

OAK PARK COMMUNITY WILDFIRE RISK ASSESSMENT

January, 2023

Prepared for:

Oak Park Fire Safe Council

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CONTENTS

INTRODUCTION	3
OVERVIEW	5
EVALUATION OF WILDLAND FUEL HAZARDS	6
Fuel Models	7
Wildland Fuels Post Woolsey Fire	11
FIRE HAZARD SEVERITY	15
EVALUATION OF FUELS MITIGATION PROJECTS	18
WILDFIRE HISTORY	26
Risk of Wildfire Occurrence	27
Woolsey Fire	32
COMMUNITY VALUES AT RISK	35
Access and Evacuation	36
Sheltering in Place	37
EVALUATION OF HOMES AND ESSENTIAL INFRASTRUCTURE AT RISK	39
General Structure assessment and Vulnerability	39
Infrastructure	45
LOCAL PREPAREDNESS, AND FIREFIGHTING CAPABILITY	54
SUMMARY	60
Summary of Existing Protective Factors	60
Summary of Existing Risks Identified	61
REFERENCES	62

INTRODUCTION

This document serves as a Community Wildfire Risk Assessment that can be used to support the development of a Community Wildfire Protection Plan (CWPP) for the community of Oak Park CA. Effective wildfire risk management is a collaborative process considering local needs through a Community Wildfire Protection Plan (CWPP).

A CWPP serves to guide future actions of local Fire Safe Councils, private landowners, land management agencies, and local emergency service providers in their efforts to reduce wildfire risks and hazards to human lives, improvements, and natural values. In addition to enhancing safety and reducing risk to human structures and watersheds, communities with CWPPs are also given priority for USFS and BLM funded hazardous fuels reduction projects as authorized under the Healthy Forest Restoration Act of 2003 (HFRA).

An important component of the CWPP is a Community Wildfire Risk Assessment. The development of a Community Wildfire Risk Assessment will help the community members and partnering agencies more effectively prioritize areas for treatment and identify the highest priority uses for available financial and human resources. The CWPP can then identify and prioritize areas for hazardous fuel reduction treatments and recommend the types and methods of treatment to help protect the community and essential infrastructure and recommends measures to reduce structural ignitability throughout the at-risk community.

This Community Wildfire Risk Assessment will assess the following components for the Oak Park planning area:

1. Evaluation of wildland fuel hazards
2. Evaluation of fuels mitigation projects in progress and already completed
3. Wildfire history
4. Risk of wildfire occurrence
5. Evaluation of homes and essential Infrastructure at risk
6. General structure assessment and vulnerability
7. Identification of other community values at risk
8. Local preparedness, and firefighting capability

Maps, images and external links are also included to support the information in the assessment document and help to visually and geographically identify many of the components of the assessment including infrastructure, access and egress issues, and wildland fire hazard severity zones categorized as low, moderate or high severity.

Wildfires in Ventura County's wildlands are a natural occurrence and can be a part of the process that helps maintain a healthy ecosystem for both plant and animal life. Wildlands are commonly defined as a natural environment that has not been significantly modified by human activity. It is an area in which development is essentially non-existent, except for roads, railroads, powerlines, and similar transportation facilities. Structures, if found, are widely scattered.

The "hazards" and "risks" discussed within this document are facilitated or created by human presence around, near and sometimes within these wildlands. The terms "hazard" and "risk" are often used interchangeably. However, in terms of risk assessment, they are two very distinct terms. A hazard is any agent that can cause harm or damage to humans, property, or the environment. Fire hazard is defined as the state of the fuel and a measure of the potential wildfire burning characteristics (i.e. intensity, rate of spread, flame length) produced from a specific set of environmental conditions. Factors that contribute wildfire potential and severity include vegetation type and fuel sources, possible ignition sources, topography and weather. The term "risk" is defined as the probability that exposure to a hazard will lead to a negative consequence, or more simply, a hazard poses no risk if there is no exposure to that hazard.

The recurrence of large and destructive wildfires within and around Ventura County (such as the more recent Woolsey and Thomas fires) has raised public awareness of the issue and increased public support for fuels management, defensible space creation, home hardening and wildfire safety education. It is important to note that while this document may reference "hazardous fuels", it is not the wildland fuel itself that is the hazard. Rather, the hazard is created by the combination of homes built within the Wildland Urban Interface (WUI), in close proximity to wildland fuels, many without adequate or well-maintained defensible space, and especially older homes that were not built with wildfire safety in mind (materials, construction and landscaping). This fact, combined with the rugged terrain, increasingly hot, dry weather, and the seasonal appearance of "Santa Ana" winds that can exceed 70 mph, make wildfire safety projects an extremely high priority within Ventura County. [Ventura County Fire Protection District Unit Strategic Fire Plan](#) (Ventura County Fire Department, 2022)

Research has shown that most homes/structures ignite and burn during a wildfire because of construction components that lend themselves to easily ignite and because of poor landscape maintenance around the home. Much of the destruction and loss of homes is caused by firebrands landing on and igniting flammable materials on or around a home.

OVERVIEW

Oak Park is an unincorporated community with approximately 14,000 residents living in over 5,500 homes, apartments, and condominiums in an approximately 4.1 square mile area. Located in the valleys of the Simi Hills in the southeast portion of Ventura County, it is bordered on the west by the community of North Ranch (Thousand Oaks), on the south by the LA County cities of Agoura Hills and Westlake Village, and north and east by Rancho Simi Recreation and Park District open space areas and the Santa Monica Mountains National Recreation Area. The elevation in Oak Park varies from 960 to 1,500 feet above sea level. Oak Park is primarily a residential community with pockets of medium and high-density development interspersed with open space areas and parkways. Oak Park's first phase of construction and development began in 1967 and the community was built out prior to 2010. The developed portions are primarily residential, with a mix of single-family homes, townhomes and apartments. The community includes 9 schools, 3 business areas, 11 parks and access to large neighboring areas of recreational open space. According to the U.S. Census Bureau, the community has a median household income of \$143,153. (US Census Bureau, 2021).

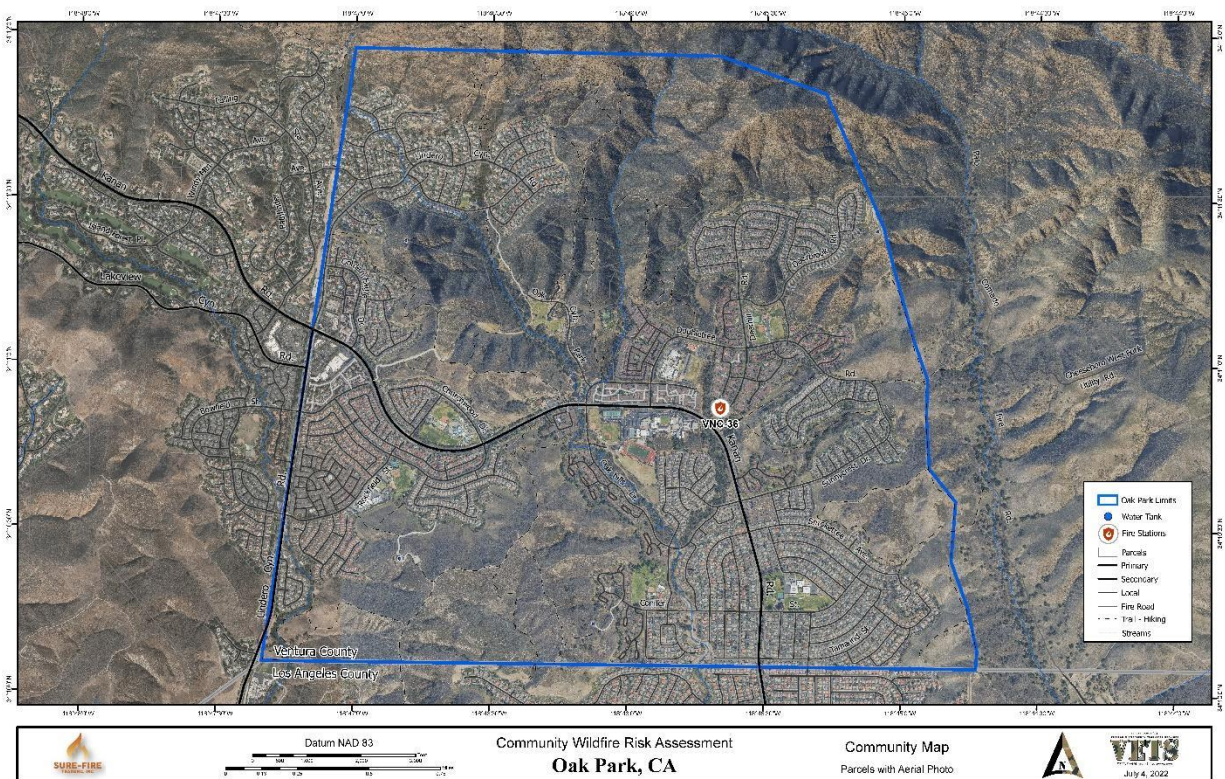


Figure 1; Map of Oak Park Community Wildfire Risk Assessment area

EVALUATION OF WILDLAND FUEL HAZARDS

Fuel is the combustible biomass found in wildlands. Fuels include everything from needles, grasses, and small twigs (“fine fuels”) to progressively larger fuels such as shrubs, branches on the ground, downed trees, and logs. Fuels are also present in tree canopies; green needles and fine branches are known as “crown fuels.” Fuels can be either living or dead, and can be arranged vertically (referred to as “ladder fuels”) and horizontally across areas as small as a group of trees, a stand of brush, or as large as a watershed. Homes and other structures are also considered forms of fuel (Stephen A. Fitzgeraild, 2019).

There are 10 identified fuel beds in Ventura County as identified in the [Ventura County Fire Protection District Unit Strategic Fire Plan \(Ventura County Fire Department, 2022\)](#). Each is analyzed based on its topography, vegetation types, fire history and assets at risk (Ventura County Fire Department). The Oak Park assessment area is located entirely within the Simi Fuel Bed. The Simi Fuel Bed is bordered on the south by Highway 101, on the north by Simi Valley, on the east by the San Fernando Valley (Los Angeles County) and on the west by Highway 23 and Olsen Road. (See Figure 2)

Assets at risk are primarily structures and community infrastructure. Single and multi-family dwellings in the North Ranch and Oak Park areas are a specific concern due to their alignment with a Santa Ana (east) wind and heavy fuels. Most of the land management/ownership for the open space belongs to the Conejo Open Space Conservation Agency (COSCA), Rancho Simi Park and Recreation (RSRPD), Santa Monica Mountains National Recreation Area and Mountains Recreation and Conservation Authority (MRCA).

This fuel bed has sustained 23 fires of over 300 acres, most recently the 2019 Easy Fire. There are 68 miles of fire roads and 30 miles of fuel breaks maintained in this fuel bed. (Ventura County Fire Department, 2022).

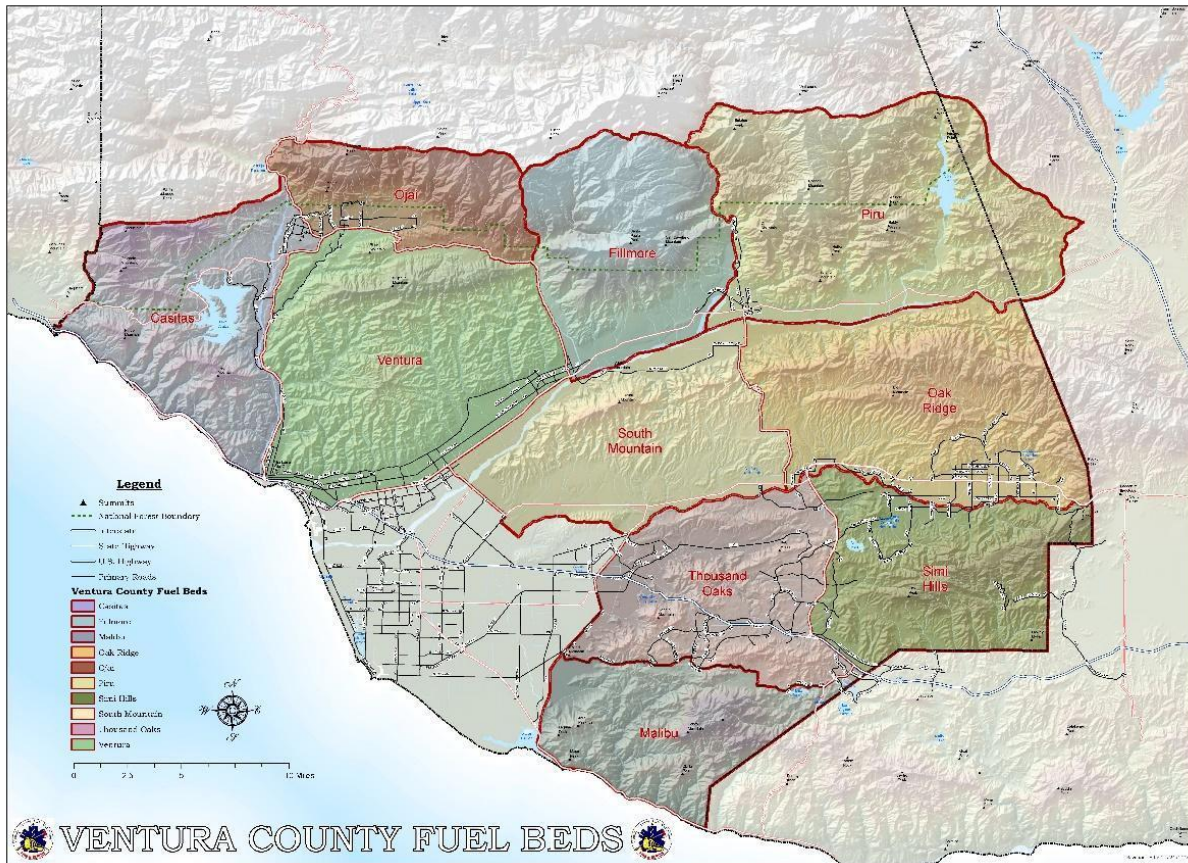


Figure 2; Fuel Beds - Ventura County Strategic Plan, May 2022, page 11

Wildland fuels are basically defined as any live or dead plant material, also known as vegetation and are the source of energy that can ignite and burn in a wildland fire.

The dominant vegetation in the Simi Fuel Bed consists of oak woodland, chaparral, coastal sage scrub and grass. Recent fire activity has significantly reduced much of the fuel load on the perimeter of the Oak Park area. Most of the large brush fields and heavy vegetation that existed in the surrounding open space areas prior to the Woolsey Fire were completely consumed during the Woolsey Fire; possibly taking a decade or more to return to pre-fire conditions. In the short term this brush has been replaced by annual grasses and other invasive species such as wild mustard. Without any vegetation management or additional fire activity in these areas it is likely that the brush will continue to return over time to pre-Woolsey fire conditions.

Fuel Models

A fuel model is a set of fuel characteristics used to help classify various fuel types in beds. Fuel models consider a variety of fuel characteristics that influence the behavior of fire such as: fuel type, fuel loading, fuel size and shape, arrangement, continuity, and availability.

The most commonly used fuel model classification data is the *Standard Fire Behavior Fuel Models: A Comprehensive Set for Use with Rothermel's Surface Fire Spread Model* (Scott & Burgan, 2005). Using this data, prior to the Woolsey fire the Oak Park fuel bed fell in the category of a High Load, Dry Climate Shrub fuel model SH5. The primary carrier of fire in fuel model SH5 is woody shrubs and shrub litter with a heavy shrub load at a depth of 4-6 feet. Fire spread rate and flame length is very high. The majority of the fuels in the northern and some of the interior open space areas are moderate grass and sparse brush. These areas prior to the Woolsey fire were covered in heavy brush, but post fire are now currently consistent with fuel model GS2 Moderate Load, Dry Climate Grass-Shrub (Dynamic). The primary carrier of fire in GS2 is grass and shrubs combined. Shrubs are 1 to 3 feet high; grass load is moderate. Spread rate is high; flame length moderate. Moisture of extinction rate is low.

Aerial images show the fuels in the Oak Park assessment area prior to the Woolsey Fire. (See Figures 3-5 before and after Woolsey Fire aerial images)

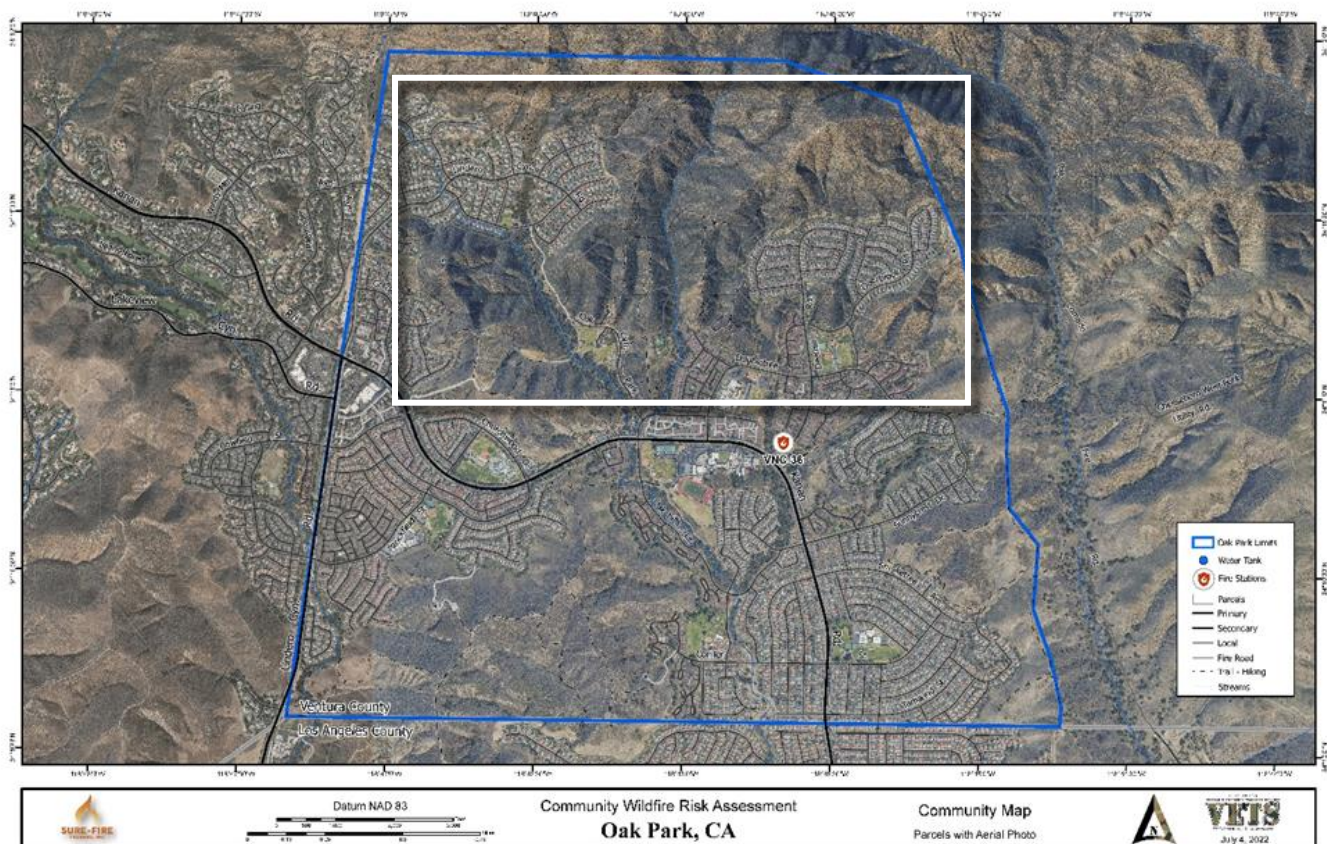


Figure 3; Aerial image pre-Woolsey Fire, 2018 showing large brush fields throughout the open space areas in Oak Park.



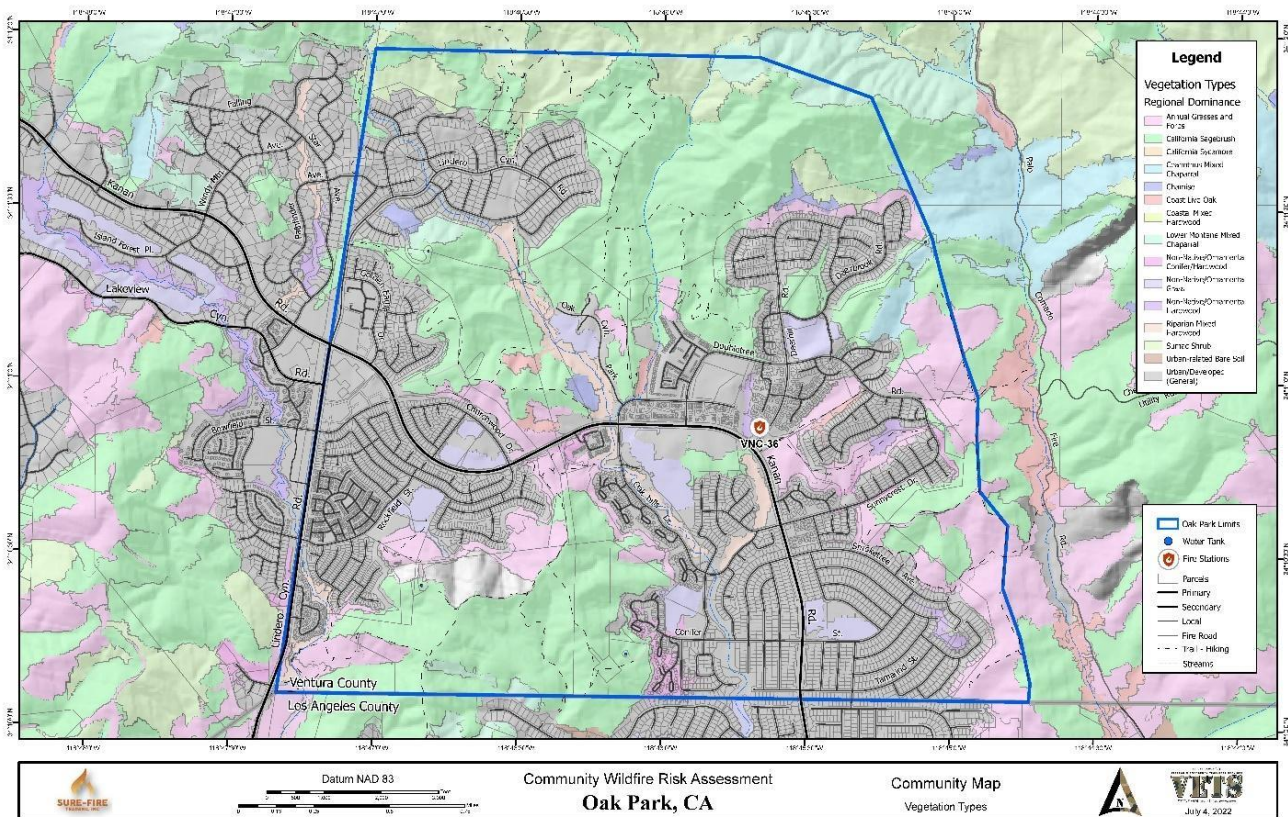
Figure 4; Detail area showing heavy brush fields prior to Woolsey Fire



Figure 5; Detail area showing post fire area covered in grass fuels

Residential landscaping includes non-native ornamental hardwood and conifer/hardwood fuels. This existing vegetation polygon feature class is a CALVEG (Classification and Assessment with LANDSAT of Visible Ecological Groupings) map product for CALVEG Zone 7, the South Coast. Source imagery for this layer ranges from the year 2002 to 2010. The CAL VEG system is used to classify existing vegetation at the time of survey rather than potential vegetation. The information is used by various agencies and organizations to assist with:

- Improving fire prevention, suppression, and initial attack success.
- Reduce and track hazards and risks in urban interface areas.
- Provide information for fire ecology studies for example studying fire effects on vegetation over time.



Page 10 of 63

Wildland Fuels Post Woolsey Fire

After the Woolsey Fire burned through the surrounding hillsides, and a few interior portions of Oak Park in November, 2018, the majority of the heavy brush stands were burned. However, there are some pockets of unburned older brush that do remain. Light flashy fuels have regrown in the burned areas and currently provide the most widespread wildland fuel type within the Oak Park assessment area. Many of these light flashy fuel areas were observed, in the spring of 2022, to be dominated by large patches of mustard and other invasive annual species in the open space areas to the east. These areas are consistent with a GR7 fuel model, the primary carrier of fire is moderately coarse continuous grass with an average depth about 3 feet. Fire spread and flame length potential are very high. These light flashy fuels when aligned with slope, wind, and low fuel moisture have potential to develop into rapid high intensity fire runs and pose a significant threat to the community.

Post Woolsey Fire aerial photographic images show areas and pockets of unburned fuel, and oak woodland and riparian areas. There are several areas of older standing brush in the assessment area that were not consumed in the Woolsey fire. Notable areas are; south of Bryndale Ave, north of Pala Mesa Dr, west of Heatherview Dr, south of Deerbrook Rd, south of Dubonnet Ct, and Medea Creek area. This fuel model is consistent with SH 5 High Load Dry Climate Shrub. The primary carrier of fire in SH5 is woody shrubs and shrub litter. Heavy shrub load, depth 4-6 feet. Spread rate very high; flame length very high. This fuel can produce intense fire behavior.



Image 1; post Woolsey Fire showing an area of unconsumed brush field fuel model SH 5 south of Deerbrook Rd, 2022

There is a mosaic of natural open space areas, trails, creeks, and flood control channels within Oak Park. When these areas of continuous vegetation align with topographical features, low fuel moistures and high wind speeds, wildland fire can travel through these areas coursing throughout various interior portions of the community. Fuel

maintenance in these areas can help reduce the potential risk of direct flame contact with neighboring properties and ember production. Some of these areas such as the Medea Creek, and Sunrise Meadow Creek Side Trail, corridor have very heavy fuels and could support intense fire behavior and ember production. See Images 1-4.



Image 2; Sunrise Meadow Creek Side Trail looking north from Sunnycrest Drive trailhead



Image 3; Open Space area west of Eaglehaven Ln and Doubletree Rd



Image 4; example of heavy fuels in interior open space areas. Trailhead north of Trefoil Ave



Image 5; cured mustard and grasses

Post Woolsey Fire, there has been an increase in various invasive species to cover the burned hillsides in the Oak Park area (Image 5). This vegetation, mostly grasses, invasive mustard and light flashy fuels, falls in the GR7 fuel model characterized by moderately coarse continuous grass, average depth about 3 feet. Spread rate and flame length are very high. Grass areas have a dominant presence in the open space areas to the east of Oak Park.



Image 6



Image 7

Images 6 and 7 show post Woolsey Fire fuels on the north end of Oak Park on a south aspect. The majority of the fuels in the northern and some of the interior open space areas are moderate grass and sparse brush. These areas prior to the Woolsey fire were covered in heavy brush, but are currently consistent with fuel model GS2 Moderate Load, Dry Climate Grass-Shrub (Dynamic). The primary carrier of fire in GS2 is grass and shrubs combined. Shrubs are 1 to 3 feet high; grass load is moderate. Spread rate is high; flame length moderate. Moisture of extinction is low.

Without repetition of fire or fuels management, these areas will likely evolve back into the original heavy brush model over a 10-year period.

The SH5, GS2 and GR7 fuel models are dynamic, meaning that their live herbaceous fuel load shifts from live to dead as a function of live herbaceous moisture content. The effect of live herbaceous moisture content on spread rate and intensity is strong and depends on the relative amount of grass and shrub load in the fuel model.

Generally speaking, wildfire behavior is driven by three factors: weather, fuels and topography. Topographic features may significantly impact a home's survivability during a wildfire. Such features include steep slopes, chimneys, drainages, gullies, narrow canyons, ridges, etc. These features are areas where wildfires can move upslope quickly, and increase in rate of spread and intensity resulting in increased convective energy. Increased convective energy and intensity can result in more convective heat and intense ember production. Higher risk is associated with homes on the top of these topographical features. For the most part, the developed portion of the

community of Oak Park is located at lower elevations compared to the surrounding terrain with very few structures built at the top of slopes, canyons or ridges.

In some of the residential areas there is a noticeable presence of dense landscaping and several ornamental plant species that are known to produce problem fire behavior and increased ember production such as: Italian cypress, eucalyptus and pine trees. For more information on plants that are not recommended in the defensible space zone see Ventura County Fire Department Guideline 410 [Prohibited Plant List](#) and Ventura County Fire Department [Plant Reference Guide](#).



Image 8; Note presence of hazardous plant species such as: cypress, eucalyptus and pine

The type and manner in which individual property landscaping is maintained can significantly increase or reduce the risk of structure damage or loss in the community due to wildfire. Proper selection, installation, spacing and maintenance of plants and landscape is one of the key elements in the survivability of a structure during a wildfire.

FIRE HAZARD SEVERITY

California law requires the California Department of Forestry and Fire Protection (also “CAL FIRE”) to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. These zones, referred to as Fire Hazard Severity Zones (FHSZ), then define the application of various mitigation strategies to reduce risk associated with wildfires, including the application of WUI building standards to new construction and other regulations. Classification of a zone as moderate, high or very high fire hazard is based on a combination of how a fire can behave and the probability of flames and embers threatening buildings. Each area of the map gets a score for flame length, embers, and the likelihood of the area burning. Scores are then averaged

over the zone areas. Final zone class (moderate, high and very high) is based on the average scores for the zone. The zones are:

- Moderate Fire Hazard Severity Zone (MFHSZ)
- High Fire Hazard Severity Zone (HFHSZ)
- Very High Fire Hazard Severity Zone (VHFHSZ)

Under this analysis, the entire Oak Park assessment area is classified by CALFIRE as a “*Very High Fire Hazard Severity Zone*”. However, this approach alone does not provide the level of detail required for making decisions on where and how to establish priorities for fire hazard mitigation work within the Planning Area (Figures 7 & 8).

Fire hazard is a measure of the potential wildfire burning characteristics (i.e., intensity, rate of spread, flame length) produced from a specific set of environmental conditions.

As part of a statewide approach to fire hazard severity, CAL FIRE identified “fire hazard severity zones” throughout the State for the purpose of establishing and requiring adherence to WUI building codes and reducing structure loss from wildfire. These fire hazard severity zones are areas that have similar burn probabilities and fire behavior characteristics. Maps and more information are available at:

- <http://geohub.lacity.org/datasets/fire-hazard-severity-zones>
- <https://frap.fire.ca.gov/>

Fire Hazard Severity Zone maps evaluate “hazard,” not “risk”. They are like flood zone maps. Wildfire hazard and wildfire risk are subtly different: “Hazard” is based on the physical conditions that create a likelihood that an area will burn over a 30 to 50-year period without considering modifications such as fuel reduction efforts. “Risk” is defined as the potential damage a fire can do to the area under existing conditions, including any modifications such as defensible space, irrigation and sprinklers, and ignition resistant building construction. A key outcome of the fire hazard zoning relates to the application of California building codes and defensible space codes. The exterior wildfire exposure protection codes apply to the design and construction of new buildings located in VHFHSZ in local responsibility areas. In addition, California law requires defensible space and other wildfire safety practices for buildings in the VHFHSZ.

Owners are also required to make new natural hazard disclosures as part of a real estate transfer located in a High or Very High Fire Hazard Severity Zone (FHSZ). Effective January 1, 2021, sellers are required to disclose if there is compliance with State Building Code requirements for home hardening and fire zone building

standards. Effective July 1, 2021 sellers are also required to provide the buyer with a report from the fire department indicating the property is in compliance with State defensible space laws or a local vegetation management ordinance. For more information about these disclosures and to request the inspection, please visit vcfd.org/ab38.

The threat data used in this analysis is a new and unique spatial dataset, Fire Hazard Severity Zones (FHSZ), which was built explicitly for adopting new ignition-resistant building code standards, adopted by the California Building Commission in 2007. It is constructed to describe the nature and probability of fire exposure to structures, including those lands that are highly urbanized, but in close proximity to open wildlands. Consequently, FHSZ addresses threats in areas where other wildland-fuel based approaches cannot be applied. Details of the FHSZ mapping project are available at <https://frap.fire.ca.gov/>

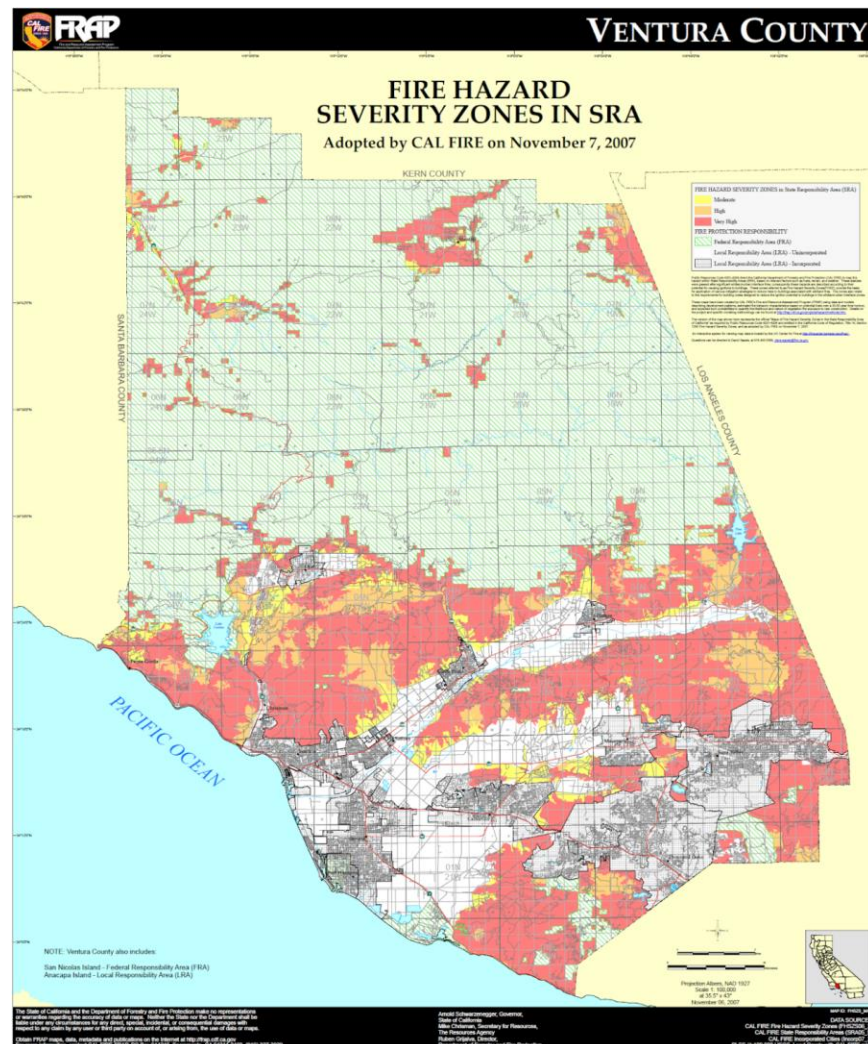


Figure 7; The Fire Hazard Severity Zone map for Ventura County

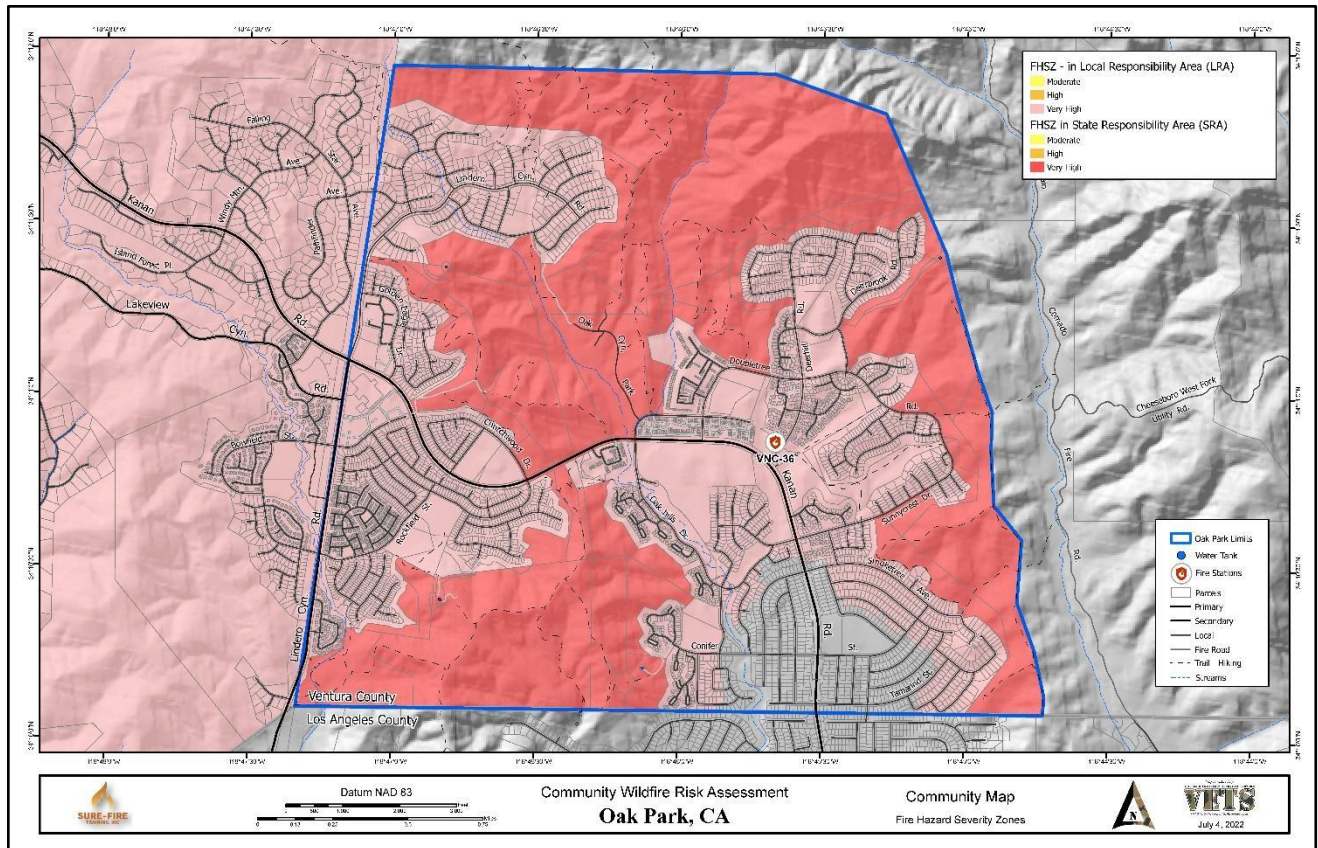


Figure 8; Oak Park FHSZ Map The FHSZ map shows the entire Oak Park planning area to be classified as Very High Fire Hazard Severity Zone by CAL FIRE, November 2007. <https://egis.fire.ca.gov/FHSZ/>

EVALUATION OF FUELS MITIGATION PROJECTS

Ventura County Fire Department Projects

Currently the Ventura County Fire Department has stated that there are not any planned fuel reduction projects for the area, other than continuation of the [Fire Hazard Reduction Program \(FHRP\)](#).

As stated on the [Ventura County Fire Department web site](#): the Fire Hazard Reduction Program, commonly referred to as "FHRP", is the cornerstone of the [Wildland Fire Action Plan](#). Property owners included in the program will receive an annual "Notice to Abate Fire Hazard" and are expected to maintain their property free of fire hazards or nuisance vegetation year-round. Common requirements are 100-feet of vegetation clearance from structures and 10-feet for road access. See Ventura County Fire Code [Appendix W](#) for specific requirements of the FHRP program. Notices to Abate Fire Hazard are mailed to the property owner of record around April 20th. Parcel inspections start the last week of May. The Annual Fire Hazard Clearance Deadline is June 1st. Parcels not cleared by the deadline are subject to abatement by the Fire

District with the contractors cost and the current administrative fee. These fees are placed as a tax lien on the parcel. There are no fees assessed if you complete your required clearance.

The Ventura County Fire Department (VCFD) does not recommend indiscriminate clearing of native chaparral and other vegetation. Well-placed and well-maintained vegetation can beautify and control erosion in residential neighborhoods. Poorly maintained vegetation is a natural, volatile fuel for fast-spreading wildfires. Property owners and residents can help protect their homes by joining in partnership with their neighbors and the Fire Department to assure compliance with the Department's Fire Hazard Reduction Program. Ventura County Fire Department's Ordinance is designed to minimize fire danger by controlling the density and placement of flammable vegetation. The goal is to maintain trees and vegetation that beautify and benefit a property, and to remove or reduce hazardous vegetation that provides a combustible fuel supply for wildfire. This defensible space aids firefighters by giving them a tactical advantage in stopping a fire and saving lives and properties.

VCFD Defensible Space/Fuel Modification Zones (FMZ) are defined in [Standard 515-Defensible Space and Fuel Modification Zones](#).

VCFD Defensible Space/ FMZ zones defined:

Zone 0: Ember-Resistant Zone 0-5 feet from buildings, structures, decks, etc.

Zone 0 reduces the likelihood of structure ignition by reducing the potential for direct ignition of the structure from flame contact, by embers that accumulate at the base of a wall, and/or indirect ignitions when embers ignite vegetation, vegetative debris or other combustible materials located close to the structure that result in either a radiant heat and/or a direct flame contact exposure to the structure. Zone 0 is the horizontal area within the first five feet around the structure, any outbuildings, and attached decks, and stairs. Zone 0 is measured from the edge of a structure, attached decks, patio covers, balconies, and floor projections above grade. The zone also includes the area under attached decks and stair landings.

Zone 1: Lean, Clean and Green Zone that extends 30-feet from buildings, structures, decks, etc. or to your property line, whichever is closer. Zone 1 can extend to 50-feet for slopes exceeding 20% grade. Zone 1 reduces the likelihood of fire burning directly to the structure. This is accomplished by modifying fuels and creating a discontinuity between planting groups that limits the pathways for fire to burn to the structure and reduces the potential for near-to-building ember generation and radiant heat exposures. An additional purpose of this zone is to provide a defensible area for fire personnel to stage and take direct action. Zone 1 is the area within 5-30 feet of

structures and decks with slopes not greater than 20 percent; 5-50 feet from buildings and decks when slopes are greater than 20 percent.

Zone 2: Reduce Fuel Zone. This is the area from the outer edge of Zone 1 to 100 feet from structures. Zone 2 is designed to reduce the potential behavior of an oncoming fire in such a way as to drop an approaching fire from the crowns of trees to the ground, reducing the flame heights, and potential for ember generation and radiant heat exposure to structures.

Zone 3: This is considered a thinning zone and is any FMZ greater than 100 feet from structures and decks. This zone is more of a progressive thinning zone to lessen spread of fire as it approaches the primary FMZ adjacent to structures. The amount of fuel reduction and removal should take into consideration the type and density of fuels, topography, weather patterns and fire history.

See [Ventura County Fire Department Fire Hazard Reduction Program \(FHRP\)](#) web page for more references and information.

***Note:** Changes in State Laws and Regulations over the past couple of years has resulted in how defensible space requirements are applied in Ventura County. Here is a link to a brief description of the changes. [Guideline 420 Changes In Defensible Space Laws And Regulations](#)*

As of September, 2022, Ventura County Fire Department does not have any planned fuel mitigation projects for the Oak Park planning area, but is exploring opportunities with local parkland agencies.

Open Space Agencies

VCFD is working with local parkland agencies to improve backcountry access and explore opportunities for future fuel mitigation projects in the public owned open space areas adjacent to, or near Oak Park. These agencies include Rancho Simi Recreation and Park District (RSRPD), National Park Service (NPS) Cheeseboro/Palo Comado Canyons and Santa Monica Mountains Conservancy Mountains Recreation and Conservation Authority (MRCA). See Figure 9 and 10 for location of parklands and open space areas in proximity to Oak Park.

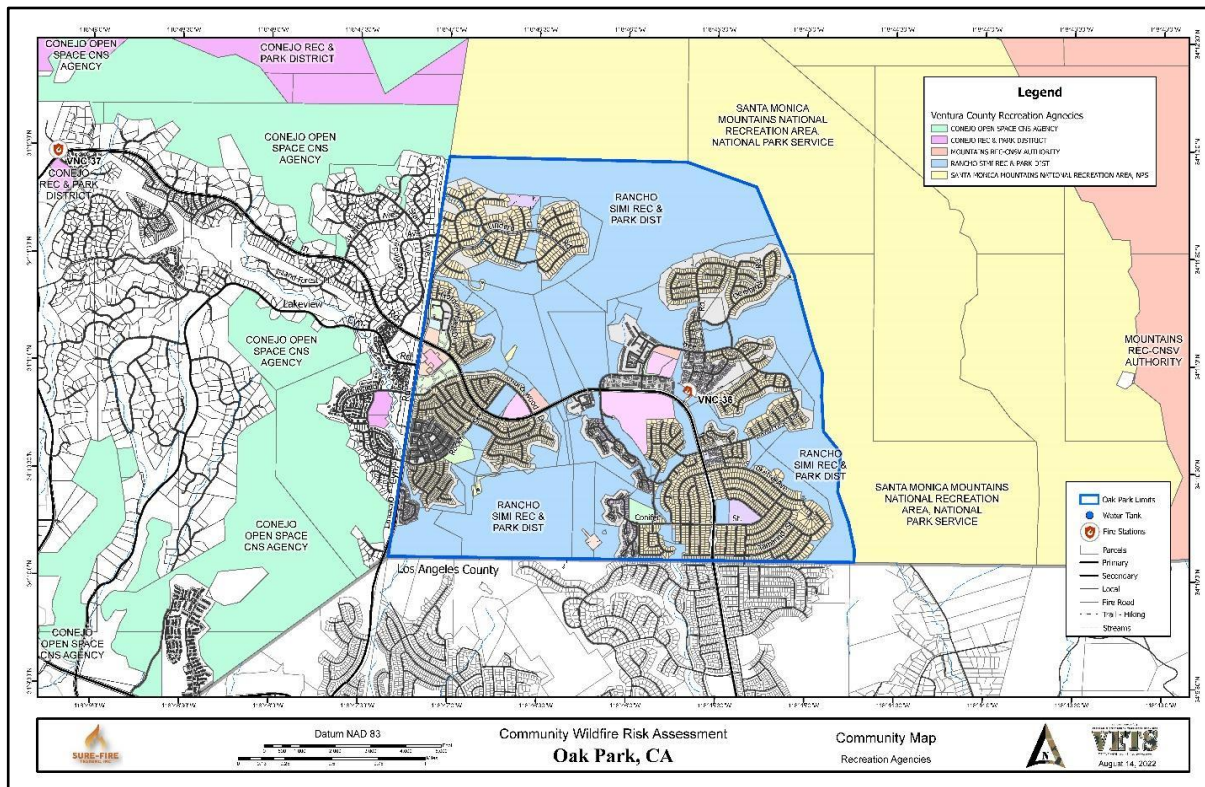


Figure 9; Open Space and Parklands surrounding Oak Park

NPS manages and operates Cheeseboro and Palo Comado Canyon approximately 4000 acres with hiking trails and wildlife in historic ranching areas. This public open space area provides popular terrain for hikers, bikers, and equestrians. This open space area is connected to and lies to the east of the Rancho Simi Recreation and Park District Open Space and is further connected in the east to Upper Las Virgenes Open Space Preserve.

MRCA manages and operates Upper Las Virgenes Open Space Preserve. The over 5,600-acre open space area includes trails open to the public. Hikers, runners, mountain bikers and equestrians enjoy miles of trails through rolling hills studded with valley oaks, and riparian canyon bottoms.

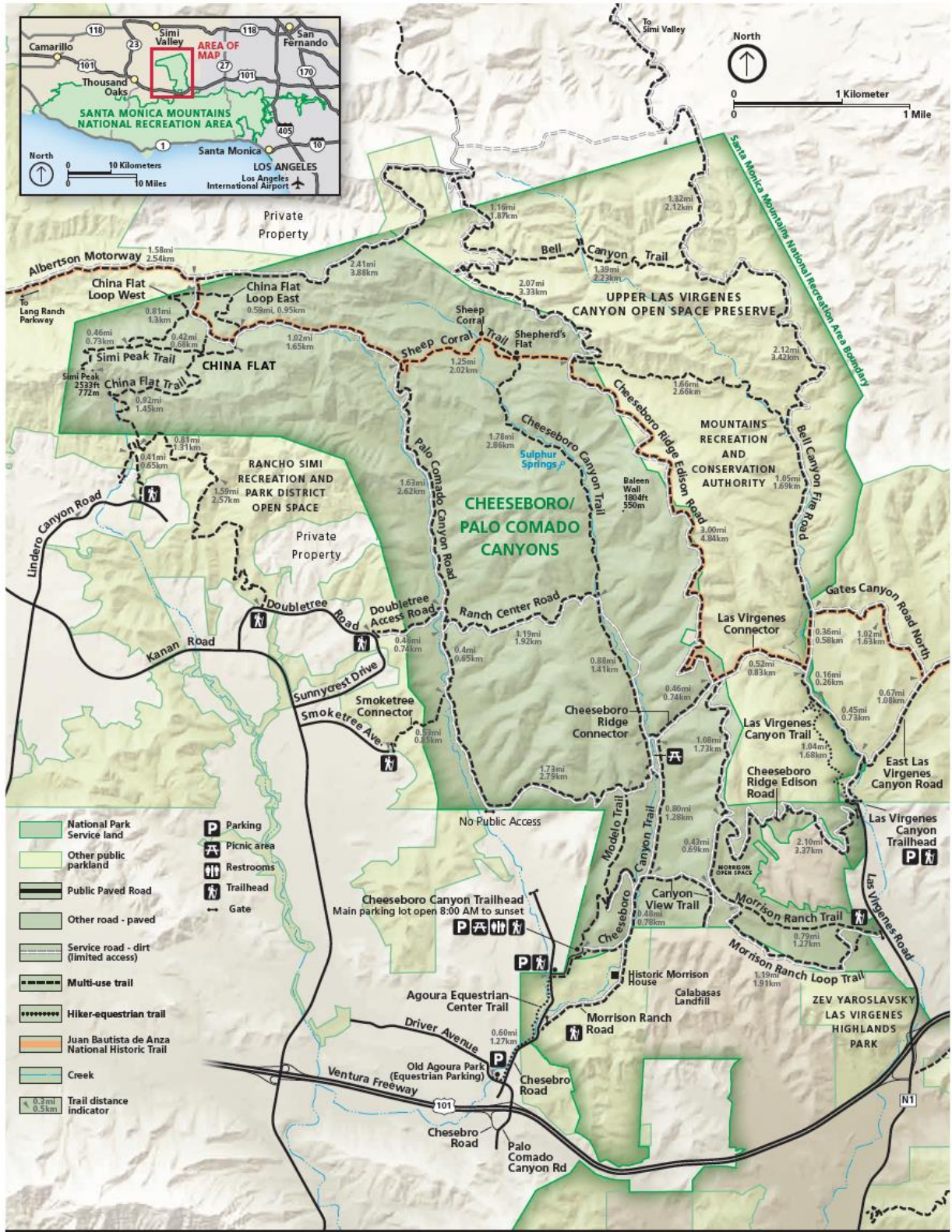


Figure 10; map of interconnected trails and open space areas of Rancho Simi Recreation and Park District, National Park Service and Mountains Recreation and Conservation Authority.

Rancho Simi Recreation and Park District (RSRPD) Fuel Mitigation Projects

RSRPD maintains annual brush and fuel clearance of 100 feet from structures in its open space areas, primarily around the perimeter of the community. Image 9 shows an example of the defensible space maintained by RSRPD in the open space area along Doubletree Road. Weed abatement and brush clearance is also well maintained at many of the trail access points. In the newer tracts of Oak Park, HOA's are typically responsible for conducting 100-foot defensible space and weed abatement. RSRPD maintains the defensible space in the open space areas of the older tracks of Oak Park.

RSRPD applied for and was awarded a \$395,000 Grant from the State of California Natural Resource Agency through the Santa Monica Mountains Conservancy for the Medea Creek Wildfire Resiliency Project.

This project has three major components:

1. Fire Debris and Invasive Plant Removal along Medea Creek.
2. Creation of an Oak Tree Fire Break along the northeasterly leading edge of the community.
3. Purchase of a Bobcat Skid-Steer with attachments to widen trails for fire access and on-going fuel management activities.

RSRPD has recently budgeted \$100,000 in the current budget to thin out the live and dead fuel load in approx. 250' linear feet of Medea Creek beginning at the southwest corner of Oak Hills Dr and Kanan Rd, continuing downstream to the point that the creek passes under Oak Hills Dr.

RSRPD has future plans to remove invasive palm trees in portions of Medea Creek from Bromely Dr. to Kanan, as well as invasive weeds and old dead fuels remaining from the Woolsey Fire. RSRPD continues to work on reducing more fuels in interior park ways of Oak Park as funding becomes available.

Image 10 shows a portion of Medea Creek near the intersection of Sunnycrest Dr and Oak Hill Dr where ladder fuels and dead vegetation have been removed improving defensible space and reducing fire potential. Other areas of Medea Creek Park, and other parkways and drainages in the interior of the Oak Park area have heavy fuels and dead vegetation. These areas have ladder fuels and high fuel loads of live and dead vegetation which could support problem wildland fire behavior and increased ember production. RSRPD is working with the California Department of Fish and Wildlife as well as other permitting agencies to reduce these fuels when more funding becomes available.



Image 9; RSRPD maintains defensible space along Doubletree Road



Image 10; the portion of Medea creek where ladder fuels and dead vegetation have been removed



Image 11; shows heavy fuel in Medea Creek on southside of Sunnycrest Drive

The roadways in Oak Park are generally well maintained, with paved sidewalks and irrigated landscaping areas, which are an added buffer between the structures and some open space areas (Image 12). Residential areas that are served by Homeowners Associations (HOA) are typically are well maintained with good clearance and irrigated landscaping, however some areas have heavier fuel loads in drainages and riparian areas that are close to structures.



Image 12; Irrigated landscaping buffer between open space and community along Sunnycrest Dr.

Churchwood Drive Fuel Mitigation Project

Several homes in the Hillcrest HOA on Churchwood Drive burned to the ground during the Woolsey Fire and many more in the same HOA had significant structural or smoke damage. In an effort to reduce the wildfire risk after this devastating event, one homeowner that experienced significant damage initiated a goat grazing project in the open space areas north of Churchwood Drive treating approximately 17 acres of invasive vegetation, dead brush and 10-12-foot-tall dead mustard weed that covered the hillside. This project that occurred in the Spring of 2022, was funded primarily by the initiating homeowner with additional donations from some of the local homeowners and funds raised by students from Oak Park High School. The homeowners and RSRPD would like this to be an annual recurring project, if they can continue to raise funds. Additional funding would help to sustain this project and help to reduce the threat of wildfire to Churchwood Drive area. (Vorkink, 2022) ([Steepleton, 2022](#)).

WILDFIRE HISTORY

Wildfire has historically been part of the eastern Ventura County area, although fire frequency due to human caused fires has increased as population has increased. Throughout the Oak Park area, fire poses an ongoing threat to the community. The risk of an ignition is variable, with the potential for fires to occur from many types of ignition sources including natural and human activities (accidental, deliberate, or undetermined).

Some of the more significant fires in recorded history for the Oak Park area are shown in Figure 12:

Fire History for the Oak Park area 1949 to 2018		
Fire Name	Date	Acreage
Woolsey	November 8, 2018	96,949
Topanga	September 28, 2005	23,396
Dayton Canyon	October 9, 1982	43,097
Clampitt	September 25, 1970	115,537
Simi Hills	October 31, 1949	20,578
Total Acres		299.557

Figure 11

Risk of Wildfire Occurrence

For the purposes of this assessment, the annual historic probability of a large wildfire occurring is used to evaluate wildfire risk. Fire risk is the probability that a fire will ignite, spread, and potentially affect one or more resources valued by people. Historic wildfire records maintained by the CAL FIRE were analyzed for the time period 1949 through 2021. Wildfire occurrence probability was determined from these records by dividing the number of fires that have burned in the Oak Park area by the period of record, in this case, 72 years. This methodology creates a wildfire frequency probability for the planning area. The annual historic probability of fire frequency as calculated with these 5 fires over a period of 72 years to determine a probability or risk of a large wildfire occurring every 14.4 years.

As is shown in Figures 12-17, large fires have occurred on a relatively regular basis in the area.

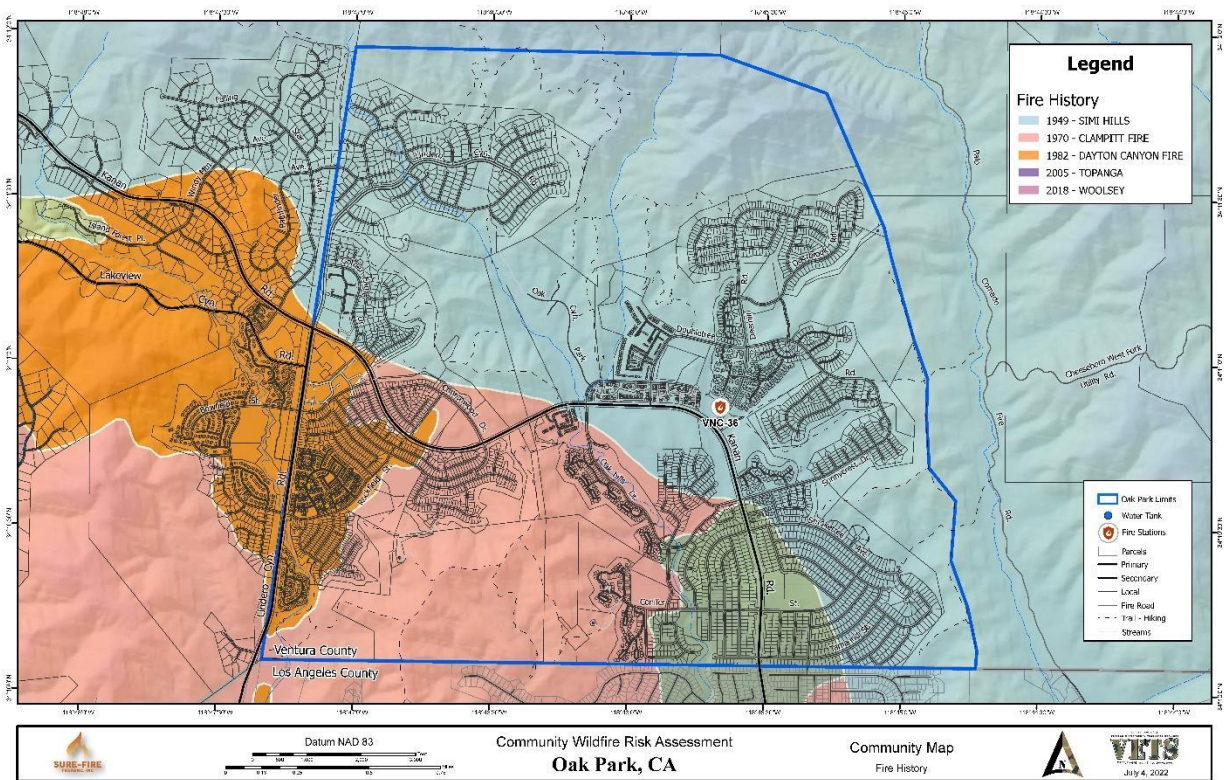


Figure 12; Oak Park Fire History slideshow

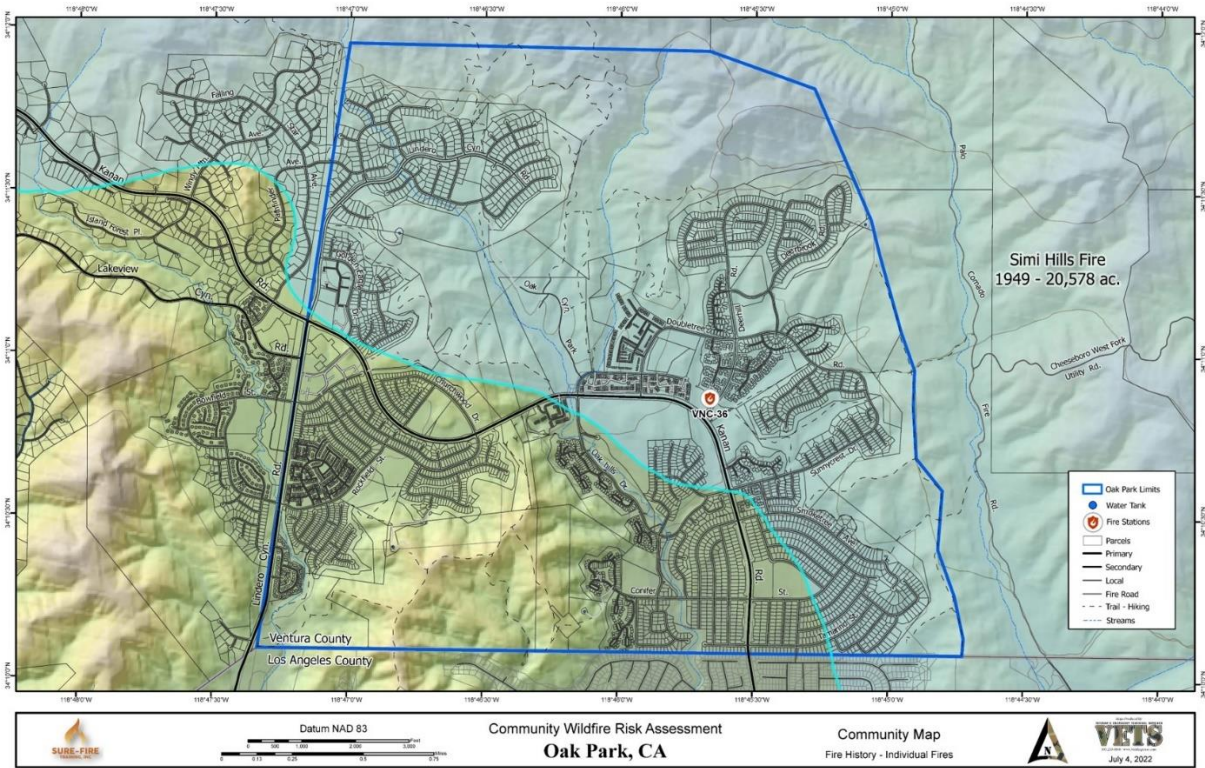


Figure 13: Simi Hills Fire 1949

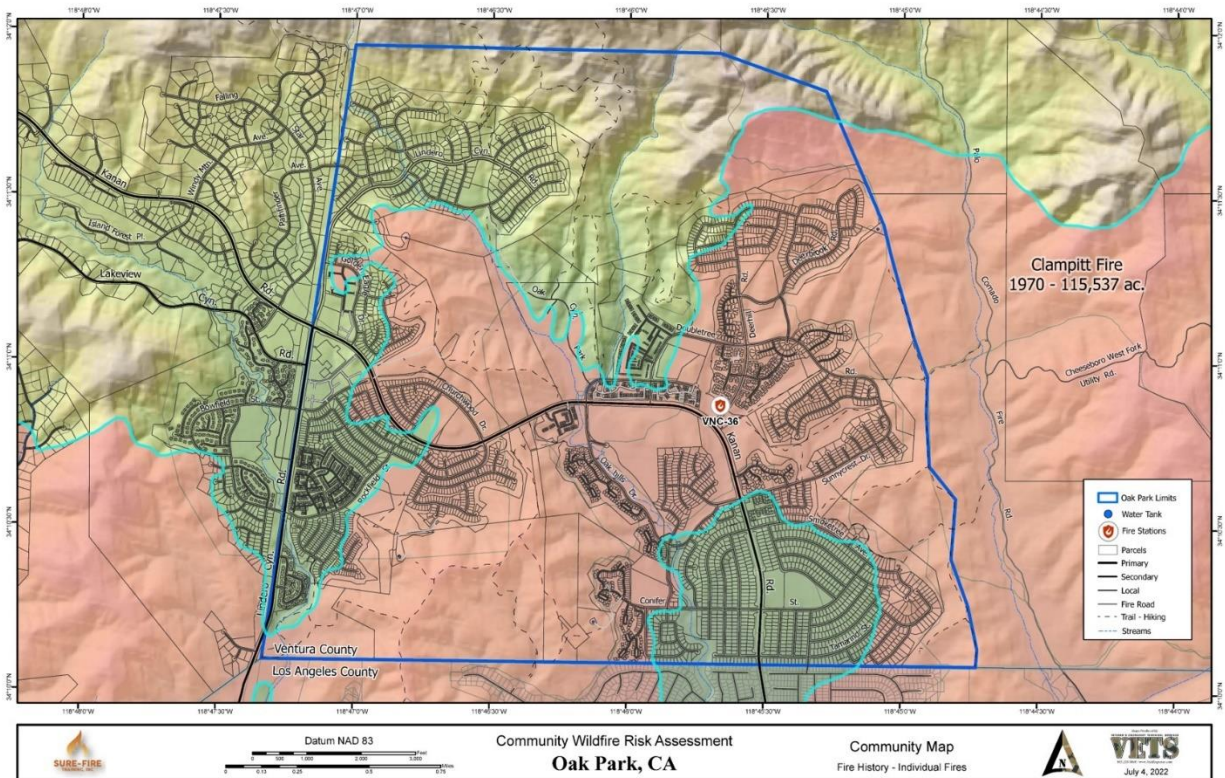


Figure 14: Clamptitt Fire 1970

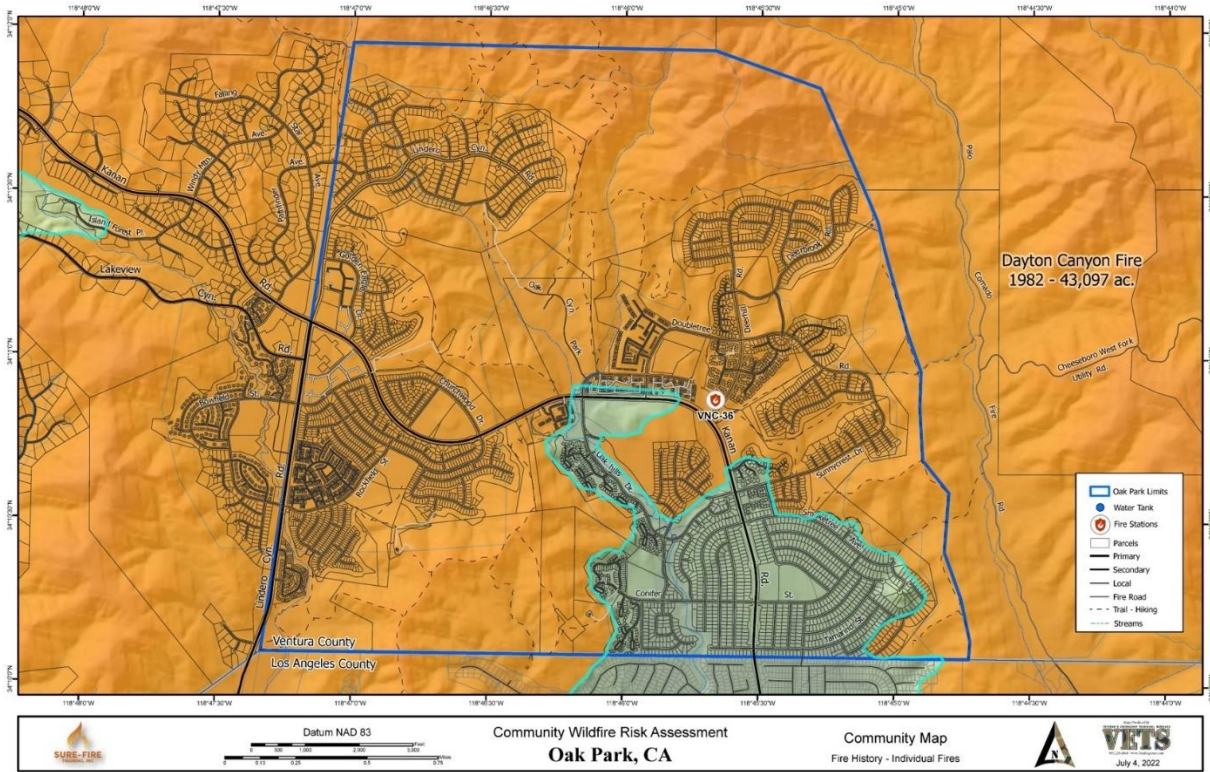


Figure 15 Dayton Canyon Fire 1982

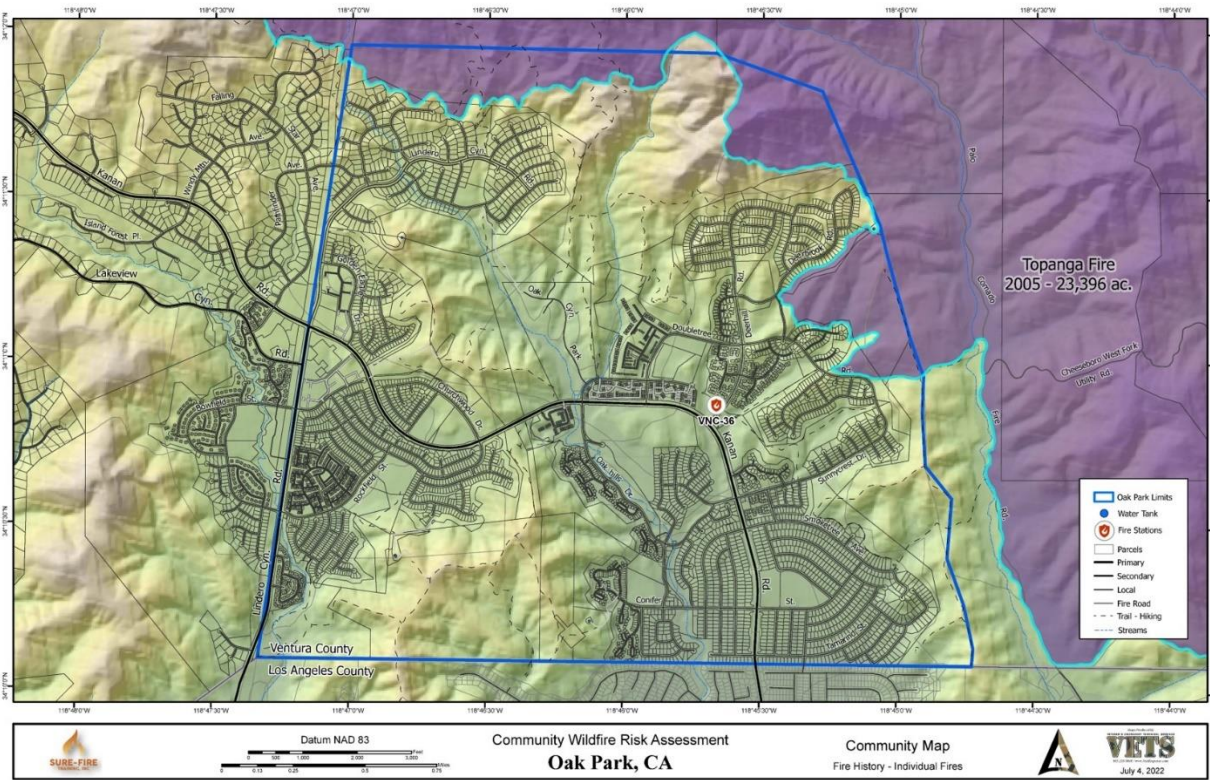


Figure 16: Topanga Fire 2005

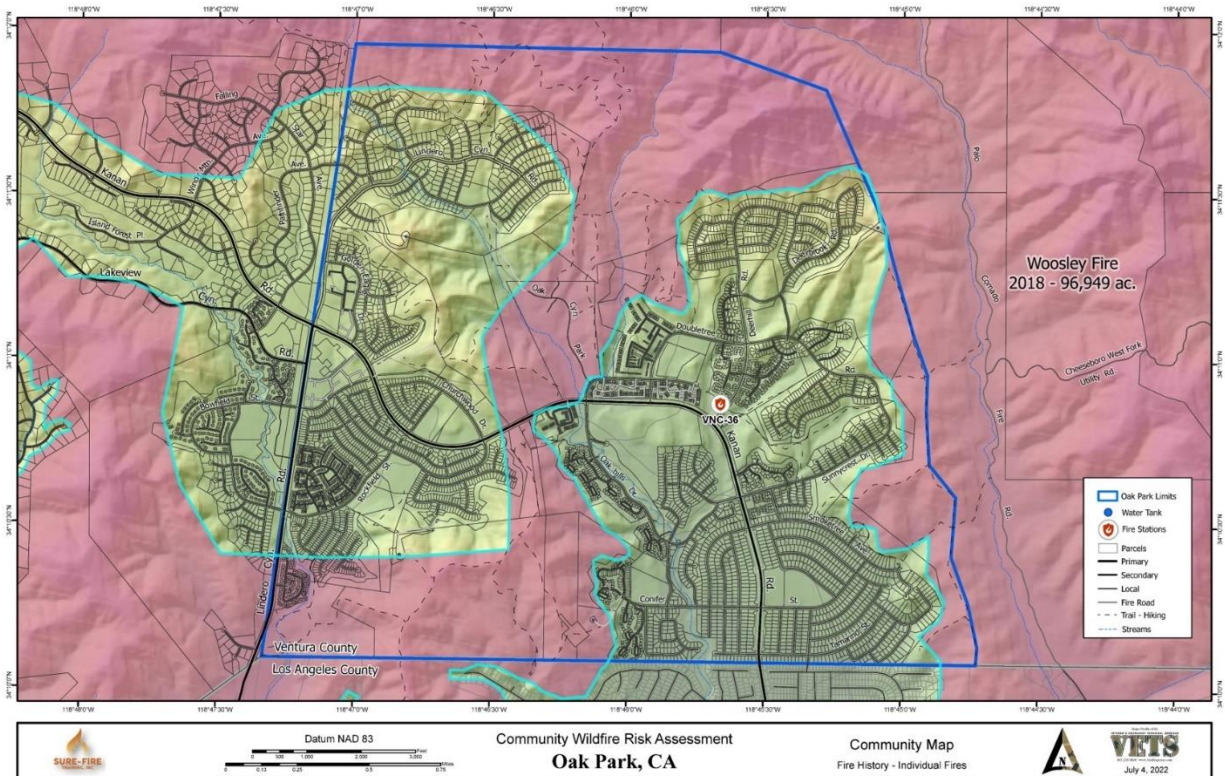


Figure 17 Woolsey Fire 2018

The data also shows that there is a much higher risk of larger fires occurring in late summer and early fall when the Santa Ana wind events are more common. All of the significant 5 fires in the Oak Park Area occurred in the period between late September and early-November for a total of 299,557 acres.

Historic fire patterns are useful general predictors of future patterns, because the geography of our fire regime is determined by ongoing patterns of ignitions, fire weather (especially Santa Ana winds), terrain, and vegetation.

A wildfire becomes a WUI fire when the fire burns in areas where wildland fuels and urban fuels combine, i.e. structures, wood decks, flammable landscaping, or other improvements. The probability of a catastrophic wildfire occurring at any particular location within or adjacent to the planning area is dependent on a chain of events that includes fire ignition, fire weather, topography, fire behavior, and fire suppression actions taken. The probability of large-scale WUI fires occurring within the Oak Park assessment area is high, given the nature of the local fuels, the likelihood of Santa Ana weather events, population density, and the historical data.

A unique set of factors within the assessment area increase the likelihood that a wildfire will ignite. Factors include:

- Homeowner, maintenance worker and parkland use and maintenance activities that can include chainsaws, weed whackers, welding and heavy equipment use in and adjacent to wildland fuels.
- Arcing power lines during Santa Ana wind events
- Frequency of Santa Ana wind events
- Seasonal drying and drought conditions
- Impacts of climate change

While Ventura County has a year-round wildfire season, the majority of the fires burn between June and December. The critical wildfire season for the Oak Park area begins with the development of weather patterns supporting Santa Ana winds. This pattern generally establishes itself beginning in early September, with offshore wind events becoming stronger and more frequent through the fall. The critical fire season continues until enough rainfall occurs to allow for “green-up” of the live herbaceous fuels. This rainfall can occur as late as December or January.

The fuel moisture of the live fuels is a second component of an escalating fall fire season. Through the course of the year, live vegetation dries to a point where the fire behavior characteristics generated from burning this live vegetation approach that of the dead fuel within the fuel complex. This live fuel moisture content, where live fuels burn an intensity approaching that of dead fuel is referred to as the “Critical Live Fuel Moisture”. The moisture level where fuel is deemed “critically dry” by Ventura County Fire Department is 60%. Based on historic fuel sample records from Ventura County Fire, live fuels historically approach this level in September/October (See Figure 18 Ventura County Fire Department Live Fuel Moisture Chart September 2022).



VENTURA COUNTY FIRE DEPARTMENT LIVE FUEL MOISTURE 2022 ALL FUEL BEDS - CHAMISE

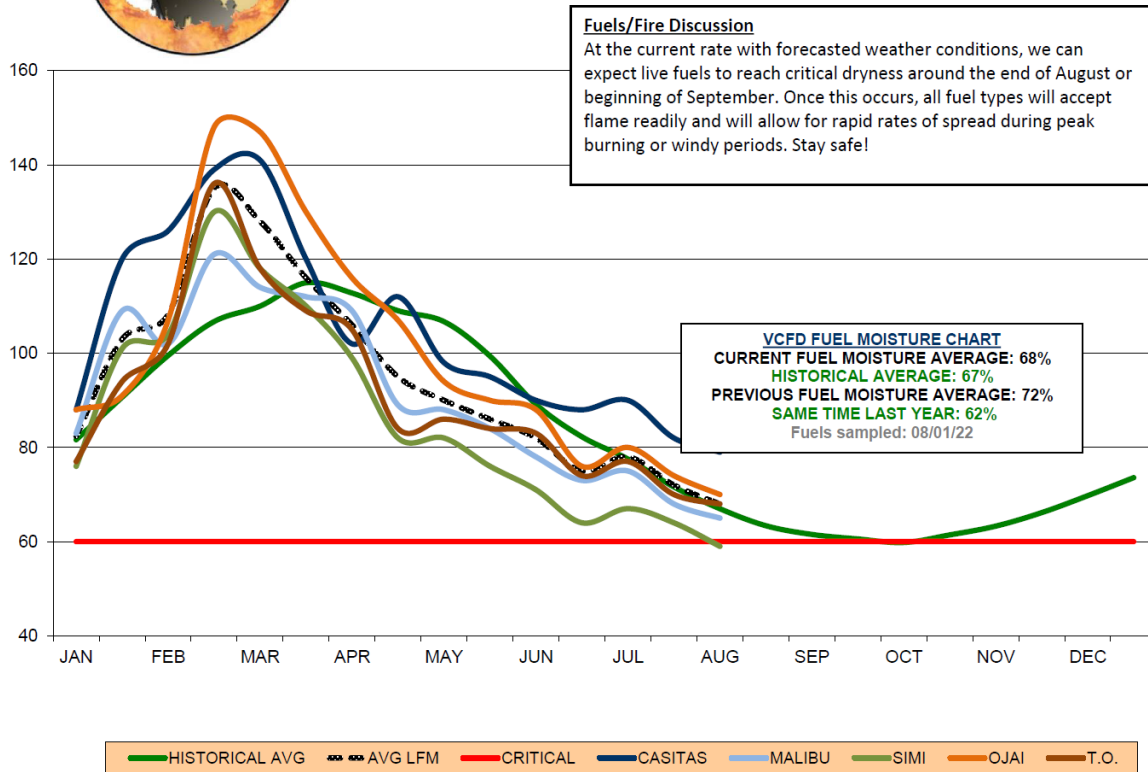


Figure 18

The latest Fuel Moisture Charts are available from Ventura County Fire Department on the web at:
https://s32408.pcdn.co/wp-content/uploads/2020/02/Live_Fuel_Moisture.pdf

Woolsey Fire

The Woolsey Fire burned in Los Angeles and Ventura Counties in California. The fire ignited on November 8, 2018 and burned 96,949 acres of land during a Santa Ana wind event. The fire destroyed 1,643 structures, killed three people, and prompted the evacuation of more than 295,000 people.

The fire started in Woolsey Canyon near the Santa Susana Field Laboratory in the Santa Susana Mountains just northeast of Oak Park. The Santa Ana winds pushed the fire in a south westerly direction throughout the first day pushing the fire into the Oak Park area. The Woolsey Fire burned through the Oak Park area within the first 2 days of the fire. See Figure 19 for the fire progression by day.

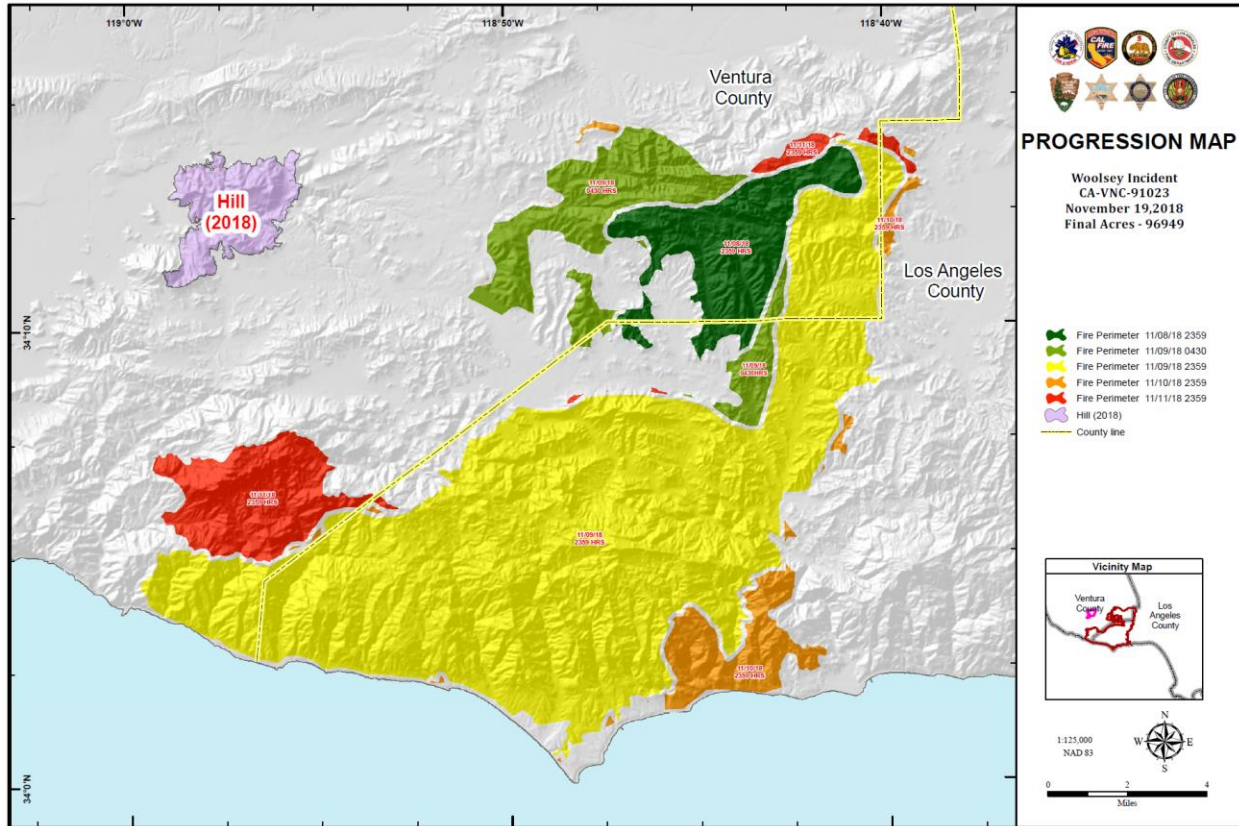


Figure 19; Woolsey fire progression by date and time

As shown in Figure 20, the fire destroyed 16 homes. (Max Young Ventura Regional Fire Safe Council, 2022). As many as 100 homes in the Oak Park area were damaged and required extensive repair. The majority of the structures damaged or lost from the Woolsey fire were located on or near the perimeter in alignment with the wind. However, several homes well within the interior of the community were also lost or damaged, likely a result of ignition by flying embers. See Figure 20 for location of homes that were destroyed or severely damaged during the Woolsey Fire. A significant number of homes in the northern and eastern portions of Oak Park that remained standing after the fire also suffered considerable damage from heavy smoke and blowing embers or flying debris. Due to extended drought conditions and strong winds, the fire consumed most of the native vegetation, which could take decades to return to pre-fire conditions. (VCFD 2022)

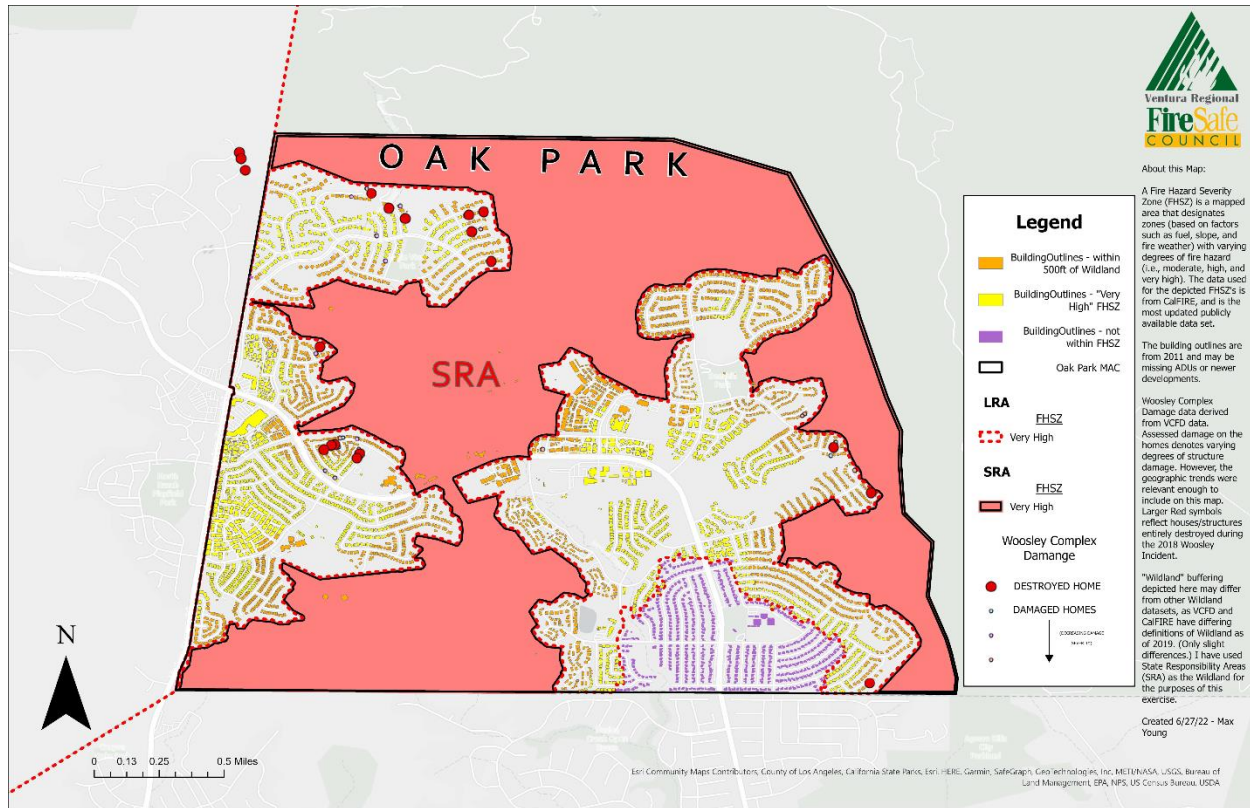


Figure 20; Map showing the location of structures destroyed or damaged during the Woolsey Fire

Burn severity maps help determine the amount of ecological change in an area, such as vegetation loss, after a fire. The [burn severity for the Oak Park](#) area is shown to be primarily low with areas of moderate severity. NASA's Rehabilitation Capability Convergence for Ecosystem Recovery ([RECOVER](#)) is an online mapping tool that pulls together data on 26 different variables such as burn severity, land slope, vegetation, and soil type. Figure 21 is a map showing the preliminary burn severity map for the Woolsey Fire, as posted by NASA RECOVER on November 15, 2018. Is available at: <https://earthobservatory.nasa.gov/images/144265/looking-to-recover-after-the-fire>

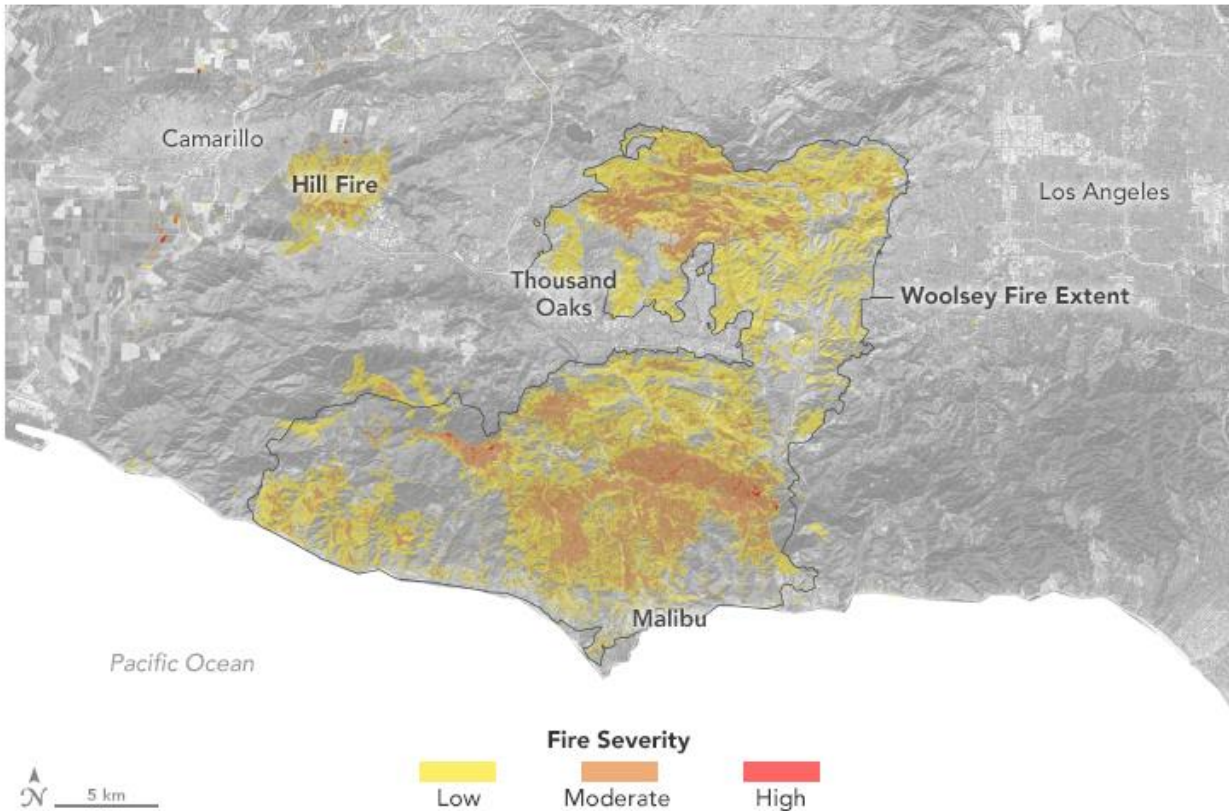


Figure 21; burn severity map from NASA RECOVER November 11, 2018

More detailed information regarding the Woolsey Fire is available in the [Woolsey Fire After Action Report](#) produced by City Gate, November 2019.

COMMUNITY VALUES AT RISK

Values at risk are the intrinsic values threatened by wildfire that are important to the way of life of residents, businesses, and visitors in the planning area. The principal value is life safety of individuals in the community and those responding into the community during a wildland fire.

Other values include, pets, livestock, human development such as homes, outbuildings, infrastructure, schools, businesses, and recreation facilities but values also include natural resources such as sensitive species, wildlife, visual resources, historic resources, cultural resources, air quality, and the resident's feelings about their community and the landscape around them, as well as important personal property such as pictures, heirlooms etc. The challenge is to consider the level of mitigation that is required to protect one value without jeopardizing other values from wildfire.

Of vital importance are numerous life safety issues to consider during a wildfire including: evacuation, access/egress, sheltering in place, defensible space, and structure vulnerability.

Access and Evacuation

The ability to evacuate quickly and safely during a wildfire is a significant concern. In the 2018 Camp Fire in Paradise California, which began on the same day as the Woolsey Fire, evacuees became trapped in their cars. Of the fire's 86 victims eight died in vehicles while trying to drive to safety, five in a single cul-de-sac.

Recent fires in the state have highlighted how important it is to evaluate how to safely and efficiently protect people in an emergency wildfire event. Some communities have identified the need to develop a more holistic, integrated, approach that can work for the whole community. Transportation infrastructure plays a critical role in not only permitting the safe and timely egress of people to a place of relative safety, but also in allowing first responders access to undertake critical operations such as. firefighting, search and rescue, and medical response, in a severe wildfire event. Transportation infrastructure is also a critical component after a disaster for recovery, reconstruction, and repopulation. However, when the transportation systems, local government agencies and citizens lack the capacities to safely and swiftly evacuate or are vulnerable to being trapped and/or damaged due to a wildfire, the potential risk of major losses can be devastating. This is particularly important in Oak Park where the local communities are surrounded by wildlands with limited egress and ingress via two major roads. The community of Oak Park has only two main roads, Lindero Canyon Road and Kanan Road, that provide access and egress to the community to/from the south and west. This limited road system can be easily blocked, damaged and/or congested due to a wildfire or other emergency potentially putting thousands of lives at risk. Developing a resilient and adaptive plan for managing evacuation and/or combined evacuation, safe refuge and shelter-in-place strategy is also a critical component for mitigating potential disasters.

As documented in the Hill & Woolsey Fires Emergency Response After-Action Review, January 2020, the Ventura County Sheriff's Office of Emergency Services identified a slight delay in issuing evacuation orders in the Oak Park area, as compared to other areas. The cause of this delay is attributed to the unanticipated speed in which the fire progressed toward the community. All other evacuation areas reviewed appeared to receive timely notifications. (County of Ventura, 2020)

Evacuation efforts were further hampered by traffic jams and road closures as the Woolsey Fire had impacted several of the major transportation and evacuation routes

such as Highway 101. Oak Park residents reported that evacuation routes were extremely congested resulting in travel times of 1 ½ to 2 ½ hours to travel 2-3 miles to the 101 Freeway.

Another life safety consideration is the presence of service workforce, and/or guests in Oak Park. On a typical week day there is a substantial number of service workers that are working in the community. These individuals may not be familiar with the wildfire threat, road systems, or what to do in the event of evacuation. They will also add to the traffic load during an evacuation.

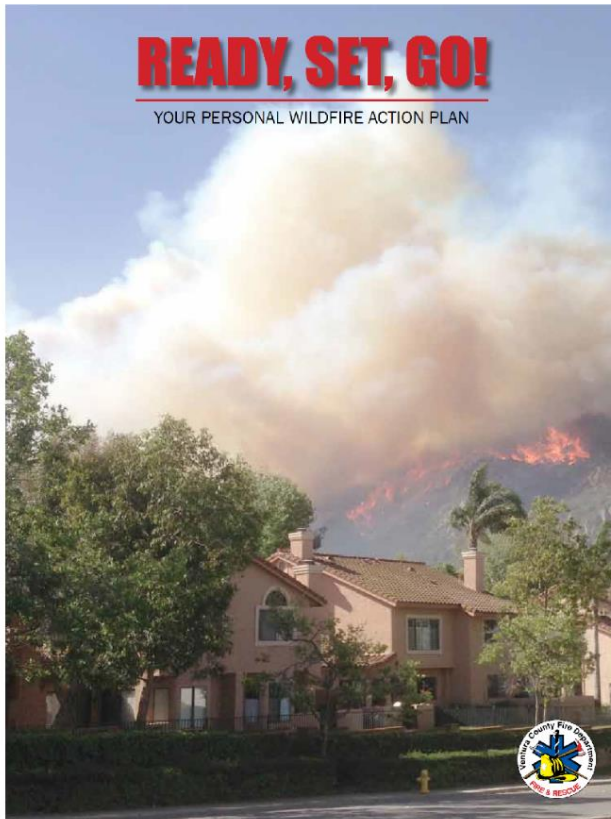
During a quickly developing, severe or fast-moving wildfire, the combination of limited access and large numbers of people evacuating at the same time can put people at risk to injury and/or death (as occurred during the 2018 Camp Fire). Fire severity and spread rates can exceed the ability of public safety agencies to fully implement evacuation plans. To perceive the need, to organize the effort, to initiate the movement, whether just announced through media or notified by direct contact, and for residents to orderly move completely out of the "area" through limited egress, which may become congested, is unlikely and in fact may pose a greater risk to those evacuees. Moving at-risk residents, a short distance to a defined and maintained "safe refuge" within the community may be more appropriate. Within the community of Oak Park there are several facilities and areas that could be evaluated for suitability as safe refuge areas. These areas include many of the schools, interior sports/recreation parks, and commercial areas.

Sheltering in Place

Often during wildfires, residents will choose not to evacuate but stay and defend their homes or decide to shelter in place until the fire danger passes. Lacking firefighting knowledge and without fully understanding the implications of their decisions, residents' actions can put their life safety at risk as well as that of firefighters and law enforcement personnel. Individuals who delayed their evacuation intending to defend their homes, shelter in place, or were slow to leave their homes due to packing personal items have died while fleeing wildfires.

The option of sheltering in place during a wildland fire continues to be widely debated, especially after success stories that were publicized in the media after the Woolsey and Thomas Fires, where many residents stayed to defend their homes. Most fire agencies including Ventura County Fire Department do not advocate staying but have adopted the "[Ready Set Go!](#)" program. The focal points of the program include making your home resistant to wildfires, preparing your family before a wildfire occurs and go; evacuate early giving your family the best chance of surviving a wildfire. Evacuating

early also helps firefighters by keeping roads clear of congestion, enabling them to move more freely and safely do their job.



READY, SET, GO!

*The Ready Set Go program is an award winning, national program designed to help community members be **Ready** with preparedness understanding, be **Set** with situational awareness when fire threatens and then **Go**, acting early when a fire starts.*

For the full Ventura County Fire Department Ready Set Go Wildfire Action Plan see:

<https://vcfd.org/public-info/ready-set-go/>

The primary components as described in the Ready Set Go! Program are:

- **Ready** – Be fire-adapted and ready.
 - Take personal responsibility and prepare long before the threat of a wildland fire so your home is ready in case of a fire. Create defensible space by clearing brush away from your home. Use fire-resistant landscaping and harden your home with fire-safe construction measures. Assemble emergency supplies and belongings in a safe place. Plan escape routes and make sure all those residing in the home know the plan of action.
- **Set** – Situational awareness.
 - Pack your emergency items. Know how to receive and stay aware of the latest news and information on the fire from local media, your local fire department and public safety.
- **Go!** – Act early.

Follow your personal wildland fire action plan. Also be sure to adhere to your local jurisdiction's evacuation processes. Doing so will not only support your safety, but will allow firefighters to best maneuver resources to combat the fire.

EVALUATION OF HOMES AND ESSENTIAL INFRASTRUCTURE AT RISK

General Structure assessment and Vulnerability

Oak Park is an unincorporated community with approximately 14,500 residents living in over 5,000 homes, apartments, and condominiums. Located in the southeast portion of Ventura County, Oak Park's first phase of construction and development began in 1967. The community includes 9 schools, 3 business areas, 11 parks and access to large neighboring areas of recreational trails and open space. More information about Oak Park can be found at: <https://www.oakparknow.com/home>

From a general survey it appears that some of homes have been built with the WUI environment in mind. Many homes are constructed of fire resistive materials such as stucco siding, class A rated fire resistive roofing, slab foundations, boxed eaves, and have well maintained landscaping with hardscapes often adjacent to the structure. The Tax Assessor's data shows that the majority of homes in Oak Park were built prior to [California Building Code Chapter 7A](#) WUI building code requirements, which were established July 1, 2008. (See Figure 22).

Chapter 7A codes apply to the WUI areas in California and identify minimum standards for materials and construction methods for exterior wildfire exposure. Chapter 7A requires building construction used in the exterior of buildings within Wildland-Urban Interface (WUI) fire areas to be fire-resistive construction. Lumber products used as siding, decking or soffits in exteriors must pass state-mandated fire tests.

The requirements are based on the Fire Hazard Severity Zones as shown in Figures 7 and 8. For more information see Office of the State Fire Marshal at: <https://osfm.fire.ca.gov/divisions/community-wildfire-preparedness-and-mitigation/wildland-hazards-building-codes/>

Many of the homes on the outer perimeter of the community are built on parcels that back up directly to open space areas. These homes have direct exposure to wildland areas and could be the first line of homes to be directly impacted by wild fire advancing from open space areas. It is important to continue to maintain the fuels and defensible space in these areas. Some of these areas that are contiguous with

wildland areas are also some of the older homes in Oak Park that were built in the first development phases. Earlier construction features often are often more vulnerable to wildfire.

Additional individual home assessments and Home Ignition Zone inspections are needed to help better define the risk to individual homes and neighborhoods.

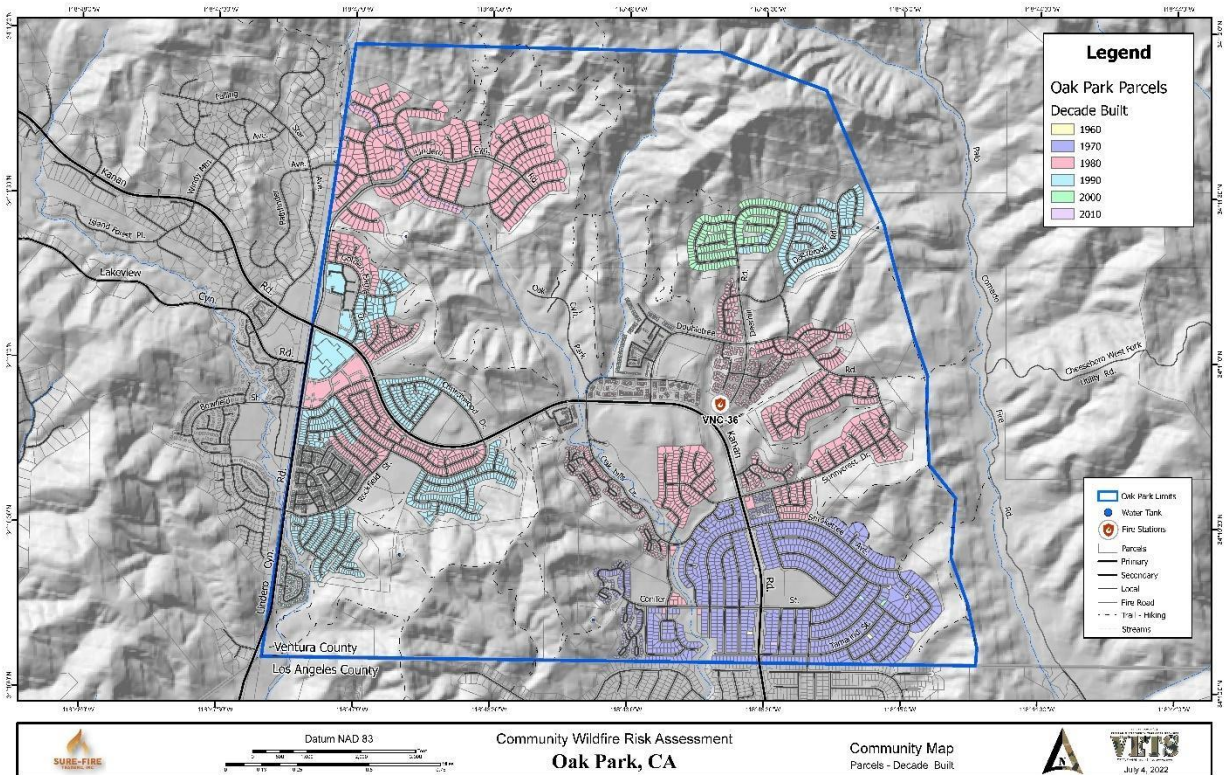


Figure 22; Decade parcels were built

A Home Ignition Zone assessment would be required to be performed at each individual home to determine the actual structure ignition potential for each home. For example, many of the tile roofs need to be inspected more closely for the presence of firestops, which can help reduce the opportunity for ember intrusion into the open spaces under older style classic Spanish tile roofs.

Home and structure loss during wildfires occur as a result of some part of the structure or surrounding environment igniting from one or more of the three basic wildfire exposures: 1) embers, 2) radiant heat, and 3) direct flame contact. Embers cause the majority of wildfire home ignition by directly igniting a structure or igniting vegetation or materials on or near the structure that results in direct flame contact of the structure or a high heat (radiant heat) exposure that may break glass in a window, or ignite exposed material in the structure.

Structure vulnerability is primarily driven by the home's local ignitability, based on the home materials and design features and landscaping selections and maintenance on the property (Quarles, 2010). Modern wildland fire suppression is extremely successful, quickly controlling 97 to 99% of wildfires (Stephens, 2005). Most WUI disasters occur during the 1 to 3% of events when severe weather conditions and terrain align to create rapid fire growth rates and widespread ember showers leading to extreme fire intensities that overwhelm firefighting capabilities (Cohen, 2010) (Cohen, J. D, 2016). Post-fire studies have shown that most buildings ignited during a wildfire have been completely destroyed. Buildings can be ignited from three types of wildfire exposure (listed in order of significance): wind-blown embers (also called firebrands), radiant heat, and direct flame contact (Cohen, J. D, 2016).

Research examining home destruction vs. home survival in wildfires point to embers and small flames as the main way that the majority of homes ignite in wildfires. Embers are burning pieces of airborne wood and/or vegetation that can be carried more than a mile by the wind and can cause spot fires and ignite homes, debris and other objects.

Embers

Most homes lost in WUI disasters are burned not by the flame front of the wildfire, but rather by direct ember ignition, or from low-intensity fires ignited by embers near the home. (Quarles, 2010). In dry and windy conditions often associated with extreme weather events, embers can be cast a mile ahead of the fire front, igniting spot fires across broad areas in advance of the wildfire front. In recent post-fire analyses, it was not uncommon to find more than two-thirds of home losses were from embers or low-intensity fires. (Cohen, J. D, 2016) (Maranghides, 2009). Direct ember ignition can occur when embers enter the building through openings such as vents or an open or broken window. Once inside, embers can ignite furnishings or other combustible materials stored there. Direct ember ignition can also occur when embers accumulate and ignite combustible parts of the building, such as a wood shake roof, combustible decking, or debris accumulated on a roof or in a gutter. Embers can also result in an indirect ignition scenario if they ignite vegetation or other nearby combustible materials that cause a spot fire, subjecting a portion of a building to either a direct flame contact exposure where the flames touch the building or a radiant heat exposure.

Radiant Heat

Radiant heat can be generated by burning tree canopies or shrubs, landscape vegetation, neighboring buildings, or other nearby fuel. The vulnerability of a building to radiant heat depends on the intensity and duration of the exposure. If the radiant heat level is high enough and the duration long enough, it can result in the ignition of a

combustible product (for example, wood siding), or it can break the glass in windows and doors, making ember-ignition of interior materials more likely. Exposures to lower levels of radiant heat can pre-heat materials, making them easier to ignite if exposed to flames (Headwaters Economics, 2018).

Direct Flame Contact

Direct flame contact from the wildfire as it passes the property can be the trigger that leads to ignition of a building component, such as combustible siding. Once a building component ignites it is easier for the fire to enter the building through the component or through the stud cavity behind a component, such as wall siding. Fire can also spread vertically up the wall, impinging on and possibly breaking glass in windows or doors, or enter the attic through the eave or eave vent. Once glass breaks, embers can readily enter the building and ignite interior furnishings.

There are proven methods for homeowners to prepare their homes to withstand ember attacks and minimize the likelihood of flames or surface fire touching the home or any attachments. Experiments, models and post-fire studies have shown homes ignite due to the condition of the home and everything around it, up to 200' from the foundation (Cohen, 2010). This is called the Home Ignition Zone (HIZ).

Home Ignition Zones



Figure 23; diagram of the NFPA Home Ignition Zones

Immediate Zone

The home and the area 0-5' from the furthest attached exterior point of the home; defined as a non-combustible area. Science tells us this is the most important zone to take immediate action on as it is the most vulnerable to embers. Start with the house itself then move into the landscaping section of the Immediate Zone.

- Clean roofs and gutters of dead leaves, debris and pine needles that could catch embers.
- Replace or repair any loose or missing shingles or roof tiles to prevent ember penetration.
- Reduce embers that could pass through vents in the eaves by installing 1/8 inch metal mesh screening.
- Clean debris from exterior attic vents and install 1/8 inch metal mesh screening to reduce embers.

- Repair or replace damaged or loose window screens and any broken windows. Screen or box-in areas below patios and decks with wire mesh to prevent debris and combustible materials from accumulating.
- Move any flammable material away from wall exteriors – mulch, flammable plants, leaves and needles, firewood piles – anything that can burn. Remove anything stored underneath decks or porches.

Intermediate Zone

5-30' from the furthest exterior point of the home. Landscaping/hardscaping-employing careful landscaping or creating breaks that can help influence and decrease fire behavior:

- Clear vegetation from under large stationary propane tanks.
- Create fuel breaks with driveways, walkways/paths, patios, and decks.
- Keep lawns and native grasses mowed to a height of four inches.
- Remove ladder fuels (vegetation under trees) so a surface fire cannot reach the crowns. Prune trees up to six to ten feet from the ground; for shorter trees do not exceed 1/3 of the overall tree height.
- Space trees to have a minimum of eighteen feet between crowns with the distance increasing with the percentage of slope.
- Tree placement should be planned to ensure the mature canopy is no closer than ten feet to the edge of the structure.
- Trees and shrubs in this zone should be limited to small clusters of a few each to break up the continuity of the vegetation across the landscape.

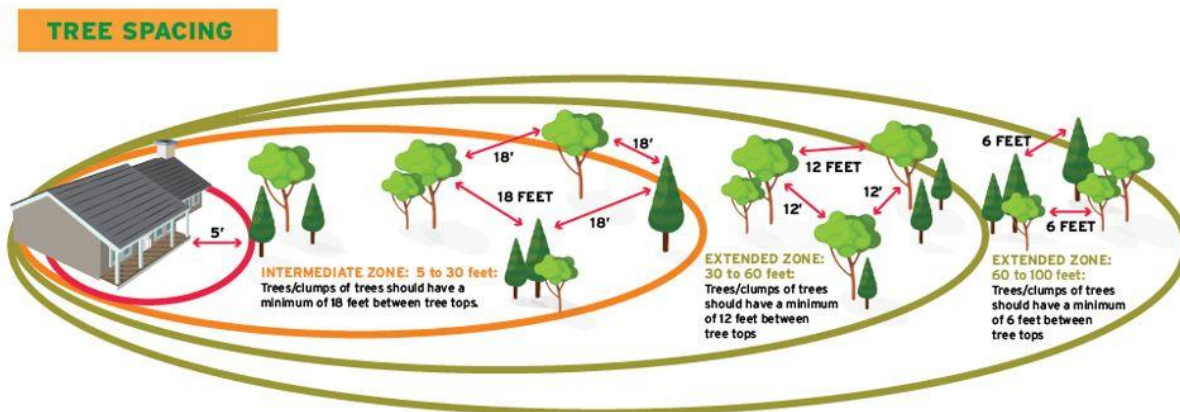


Figure 24

Extended Zone

30-100 feet, out to 200 feet. Landscaping – the goal here is not to eliminate fire but to interrupt fire's path and keep flames smaller and on the ground.

- Dispose of heavy accumulations of ground litter/debris.
- Remove dead plant and tree material.
- Remove small conifers growing between mature trees.
- Remove vegetation adjacent to storage sheds or other outbuildings within this area.
- Trees 30 to 60 feet from the home should have at least 12 feet between canopy tops. *
- Trees 60 to 100 feet from the home should have at least 6 feet between the canopy tops. *

**The distances listed for crown spacing, see figure 24, are suggested based on NFPA 1144. However, the crown spacing needed to reduce/prevent crown fire potential could be significantly greater due to slope, the species of trees involved and other site-specific conditions. Check with your local forestry professional to get advice on what is appropriate for your property.*

For more information on how to increase a home's potential survivability in a wildfire see the NFPA document at: [Reducing wildfire Risks in the Home ignition Zone](#)

Infrastructure

Short and long-term losses to infrastructure and services can include: the loss of day-to-day access to the community from adjacent communities, damaged roads, communication lines, communication towers and antennas, depleted water systems, damaged sewer systems, and lack of power due to burned power poles and melted powerlines. In addition, there may be impacts to community facilities, service facilities, and schools. It can take days, weeks, or months to repair critical infrastructure and restore services.

Notable infrastructure

- 9 schools – preschool through high school
- 3 commercial centers
- 1 fire station
- 11 parks, and recreation areas
- 1 community center
- underground utilities
- water, sewer and power distribution facilities
- communication towers
- residential structures (single-family homes, townhomes, and apartments), approximately 5000 homes with 14,500 residents

Schools

The community is served by the [Oak Park Unified School District](#) (OPUSD), which has three elementary schools K-5 (Brookside Elementary, Oak Hills Elementary and Red Oak Elementary), a middle school 6-8 (Medea Creek Middle School), Oak Park High School (9-12), Oak Park Independent School (K-12), and Oak View High School (an alternative high school for ages 16 and above).

Public high schools in Oak Park:

- Oak Park High (Students: 944, Location: 899 Kanan Rd., Grades: 9-12)
- Oak Park Independent (Students: 75, Location: 5801 Conifer St., Grades: KG-12) located on the same campus with Oak View High (Students: 22, Location: 5701 Conifer St., Grades: 9-12)

Public elementary and middle schools in Oak Park:

- Medea Creek Middle (Students: 911, Location: 1002 Doubletree Rd., Grades: 6-8)
- Brookside Elementary (Students: 336, Location: 165 N. Satinwood Ave., Grades: KG-5)
- Red Oak Elementary (Students: 284, Location: 4857 Rockfield St., Grades: KG-5)
- Oak Hills Elementary (Students: 233, Location: 1010 Kanan Rd., Grades: KG-5) located on the same campus with Oak Park Neighborhood School preschool (Location 1010 Kanan Rd, Ages 2-5)

Private elementary/middle school in Oak Park:

- Peace Montessori (Students: 66, Location: 5450 Churchwood Dr, Ages: infant to KG) <https://oakparkmontessori.org/>

Oak Park Businesses

There are 3 commercial centers within Oak Park:

- The original Oak Park commercial center is located at Sunnycrest and Kanan Road. This is a very small center, with just a few businesses.
- Oak Park Shopping Center at the southeast corner of Kanan and Lindero Canyon Roads, contains a large retail drug store and a variety of other retail stores, restaurants, and services.
- Shopping center on the northeast corner of Kanan and Lindero Canyon Roads, with more restaurants and services.

Although not in Oak Park but in North Ranch there is a large shopping center on the south west side of the Lindero Canyon/Kanana Rd intersection and a large church complex and parking lot on the north west side of the intersection.

The commercial areas at the intersection of Lindero Canyon/Kanana Rd could be identified as staging areas, safety zones or evacuation collection points during a wildfire.

Fire Station

Ventura County Fire Station 36 is centrally located in Oak Park at 855 Deerhill Road and is staffed 24 hours daily with a Type 1 Medic Engine and 3 firefighters and also houses a reserve Type 1 Engine.

Parks and Recreation Areas

[Rancho Simi Recreation and Park District](#) operates 875 acres of open space with 11 Parks 9 trails, and 1 [community center](#) in the Oak Park area. See Figure 25 for a map of the trails.

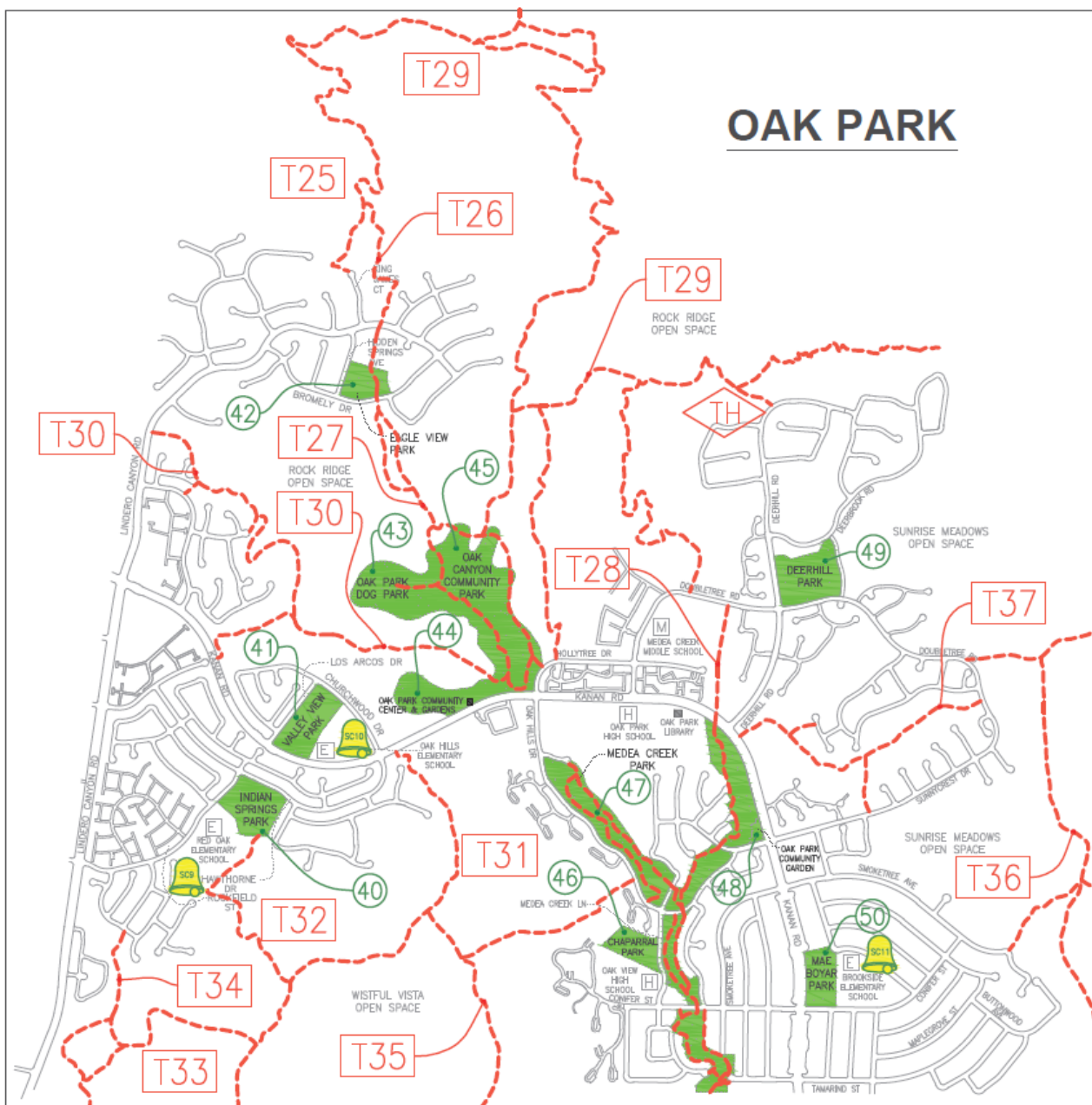
Open Space areas include:

- Rock Ridge Open Space
- Sunrise Meadows Open Space
- Wistful Vista Open Space

Trails – open for multi-use, hiking, biking and horseback riding. Click on links for additional information and maps:

- [Canyon Cove Trail](#) - Two trailheads off of Lindero Canyon Rd. 600 ft. & 1900 ft., south of Rockfield St.
- [China Flat Trail](#) - Two Trailheads: 1) King James Ct., and 2) Lindero Canyon Rd.
- [Medea Creek Trail](#) - Multiple trailheads; Some of which are off of Oak Hills Dr., Medea Creek Ln., Conifer St., Kanan Dr.

- [Oak Canyon Community Park Trail](#) - Multiple trailheads: 1) Lindero Canyon Rd., 2) Bromley Dr., (north & south) and 3) two off of Hollytree Dr.; pass the gates.
- [Rock Ridge Trail](#) - Three trailheads: 1) Lindero Canyon Rd., 2) Golden Eagle Dr., and 3) Golden Nugget Way.
- [Rock Ridge Trail \(East\)](#) - Three trailheads: 1) Hollytree Dr., 2) Doubletree Rd., and 3) Deerhill Rd.
- [Sunrise Meadow Creekside Trail](#) - Four trailheads: 1) Kanan Rd., 2) Sunnycrest Dr., 3) Doubletree Rd., and 4) Oak Point Dr.
- [Sunrise Meadow Ridge Trail](#) - Five trailheads: two from Smoke Tree Ave., and one from Doubletree Rd., Sunnycrest Dr. and Peregrine Cir.
- [Wistful Vista Trail](#) - Multiple trailheads: some of which are off of Oak Hills Dr., Kanan Rd., and Rockfield St.
- [Chaparral Park](#), 217 N. Medea Creek Road
- [Deerhill Park](#), 6700 Doubletree Road
- [Eagle View Park](#), 1240 Hidden Springs Avenue
- [Indian Springs Park](#), 4800 Rockfield Street
- [Mae Boyar Park](#), 130 Kanan Road
- [Medea Creek Natural Park](#), Conifer Street and North Medea Creek Lane
- [Oak Park Community Center](#), 1000 N. Kanan Road
- [Oak Canyon Community Park](#), 5600 Hollytree Drive
- [Oak Canyon Dog Park](#), 5600 Hollytree Drive
- [Oak Park Community Gardens](#), 401 Kanan Road
- [Valley View Park](#), 100 Los Arcos Drive



Utilities

All of the utilities in the Oak Park development are underground, with the exception of high voltage distribution lines that run above the west side of Lindero Canyon Rd and continue into North Ranch Open Space to the west. Southern California Edison also has a large electrical distribution substation facility at 734 Lindero Canyon Rd.

Underground utilities within Oak Park significantly reduce the potential of overhead electrical wires as a cause for wildfire ignition. Underground utilities also reduce the potential hazards and issues related to above ground utility systems during wildfire events such as: downed power lines, fire weekend utility poles, and communication system disruption.

Water System

Triunfo Water & Sanitation District (TWSD) supplies 2.6 million gallons of potable water daily to more than 14,000 people in the community of Oak Park. The water distribution system consists of four storage reservoirs, five pumping stations, and 54 miles of pipeline. Triunfo purchases 100% of its water from northern California via the California State Water Project. Triunfo also supplies recycled water for irrigation of parks, schoolyards, homeowner association landscapes, and roadway greenbelts. In 2017, the district expanded that service, and increased its operating efficiency, with the purchase of Calleguas Municipal Water District's recycled water system. TWSD's network of water storage tanks allow some in-system transfers between reservoirs in the event of water outages. Tank levels in each of the reservoirs are also maintained for Ventura County Fire Department specifications for optimum water quality and for distribution system efficiency. Presently the total storage volume is equivalent to approximately two days' worth of supply.

There are several water storage tanks, pumping stations and other important water and sanitation facilities located throughout Oak Park. See the [Triunfo Water and Sanitation District map](#), Figure 26, for more detail.

Oak Park water service area water storage tank information:

STORAGE TANK NAME	YEAR OF CONSTRUCTION	CONSTRUCTION MATERIAL	CAPACITY (GALLONS)
Oak Canyon	2013	Concrete	2,100,000
Deerhill	1998	Concrete	2,000,000
Savoy	1990	Steel	1,600,000
Kilburn	1986	Steel	860,000

Many of the homes and apartment complexes have swimming pools which can possibly assist firefighters with additional water supply.

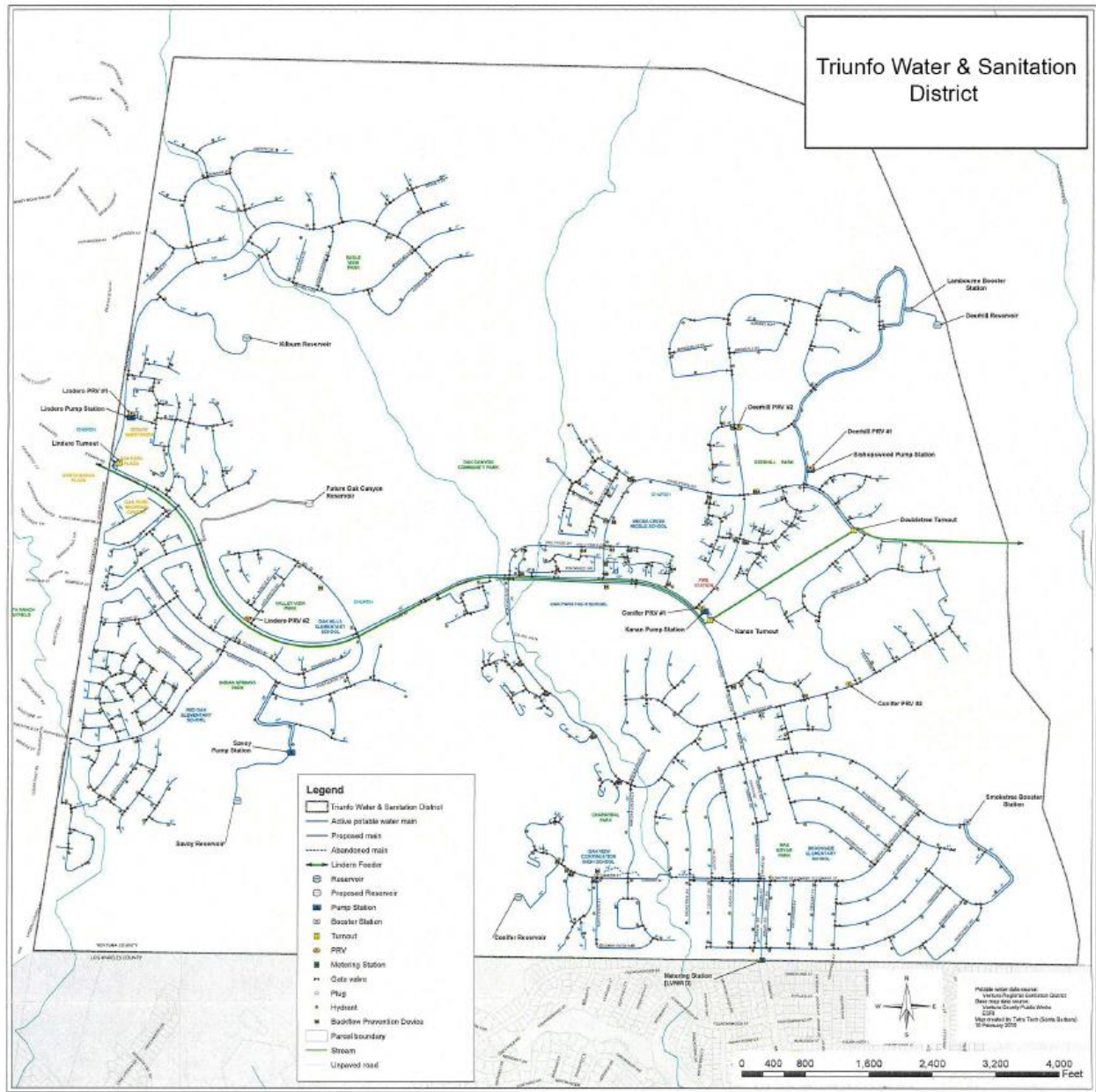


Figure 26

[Link to PDF map](#)

The water system serving Oak Park was constructed over time as the community developed beginning in the late 1960s. Some portions of the distribution system were built as recently as the late 1990s. The life expectancy for water systems similar to Triunfo Water & Sanitation District's system is 100+ years. Potable water systems are not designed to fight wildfires, but to provide reliable, high quality, and sufficient water supply for the District's customers.

The system is also compliant with the County Fire Department's requirement to provide sufficient supply for structure fires. The municipal water system has fire hydrants spaced every 300-500 feet throughout the residential areas. Triunfo's primary pump stations do have auxiliary power from diesel fueled generators that would be sufficient to move water supplies into any area of the system. (Rydman 2022).

Calleguas – Las Virgenes Interconnection

Calleguas Municipal Water District (Calleguas) provides water supplies to local water agencies that serve the communities of North Ranch and Oak Park. Calleguas and Las Virgenes Municipal Water District (LVMWD) each own and operate potable water systems largely dependent on imported water supply. The Calleguas water system currently relies on a single point of connection to receive imported water. Calleguas and LVMWD are constructing an interconnection to improve the redundancy and reliability of both water systems. The construction of this water supply reliability project involves the installation of a 24" watermain and a pump station along Lindero Canyon Rd between Thousand Oaks Blvd. and Kanan Rd.

Project Objectives

- Improve the reliability and flexibility of your water storage and distribution systems.
- Improve the ability to provide potable water to the community during periods of reduced imported water supply.
- Reduce the risk for potential water shortages associated with natural disasters, such as wildfire and earthquake, and required system maintenance.



Figure 27; Kilburn Reservoir and communications equipment

Communications Infrastructure in Oak Park

There are several communications towers and facilities located in Oak Park:

FCC Registered Cell Phone Towers Oak Park:

- 1 4997 Kilburn Court (12518) (Lat: 34.189639 Lon: -118.780194), Type: Mtower, Structure height: 15.5 m, At&t Mobility LLC,

Registered Antenna Towers:

- 4997 Kilburn Court (Lat: 34.189444 Lon: -118.780278), Type: 15.2, Overall height: 15.2 m, Cingular Wireless LLC,
- 4997 Kilburn Court (Lat: 34.189444 Lon: -118.780278), Type: 15.2, Overall height: 15.2 m, Registrant: New Cingular Wireless Services, Inc.,
- 4997 Kilburn Court (Lat: 34.189444 Lon: -118.780278), Type: 15.2, Overall height: 15.2 m, Registrant: Cingular Wireless LLC, K
- 4997 Kilburn Court (Lat: 34.189444 Lon: -118.780278), Type: 15.2, Overall height: 15.2 m, Registrant: At&t Mobility LLC, Ka8805@att.Com,
- 4997 Kilburn Court (Lat: 34.189444 Lon: -118.780278), Type: 15.2, Overall height: 15.2 m, Registrant: At&t Wireless Services, Inc

FCC Registered Microwave Towers:

- 3 OAK PARK, 1070 Kanan Rd. (Lat: 34.183611 Lon: -118.777833), Type: Pole, Structure height: 14.4 m, Registrant: Los Angeles Smsa Network Engineering, Verizon
- E End Of Kilburn Ct Adjacent To Water Tank (Lat: 34.189444 Lon: -118.780083), Type: Rig, Structure height: 9.8 m Registrant: Verizon Wireless
- 4996 Kilburn Ct (Lat: 34.189306 Lon: -118.780167), Type: Mtower, Structure height: 15.3 m, (+10 more),

Source City-Data.com: <http://www.city-data.com/city/Oak-Park-California.html>

LOCAL PREPAREDNESS, AND FIREFIGHTING CAPABILITY

Oak Park, which is an unincorporated community in the County of Ventura, is immediately surrounded by State Responsibility Area (SRA). CAL FIRE has the overall responsibility for wildland fire response in the SRA. In Ventura County, CAL FIRE has contracted with Ventura County Fire Department to provide initial attack resources to wildland fire incidents.

Ventura County Fire Station 36 is centrally located in Oak Park at 855 Deerhill Road and is staffed 24 hours daily with a Type 1 Medic Engine and 3 firefighters plus a reserve Type 1 Engine.

Type 1 fire engines are used primarily for structural firefighting and initial Emergency Medical Service (EMS), and although not specialized for the wildland firefighting mission type 1 engines are often deployed for initial attack and structure protection during wildland fires.

There currently is not a wildfire preplan for the Oak Park area, however Ventura County Fire Dept personnel have stated that the development of a wildfire preplan for Oak Park has begun and is in progress. The standard Ventura County Fire dispatch for a brush fire is at the “High” level, unless otherwise directed by the Duty Chief. As identified in the VCFD Operational Procedure 1002, response levels, a high-level response plan will be in force year-round except when altered by the Duty Chief to “Low” or Plan 2 (Ventura County Fire Department, 2018).

Due to the proximity of Los Angeles County to the southern border of Oak Park, Ventura County Fire and Los Angeles County Fire have developed an automatic aid response agreement for wildland fires.

- 7 Engines
- 1 Chief
- 2 Hand Crews
- 2 Helicopters
- Super Scoopers when available
- 1 Medic Squad



Page 55 of 63

Figure 29 shows the Ventura County Fire Department Brush Fire Dispatch High response level.

VCFD “High” Wildland Fire Response Level

Resources Dispatched	First Alarm	Second Alarm
Battalion Chief *	2	+1 (3)
Engine Company **	6	+5 (11)
Water Tender	1	+1 (2)
Dozer	1	+1 (2)
VNC Handcrew	1	+1 (2)
CAL FIRE Handcrew	2	+2 (4)
Helicopter	2	As Needed
Air Attack	1	As Needed
Fixed-wing Air Tanker	2	As Needed
Wildland Battalion Chief	1	(1)
Superintendent 10	1	(1)
Information Officer ♦		1
Command 11 ♦		1
Plans Chief ♦		1
MAP 11		1
Logistics Chief ♦		1
Logistics One ♦		1
Investigator	1	(1)
Safety Officer		1
Division Chief		1

Figure 29

The National Weather Service can issue Red Flag Warnings & Fire Weather Watches to alert fire departments of the onset, or possible onset, of critical weather and dry conditions that could lead to rapid or dramatic increases in wildfire activity. A Red Flag Warning is issued for weather events which may result in extreme fire behavior that will occur within 24 hours. A Fire Weather Watch is issued when weather conditions could exist in the next 12-72 hours. A Red Flag Warning is the highest alert.

An example of the local criteria for Red Flag Warning is a forecast within 48 hours for relative humidity to be below 15% and wind sustained at 25 mph or more for a 6-hour period or longer. For the full Red Flag Warning and Fire Weather watch criteria see National Weather Service, Fire Weather Hazards at:

https://www.wrh.noaa.gov/lox/fastpage/QuickReference_public.pdf

VCFD will typically increase the wildland fire response level to a “Plan 2 Brush” during periods of critical fire weather such as Santa Ana Wind events or Red Flag Fire conditions.

VCFD Brush Fire – Plan 2 Response

Resources Dispatched	First Alarm	Second Alarm
Battalion Chief *	2	+1 (3)
Engine Company**	6	+5 (11)
Water Tender	1	+1 (2)
Dozer	1	+1 (2)
VNC Handcrew	1	+1 (2)
CAL FIRE Handcrew	2	(2)
Handcrew Strike Team		2
Helicopter	2	As Needed
Air Attack	1	As Needed
Fixed-wing Air Tanker	2	As Needed
Task Force 50 (Refer to Brush Emergency Plan.)	1	(1)
Wildland Battalion Chief	1	(1)
Superintendent 10	1	(1)
Information Officer ♦		1
Command 11 ♦	1	(1)
Plans Chief ♦		1
MAP 11		1
Logistics Chief ♦		1
Logistics One ♦		1
Investigator	1	(1)
Safety Officer		1
Division Chief		1
Note: (#) is the total number of the specific resource that shall be dispatched at that point in the incident. * Closest and two Jurisdictional VNC Battalion Chiefs. ** One engine company within the first alarm should establish a heli-spot. ♦ Secondary and overhead resources.		

Figure 30; Ventura County Plan 2 Dispatch Levels for Wildland Fire

CAL FIRE has the overall responsibility for fires in the SRA and can supplement response with additional resources in the event of a large or multi-day wildland fire.

When the availability of local resources are exhausted, additional resources can also be accessed through the California Fire Service and Rescue Emergency Mutual Aid System. "Mutual Aid" is utilized when an emergency incident is likely to exceed, or has exceeded, the ability of a responsible entity to control it. Mutual aid agreements provide a mechanism to quickly obtain emergency assistance in the form of personnel,

equipment, materials, and other associated services. The primary objective is to facilitate rapid, short-term deployment of emergency support prior to, during, and after an incident. For more information on the California Mutual Aid system see:

<https://www.caloes.ca.gov/cal-oes-divisions/fire-rescue/fire-operations>

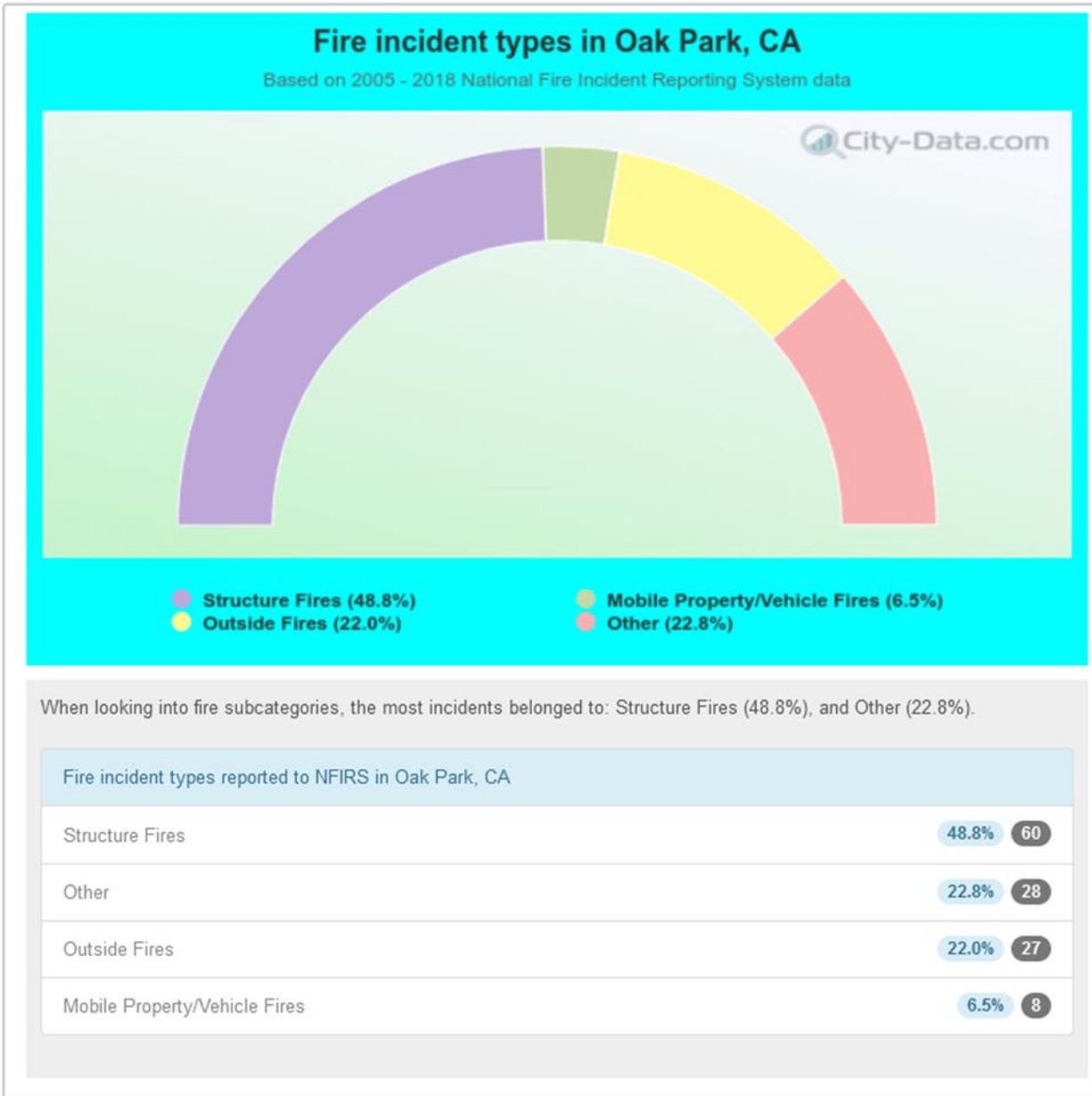
Nevertheless, even with a large and rapid pre-planned response, successful fire suppression still generally requires good access to structures, an adequate supply of water with good water pressure, defensible space around buildings, structure integrity, and timely evacuations by local residents. Factors including the construction characteristics and age of structures, road conditions, and access to water sources greatly influence the outcome of all firefighting efforts.

During periods of high fire activity firefighting resources can be stretched thin as was the situation during the Woolsey Fire.

Example Fire Response data for time and incident type based on 2005 - 2018 National Fire Incident Reporting System (NFIRS) incidents

Source: <http://www.city-data.com/fire/fire-Oak-Park-California.html>





Community Emergency Response Team (CERT)

Oak Park has a Community Emergency Response Team (CERT) which is coordinated by Ventura County. The CERT team consists of volunteer members from the community who have dedicated themselves to assisting Oak Park in the event of a disaster or emergency. All members have attended a series of training classes providing them with disaster preparedness techniques and basic first aid skills.

SUMMARY

Wildland fires will continue to be a threat to Ventura County and the community of Oak Park. With proper education, planning and preparation the potential hazards related to wildfire can be reduced. There are proven methods for homeowners to prepare their homes to withstand the threat of wildfire. Although no single thing removes risk completely, there are solutions to help reduce risk.

The risk wildfire poses to a home and community depends on the vulnerability of that home or community to the fire's intensity and embers that reach it. Even if some homes have been built to fire standards or retrofitted, if nearby homes have not, the entire neighborhood could remain vulnerable

By limiting the amount of flammable vegetation, choosing fire-resistant building materials and construction techniques, along with periodic exterior maintenance, residents can prepare their home to withstand embers and minimize the likelihood of flames or surface fire touching the home or any attachments.

Whether a structure is ignited depends primarily on exterior construction material, a structure's design, geographic location, fire behavior and whether the home has adequate defensible space. Defensible space considers anything near the structure that can burn, which includes native and ornamental vegetation and includes nearby structures.

Proper defensible space and structure integrity are effective in reducing the chance the structure will ignite unless its geographic location makes it highly vulnerable to the extreme fire behavior and convective heat.

The "Ready, Set, Go!", Firewise, and a host of other programs are available to provide information to help residents prepare their homes so they can leave early, confident that they've done everything possible to protect their homes.

Summary of Existing Protective Factors

- The Ventura County Fire Protection District defensible space requirements seem to be generally well established and maintained in the HOA and open space areas surrounding the perimeter of the community.
- The community has multiple schools and sports fields that offer opportunity to identified and used as shelter in place locations or safe refuge areas.
- Underground utilities exist throughout the entire community.

- All homes are built on slab foundations reducing opportunity for wind blown ember intrusion in crawl spaces under structures.
- Water supply systems did not fail during the Woolsey fire.
- Many homes are built with fire resistant construction features.
- A county fire station is located centrally in the community.
- The Oak Park Fire Safe Council is actively pursuing risk mitigation efforts and is working with the community, land management agencies, and public safety agencies to reduce risk to wildfire for the community.

Summary of Existing Risks Identified

- The community of Oak Park is in the Wildland Urban Interface surrounded by wildland fuels and large open space areas.
- The community is positioned in direct alignment with large areas of wildland and open space areas to the north east frequented by Santa Ana winds and historic wildland fires.
- The wildland fuels in the area can support rapid high intensity fire behavior.
- The area has a continued history of periodic large wildland fires.
- There are pockets of heavy fuels throughout the interior parkways, riparian areas and open space areas in Oak Park.
- There are few coordinated fuels mitigation projects that are planned and funded for the area, other than the maintenance being done by RSRPD, HOAs and the requirement for each property owner to maintain defensible space and comply with Ventura County's Fire Hazard Reduction Program.
- Many structures are vulnerable to wildland fire and are not in compliance with Home Ignition Zone guidelines.
- Dependence on a limited road system for access and egress in an emergency that can become severely congested or be cut off by wildfire leaving no exit route, extended evacuation times, and unsafe travel conditions.

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