.

. This FPP has been submitted to the San Marcos Fire Department (SMFD) and the San Diego County Planning & Development Services (PDS) for review and approval. It provides a potential menu of requirements which would be imposed when each lot within a phase is developed, and recommends standards that should be followed when detailed design is completed for each phase of development and each lot within each phase.

This plan is consistent with SMFD's local fire code and County guidance and referenced material in the 2014 County Consolidated Fire Code, Guidelines for Determining Significance, and applicable State of California requirements. All detailed phase plans shall comply with the requirements of the County Consolidated Fire and Building Codes

The Rincon Del Diablo Municipal Water District will serve the water needs for this residential project. This water supply will meet the requirements of the ~~San Diego~~ County Consolidated Fire Code ~~and the County of San Diego Fire Code~~ for a commercial/business/residential development.

This FPP provides fuel modification requirements to mitigate the exposure of people or structures to a significant risk of loss, injury or death from wildland fires. Fuel modification will be achieved by removing, clearing, or modifying combustible vegetation and other flammable materials from the edge of all structures. Where one hundred fifty (150') feet of fuel modification beyond the edge of each structure cannot be met entirely within the boundary of the project, alternative measures that achieve the same level of protection may be used, including but not limited to one of the following: 1) utilization of adjacent irrigated and managed agricultural crops (orchards, etc.) which provide required fuel modification; 2) fuel modification and hazard abatement required and completed on adjacent and contiguous land to meet fire code requirements; 3) enhanced ignition-resistant construction methods and the use of other non-combustible features (i.e., parking lots, sidewalks, concrete patios, decorative rock, natural boulders on-site, and similar landscape features); 4) fire-barrier walls where structures face off-site native flammable fuels along the northeast, northwest, and southwest boundaries; or 5) perimeter and property boundary sprinkler systems.~~;~~ ~~or, 6) an easement acquired from adjacent landowners for the purpose of maintaining required fuel modification.~~

Ignition-resistant construction for all structures will provide significant protection in this ~~very high~~very high to moderate fire hazard severity zone. Ignition-resistant construction requirements provide critical improvements to structures for them to survive a worst case scenario fire. Another significant requirement will be that the maintenance and repair of the proposed structures will be with the same ignition-resistant materials and construction features. Also, the FPP requires that ignition-resistant construction would apply to mitigate the ignitability of all future proposed structures and projections (i.e., exterior balconies, carports, decks, patio covers, unenclosed roofs and floors).

Lastly, plant species planted in this project will be those listed in APPENDIX 'A' – San Diego County Approved Plant List for High Fire Hazard Areas. Highly flammable, non-fire resistive vegetation will be removed and not re-planted within the area. Three specific non-fire resistive plants that will not be permitted to grow in the Fuel Management Zones even as specimen plants because of their flammability are:

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

Valiano Project
FIRE PROTECTION PLAN
Tract TM 5575 RPL

1.0 INTRODUCTION

This Fire Protection Plan (FPP) has been prepared for the proposed Valiano community. The purpose of the FPP is to evaluate the level of fire hazard that would affect or be caused by the proposed project and the methods proposed to minimize that hazard. The FPP also evaluated the consistency of the proposed project with applicable fire protection regulations. As part of the assessment, the plan has considered the property location; topography; geology; combustible vegetation (fuel types); climatic conditions; and fire history. The plan addresses water supply; access (including secondary~~/emergency~~ access where applicable); structural ignitability and ignition resistive building features; fire protection systems and equipment; impacts to existing emergency services; defensible space; and vegetation management. The plan identifies areas for hazardous fuel reduction treatments and recommends the types and methods of such treatment. The plan recommends measures that property owners will take to reduce the probability of ignition of structures throughout the development addressed by the plan.

This FPP is based upon SMFD's local fire code and County guidance and referenced material in the 2014 County Consolidated Fire Code, Guidelines for Determining Significance, the 2013 ~~State of~~ California Building Code, Chapter 7A, and San Diego County requirements for Ignition-Resistant Building Construction, and the California State Fire Marshal requirements for fire resistive construction.

An initial field visit was conducted on July 17, 2012 to evaluate lot layout, primary and secondary access road locations, hazardous fuels and topography.

1.1 Project Location

The Valiano Specific Plan is a single family residential development on approximately 230 acres within ~~an area called Eden Valley, which is part of~~ an unincorporated area of North County San Diego. The majority of the development is within the community of Eden Valley; the southern portion of the development is within the community of Harmony Grove. The Valiano Specific Plan is situated adjacent to the City of San Marcos (population 83,000) to the north and west, and Escondido (population 143,000) to the north and east.

The property is located approximately one mile south of the Highway 78 and the Nordahl exit. From the Nordahl exit, drive south on Nordahl to Country Club Drive; Country Club Drive to Hill Valley Drive. On Hill Valley Drive (west) you enter the north end of Valiano Specific Plan. Located to the northeast of the property a short distance is a light industrial business park and high density mobile home park, to the west are single family homes, to the east are semi-rural single family homes and small equestrian facilities (See Figure 1–Vicinity Map). Approximately one quarter mile to the south is a 742 unit residential project under construction known as Harmony Grove Village.

1.2 Project Description

When fully developed, Valiano will provide 326 residential units on varying lot sizes in small groupings of homes within five neighborhoods. Valiano will include ~~semi-custom~~single-family detached homes ranging from 1,400 to 4,000 square feet.

The project area is divided into five neighborhoods within two separate sites. Area 1 contains Neighborhoods 1, 2, 3 and 4. Area 2 contains Neighborhood 5. Area 1 is proposed to take access from Country Club Drive/Eden Valley Lane and Mount Whitney Road with an emergency service access from Hill Valley Drive and one off Mount Whitney Road. Area 2 is proposed to take access from two points off Country Club Drive.

The land plan was designed with respect to the existing natural resources and topography where the roadways meander through the natural setting. Valiano will include walking and hiking on multi-purpose trails, equestrian uses on trails and turnouts, open space with passive park settings, a community recreation center, all within a semi-rural atmosphere and setting.

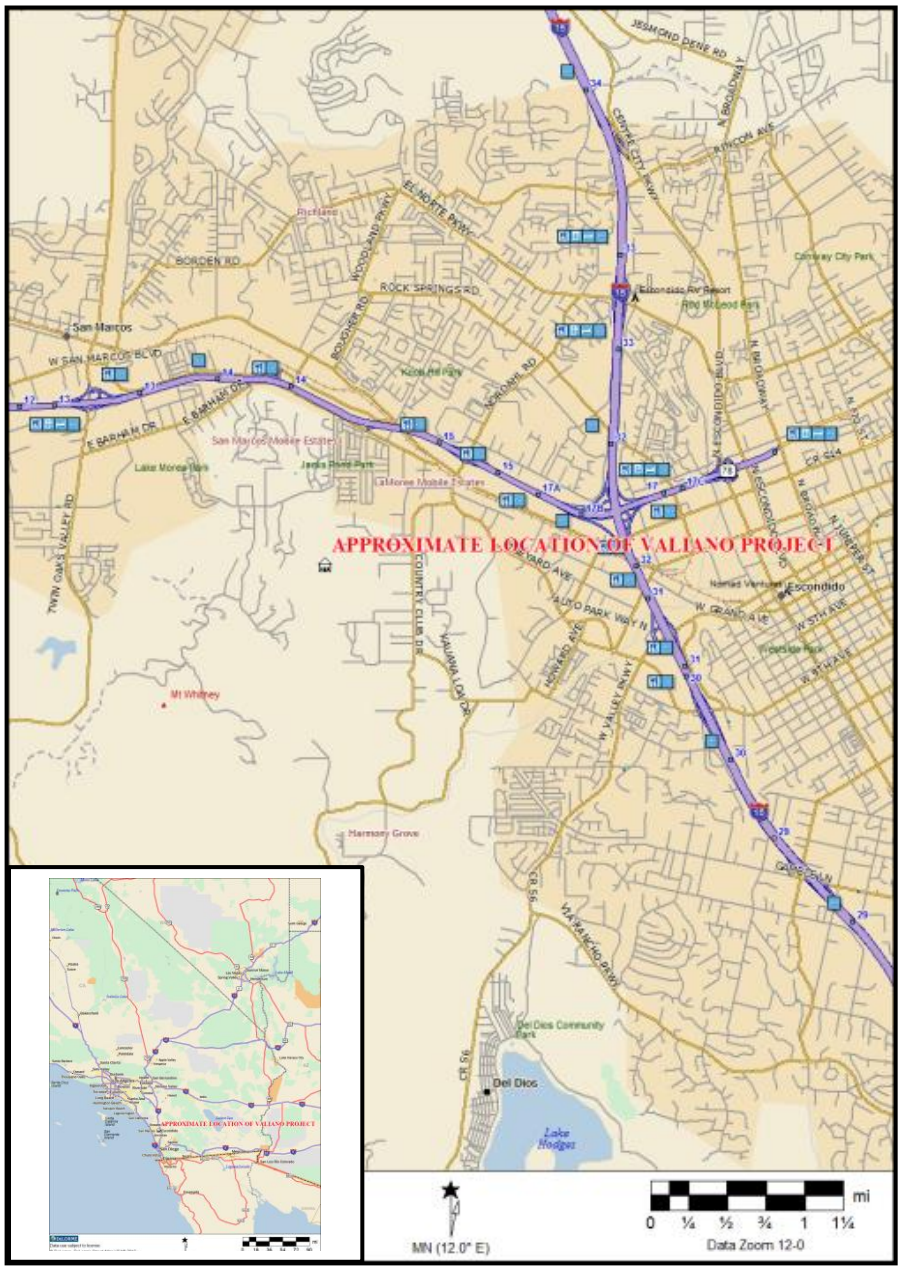


Figure 1 - Vicinity Map

1.3 Community Overview

The San Marcos Fire Department response area is located in North San Diego County, approximately 45 miles north of San Diego, California. The San Marcos Fire Department serves both the City of San Marcos and the San Marcos Fire Protection District. The SMFD response area is bordered on the north by Vista Fire Protection District and ~~San Marcos Fire Department~~Deer Springs Fire Protection District, on the east by the city of Escondido, on the south by ~~unincorporated San Diego County~~County Service Area 107 (CSA 107), and on the west by the cities of Carlsbad and Vista. SMFD covers an area of 21,025 acres (33 square miles) and provides service to 81,554 residents~~. Primary accesses to SMFD response areas would be via I-15 or I-5 and Highway 78.~~

The San Marcos Fire Department provides emergency response to all structural fire, vegetation fire, rescues, medical emergencies and other associated emergencies within the SMFD response area. The SMFD response area is comprised of the 24 square miles within the City of San Marcos and 9 square miles within the San Marcos Fire District for a total area of 33 square miles served. The SMFD has primary responsibility for vegetation fire suppression on all Local Responsibility Areas (LRA) and also provides initial attack suppression services to a small State Responsibility Area located within the District. The SMFD has four fire stations with 22 fire suppression personnel on duty each day~~. The SMFD has received an Insurance Services Office rating of 2.~~.

The community is located entirely within the boundaries of the Rincon del Diablo Municipal Water District. ~~Imported water and sewer service would be provided by the Valley Center Municipal Water District.~~ In order to provide sewer service, the project would construct a new water reclamation facility on-site located on the southeast corner off Country Club Drive. The extension of sewer and water utilities will be required by the project.

Open space easements are proposed to protect slopes and biological resources. The steeper slopes and drainage courses around the planned neighborhoods on-site would be open space (See Figure 2 - Site Plan).

1.4 Environmental Setting

The vicinity of the proposed Valiano community is a near-urban area that would be considered wildland-urban interface (WUI). It is an area of low to highly flammable vegetation. The following sections discuss the surrounding land use, topography, vegetation, climate, and fire history. The Project is located in Sections 18, 19 and 30, T12S, and R2W. The highest point on the property is near the middle, creating runoff to the north, east, and south. Elevations range from approximately 761 feet above mean sea level (amsl) in the northeastern portion of the site to 926 feet amsl in the southwestern portion of the site. Residential development occurs to the north, east, and west, with an approved master plan community to~~rural/agricultural uses to~~ the south.

1.4.1 Topography and Uses

On-site topography is varied ranging from rolling to steeper slopes and nearly level terrain. The elevation ranges from approximately 761 feet above mean sea level (amsl) in the northeastern portion of the site to 926 feet amsl in the southwestern portion of the site. Steeper slopes allow faster combustion of fuel in the upslope direction. As a general rule, then, it can be assumed that the steeper slopes on-site would contribute to faster fire rates of spread. Agriculture has had a profound effect on

the distribution, abundance, and type of native fuels. If agricultural operations in the watershed ceased, the Valiano property would be significantly more xeric and all of the potential wetlands would revert to uplands or non-wetland (from the *Jurisdictional Delineation Report for Eden Hills / IPQ-08 / / HELIX Environmental Planning, May 1, 2012).*

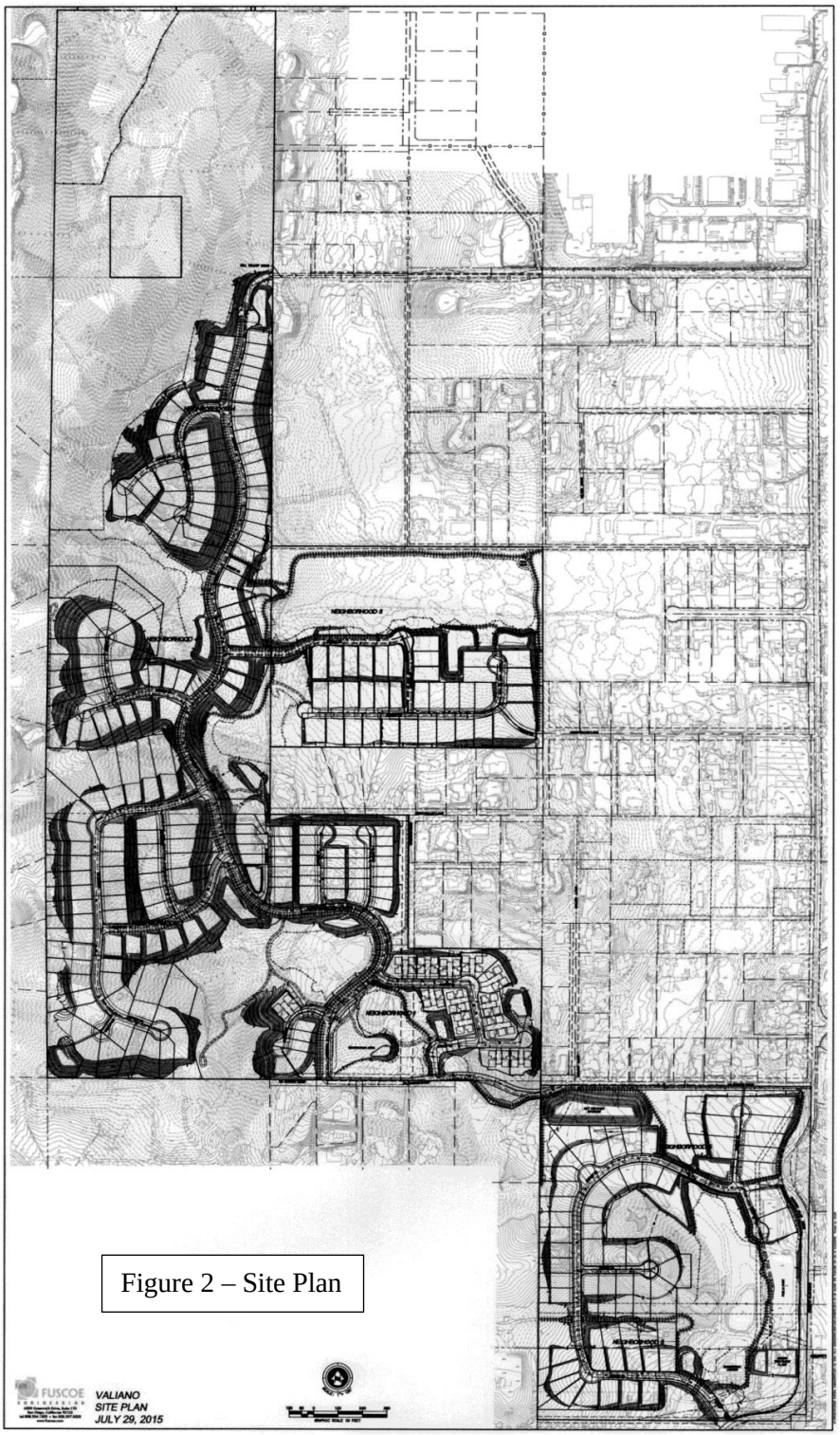


Figure 2 – Site Plan

1.4.2 Vegetation

~~Most of the site is~~A large portion of the site was planted with avocado (*Persea americana*) and limited amounts of citrus. The Cocos Fire of 2014 burned thru several acres of the existing orchards, both on-site and off-site, located primarily on steeper slopes ~~on site~~. Non-native grassland is also abundant on site, with most of the grassland located in the south-central and southeastern parts of the site. Over half of the non-native grassland was at one time planted and irrigated with agricultural grooves. Native vegetation present on site includes southern mixed chaparral, coast live oak woodland, southern riparian forest, herbaceous wetland, Diegan coastal sage scrub, southern willow scrub (including disturbed), southern riparian woodland, and mule fat scrub. Eucalyptus woodland, non-native vegetation, non-native woodland, disturbed wetland, tamarisk scrub, disturbed habitat, and developed areas also occur on site.

Wetlands are dominated by hydrophytic plants, and have wetland hydrology and hydric soils. Wetland plant species on site include willows (*Salix* spp.), watercress (*Nasturtium officinale*), southern cattail (*Typha domingensis*), rush (*Juncus* spp.), saltgrass (*Distichlis spicata*), western goldenrod (*Euthamia occidentalis*), dock (*Rumex* spp.), tamarisk (*Tamarix* sp.), and Mexican fan palm (*Washingtonia robusta*).

1.4.3 Climate

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

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

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

The BehavePlus 5.0.5 Fire Modeling Program (to be discussed later in this plan) utilizes fuel moisture levels in both live and dead vegetation, projected wind, topography and vegetation type to determine fire behavior. Temperature is not an input. Large fires may occur at much lower temperatures than shown above. Relative humidity of less than 5 percent may also occur.
The Burning Index listed above is an indicator of the relative difficulty of fire control and is part of the National Fire Danger Rating Program. The higher the number, the more intense and severe a wildfire would be burning under the weather conditions described.

Generalized climate for the site is regarded as dry, sub-humid mesothermal with warm dry summers and cold moist winters. Mean annual precipitation is between 14 and 18 inches and the mean annual temperature is between 60 and 62 degrees. The frost – free season is 260 to 300 days.

The most critical wind pattern to the project area would be an off-shore wind coming out of the north/northeast, typically referred to as a Santa Ana wind. Such wind conditions are usually associated with strong (> 60-MPH), hot, dry winds with very low (<15%) relative humidity. Santa Ana winds are caused by high-pressure weather systems and can occur any time of the year. However, they generally occur in the late fall (September through November). The mean maximum wind gusts are 41 mph, with gust potential of 100 mph (100 mph Santa Ana wind gusts recorded during the 2007 Rice Fire). This is also when non-irrigated vegetation is at its lowest moisture content. Wind gusts, precipitation and temperature, particularly in a regional context, will significantly impact wildland fire.

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

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

1.4.4 Fire History

San Diego County has a history of large, severe wildfires in which ~~people have died~~lives were lost and extensive burning of property/structures. The large fires of 2003 and 2007 are ~~the most~~ recent examples of catastrophic wildfires which have struck San Diego County (See Figure 3). In addition, there were a series of Santa Ana wind driven fires in May 2014, such as the Bernardo Fire and the Cocos Fire. The Cocos Fire burned 1995 acres and destroyed over 40 structures in the San Marcos, Harmony Grove, Elfin Forest, and Del Dios area, including several acres in the southwestern part of the Valiano Project, including a large portion of avocado orchards and surrounding mature native fuels in the area of the Valiano Project.

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

In summary, any wind or topography driven wildfire burning under a northeast (Santa Ana) wind pattern creates a very high wildland fire hazard, especially for wildland fires starting off-site north and northeast of the project. The primary threat during this scenario would be flying fire embers. In addition, a typical fire day with a southwest wind will create a high wildland wildfire hazard. Fuel treatment and setback will all but eliminate direct fire impingement and radiant heat from around the

perimeter of the structures.

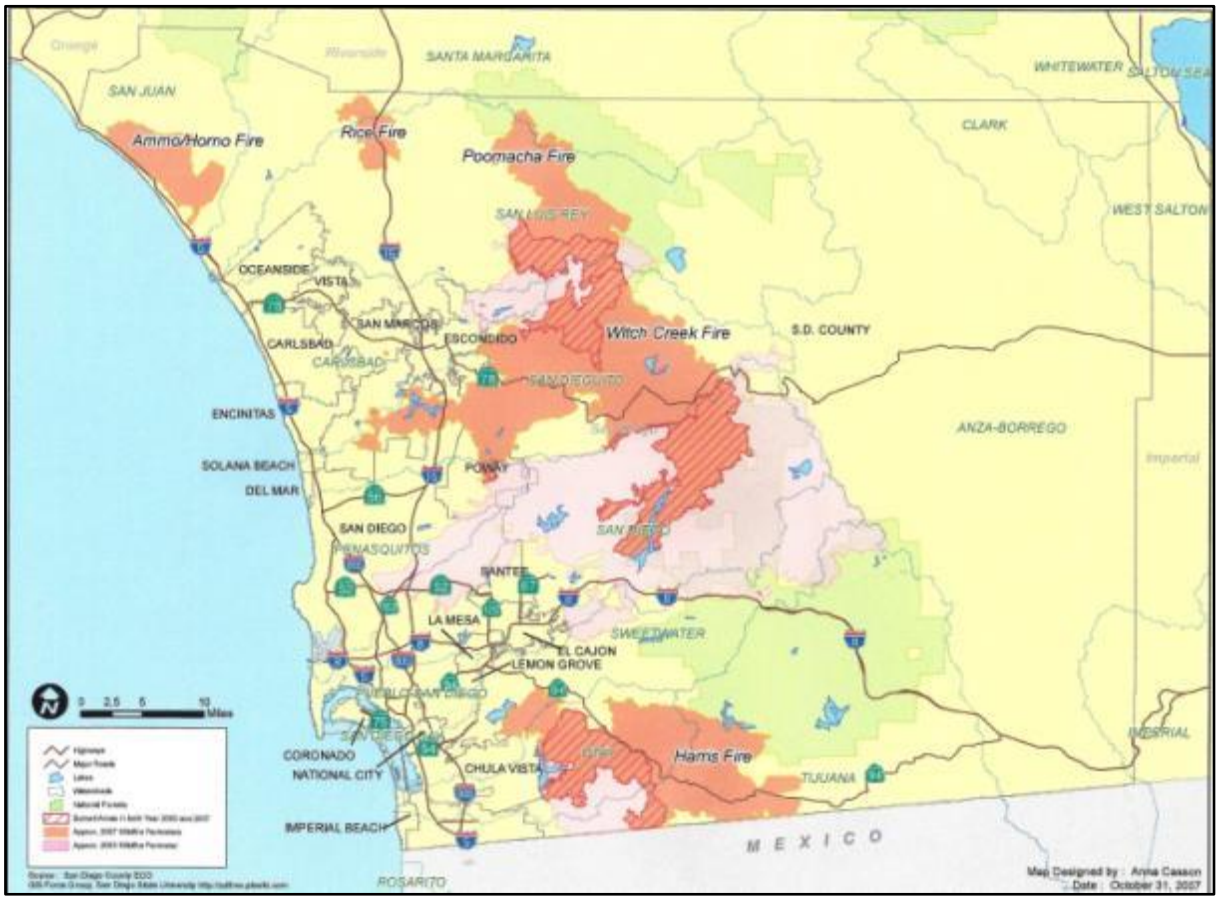


Figure 3 - San Diego County Wildfires of 2003 and 2007

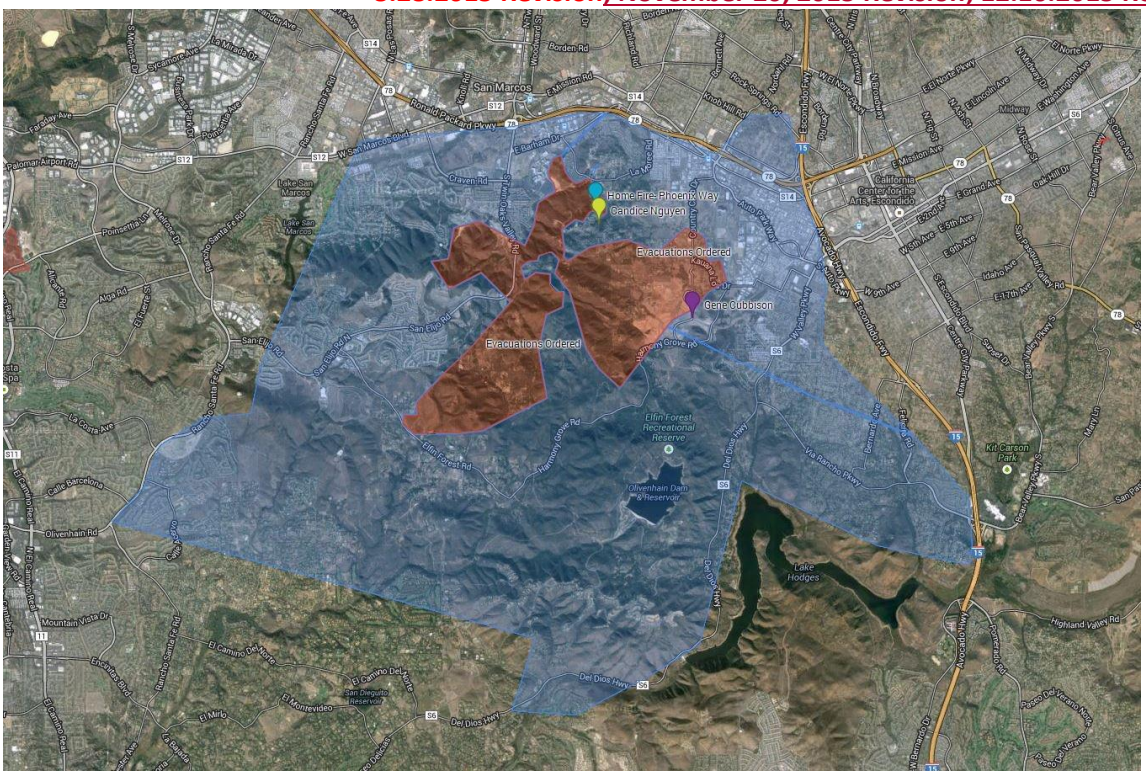
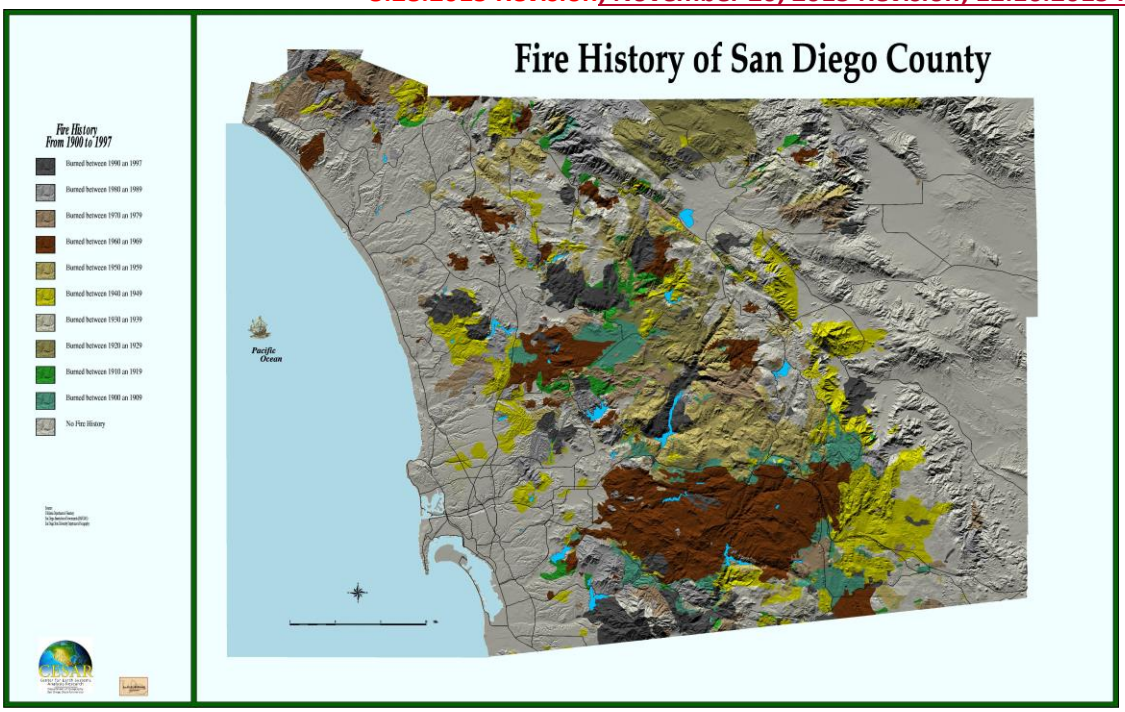


Figure 4 – Aerial View of the 2014 Cocos Fire Burn Area

Fire ecology research has shown that the natural fire regime for the shrub lands and forests in San Diego County is one of frequent small fires and occasional large fires. However, over the last 100 years the natural fire process has changed due to fire suppression policies, the introduction of invasive plant species that burn readily (i.e., eucalyptus and palm trees), and building and living within the wildland-urban interface areas.

The map in Figure ~~4~~ 5 illustrates large wildfires (100+ acres) that have occurred in San Diego County unless there were unusual circumstances. The San Marcos Fire Department did respond to approximately 142 confirmed vegetation fires in San Marcos from 2000 to 2005. This is an average of 24 wildland fire responses in San Marcos per year. There is past history of frequent wildfires in similar vegetation and topography found on- and off-site the proposed Valiano project site. As stated earlier, existing and past agricultural activities in the majority of the project site has profoundly changed the native fuels. ~~This history of agriculture in the area could be a reason and likely cause of no large catastrophic wildfires in the immediate area.~~

Residential development in the Wildland Urban Interface (WUI) is and will be increasing in the vicinity of the Valiano development. ~~As the density of structures and the number of residents in the interface increases, potential ignition sources will multiply and a large wildfire occurrence increases.~~ Efforts in this FPP will be made to mitigate the increased likelihood of human ignition of a wildfire spreading to the surrounding wildland fuels.



http://map.sdsu.edu/fireweb/firehistory_frequency.htm

Figure 5- San Diego County Fire History Map ~~with SMFD Boundary Illustrated~~

1.4.5 Community Fire Defensibility

The Valiano community will be built to SMFD specifications, County Consolidated Fire Code, and ignition-resistant building standards for structures in the wildland urban interface. There are ~~two~~ three primary concerns for structure ignition: 1) radiant heat, ~~and/or~~ 2) convective heat, and, 3~~2~~) burning embers (NFPA). ~~(NFPA 1144 20081, Ventura County Fire Protection District 20112, IBHS 20083, and others).~~ Burning embers have been a focus of building code updates for at least the last decade, and new structures in the WUI built to these codes have proven to be very ignition resistant. Likewise, radiant and convective heat impacts on structures have been minimized through the Chapter 7A exterior fire ratings for roofs, walls, windows and doors. Additionally, provisions for modified fuel areas separating wildland fuels from structures have reduced the number of fuel-related structure losses. As such, most of the primary components of the layered fire protection system provided the Valiano Project are required by city and state codes but are worth listing because they have been proven effective for minimizing structural vulnerability to wildfire and, with the inclusion of required interior sprinklers (required in the 2010 Building/Fire Code update), for extinguishing interior fires, should embers succeed in entering a structure. Even though these measures are now required by the latest Building and Fire Codes, until recently they were used as fire hazard reduction measures for buildings in WUI areas because they were known to reduce structure vulnerability to wildfire. These measures performed so well they were adopted into the code.

The following project features are required for new development in WUI areas and form the basis of the system of protection necessary to minimize structural ignitions as well as providing adequate access by emergency responders:

- Application of Chapter 7A, ignition resistant building requirements
- Ignition resistant exterior walls and doors

- Class A roof assemblies
- Multi- pane glazing with a minimum of one tempered pane, fire-resistance rating of not less than 20 minutes when tested according to NFPA 257
- Ember resistant vents (recommend Brand Guard or similar vents)
- Sprinklers to code for all occupancies
- Modern infrastructure, access roads, and redundant water delivery system

These required measures are anticipated to result in a fire safe community that will be less vulnerable to wildland and structure fires than most of the existing SMFD/SMFPD communities.

1.4.6 Local Preparedness and Firefighting Capability

The San Marcos Fire Department provides emergency response to all structural fire, vegetation fire, rescues, medical emergencies and other associated emergencies for both the City of San Marcos and the San Marcos Fire Protection District. The SMFD response area is comprised of the 24 square miles within the City of San Marcos and 9 square miles within the San Marcos Fire District for a total area of 33 square miles served. The SMFD has primary responsibility for vegetation fire suppression on all Local Responsibility Areas (LRA) and also provides initial attack suppression services to a small State Responsibility Area located within the District. The SMFD has four fire stations with 22 fire suppression personnel on duty each day. The SMFD has received an Insurance Services Office rating of 2.

The SMFD response area is bordered on the north by Vista Fire Protection District and ~~San Marcos Fire Department~~Deer Springs Fire Protection District, on the east by the city of Escondido, on the south by ~~unincorporated San Diego County~~CSA 107, and on the west by the cities of Carlsbad and Vista. SMFD covers an area of 21,025 acres (33 square miles) and provides service to 81,554 residents.

2.0 GUIDELINES FOR THE DETERMINATION OF SIGNIFICANCE

The FPP will evaluate the level of fire hazard that would affect or be caused by the proposed project and the methods proposed to minimize that hazard. The FPP also evaluated the consistency of the proposed project with applicable fire protection regulations. As part of the assessment, the plan has considered the property location, topography, geology, combustible vegetation (fuel types), climatic conditions, and fire history. The plan addresses water supply, access (including secondary~~/emergency~~ access where applicable), solar structural ignitability, protection systems and equipment, impacts to existing emergency services, and vegetation management.

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

2.1 People and Structures Exposure to Fire

This FPP will evaluate this proposed community and its survivability in a worst case scenario of northeast winds with gusts of 60 MPH (Santa Ana winds) and ‘rare event’ 30-MPH southwest winds

during a
wildland wildfire event in the area. It will document fuel modification requirements in combination with the non-combustible construction materials and other fire protections systems for the protection of life and property within this proposed community.

2.2 Fire Access

Access by fire apparatus from the primary fire station to the proposed development would be via Highway 78, CR S14, North Citracado Parkway, and Country Club Drive. Ingress and egress for the proposed development would be via Hill Valley Road, Eden Valley Lane, Mt. Whitney Road, and two points off Country Club Drive. There will also be two more emergency access points at Eden Valley Lane and Mt. Whitney Road. This FPP will evaluate and document these fire access code requirements for fire access. There will be off-site fire access requirements.

2.3 Water Supply

Rincon del Diablo Municipal Water District has agreed to serve the water needs for this residential project. This FPP will analyze and ensure that the water supply meets fire emergency water needs, including water sprinkler system for all facilities on the proposed development.

2.4 Ignition-Resistant Construction and Fire Protection Systems.

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

3.0 ANTICIPATED FIRE BEHAVIOR IN THE VICINITY

As determined by ~~the~~ SMFPD ~~the State Fire Code~~, the fire hazard severity rating for the project ~~zone~~ is ~~zones as a~~ very high to moderate ~~Fire Hazard Severity~~ ~~is zoned as~~ "~~Very High~~Moderate" ~~Fire Severity~~ ~~for~~ ~~the Valiano project site~~ in its current undeveloped condition (See Figure 6 below). ~~some portions, and "Moderate" for the remainder~~ Several scenarios were developed to determine the potential fire behavior of a wildland fire that might occur off site and on-site ~~in the vicinity of~~for the proposed Valiano Project. The calculation of fire behavior parameters were used to determine clearance requirements, allowable distances of vegetation treatment and maintenance requirements. The distances and requirements are delineated as Fuel Modification Zones. See Section 3.4.2 – Fire Behavior Modeling Summary—Modeling compares undeveloped mature native fuels to fuels after development. The objective is to lower fire hazard severity thru fuel modification, required fire codes, and other enhanced mitigations.

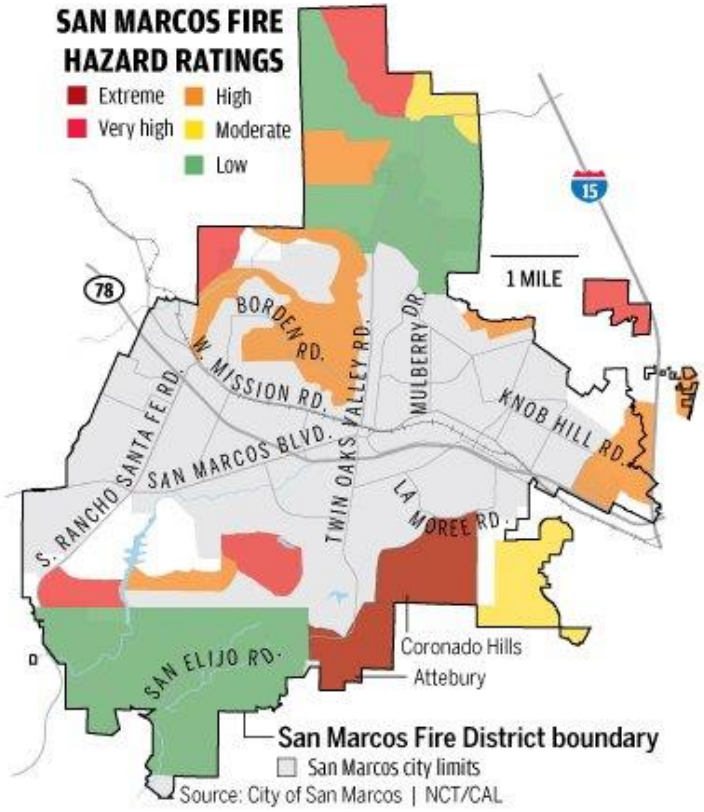


Figure 6 - San Marcos Fire Hazard Ratings

3.1 Fire Behavior Potential

The San Marcos Fire Department Community Wildfire Protection Plan (CWPP) was compiled 2006 and 2007 with maps which graphically display potential crown fire activity, flame length, and rate of spread, given average weather conditions and extreme fire weather conditions that were calculated in FamMap, using average fuel moisture values. The difference between the average and extreme conditions for fire behavior potential results was the wind speed used in calculations. Average fire behavior prediction maps used average wind speeds (13 mph) with average fuel moisture fuel moisture characteristics. The extreme condition maps used wind speeds typical of days dominated by Santa Ana wind conditions (29 mph). As stated in the CWPP and experience by ***FIREWISE* 2000, Inc.** personnel, these calculations seem to be conservative compared to observed fire behavior and Santa Ana wind speeds recorded during wildfire events during with worst case scenario Santa Ana wind events. For example, in a worst case scenario, the Rice Fire of 2007 in the northern part of San Diego County recorded wind gusts of 100 mph. It should be noted that in the County of San Diego's Report Format and Content Requirements (2010) it lists the typical weather on a hot summer day in the Transitional Climate Zone during a Santa Ana wind event as 28 mph with sustained gusts up to 41 mph. In the late hot, dry summer during a worst case Santa Ana wind event, the sustained peak winds average 60 mph. This extreme worst case wind speed (60 mph) will be used for fire behavior modeling in this FPP for the proposed Valiano development. This represents the worst-case fire scenario conditions in 1, 10 and 100 hour fuels, live herbaceous fuel moisture, and live woody fuel moisture.

The maps displaying potential wildfire behavior are best used for pre-planning and not as a stand-alone product for tactical planning. They can also be combined with the WHR and Values at Risk information to generate current and future "areas of concern," which are useful for prioritizing mitigation actions. When this information is used for tactical planning, fire behavior calculations should be done with actual weather observations during the fire event. For greatest accuracy, the most current Energy Release Component (ERC) values should be calculated and distributed during the fire season to be used as a guideline for fire behavior potential.

3.2 On-Site Vegetation

Historic. The *Jurisdictional Delineation Report for Eden Hills* by HELIX (May 1, 2012) states that in an undisturbed environment, the historic native vegetative communities would predominately have been coastal sage scrub, southern coast live oak riparian woodland and mixed southern chaparral.

Existing. Most of the site is planted with avocado (*Persea americana*) and limited amounts of citrus (*Citrus* sp.). These are located primarily on the steep slopes on site. Non-native grassland is also abundant on site, with most of the grassland located in the south-central and southeastern parts of the site. Over one-half of the non-native grassland was at one time planted and irrigated with agricultural grooves. Native vegetation present on site includes southern mixed chaparral, coast live oak woodland, southern riparian forest, herbaceous wetland, Diegan coastal sage scrub, southern willow scrub (including disturbed), southern riparian woodland, and mule fat scrub. Eucalyptus woodland, non-native vegetation, non-native woodland, disturbed wetland, tamarisk scrub, disturbed habitat, and developed areas also occur on site.

Wetlands are dominated by hydrophytic plants, and have wetland hydrology and hydric soils. Wetland plant species on site include willows (*Salix* spp.), watercress (*Nasturtium officinale*), southern cattail (*Typha domingensis*), rush (*Juncus* spp.), saltgrass (*Distichlis spicata*), western goldenrod (*Euthamia occidentalis*), dock (*Rumex* spp.), tamarisk (*Tamarix* sp.), and Mexican fan palm (*Washingtonia robusta*).

Presently, the exposure to natural fuel loads will remain in the planned open space areas within the development. These open space corridors will be fire prone areas with wildfire threat. However, the implementation of prescribed Fuel Management Zones (FMZs) recommended in this FPP would greatly reduce the fire risk post development of the Project.~~create acceptable wildfire protection for all the structures within this development.~~

In summary, any wind or topography driven wildfire burning under a northeastern (Santa Ana) wind pattern from the north, northeast or east creates a moderate to high wildland fire hazard. Also, a "rare event" 30 MPH southwest wind will create a moderate wildland wildfire hazard. However, the vegetation on the eastern and southern exposure of the development has much lighter fuels and adjacent to rural residential parcels and agricultural crops. The worst case, on-site fuel loading scenario is found in the west and southwest exposure. These exposures are from planned fuel loads and steeper slopes. However, with the proposed fuel modification treatments, "*firewise*" landscaping, and the use of ignition resistive building construction standards, the wildfire threat will be mitigated to less than significant levels. As a result, the potential loss of any structure due to direct flame impingement, wind driven embers, or radiant heat around the perimeter of any planned house is extremely low.

Photo 1 - View and Example of Existing Historic Native Vegetation

For fire modeling purposes, the historic and dominant plant communities are best characterized as coastal sage scrub (SCAL18 FM) and southern mixed chaparral (sh7 FM - very heavy load, dry climate shrub). The southern mixed chaparral is estimated to be the dominant plant community and thereby the sh7 –very heavy load, dry climate shrub will be used for fire modeling purposes for existing and historic native fuels on- and off-site.

3.3 Off-Site Vegetation

Historic. The historic vegetation communities listed as the dominant fuel loads would be similar to the historic on-site vegetation. In a wildland fire the native vegetation provides the fuel, which usually includes both living and dead vegetation.

The off-site area surrounding the development site presently consists of residential communities with interspersed agricultural crops (orchards) and interspersed islands of native vegetation.

Northern Boundary. The majority of the area directly north of the proposed development is an irrigated and managed avocado orchard. The area beyond the avocado orchard is residential lots, La Moree Road and a very large mobile home park. The greatest risk from this exposure would be wind-blown fire embers during a worst case scenario of late fire season northeast Santa Ana winds.

Eastern Boundary. Along the eastern boundary lines of the development are existing residential areas with only a few smaller interspersed native vegetation areas. The majority of the fuels have been greatly altered by historic agriculture and is adjacent to an existing residential areas. The altered and managed

landscapes along with required hazard abatement by existing developments along these exposures will significantly decrease the fire hazard and threat to the Valiano development.

Southern Boundary. The exposure of the southern boundary of the project site is significantly reduced by agriculture activities and other fuel modification activities on adjacent properties~~(avocado)~~. ~~An extensive area southwest of the southwest corner of the proposed Valiano project is also avocado orchard.~~ This adds additional fuel modification of native fuels in the area and significantly reduces the wildfire hazard. The greatest exposure for the Project are the native fuels and recently burned avocado ~~orhards~~orchards~~located beyond the orchards~~ and the potential of fire embers transported by above average 30 mph south, west and southwest wind that occur periodically during the dry hot summer season during the late fire season.

Western Boundary. The western boundary is the most significant exposure to the project site. There are large interspersed native fuel areas and residential structures. Ignition of these fuels greatest threat to the development would by flying embers during above average 30 mph winds from the southwest and west. A wildfire approaching the project perimeter along this exposure would be on a downhill slope. The fact is that the worst-case weather conditions do not occur from this direction. Generally, the winds from this direction have higher relative humidity and lower temperatures (as opposed to extreme worst-case San Ana northeast winds).

3.4 Wildland Fire Behavior Assessment

3.4.1 Fuel Modeling

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

The primary driving force in the fire behavior calculations is the dead fuel, less than one-fourth inch in diameter. These are the fine fuels that carry the fire. Fuels larger than ¼ inch contribute to fire intensity, but not necessarily to fire spread. The BehavePlus 5.0.5 fire model describes a wildfire spreading through surface fuels, which are the burnable materials within six (6') feet of the ground and contiguous to the ground.

Fuels larger than three (3") inches in diameter are not included in the calculations (Andrews 1986). Regardless of the limitations expressed, experienced wildland fire managers can use the BehavePlus 5.0.5 modeling system to project the expected fire intensity (expressed as Btu/ft./sec), rate-of-spread (feet/minute) and flame lengths (feet) with a reasonable degree of certainty for use in Fire Protection Planning purposes. Of these three projected fire parameters, flame length is the most critical in determining structure protection requirements.

The BehavePlus 5.0.5 Fire Behavior Prediction and Fuel Modeling System by Patricia L. Andrews and Collin D. Bevins is one of the best systematic methods for predicting wildland fire behavior. The BehavePlus 5.0.5 fire behavior computer modeling system was developed by USDA–Forest Service research scientists at the Intermountain Forest Fire Laboratory, Missoula, Montana, is one of the best systematic methods for predicting wildland fire behavior. The BEHAVE fire behavior computer modeling system was developed by USDA–Forest Service research scientists at the Intermountain

Forest Fire Laboratory, Missoula, Montana, and is utilized by wildland fire experts nationwide. Since the model was designed to predict the spread of a fire, the fire model describes the fire behavior only within the flaming front. The results of the modeling calculations are summarized in Tables 1 through 4 and APPENDIX 'D' shows the results of actual calculations for the fire scenarios.

The ***FIRE*WISE 2000, Inc.** evaluation team used the computer based BehavePlus 5.0.5 Fire Behavior Prediction Model to calculate the fire behavior parameters and projections for the historic and existing hazardous vegetative fuels on- and off-site of the proposed Valiano community. For purposes of evaluating worst-case scenarios it was assumed that if the disturbance to the site were discontinued the site would revert quickly to some form of a very high load, dry climate brush fuel models (Fuel Model sh7).

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

In order to project the fire behavior benefit for the proposed fuel modifications for the project, worst case scenarios were used in the modeling system to project fire behavior variables. Four (4) worst case fire scenarios were calculated based on 'worst case' fire weather assumptions for the project area. Each fire scenario displays the expected Rate of Fire Spread (expressed in feet per minute), Fire Line Intensity (expressed in BTU's/foot/sec, and Flame Length (expressed in feet).

These fire behavior parameters are calculated for the following scenarios:

Scenario 1: A 60-MPH northeast wind (Santa Ana winds) in the SCAL18 Fuel Model historic fuels and then expected fire behavior in fuels that have been modified (treated) for favorable fire behavior variables within this fuel load
Scenario 2: A late fire season, strong, non-typical (30-MPH) southwest winds in Fuel Model sh7 and the expected fire behavior after they have been modified (treated) for favorable fire behavior variables within this this fuel load
Scenario 3: A 60 MPH northeast wind in Fuel Model sh7 and the expected fire behavior after fuel modification (treated) in this fuel load
Scenario 4: A 30-MPH southwest wind in Fuel Model sh7 the expected fire behavior after fuel modification in this fuel load

The fire behavior modeling with BehavePlus 5.0.5 Fire Behavior Modeling System provided computer based fire behavior parameters calculations. These calculated fire behavior parameters are key to recommended fuel modification for the development, but they are also based on project site observations, experience, and fuel levels and typical fire behavior observed during local fire seasons.

Modification and/or elimination of hazardous fuels and the reduction of fuel loading are key to "*firewise"* planning.

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

- 1-Hour Fine Fuel Moisture of 2%
- 10-Hour Fuel Moisture of..... 3%

- 100-Hour Fuel Moisture…….....5%
- Live Herbaceous Fuel Moisture……..30%
- Live Fuel Moisture.....50%

The steepness of slopes representative of the project site will be key to accurate fire behavior parameters calculations. The steeper locations on the project site will not be developed but would create an overall concern and fire threat to the development.

The range of on-site site slopes will change when the final grading is completed for the development. The fire behavior model representative slope after the final graded landscape is projected to be 10 percent or less. Ten percent slope will be used as the representative slope for fire behavior parameter calculations

3.4.2 Fire Behavior Modeling Summary

The following tables summarize the expected wildland fire behavior for the fuel model within and adjacent to the proposed Valiano development under the worst case scenarios. Tables 1 thru 4 display the expected Rate of Fire Spread (expressed in feet per minute), Fireline Intensity (Btu/ft./sec) and Flame length (feet) for four different BehavePlus 5.0.5 – Fire Behavior Prediction and Fuel Modeling System fuel model computer calculations. All of these calculations are based on forecast vegetation conditions of a typical very heavy fuel load, dry climate (Fuel Model sh7). Variables were slope, projected wind speed, and anticipated weather.

Fire Behavior Summary Tables. The two worst-case fire scenario behavior calculations are summarized in tables 1 thru 2, including the reduction in flame length that fuel treatment in Thinning Zone B will provide.

Table 1 – Fire Scenario 1 Summary

Fire Scenario 1–60 MPH Northeast Wind, very heavy fuel load, dry climate (Fuel Model sh7) North and Northeast Exposures		
Prior to Fuel Treatment	VS.	After Fuel Treatment
Rate of Spread: 503.0 ft./min		Rate of Spread: 406.2 ft./min
Fireline Intensity: 23,284 BTU/ft./sec		Fireline Intensity: 5051 BTU/ft./sec
Flame Length: **45.9 Feet**		Flame Length: **22.7 Feet**

Table 2 – Fire Scenario 2 Summary

Fire Scenario 2–30 MPH Southwest Wind, very heavy fuel load, dry climate (Fuel Model sh7) Southwest and West Exposures		
Prior to Fuel Treatment	VS.	After Fuel Treatment
Rate of Spread: 206.7 ft./min		Rate of Spread: 142.7 ft./min
Fireline Intensity: 9567 BTU/ft./sec		Fireline Intensity: 1837 BTU/ft./sec
Flame Length: **30.5 Feet**		Flame Length: **14.3 Feet**

4.0 MITIGATION MEASURES AND DESIGN CONSIDERATIONS

This Fire Protection Plan will provide mitigation measures and design considerations based on the sequencing and approval of construction. For example, the projected plan is to initiate construction by phases. The timing of construction for each phase will be determined at a later time but will be required to comply with the mitigation measures contained in this FPP.

4.1 Adequate Emergency Services

The San Marcos Fire Departrment ~~San Marcos Fire Department (SMFD)~~ will ~~provides~~ provide emergency response to ~~all~~ structural fire, vegetation fire, rescues, medical emergencies and other associated emergencies within the ~~SMFD response~~Valiano Project area~~.~~, except APN 232-500-24 which is located within the jurisdiction of County Service Area (CSA) No. 107~~— the Elfin Forest/Harmony Grove Volunteer Fire Department~~. This parcel within CSA 107 shall be annexed into the SMFPD as a condition of the project.

~~Elfin Forest/Harmony Grove Fire Department, Inc. operates under contract with the County of San Diego to provide fire suppression, fire prevention, and medical aid to the residents of County Service Area 107.~~

As stated earlier, t~~T~~he SMFD has a response area ~~is comprised~~ of the 24 square miles within the City of San Marcos and 9 square miles within the San Marcos Fire Protection District for a total area of 33 square miles served. The SMFD has primary responsibility for vegetation fire suppression on all Local Responsibility Areas (LRA) and also provides initial attack suppression services to a small State Responsibility Area located within the District. The SMFD has four fire stations with 22 fire suppression personnel on duty each day. The SMFD has received an Insurance Services Office rating of 2. The District is funded through special District assessments, County fees, and tax allocations supplemented by state and federal grants.

The ~~San Marcos Fire Department~~SMFD provides service from four fire stations geographically located throughout the City and a regional emergency services training facility.

- Fire Station One is located at 180 West Mission Road which is in the center part of the city and houses one paramedic engine company, one paramedic truck company, one paramedic rescue, and one paramedic ambulance. Station One primarily provides service to the central portion of the city and supports emergency operations anywhere in the city as needed.

- Fire Station Two is located at 1250 South Rancho Santa Fe Road and houses one paramedic engine company and one paramedic ambulance. Station Two primarily provides service to the western portion of the city and supports emergency operations anywhere in the city as needed.

- Fire Station Three is located at 404 Woodland Parkway and houses one paramedic engine company. Station Three primarily provides service to the eastern portion of the city and supports emergency operations anywhere in the city as needed.

- Fire Station Four is located at 204 San Elijo Road and houses one paramedic engine company. Station Four primarily provides service to the southwestern portion of the city, San Elijo area, and supports emergency operations anywhere in the city as needed.

The department operates the following emergency resources on a daily basis:

- 4 – Paramedic assessment engine companies
- 1 – Paramedic assessment truck company
- 4 – Paramedic transport ambulances
- 1 – Shift battalion chief
- 1 – On-call duty chief

Note: The department also cross-staffs three wildland fire engines and a state of California Office of Emergency Services (OES) water tender.

Emergency Response Requirement and Initial Emergency Travel Times for SMFD. The emergency response objective is identified in the Public Facilities Element of the County General Plan. Valiano must demonstrate that fire services can be provided that meets the minimum travel time identified in the Public Facilities Element. Travel time is defined as the estimated time it will take for the nearest station to reach the furthest structure in a proposed development project. Travel time is determined by measuring the most direct reliable route with consideration given to safe operating speeds for heavy fire apparatus. Travel time does not include reflex or reaction time, or on-scene size-up and set-up prior to attacking the fire, all of which are critical precursors of actual firefighting. The emergency travel times for fire stations in the immediate area are based on NFPA 1142, Standard on Water Supplies for Suburban and Rural Fire Fighting; 2012 Edition Table C.11 (b).

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

- The Public Facilities Element of the County General Plan requires that total travel time for deployment and arrival of the first-in engine company for a fire suppression incident should be within 5 minutes. Add one minute for turnout time and one minute for dispatch time.

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

Figure ~~5~~ 7 – Location of San Marcos Fire Department Fire Stations and the Valiano Project Area

The closest and primary Fire Station within SMFD's jurisdiction for the proposed Valiano development is Station #3 located at 404 Woodland Parkway (See APPENDIX 'E' – Project Facility Availability Form 399F). This fire station is fully staffed 24 hours a day, seven days a week. The travel time and distance from this station to the furthest structure, which would be in planned Neighborhood 2, would be approximately 7.0 minutes and 3.7 miles. This travel time is based on an average safe speed of 35 mph and would exceed the County General Plan policy for maximum travel time. If the travel time is based on posted speeds of the roadway (e.g., Country Club Road posted speed is 45 mph), the calculated travel time would be significantly reduced. Strobe sensors on the major intersection street/traffic lights would also decrease the travel time by reducing the acceleration/deceleration constant for emergency apparatus. The approximate travel time would be reduced by approximately 1-1/4 minutes when travel is based on posted speeds and installation of strobe sensors. As stated above, travel time is calculated based on NFPA 1142, using the formula T= 0.65 + XD, where T=time (min) of average one-way trip travel, X=average speed factor (60/average speed), and D=one-way distance.

Recommended Alternatives and Potential Options to Provide Emergency Response Travel Times

The SMFD has established several mutual and automatic aid agreements with surrounding fire departments. For example, the Escondido Fire Department (EFD) has 7 fire stations in the vicinity of the proposed Valiano development. EFD's Fire Station #6, located at 1735 Del Dios Road, is 3.1 miles and approximately 5.9 minutes travel time to the Valiano Project. EFD's Fire Station #1, located at 310 North Quince, is 4.2 miles and approximately 7.50 minutes travel time. The robust capabilities and support that can be provided Station #1 includes 1 paramedic Engine, 1 truck company, 1 brush engine,

1 ambulance, and 12 personnel per each shift. This robust compliment of personnel (including a Battalion Chief) and apparatus would have the capability to respond with four different emergency apparatus, including a truck company. Through existing agreements, EFD would provide secondary service to emergency incidents which occur on the Valiano development.

The calculated times by EFD stations (Figure 8 - Emergency Response Stations) are based on the average safe speed of 35 mph. Again, if travel times were based minimally on posted speed limits and installation of strobe sensors these travel times would be significantly reduced.

EFD is also preparing to implement San Diego's Regional Computer Assisted Dispatch ~~(CAD)~~ Inoperability Program (RCIP CAD to CAD). The EFD is one of the many fire departments/fire protection districts/agencies which have or will implement this Program in the near future. In the most recent communication with ~~initial contact with~~ EFD, the ~~Fire Chief felt that~~ implementation of RCIP ~~would occur by September, 2013. However, in a recent discussion with EFD, the September implementation~~ has been delayed, but with the hope to move forward with this project in the near future. ~~per a conversation between Fire Chief Mike Lowry and Doug Pumphrey, ***FIREWISE* 2000, Inc.**, in July 2013 during a meeting with EFD~~ . This implementation of RCIP would be key for this option for EFD to provide secondary emergency services to the Valiano Project. RCIP ties together all dispatch centers in San Diego County and ensures that the closest emergency fire apparatus or EMS unit will be dispatched to an emergency incident. In the case of the Valiano Project, EFD's Station #6 and Station #1 would be stations that could respond to fire or EMS emergencies, with multiple emergency apparatus, to assist and reinforce emergency responses.

EFD will also become part of the North County CAD system in the future. However, the costs associated with implementation of this system will delay EFD from becoming part of this system in the near future (per discussion with Chief Lowry in July 2013).

The preferred option that could provide and/or meet the required travel time of 5 minutes for the Valiano Project is the ~~future~~ new fire station ~~proposed~~ for the Harmony Grove Village Development, which is in the immediate vicinity of the Valiano Development (the temporary fire station at Harmony Grove became operational in October 2015). The new fire station will be at a location that could provide emergency services for both the Harmony Grove Village Development and the Valiano Development on a fair share basis. The approval of the Valiano development shall be conditioned on a negotiated agreement to use the planned new fire station for the Harmony Grove Village development to provide the required travel time requirement for Valiano development. This station will be operational before completion of these two developments, and would meet the required 5-minute travel time to the Valiano Project for the first-in engine company for an emergency incident.

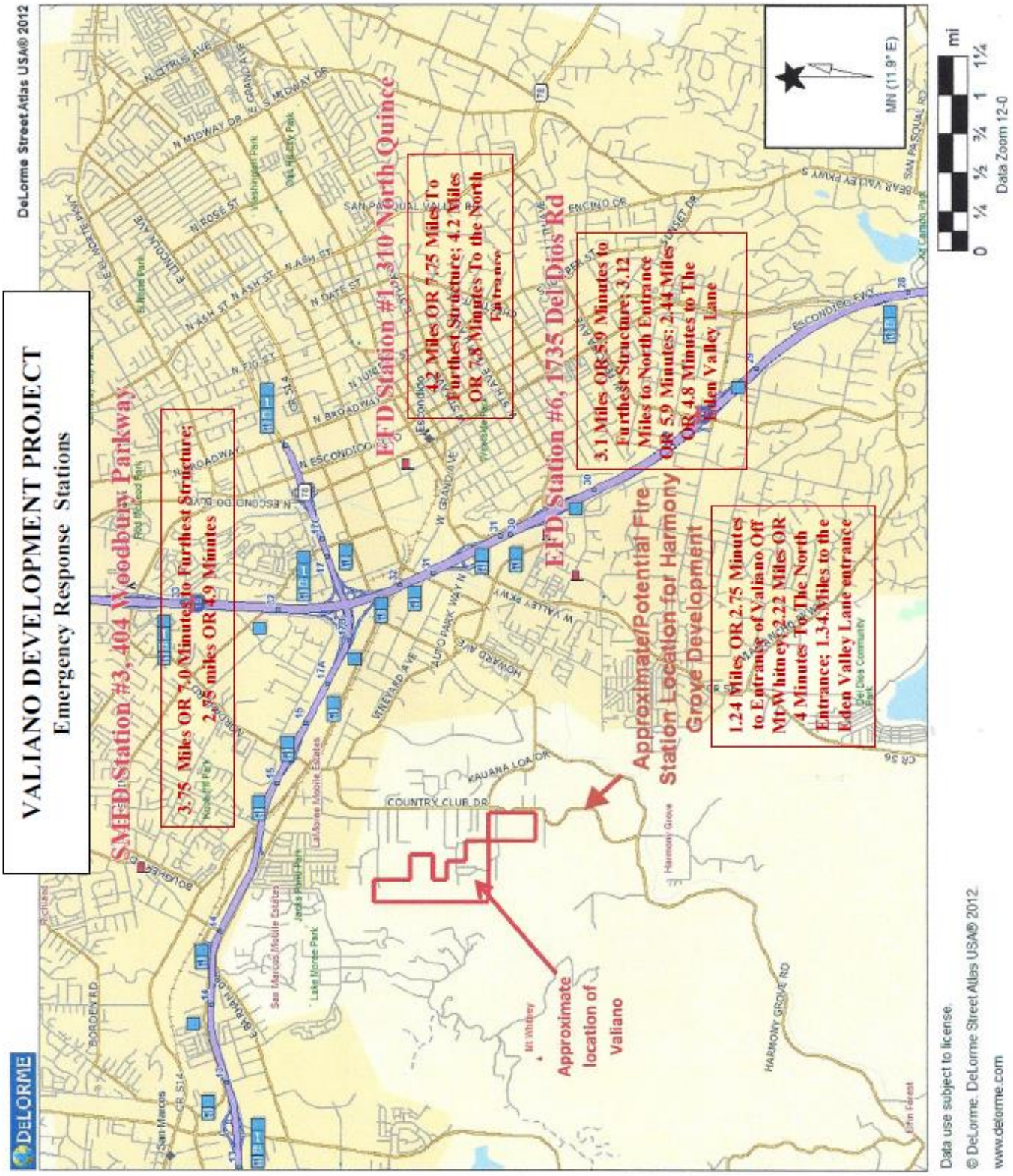


Figure 8 - Emergency Response Stations

Summary

The closest and primary Fire Station with SMFD for the proposed Valiano development is Station #3. The travel time from this station to the furthest structure would be in planned Neighborhood 2, and would exceed the County General Plan policy for maximum travel time. In summary, the following are alternatives and potential options to enhance and mitigate the travel time requirement:

1. Through auto and mutual aid agreements with surrounding fire agencies/departments, additional response to emergency incidents would assist and reinforce emergency responses to the Valiano development. Escondido's Station #6 could respond in approximately 5.9 minutes (based on an average safe speed of 35 mph; travel time based on posted speeds of the roadway (e.g., Country Club Road posted speed is 45 mph) and use/installation of strobe sensors on the major intersection street/traffic lights will significantly decrease travel time.

2. The illustrations in Figures 7 and 8 below show projected coverage by SMFD's Station #3, EFD's Station #6, and the planned Harmony Grove Station. The new fire station at the Harmony Grove Village will be able to respond to the furthest structure in the Valiano Project within five minutes (the temporary fire station at Harmony Grove became operational in October 2015). ~~The use of the new Harmony Grove Station would provide the required emergency services for the Valiano Development.~~ For example, as illustrated in Figure 7, the 5-minute travel time requirement, SMFD's Station #3 would provide coverage to 0 structures (0%), EFD's Station #6 would provide coverage to 128 structures (39%), and the Harmony Grove Station could provide coverage to 326 structures (100%). Figure 8 shows that coverage within 6 minutes travel time, the coverage for SMFD's Station 3 would be 118 structures (36%), Station 6 would cover would be 326 structures (100%), and the Harmony Grove Station would be 326 structures (100%). ~~Additionally, it is estimated that~~ Support that can be provided from EFD Station #1 includes ~~1~~ one paramedic Engine, ~~1~~ one truck company, ~~1~~one brush engine, ~~1~~oneone ambulance, and ~~12~~ twelve personnel per each shift. The EFD ~~is robust compliment of~~ personnel (including a Battalion Chief) and apparatus would have the capability to respond with four different emergency apparatus, including a truck company. Resources for fighting fires can be extended throughout the area, including the resources of the ~~State through~~State through existing agreements. EFD would provide secondary service to be an additional available resource for emergency incidents which may occur on the Valiano development site. The Escondido Fire Department (EFD) has seven ~~7~~fire stations with the ability to respond to ~~in the vicinity of~~ the proposed ~~Valiano~~ development.

3. In the near future when Escondido Fire Department is able to complete the implementation of RCIP, this would further enhance the ability for all surrounding fire agencies/departments to assist and ensure that the closest emergency response will be from the closest resource. At present and in Valiano's case, EFD's Fire Station #6 would, in most cases, be the first unit to respond to an emergency incident.

4. There is a new fire station that will be built as a requirement of the nearby Harmony Grove Village development. Though not yet negotiated, this new station would provide emergency service to this Project within 5 minutes.

As stated earlier, the approval of the Valiano Development shall be conditioned on a cost share basis agreement to provide and/or meet the required travel time with services that the planned new fire station for the Harmony Grove Village development would provide.

It is the discretion of the Director of PDS to determine if emergency services to the project are adequate. The alternatives and potential options listed above would provide enhanced and significant protection of structures and other emergency needs for the development.

The preferred option that could provide and/or meet the required travel time of 5 minutes for the Valiano Project is the future new fire station for the Harmony Grove Village Development, which is in the immediate vicinity of the Valiano Development. The new fire station will be at a location that will provide emergency services for both the Harmony Grove Village development and the Valiano development on a fair share basis. The approval of the Valiano development shall be conditioned on a negotiated agreement to use the planned new fire station for the Harmony Grove Village development to provide the required travel time requirement for Valiano development. This station will be operational before completion of these two developments, and would meet the required 5-minute travel time to the Valiano Project for the first-in engine company for an emergency incident. The SMFD and the County clarified that the new fire station at Harmony Grove Village would meet the 5-minute travel time for emergency services for the Project.

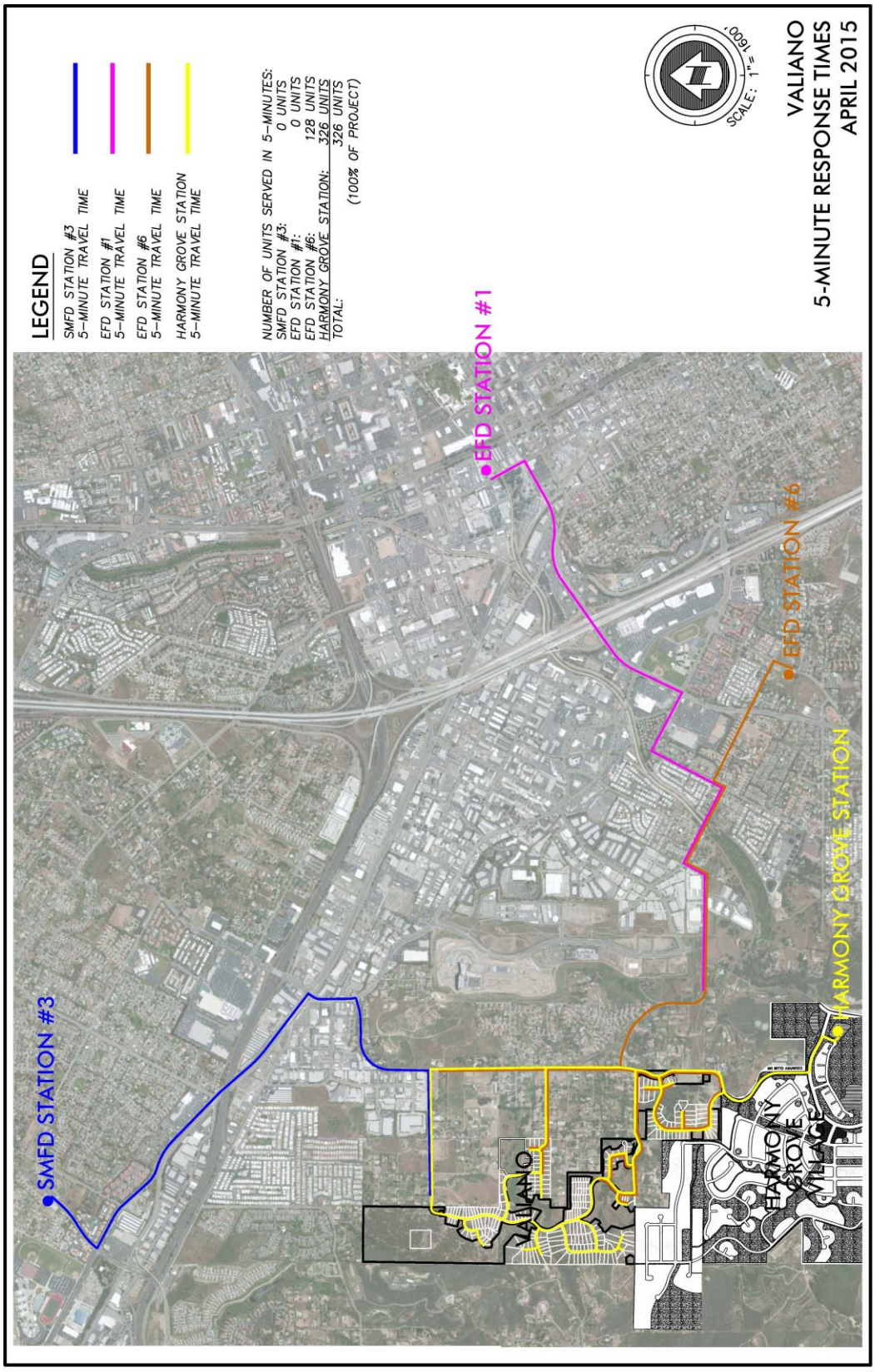


Figure ~~7~~ 9 - 5-Minute Response Times

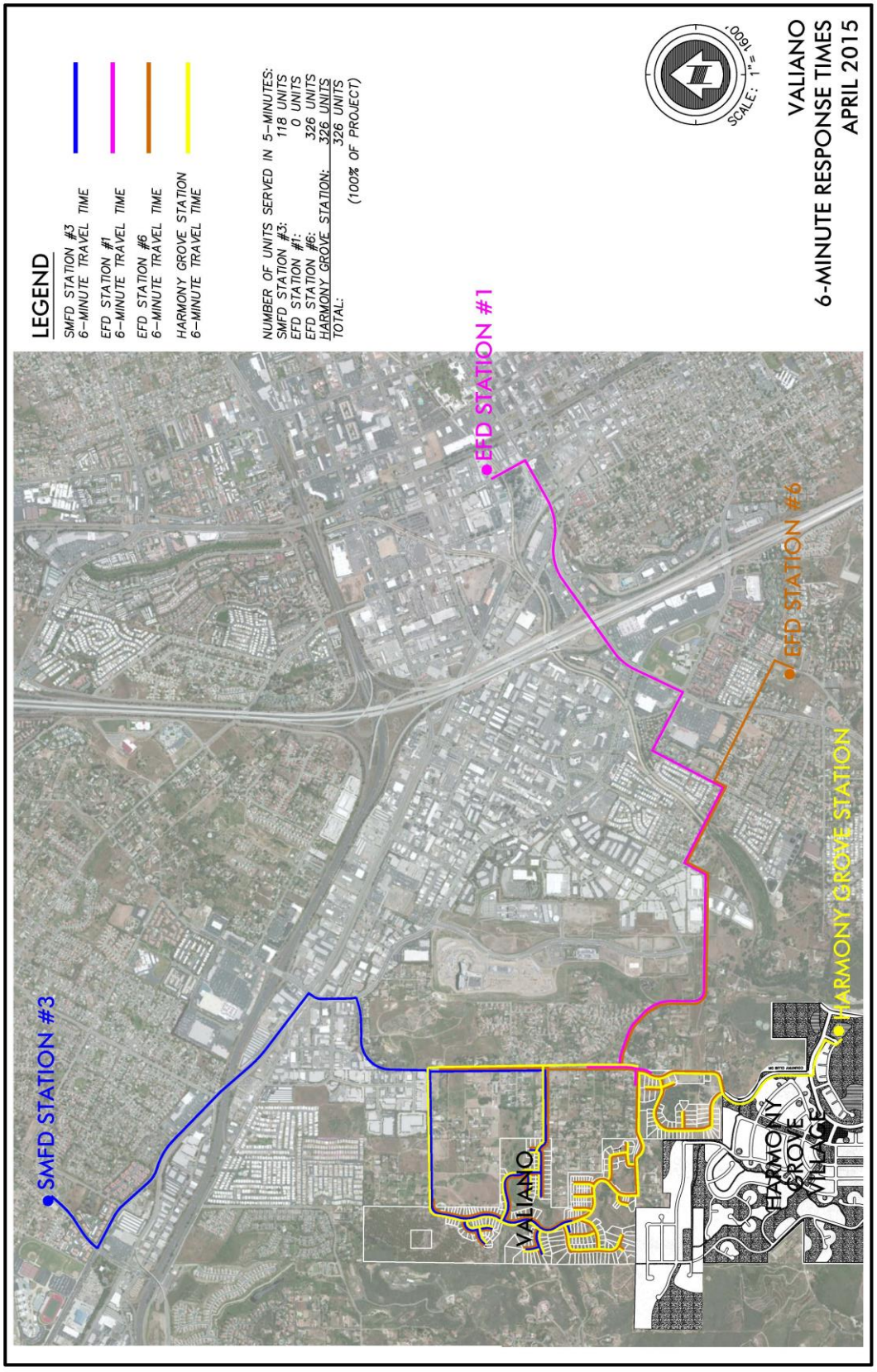


Figure ~~8~~ 10 - 6-Minute Response Times

In addition, this recommendation is also made for the following reasons as developed in this FPP:

1. Ignition-resistant construction requirements will provide critical improvements to all structures for them to survive a worst-case scenario fire storm in this area;

2. As required by fire code, all buildings will be fully protected with automatic fire sprinkler systems;

3. A 150-foot ~~Fuel Modification Zone~~FMZ is required from each structure to the Project property boundary and to the boundary of the RPO buffer fuels; an exception would be a FMZ less than 150 feet~~minimum 100-foot fuel modification zone~~ with identified dwellings and interior islands and Project perimeter fuels~~between internal islands of natural fuels and adjacent residential structures~~with provided there are mitigation measures required, e.g., ignition-resistant enhanced mitigation are required for dwellings (See Section 4.5.3).~~negotiated and approved agreement for the management and maintenance of the Biological Open Space areas.~~

4. The Project's water supply meets the requirements of the ~~San Diego~~ County's Consolidated Fire Code ~~and the Fire Code~~ for a residential development, and fire access to the project will meet the requirements of the County and San Marcos Fire Department.

To conclude, SMFD has existing capability and capacity to respond to emergency incidents on the Project. Though SMFD cannot respond with emergency equipment to the furthest structure in 5 minutes or less with existing station locations, there are nearby fire stations with surrounding fire departments and agencies that will assist SMFD pursuant to mutual aid and auto aid agreements with surrounding departments with fire stations in close proximity to the Project. There is a new station that will be built as a requirement of the nearby Harmony Grove development which will be built at a location that could provide emergency services to the Project within 5 minutes. In addition, there is a minimum of 3 emergency apparatus that can respond within 8 minutes for a reinforced response.

4.2 Fire Apparatus Access

The Project ~~proposes to~~will improve private roads to meet the County's Private Road Standards and SMFD standards for width, surface and support weight~~,~~ with an exception for Hill Valley Drive (See 4.2.1 below). Primary ingress and egress for the proposed development will be via Eden Valley Lane, Mt. Whitney Road, and two from Country Club Drive. There will also be two emergency access points at Hill Valley Drive and one from Mt. Whitney Road. ~~There will also be three emergency access points via Hill Valley Drive, Mt Whitney Road and two points off Country Club Drive.~~

The following specific requirements are outlined, but not all inclusive, for fire apparatus access per the SMFD Fire Code and the County Consolidated Fire Code:

4.2.1 Fire apparatus access roads shall have an unobstructed improved width of not less than 24 feet, unless indicated otherwise or as approved by SMFD, and a turning radius of 40 feet at the bulb of the cul-de-sac for fire apparatus turn around.

Hill Valley Road is an existing road to be improved to a road approximately 24 feet wide, except for one section of this road, approximately 185-foot length, can only be improved to 20 feet wide due to easement access issues. PDS is able to support an exception on Hill Valley Drive as an emergency access for the project. Additional paving and easement beyond the aforementioned width would impact the existing buildings located on the private properties. Additionally, negotiations with the private property owners to obtain the additional easement to meet 40 feet easement width have been unsuccessful. The San Marcos Fire Department has found the reduced improvement and easement width to be acceptable. Therefore, it was determined that the exception would not adversely affect the safety and flow of traffic in this area. Hill Valley Drive will be gated as a secondary roadway for the Project used and managed for ingress and egress during an emergency event. For the short distance where Hill Valley Drive is 20 feet in width vehicles, including fire apparatus, would be able to pass and this would not prevent fire apparatus from gaining accessing to a potential fire within the Project area.

4.2.2 ~~The developer shall prepare and submit a fire access road plan to San Marcos Fire Department that identifies road widths along the entire length of Hill Valley Road. The fire department will review and approve this plan upon satisfactory submittal.~~

4.2.3 Fire apparatus access roadways will be designated "fire access roadways or ~~fire~~ "fire lanes" and not obstructed in any manner, including the parking of vehicles, as required by CA Vehicle Code, section 22500.1.22658(a) and San Marcos Fire Protection District. The SMFD will approve sign locations. Fire lanes will be marked and stenciled "No Parking Fire Lane"in accordance with SMFD and CA. Vehicle Code requirements ~~.~~ Where roadways are 32 feet in width, parking would be permitted, on one side only. When serving one home, the access width will be a minimum of 16 feet. All standards for apparatus access roads and fire lanes will follow the County Consolidated Fire Code and SMFD requirements ~~and~~ be submitted to the San Marcos Fire Marshal for review and approval. Every cul-de-sac shall accommodate all front line and reserve fire apparatus and ladder trucks currently in use by San Marcos Fire Department.

4.2.4 Access points to pockets of islands of open space/flammable vegetation shall be provided and identified for fire and emergency service apparatus.

4.2.5 Emergency vehicle turnarounds shall be provided on 'fire lanes' exceeding 150 feet in length. In this development, turnarounds and turning radius for emergency vehicles must be reviewed and approved by the SMFD and the County's Engineering Department (See APPENDIX 'I' – Site Plan).

4.2.6 Fire apparatus access road shall extend within 150 feet of all portions of a structure and all portions of the exterior walls of the first story of a residence as measured by a route around the exterior of every residence in the development.

4.2.7 All roads shall be provided with an approved driving surface for each phase of development. The first layment of asphalt must be in place and serviceable prior to delivery of combustible construction materials to the site.

4.2.8 Gates proposed for this development shall be in compliance with SMFD guidelines and County Consolidated Fire Code, Section 503.6. All automatic emergency access gate across

a fire apparatus/equipment access roadway or driveway shall be equipped with opticom and a Knox Key switch. Manual gates shall be provided with Knox padlock and Knox box. Any gate or barrier across a fire apparatus access roadway shall have specific plans reviewed and approved by SMFD prior to installation.

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

1. Key operated dual switch device on the gate, which overrides all other controls so the gate can be opened by the Fire Department or law enforcement using a KNOX key. Each fire engine and law enforcement vehicle would be provided with a KNOX key.

2. SOS Siren: This device would active a gate within 2.5 seconds when the "yelp feature" on siren is used, or 4.5 seconds from when a standard siren is deployed. A sign will be placed on gates stating "Emergency vehicles; operate siren to open gate."

3. Click 2 Enter Device: This device opens the gate upon the clicking of a mobile radio in an emergency vehicle or portable radio. The device is activated by the FCC assigned radio frequencies which are assigned to public safety agencies for restricted use only.

4. Gates will be designed to ensure that they will open automatically when vehicles approach, to allow for egress from the development for any vehicle (e.g. magnetic loop).

Other optional features for emergency access recommended:

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

4.2.9 The road and street grade standard for fire apparatus shall not exceed 20 percent, and any roadway over 15 percent shall be a concrete surface with a deep broom finish perpendicular to the direction of travel to enhance traction. The angle of departure and angle of approach of a fire access roadway shall not exceed 12 percent with a cross slope of no more than 5 percent.

4.2.10 Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus of not less than 75,000 pounds, or 32,000 pounds single axle loading, and will be provided with an approved paved surface so as to provide all-weather driving capabilities.

4.2.11 Secondary Access and Dead End Roadways. The development in combination with designated and marked 'fire lanes' will provide adequate secondary access. There will be several ingress and egress points for the proposed development. As stated above, all ~~emergency~~ secondary access roadways must meet private, public and private roadway standards.

The maximum length of a dead-end road, including all dead-end roads accessed from a dead-end road, shall not exceed 800 feet.

4.2.9 Roadway design features (speed bumps, speed humps, speed control dips, traffic calming devices, etc.) which may interfere with emergency apparatus responses shall not be installed on fire access roadways, unless they meet design criteria approved by SMFD.

~~4.2.9~~4.2.10 If street trees are planted; they shall not interfere with fire apparatus and will be required to be maintained at a 13 foot, 6 inch vertical clearance. Any street trees planted shall be spaced so that tree canopies at full maturity do not grow within 20 feet of each other.

4.3 Water Supply

Rincon del Diablo Municipal Water District~~Water supply~~ will meet the water supply requirements of the ~~San Diego~~ County's Consolidated Fire Code for a residential development in a very ~~moderate~~high to moderate fire hazard severity zone. The District maintains water storage in each of its existing water tanks that would be available for a fire in Valiano at the start of construction. The Project anticipates the required fire flow requirement could be served by the planned water system. The new R7 Reservoir will provide access to water storage for portions of the Project. The R7 Reservoir is a planned regional facility that will be implemented by the Project; it will increase fire protection resources in the ID 1 South service area. Following are specific requirements.

4.3.1 All buildings shall be fully protected with automatic fire sprinkler systems. The installation of the sprinkler systems shall meet 2013 NFPA 13D. and 13R Standards, also 2013 CBC and CFC, or current adopted codes in effect at time of plan submittal. ~~.~~ The 2013 California Building Standards Code requires automatic fire sprinkler systems for all new one-and two-family dwellings and townhouse construction statewide. Sprinkler system plans must be submitted to Parsley Consulting, for sprinkler plan review consultant for San Marcos Fire Protection District.

4.3.2 An NFPA 13~~D~~ Fire Sprinkler system shall also be installed in all community recreation buildings; including restroom buildings, maintenance buildings, sewer plant and other structures.

4.3.3 Fire hydrant spacing and capacity shall be installed and approved by the local water district, SMFD specifications, and the County Consolidated Fire Codes ~~and serviceable by all acceptable code standards~~ prior to delivery of combustible construction materials to the site. Spacing of hydrants shall be maximum 300 feet between hydrants that serve multi-family dwellings, restroom or maintenance buildings and maximum 600 feet spacing between hydrants serving single family dwellings.

4.3.4 Each hydrant serving areas with single family dwellings for this development shall be Jones or Clow hydrants and have one 4-inch and two 2-1/2-inch outlets. Each hydrant serving areas with multi-family dwellings shall have hydrants equipped with two, 4 inch ports and one, 2-1/2 inch port. In some instances SMFD may require a fire hydrant to have other combinations of outlets. All fire hydrants will be of bronze construction, including all internal parts except seat.

4.3.5 All fire hydrants serving single family residential areas shall be capable of supplying a minimum of 1,500 gallons per minute fire flow for a 2-hour duration at 20 psi residual pressure. Waterlines for fire control must be capable of supplying this required demand through the hydrants, ~~plus~~ in addition to the largest fire sprinkler demand, ~~plus~~ and ~~any~~ domestic use supplied ~~from that line.~~.

4.3.6 Fire Hydrants serving the Multi-Family Residential area (Condos) located on street 1B and 1C (north of Mt. Whitney Rd) shall meet the following criteria:

~~4.3.5.1~~4.3.6.1 Hydrants shall be equipped with two, 4-inch ports and one, 2-1/2 inch port.

~~4.3.5.2~~4.3.6.2 Spacing of hydrants for condo area shall be every 300 feet. Final location shall be approved by ~~DS~~SMFD.

~~4.3.5.3~~4.3.6.3 Fire flow shall be 1,500 gpm for 2 hours @ 20 psi residual pressure. (SMMC sect. 17.64.140)

~~4.3.5.4~~4.3.6.4 A map showing all hydrant locations shall be provided to fire department.

~~4.3.6~~4.3.7 When an on-site waterline serves more than two hydrants, the line must be looped, providing two hydraulically remote points of connection with the water district lines. The interior loop must have isolation valving, such that not more than two hydrants and/or sprinkler systems are between isolation points. If the on-site fire water system for a building is a private loop, the two points of connection are needed to the public supply and appropriate fire department connections.

~~4.3.7~~4.3.8 Fire hydrants shall be located along 'fire lanes' and all structures and other improvements shall be reached with a maximum hose pull of 150 feet, or as approved by the SMFD.

~~4.3.8~~4.3.9 The SMFD approval shall be required for on-site hydrant spacing and fire ~~service waterline~~flow based on the final building construction location, type and largest building size.

~~**4.3.9** All hydrants shall be located along access roadways and shall not be closer than 50 feet from structures.~~

4.3.10 Fire hydrants shall be located with blue reflective raised pavement markers at approved locations for each hydrant.

4.4 Defensible Space and Vegetation Management

The SMFD Fire Code requires fuel modification zone (FMZ) for 150 feet from the edge of inhabited structures. ~~Fuwl~~ Fuel modification and management is the act of converting and maintaining native and non-native vegetative fuels from a highly flammable and high fire intensity state to a more fire resistant and low fire intensity condition. Fire resistant landscaping has been proven to be very effective treatment for minimizing structure losses due to wildland fire radiant heat.

Creating defensible space involves the clearing of flammable vegetation such as pine and eucalyptus trees, grasses, and brush. Steep slopes and/or the presence of dangerous topography may require the defensible space distances to be increased. If vegetation is properly modified and maintained, a wildfire

can be slowed down, the length of flames shortened, and the amount of heat reduced, all of which contribute to the survivability of a structure.

The following strategy for management of flammable vegetation would provide effective treatment of flammable vegetation for eliminating or minimizing structure loses due to a wildfire event for the proposed Valiano Project:

4.4.1 Implement and maintain a 150-foot FMZ which includes a 50-foot irrigated low volume Zone 1 and a non-irrigated selectively thinned 50-150-foot Zone 2. A FMZ less than 150 feet will include replacing all very combustible native vegetation with ignition-resistant landscaping, ignition-resistant building construction features, and additional and strategically placed fire hydrant locations. Also, a 20-foot Zone 2 criteria shall be applied along roadways.

4.4.2 A long-term interior open space fuel modification treatment plan and fire resistant landscaping criteria to be deployed around all planned structures as described herein.

4.4.3 For the benefit of the proposed community, the fuel modification and maintenance of common areas would be under the control of a homeowners association or other common ownership, established in perpetuity.

4.5 Fuel Modification Zones for This Development

On-site, the perimeter buffer and Fuel Management Zone would consist of a minimum of 50 foot irrigated zone from the edge of all structures in the development. All vegetation would be removed that is not fire resistant and re-planted with irrigated fire-resistant landscaping. This would be defined as Zone 1.

Unless included in Zone 1, the area between 50 to 150 feet from the edge of Zone 1 (50 to 100 feet to interior islands of natural fuels), all dead and dying vegetation shall be removed. Where native- and non-native vegetation exists within this Zone, it may remain provided that the vegetation is modified so that combustible vegetation does not occupy more than 50 percent of the square footage of this area (removal of mature coast live oak trees would be prohibited in Brush Management Zone 2). In this Zone ~~the~~ actively managed and irrigated orchards (mostly avocado) presently located within the proposed development can be integrated into the zone (See EXHIBIT 1 - Fuel Treatment Location Map, for illustration and description of Zones).

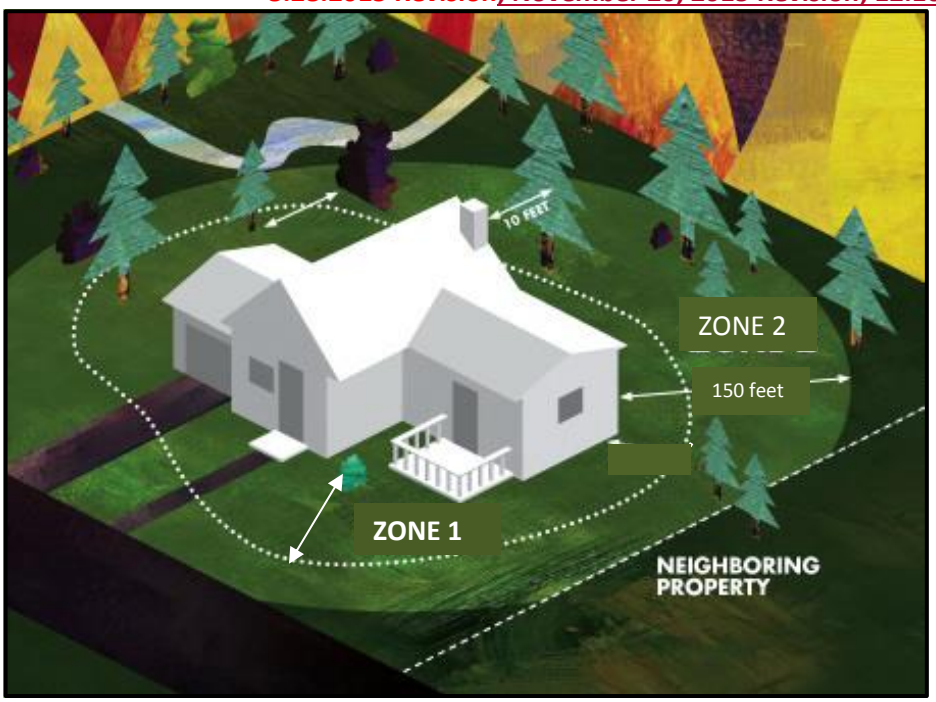


Figure ~~9~~ 11 - Example Fuel Modification Around Residential Structure

As stated above, the FMZ shall be ~~a minimum of a~~ 150-foot area, or as approved by the SMFD, surrounding and extending in all directions from all structures, in which flammable vegetation or other combustible growth is cleared away or modified, except for:

- Single specimens of trees or other vegetation that are well pruned and maintained
- Non-irrigated grass (weed-whipped to 4 inch stubble height) and other vegetation located more than 50 feet from the structure and less than 18 inches in height above the ground
- All ornamental landscaping that is consistent with San Diego County acceptable plants for a defensible space in fire prone areas plant list (See APPENDIX 'A')
- A ~~non-irrigated Zone 2 fuel modification~~FMZ less than 150 feet ~~beyond Zone 1~~ will be mitigated ~~onsite~~ with ~~one of~~ the following: 1) Establish and ensure compliance with SMFD and County fire codes, and enhanced mitigation measures, 2) Enhanced construction mitigation requirements supported by SMFD ~~when fuel modification is over 100 feet but less than 150 feet from RPO buffers and the edge of structures,, 2) fuel modification on adjacent property which provides the additional distance to meet Zone 2 criteria,~~ 3) Use hazard abatement requirement within adjacent/contiguous properties to support hazard abatement for select Valiano lots, 4) Use adjacent managed and irrigated agriculture crops/orchards to support Valiano fuel modification requirements.~~,) where twice theCalculated fire flame length is two times less than the fuel modification zone width, 6) where calculated fireline intensities would not create a significant hazard to ignition-resistant structures~~

The FPP evaluated the level of fire hazard that would affect or be caused by the Proposed Project, and includes proposed mitigation to eliminate or minimize that hazard, including enhanced mitigation requirements. ~~See Exhibit 1 – Fuel Treatment Location Map.~~

Maintenance of fuel treatment zones is highly important. Latham (1989) found that ember ignitions were primarily a function of ground fuels, including litter depth. Also important to ignition of a ground fuel is moisture content, size of the litter material as well as the mineral content of the dead vegetation. To the benefit of the eventual homeowners, ground fires burn with less intensity than an aerial fuel. However, a ground fire may carry to adjacent aerial fuels which is a concern.

4.5.1 Fuel Modification Zone 1 – Irrigated

Zone 1 (*Shown as "blue" on the Fuel Treatment Location Map*) is the area 50 feet beyond from the each of residences. Roads and other "non-structure" improvements are allowed in this zone. Manufactured slopes will be included in this zone when present. In addition, included is a building setback of 15 feet at the rear of the lots. Following are other specific requirements for Zone 1.

4.5.1.1 This Zone shall be irrigated (micro-irrigation acceptable when overhead irrigation may cause erosion). It includes a 15 feet setback at the rear of the backyard and the manufactured slopes within the zone. Landscaping material from the approved plant list (See APPENDIX 'A') required or in an approved landscape plan and approved by the Fire Marshal.

4.5.1.2 All undesirable non-native vegetation (See APPENDIX 'B') shall be removed. Also, no plants on the California Exotic Pest Plant Council's list of "Exotic Pest Plants of Greatest Ecological Concern in California as of October 1999" or more recent version shall be planted.

4.5.1.3 Vegetation may include single or cluster (no more than two to three plants/tree) of trimmed fire resistant native and ornamental plants.

4.5.1.4 Dense plant masses adjacent to the structures and at bases of trees and tree clusters shall not be placed in this zone. Vegetation must be low growing, fire resistive, deep rooted, drought tolerant plantings to maintain erosion control and soil stability, especially on manufactured slopes.

4.5.1.5 Native or ornamental trees can be retained within this fuel modification zone. They shall be pruned to maintain a vertical separation of approximately 10 feet above underlying shrubs or groundcover. Pruning of the shrubs will minimize the impact of the tree pruning.

4.5.1.6 Tree canopies shall not be allowed to overhang the roof of any structure; the outer edge of the canopies of mature trees will be a minimum of 10 feet from the building eaves, and free of all dead or dying parts. All the dead material must be pruned out of all vegetation on a regular basis. Trees and vegetation should not be planted in areas where fire truck access is impaired, should not impair or obstruct the use of fire department ladders.

4.5.1.7 Mulches, chips and other small multi-cuttings (cut to less than two inches in diameter and four inches in length) shall be evenly spread over the area no more than 4 inches, at least 50 feet from structures. This can be used to maintain soil moisture and prevent grass and weed encroachments within the treated areas. Regular maintenance, vegetation pruning, and irrigation to establish drought tolerant, fire-resistive landscaping are very important in this Zone.

4.5.1.8 Construction materials, firewood, and other combustible materials shall not be stored in unenclosed spaces beneath buildings or structures, or on decks or under eaves, canopies or other projections or overhangs. Storage may occur in the defensible space located a minimum of 30 feet from structures and separated from the crown of trees by a minimum of 10 feet, measured horizontally.

4.5.1.9 Ornamental plants will not be planted or allowed to become established within this Zone, unless shown in the Recommended Plant Lists in APPENDIX 'A' (or in a landscape plan approved by the Fire Marshal).

4.5.1.10 Plants in this zone will not include any pyrophytes that are high in oils and resins (particularly undesirable plant species listed in APPENDIX 'B').

4.5.1.11 Ornamental plants will not be planted or allowed to become established within this zone, unless non fire-resistive trees, including conifers, pepper trees, eucalyptus and acacia species, shall be planted and maintained so that the trees drip line at maturity is a minimum of 30 feet from any combustible structure.

4.5.1.12 Non- flammable patios, walkways, rock, driveways and gravel can be used to break up fuel continuity within this zone.

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

4.5.1.14 Trees may be planted and/or maintained as individual specimens, or clustered with 2 to 3 trees in a single cluster; crowns of mature trees shall maintain a minimum horizontal clearance of 20 feet for fire resistant trees on level ground and 30 feet for non-fire resistive trees on slopes; and avoid planting trees directly uphill or one another. New trees planted on slopes and other areas shall be planted according to the County Consolidated Fire Code and SMFD standards. The following table 4907.3.1 from the County Consolidated Fire Code provides guidance for the distance between mature tree canopies by percent slope.

TABLE 4907.3.1
DISTANCE BETWEEN TREE CANOPIES

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

Exception:
Due to the water shortage caused by the current drought and water shortage in southern California, the "Defensible Space" landscaping may not include irrigated green lawn, but may be modified with water-less landscaping or trees, shrubs, groundcovers, and other vegetation capable of sustained growth and reproduction with only natural moisture ~~landscaping design~~. This would include strict adherence to removal of highly flammable and undesirable plant material (See APPENDIX 'B'). It would also include strict adherence and

use of the San Diego County Acceptable Plants list (See APPENDIX 'A'). Other types of landscaping can also be utilized; e.g., decorative rock or other material that can be used in lieu of irrigation. The obligation to address drought and water shortage alternatives for all zones within the FMZ will be required by the Project ~~Operator~~HOA and specified in the development's CC&R's.

4.5.2 Zone 2 Fuel Modification – Non-Irrigated

Zone 2 (*Shown as "Green" on the Fuel Treatment Location Map*) is generally the area described as 50-150 feet beyond Zone 1, except 50 to 100 feet to interior islands of natural fuels, or as per exceptions in Section 4.5 above. Roads and other "non-structure" improvements are allowed in this zone. Zone 2 fuel management shall also be applied to all roadways, including private controlled access roadways. Manufactured slopes will be included in this zone when present.

Zone 2 can either be cleared in conformance with Zone 1 above, or selectively cleared and modified as described below.

4.5.2.1 Zone 2 is generally an area 50 to 150 feet (or more) beyond Zone 1 and where the fuel volume will be removed or thinned by 50 percent, including the removal of all undesirable species. However, removal of mature coast live oak trees would be prohibited in Zone 2.

4.5.2.2 Irrigation will be used only if needed to establish and maintain fire-resistive landscaping.

4.5.2.3 As the native vegetation cover in Zone 2 is reduced, there is a ~~very high~~ probability that the openings will be dominated with non-native weed or grass species. Therefore, all grasses and weeds are to be mowed or weed-whipped to a 4-inch stubble height by June 1st of each year or when the fuels become cured, whichever occurs first.

4.5.2.4 Any vegetative biomass (debris and trimmings) produced by thinning and pruning shall be removed from the site or converted to mulch by chipping and evenly distributed to a maximum depth of four (4) inches a minimum of 30 feet from the edge of structures. This mulching concept helps to maintain soil moisture for the designated plants, reduces the growth of annual grass and minimizes soil erosion.

4.5.2.5 The area on each side of the improved width of highways, private roads, and driveways shall comply with the requirements of a this fuel modification zone. For newly constructed roads, the vegetation shall be modified/reduced by 50 percent for 30 feet on either side of the road.

4.5.2.6 The following native species will be removed in this zone even as specimen plants because of their flammability:

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

4.5.2.7 The exterior walls of the dwelling unit facing the open space that fall within the area that is less than the 150' defensible space requirement shall be two-hour fire rated. Provide a detail

sheet on plan that identifies two-hour rated exterior walls as approved by I.C.C. Evaluation Services.

4.5.2.8 All roofs shall be Class 'A' material. Roof or floor coverings for patio covers or balconies shall also be Class A' rated or non-combustible material.

4.5.2.9 All eaves, overhangs or projections shall be non-combustible material. No exposed wood allowed.

4.5.2.10 All Windows shall be dual pane, with both window panes being tempered glass. This also applies to any skylights being installed.

4.5.2.11 All vents shall be ember-resistant type with baffles; Brandguard, O'Hagan or equivalent. No vents shall be on side of dwelling facing vegetation.

4.5.2.12 Any accessory attachments or structures such as patio covers, decks, partially enclosed exterior patios; sheds play structures, etc.; shall be non-combustible or heavy timber and comply with OSFM and County requirements for fire resistive materials. This shall only apply to that area(s) of the lot that fall below the 150' setback requirement

4.5.2.13 Exterior fire sprinklers will be required for any projection from dwelling that exceeds four feet in width and/or length.

4.5.2.14 All spaces of dwelling shall be sprinklered throughout; including attic and concealed spaces, closets or other areas.

4.5.2.15 Exterior fences attached to dwellings shall be non-combustible material on the side of the dwelling facing Open Space that is within the 150' defensible space.

4.5.2.16 No fire pits will be allowed. Enclosed exterior fireplaces may be allowed on case by case basis.

4.5.2.17 In areas that fall within the 150' defensible space requirement, i) new trees shall be planted a minimum of 30 feet from dwelling, ii) no tree canopy at full maturity shall grow within 20 feet of any wall of dwelling, iii) trees shall be planted in a manner that tree canopies at full maturity shall be spaced a minimum of 30 feet from each other.

4.5.2.18 Any new vegetation planted shall be fire resistive, drought tolerant and meet SD County list of requirements for plants, shrubs and trees.

4.5.3 Fuel Maintenance

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

4.5.3.1 Prune and thin trees around structures to decrease fuel volume, retain succulent growth and to provide adequate clearance between structures and plants, as required in the County Consolidated Fire Code.

4.5.3.2 Trees and vegetation overhanging fire access roads shall be maintained so branches and limbs provide a minimum vertical clearance of 13 feet 6 inches above ground at all times.

4.5.3.3 No pine trees or similar flammable vegetation shall be planted within the project boundaries.

4.5.3.4 Trees shall be planted and appropriate distance from structure, and maintained so that the tree canopy does not grow within 10 feet of roof.

4.5.3.5 Trash and combustible debris shall be cleared from around structures, and removed from roofs and rain gutters.

4.5.3.6 Irrigation systems will be maintained to ensure that they function properly and plantings are watered sufficiently to maintain succulent growth.

4.5.3.7 The responsibility for the fuel modification maintenance defined below shall remain with each lot owner and any subsequent owners, and a Home Owner Association (HOA) for the common areas. In the event a lot is repossessed or sold, the unit or agency holding title to the lot will be responsible for maintenance.

4.6 Ignition Resistant Construction and Fire Protection Systems

~~Ignition-resistant~~Enhanced construction for all structures will provide significant protection in this ~~very high~~ very high to moderate fire hazard severity zone. ~~Ignition-resistant construction~~These requirements will provide critical improvements to all types of structures to survive a worst-~~-~~case scenario fire storm in this area. Another significant requirement will be that the maintenance and repair of these proposed structures will be with the same ignition-resistant materials and construction features. Also, this FPP requires that enhanced ignition-resistant construction will apply to mitigate the ignitability of all future proposed residential structures and projections (exterior balconies, carports, decks, patio covers, unenclosed roofs and floors).

All structures within a wildland-urban interface must be built using the ignition-resistive construction methods (County Building Code Title 9, Division 2, Chapter 1 of the San Diego County Code of Regulatory Ordinances).

The ignition-resistive construction design requirements found in the County Building Code (more restrictive than the California Building Code) will significantly reduce the threat of wildfire for this development, especially the flying embers entering a structure, landing on a receptive fuel and starting a new fire.

Following are specific fire-resistive building features that shall be applied to all structures ~~construction~~ not facing perimeter or interior fuels and that have the required 150-foot FMZ:~~that will be implemented at the site plan or building permit stage:~~

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

4.6.2 All exterior walls on all sides of the buildings shall be constructed with one-hour fire resistant building materials, and protected with two-inch nominal solid blocking between rafters at all roof overhangs and under the exterior wall covering. ~~Wood siding of 3/8 inch plywood or ¾ inch drop siding is permitted, but must have an underlayment of ½ inch fire-rated gypsum sheathing that is tightly butted or taped and mudded, or other ignition-resistive materials approved by the Fire Authority Having Jurisdiction (FAHJ) and/or the Planning Authority Having Jurisdiction (PAHJ).~~

4.6.3 All vents (roof, foundation, combustion-air, etc.) shall resist the intrusion of flames and embers or shall be protected by louvers and 1/8" non-combustible, corrosion-resistant mesh. Turbine attic vents shall be equipped to allow rotation in only one direction (County Building Code 704A.2.1). Attic ventilation openings or ventilation louvers will not be permitted in soffits, in eave overhangs, between rafters at eaves, or in other similar exterior overhanging areas in this wildland/urban interface area. Attic ventilation shall also comply with the requirements of the California Fire Code (it is recommended that vents produced by Vulcan or Brandguard or any simiular vents be used in wildland/urban interface areas).

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

4.6.5 Structure openings: Louvers, ventilators, or openings in walls, roofs, attics, and under floor areas having headroom less than four (4) feet in height which are not fitted with sash or doors shall be covered with wire screen. The screen covering of such openings will be of corrosion-resistant metal or other approved material that offers equivalent protection, and will have a maximum mesh of one-eighth (1/8) inch.

4.6.6 All projections (exterior balconies, stairs, covers, unenclosed roofs and floors, and similar architectural appendages and projections) shall be of non-combustible construction. When such appendages and projections are attached to exterior fire-resistive walls, they shall be constructed to maintain the fire-resistive integrity of the wall. No wood siding will be allowed in this development. Non-combustible cementitious type siding, e.g., hardiplank style siding would be allowed.

4.6.7 All glass or other transparent, translucent or opaque glazing materials, including skylights, shall be constructed of tempered glass or a dual glazed windows with minimally one pane of tempered glass.

4.6.8 Fences and other structures less than 5 feet from a building shall be non-combustible construction, heavy timber or fire retardant pressure treated wood.

4.6.9 All rain gutters, down spouts and gutter hardware shall be constructed from metal or other noncombustible material to prevent wildfire ignition along eave assemblies.

4.6.10 Gutters shall be designed to reduce the accumulation of leaf litter and debris that contribute to roof edge ignition.

4.6.11 Exterior door assemblies will conform to the performance requirements of standard SFM 12-7A-1 or will be of approved non-combustible construction, or solid core wood having stiles and rails not less than 1 3/8 inches thick with interior field panel thickness no less than 1 1/4 inches thick, or will have a fire-resistance rating of not less than 20 minutes when tested according to ASTME 2074.

4.6.12 All windows to be screened shall be provided with mesh metal or similar non-combustible window screens to prevent embers from entering the structure during high wind condition.

4.6.13 Any damaged or replacement window, siding, roof coverings, and specific non-combustible wall shall meet or exceed the original intent of the fire protection discussed in this Plan.

4.6.14 Buildings and structures will be set back a minimum of 30 feet from property lines and open space easements unless the County Zoning Ordinance requires a greater minimum. When the property line abuts a roadway the setback will be measured from the centerline of the roadway.

4.6.15 Fire protection tactical operations for proposed two-story residential structures will be based on structures less than 35 feet in height.

4.6.16 All community recreation buildings, including restroom buildings, maintenance buildings, sewer plant and other structures, shall be constructed with one-hour rated ignition resistant construction and include all walls, doors, roofs, windows, skylights and vents.

4.7 Required Enhanced Mitigation for Dwellings with limited FMZ

4.7.1 Lots with less than 150' FMZ

A. Residential Structure:

1. The exterior walls of a dwelling facing the perimeter boundary and/or off-site fuels shall be two-hour fire rated.
2. All eaves, overhangs or projections shall be non-combustible material. No exposed wood allowed unless it is heavy timber in conformance with code.
3. All windows and glass sliding doors shall be dual pane with both panes tempered glass on the side of the structure facing the fuel area. This also applies to all skylights.
4. All vents shall be ember-resistant type with baffles; Brandguard, O'Hagan or equivalent.
5. Exterior fire sprinklers will be required for any projection from the dwelling facing the fuel area that exceeds four feet in width and/or length.

B. Lot Development Standards:

1. Any accessory attachments or structures such as patio covers, decks, or partially enclosed exterior patios, sheds, play structures, etc. shall be non-combustible or heavy timber and comply with OSFM and County requirements for fire resistive materials. This shall only apply to that area(s) of the lot that are less than 150' from the fuel.
2. No wood burning fire pits or fireplaces shall be allowed.
3. New Trees shall be planted a minimum of 30 feet from the dwelling. No tree canopy at full maturity shall grow within 10 feet of any wall of a dwelling. Trees shall be planted in a

manner that tree canopies at full maturity shall be spaced a minimum of 30 feet from each other.

4. Tree species or any new vegetation planted shall be fire resistive, drought tolerant and meet San Diego County list of requirements for vines, shrubs and trees. Vines can be planted on the exterior side of the proposed fire deflector walls, provided they are irrigated and listed as acceptable in the San Diego County's Acceptable Plant List For Fire Prone Areas (See APPENDIX 'A')

C. Enhanced Fire Protection Prescribed by Code:

1. All roofs shall be Class 'A' material. Roof or floor coverings for patio covers or balconies shall also be Class 'A' rated or non-combustible material.
2. All spaces of the dwelling unit shall be sprinklered throughout.
3. Metal window screens on windows.
4. Exterior fences attached to structures shall have at least 5 feet of non-combustible material to the wall of the structure.

4.7.2 Lots with less than 100-Foot FMZ

A. Lot Development Standards:

1. Construct a 6-foot high ignition-resistant fire deflection wall along the proposed property boundary facing the fuel. Fire deflection walls shall provide a non-combustible 4-foot access gate for fire personnel every 150' linear feet.

4.7.3 Lots with less than 50' FMZ

In addition to all mitigation requirements specified above, dwelling units with reduced defensible space less than 50 feet shall utilize the mitigation measures prescribed in 4.5.3.1 and 4.5.3.2 above:

A. Residential Structure:

1. All openings on structures facing the perimeter fuels shall have 1-hour rated doors with windows - FM or UL rating required.
2. Standard doors will be self -closing on the side of the dwelling facing the fuel area.
3. All spaces of the residential unit including attic and enclosed spaces, closets and other spaces shall be sprinklered.

B. Lot Development Standards:

1. To augment the prescribed 6-foot high ignition-resistant fire deflection wall, a spay system shall be installed on the wall with an UV/IR control sensor (e.g., Firebreak Spray System's Fire Scout X3). The service to the sprinkler system shall be a separate supply from dwelling and landscape systems and shall be controlled by secured metal constructed automatic / manual valves. The sprinkler system shall be maintained by the HOA and inspected annually by fire personnel.

SUMMARY

This analysis concludes that fire protection can be provided for areas around and within the Valiano development where fuel modifications do not meet the San Marcos Fire Department's required 150-foot FMZ (See Figure 1 for location of these Areas). Areas around the perimeter of the development are areas generally where the adjacent properties may not provide hazard abatement on their property up to the planned Valiano development property line. Interior fuels are the RPO Buffers adjacent and contiguous with lots within the development.

The flame length fire behavior parameter is a key indicator in the fire community used to evaluate the severity and challenge to contain and control a wildfire. It is concluded that with prescribed mitigations for each Area in this analysis, there would be very little expectancy of fire impingement and radiant heat concerns to structures adjacent to these Areas in the event of a wildfire ~~approaches~~approaching the boundary of the Valiano development or the ignition of interior fuels in the RPO buffers. The key mitigation proposed to provide this degree of confidence is the construction of a high ignition-resistant fire deflection wall along the areas illustrated in Attachment #1 below. These walls would provide significant mitigation for stopping a wildfire and provide an area from which fire suppression personnel can work.

The greatest threat to structures in this development are fire brands/embers carried by winds to structures rather than fire impingement and radiant heat concern. However, this concern and the other concerns related to perimeter fuels and interior RPO buffer fuels are addressed in the FPP and this analysis. It is concludes that the ignition-resistant construction and proposed mitigations would significantly reduce the risk of ignition of structures from a wildfire event in these areas.

~~4.7~~4.8

4.9 Evacuation Planning

In terms of the Valiano development and the Eden Valley area in general, no adopted applicable regional evacuation plan exists today. However, the key to any effective evacuation planning is the dissemination of early warnings and useful information. All of the regional or community evacuation plans that have been completed in San Diego County are supported through a number of early warning and informational programs. In addition to the information that is available from radio and television stations there are several other significant components available to keep residents informed about wildfire incidents and evacuation procedures. It is critical to the effectiveness of any orderly evacuation for residents and guests to follow the concept to evacuate early and abide by Incident Command officials to leave homes and not return until it is deemed safe by the incident officials.

Emergency communication and implementation of evacuations has greatly improved and become much more efficient in providing evacuation information and notifications for evacuations. The AlertSanDiego and ReadySanDiego programs provide~~s~~ important information and assistance regarding emergency communications and implementation of evacuations.

The San Diego County Sheriff's Office operates a reverse 911 notification system that provides a 15 second recorded message over hard wired or land line type telephone systems relating to evacuation notices. In addition, the Office of Emergency Services operates a program known as "Alert San Diego " that has the capability to send out emergency notifications over both landlines as well as to cell phones. It is up to individual residents to register their cell phones as well as their family member's cell phones with "Alert San Diego" as an added informational tool in the event that some or all of the family members are not at home when an evacuation process is implemented. The registration of cell phones can be done on line at www.ReadySanDiego.com. Evacuation shelters for long term evacuees are typically not pre-identified as fire conditions may nullify a particular site's availability. Once an

evacuation shelter or shelters have been identified by law enforcement officials, the locations will be widely broadcast over local radio and television stations.

The Project is located adjacent to a suburban area that lends itself to multiple ingress and egress access points. The proposed Valiano Project identifies existing and planned roads that provide multi-directional emergency evacuation routes, to the north, west, south and east. However, it should be understood that all routes identified for evacuation and alternate traffic control are subject to actual live conditions during a wildfire and may not always be routes normally used.

Primary ingress and egress for the proposed development will be via Eden Valley Lane and Mt. Whitney Road through to Country Club Drive as well as two new road accesses directly onto Country Club to the south of Mt. Whitney Road for the ~~exclusive~~ use of the southern neighborhood residents.

In addition to the two primary access points within the central project area, there is also a planned emergency access point at the northern end of the project through Hill Valley Drive. These routes provide access to the area's main roadways such as Country Club Drive north and south, Kauana Loa Drive off County Club Drive to the east, ~~the newly improved and recently opened Citriacado to Highway 78 to the east and west~~, and the Project will provide improvements at the Kauana Loa and Auto Park Way and Country Club Drive intersections, which are expected to improve current evacuation from the Project location. Country Club Drive will be improved approaching the Auto Park Way intersection to provide a travel lane in each direction, and a center turn lane, which will provide emergency egress and ingress during an evacuation in an emergency incident. In the Projects TIA, the completion of the Citracado Parkway extension has been included in the Year 2035 analysis of Kauana Loa Drive, as shown in Table 10-3 of the TIA. The Citracado Parkway extension will be built as soon as 2020 if it receives the 2015 Department of Transportation Tiger Grant.

A recent positive effect on traffic during an emergency evacuation is the opening of Harmony Grove Village Parkway. This road now connects from Country Club Drive to Citracado Parkway, ultimately connecting drivers to Valley Parkway and I-15. The road has been constructed to accommodate traffic from Country Club Drive to Harmony Grove Road via one travel lane in each direction with a center turn lane, essentially providing a second eastbound lane in case of emergency. From Harmony Grove Road to Country Club, the road is constructed to accommodate and enhance traffic movement by providing one travel lane in each direction with a 4-foot striped median.

It is also important to note that with any evacuation, delays are inherent in the state of emergency and the safety personnel have taken such delays into account when the evacuation notices are delivered to specific areas and residents within each area~~. The roads will comply with and in accordance with the County of San Diego's Consolidated Fire Code.~~ The Project ~~proposes to~~will improve private roads to meet the County's Private Road Standards. An exception has been approved by SMFD to allow a 20-foot width for approximately 185 feet of ~~this roadway~~Hill Valley Drive versus 24 feet required in the County Consolidated Fire Code. Hill Valley Drive will be gated as a secondary roadway for the Project used and managed for ingress and egress during an emergency event.

Even with available roadways, there are aspects of fire safety and evacuation that require a conscious level of awareness on the part of all area residents and emergency service providers in order to reduce and/or avoid problems with an effective and orderly evacuation of the community and development. The main factor to mitigating potential impediments is through a strong educational program sponsored

by the developer, the homeowner's association and the SMFD with regard to an effective and safe evacuation plan. It is also incumbent on the residents to prepare their own "Ready, Set, Go!" evacuation plans and each individual in the area should become familiar with the best available exit routes for their use in the event of an emergency evacuation. The focus of the "Ready, Set, Go!" program is on awareness and preparedness. It is key that residents attend ~~an~~ educational and training programs sponsored by the Valiano HOA. In addition, it is important the READY! SET! GO! program information be reviewed on a routine basis along with the accompanying maps illustrating the evacuation routes, temporary evacuation points and pre-identified safety zones.

~~A recent positive effect on traffic during an emergency evacuation is the opening of new Harmony Grove Village Parkway. This road now connects from Country Club Drive to Citracado Parkway ultimately connecting drivers to Valley Parkway and I-15. The road has been constructed to accommodate traffic from Country Club Drive to Harmony Grove Road via one travel lane in each direction with a center turn lane, essentially providing a second eastbound lane in case of emergency. From Harmony Grove Road to Country Club, it is constructed to accommodate more traffic by providing one travel lane in each direction, with a 4-foot striped median.~~

The specific needs of animals during evacuation events are understood by emergency responders as a result of experience obtained from prior fire events. This experience has increased the region's ability to mobilize and provide resources needed to evacuate large animals such as horses. In the event of a wildfire, the residents are key for providing evacuation means for their animals, but would be assisted with emergency resources normally available to large animal owners in times of emergency, ~~(~~such as local equestrian groups, the Humane Society animal evacuation shelters, and the County Office of Emergency Services (OES) which staffs the Unified Disaster Council (UDC), a joint powers agreement between all 18 incorporated cities and the County of San Diego. The UDC provides for coordination of plans and programs countywide to ensure protection of life and property.

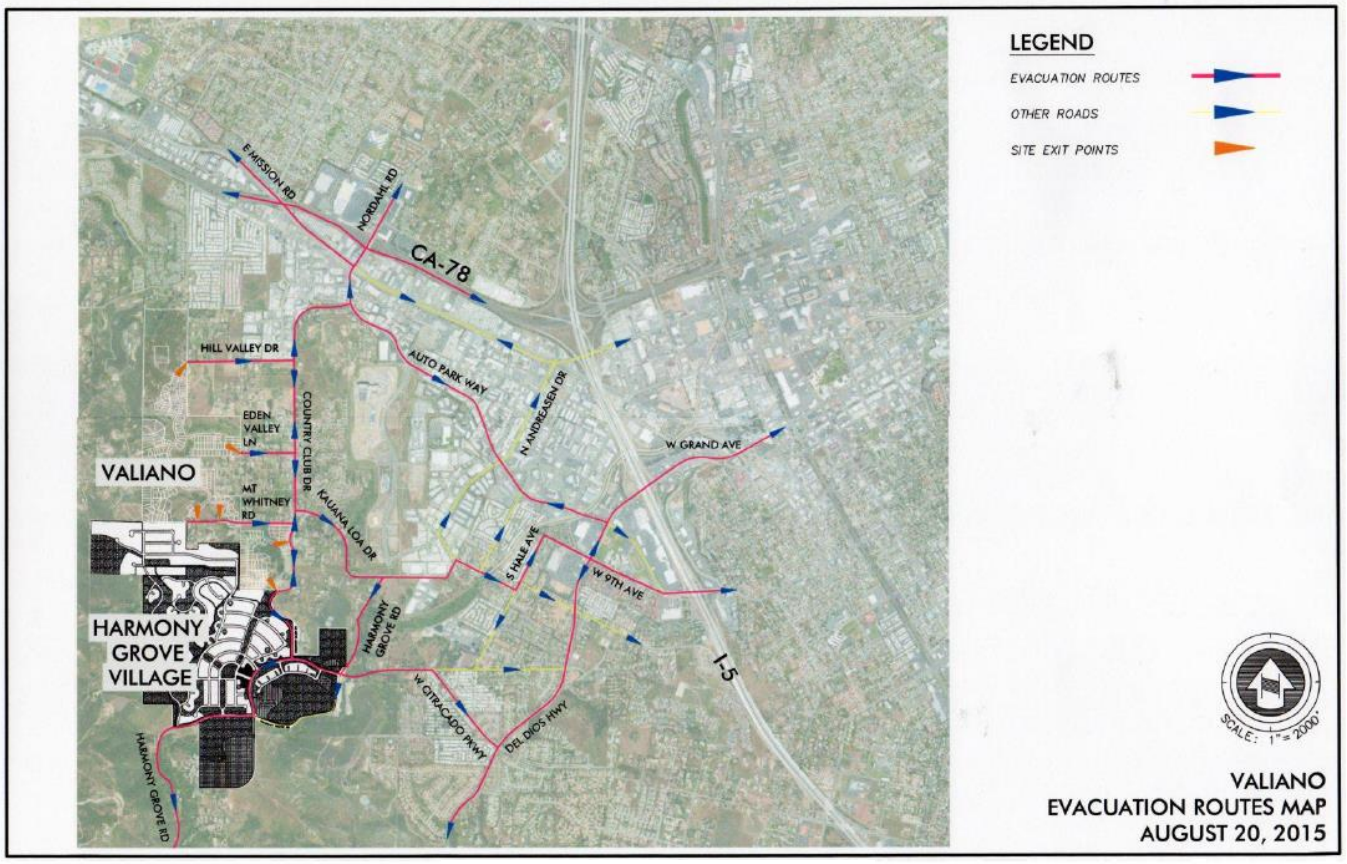


Figure 12 – Evacuation Routes

~~4.8~~4.10 Cumulative Impact Analysis

The combination of San Diego County's weather, fuel, and terrain has often contributed to intense, uncontrolled wildland fires. This was clearly evident in the recent fire sieges of 2003 and 2007. Fire hazards and risks to all types of development will continue to be encountered as they have over the last century. The proposed project site is adjacent to wildlands that have the potential to support wildland fires. At present, the density of development in this portion of San Diego County is relatively low and the local fire protection district has the capacity to provide adequate fire protection. If the recommendations in this plan are implemented, the development will improve the existing wildlands fire conditions and provide additional buffers, fire access, water availability, and evacuation time for all residents to retreat to safe locations.~~this development will not expose people or habitable structures to a significant risk of loss, injury or death~~. Following the recommendations would also decrease the risk of loss for surrounding existing uses. As proposed, the project is not anticipated to contribute to a significant cumulative impact relative to wildland fire risk.

~~4.9~~4.11 Additional Requirements

~~4.9.1~~4.11.1 All parcels within the project area must be annexed into San Marcos's Community Facilities District (CFD) before any building plans will be approved.

~~4.9.2~~4.11.2 The grading plan must be submitted and approved by the SMFD.

~~4.9.3~~4.11.3 Buildings and structures shall be setback a minimum of 30 feet from property lines. When the property line abuts a roadway the setback shall be measured from the centerline of the roadway. **Exception:** When both the San Marcos building official and the SMFD determine that the hazard from a wildland fire is not significant or when the terrain, parcel size or other constraints on the parcel make the required setback infeasible, the building official and SMFD may allow the setback to be less than 30 feet with enhanced mitigation measures.

~~4.9.4~~ **Structure setback from slope**. Where applicable, single-story structures shall be setback a minimum 15 feet horizontally from top of a slope to the farthest projection from a roof. A single story structure shall be less than 12 feet above grade. A two-story structure shall be setback a minimum of 30 feet horizontally from top of slope to the farthest projection from a roof~~Single story structures shall be setback a minimum 15 feet horizontally from top of a slope to the farthest projection from a roof. A single story structure shall be less than 12 feet above grade. A two-story structure shall be setback a minimum of 30 feet horizontally from top of slope to the farthest projection from a roof.~~

~~4.9.5~~4.11.4 Where a bridge or an elevated surface is part of a fire apparatus access road, the bridge shall be constructed and maintained in accordance with AASHTO HB-17. Bridges and elevated surfaces shall be designed for a live load sufficient to carry the imposed loads of fire apparatus. Vehicle load limits and clearance limitations shall be posted at both entrances to bridges when required by the fire code official.

~~4.9.6~~4.11.5 Brush and other flammable vegetation will be removed at least 50 feet around structurers under construction prior to commencing any construction activity (unless other mitigation measures approved by SMFD). ~~During construction at least 50 feet of clearance around the structures will be kept free of all flammable vegetation as an interim fuel modification zone during construction of structures.~~

~~4.9.7~~4.11.6 The on-site actively managed avocado orchard is anticipated to remain a productive orchard into the foreseeable future. The Voliano HOA will have responsibility to maintain orchards to minimum standards outlined in Zone 2 standards. However, if the active management is abandoned and the orchard become dead/decadent and a fire hazard, the SMFD will have authority to remove or have removed the abandoned orchard as a community protection measure.

~~4.9.8~~4.11.7 Any disputes over fuel modification of individual lots or common areas and interpretation of this Fire Protection Plan (FPP) shall be decided by SMFD Fire Chief and Fire Marshal. The Fire Marshal's decision shall be final and binding for the development.

~~4.9.9~~4.11.8 This plan and its recommendations should be incorporated by reference into the final project Supplemental Environmental Impact Report.

4.11.9 Directory signs shall meet all San Marcos Fire Department Guidelines and an illuminated directory shall be placed at each of the three entry points to the development.

~~4.10~~4.12 Fuel Treatment Location Map

A Fuel Treatment Location Map will show the location of all proposed fuel modification treatment locations and other mitigation measures for the known locations of structures within the development. For this FPP, Exhibit 1 in this document (and attached maps) illustrates the recommended fuel modification treatment locations to provide adequate fuel modification requirements for the development.

5.0 CONCLUSIONS

This FPP evaluated the adverse environmental effects that the proposed Valiano development may have from wildland fire and to properly mitigate those impacts to ensure that this development does not unnecessarily expose people or structures to a significant risk of loss, injury or death involving wildland fires. By replacing very combustible native vegetation with ignition-resistant landscaping, ignition-resistant building construction features, fire hydrants, access roads for fire safety personnel to combat any fire potential and fuel modification zones, the development of this community to an area that once contained very combustible native vegetation will add protection to all the residents of the area and provide additional time to complete a safe and orderly evacuation of the area.

5.1 Emergency Response

Travel times from SMFD's fire station #3 to the furthest structure of the project would be approximately 7.0 minutes. This travel time would exceed the County General Plan policy for maximum travel time. As summarized in Section 4.1 and illustrated in Figures 7 and 8 above, SMFD's Station #3 and EFD's Station #6 could provide coverage to 47 percent of residential structures in 5 minutes and in 6 minutes, these two stations can provide 100 percent coverage. Additionally, it is estimated that ESD's Station #1 would be able to respond to the Valiano Project in approximately 7.5 minutes. This station has the capability to support an emergency incident within the Valiano Project with a robust response of four different emergency apparatus, to include a paramedic engine, a truck company, a brush engine, and an ambulance. Thus, the response to an emergency incident by these stations would ensure response by multiple emergency apparatus or equipment from 5 up to 7.5 minutes.

It is the discretion of the Director of PDS to determine if emergency services to the project are adequate. It is recommended that alternatives and potential options outlined in Section 4.1 above would provide significant assistance and reinforcement for emergency incidents within the Valiano development.

5.2 Emergency Road Access

The emergency road access requirements for this project will be adequate and fire code compliant in terms of access and construction standards for roadways. The project, then, will meet the requirements of the county and San Marcos Fire Department with respect to access.

5.3 Enhanced Fire-resistive Building Materials and Construction Measures

The prescribed ignition-resistant construction for all structures will provide significant protection for all existing and newly constructed homes in this ~~very high~~very high to moderate fire hazard zone. The ignition-resistant construction requirements will provide critical improvements to structures for them to survive a worst-case scenario fire storm in this rural area. For structures with a reduced defensive zone, required enhanced ignition-resistant construction measures shall be required.

Another significant requirement will be that the maintenance and repair of these proposed residences will be with the same ignition-resistant materials and construction features. In addition, the FPP requires
that ignition-resistant construction will apply to mitigate the ignitability of all future proposed structures and projections (exterior balconies, carports, decks, patio covers, unenclosed roofs and floors).

5.4 Fuel Management Zones

The requirements of this FPP provide the fuel modification standards to mitigate the exposure of people to a significant risk of loss, injury or death. The setback area and fuel modification criteria prescribed provides a defensible space zone for fire suppression forces and will protect structures from radiant and convective heat.

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

6.0 LIST OF PREPARERS, PERSONS, AND ORGANIZATIONS CONTACTED

6.1 List of Preparers

The principal author and preparer of this Valiano Project Fire Protection Plan is C. Douglas Pumphrey, Senior Wildland Fire Associate of ***FIRE*WISE 2000, Inc**., and certified by David C. Bacon, President of ***FIRE*WISE 2000, Inc.** and a San Diego County PDS certified wildland fire consultant.

6.2 List of Persons Contacted During the Course of this Project

Lance Waite, Integral Communities
Melissa Krause, Integral Communities
Paul Tryon, Integral Communities
Bob Chase, FUSCOE Engineering
Ken Kozlik, Project Manager, FUSCOE Engineering
Jason Simmons, Vice-President of Operations, Consultants Collaborative
Matt Simmons, Vice-President of Field Operations, Consultants Collaborative
Matthew Ernau, Division Chief/Fire Marshal, San Marcos Fire Department
Robert Scott, Division Chief/Fire Marshal, San Marcos Fire Department
Mike Lowry, Chief, Escondido Fire Department

APPENDIX "A"

COUNTY OF SAN DIEGO
ACCEPTABLE PLANTS FOR DEFENSIBLE SPACE
IN FIRE PRONE AREAS

ALL NATIVE PLANTS ON THE FOLLOWING LIST are considered to be drought-tolerant in the particular climate zone they are found. Those that grow best in riparian areas, as indicated by the "R", are generally the least drought-tolerant plants on the list.

SPECIAL NOTE: When planting, it is necessary to water deeply to encourage the plant roots to seek natural moisture in the soil. This watering should continue for at least three years to allow the plants to naturalize. More water should be provided in summer and less (if any) in the winter. These plants should be weaned off the supplemental irrigation and become less dependent on it over the establishment period.

No plant is totally fire resistant. The plants listed were chosen due to their high water content, minimum amount of flammable resins and/or low fuel volume.

Definitions:

Defensible Space: The area around a structure, where material capable of causing fire has been cleared, reduced or changed, to act as a barrier between an advancing fire and the structure.

Drought-Tolerant Plant Materials: Trees, shrubs, groundcovers, and other vegetation capable of sustained growth and reproduction with only natural moisture. Occasional supplemental irrigation is necessary only in extreme drought situations.

Establishment Period: The time it takes for a plant to become drought-resistant. This is usually a period of three years and is the time when supplemental irrigation is necessary.

Native or Naturalizing Plant Species: Plant species native to the region or introduced which, once established, are capable of sustaining growth and reproduction under local climatic conditions without supplemental irrigation.

FIRE*WISE* **2000, Inc. Note:** The plant list which follows was developed using the plants found on the San Diego County approved plant list. This list was then compared to those plants which are suitable for the climatic zone in which the project is located. Only those plants suitable for the project area listed below. The list is therefore shorter than that provided by the county. By providing this custom list, plants that are likely to be killed or seriously damaged by frost or will not perform in hot dry conditions have been eliminated. ***FIRE****WISE* **2000, Inc.** believes that the planting of species suited to the site is essential to fire management goals and is an environmentally sound practice.

San Diego County
Customized Acceptable Plant List
For the Valiano Project

Type	Genus	Species	Common Name
Annual	Lupinus spp.	nanus	Lupine
Groundcover	Achillea	millefolium	Yarrow
Groundcover	Arctostaphylos spp.		Manzanita
Groundcover	Cerastium	tomentosum	Snow-in-Summer
Groundcover	Coprosma	kirkii	Creeping Coprosma
Groundcover	Cotoneaster spp.		Redberry

Groundcover	Drosanthemum	hispidum	Rosea Ice Plant
Groundcover	Dudleya	virens	Island Live-Forever
Groundcover	Eschscholzia	californica	California Poppy
Groundcover	Ferocactus	viridescens	Coast Barrel Cactus
Groundcover	Gaillardia	grandiflora	Blanket Flower
Groundcover	Gazania spp.		Gazania
Groundcover	Helianthemum spp.		Sunrose
Groundcover	Lantana spp.		Lantana
Groundcover	Lasthenia	californica	Common Goldfields
Groundcover	Lasthenia	glabrata	Coastal Goldfields
Groundcover	Lupinus spp.		Lupine
Groundcover	Pyracantha spp.		Firethorn
Groundcover	Rosmarinus	officinalis	Rosemary
Groundcover	Santolina	chamaecyparissus	Lavender Cotton
Groundcover	Trifolium	frageriferum	O'Connor's Legume
Groundcover	Verbena	rigida	Verbena
Groundcover	Viguiera	laciniata	San Diego Sunflower
Groundcover	Vinca	major	Periwinkle
Groundcover	Vinca	minor	Dwarf Periwinkle
Perennial	Coreopsis	grandiflora	Coreopsis
Perennial	Coreopsis	maritima	Sea Dahlia
Perennial	Coreopsis	verticillata	Coreopsis
Perennial	Heuchera	maxima	Island Coral Bells
Perennial	Iris	douglasiana	Douglas Iris
Perennial	Kniphofia	uvaria	Red-Hot Poker
Perennial	Lavandula spp.		Lavender
Perennial	Penstemon spp.		Penstemon
Perennial	Satureja	douglasii	Yerba Buena
Perennial	Sisyrinchium	bellum	Blue-Eyed Grass
Perennial	Sisyrinchium	californicum	Golden-Eyed Grass
Perennial	Solanum	xantii	Purple Nightshade
Perennial	Zauschneria	'Catalina'	Catalina Fuschia
Perennial	Zauschneria	californica	California Fuschia
Perennial	Zauschneria	cana	Hoary California Fuschia
Shrub	Agave	americana	Desert Century Plant
Shrub	Agave	Amorpha fruticosa	False Indigobush
Shrub	Agave	deserti	Shaw's Century Plant
Shrub	Agave	shawii	NCN
Shrub	Agave		Century Plant
Shrub	Arbutus	menziesii	Madrone
Shrub	Arctostaphylos spp.		Manzanita
Shrub	Atriplex	canescens	Hoary Saltbush
Shrub	Atriplex	lentiformis	Quail Saltbush
Shrub	Baccharis	pilularis	Coyote Bush
Shrub	Baccharis	salicifolia	Mule Fat "R"
Shrub	Carissa	macrocarpa	Natal Plum
Shrub	Ceanothus spp.		California Lilac
Shrub	Cistus spp.		Rockrose
Shrub	Cneoridium	dumosum	Bush rue
Shrub	Comarostaphylis	diversifolia	Summer Holly
Shrub	Convolvulus	cneorum	Bush Morning Glory
Shrub	Elaeagnus	pungens	Silverberry
Shrub	Encelia	californica	Coast Sunflower
Shrub	Encelia	farinosa	White Brittlebush

Shrub	Eriobotrya	deflexa	Bronze Loquat
Shrub	Eriophyllum	confertiflorum	Golden Yarrow
Shrub	Escallonia spp.		Escallonia
Shrub	Feijoa	sellowiana	Pineapple Guava
Shrub	Fouqueria	splendens	Ocotillo
Shrub	Fremontodendron	californicum	Flannelbush
Shrub	Fremontodendron	mexicanum	Southern Flannelbush
Shrub	Galvezia	juncea	Baja Bush-Snapdragon
Shrub	Galvezia	speciosa	Island Bush-Snapdragon
Shrub	Garrya	elliptica	Coast Silktassel
Shrub	Garrya	flavescens	Ashy Silktassel
Shrub	Heteromeles	arbutifolia	Toyon
Shrub	Lantana spp.		Lantana
Shrub	Lotus	scoparius	Deerweed
Shrub	Mahonia spp.		Barberry
Shrub	Malacothamnus	clementinus	San Clemente Island Bush
Shrub	Malacothamnus	fasciculatus	Mesa Bushmallow
Shrub	Melaleuca spp.		Melaleuca
Shrub	Mimulus spp.		Monkeyflower
Shrub	Nolina	parryi	Parry's Nolina
Shrub	Photinia spp.		Photinia
Shrub	Pittosporum	rhombifolium	Queensland Pittosporum
Shrub	Pittosporum	tobira 'Wheeleri'	Wheeler's Dwarf
Shrub	Plumbago	auriculata	Cape Plumbago
Shrub	Prunus	caroliniana	Carolina Laurel Cherry
Shrub	Prunus	ilicifolia	Hollyleaf Cherry
Shrub	Prunus	lyonii	Catalina Cherry
Shrub	Puncia	granatum	Pomegranate
Shrub	Pyracantha spp.		Firethorn
Shrub	Rhamus	alaternus	Italian Buckthorn
Shrub	Rhamus	californica	Coffeeberry
Shrub	Rhaphiolepis spp.		Rhaphiolepis
Shrub	Rhus	continus	Smoke Tree
Shrub	Rhus	ovata	Sugarbush
Shrub	Rhus	trilobata	Squawbush
Shrub	Romneya	coulteri	Matilija Poppy
Shrub	Rosa	californica	California Wild Rose
Shrub	Rosa	minutifolia	Baja California Wild Rose
Shrub	Salvia spp.		Sage
Shrub	Sambucus spp.		Elderberry
Shrub	Symphoricarpos	mollis	Creeping Snowberry
Shrub	Syringa	vulgaris	Lilac
Shrub	Teucrium	fruticans	Bush Germander
Shrub	Verbena	lilacina	Lilac Verbena
Shrub	Xylosma	congestum	Shiny Xylosma
Shrub	Yucca	schidigera	Mojave Yucca
Shrub	Yucca	whipplei	Foothill Yucca
Tree	Acer	macrophyllum	Big Leaf Maple
Tree	Acer	saccarum	Sugar Maple
Tree	Acer	saccharinum	Silver Maple
Tree	Alnus	rhombifolia	White Alder "R"
Tree	Arbutus	unedo	Strawberry Tree
Tree	Brahea	edulis	Guadalupe Palm
Tree	Ceratonia	siliqua	Carob

Tree	Cercis	occidentalis	Western Redbud
Tree	Cerdidium	floridum	Blue Palo Verde
Tree	Cornus	nuttallii	Mountain Dogwood
Tree	Cornus	stolonifera	Redtwig Dogwood
Tree	Elaeagnus	angustifolia	Russian Olive
Tree	Eriobotrya	japonica	Loquat
Tree	Gingko	biloba "Fairmount"	Fairmount Maidenhair Tree
Tree	Gleditisia	triacanthos	Honey Locust
Tree	Juglans	californica	California Walnut
Tree	Juglans	hindsii	California Black Walnut
Tree	Lagerstroemia	indica	Crape Myrtle
Tree	Ligustrum	lucidum	Glossy Privet
Tree	Liquidambar	styraciflua	Sweet Gum
Tree	Liriodendron	tulipifera	Tulip Tree
Tree	Melaleuca spp.		Melaleuca
Tree	Nerium	oleander	Oleander
Tree	Parkinsonia	aculeata	Mexican Palo Verde
Tree	Pistacia	chinensis	Chinese Pistache
Tree	Pistacia	vera	Pistachio Nut
Tree	Pittosporum	phillyreoides	Willow Pittosporum
Tree	Platanus	acerifolia	London Plane Tree
Tree	Platanus	racemosa	California Sycamore "R"
Tree	Populus	alba	White Poplar
Tree	Populus	fremontii	Western Cottonwood "R"
Tree	Populus	trichocarpa	Black Cottonwood "R"
Tree	Prunus	caroliniana	Carolina Laurel Cherry
Tree	Prunus	cersifera ‘Newport’	Newport Purple-Leaf Plum
Tree	Prunus	ilicifolia	Hollyleaf Cherry
Tree	Prunus	lyonii	Catalina Cherry
Tree	Prunus	serrulata ‘Kwanzan’	Flowering Cherry
Tree	Prunus	xblireiana	Flowering Plum
Tree	Prunus	yedoensis ‘Akebono’	Akebono Flowering Cherry
Tree	Quercus	agrifolia	Coast Live Oak
Tree	Quercus	engelmannii	Engelmann Oak
Tree	Quercus	suber	Cork Oak
Tree	Rhus	lancea	African Sumac
Tree	Salix spp.		Willow "R"
Tree	Ulmus	parvifolia	Chinese Elm
Tree	Ulmus	pumila	Siberian Elm
Tree	Umbellularia	californica	California Bay Laurel "R"
Vine	Antigonon	leptopus	San Miguel Coral Vine
Vine	Distictis	buccinatoria	Blood-Red Trumpet Vine
Vine	Keckiella	cordifolia	Heart-Leaved Penstemon
Vine	Lonicera	japonica ‘Halliana’	Hall’s Honeysuckle
Vine	Lonicera	subspicata	Chaparral Honeysuckle
Vine	Solanum	jasminoides	Potato Vine

APPENDIX 'B'

UNDESIRABLE PLANT LIST

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

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

APPENDIX 'C'

Standard Fire Behavior Fuel Models: A Comprehensive Set for Use with Rothermel's Surface Fire Spread Model, General Technical Report RMRS-GTR-153. June 2005. Joe H. Scott, Robert E. Burgan, United States Department of Agriculture - Forest Service, Rocky Mountain Research Station, Missoula, Montana

Andrews, Patricia L.; Bevins, Collin D.; Seli, Robert C. 2004. *BehavePlus Fire Modeling System, version 5.0.5: User's Guide. Gen. Tech. Rep. RMRS-GTR-106WWW.* Ogden, UT: Department of Agriculture, Forest Service, Rocky Mountain Research Station. 132p

Andrews, Patricia L. 1986. *BEHAVE: Fire Behavior Prediction and Fuel Modeling System Burn Subsystem, Part 1.* Gen Tech. Rep. INT-194. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station. 130 pages.

ANSI A-300 - *Tree, Shrub, and Other Woody Plant Maintenance - Standard Practices. A series of maintenance and management practices.* Tree Care Industry Association. Londonderry, NH 03053.

County of San Diego, Consolidated Fire Code, 2014

County of San Diego. *Plant List and Acceptable Plants for a Defensible Space in Fire Prone Areas.* Department of Planning and Land Use, December, 1998

County of San Diego. *Guidelines for Determining Significance and Report Format and Content Requirement.* Wildland Fire and Fire Protection Land Use and Environment Group Department of Planning and Land Use, Department of Public Works, December 19, 2008

County of San Diego. *Guidelines for Determining Significance and Report Format and Content Requirements* Wildland Fire and Fire Protection Land Use and Environment Group Department of Planning and Land Use, Department of Public Works, March 19, 2007.

County of San Diego. *Plant List and Acceptable Plants for a Defensible Space in Fire Prone Areas.* Department of Planning and Land Use, December 15, 1998.

County of San Diego. *Standards for Private Roads."* Department of Public Works, Adopted June 30, 1999.

Guidance Document Ignition Resistant Eave Construction. San Diego County's Wildland-Urban Interface - 2008 Code Changes summary document (PDS #664)

How to Predict the Spread and Intensity of Forest and Range Fires. General Technical Report INT-143. June 1983. Richard C. Rothermel. United States Department of Agriculture - Forest Service, Intermountain Station, Ogden, Utah 84401

Latham, D. J. and J. A. Schleiter. (1989) *Ignition Probabilities of Wildland Fuels Based on Simulated Lightning Discharges*. USDA Forest Service General Technical Report INT-411, Ogden, UT. (6,497 KB; 20 pages)

National Fire Protection Association - *NFPA 1144 Standard for Reducing Structure Ignition Hazards from Wildland Fire* (2013 Edition). 30 pages.

National Fire Protection Association - *NFPA 1142 Standard on Water Supplies for Suburban and Rural Fire Fighting,* 2012 Edition.

San Marcos Fire Department. *Wildland Urban Interface, Community Wild Conceptual Fire Protection Plan. December, 2007*

Scott, Joe H.; Burgan, Robert E. 2005. *Standard fire behavior fuel models: a comprehensive set for use with Rothermel's surface fire spread model*. Gen. Tech. Rep. RMRS-GTR-153. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 72 pages.

Western Region Climate Center. *Historic Climate Data from Remote Automated Weather Stations.* RAWS USA Climate Archive. Reno, NV. Data for all Remote Automated Weather Stations is available at: http://www.raws.dri.edu/index.html.

APPENDIX 'D'

BEHAVEPLUS VERSION 5.0.5
FIRE BEHAVIOR CALCULATIONS

BehavePlus 5.0.5 (Build 307)

VALIANO_sh7_NE60MPH
Wed, Feb 13, 2013 at 08:18:53

Input Worksheet

Inputs: SURFACE

Input Variables	Units	Input Value(s)
Fuel/Vegetation, Surface/Understory		
Fuel Model		sh7
Fuel Moisture		
1-h Moisture	%	2
10-h Moisture	%	3
100-h Moisture	%	5
Live Herbaceous Moisture	%	30
Live Woody Moisture	%	50
Weather		
Midflame Wind Speed	mi/h	24
Direction of Wind Vector (from upslope)	deg	45
Terrain		
Slope Steepness	%	40
Notes		

Run Option Notes

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

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

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

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

Direction of the wind vector is the direction the wind is pushing the fire [SURFACE].

Results

Output Variable	Value	Units
Surface Rate of Spread (maximum)	503.0	ft/min
Heat per Unit Area	2778	Btu/ft2
Fireline Intensity	23284	Btu/ft/s
Flame Length	45.9	ft
Max Eff Wind Exceeded?	No	

BehavePlus 5.0.5 (Build 307)

VALIANO_sh7_SW30MPH

Wed, Feb 13, 2013 at 08:29:18

Input Worksheet

Inputs: SURFACE

Input Variables	Units	Input Value(s)
Fuel/Vegetation, Surface/Understory		
Fuel Model		sh7
Fuel Moisture		
1-h Moisture	%	2
10-h Moisture	%	3
100-h Moisture	%	5
Live Herbaceous Moisture	%	30
Live Woody Moisture	%	50
Weather		
Midflame Wind Speed	mi/h	12
Direction of Wind Vector (from upslope)	deg	225
Terrain		
Slope Steepness	%	40
Notes		

Run Option Notes

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

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

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

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

Direction of the wind vector is the direction the wind is pushing the fire [SURFACE].

Results

Output Variable	Value	Units
Surface Rate of Spread (maximum)	206.7	ft/min
Heat per Unit Area	2778	Btu/ft2
Fireline Intensity	9567	Btu/ft/s
Flame Length	30.5	Ft
Max Eff Wind Exceeded?	No	

BehavePlus 5.0.5 (Build 307)

VALIANO_gs2FM(60%)&9FM(40%)_NE60MPH
Wed, Feb 13, 2013 at 08:47:34

Input Worksheet

Inputs: SURFACE

Input Variables	Units	Input Value(s)
Fuel/Vegetation, Surface/Understory		
First Fuel Model		gs2
Second Fuel Model		9
First Fuel Model Coverage	%	60
Fuel Moisture		
1-h Moisture	%	2
10-h Moisture	%	3
100-h Moisture	%	5
Live Herbaceous Moisture	%	30
Live Woody Moisture	%	50
Weather		
Midflame Wind Speed	mi/h	24
Direction of Wind Vector (from upslope)	deg	45
Terrain		
Slope Steepness	%	15

Run Option Notes

Two fuel model weighting method: two-dimensional spread [SURFACE].

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

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

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

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

Direction of the wind vector is the direction the wind is pushing the fire [SURFACE].

Results

Output Variable	Value	Units
Surface Rate of Spread (maximum)	406.2	ft/min

Heat per Unit Area	614	Btu/ft2
Fireline Intensity	5051	Btu/ft/s
Flame Length	22.7	Ft
Max Eff Wind Exceeded?	No	

APPENDIX 'E'

PROJECT FACILITY AVAILABILITY FORMS (Fire and Water)

PROJECT FACILITY AVAILABILITY LETTER-FIRE

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

Please type or use pen

Eden Hills Project Owner, LLC — 760-944-7511
Owner's Name — Phone

2235 Encinitas Boulevard, Suite 216
Owner's Mailing Address — Street

Encinitas — CA — 92024
City — State — Zip

ORG_____
ACCT_____
ACT_____
TASK_____
DATE_____ AMT $_____

F

DISTRICT CASHIER'S USE ONLY

SECTION 1. PROJECT DESCRIPTION — TO BE COMPLETED BY APPLICANT

A.
- [x] Major Subdivision (TM)
- [ ] Minor Subdivision (TPM)
- [ ] Boundary Adjustment
- [ ] Rezone (Reclassification) from_____to_____zone.
- [ ] Major Use Permit (MUP), purpose:_____
- [ ] Time Extension...Case No._____
- [ ] Expired Map...Case No._____
- [ ] Other_____
- [x] Specific Plan or Specific Plan Amendment
- [ ] Certificate of Compliance:_____

B.
- [x] Residential . . . . . Total number of dwelling units 326
- [ ] Commercial . . . . . Gross floor area_____
- [ ] Industrial . . . . . Gross floor area_____
- [ ] Other . . . . . Gross floor area_____

C. Total Project acreage 239 Total lots 326 Smallest proposed lot 5,000

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

228-313-13	232-020-55
232-013-01	232-492-01
232-013-02	232-500-18,
232-013-03	Thru 24

Thomas Guide. Page 1129 Grid B,2,3,4

3240 Mount Whitney Road
Project address — Street

San Dieguito Planning Group — 92091
Community Planning Area/Subregion — Zip

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

Applicant's Signature: [signature] Date: 7/19/2016

Address: 2235 Encinitas Boulevard, Suite 216 Encinitas, CA 92024 Phone: 760-944-7511

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

SECTION 2: FACILITY AVAILABILITY — TO BE COMPLETED BY DISTRICT

District Name:

Indicate the location and distance of the primary fire station that will serve the proposed project:

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

B.
- [x] Based on the capacity and capability of the District's existing and planned facilities, fire protection facilities are currently adequate or will be adequate to serve the proposed project. The expected emergency travel time to the proposed project is 4-6 minutes.
- [ ] Fire protection facilities are not expected to be adequate to serve the proposed development within the next five years.

C.
- [ ] District conditions are attached. Number of sheets attached:_____
- [ ] District will submit conditions at a later date.

SECTION 3. FUELBREAK REQUIREMENTS

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

- [x] Within the proposed project 150 feet of clearing will be required around all structures.
- [ ] The proposed project is located in a hazardous wildland fire area, and additional fuelbreak requirements may apply. Environmental mitigation requirements should be coordinated with the fire district to ensure that these requirements will not pose fire hazards.

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

[signature] Robert Scott Div. Chief/Fire Marshal (760) 744-1050 7/20/16
Authorized Signature — *Print Name and Title* — *Phone* — *Date*

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

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

Please type or use pen

Eden Hills Project Owner, LLC — 760-944-7511
Owner's Name — Phone

2235 Encinitas Boulevard, Suite 216
Owner's Mailing Address — Street

Encinitas — CA — 92024
City — State — Zip

ORG_____
ACCT_____
ACT_____
TASK_____
DATE_____
AMT $_____

W

DISTRICT CASHIER'S USE ONLY

SECTION 1. PROJECT DESCRIPTION — TO BE COMPLETED BY APPLICANT

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

B. ☒ Residential . . . . . Total number of dwelling units 326
☐ Commercial. . . . . Gross floor area_____
☐ Industrial . . . . . Gross floor area_____
☐ Other . . . . . Gross floor area_____

C. ☒ Total Project acreage 239 Total number of lots 326

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

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

228-313-13	232-020-55
232-013-01	232-492-01
232-013-02	232-500-18,
232-013-03	Thru- 24

Thomas Guide Page 1129 Grid B,2,3,4

3240 Mount Whitney Rd.
Project address — Street

San Dieguito Planning Group — 92091
Community Planning Area/Subregion — Zip

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

Applicant's Signature: PCO.T Date: 5/31/2016

Address: 2235 Encinitas Boulevard, Suite 216 Encinitas CA Phone: 760-944-7511

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

SECTION 2: FACILITY AVAILABILITY — TO BE COMPLETED BY DISTRICT

District Name: Rincon del Diablo Municipal Water District Service area Improvement District 1

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

B. ☒ Facilities to serve the project ☒ ARE ☐ ARE NOT reasonably expected to be available within the next 5 years based on the capital facility plans of the district. Explain in space below or on attached 1 . (Number of sheets)
☐ Project will not be served for the following reason(s):_____

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

D. ☒ **How far will the pipeline(s) have to be extended to serve the project?** Further design required

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

Authorized Signature: _____ Print Name Clint Baze

Print Title Director of Engineering & Ops Phone 760-745-5522 Date 6-20-2016

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

Rincon del Diablo Water

A Public Agency Serving the Greater Escondido Valley Since 1954

June 21, 2016

County of San Diego
Department of Planning and Land Use
5201 Ruffin Road
San Diego, CA 92123

Subject: **Project Facility Availability Form, Water**
Eden Hills Development
3240 Mt. Whitney Road

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

Please note that the subject project surrounds a property owned by Rincon that is designated for a future potable and/or recycled water reservoir. Also, it is our understanding that some of the proposed home elevations are above the service levels of our existing reservoirs. Based on the Districts Water Master Plan and the results of the hydraulic analysis this project triggers the need to construct the R-7 reservoir. As such, we will request that this facility be included in the projects planning, including the environmental review process.

If you have any questions or require additional information, please call.

Sincerely,

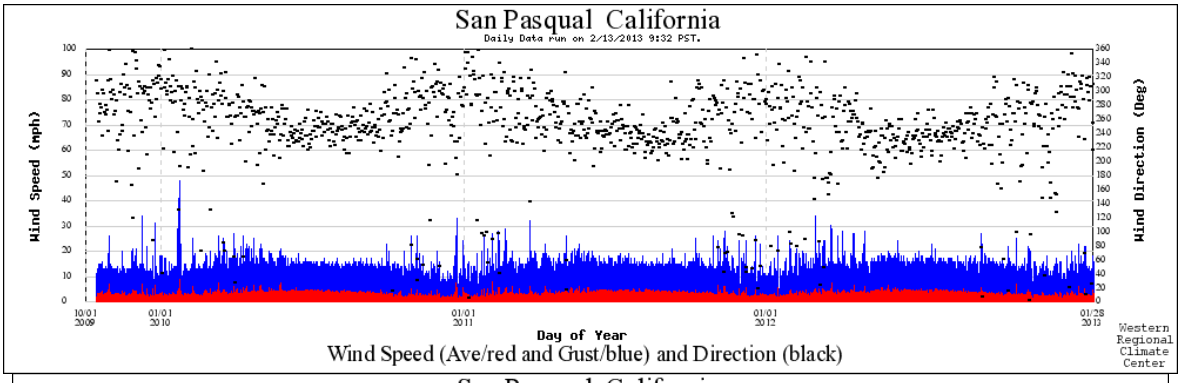
Clint Baze
Director of Engineering and Operations

Weather Summary Charts

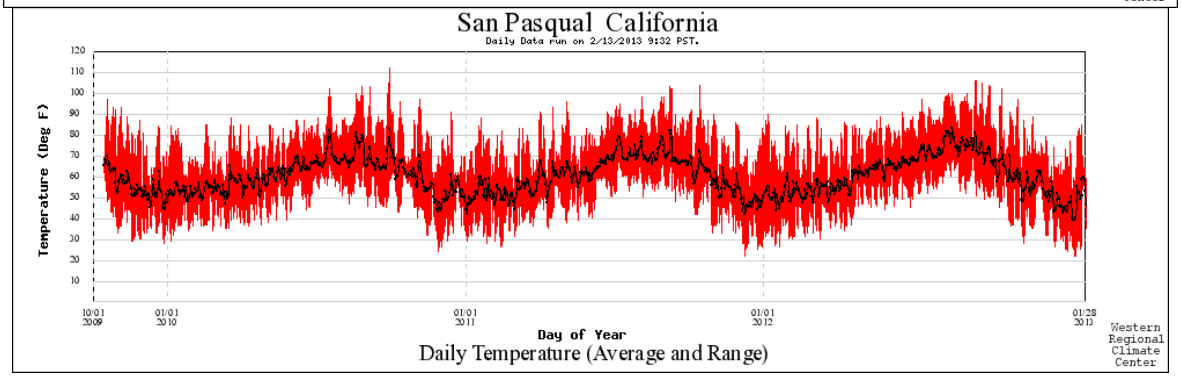
The key to how fast, how hot and at what intensity a wildland fire will burn is directly related to wind speed, wind direction, the age, composition and condition of burnable vegetative fuel and amount of moisture in the atmosphere. Wind direction usually determines how dry or moist (expressed as relative humidity) the air will be in the wind pattern. Local weather conditions (wind speed and live and dead fuel moistures) still are the key ingredients in determining fire intensity and rate of spread.

The most critical wind pattern to the Valiano is an off-shore wind coming out of the north/northeast, typically referred to as a Santa Ana wind. Such wind conditions are usually associated with strong (> 40-MPH), hot, dry winds with very low (< 15%) relative humidity. Santa Ana winds originate over the dry desert land and can occur anytime of the year. However, they generally occur in the late fall (September through November). This is also when non-irrigated vegetation is at its lowest moisture content.

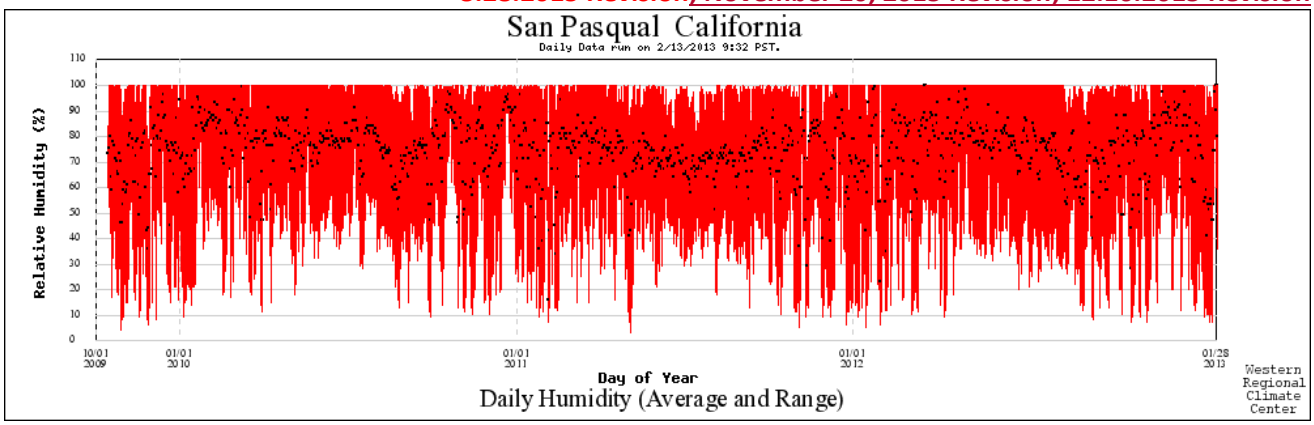
Fire agencies throughout the western United States rely on a sophisticated system of Remote Automated Weather Stations (RAWS) to monitor weather conditions and aid in the forecasting of fire danger. The data acquired from RAWS is important to modeling wildland fire behavior. ***FIRE*WISE 2000, Inc.** determined that the San Pasqual RAWS located is the closest station to the project in a similar Transitional Climate Zone. It did not captured significant weather data during the major southern California fires of October 2003 and most recently the fires of 2007, but does show extreme wind, temperature, relative humidities, and precipitation during the late fire season time frame:



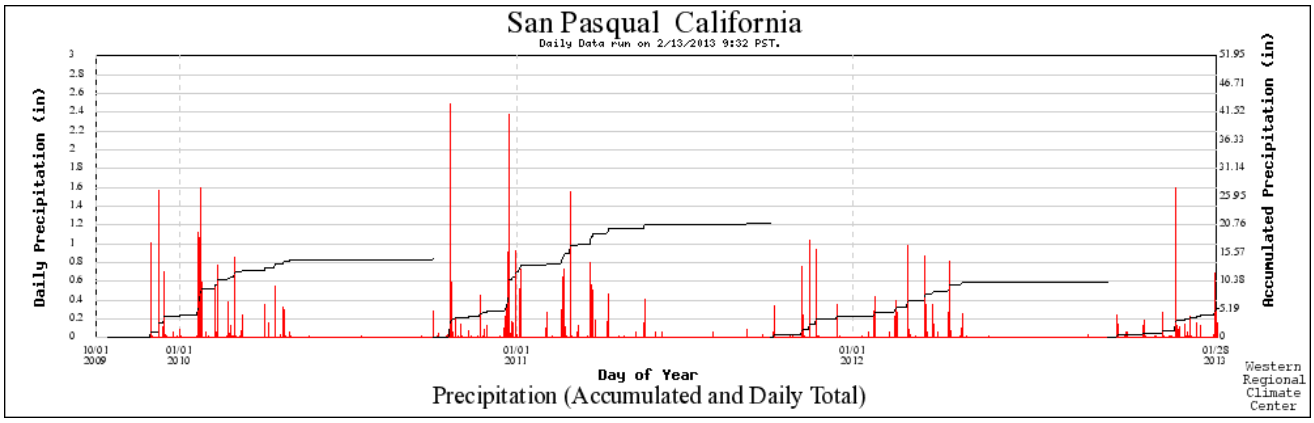
Wind Speed (Ave/red and Gust/blue) and Direction (black)



Daily Temperature (Average and Range)



Daily Humidity (Average and Range)



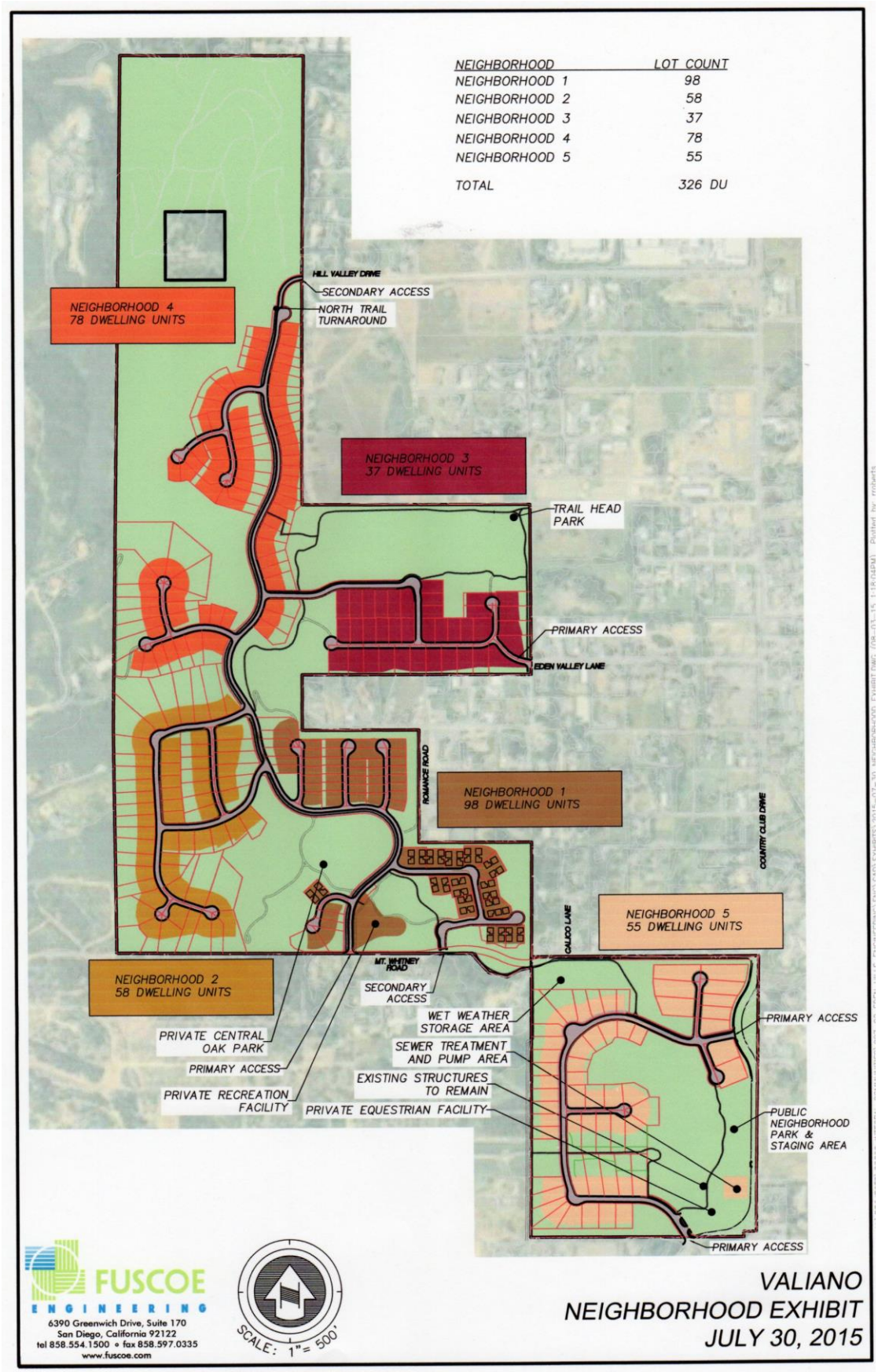
Precipitation (Accumulated and Daily Total)

In reviewing the figures above, it can be noted that during the late fire season time (August-October) the wind gusts were very strong, relative humidity was very low, temperatures were high, and lack of any precipitation. These parameters occur when Santa Ana wind events generally occur. For planning purposes, ***FIREWISE* 2000, Inc.** utilized the worst-case scenarios for wind, relative humidities, and temperatures. Higher wind speeds may occur during winter storms when humidity is high. Such winds are not a wildfire concern.

The San Pasqual RAWS is located approximately 12 miles to the southeast of the project at an elevation of 1,068 feet. Data for all RAWS is archived in the Western Region Climate Center in Reno, Nevada. Weather data for all of October 2007 for Ammo Dump RAWS is presented as an example of extreme fire weather. This historic weather data was used to help determine the more extreme fuel moisture regimes found later in this plan.

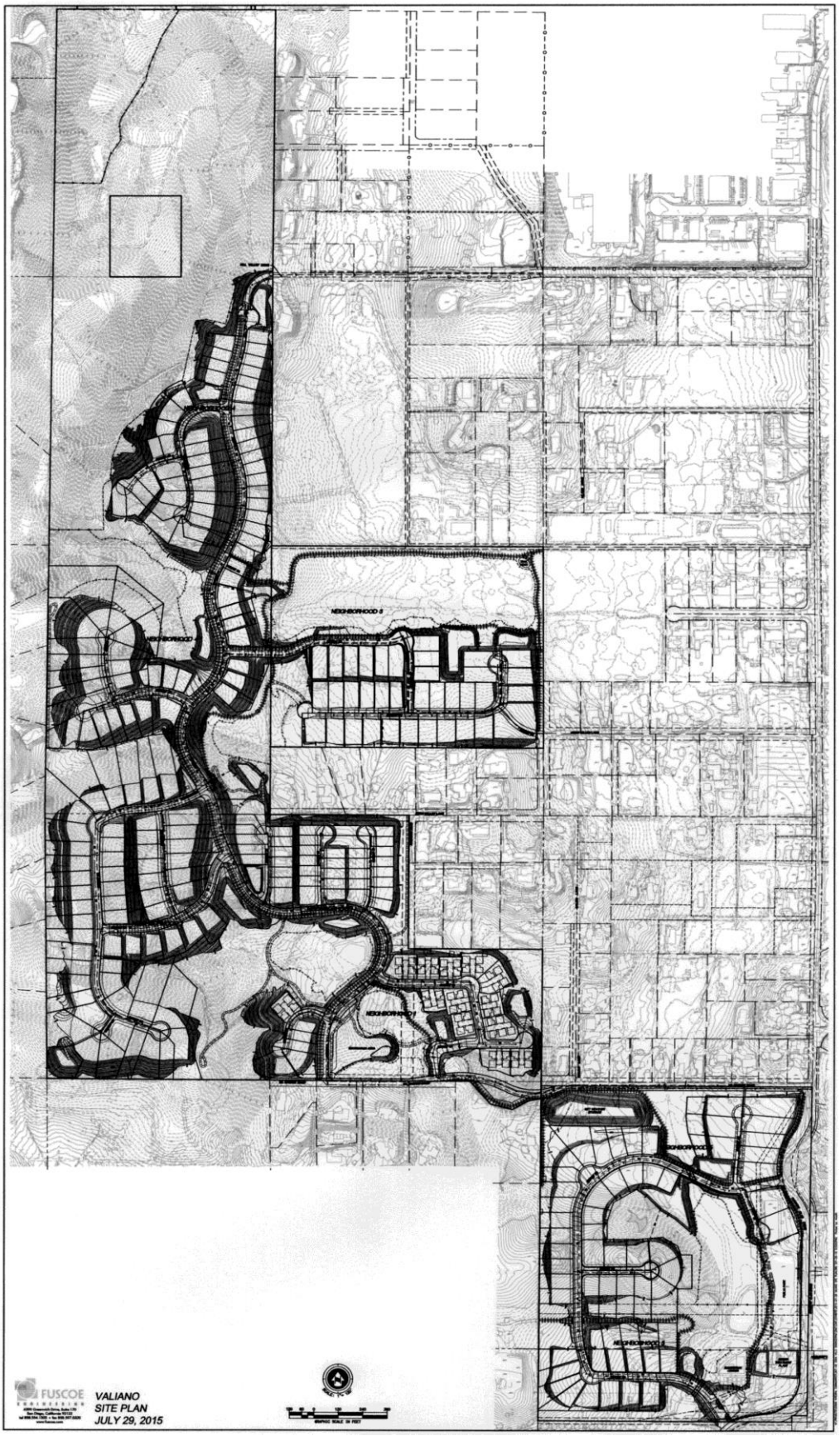
APPENDIX 'G'

VALIANO NEIGHBORHOOD EXHIBIT


NEIGHBORHOOD | LOT COUNT
NEIGHBORHOOD 1 | 98
NEIGHBORHOOD 2 | 58
NEIGHBORHOOD 3 | 37
NEIGHBORHOOD 4 | 78
NEIGHBORHOOD 5 | 55
TOTAL | 326 DU
NEIGHBORHOOD 4
78 DWELLING UNITS
HILL VALLEY DRIVE
SECONDARY ACCESS
NORTH TRAIL
TURNAROUND
NEIGHBORHOOD 3
37 DWELLING UNITS
TRAIL HEAD
PARK
PRIMARY ACCESS
EDEN VALLEY LANE
ROMANCE ROAD
NEIGHBORHOOD 1
98 DWELLING UNITS
COUNTRY CLUB DRIVE
CALICO LANE
NEIGHBORHOOD 5
55 DWELLING UNITS
NEIGHBORHOOD 2
58 DWELLING UNITS
MT. WHITNEY
ROAD
SECONDARY
ACCESS
WET WEATHER
STORAGE AREA
PRIMARY ACCESS
PRIVATE CENTRAL
OAK PARK
SEWER TREATMENT
AND PUMP AREA
PRIMARY ACCESS
EXISTING STRUCTURES
TO REMAIN
PRIVATE RECREATION
FACILITY
PRIVATE EQUESTRIAN FACILITY
PUBLIC
NEIGHBORHOOD
PARK &
STAGING AREA
PRIMARY ACCESS
FUSCOE
ENGINEERING
6390 Greenwich Drive, Suite 170
San Diego, California 92122
tel 858.554.1500 • fax 858.597.0335
www.fuscoe.com
SCALE: 1" = 500'
VALIANO
NEIGHBORHOOD EXHIBIT
JULY 30, 2015

APPENDIX 'H'

SPECIFIC PLAN – SITE PLAN

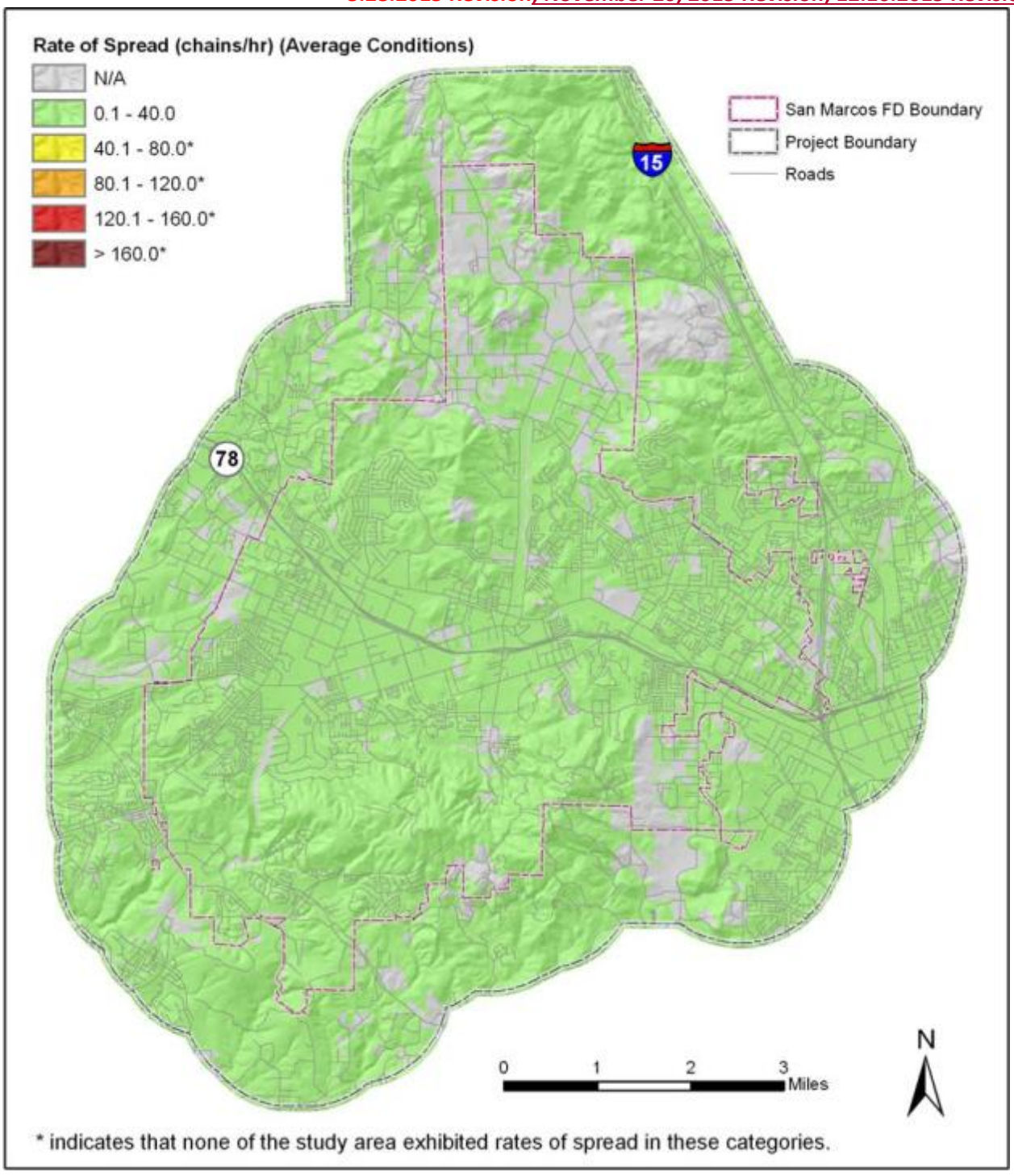

FUSCOE
VALIANO
SITE PLAN
JULY 29, 2015

APPENDIX 'J'

FIRE BEHHEAVIOR POTENTIAL MAPS

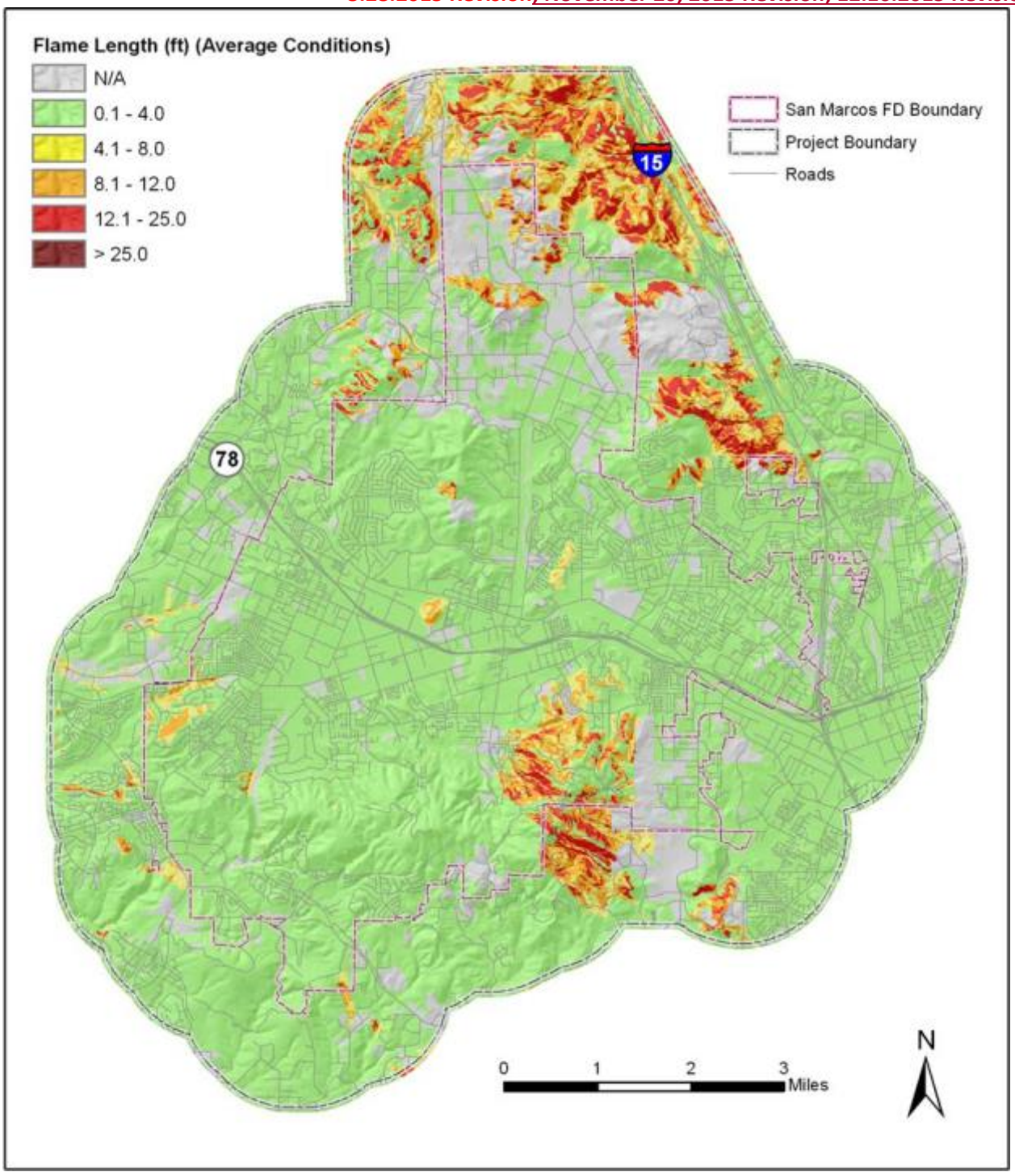
***Flame Length Predictions (Average Weather Conditions**
***Rate of Spread Predictions (Average Weather Conditions)**
***Flame Length Predictions (Annual Extreme Weather Conditions)**
***Flame Length Predictions (Annual Extreme Weather Conditions)**

****Fire behavior potential maps from the San Marcos Fire Department's Community Fire Protection Plan, December 2007***
…from the San Marcos Fire Department's Community Fire Protection Plan, December 2007



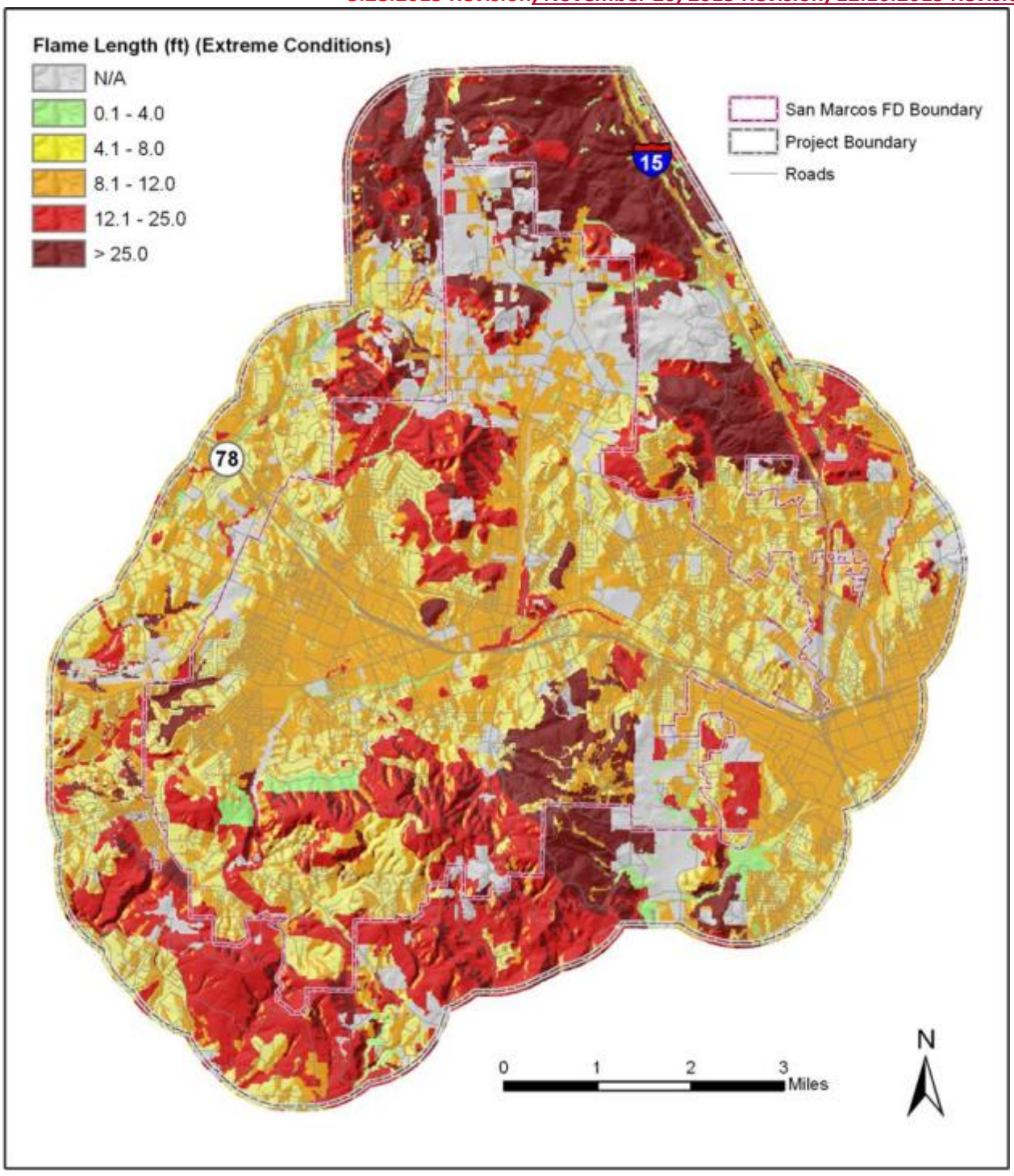
N/A = Not Applicable
A chain is a logging and fire line measurement (1 chain = 66 feet. 80 chains/hour = 1 MPH)

**** San Marcos Fire Department's Community Fire Protection Plan, December 2007***



N/A = Not Applicable
Flame Length: The distance between the flame tip and the midpoint of the flame depth at the base of the flame (generally the ground surface); an indicator of fire intensity.

San Marcos Fire Department's Community Fire Protection Plan, December 2007



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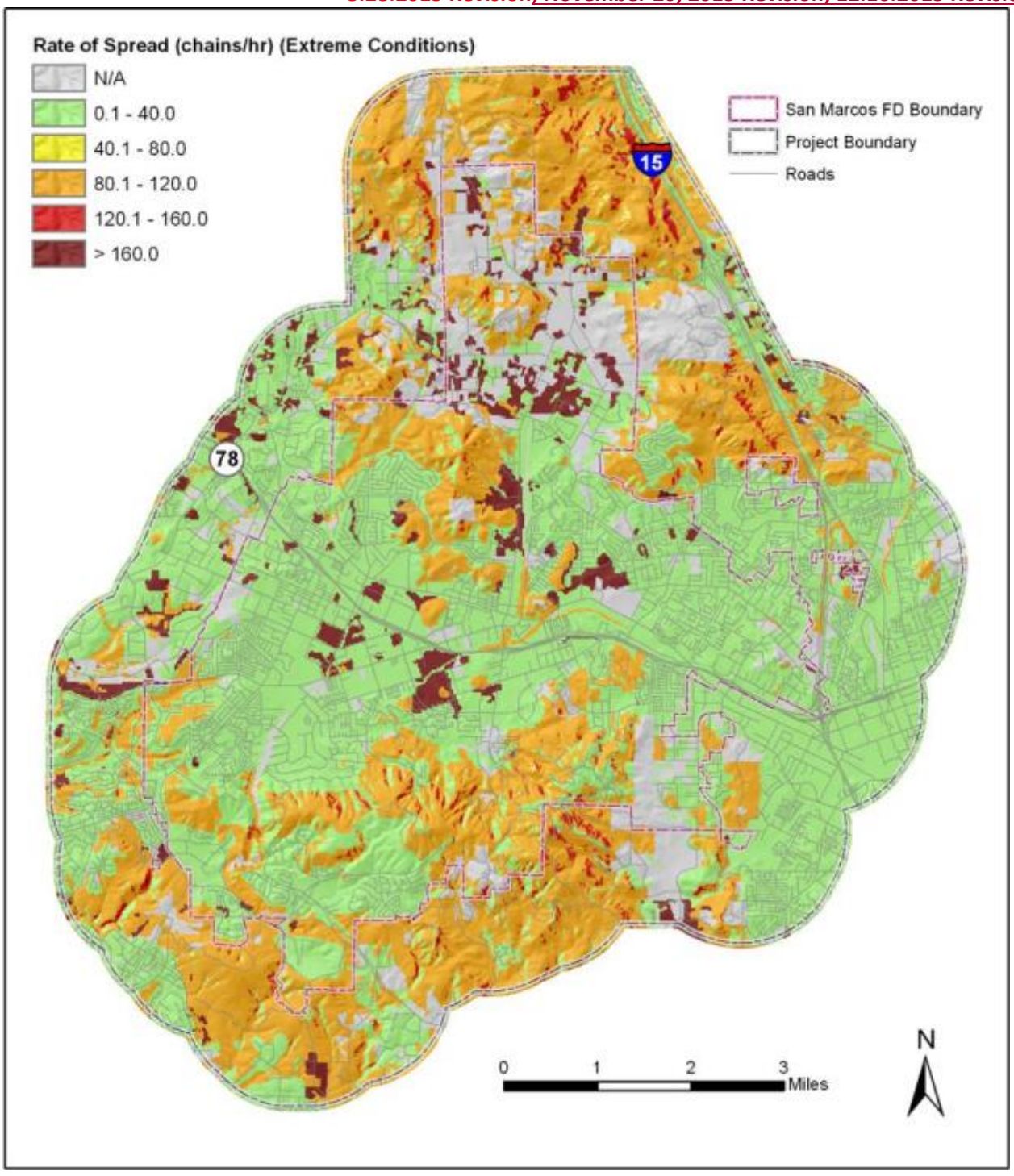
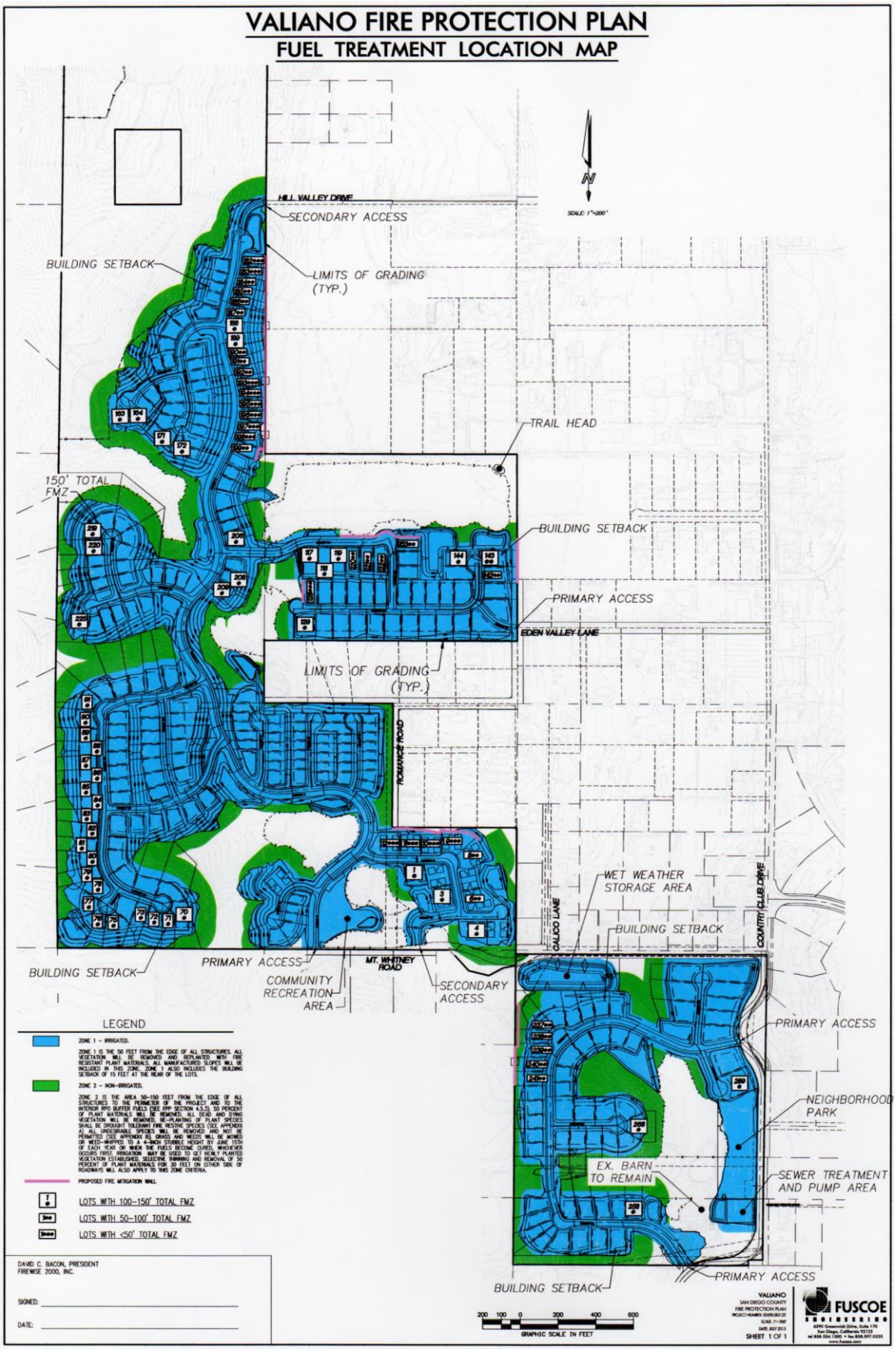
**** San Marcos Fire Department's Community Fire Protection Plan, December 2007***



N/A = Not Applicable
A chain is a logging and fire line measurement (1 chain = 66 feet. 80 chains/hour = 1 MPH)

EXHIBIT 1

FUEL TREATMENT LOCATION MAP


VALIANO FIRE PROTECTION PLAN
FUEL TREATMENT LOCATION MAP
HILL VALLEY DRIVE
SECONDARY ACCESS
BUILDING SETBACK
LIMITS OF GRADING (TYP.)
TRAIL HEAD
150' TOTAL FMZ
BUILDING SETBACK
PRIMARY ACCESS
EDEN VALLEY LANE
LIMITS OF GRADING (TYP.)
ROMANCE ROAD
WET WEATHER STORAGE AREA
CALICO LANE
COUNTRY CLUB DRIVE
BUILDING SETBACK
BUILDING SETBACK
PRIMARY ACCESS
MT. WHITNEY ROAD
COMMUNITY RECREATION AREA
SECONDARY ACCESS
PRIMARY ACCESS
NEIGHBORHOOD PARK
EX. BARN TO REMAIN
SEWER TREATMENT AND PUMP AREA
BUILDING SETBACK
PRIMARY ACCESS
LEGEND
ZONE 1 - IRRIGATED.
ZONE 2 - NON-IRRIGATED.
PROPOSED FIRE MITIGATION WALL
LOTS WITH 100-150' TOTAL FMZ
LOTS WITH 50-100' TOTAL FMZ
LOTS WITH <50' TOTAL FMZ
DAVID C. BACON, PRESIDENT
FIREWISE 2000, INC.
SIGNED:
DATE:
GRAPHIC SCALE IN FEET
SHEET 1 OF 1
FUSCOE