

Community Wildfire Protection Plan



) Public Review

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Summary

The Rancho Cucamonga Community Wildfire Protection Plan (CWPP) is a compilation of information and data centered around wildfire history, wildfire safety best practices, and community preparedness. The role of the CWPP is to identify wildland fire hazards, reduce the risks associated with wildland fires, and engage the community in planning and preparing for wildland fires in order to minimize the effects these fires have on residents, businesses, and the environment. This document serves as a guide intended to assist the community with preventing wildfires, protecting against the potential destruction of a wildfire event, and increasing resiliency to the wildfires that are a natural part of the ecosystem of the City of Rancho Cucamonga and the nearby unincorporated foothills that are within the Rancho Cucamonga Fire District.

Introduction

In 2008, the California Department of Forestry and Fire Protection (CAL FIRE) completed a statewide mapping project that identified the fire hazard severity zones throughout California. The City of Rancho Cucamonga and the Rancho Cucamonga Fire District were identified as having high or very high fire hazard severity zones within their jurisdictional boundaries. As such, the City and Fire District were required by state law to formally designate a wildland-urban interface fire area.

The wildland-urban interface fire area is understood by fire agencies and land use planning departments to be that area where development intersects and overlaps with land and vegetation that is prone to wildfires such as forest fires, grass fires, or brush fires. After carefully reviewing the mapping completed by CAL FIRE and then comparing it with local fire history, the City of Rancho Cucamonga and the Fire District jointly approved the Rancho Cucamonga Wildland-Urban Interface Fire Area. This mapped area places nearly one-third of the First District's service area in the designated wildland-urban interface fire area and includes both developed and undeveloped areas.

Developed portions of the City of Rancho Cucamonga that are at risk of damage or loss due to a wildfire are those that are within relatively close proximity to the wildland area. Wildland fires that occur near developed neighborhoods create the risk of an urban conflagration arising from a wildfire igniting homes and other buildings and creating a chain reaction of home to home fire as experienced in other parts of the State. Undeveloped portions of the City and Fire District, where the land is both disturbed and undisturbed, are at risk of wildfire due to the fire prone vegetation that ranges from weeds and grasses to complex chaparral biomes.

Purpose

The purpose of this Community Wildfire Protection Plan is to identify the hazards and risks of wildfire in the Rancho Cucamonga Fire District's service area and to provide analysis of the means of reducing the hazards, risks, and associated vulnerabilities and taking steps necessary to increase resiliency.

This plan is intended to be a companion to the relevant construction and fire codes for new development projects as well as a risk reduction guide for existing homes, buildings, and infrastructure in the wildland-urban interface fire area. The purpose is to raise awareness of the local wildland fire hazards and the means to mitigate those hazards and reduce the associated risks.

The Fire District has initiated various action plan projects to further add to the risk reduction efforts. With a layout of the current and future program implementations, the Fire District is focused on reducing the risks and hazards in Rancho Cucamonga.

The primary outcome desired by the formulation and implementation of this plan is measurable and demonstrable reductions in the risks associated with wildfires. Closely associated with that desired outcome is the establishment of a culture of wildfire awareness and prevention that continually seeks innovative ways of further protecting residents, businesses, and the environment from the devastating effects of wildland fires. These outcomes are achieved through the following main goals:

Mitigate the hazard to the extent possible.

Reduce risks associated with wildfire events.

Promote wildfire prevention and safety awareness.

Protect residents, businesses, and the environment from the effects of wildfires.

Increase resiliency and reduce vulnerability to wildfire events.

Terminology

It is important that the terminology used in this plan is consistently understood and accepted by all stake holders and cooperators. For that reason, the following terms are defined:

DISASTER – A sudden, unplanned calamitous event that causes widespread destruction throughout the community or great harm, loss, or negative impacts to an extent that significantly disrupts the functioning of a home or business.

EMERGENCY – An urgent need for assistance or relief; an unforeseen combination of circumstances that calls for immediate action.

HAZARD – A known condition, process, object, feature, phenomenon, or set of circumstances that has potential to cause harm, loss, or negative impacts to life, health, property, and/or environment.

HAZARD MITIGATION – Any sustained action or set of actions taken to reduce or eliminate impacts to people and property from events associated with naturally existing or human-created hazards.

RESILIENCY – The ability to return to normal operation and function, or adjust to temporary circumstances, following an emergency or disaster.

RISK – The likelihood or probability that a hazard will produce harm, loss, or negative impacts.

VULNERABILITY – The capacity to cope with and/or recover from the effects of harm, loss, or negative impacts of an emergency or disaster.

It is important to note the distinction between what constitutes a **HAZARD** and what constitutes a **RISK**. As an example, the native, fire-prone vegetation along with invasive weeds and seasonal grasses are a hazard while the probability of a fire occurring in those fuels is a risk. The terms will be used as defined throughout the document.

Community History and Overview

The Rancho Cucamonga Fire District provides fire suppression, emergency medical, and a variety of other emergency and non-emergency services for approximately 50 square miles of area in western San Bernardino County. The Fire District serves both the incorporated City of Rancho Cucamonga and approximately 5 square miles of sparsely developed unincorporated land that is north of the City of Rancho Cucamonga and south of the San Bernardino National Forest in the foothills of the San Gabriel Mountains. The Fire District's service area is on an alluvial fan formed by the runoff of rainfall and snow melt through Cucamonga, Deer, Day, and Etiwanda Canyons.



Rancho Cucamonga. Photo credit: First Team

The natural vegetation is a diverse array of plant species in a chaparral biome, which is known to be prone to wildfires. To protect people from the undesirable effects of wildfires while still recognizing the value of chaparral and preserving the habitat that it provides, the Fire District works to find the correct balance between fire hazard abatement, fire risk reduction, and environmental conservation. The pursuit of that balance is one of the objectives of this plan.

Cucamonga is a Native American term that means *sandy place*. This is a very apt description of the mix of sand and rocks that make up the alluvial fans. In 1839, the governor of Mexico, which included California at that time, made a land grant to Tiburcio Tapia that became the Rancho Cucamonga. While the surrounding cities of Ontario, Upland, and San Bernardino were incorporated in late 1800s and early 1900s, the City of Rancho Cucamonga did not incorporate until 1977. The incorporation brought together the communities of Alta Loma, Cucamonga, and Etiwanda.



Cucamonga Canyon. Photo credit: Rancho Cucamonga Fire District

Geography

The San Gabriel Mountains are one of the several transverse mountain ranges found in southern California. These east-west oriented mountain ranges are dubbed transverse because they are situated mostly perpendicular to the more dominant north-south oriented mountain ranges in California. Most of the transverse mountain ranges were formed by the uplift of the San Andreas Fault, which is located north of the San Gabriel Mountains.

Geologists believe that most of the uplift along the San Andreas Fault that created the transverse ranges took place in the Cenozoic Era, which is the youngest of the geological periods dating from 66 million years ago to the present day. The uplifting created fault blocks which have been steadily eroded over time. The City of Rancho Cucamonga, along with many other foothill cities, is built on the alluvial fans produced by the erosion of the San Gabriel Mountains.



Cucamonga Peak. Photo credit: Co-Work Booking

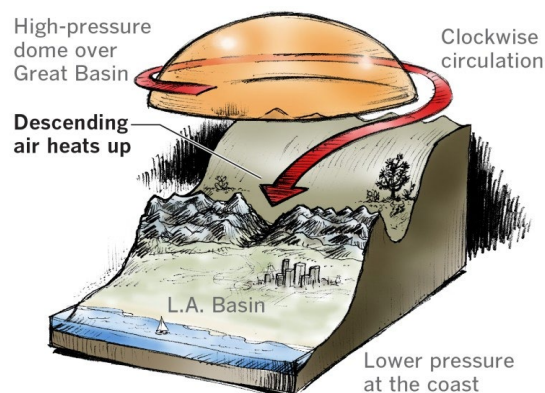
Topping out at just over 10,000 feet in elevation at the peak of Mount San Antonio (locally known as Mt. Baldy), the San Gabriel Mountains have enough elevation to accumulate snow during the winter months. Cucamonga Peak, which rises to an elevation of nearly 8,900 feet, is situated directly north of the City of Rancho Cucamonga.

Climate

The south facing foothills of the San Gabriel Mountains and the coastal and inland valleys have a Mediterranean climate that supports an old and well-developed chaparral ecosystem. The hot, dry summers and mild, rainy winters create the Mediterranean climate that is ideal for a chaparral shrubland. Locally the area receives about 15–39 inches of precipitation a year during the rainy season of November to April. The environment is most vulnerable to fire in the late summer and fall after the warm weather has dried the vegetation.

Situated in elevation below the Great Basin, Southern California experiences strong offshore winds when high pressure systems pass through Nevada and southern Utah. Known locally as Santa Ana winds with gusts that can exceed 80 miles per hour, these wind events can push wildfires through the chaparral at rates of spread equal to approximately 10% of the wind speed (Cruz and Alexander, 2019). Research by CAL FIRE (2019a) has found that winds can carry large fire embers for over a mile, depositing them into residential neighborhoods. Ember intrusion can result in structure fires that add to the fuel load and ember production that has the potential to cause house-to-house ignition until an urban conflagration breaks out.

Diagram courtesy of the LA Times



Vegetation/Habitat

Chaparral ecosystems are found on the west coasts of continents in the mid-latitudes and are the smallest of the world's differentiated biomes. They occupy less than 5% of the earth's surface but are home to nearly 20% of the world's surface plants. Vegetation types include forests, woodlands, savannas, shrublands, and grasslands, creating a complex patterned landscape. Both natural and human-caused fires play a large role in this habitat due to the pyrophyte, or fire-loving, nature of many of the plants. These plants depend on fires for reproduction, recycling of nutrients, and the removal of dead or dying vegetation. (TheWildClassroom.com, 2018).

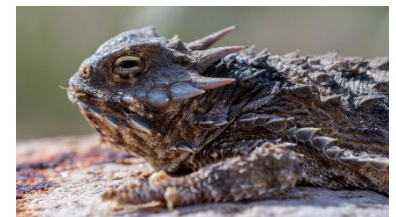


Foothill Chaparral mix.
Photo credit: Rancho Cucamonga Fire District.

The US Forest Service (USFS, 2020) reports that vegetation of the foothills is adapting to the more frequent human-caused fires. This is not necessarily a welcome evolution. Invasive weeds and seasonal grasses are becoming more dominant, while plant species that poorly adapt to more frequent fires are retreating from the ecosystem.

Biologist and local chaparral expert Richard Halsey (2005) explains that the chaparral ecosystem is adapted to be able to recover from infrequent wildfires occurring a minimum of 15 years apart. Even with this adaptation, the ecosystem can still be threatened by a moderate frequency of fires that occur less than ten years apart. This frequency does not allow seeder plants to reach their reproductive size before the next fire. With an even higher frequency of wildfires, plant life is unable to properly develop, resulting in harm to the diversity of the vegetation. More frequent fires that have not allowed the chaparral to recover have resulted in areas that have been overtaken by non-native, invasive species and seasonal grasses.

The chaparral land is home to a tremendous diversity of habitats and species. Among its inhabitants are wood rats, Blainville's Horned Lizard and California Glossy Snake, many of which are a California Species of Concern. The space is also populated by the usual collection of insects and other field dwelling species common in the area which are the make-up of a healthy chaparral biome.



Blainville's Horned Lizard.
Photo source: Reddit

People / Living

The people indigenous to southern California prior to the arrival of European explorers and settlers had devised a system of managing the chaparral with fire. Sections of the chaparral were burned on a rotating basis creating a mosaic of varying ages of chaparral regeneration and growth. Due to the pyrophyte nature of the area, native peoples used fire extensively to clear brush and trees, making way for new grasses and vegetation. With the colonization of these regions, fires were suppressed which has caused unintended consequences such as fuel build ups.

Prior to the original Rancho Cucamonga land grant, large areas of the prevailing chaparral were cleared and farmed as grape vineyards and citrus orchards. This practice continued as the area was increasingly valued for its agricultural products. Some of the vineyards and orchards that have gone out of production have experienced a species conversion to seasonal grasses and invasive weeds.

The Alta Loma area is the largest of the old residential developments of the City of Rancho Cucamonga. Development began in the 1870s but was curtailed by a lack of water in the area. In the early 1880s, water became available through a venture led by Isaias Hellman and development resumed.

Meanwhile, on the eastern side of the Rancho Cucamonga, the Chaffey brothers were planning and developing a town that would become known as Etiwanda.



Agricultural laborers harvesting grapes in Rancho Cucamonga. Photo credit: Etiwanda Historical Society.



1900s era home in Etiwanda. Photo credit: Etiwanda Historical Society.

By the early 1900s, a significant number of homesteads and small neighborhoods had been established in both Alta Loma and Etiwanda. The locations of many of the homes established a wildland-urban interface in the area that would become the City of Rancho Cucamonga.

The several post-World War II housing booms in the region steadily pushed development further north toward the San Bernardino National Forest, creating an expanding wildland-urban interface where homes, schools, and small shopping centers mix with the remaining chaparral or are within a close proximity of the remaining chaparral such that the buildings are at risk of ignition from the blowing embers produced by wildfires.



Photo credit:
International Code Council

Wildland Urban Interface Fire Area

After a multi-year mapping project by the California Department of Forestry and Fire Protection (CAL FIRE), the City of the Rancho Cucamonga was notified that the project had identified areas within the City and Fire District that met the criteria for being classified as a Very High Fire Hazard Severity Zone. These areas are known as Local Responsibility Area or LRA. According to California Government Code, once an agency has been notified that there are Very High Fire Hazard Severity Zones within the agency's boundaries, it is required to adopt by ordinance a Local Agency Very High Fire Hazard Severity Zone map that officially designates the hazard area. Agencies can, through the use of local findings, alter the boundaries of the hazard area by taking into consideration local fire history, topography, or vegetation that might not have been captured by the computer model used to map the state's fire hazard zones.

In addition to designating Very High Fire Hazard Severity Zones, the California Fire Code (CFC) requires both state and local agencies, where applicable, to designate wildland-urban interface fire areas. These are areas that are determined "to be at a significant risk from wildfires" (CFC, 2019, pg. 499). The wildland-urban interface fire area is also required to be designated by ordinance in order to establish the geographical limits of where the wildfire protection construction methods of the California Building Code, the California Residential Code, and the California Referenced Standards Code will be applicable. In the absence of a local ordinance designating the wildland-urban interface fire area, the wildfire protection construction methods cannot be enforced at the local level; they can only be encouraged.

In consultation with the Fire District's legal team, it was determined that a single ordinance could be adopted by the Board of Directors using the designation of Rancho Cucamonga Wildland-Urban Interface Fire Area. This is intended to avoid confusion that could result from different terms (very high hazard fire severity zone, high fire hazard severity zone, and wildland-urban interface) that essentially mean the same thing. As such, a map was prepared for the Board's consideration which included a modified area of CAL FIRE's mapped wildland fire hazard areas within the City as well as all the area north of the City that is within the Fire District's jurisdiction.

The unincorporated land to the north of the City up to the National Forest boundary is primarily State Responsibility Area (SRA) since it still has watershed value outside of an incorporated city. Although it is land over which the State has responsibility for wildfire suppression, the Fire District has responsibility for structure fires and fire prevention within the area and is usually the first arriving fire agency to a wildfire that ignites within the Fire District. As such, as far as this community and the Fire District are concerned, the combined hazard areas that are within the City and the hazard area beyond the City but in the Fire District are a single wildland-urban interface fire area.

In addition to requiring the designation of a wildland-urban interface fire area, the California Fire Code also requires hazardous vegetation and fuels to be managed "to reduce the severity of potential exterior wildfire exposures to buildings and to reduce the risk of fire spreading to buildings" (CFC, 2019, pg. 500). Hazardous vegetation and fuels around all applicable buildings and structures are required to be maintained in accordance with existing state laws and regulations including those found in the Public Resources Code and the Government Code.

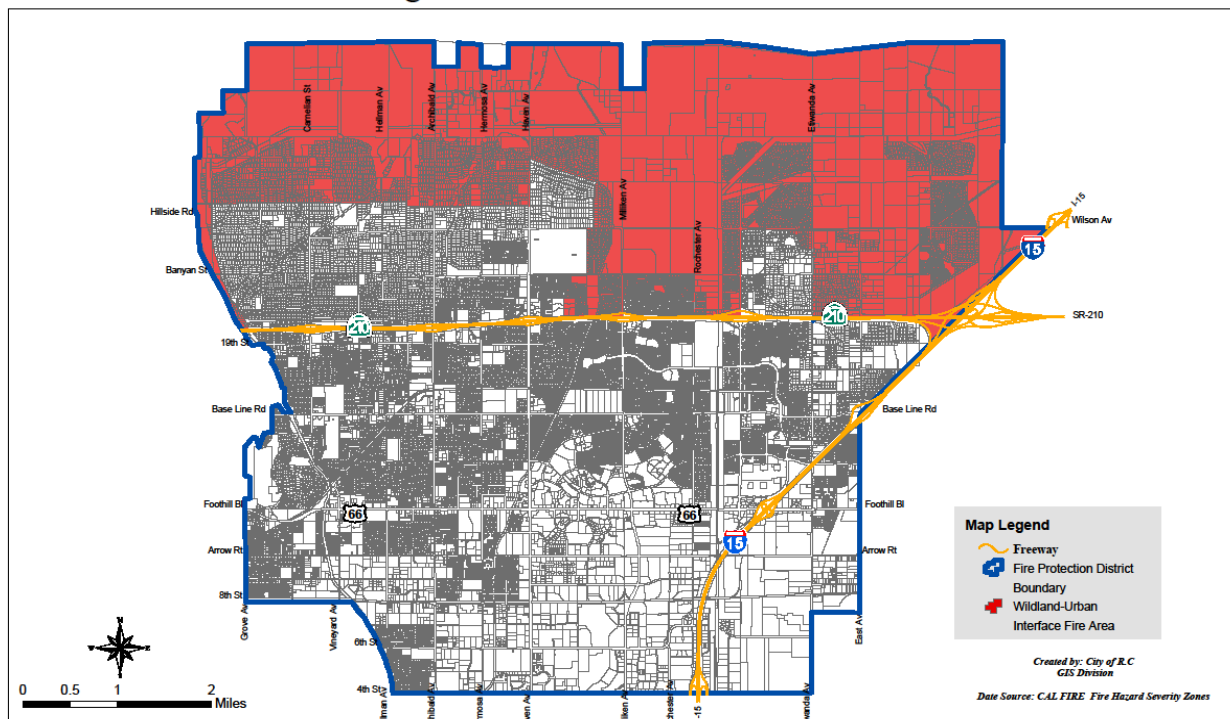
Fire District staff consulted with the local representatives of CAL FIRE and the US Forest Service, as well as a formerly constituted Fire Safe Council, to determine where clear lines of demarcation could be drawn for the designated Rancho Cucamonga Wildland-Urban Interface

Fire Area. The draft map was a combination of the Very High Fire Hazard Severity Zones in the SRA, the identified LRA, local fire history, known wildfire behavior, areas prone to Santa Ana winds, and local hazardous vegetation and fuels. To help with more easily defining the boundaries of the Rancho Cucamonga Wildland-Urban Interface Fire Area, the final proposed map utilized major streets as boundary markers. The proposed map was determined by local CAL FIRE and US Forest Service personnel to be a sensible wildland-urban interface fire area for the City of Rancho Cucamonga and its sphere of influence within the Fire District.

The City's Building Official and the Fire District's Fire Marshal visited the Building Industry Association (BIA) to make the City's private sector construction partners aware of the deliberation on the fire area boundaries and to obtain their input. The BIA was aware of the requirements to adopt a map and found the proposed map to be reasonable given the wildfire hazards, risks, and history.

Having taken extensive input and arriving at the conclusion that the draft map met all of the State's requirements, in 2012 the Fire District offered the Board of Directors an ordinance that adopted the map and formally designated the Rancho Cucamonga Wildland-Urban Interface Fire Area. The Board of Directors approved the ordinance and adopted the map. Subsequently the City Council ratified the Fire District's ordinance making the construction standards and the vegetation management standards applicable to property in the City that is within the designated Rancho Cucamonga Wildland-Urban Interface Fire Area.

Rancho Cucamonga Wildland-Urban Interface Fire Area



Map produced by City of Rancho Cucamonga GIS

Wildland Fire History

There have been many significant wildfires that have started in or moved through Rancho Cucamonga over the years. Below is a list of some of the most notable fires dating back to the early 1900s. For a visual wildfire history map of the region please click the map icon.

Note: Map icon will be an active link in the final electronic version of this document.



YEAR	NAME	LOCATION	ACRES	DETAILS
1912		Etiwanda	216	Chaparral and grass
1913		North of Etiwanda	3,085	Forest land
1914		San Antonio Heights	1,710	Acres of grass
1921		North of Alta Loma	805	Forest land
1925		Lytle Creek	1,184	
1935	San Antonio Canyon Fire	West of Alta Loma	585	
1936		North of Etiwanda	4,704	
1952	East Fire	Etiwanda	564	Summit and East Aves
1953		North of Alta Loma	2,258	Forest land
1957	Morse Fire	North of Etiwanda	2,474	Same location as 1936 fire
1958	Pole Line Fire	Milliken to Cherry	3,960	What is now I-10
1960	Armstrong Fire	West Alta Loma	807	Same location as 1935 fire
1964		North of Banyan	239	
1964		East of Day Creek Wash	423	Acres of chaparral
1970	Meyers Fire	San Antonio Canyon	37,472	Extended far south
1979	Sierra Fire	Fontana	1,838	Consumed Hunter's Ridge
1980	Summit Fire	Northeast Rancho	4,367	Forest land
1988		Northeast Rancho	5,243	Same area as Summit Fire
1988		North of Banyan	4,357	Just west of 1988 fire
1988	Texas Fire	North of Banyan	12,095	Extended north into forest
2003	Grand Prix Fire	San Antonio Canyon	50,617	Extended further south and north
2014	Etiwanda Fire	North of Banyan	2,143	Same area as 1964 fires

Case Studies

Meyers Fire

Local newspapers, the San Bernardino Sun-Telegram and the Ontario Daily Report, provided information about the 1970 Meyers Fire as it burned in the foothills north and east of the communities of Alta Loma and Etiwanda.

The Sun-Telegram reported that the Meyers Fire began on September 28, 1970 near the mouth of Lytle Creek. Pushed by Santa Ana winds, the fire moved southwest in unpredictable currents and updrafts. At the height of the battle, there were over 1,000 firefighters, 100 trucks, 20 bulldozers, 3 helicopter crews, and 8 air tankers assigned to the fire. The fire ultimately burned 34,000 acres, destroyed a total of six homes and eight accessory buildings and damaged seven other homes.

The Daily Report indicated that the entire Mt. Baldy village north of Upland was evacuated. The fire made a run at Chaffey College, but firefighters prevented the loss of any structures on the campus. The Highway Patrol closed Highland Avenue between Sapphire Street and Etiwanda Avenue and then closed Base Line Road between Haven Avenue and Etiwanda Avenue as the fire moved south toward the populated areas of Alta Loma and Etiwanda. Firefighters from Arizona, Oregon, Idaho, New Mexico, and South Dakota assisted in battling the flames and protecting structures. The fire burned into the San Antonio Wilderness Area before winds subsided and firefighters were able to stop the forward progress.

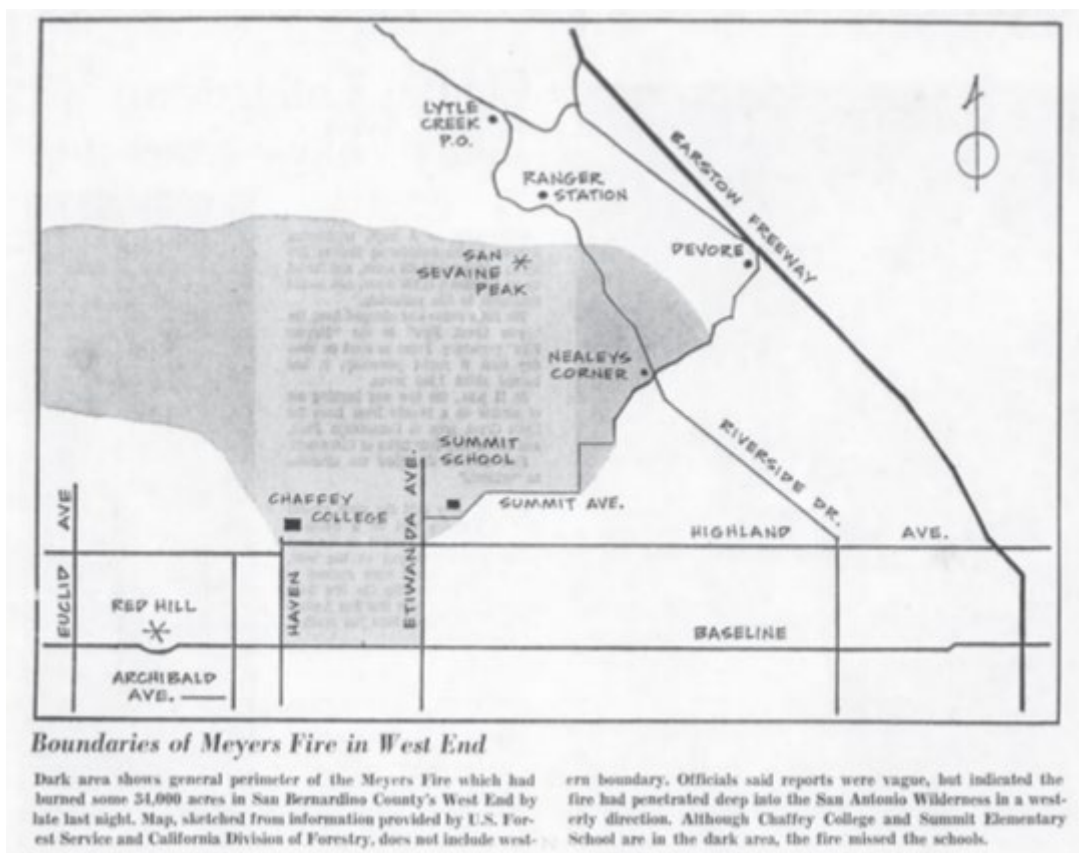


Image produced by the Ontario Daily Report shows the extent of the burn area of the Meyers Fire north of Rancho Cucamonga.

Grand Prix Fire

CAL FIRE and the San Bernardino County Fire Department provided much of the information about the 2003 Grand Prix Fire. The Grand Prix Fire began on October 24, 2003 in Fontana above the Hunter's Ridge neighborhood. It was pushed to the northeast by onshore winds toward Lytle Creek and San Sevaine drainage for two days before strong Santa Ana winds drove the fire west toward Rancho Cucamonga.



Pine trees burned in the Grand Prix Fire.
Photo credit: Rancho Cucamonga Fire District.

The fire burned through the entire wildland interface area of Rancho Cucamonga and deep into the San Bernardino and Angeles National Forests over a three-day period. It ultimately consumed over 50,000 acres. Fifteen homes were destroyed and several more were damaged in Rancho Cucamonga. Thousands of homes were threatened and evacuated as the fire continued west. The fire did not stop until it reached La Verne and ran into the burn area from a 2002 fire. In addition to the homes destroyed and damaged in Rancho Cucamonga, the fire destroyed homes in Lytle Creek, San Antonio Heights, and Claremont. The footprint of the fire was nearly identical to the 1970 Meyers Fire.



Boundary of the Grand Prix Fire north of Rancho Cucamonga.
Map produced by City of Rancho Cucamonga GIS.

Etiwanda Fire

Rancho Cucamonga Fire District incident reports provided most of the detail of the 2014 Etiwanda Fire.



Etiwanda Fire burning in chaparral vegetation. Photo credit: Randy Johnson Photography.

The Etiwanda Fire began on April 30, 2014. The fire started in Day Canyon near the boundary between the San Bernardino National Forest and the Rancho Cucamonga Fire District. Due to high temperatures and strong Santa Ana wind conditions, the fire burned rapidly southwesterly ultimately consuming more than 2,000 acres before being stopped at Banyan Avenue. The fire led to the evacuation of 1,500 homes and four schools. Wind gusts in excess of 80 miles per hour were recorded during the fire.



Burn area of the 2014 Etiwanda Fire. Firefighters prevented the fire from entering nearby neighborhoods. Map produced by City of Rancho Cucamonga GIS.

When, Not If

In March 2011, a magnitude 9.0 earthquake occurred off the western coast of Japan and unleashed a massive tsunami that killed at least 20,000 people and caused more than US\$350 billion in damage. The destruction caused many in Japan to recall the mostly non-descript stone makers placed at various locations by previous generations. These tsunami stones served as warnings to future generations. Their messages marked the high-water level of past tsunamis and urged those who would come after the days of destruction to not place homes or buildings in areas that could be wiped out by a tsunami.



Tsunami stone in Japan marking the high water point of a previous tsunami.
Photo credit: AP

Historian Itoko Kithara, who is affiliated with the Ritsumeikan University in Kyoto, explained the importance of the markers to Smithsonian Magazine. “The tsunami stones are warnings across generations, telling descendants to avoid the same suffering of their ancestors. Some places heeded these lessons of the past, but many didn’t” (Lewis, 2015).

The New York Times (Fackler, 2011) reported that residents of the village of Aneyoshi heeded the warnings of the tsunami stone placed in their village and kept all home construction on higher ground from where the marker is located. Villagers reported that the surge of the 2011 tsunami stopped 300 feet below the elevation of the stone and the village was spared the destruction experienced in many other parts of Japan.



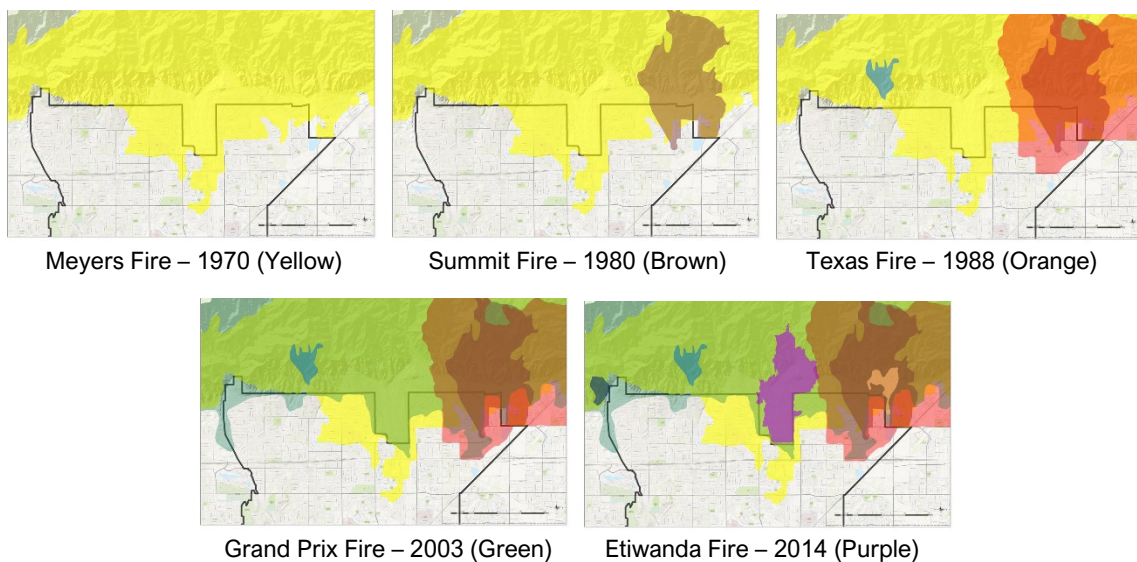
Tsunami Inundation and debris following the 2011 Tohoku, Japan earthquake.
Photo credit: Earthquake-Case-Study.Weebly.com

The Federal Emergency Management Agency (FEMA) continually reminds US residents that disasters “are a matter of when, not if” (FEMA, 2020a). The vegetation prevalent in the San Gabriel Mountains, both in the forests and foothills, is prone to wildfires. To thrive in this beautiful part of southern California, residents, businesses, and governments must learn to live with wildfires and heed the warnings of potential destruction left by previous generations and previous fires.



Tsunami stone with an inscription that reads “High dwellings are the peace and harmony of our descendants. Remember the calamity of the great tsunamis. Do not build any homes below this point.” Photo credit: Smithsonian Magazine.

Rancho Cucamonga’s equivalent to tsunami stones are the maps of previous fires. The 2003 Grand Prix Fire burned nearly the same area as the 1970 Meyers Fire. The 1988 Texas Fire burned nearly the same area of Etiwanda and Fontana as was burned in the 2003 Grand Prix Fire. The area burned in the 2014 Etiwanda Fire has burned numerous times over the years.



The ability to coexist with any natural hazard is achieved through a comprehensive assessment of the hazard and its associated risks. Opportunities to reduce those risks have to be the continual goal and work of the entire community.

Risk Assessment

In 2013, the City of Rancho Cucamonga and the First District coordinated the formulation of a local hazard mitigation plan. The plan used a hazard assessment matrix to evaluate the probability and impact of the various hazards that exist in and near Rancho Cucamonga. The plan was also used to prioritize the efforts needed to address each of the identified hazards.

In 2020, the local hazard mitigation plan was updated and received formal approval in 2021. The plan expanded on the work completed in 2013. While work on the 2021 local hazard mitigation plan included a more comprehensive list of hazards than the 2013 plan, wildfires remained a top concern among residents and business owners.

In accordance with FEMA guidelines for creating a community wildfire protection plan, the Fire District engaged the public and other stakeholders for input. This outreach was conducted concurrently with the outreach for the local hazard mitigation plan update. As noted in the local hazard mitigation plan, due to the COVID-19 pandemic, in-person, public workshops and meetings were replaced with virtual workshops, meetings, and discussion groups for health and safety reasons.

The 2021 local hazard mitigation plan provides a comprehensive overview of the hazard identification, assessment, and risk scoring associated with all of the identified hazards and includes a scoring matrix used to identify the hazards of greatest concern to residents and other stakeholders. The scoring considered both the probability of a hazard related event and the potential impacts of such an event.

Wildfires ranked second only to seismic events (earthquakes) in the hazard scoring included in the local hazard mitigation plan, making wildfires a high probability and high impact hazard in Rancho Cucamonga. The local hazard mitigation plan and the foundational work that went into the preparation for the initial work of this plan identified five main risks associated with the ever-present hazard of wildfires:

Communities and Homes **Recreation** **Habitat and Environment** **Economy** **Health**

Communities and Homes

The land use zoning in Rancho Cucamonga is such that the wildland-urban interface fire area is dominated by low to very low density residential uses. The result is thousands of single-family homes on medium to large lots arranged in tracts and neighborhoods that are either immediately adjacent to or in close proximity to the native chaparral. In total, there are nearly 6,000 homes in the designated wildland-urban interface fire area with a combined value of just under \$3.5 billion.



Photo credit: CamdenMcKayRE.com



2014 Etiwanda Fire. Photo credit: ANAPR

Wind driven fires such as the 1980 Panorama Fire in San Bernardino and the 2017 Tubbs Fire in Napa Valley, both of which resulted in urban conflagrations that consumed hundreds of homes, are a definite risk in Rancho Cucamonga. Such a fire has the potential to displace numerous households and cause significant property losses to homes, businesses, schools, places of worship, and utility infrastructure.

Recreation

While Rancho Cucamonga has fewer outdoor recreation amenities than the better known and nearby recreational areas of Lytle Creek, Lake Arrowhead, Big Bear, and Mount Baldy, the undeveloped land between the north city limit and the national forest boundary is a favorite destination for local hikers and bicycle riders. The Alta Loma area of the City has a gateway to the southernmost portion of the San Bernardino National Forest while the Etiwanda area of the City serves as the access to the North Etiwanda Preserve and Etiwanda Canyon. Wider awareness of these hidden wilderness areas has resulted from social media exposure. The number of people found in these areas has steadily increased in recent years. Wildfires have a real potential of significantly clearing the vegetation and making the areas less inviting as recreation opportunities during the time that the chaparral is regenerating. Intense wildfires also increase the likelihood of flooding that further puts the safety of people at risk.



Etiwanda Canyon. Photo credit: Rancho Cucamonga Fire District

Habitat and Environment

The chaparral ecosystem that exists in and around Rancho Cucamonga is a rich mixture of plant and animal species that are becoming increasingly rare. Land within the wildland-urban interface fire area has been identified as habitat for San Bernardino Kangaroo Rat, the California Gnatcatcher, and the Burrowing Owl. Among the vegetation are a couple of naturally occurring marshes as well as chaparral that is unique to the area and less prevalent, such as Riversidian Alluvial Fan Sage Scrub. The forest and the undeveloped chaparral covered land are important watershed resources. Water flows out of Cucamonga Canyon and from the many springs that emanate from the alluvial fan to provide water for the Cucamonga Valley Water District, the City's primary water purveyor. Water also finds its way down Cucamonga Peak through Deer, Day, and Etiwanda canyons. Debris flows that result from rain falling onto local wildfire burn scars can cause damage to the area's watershed infrastructure.



California Gnatcatcher. Photo credit: AllAboutBirds.org

In recent years, a growing awareness of the effects of the smoke and other products of combustion produced by wildland fires has added a new dimension to the risk assessment. The California Air Resources Board (CARB) estimates that wildfires in California for the 10-year period of 2010-2019 produced an average of 28 metric tons of carbon dioxide per acre of vegetation burned (CARB, 2020a). The US Environmental Protection Agency (EPA) estimates that the average passenger vehicle generates 4.6 metric tons of carbon dioxide per year (EPA, 2020). Every acre of wildland vegetation that burns in a wildfire produces approximately the

same amount of CO₂ emissions as six vehicles over the period of a year. Satellite images of the 2020 Glass Fire showed the fire consuming one acre of vegetation every five seconds (Sweeney, 2020). Fortunately, the CO₂ emissions from a wildfire have a short-lived impact on the environment. CARB classifies wildfire emissions as part of the fast carbon cycle, “in which carbon moves between pools over months to centuries” as opposed to the slow carbon cycle or source reallocation, such as the burning and formation of fossil fuels, that requires many millennia to recycle the carbon (CARB, 2020a). CARB acknowledges that wildfire CO₂ emissions are balanced by vegetation growth that is stimulated by and the result of a wildfire.

Economy

While the greatest threats from wildfire are the damage that can be done to neighborhoods, homes, and the environment, it must be acknowledged that damage to the economy can also result from a wildfire. Home rebuilding can take years and families can be displaced for extended periods of time. Businesses that are affected by a wildfire with either a temporary or longer-term closure may have a difficult time recovering. A study completed by Hewlett-Packard (2007) found that when small businesses experience a disaster, 25% of them never re-open and 47% of them are out of business within two years. Chaffey Community College has been in the path of more than one massive wildfire over the years. Damage to or the loss of that campus could result in many jobs being lost as well as the loss of an important post-secondary education and vocational training facility.



Photo credit: Shutterstock

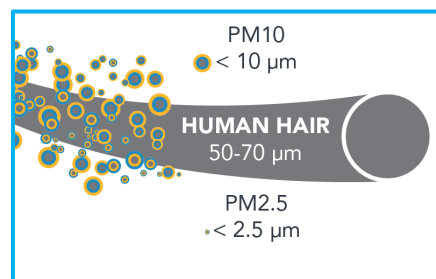
Health

The health of those who live or work near a wildfire event is increasingly recognized as a risk associated with wildfires. This is especially true to wildfire events that last several days or consume vast amounts of vegetation in a short period of time.

The smoke produced by wildfires contains particulate matter that can cause adverse health effects. Of specific concern are air-borne particles that are 2.5 microns or less in size (PM_{2.5}) and those that are 10 microns or less in size (PM₁₀).

The California Air Resources Board (CARB) reports that short-term exposures of 24 hours or less to PM_{2.5} “have been associated with premature mortality, increased hospital admissions for heart or lung causes, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, and restricted activity days. These adverse health effects have been reported primarily in infants, children, and older adults with preexisting heart or lung diseases” (CARB, 2020b).

Similarly, CARB has found that “short-term exposures to PM₁₀ have been associated primarily with worsening of respiratory diseases, including asthma and chronic obstructive pulmonary disease (COPD), leading to hospitalization and emergency department visits” (CARB, 2020b).



Particulate Size Comparison
Graphic produced by CARB

In the 10-year period of 2010-2019, CARB estimates that wildfires in California produced a total of 2.56 million tons of PM10 and 2.17 million tons of PM2.5 (CARB 2020a). Research completed by CARB shows that for every acre of vegetation burned in a wildfire approximately 750 pounds of both PM10 and PM2.5 are produced (CARB, 2020a).

The health effects of this amount of particulate matter have to be considered in the comprehensive risk assessment of wildfires. As noted by CARB, “Research points to older adults with chronic heart or lung disease, children and asthmatics as the groups most likely to experience adverse health effects with exposure to PM10 and PM2.5. Also, children and infants are susceptible to harm from inhaling pollutants such as PM because they inhale more air per pound of body weight than do adults - they breathe faster, spend more time outdoors and have smaller body sizes. In addition, children’s immature immune systems may cause them to be more susceptible to PM than healthy adults” (CARB, 2020b).



Smoke fills the skies as a neighbor helps a family remove animals from their home while the El Dorado fire burns close to a house on Kevari Court in gusty winds and low visibility in Yucaipa on Sunday, September 6, 2020. Photo credit: Terry Pierson, The Press-Enterprise/SCNG.

The US Centers for Disease Control and Prevention (CDC) concurs with the research and findings presented by CARB. In a publication created for public health officials specific to wildfire smoke, CDC states, “Particulate matter is the principal public health threat from exposure to wildfire smoke. The effects of particulate matter exposure range from eye and respiratory tract irritation to more serious disorders including reduced lung function, bronchitis, exacerbation of asthma and heart failure, and even premature death. Although exposure to fine particles can lead to a range of health effects, certain life stages and populations are at greatest risk of health effects due to fine particle exposures” (CDC, 2019).

Risk Reduction

As noted previously, there are important distinctions between hazard and risk. There are also distinctions between hazard mitigation and risk reduction. The type of vegetation present in the chaparral biome of the foothills of the San Gabriel Mountains along with the terrain and climate combine to create a wildfire hazard. In other words, conditions naturally exist that have the potential to result in a wildfire. Hazard mitigation efforts present a practical difficulty since the terrain cannot be altered, the climate exists across wide regional areas, and the vegetation is native to the area and covers numerous square miles of land. As a result, risk reduction efforts are likely to yield better results than hazard mitigation when it comes to protecting people, property, health, the local economy, and the environment from the effects of wildfires.

With risk understood to be the likelihood or probability that a hazard or hazard related event will produce negative impacts, risk reduction efforts are the combined measures taken to lessen the probability that a wildfire will occur in the hazard area and lessen the known impacts of a wildfire event. Such measures extend across a wide range of options, all of which contribute to lowering risk and increasing resiliency.

Land Use Planning

Wildfire risk reduction begins with good land use planning. How land is zoned and allowed to develop is a significant factor in the amount of risk associated with a wildfire hazard. Recent legislation in California now requires the Safety Element of the General Plan to consider wildfire hazards. As explained by the California Board of Forestry and Fire Protection (BOF), “the safety element shall include goals, policies, and objectives that protect the community from the unreasonable risk of wildfire” (BOF, 2020). CAL FIRE notes that achieving these objectives can be accomplished by:

- Avoiding or minimizing the wildfire hazards associated with new uses of land in the wildland-urban interface fire area. Several good options exist for reducing the risk of property loss or damage due to a wildfire event.
 - Research by Syphard, et. al. (2013) indicates that in-fill development and expansion development along the edges of existing neighborhoods reduces wildfire risk. Additionally, “minimizing the amount of interface between homes and wildland vegetation” reduces the risk of home ignition during a wildfire event (Syphard, et. al., 2012, pg. 6).
 - As noted previously, the use of fire maps can help to identify the areas of highest wildfire occurrence and therefore the highest risk associated with new development. Syphard, et. al. (2012) found “land use planning that considers minimizing future structure loss and prioritizing other fire prevention actions would be more informed with maps that reliably differentiate the most hazardous locations” (pg. 6).
 - The San Bernardino County Mountain Area Safety Taskforce (MAST) identified the use of buffer zones as an effective risk reduction measure where there is a risk of wildfire in the interface area. “Strategically implemented on the edge of communities or just nearby, buffer zones are fuel-treatment areas that have been cleared of dead trees and vegetation and thinned of densely packed plants and trees” (MAST, 2007). Work produced by Cal Poly, Pomona students in 2010 for the Fire District found that linear buffer parks could serve multiple purposes including, wildfire risk reduction, preserving

the natural environment, and providing educational and informational opportunities that can increase the awareness of the chaparral ecosystem.

- Regulating landscaping and requiring defensible space (discussed below) are also appropriate topics for planning documents associated with development in a wildland fire hazard area.
- Locating new essential public facilities outside of wildland fire hazard areas. Such facilities include hospitals and medical care buildings, police and fire stations, emergency shelters, communication facilities and infrastructure, and utility equipment.
- Requiring infrastructure in the wildland-urban interface that is commensurate with the hazards and risk. Considerations include a street network that provides for more circulation than might otherwise be required for projects not located in the wildland-urban interface fire area. Increased circulation and carrying capacity will facilitate more efficient evacuations and provide firefighters with designated routes to the wildland area that are minimally congested with traffic. Other infrastructure requirements could include ensuring water supplies sufficient for wildland firefighting, installing large print streets signs that are more visible under adverse conditions, and avoiding the use of cul-de-sacs. Such provisions could be included in a section in the Development Code dedicated to the wildland-urban interface fire area or in the specific plans for large development projects.
- Working cooperatively with public agencies and city/county departments to achieve common goals and objectives. See the discussion below under Partnerships.

Wildland Compatible Construction Methods and Materials

With the adoption of the Rancho Cucamonga Wildland-Urban Interface Fire Area Map, the City's Building and Safety Department can require the construction methods and materials in the California Building Code and California Residential Code that have proven to reduce ignition of buildings by the flames, embers, and heat produced by wildfires. These construction methods and materials for new homes and buildings include special provisions for roofs, siding, doors, decks, fences, eaves, attic vents, and the glass used for windows.



Digital rendering of a home designed for the wildland-urban interface. Photo credit: Bone Structure.

Defensible Space and Home Hardening

Providing defensible space is required for new homes, buildings, and development projects in the wildland-urban interface. Creating defensible space is highly recommended for older homes that are in the designated wildland-urban interface fire area. The Agricultural and Natural Resources division of the University of California defines defensible space as “the careful selection, location, and maintenance of vegetation and other combustible materials on property” in the wildland-urban interface fire area. The purpose of defensible space, according to the University of California (2020) is to:

- Minimize the pathways that wildfire can burn directly to a home or accessory structure.
- Provide distance between the flames of a wildfire and homes in order to reduce the amount of radiant and convected heat to which a structure is subjected thereby reducing the potential for ignition of the home.
- Reduce the potential for embers to ignite landscape vegetation that is adjacent to a home.
- Provide a safe place for fire personnel to defend a home and allow for safe routes of evacuation.

Defensible space is usually an area 100 feet from all portions of a home or along the perimeter of a development project. This 100-foot area is divided into three zones that generally have the following characteristics:

- Zone 1 is the first five feet from a structure, deck, or patio cover. This zone is sometimes called the exclusion zone since it is recommended that any combustible vegetation, mulch, or decorative items are excluded from this area. It is critical to keep fires from starting this close to the house as fires in this area have a high probability of igniting the home.
- Zone 2 is the space that is 5-30 feet from the home. This is also known as the fuel reduction zone. This zone includes carefully planned and maintained landscaping that is irrigated. Only those trees, shrubs, and ground covers that are known to be fire resistant are planted in this zone.
- Zone 3 is the space that is 31-100 feet from structures. This is also known as the vegetation management zone. This is the zone where the density of trees and shrubs is reduced in order to slow fire spread toward the home and accessory buildings.

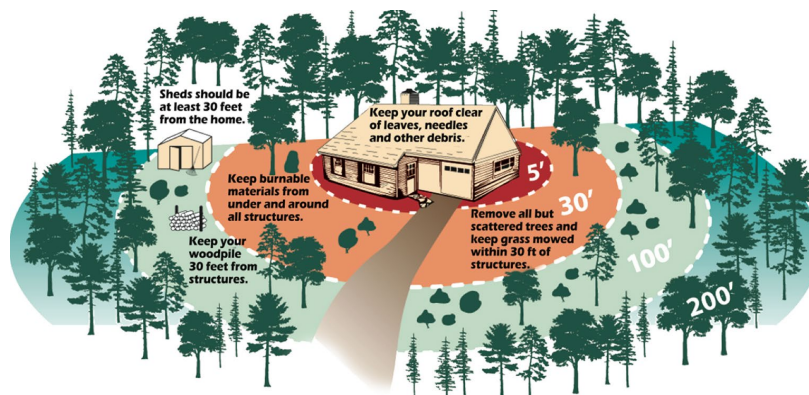


Diagram produced by Oak Hill Fire Safe Council

As an alternative to the standard 5-30-100 plan for defensible space, the Fire District allows the use of its 50-50-50 defensible space plan. As detailed in Appendix A, this plan allows for native vegetation to be used as landscaping when done in accordance with appropriate thinning, spacing, and maintenance.

As allowed by the California Fire Code, the Fire District has created a locally relevant list of plants, trees, and ground covers that are not desirable as landscaping in the wildland-urban interface fire area. This vegetation includes species and sub-species that are susceptible to ignition under wildfire conditions and which are susceptible to freezing. Portions of the City have a history of experiencing below freezing temperatures. Some freezing events have spanned several days. A sustained freeze can completely kill some species of vegetation. When the weather warms, these dead plants become dry and act as ready receptors for wind-blown embers produced by wildfires.

Defensible space also considers other hazards that are common on residential property. The table below identifies some of those hazards and provides suggestions for how to reduce the risk associated with those hazards.

Other Hazards	Potential for Ignition	Risk Reduction
Sheds	Sheds are not generally ember resistant and contents are usually combustible.	Locate sheds more than 50 feet from the home. Use non-combustible or ignition-resistant materials for sheds.
Patio covers and shade structures	Small dimension wood slats, combustible fabric and covering material.	Construct patio covers with dimensional lumber of at least 2 inches. Do not install thatch shade structures and barbecue island covers or permanently installed shade sails.
Firewood and other combustible materials	Concentrated fuel loads susceptible to ignition from embers.	Do not store firewood and other combustible materials on porches and decks or under patio covers, carports, or trees. Store all firewood and combustible materials at least 20 feet from all structures.
Outdoor fires and cooking	During windy conditions, embers can start a fire in landscape vegetation.	Outdoor fire pits and barbecues should be in built-in-place and use natural gas or propane. Use pumice rock or artificial logs. Do not burn combustible materials or use charcoal for cooking.

Source: FEMA (2020b) and Rancho Cucamonga Fire District

Home hardening works hand in hand with defensible space for homes and buildings constructed prior to the State’s wildland construction standards. Homeowners can harden the exterior of existing homes by replacing attic vents with ember resistant vents, replacing standard windows with windows that use tempered glass, close in exposed eaves, retrofit exterior doors so that they are self-closing, and ensure that the ends of roof tiles are sealed to prevent the intrusion of blowing embers.

The table below identifies home ignition risks and provides suggestions from FEMA and local codes and standards for home hardening and reducing ignition risks associated with wildfires.

Residential Component	Potential Ignition Source	Home Safety Suggestion
Decks	Combustible items stored underneath, or accumulations of leaves, pine needles, and other vegetation debris.	Store combustible items in a closed shed. Reconstruct decks with ignition-resistant materials. Remove leaves and other dead vegetation regularly.
Rain Gutters	Leaves and pine needles in gutters.	Install leaf screens and clean frequently, especially before fire season.
Eaves	Combustible material susceptible to ember intrusion.	Enclose or box in eaves.
Vents	Open unscreened.	Screen with metal screen with 1/8-inch openings or replace with baffled or other fire-resistive vents.
Roofs	Poorly maintained, made of wood shakes or other combustible material.	Replace roofs with ignition-resistant designs (e.g., Class A, metal).
Siding	Poorly maintained, made of wood shakes or other combustible material.	Replace combustible siding with ignition resistant designs (e.g., stucco, rock, brick).
Windows and exterior doors	Single-pane windows, open doors and garage doors, gaps around doors.	Replace windows with double-pane, tempered glass. Install self-closing, fire-rated exterior doors. Install a time-out device that automatically closes garage doors after 20 minutes of inactivity. Seal gaps around windows and doors to keep embers out.
Landscape around homes	Overgrown with weeds; dry, dead vegetative matter; large flammable bushes under windows.	Make use of defensible space landscaping. Create an irrigated area of low-growing ground covers and shrubs. Do not plant shrubs under windows or within 5 feet of doors. Landscaping within 12 inches of the house should be rock or other hardscape, not mulch.
Tile Roof	Bird nests and other accumulated combustible debris.	Clean debris such as nests from openings and cement ends or add bird stops.
Fencing	Flammable construction attached to the home.	Any portion of the fence that is less than 5 feet from the home should be constructed of non-combustibles materials.

Source: FEMA (2020b) and Rancho Cucamonga Fire District

Additional information about defensible space, home hardening, and community safety can be found in Appendix B, which contains information about Firewise Communities.



Photo credit: Orange County Register

Household Preparedness

One of the most effective ways to reduce the risks associated with wildfires is to have a comprehensive household preparedness plan. This plan includes accountability of all members of the household and an evacuation plan. Just as important, the plan includes routine maintenance that can greatly reduce the likelihood that embers will ignite fires on or near the home. This maintenance includes:

- Cleaning out rain gutters and removing dead leaves and pine needles from the roof.
- Removing accumulated leaves and other yard debris from under decks.
- Trimming away dead or dying leaves, branches, and vines from landscaping.

Regular maintenance should be done well in advance of the typical wildfire season and continued throughout the time when conditions could result in a wildfire.

When a wildfire is reported in the area, a fire prevention plan should be ready to further safeguard the home. Actions that need to be taken include gathering and storing patio furniture cushions and other combustible items such as pool floats and portable shade structures. This is also the time to prepare to evacuate. More information about wildfire preparedness can be found in Appendix C, which has information about the Ready, Set, Go! plan.

Vulnerability

Vulnerability is a measure of the capacity to cope with and/or recover from the effects of harm, loss, or other negative impacts on daily living. People with high vulnerability have a low capacity to cope with adversity, hardship, or loss. Reducing vulnerability is a form of risk reduction. Recognizing vulnerability or indicators of vulnerability, such as low- or fixed-income, disability, health conditions, limitations associated with aging, and weak linkages to the community at large can help to identify opportunities to reduce the risks of wildfire among those who are most vulnerable to the effects of wildfire.

Partnerships

Risk reduction is also achieved through the partnerships that the Fire District has with utility providers and special service districts. The Fire District has developed personal and professional relationships with Southern California Edison, Los Angeles Department of Water and Power, San Bernardino County Flood Control, and the County's Department of Environmental Health.

The City and Fire District are home to several major power line utility corridors used by Southern California Edison (SCE) and the Los Angeles Department of Water and Power (LADWP). Over the years, the Fire District has identified and built strong ties with those who are responsible for fire hazard abatement for these entities. Weeds and seasonal grasses are regularly managed in these corridors and clear space is maintained around the power line towers as required by State codes. Where power lines cross through chaparral covered land, fire breaks are maintained to provide a measure of protection for adjacent homes. During high wind and critical fire weather conditions, SCE makes use of Public Safety Power Shut-Offs (PSPS) to reduce the risk arcing power lines causing a wildfire.



Power line tower in the wildland-urban interface fire area. Photo credit: T&D World

The San Bernardino County Flood Control District has flood management infrastructure on several hundred acres of land within the Fire District. The Flood Control District has been a responsive partner in fire hazard reduction through vegetation management on its land, to the extent allowed by re-vegetation and mitigation orders imposed by the State. Additionally, the Flood Control District has emergency action plans for each flood control basin in the City.

Actions Taken

- **Standard 49-1**

Over the years, the Fire District developed various wildland fire safety measures for homes in what the Fire District determined to be the areas at greatest risk for a wildfire. Those safety measures were applied to tracts of homes as well as individual custom homes. In most cases, the Fire District required the tract or custom home to submit a fire protection plan for review and approval by Prevention Bureau staff. The plans varied on content but were based on the best information available at the time.

After the adoption of the Rancho Cucamonga Wildland-Urban Interface Fire Area map in 2012, Prevention staff, along with the City's Building and Planning Departments and experts in vegetation and landscaping, began work on a formal, comprehensive standard for the wildland-urban interface fire area. Titled simply Wildland-Urban Interface Fire Area and numbered as Fire District Standard 49-1 to follow the chaptering of the California Fire Code, the standard addresses construction, defensible space, landscaping, and general fire safety. The provisions of the Standard are applied to all development in the designated wildland-urban interface fire area.

- **Evacuation Plan**

Fast moving wildfires are nothing new to California or the United States. A report by the National Weather Service (2020), using the Green Bay Press-Gazette as source material, recounts the most devastating wildfire in the history of the US in terms of lives lost.

The Peshtigo Fire started October 8, 1871 on the west side of Lake Michigan's Green Bay just south of the Wisconsin-Michigan border. Survivors recalled that it had been an unusually dry summer. It is believed that the fire was started by railroad workers who were clearing land for new tracks. The fire burned so fast that many people were unable to escape the advancing flames. Wind carried embers east across Green Bay and set off a second fire front on Door Peninsula. In all, the fire burned for three days and consumed 1.2 million acres of forest and grass land. The human toll was enormous. While an actual number was never determined, best estimates place the loss of life at 1,200 people. A total of 17 towns were destroyed or significantly damaged. The town of Peshtigo was hit the worst. The town was completely burned down in an hour and 800 people perished.

Historic fires such as the Peshtigo Fire and more recent fires that include the 2017 Tubbs Fire and the 2018 Camp Fire, both of which occurred in northern California, and the 1983 and 2009 bushfires in Australia, all show the need for good evacuation plans. Many of the deaths attributed to these fires happened as people were trying to evacuate in areas with few evacuation routes that quickly turn into massive traffic jams. (See Russell, et. al., 2018; CBS San Francisco, 2018; and Parliament of Victoria, 2009)

The 2014 Etiwanda Fire resulted in an evacuation order that quickly filled the streets leading away from the fire. While the fire was relatively small at just over 2,000 acres, it moved fast as it was pushed by Santa Ana winds and demonstrated the need for a local evacuation plan. In conjunction with the 2020 General Plan Update, the City commissioned an evacuation plan. The plan assessed the evacuation capacity of the City's streets and identified evacuation routes.



Photo credit: FIREsafe Marin

- **Local Hazard Mitigation Plan**

As previously noted, the City’s local hazard mitigation plan was adopted in 2013 and updated in 2021. This community wildfire protection plan is a companion to the more comprehensive local hazard mitigation plan, which identifies wildfires as just one of several natural hazards present in Rancho Cucamonga.

- **General Plan/Specific Plans**

The City, working collaboratively with the Fire District, has included wildfire safety in its recent general plans and specific plans that address development in the wildland-urban interface fire area. The 2020 General Plan Update considers development in the wildland-urban interface fire area very extensively and builds on the work done in previous general plans. The Etiwanda Heights Neighborhood and Conservation Plan (Rancho Cucamonga, 2019) had wildfire safety as one of its primary objectives. The plan is a case study in how fire officials, planners, and engineers can work cooperatively to make land use decisions based on wildfire prevention and safety.



Etiwanda Heights Neighborhood & Conservation Plan

Both state and federal governments have encouraged local government to consider wildfire in planning and development decisions (BOF, 2020; FEMA, 2013). The Etiwanda Heights Neighborhood and Conservation Plan includes increased circulation for better emergency access and evacuation and includes edge roads and buffer zones between wildland vegetation fuels and the developed areas. The plan has become the model for development planning in Rancho Cucamonga’s wildland-urban interface fire area.

- **Firewise Communities and Ready, Set, Go!**

In 2015, the Board of Directors of the Fire District formally adopted Firewise Communities as the Fire District’s wildfire safety program and Ready, Set, Go! as the Fire District’s preparedness program. These programs complement each other and were determined by Fire District staff to be responsive to the needs of the community, especially if they are implemented concurrently.



Designed and offered by the National Fire Protection Association, Firewise Communities primarily addresses the wildfire safety of the natural, outdoor, landscaped area of the community and the general construction features of the homes and buildings in the wildland-urban interface fire area.

Ready, Set, Go!, a program of the International Association of Fire Chiefs, helps households to be ready for wildfires by developing a customized landscape plan that complies with the Firewise Communities requirements. Ready, Set, Go! then helps households be constantly ready for wildfires by taking simple preventative measures on a continuous basis. The program also provides a structured format for preparing to evacuate in the event evacuation becomes necessary.

The Fire District believes that Firewise Communities and Ready, Set, Go! create a synergy, providing a comprehensive wildfire safety prevention and preparedness plan that is broad enough to address the safety of an entire neighborhood and specific enough to help individual households with their personal preparedness planning.

Desired Outcome:
Establish a Culture of Wildfire Awareness

- **Community Development Partnership with the City**

Over the years, the City and Fire District have developed a mutually beneficial partnership when it comes to development projects. As the nation has witnessed the massive destruction of homes, whole neighborhoods, and entire communities and towns from wildfires in the past 20 years, a discussion has opened about the correlation between land use planning and wildfire prevention and resiliency. Research conducted by Syphard, et. al. (2013) noted that “traditional fire-risk reduction focuses heavily on fire suppression and manipulation of wildland vegetation to reduce hazardous fuels. Enormous resources are invested in vegetation management, but as increasing numbers of homes burn down despite this massive investment, the ‘business-as-usual’ approach to fire management is undergoing reevaluation” (pg. 1).

The researchers acknowledged the use of certain building materials in efforts to reduce structure loss to wildfire. “One alternative to traditional fire management that is receiving widespread attention is to prepare communities through the use of fire-safe building materials or creating defensible space around structures. These actions represent an important shift in emphasis from trying to prevent wildfires in fire-prone areas to better anticipating fires that are ultimately inevitable. Nevertheless, the cost of building and retrofitting homes to be fire-safe can be prohibitive, and these actions do not guarantee immunity from fire” (Syphard, et. al., 2013).

Syphard, et. al. (2013) turned to land use planning as an option for better safeguarding neighborhoods that could be impacted by a wildfire. “Land use planning is an alternative that represents a further shift in thinking, beyond the preparation of communities to withstand an inevitable fire, to preventing new residential structures from being exposed to fire in the first place” (pg. 1). The authors noted that “land use planning represents a shift in traditional thinking from trying to eliminate wildfires, or even increasing resilience to them, toward avoiding exposure to them through the informed placement of new residential structures” (Syphard, et. al., 2013, abstract).

In Rancho Cucamonga, the benefits of a good working relationship between the Fire District and the Planning Department have been evident for many years. It is now the common course of development for the Fire District and the City’s Community Development services to be partners in successful land use planning from the moment a project is proposed.



City of Rancho Cucamonga Building and Planning officials working with the Fire Prevention Division on a review of a proposed development project. Photo credit: Rancho Cucamonga Fire District.

- **Mutual and Automatic Aid Agreements**

Despite the best prevention and planning efforts, wildfires are a fact of life in southern California and they will occur from time to time. Wildfires are caused by natural occurrences such as lightning. They also occur when nature and technology mix as is the case when high winds cause power lines to arc. Other wildfires are accidental, such as those caused by vehicle and house fires that extend into the vegetation. When wildfires happen, the region turns to the firefighters to manage and suppress the fire. The fire agencies of the Inland Empire have entered into mutual and automatic aid agreements that send assistance to areas impacted by a wildfire. To prepare to work well together during wildfire events, the regional fire agencies train together throughout the year to ensure that they can work effectively when responding to cities and communities with which they might not be familiar.

Actions Needed

- Work with property owners and utility companies to create managed vegetation reduction buffer zones on the north and east sides of the City.
 - The north and east sides of the City are at the greatest risk of wildfires that originate outside of the Fire District. Santa Ana winds that result from high pressure over the Great Basin enter the Inland Empire from the north and east, potentially pushing wildfires at high rates of forward progress. Vegetation reduction buffer zones can slow the progress of a wildfire.
- Establish a vegetation fuel reduction and management plan for the natural drainages, primarily on the west side of the City.
 - Many of these drainages are on private property and will require coordination with property owners to effectively reduce the fire hazard and risk. Other drainages are part of the County's flood management system. Cooperative and creative solutions will need to be found to reduce the hazards in these drainages as some of them are under re-vegetation plans imposed by the State.
- Engage a communitywide conversation about the future of Eucalyptus windrows and Pine tree landscaping, especially near high risk and high vulnerability neighborhoods.
 - Eucalyptus windrows are part of the heritage of Rancho Cucamonga. Research Scientist Liza Gross (2013) notes that the trees were imported from Australia for a variety of reasons. The trees were valued for their fast growth, large size, and oils. While Eucalyptus are fire adapted trees, their natural oils make them highly flammable. They ignite relatively easily and spread fire by means of heat and ember production. Southern California historian Nathan Masters (2012) noted that Eucalyptus trees were planted by southern California citrus farmers to serve as wind breaks



Eucalyptus trees in a wildfire. Photo credit: Politico.eu

that would protect the citrus groves from the Santa Ana winds. With nearly all of the citrus groves now replaced by houses, the remaining Eucalyptus windrows have become more of a hazard than a benefit to the community. The hazards of pine trees have been well documented over the years in studies of forest fires (USDA, 1999; CSFS, 2012).



Pine trees in an interface fire. Photo credit: PBS

- Coordinate neighborhood fuel reduction and landscaping maintenance projects.
 - CAL FIRE, FEMA, and the US Forest Service have all noted the value of neighborhood fuel reduction and landscape maintenance projects (CAL FIRE, 2019b; NFPA, 2020). Usually all that is needed is a local fire agency to coordinate the projects. The Fire District can fill that role.
- Increase the fire resistance of existing, older homes.
 - Ember intrusion has been identified as the leading cause of home fire ignitions during a wildfire. Construction products and techniques now exist that can reduce a home's vulnerability to ember intrusion. The problem is that retrofitting can be expensive unless done in conjunction with a remodel or renovation. Older homes are at greater risk of ember intrusion since they were built prior to the adoption of the current wildland fire construction codes. (Kasler and Reese, 2019).
- Develop the means to provide hazard mitigation, risk reduction, and preparedness assistance to those who are more vulnerable, including low- or fixed-income households and residents with disabilities or functional needs.
 - The cost of retrofitting a home with ember resistant products can be out of reach for some residents. Likewise, a major landscape maintenance project may be cost prohibitive or simply beyond the physical ability of the property owner to complete.
- Ensure that information about hazard mitigation, risk reduction, preparedness, evacuation, recovery, and resiliency is available to all residents in the languages that are spoken at home.
 - Census data shows that many households have a language other than English as their primary language. These languages include Spanish, Mandarin, and Cantonese. (California Census Office, 2020).
- Continue to encourage the adoption of Firewise Communities and Ready, Set, Go! at the neighborhood level.
 - These plans are especially adaptable to homeowners' associations. The Fire District should continue to promote these plans and assist with the formal adoption process.
- Continue to engage cooperatively with the Planning Department on projects in the Wildland-Urban Interface Fire Area
- Provide seamless coordination between this community wildfire protection plan and the local hazard mitigation plan.

Specific Goals

The Rancho Cucamonga Fire District is continuously working to improve the quality of life and increase safety for residents and businesses. By working on the objectives identified in the goals listed below, the Fire District and its community partners can achieve the outcomes desired by this plan. All actions proposed and envisioned by this plan have the overarching goal of mitigating hazards where possible, reducing risk and vulnerability, and increasing resiliency. Achieving the specific goals and their objectives will put the entire community on the path to living more compatibly and safely with wildfires.

Goal – Increase and enhance vegetation management, wildland fuel reduction, and landscape maintenance in the wildland-urban interface fire area.

Objectives

- Work with property owners and utility companies to create managed vegetation reduction buffer zones on the north and east sides of the City.
- Establish a vegetation fuel reduction and management plan for the natural drainages, primarily on the west side of the City.
- Reduce the hazards and risks associated with Eucalyptus windrows and Pine tree landscaping, especially near high risk and high vulnerability neighborhoods.
- Coordinate neighborhood fuel reduction and landscaping maintenance projects in the wildland-urban interface fire area.

Crucial Activities

- Create a standard for acceptable fuel reduction for a buffer zone.
- Contact all property owners in the proposed buffer zones to assess feasibility, interest, and obstacles.
- Create a draft standard for fuel reduction in the natural drainages and provide draft standard to stakeholders for review.
- Identify drainages that could benefit from vegetation management risk reduction.
- Identify maps and similar land-based resources that can be used to identify the drainages.
- Gather data and prepare a report for the City regarding the future of existing Eucalyptus windrows and mature Pine trees near homes and schools in the wildland-urban interface fire area.

- Engage in community outreach to increase the awareness of the fire danger posed by Eucalyptus and Pine trees.
- Identify neighborhoods that could benefit from a fuel reduction and landscaping maintenance projects.
- Determine if partners such as Burrtec, CVWD, County Flood Control, etc. have resources that can support neighborhood fuel reduction and landscape maintenance projects.
- Coordinate with the Community Affairs Network in order to have expert assistance with community outreach materials.
- Identify existing models, codes, and standards relevant to these crucial activities and determine best practices to accomplish these crucial activities.
- Work with the City to identify funding for fuel reduction and vegetation management projects.
- Determine if there are grant or cost-match funds available to assist with the costs of these crucial activities.

Success Metrics

- Produce code-based drafts of plans needed to achieve the objectives.
- The plans are finalized during calendar year 2022 and include mutually agreeable timelines for completion of the crucial activities.
- General agreement among community members, the Fire District, and property owners that results in a prioritized list of drainages that need vegetation management and fuel reduction work.
- Increased awareness throughout the community of the hazards of Eucalyptus windrows and Pine tree landscaping.

Challenges

- Not all owners or holders of easements might be interested in creating buffer zones.
- Funding availability to create and maintain buffer zones may differ among partners.
- Some drainages may be protected habitat or conservation areas and will not be able to be fully treated for fuel reduction.
- Long held views among some members of the community that Eucalyptus and Pine trees are heritage trees and should remain in place and older, dying trees should be replaced with new Eucalyptus and Pine trees.

- Defining manageable sized neighborhoods for fuel reduction and landscaping maintenance projects so that projects are not too large.
- Limited funding. Local projects might end up competing with long standing brush and tree removal projects for mountain communities.
- Conflicting ideas of priorities among stakeholders.
- Varying or lack of funding resources among stakeholders.

Importance

- The importance of this goal, its objectives, and crucial activities will be determined with input from the public review of the draft of this CWPP. A final determination of importance will be included in the final version.

Goal – Increase and enhance hazard mitigation, risk reduction, wildfire preparedness, and disaster resiliency for households and businesses.

Objectives

- Develop the means to provide hazard mitigation, risk reduction, and preparedness assistance to those who are more vulnerable, including low- or fixed-income households and residents with disabilities or functional needs.
- Ensure that information about hazard mitigation, risk reduction, preparedness, evacuation, recovery, and resiliency is available to all residents in the languages that are spoken at home.
- Encourage the adoption of Firewise Communities and Ready, Set, Go! at the neighborhood level.
- Expand the offerings of the Business Emergency Resiliency Training (BERT) program for businesses and the ReadyRC Academy for households.

Crucial Activities

- Reach out to households that are more vulnerable to learn how best to interact and share information with them.
- Work with organizations that already have ties to and provide support services to low- or fixed-income households and residents with disabilities or functional needs.
- Actively recruit employees and volunteers who are fluent in the dominant languages spoken in the homes of Rancho Cucamonga.
- Equip all local government electronic media with translation capability or software.

- Translate existing and new handout materials to the dominant languages spoken at home in Rancho Cucamonga.
- Identify additional ways to raise awareness of and enrollment in BERT and ReadyRC Academy classes.
- Explore alternative delivery models for BERT and ReadyRC Academy classes to make attendance easier and more comfortable for a larger number of businesses and residents.
- Identify funding sources that can be directly used to achieve this objective and the crucial activities.

Success Metrics

- Documentable wider dissemination of information.
- Verifiable increases in the level of preparedness and risk reduction present in the households and businesses.
- Materials and programs are regularly produced and provided in the dominant languages spoken in Rancho Cucamonga.
- The level of preparedness and resiliency is comparable and equitable across the full range of household types and circumstances.
- Increased enrollment in and completion of the BERT and ReadyRC Academy classes.

Challenges

- Not all households have the resources necessary to increase preparedness and reduce risk and vulnerability.
- Identifying the vulnerable households that could benefit from enhanced preparedness and risk reduction.
- Identifying multi-lingual members of the community who are willing to assist with program and information delivery.
- Getting neighborhoods and HOAs to commit to the monetary investment required for certified Firewise communities.
- Finding ways to increase awareness of Ready, Set, Go! on a large scale and having the program utilized by a significant percentage of high risk households.

Importance

- The importance of this goal, its objectives, and crucial activities will be determined with input from the public review of the draft of this CWPP. A final determination of importance will be included in the final version.

Goal - Increase the fire resistance of existing, older homes.

Objectives

- Retrofit homes constructed in the 1990s and earlier with construction features and elements approved by the current Building, Fire, and Residential Codes that are known to prevent structure ignition from the flames, heat, and embers of wildfires.
- Modify or replace landscaping type and design that makes homes more vulnerable to ignition by or damage from wildfires.

Crucial Activities

- Provide information to owners of older homes that raises awareness of the vulnerabilities of such homes during wildfire events and how risks can be reduced through construction and design modifications.
- Define thresholds of construction type, amount, or value that would require upgrades to fire resistance construction features and elements to be installed in existing buildings.
- Identify sources of grant, matching, and/or reimbursement funding to help homeowners with the cost of retrofits.

Success Metrics

- Documented cases of and statistics on wildfire resistant modifications made to existing homes.
- Reports on construction permits that include wildfire prevention modifications.

Challenges

- The cost of wildfire resistant upgrades could exceed funds available to individual households for such projects.
- Some property owners may not see the need for or value in making the upgrades.

Importance

- The importance of this goal, its objectives, and crucial activities will be determined with input from the public review of the draft of this CWPP. A final determination of importance will be included in the final version.

Review and Update

It is anticipated that this plan will be reviewed annually. Ideally the plan will be reviewed at the beginning of the budget planning process. This will allow for a review of funds allocated to achieving the goals and objectives of the plan and allow for budget requests to be made that will assist with achieving the objectives.

The primary purpose of the annual review is to determine which objectives and goals have been accomplished and report that progress to the City Council and Fire Board. The review will also provide an opportunity to regularly revisit the goals and objectives and make adjustments as needed given any changes in circumstances. An annual review also provides an opportunity to identify any new goals and/or objectives that could help to further improve wildfire safety.

When there is an awareness of the availability of grant or similar funds that could be acquired for projects associated with wildfire safety or vegetation management or reduction in designated wildland-urban interface fire areas, this plan can be reviewed to determine if applying for such funds will help to achieve the goals and objectives.

The plan will undergo a comprehensive review and update at least every five years. This review will update the text and resources with the most current information available. The update will be internally reviewed as well as peer reviewed as was the process when the plan was originally drafted and approved. The update will include input from the community and stakeholders, following the model used to create the plan. If development or conditions in the environment or the climate change significantly, the plan should be reviewed and updated at that time. Likewise, if changes to State regulations and/or laws, or fire hazard maps are updated by CAL FIRE, the plan should be updated as soon as possible following those changes to ensure it is consistent with State requirements.

Any stakeholder who becomes aware of significant changes to regulations, laws, guidelines, and/or best practices that could affect the relevancy of this plan or the identified goals can make a request to the Fire District to review and/or update the plan.

Conclusion

Located at the base of the foothills of the San Gabriel Mountains, the City of Rancho Cucamonga is one of several cities that enjoys the enviable Mediterranean climate that produces an abundance of sunny days and relatively mild winters. The gentle slopes of the alluvial fan on which most of Rancho Cucamonga is located are formed by the mostly undeveloped steeper hillsides, canyons, and natural drainages of a diverse chaparral biome.

Wildfires are a natural element of chaparral ecosystems. But wildfires and the neighborhoods and communities of cities and towns are not always a good mix. The meeting of development and native vegetation is known as the wildland-urban interface. The wildland-urban interface fire area reaches beyond the delineated interface and identifies the portions of developed cities and towns where wildfire events have the potential to damage homes, businesses, and infrastructure along with the native vegetation.

In Rancho Cucamonga, nearly 6,000 homes are in the wildland-urban interface fire area. The region has experienced significant wildfires dating back to the days when the area was occupied by the original indigenous peoples. The wildfires have been documented since the early 1900s. Historical mapping shows that the same areas have burned repeatedly, which is typical of chaparral vegetation.

The communities of Alta Loma and Etiwanda, which would join Cucamonga in 1977 to form the City of Rancho Cucamonga, have been impacted the most by wildfires over the years. This is not surprising since those communities originated and have always been much closer to the chaparral vegetation.

The City and the Fire District have steadily worked to improve wildland fire safety and prevention over the years. Notably, the City and Fire District adopted a wildland-urban interface fire area map, approved the wildland construction requirements of the California Building and Residential Codes, formed a strong alliance between the Planning Department and the Fire Prevention Bureau, created a wildland area fire prevention and safety standard, and have proactively identified wildfires as a significant risk in planning documents that include the general plan and the local hazard mitigation plan.

As part of the 2020 General Plan Update, the City commissioned an evacuation study to help better inform needs and decisions related to moving residents out of the path of approaching wildfires. The local hazard mitigation plan was also updated, and this community wildfire protection plan was identified as a need to complete the planning process.

While much has been done to prepare for, prevent, and protect against the potential devastation of a wildfire, there remains more that can be done to protect the community. This plan identifies actions that can be taken to increase wildfire safety and better protect residents and businesses from the effects of a wildfire. This plan also identifies clear goals and the objectives that will need to be met in order to achieve those goals. Some are more easily achievable than others. Many goals will require the residents and Fire District to work together.

Ultimately wildfires will continue to be a part of life in Rancho Cucamonga. Fortunately, research, experience, and a community culture of safety and good health provide the foundation for a shared commitment to living in and compatibly with one of the rarest ecosystems in the world that happens to be visited by wildfire from time to time.

Collaboration / Key Stakeholders

City of Rancho Cucamonga

County of San Bernardino

San Bernardino County Fire Protection District

CAL FIRE

US Forest Service

San Bernardino County Flood Control District

Southern California Edison

Los Angeles Department of Water and Power

Cucamonga Valley Water District

Inland Empire Resource Conservation District

Etiwanda Historical Society

Inland Empire Economic Partnership

Building Industry Association

Signature Page

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Wildland Urban Interface Vegetation Management

Rancho Cucamonga Fire District's 50/50/50 Alternative



The most widely accepted vegetation management plan for increased fire safety in the wildland urban interface fire areas across the nation is the 5/30/100 plan.

This fire safety and home ignition prevention plan includes a total of 100 feet of defensible space.

The first 30 feet from the home includes a 5-foot exclusion zone along with a well-irrigated fuel reduction zone comprised of low growing and high moisture content plants, single trees, widely spaced shrubs, and non-combustible landscaping (compacted rock dust, stone or concrete walkways, masonry features, etc.).

The area that is 30-100 feet from the home is also generally irrigated landscaping that can be a little more dense with small groupings of trees, medium height plants, and more closely spaced shrubs.

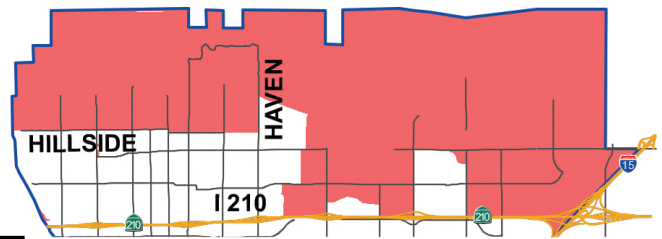
This defensible space plan is based on forest fire research and has been proven to be effective for wildfires where the vegetation is brush or grasses.



In consideration of and appreciation for the relatively rare chaparral ecosystem among which Rancho Cucamonga is situated, the Rancho Cucamonga Fire District, in consultation with chaparral experts, conservationists, and wildfire management and safety agencies has established the 50/50/50 plan as an acceptable alternative to the 5/30/100 plan.

The chaparral biome and ecosystem is the smallest of the world's differentiated plant and animal communities and is found in the United States only in limited places along the west coast.

The 50/50/50 fire safety and home ignition prevention plan also includes a total of 100 feet of defensible space. The difference is in the requirements for the zones that make that 100 feet.



Continued on reverse side.



*Do you live in the High Fire Hazard Area?
To find out, scan here or go to <https://www.cityofrc.us/public-safety/fire/wildland-fire-area-info>*

HOME IGNITION PREVENTION PLAN

The first 50 feet from the home is very similar to the first 30 feet in the 5/30/100 plan. It is the **Vegetation Modification Zone** - a well-irrigated area comprised of low growing and high moisture content plants, single trees, widely spaced shrubs, and non-combustible landscaping (compacted rock dust, stone or concrete walkways, masonry features, etc.) where fire prone and undesirable vegetation has been removed.



The big difference in the 50/50/50 plan is found in the area that is 50-100 feet from the home. Those desiring to maintain the chaparral biome and its unique diversity of plant species and wildlife as part of their landscaping can do so when the 50/50/50 plan is followed.

The area that is 50-100 feet from the home is the **Vegetation Reduction Zone** and can consist of the chaparral if it is thinned to 50% ground coverage. This zone must be maintained annually by removing the dead and dying material in the vegetation clusters and removing non-native and/or invasive weeds and grasses. Irrigation is not required in this zone. Naturally occurring trees and tree stands may be allowed to remain in this zone.

The 50/50/50 vegetation management plan provides a balance between fire safety, defensible space, and preservation of the chaparral ecosystem. The effectiveness of the plan is highly dependent on proper, frequent, and consistent maintenance of both the 0-50 feet and 50-100 feet zones. Homes, tracts, and neighborhoods that employ the 50/50/50 option are subject to routine inspection by the Fire District's Prevention Bureau.



A User Reference Guide to the

Firewise Communities/USA[®] Recognition Program



Introduction and Purpose



This guide is provided as a general reference and resource for those interested or planning to become a recognized Firewise community. If you are a homeowner, community resident, community developer or planner, you will learn that wildfires can occur without disastrous loss of life, property and resources.

This guide was designed to give you a handy, portable reference for your work in supporting the growth and effectiveness of the Firewise Communities/USA® Recognition Program. While information and resource material on the program exist in many formats, this guide brings all of the important information together for your use.

In addition to providing the rationale and research behind the program, we have included tips and tools for you to use and information about the recognition and renewal processes. We hope this guide will also motivate you to communicate your successes, challenges, and good ideas back to national program staff. We want to hear from you about what will make the program most effective in helping residents of fire-prone areas take action toward greater wildfire safety and compatibility with wildfire environments.

The guide is divided into the following sections:

- *Program Criteria, Background and Basis*
- *Action Strategies for Assessment and Community Engagement*
- *Application and Renewal Process*
- *Contacts, References and Resources*

The guide includes a new template you can use for conducting community assessments, as well as examples of Firewise activities and projects that help communities meet the recognition criteria and their local fire risk needs.

Thank you for your commitment and your work toward making our nation safer from wildfire threats.

Michele Steinberg
Firewise Communities Program Manager

About Firewise

The Recognition Program was designed as a tool that forestry and fire service professionals can use to work with residents toward wildfire safety.

NFPA's Firewise Communities Program is intended to serve as a resource for agencies, tribes, organizations, fire departments, communities and residents across the United States who are working toward a common goal: reduce the loss of lives, properties, and resources to wildland fire by building and maintaining communities in a way that is compatible with our natural surroundings.

The Firewise Communities approach emphasizes community responsibility for planning in the design of a safe community as well as effective emergency response, and individual responsibility for safer home construction and design, landscaping and maintenance.

The Firewise Communities/USA Recognition Program was designed as a tool that forestry and fire service professionals can use to work with residents to obtain voluntary compliance with existing wildfire safety rules, as well as to motivate community action toward wildfire safety in the absence of strict ordinances or laws. The Recognition Program encourages and acknowledges citizen involvement in reducing community wildfire risk.



What is Firewise Communities/USA?



With little or no preparation before a wildfire event, communities lose much.

Homeowners learn about home ignitability so they can create their own, unique solutions to their wildfire mitigation challenges.

With adequate planning and cooperation among varying interests, wildfires can occur without disastrous loss of life, property and resources. This is the vision of the Firewise Communities program and can be especially applied to its recognition process.

The Firewise Communities goal is to promote community-wide participation in the use of technology, policy and practices that minimize the loss of life and property to wildfire, independent of firefighting efforts. The Firewise Communities/USA program is seamlessly contained in this goal, as communities learn when they begin the recognition process.

With little or no preparation before a wildfire event, communities lose much. However, with an action plan and regular attention to community wildfire mitigation, wildfire can occur with little to no lasting effect on homeowners. This fact has been illustrated repeatedly around the United States. You can find updated information on Firewise “saves” on the Firewise website at www.firewise.org.

The fact is that wildfires will continue in the wildland/urban interface (the WUI) as an ecological phenomenon. And communities will continue to be affected by them. While wildfire management agencies would like to help homeowners avoid home loss, all are aware that most houses are located on private property. What happens around them occurs at the discretion of the homeowners affected. Landowners understandably prefer to make choices related to their surroundings. Often, they are under the impression that there is nothing they can do...or that wildfire mitigation is too difficult for them or prohibitively expensive.

Firewise Communities/USA provides up-to-date, take-action information to homeowners and communities that helps them change this situation. Residents who participate in the Firewise process create an action plan that commits them to a sustained program of wildfire mitigation that is generally both physically doable and cost-effective. The homeowners learn about home ignitability so they can create their own, unique solutions to their wildfire mitigation challenges.

When people understand there is something they can do, they are more apt to act. They search out more information to validate what they have already learned. One of the most important things Firewise Communities/USA participants learn is that neighbors can help neighbors—and that they are often inextricably linked together in their mitigation solutions.

One of the benefits of participating in the Firewise Communities/USA program is that communities receive continuing support because of the communication that occurs among the Firewise Board, the local fire department and state or federal wildfire agency representatives. The action plan created by each community is implemented via annual Firewise Day events (local mitigation activities) and, thus, wildfire readiness improves in the long term.

Firewise Standards

To qualify as a Firewise Communities/USA recognition site, a community must have met five standards:

1. *Complete a community assessment and create a plan*
2. *Form a Firewise Board*
3. *Hold a Firewise Day event*
4. *Invest a minimum of \$2/capita in local wildfire mitigation projects. (Volunteer hours, equipment use, time contributed by agency fire staff, and grant funding can be included)*
5. *Submit an application*

How the Standards Are Met?



A Firewise representative schedules a site visit and performs a community assessment

- Successful Firewise Communities/USA candidates generally self-select, contacting the Firewise liaison either via telephone, e-mail, or in person. (See www.firewise.org/usa for a list of State Liaisons.)
- The state, tribal or federal Firewise representative schedules a site visit, often coordinating it with local fire officials.
- A community assessment is performed, either by the state liaison, his/her designee, or an accepted assessor such as a fire department or other partner.
- Community activists create a local Firewise board or committee. This is generally composed of a variety of homeowners. Fire staff participate as invited guests.
- The state, tribal or federal Firewise representative or his/her designee presents the community assessment to the Firewise board.
- The Firewise board uses the information in the assessment to create an agreed-upon, area-specific action plan for the community. The state, tribal or federal Firewise representative or designee approves the plan.
- The Firewise board works with the community to complete its first action item and holds a Firewise Day event (the action and the Firewise Day event can be simultaneous).

- The Firewise Communities/USA application is downloaded from www.firewise.org/usa, completed and submitted to the state, tribal or federal Firewise representative, along with supporting documentation.
- Firewise Communities/USA status is renewable annually upon completion of that year's action item/Firewise Day. Renewal forms are available at www.firewise.org/usa.

How Large Should a Recognition Site Be?



The size of a Firewise Communities/USA site is not governed by an arbitrary, fixed rule but rather by the limit of its effectiveness. The recommended size for a participating Firewise Communities/USA site approximates that of a homeowners association. Successful Firewise Communities/USA participation requires commitment from homeowners and residents. No two communities have the same social dynamics and, thus, no two communities have to be the same size for a successful program. However, communities beyond the traditional neighborhood size generally have difficulty meeting the effectiveness and individual engagement

The recommended size for a community approximates that of a homeowners association



Successful communities are ones where residents are engaged in reducing home ignition potential

criteria required for a long-term commitment to wildfire mitigation. Cities and counties lose their neighborhood identity, and thus their homeowner activism across that size of community. Successful, long-term, participating communities are those where homeowners and residents are engaged in reducing their home ignition potential.

Keeping in mind that there is no "official" size for a Firewise Communities/USA site, the following tips can be used as guidelines in determining whether a community is of an appropriate size to maintain itself as a long-term, active Firewise Community/USA:

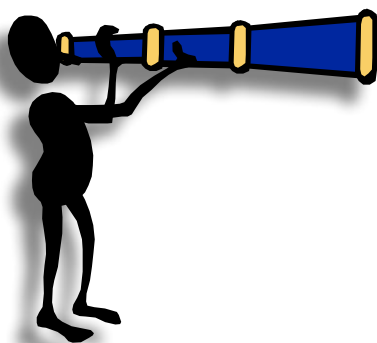
- *The community functions effectively as a unit*
- *Neighbors are able to work together on a wildfire mitigation project*
- *Most residents are willing to take part in a Firewise Communities action plan*
- *Neighbors can organize without depending on municipal or agency guidance.*

State, tribal and federal agencies can facilitate homeowner engagement before a wildfire. If a wildfire occurs, they can then effectively use the opportunities that neighbors' participation in Firewise Communities/USA creates.

Facts About Firewise Participation



A small percent of the population will be the spark plugs



Most residents will watch as the assessment is completed and the plan is written

The Firewise Communities/USA process benefits communities as well as WUI fire responders. Participants become problem solvers; communities develop improved, beneficial relationships with emergency responders. Firewise Board members, along with local fire staff, learn to work together to create a strategy. The process builds community spirit and resolve. And, most importantly, local wildfire readiness is improved.

It's important to know that the Firewise Communities/USA process develops in a predictable pattern in each new community, following a behavioral concept known as the diffusion process. This refers to the spread of a new idea from its introduction to its final general acceptance. Categories of the population follow:

- Innovators – 3%
- Early Adopters – 13%
- Early Majority – 34%
- Late Majority – 34%
- Laggards – 16%

What this means with respect to participation with the Firewise Communities/USA process is that a very small percentage (approximately 3%) of the population will initially play an active role. They are the spark plugs. Most of the residents will watch as the assessment is completed and the plan is written. When the first event is staged, if 25% of the population participates, that is very acceptable. Most of the community will still be watching. When they see that action is being taken, and that it is for the good of the community, more will participate in the second event. Assuming the organizers have created a simple, doable plan, participation will increase each year thereafter.

Focus on the Home Ignition Zone

The Home Ignition Zone Affects the Neighborhood

- Wildfire is a natural part of our world's ecosystem. Wildfires will happen—exclusion is not a choice. The variables in a wildfire scenario are when the fire will occur, and where. The Firewise Communities/USA Recognition Program addresses the wildfire-related characteristics of communities. Participating sites learn about their collective exposure to wildfire as it relates to community—and individual—home ignition potential. Firewise Communities/USA does not focus on specific homes, but engages the community as a whole in finding workable, agreed-upon solutions to their specific wildfire issues.



The Home Ignition Zone includes the house and its immediate surroundings within 100 to 200 feet.



Fire burned very close to this home in New Mexico without igniting the wood walls.

- The home ignition zone principally determines the potential for home ignitions during a wildfire; it includes a house and its immediate surroundings within 100 to 200 feet. Community residents can reduce the risk of destruction during a wildfire by taking actions within their home ignition zones. The Firewise Communities/USA program teaches homeowners HOW home ignitions can occur under severe wildfire conditions and how these ignitions might be avoided within the home ignition zones of affected residents and affected communities.
- A house burns because of its interrelationship with everything in its surrounding home ignition zone—the house and its immediate surroundings. To avoid a home ignition, a homeowner must eliminate the wildfire’s potential relationship with his/her house. This can be done by interrupting the natural path a fire takes. Changing a fire’s path by clearing a home ignition zone is an easy-to-accomplish task that can result in avoiding home loss. To do this, flammable items such as dead vegetation must be removed from the area immediately around the structure to prevent flames from contacting it. Also, reducing the volume of live vegetation will reduce the intensity of the wildfire as it enters the home ignition zone.

Supporting Research

- Wildfire research supports the importance of a well-prepared home ignition zone. Two studies of home survival during California wildfires have provided us with the following information. Each study was conducted in an effort to discern why some homes survived wildfire and others did not. Assuming a house did not have a flammable roof:
 - In the 1961 Belair/Brentwood Fire, 95 percent of the structures that maintained 30 to 60 feet of clearance survived. (Stanford Research Institute)
 - In the 1990 Painted Cave Fire, 86 percent of structures survived if they maintained at least 30 feet of clearance. (University of California – Berkeley)
- During the 1998 International Crown Fire Modeling Experiment held in the Northwest Territories (Canada), researchers learned that a crown fire must be less than 100 feet from a structure to ignite a wood wall. At 33 feet, heavy char and a few ignitions occurred. At 66 feet, there was no char or scorch.

Importance of the Home Ignition Zone

- What this research shows us is that by modifying their home ignition zones, homeowners have the opportunity of keeping crown fire away from their structures by bringing it to the ground when it enters the area. Within the home ignition zone, an interior “fire-free” zone should be established that encircles the structure and all its attachments (including attached fences and decks), going out at least three feet. This reduces the opportunity for firebrands to collect in vulnerable places.

How the Home Ignition Zone is Integral to Community Survival during Wildfire

- Wildfire behavior is dominated by the residential characteristics of a community. The good news is that by addressing community vulnerabilities, residents can substantially reduce their exposure to loss. Relatively small investments of time and effort will reap great rewards in wildfire safety.
- By changing the character of the home ignition zone, *a homeowner can alter the path of a wildfire for his/her property*. By changing the character of the community’s ignition zone, *residents have the opportunity to alter a wildfire’s path for an entire community*. This is what Firewise Communities/USA is all about.

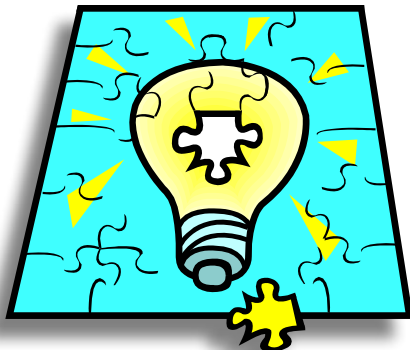


Flammable vegetation leading to deck



After mitigation work, deck is less likely to ignite

How the Pieces Fit Together



The components of the Firewise Communities/USA process fit together like a puzzle:

- **Community Assessment** – provides basic information to the community so the Firewise Board can create an action plan.
- **Firewise Board** – takes responsibility for ongoing design and execution of Firewise activities in the community.
- **Community Action Plan** – provides its residents with things they can do to lower their wildfire risk.
- **Firewise Day Event** – annual activity that carries out a portion of the community action plan and raises awareness throughout the broader community.
- **Recognition Status** – acknowledges and encourages ongoing community commitment.

In this way, all the pieces fit together so that recognition status can be achieved.

Community wildfire mitigation is a long-term commitment. Firewise Communities/USA recognizes program participants for their ongoing efforts to make their neighborhoods safe.

URL for Full Version of the User Guide

<http://www.firewise.org/usa-recognition-program/~//media/Firewise/Files/Pdfs/Booklets%20and%20Brochures/FirewiseUserGuide.pdf>

READY, SET, GO!

YOUR PERSONAL WILDLAND FIRE ACTION GUIDE



4th Edition

READY, SET, GO!

Wildland Fire Action Guide

Saving Lives and Property
through Advance Planning



The fire season is now a year-round reality in many areas, requiring firefighters and residents to be on heightened alert for the threat of wildland fire.

Each year, wildland fires consume hundreds of homes in the Wildland Urban Interface (WUI). Studies show that as many as 80 percent of the homes lost to wildland fires could have been saved if their owners had only followed a few simple fire-safe practices. In addition, wildland fire related deaths occur because people wait too long to leave their home.

Your fire department takes every precaution to help protect you and your property from wildland fire. However, the reality is that in a major wildland fire event, there will simply not be enough fire resources or firefighters to defend every home.

Successfully preparing for a wildland fire enables you to take personal responsibility for protecting yourself, your family and your property. In this Action Guide, we hope to provide the tips and tools you need to prepare for a wildland fire threat; have situational awareness when a fire starts; and to act early as directed by local officials.

The Ready, Set, Go! Program works in complimentary and collaborative fashion with the Firewise® Communities Program and other existing wildland fire public education efforts. Utilizing firefighters, it amplifies their messages to individuals to better achieve the common goal of wildland fire preparedness.



Fire-Adapted Communities (FAC) brings together the federal land management agencies with national organizations and state and local interests to stress that with proper community-wide preparation, human

populations and infrastructure can withstand the devastating effects of a wildland fire. FAC helps to create a collaborative community-wide effort, where all parties, citizens and government, are involved in successfully adapting to their wildland fire challenge. FAC's website, www.FireAdapted.org, provides beneficial resources and information.

Fire is, and always has been, a natural occurrence in the wildland. Hills, canyons and forests burned periodically long before homes were built. Wildland fires are fueled by a build-up of dry vegetation and driven by seasonal hot dry winds. They also are extremely dangerous and difficult to control. Many people have built homes in the Wildland Urban Interface and landscaped without fully understanding the impact a fire may have on their lives. Few have adequately prepared their families for a timely evacuation in the event of a wildland fire.

It is not a question of **if**, but **when**, the next major wildland fire will occur. Through advance planning, understanding and preparation, we can all be partners in the wildland fire solution. The tips on the following pages are designed to create heightened awareness and a safer environment for you, your family and firefighters.

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This publication was prepared by the RSG! Program with the assistance of the Ventura County Fire Department and the Orange County Fire Authority, in cooperation with the International Association of Fire Chiefs; The U.S. Forest Service; U.S. Department of the Interior Bureau of Land Management; and the U.S. Fire Administration. Special thanks to the Insurance Institute for Business and Home Safety; the National Association of State Foresters; University of Nevada Cooperative Extension "Living with Fire" Program; CAL FIRE; FireSafe Council, the National Fire Protection Association and the Firewise Communities Program; and many other organizations for their contributions to message and content. To learn more about the Ready, Set, Go! Program and its partners, visit, www.wildlandfireRSG.org.

Living in the Wildland Urban Interface and the Ember Zone

Ready, Set, Go! begins with a house that firefighters can defend

Defensible Space Works!

If you live next to a naturally vegetated area, often called the Wildland Urban Interface, you must prepare your property and modify vegetation to provide firefighters with the defensible space they need to protect your home. The buffer zone you create by altering weeds, brush and other vegetation helps keep the fire away from your home and reduces the risk from flying embers. Firewise Communities and other wildland fire preparedness education programs provide valuable guidance on property enhancements.



Even if you do not live in the WUI, you may live in the Ember Zone. A home within one mile of a natural area is in the Ember Zone. Wind-driven embers can threaten your home. You and your home must be prepared well before a fire occurs. Fires caused by embers can destroy homes or neighborhoods far from the actual front of the wildland fire.



READY, SET, GO!

Create Your Own Wildland Fire Action Guide

Now that you have done everything you can to prepare your home, it is time to prepare your family. Your **Wildland Fire Action Guide** must be prepared with all members of your household well in advance of a fire. Use these checklists to help you prepare and gain situational awareness of the threat of wildland fire. For more information on property and home preparedness before a fire threat, review the preparedness checklist on the Firewise Communities Program website, www.firewise.org.

Ready – Preparing for the Fire Threat



- Create a family disaster plan that includes meeting locations and communication plans. Rehearse it regularly. Also include the evacuation of pets and large animals.
- Have fire extinguishers on hand and train your family how to use them.
- Ensure that your family knows the location of your gas, electric and water main shut-off controls and how to use them.
- Plan and practice several different evacuation routes.
- Designate an emergency meeting location outside the fire hazard area.
- Assemble an emergency supply kit as recommended by the American Red Cross. Keep an extra kit in your vehicle.
- Appoint an out-of-area friend or relative as a point of contact so you can communicate with family members.
- Maintain a list of emergency contact numbers in your emergency supply kit.
- Have a portable radio or scanner so you can stay updated on the fire.

Set – Situational Awareness when a Fire Starts

- Monitor fire weather conditions and fire status. See www.inciweb.org.
- Evacuate as soon as you are set!
- Alert family and neighbors.
- Dress in appropriate clothing (i.e. clothing made from natural fibers, such as cotton, and work boots). Have goggles and a dry bandana or particle mask handy.
- Ensure that you have your emergency supply kit on hand that includes all necessary items, such as a battery powered radio, spare batteries, emergency contact numbers, and ample drinking water.
- Stay tuned to your TV or local radio stations for updates, or check the fire department website.
- Remain close to your house, drink plenty of water and keep an eye on your family and pets until you are ready to leave.

INSIDE CHECKLIST, IF TIME ALLOWS

- Close all windows and doors, leaving them unlocked.
- Remove flammable window shades and curtains and close metal shutters.
- Move furniture to the center of the room, away from windows and doors.
- Turn off pilot lights and air conditioning.
- Leave your lights on so firefighters can see your house and other structures under smoky conditions.



OUTSIDE CHECKLIST, IF TIME ALLOWS

- Bring combustible items from the exterior of the house inside (e.g. patio furniture, children's toys, door mats, etc). If you have a pool, place them inside.
- Turn off propane tanks and other gas at the meter.
- Don't leave sprinklers on or water running - they can waste critical water pressure.
- Leave exterior lights on.
- Back your car into the driveway to facilitate a quick departure. Shut doors and roll up windows.
- Have a ladder available.
- Patrol your property and extinguish all small fires until you leave.
- Cover attic and ground vents with pre-cut plywood or commercial covers.

IF YOU ARE TRAPPED: SURVIVAL TIPS

- Remain inside your home until fire passes.
- Shelter away from outside walls.
- Bring garden hoses inside house so embers and flames do not destroy them.
- Patrol inside your home and look in your attic for spot fires and if found, extinguish them.
- Wear long sleeves and long pants made of natural fibers such as cotton.
- Stay hydrated.
- Ensure you can exit the home if it catches fire (remember if it is hot inside the house, it is four to five times hotter outside).
- Fill sinks and tubs for an emergency water supply.
- Place wet towels under doors to keep smoke and embers out.
- After the fire has passed, check your home and roof. Extinguish any small or smoldering fires and embers.
- Check inside the attic for hidden embers.
- If there are fires that you can not extinguish with a small amount of water or in a short period of time, call 9-1-1.

Go – Act Early

By leaving early, you give your family the best chance of surviving a wildland fire. You also help firefighters by keeping roads clear of congestion, enabling them to move more freely and do their job in a safer environment.

WHEN TO LEAVE

Do not wait to be advised to leave if there is a possible threat to your home or evacuation route. Leave early enough to avoid being caught in fire, smoke or road congestion. If you are advised to leave by local authorities, do not hesitate!

MEETING LOCATION

Leave to a predetermined location. It should be a low-risk area, such as a well-prepared neighbor or relative's house, an American Red Cross shelter or evacuation center, motel, etc.

HOW TO GET THERE

Have several travel routes in case one route is blocked by the fire or by emergency vehicles and equipment. Choose an escape route away from the fire.

WHAT TO TAKE

Take your emergency supply kit containing your prepared family and pet's necessary items.



EMERGENCY SUPPLIES

The American Red Cross recommends every family have an emergency supply kit assembled long before a wildland fire or other emergency occurs. Use the checklist below to help assemble yours. For more information on emergency supplies, visit the American Red Cross or your state's Emergency Preparedness Agencies website.

- Three-day supply of water (one gallon per person per day).
- Non-perishable food for all family members and pets (three-day supply).
- First aid kit.
- Flashlight, battery-powered radio, and extra batteries.
- An extra set of car keys, credit cards, and cash or traveler's checks.
- Sanitation supplies.
- Extra eyeglasses or contact lenses.
- Important family documents and contact numbers.
- Map marked with evacuation routes.
- Prescriptions or special medications.
- Family photos, valuables and other irreplaceable items that are easy to carry.
- Easily carried valuables.
- Personal computers, hard drives, disks, and flash drives.
- Chargers for electronic communication devices.
- Insurance Documents.

Note: Keep a pair of old shoes and a flashlight handy in case of a sudden evacuation at night.

My Personal Wildland Fire Action Guide

Write up your Wildland Fire Action Guide and post it in a location where every member of your family can see it. Rehearse it with your family.

During high fire danger days in your area, monitor your local media for information and be ready to implement your plan. Hot, dry and windy conditions create the perfect environment for a wildland fire.

Important Phone Numbers:

Out-of-Area Contact: _____ Phone: _____

Work: _____

School: _____

Other: _____

Evacuation Routes: 1. _____

2. _____

3. _____

Meeting Location: _____

Location of Emergency Supply Kit: _____

Notes: _____

For wildland fire information: www.inciweb.org or visit your State Forestry Page





READY, SET, GO!

Safety Checklist Tips To Improve Family and Property Survival During A Wildland Fire

Home	Yes	No
1. Does your home have a noncombustible (such as metal, composition, tiles, etc.) with capped ends?	<input type="checkbox"/>	<input type="checkbox"/>
2. Are the rain gutters and roof free of leaves, needles and branches?	<input type="checkbox"/>	<input type="checkbox"/>
3. Are all vent openings screened with 1/8 inch mesh metal screen?	<input type="checkbox"/>	<input type="checkbox"/>
4. Are approved spark arrestors on chimneys?	<input type="checkbox"/>	<input type="checkbox"/>
5. Does the house have noncombustible or ignition resistant siding material?	<input type="checkbox"/>	<input type="checkbox"/>
6. Are the eaves "boxed in" using noncombustible materials?	<input type="checkbox"/>	<input type="checkbox"/>
7. Are the windows double-paned or tempered glass?	<input type="checkbox"/>	<input type="checkbox"/>
8. Are the decks, porches and similar like areas made of noncombustible material? Are the area(s) free of easily combustible material?	<input type="checkbox"/>	<input type="checkbox"/>
9. Is all firewood at least 30 feet from the house?	<input type="checkbox"/>	<input type="checkbox"/>

Defensible Space	Yes	No
1. Has vegetation been removed to the recommended defensible space zones around your home? (Considering adding distance due to slope of property.)	<input type="checkbox"/>	<input type="checkbox"/>
2. Is there recommended and maintained separation between shrubs?	<input type="checkbox"/>	<input type="checkbox"/>
3. Have ladder fuels been removed?	<input type="checkbox"/>	<input type="checkbox"/>
4. Is there a clean and green area extending at least 30 feet from the house?	<input type="checkbox"/>	<input type="checkbox"/>
5. Has the noncombustible zone been developed and maintained?	<input type="checkbox"/>	<input type="checkbox"/>
6. Is there recommended and maintained separation between trees and crowns?	<input type="checkbox"/>	<input type="checkbox"/>

Emergency Access	Yes	No
1. Is the home address visible from the street?	<input type="checkbox"/>	<input type="checkbox"/>
2. Is the home address made of noncombustible material and reflective?	<input type="checkbox"/>	<input type="checkbox"/>
3. Are street signs present at every intersection leading to the house?	<input type="checkbox"/>	<input type="checkbox"/>
4. Are street signs made of noncombustible materials and reflective?	<input type="checkbox"/>	<input type="checkbox"/>
5. Is flammable vegetation within 10 feet of the driveway cleared and are overhanging obstructions removed?	<input type="checkbox"/>	<input type="checkbox"/>
6. If a long driveway is present, does it have a suitable turnaround area?	<input type="checkbox"/>	<input type="checkbox"/>

Ready, Set, Go!
www.wildlandfireRSG.org
Visit your State Forestry Page

