



# CWPP

## Community Wildfire Protection Plan Contra Costa County, California

Prepared by  
Diablo Fire Safe Council

Cover photos provided by: Lucas Hirst - [www.lucas911.com](http://www.lucas911.com)



# Table of Contents

---

INTRODUCTION.....	1
SCOPE AND PURPOSE.....	2
<b>SECTION 1: CONTRA COSTA COUNTY INFORMATION</b>	
1.1 COUNTY OVERVIEW.....	4
1.2 STAKEHOLDERS.....	5
<b>SECTION 2: FIRE HAZARD AND RISK IN THE WILDLAND URBAN INTERFACE</b>	
2.1 FIRE ENVIRONMENT.....	7
2.2 WUI.....	8
2.3 ASSETS AT RISK WITHIN THE WUI.....	9
2.4 STRATEGIES FOR REDUCING RISK WITHIN THE WUI.....	9
<b>SECTION 3: PRIORITIZED FUELS REDUCTION TREATMENTS</b>	
3.1 FUELS MANAGEMENT.....	12
3.2 FUELS REDUCTION TREATMENT PRIORITIES.....	12
<b>SECTION 4: TREATMENT OF STRUCTURAL IGNITABILITY</b>	
4.1 STRUCTURAL IGNITABILITY FACTORS.....	14
4.2 IMPROVING THE SURVIVABILITY OF STRUCTURES IN THE WUI.....	15
<b>SECTION 5: SIGNATURE PAGES</b>	
5.2 SIGNATURE PAGE.....	17
APPENDIX A - FIRE SEVERITY AND WUI MAPS.....	18
APPENDIX B - HOMEOWNER SURVEY.....	20
APPENDIX C - CURRENT PRIORITY FUELS REDUCTION PROJECTS.....	22
APPENDIX D - RESOURCE FOR THE HOMEOWNER & CONTACT INFORMATION .....	26
APPENDIX E - CULTURAL RESOURCES AND FUEL MANAGEMENT.....	37
APPENDIX F - CANYON FIRE COUNCIL WILDLAND FIRE PREPAREDNESS.....	39
APPENDIX G - BEST MANAGEMENT PRACTICES.....	42

# Introduction

Fire records for Contra Costa County document an active, dangerous, and costly fire history. There is little question that the area's unique ecology – particularly the topography, climate, and vegetation – provides the setting for catastrophic fire to strike. While large-scale fires do not occur every year, fire incidents driven by extreme wind conditions have repeatedly been difficult to contain. Contemporary population growth leading to residential development in the wildland urban interface (WUI) along with the introduction and proliferation of exotic species exacerbates this problem by putting more people, property, critical infrastructure and natural resources in harm's way. In order to reduce the risk of loss of life and property due to wildfire, the Diablo Fire Safe Council has worked with local residents, representatives of federal, regional, state, and local agencies along with community organizations to prepare this Community Wildfire Protection Plan (CWPP).

Although the format of this CWPP is guided by the Healthy Forest Restoration Act's (HFRA) call for such plans, the principles behind it are not new. The National and State Fire Plans, the Federal Emergency Management Agency Disaster Mitigation Act of 2000 and several locally developed documents all mandate community-based planning efforts, coordination, project identification, prioritization, funding review, and multi-agency cooperation. Unique benefits of the CWPP include:

- The opportunity to establish a locally appropriate definition and boundary for the WUI.
- The requirement for federal agencies, when planning fuel reduction projects, to give priority to projects that provide for the protection of at-risk-communities or watersheds, or that implement recommendations in a CWPP.
- Expedited National Environmental Policy Act (NEPA) procedures for federal agencies implementing fuel reduction projects identified in a CWPP.

**Funding for the CWPP was generously provided by the United States Fish and Wildlife Service (USFWS) in conjunction with the following contributors:**

Bureau of Land Management (BLM)	Kensington Fire Protection District
California Department of Forestry and Fire Protection	Kensington Fuel Reduction Group
Canyon Fire Council	Moraga-Orinda Fire District
Contra Costa County Fire Protection District	National Park Service
Contra Costa Resource Conservation District	National Resources Conversation Service
Pacific Gas & Electric (PG&E)	Oakland Fire Department
Diablo Fire Safe Council	San Ramon Valley Fire Protection District
East Bay Municipal Utility District (EBMUD)	United States Forest Service (USFS)
East Bay Regional Park District	
East Contra Costa County Fire District	
El Cerrito Fire Department	
Federal Fire Department	



## Scope

The Scope of this Plan is County wide and encompasses the following:

1. Describes the fire environment of Contra Costa County.
2. Identifies values at risk as defined by stakeholders.
3. Provides maps that show high fire hazard areas, as defined by Federal, State, and local authorities.
4. Establishes the rationale for prioritization of fuel management projects and treatment methods and outlines principles for selection of projects when funding is available.
5. Describes measures communities and homeowners can take to reduce the ignitability of structures.
6. Identifies Best Management Practices for fuel reduction treatments included in the plan.
7. Identifies federal, state, and local resources (fire, wildlife, regulatory agencies, landscape groups, etc).



## Purpose

The Purpose of this CWPP is to protect human life and reduce loss of property, critical infrastructure and natural resources due to wildfire. The document is intended to help agencies, communities and local homeowners define, plan and prioritize types of actions that will limit the damage associated with the inevitable wildland fire event. This plan can be used to reduce the risk of conflagration by the following actions:

1. Increased collaborative planning and cooperative actions which will build useful relationships between communities and agencies.
2. Reduction of hazardous fuels in the WUI.
3. Creation and maintenance of defensible space for structures and properties.
4. Reduction of structural ignitability hazards.
5. Planning of evacuation protocols and drills

The stakeholders in this effort believe that the work outlined above requires a collaborative approach that combines the following elements:



- Development and implementation of strategic, cost effective, sustainable, and environmentally sensitive fuel management plans;
- Educational programs that explain fire risk, promote voluntary citizen involvement and emphasize long-term strategies for creating and maintaining fire-resistant communities
- Application of resources to areas and projects where efficacy is most probable.



To that end, stakeholder participation and regular review are central to maintaining the ideas and priorities of the CWPP in the future. The dynamic nature of the CWPP will reflect the changes in practices, technology, and information available to prevent and minimize loss from wildfire.

# Contra Costa County Information

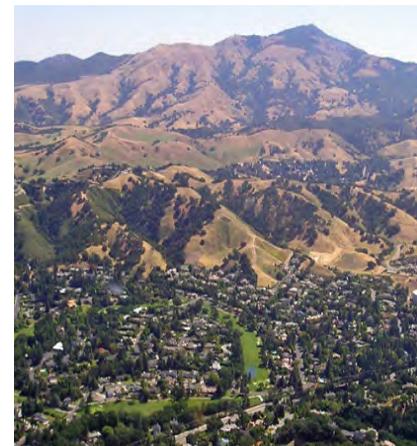
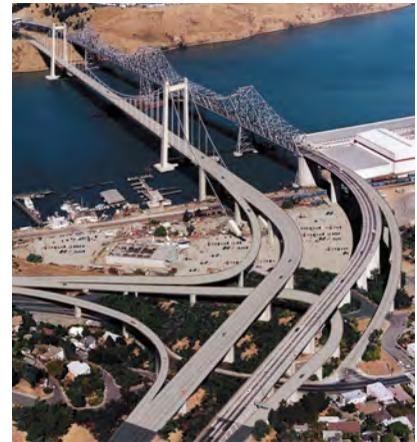
## 1.1 County Overview

Contra Costa County was incorporated in 1850 as one of the original 27 Counties of the State of California. Today, over one million (1,000,000) people live within this 802 square mile boundary. Most reside in the 19 incorporated cities, although more than 20% (200,000) live in unincorporated communities. County planners project that the population will grow more than 10% (100,000) over the next decade. Two major complexes of mountains, ridges, and hills define the physical and hydrological landscape. This shapes where people live and work and results in numerous people inhabiting areas that are remote or are very difficult to access under emergency conditions.

The county contains an abundance of vegetative, water, air, biotic, and agricultural resources. The western and northern shore areas are highly industrialized, while the interior sections contain suburban/residential and commercial areas interspersed with agricultural and livestock grazing lands along with parklands, watershed and other undeveloped areas. There are 13 major watersheds and sub-watersheds, with over 1300 miles of creeks and drainages. These watersheds form a crucial part of the Bay area's domestic water supply, and are the location of several large reservoirs.

The vegetation and wildlife habitat of Contra Costa County includes several broadly defined types: native and non-native forests and woodlands, shrublands, grasslands, riparian woodland and scrub, and wetlands. Numerous plants and animals that are designated as rare, threatened, or endangered species or are candidates for such designation occur here. These include both federally and state-listed species. Information about vegetation and habitat is included in the Best Management Practices Guidebook.

There are several large landowners in the county. Four of the largest are Mt. Diablo State Park, the Contra Costa Water District





(CCWD), the East Bay Municipal Utility District (EBMUD), and the East Bay Regional Parks District (EBRPD). Mt. Diablo State Park encompasses approximately 20,000 acres of open space. The CCWD includes the Los Vaqueros Reservoir, and has close to 80,000 acres under management. EBMUD owns and manages some 16,400 acres of land and water areas, and is responsible for management surrounding four reservoirs and two major recreational areas. EBRPD offers developed and dispersed recreational opportunities in the 33 urban and rural parks that occupy 45,000 acres in Contra Costa County.

Contra Costa County has both professional and volunteer fire departments. The County produced an Emergency Operations Plan in April 2007. Appendix E provides a detailed list of fire fighting resources.

## 1.2 Stakeholders

Stakeholders in this CWPP are defined as those individuals, agencies, or business entities that could be directly impacted by catastrophic wildfire. The process of identifying stakeholders and their interests is an ongoing process. It is the goal of Diablo Fire Safe Council to participate with as many stakeholders as possible. For the purposes of this document, stakeholders are divided into five primary groups: Large Landowners, Community Groups, Fire Service Agencies, Municipalities, and Other. The following is a list of identified stakeholders:

### Large Landowners

East Bay Municipal Utility District (EBMUD)  
East Bay Regional Park District (EBRPD)  
Contra Costa Water District (CCWD)  
California State Parks  
National Park Service (NPS)  
US Fish and Wildlife Service (USFWS)  
Pacific Gas and Electric (PG&E)  
Union Pacific Railroad

### Community Groups

Canyon Fire Council  
Kensington Fuels Reduction Group

### Fire Service Agencies

Contra Costa County Fire Protection District  
Crockett-Carquinez Fire Protection District  
East Bay Regional Park District Fire Division  
East Contra Costa Fire Protection District

El Cerrito Fire Department  
Moraga-Orinda Fire District  
Naval Weapons Station (Federal Fire Department)  
Pinole Fire Department  
Richmond Fire Department  
Rodeo-Hercules Fire Protection District  
Kensington Fire Protection District  
San Ramon Valley Fire Protection District  
California Department of Forestry and Fire Protection (CAL FIRE)

### Other Stakeholders

Hills Emergency Forum (HEF)  
Diablo Fire Safe Council (DFSC)

# Cities, Towns, and Unincorporated Areas of Contra Costa County

## West County

### Incorporated areas

El Cerrito  
Hercules  
Pinole  
Richmond  
San Pablo

### Unincorporated areas

Bayview-Montalvin  
Crockett  
East Richmond Heights  
El Sobrante  
Kensington  
North Richmond  
Port Costa  
Rodeo  
Rollingwood  
Tara Hills

## Central County

### Incorporated areas

Clayton  
Concord  
Danville  
Lafayette  
Martinez  
Moraga  
Orinda  
Pleasant Hill  
San Ramon  
Walnut Creek

### Unincorporated places

Alamo  
Blackhawk  
Briones  
Camino Tassajara  
Canyon  
Clyde  
Diablo  
Mountain View  
Pacheco  
Vine Hill  
Waldon

## East County

### Incorporated places

Antioch  
Brentwood  
Oakley  
Pittsburg

### Unincorporated places

Bay Point  
Bethel Island  
Byron  
Discovery Bay  
Knightsen

*A strong, formal bond of mutual aid exists between fire agencies and with those from neighboring Alameda County.*

# Fire and the Wildland Urban Interface (WUI)

## 2.1 Fire Environment

Wildfires are part of Contra Costa County's natural ecosystem. The Mediterranean-like climate, the rugged, wind-conducive topography, and fire-adaptive native vegetation set the stage for periodic burns. This fire environment is made more dangerous by the abundant hazards and risks associated with a growing population and sprawling pattern of development.

More than 30 severe fires have occurred in the area in the past 80 years, resulting in loss of lives, property, and natural resources. Historically, more frequent wildfires of lesser intensity were common. Drought and human behaviors, particularly in the arenas of land-use and fire-suppression, have had a profound impact on the County's fuel complex and fire regime. The current trend is toward less frequent, higher intensity fires. This increases the possibility of catastrophic wildfire, especially as the hazards of vegetation, topography, structures, and fire weather are present.

Chief among fire hazards is the area weather. Despite efforts to improve neighborhood safety and fire fighting capability, uncontrollable fire storms will occur under the extreme but periodic conditions of "Red Flag" weather days. "Red Flag" warnings are issued by the National Weather Service when weather elements such as low relative humidity, strong winds, or the possibility of dry lightning strikes could lead to rapid increases in wildfire activity.

In Contra Costa County, "Red Flag" weather can mean the occurrence of strong, hot, dry offshore Foehn winds. These winds, known locally as "Diablo winds", carry extremely dry air at high velocity. They quickly desiccate vegetation and other flammable materials and can push a fire down or up a slope with amazing speed. These can occur at any time of year, but are especially dangerous in the driest months of summer and fall. During these times, fighting a fire becomes far more difficult.



The change in the native fire-cycle has resulted in an over-accumulation of vegetation in some areas. The massive fuel load in the area mountains and hills makes fires very difficult to contain. In addition, non-native vegetation has replaced the more fire resistive native species in places, adding to the threat. The growing numbers of homes and other structures also increases the fuel load.

The County's mountainous topography influences fire behavior, and in many instances intensifies fire effects. Westward facing slopes are more arid (due to long exposure to the afternoon sun) and thus more combustible. The difficulty of building roads in the steep areas makes ingress or egress difficult and delays fire fighter response time.

## 2.2 Wildland Urban Interface (WUI)

The WUI is defined as an area in which wildlands and communities are sufficiently close to each other to present a credible risk of fire spreading from one to the other. The WUI has gained increasing importance as more Americans build homes in rural settings adjacent to public lands.



The housing density and geography of Contra Costa County is such that most areas in the central and western parts of the county are WUI areas. Some of the locations are considered Very High and High Hazard areas and are at significant risk for loss of life and property if a fire were to occur on a normal or extreme weather day.

For the purposes of this plan, the CA Department of Forestry and Fire Protection Fire Hazard Severity maps are used to determine where significant fire hazards exist. Many local cities and fire districts have developed specific maps characterizing the risk in their areas. These maps are included in Appendix A.

The California State Forester has identified communities in the WUI that are at significant risk from wildland fire. In accordance with the Healthy Forest Restoration Act, stakeholders elected to extend the defined WUI to include evacuation routes, staging areas and other important resources and infrastructure. This extended area is referred to the "CWPP WUI" area on the Fire Hazard Severity map in Appendix A.

## 2.3 Values at Risk within the WUI

Millions of people are exposed to the destructive forces of wildfire by virtue of living, working, or visiting areas in the WUI. Much of what people value most highly –their lives, family, community, property, and cultural, economic, and ecological interests – is at risk of loss in an uncontrollable wildfire. Of particular concern are those who for whatever reason would not be able to leave during an evacuation without assistance.

Area residents and agencies list homes, businesses, parklands and protected watersheds as among values at risk. Regional facilities for public transportation (BART, rail, and bus) are at risk, as are power and water supply facilities and substations. The results of a survey provided to numerous residents are included in Appendix B.

The County's Local Hazard Mitigation Plan lists these assets, whose monetary value is measured in billions or dollars, as exposed to potential loss:

- 37,7321 acres of land are subject to high, very or extreme wildfire threat and an additional 118,509 acres are in the wildland urban interface threat areas.
- 866 miles of roadway are subject to high, very high or extreme wildfire threat and 2946 miles of roads are in wildland urban interface threat areas.
- 8 schools, 46 critical health care facilities and 19 other critical facilities are located in areas of high, very high or extreme threat. 182 schools and 234 other critical facilities are located in wildland urban interface threat areas.



## 2.4 Reducing Risk within the WUI

Wildfire is a natural process in the Contra Costa County ecosystem. The natural hazards of the fire environment - weather, climate, topography, and fire adaptive vegetation - are immutable. Attention to decreasing the human impacts and risk factors can reduce the incidence of catastrophic wildfire. These factors include:

1. *Development and settlement patterns* - homes, structures, and subdivisions constructed in areas prone to wildland fire. Infrastructure (roads, bridges, fire stations, water supply,

etc.) is in some instances insufficient to meet needs or growing demands

2. *Vegetation management* - excessive fuel build-up in and around WUI areas.
3. *Landscape management* - residential planting arrangements that do not provide adequate defensible space around structures, utilize high fuel volume plants, or are not properly watered or otherwise maintained
4. *Architecture* - use of flammable building materials and construction techniques that encourage the spread of fire
5. *Behavior* - almost all ignitions of catastrophic fires in Contra Costa County are human related. These run the gamut from exploding power line transformers to automobile accidents to careless use of fires or barbecuing to deliberate arson.



This plan proposes to collaboratively develop and foster practices and actions which will mitigate these risk factors.

The following actions are recommended:

1. Organize community meetings to educate residents about the fire environment in which they reside and measures they can take to minimize their risk and prepare for a fire event.
2. Conduct community meetings to explain good practices residents can follow to reduce structural ignitability and limit ignitions
3. Support community meetings and distribute literature that will explain good practices residents can follow to organize evacuation protocols and drills in areas where sudden evacuation could not be performed by emergency responders
4. Conduct workshops which show common architectural features (such as Class A & Class B roofing) and how they respond when ignited
5. Continue to work with PG&E to develop programs that will curtail accidental ignitions.
6. Conduct workshops for residents, landscape designers, architects, and contractors to provide information about defensible space and fire-resistant landscaping
7. Conduct general fire awareness campaigns.

When funding is available; projects, workshops, and educational efforts will be awarded based on the following attributes:

- Protects life, property and infrastructure in areas of the County where risk of catastrophic wildfire is most severe
- Reduces risk of fire spreading from private lands to regional parklands, state or federal lands, or areas where significant cultural resources or values are at risk.
- Either seeks to create a plan for fire prevention or mitigation in a new area or supports ongoing, previously planned efforts.
- Involves stakeholders at all levels, which is to say, there is strong community support as well as support from all applicable agencies and landowners; intensity of local support will be a significant factor when choosing projects.
- Demonstrates the capacity to continue to manage and maintain the project effectively.



# Prioritized Fuel Reduction Treatments

## 3.1. Fuel Management

Fuel management is the practice of removing or modifying vegetation in order to reduce wildfire ignitions, rate of spread, and intensity. Fuel management requirements depend on the vegetation type, location, condition, and configuration. Given the dynamic nature of these fuels, a single treatment type or prescription is typically not effective. Rigorous oversight, active management, and an adaptive approach are required to achieve fuel management goals.

Generally, five fuel management methods are available and used within the WUI:

1. Manual (e.g., hand labor such as pulling or cutting)
2. Mechanical treatments (e.g., mowing, selective cutting of trees, masticating)
3. Prescribed herbivory (targeted grazing by sheep, goats, or cattle)
4. Herbicides (chemical treatment)
5. Prescribed burns



Specific fuel management treatment goals and methods are addressed more fully in the Best Management Practices Guide section of this document [Appendix G].

## 3.2 Fuel Reduction Treatment Priorities

County wide, public and private agencies, fire departments, and fire districts establish fuel reduction treatment priorities on a regular basis. Typically, fuel treatment is done immediately around structure, by roadways, and in areas of extreme fire behavior. Treatments addressed in the Best Management Practices Guidebook are organized by zone as follows:

1. From the Home: 0-30', 30-100'
2. Critical Infrastructure: 0-300'
3. Emergency Access Roads: 0-30', 30-100'
4. Community Protection: 100-300'
5. Community Wildland Interface: 1.5 miles area around community unless otherwise designated

A list of current priority projects is available in Appendix C. An intended outcome of the CWPP process is for this list to be updated annually to ensure that efforts are coordinated whenever possible.

When funding is available, fuel reduction treatment projects with the following attributes should be given the highest priority:

- Project reduces hazardous fuels that, if left untreated, would generate high intensity burning adjacent to structures or communities at risk, or produce large quantities of airborne burning embers that would carry into communities or other important resources.
- Project reduces hazards along strategic emergency access and evacuation routes., or other critical infrastructure
- Project includes vegetation modification treatments that will reduce the threat of unacceptable impacts of high intensity fire to high value ecosystems, sensitive watersheds and high concentration recreation areas, including regional parklands and state or federal lands.

# Treatment of Structural Ignitability

## 4.1 Structural Ignitability Factors

The presence of structures within the WUI exposes both the natural and developed environment to increased risk of destruction by wildfire. In areas where the accumulation of flammable vegetation coexists with residential development, an ignition can lead to catastrophic fire. Mitigation of hazards that contribute to structural ignitability can reduce the potential of fire loss.

The keys to ignition resistance are the design of the structure, the materials used in its construction, and the presence of defensible space. Recent studies point to basic factors that affect the risk of a structure burning in a wildfire. A weakness in any of these areas can lead to a similar result – a destroyed or severely damaged home or building. These factors include:

### Flammability of the roof

At a minimum, a home should have a Class A-rated, fire-resistant roof cover or assembly, and preferably one that is self-extinguishing once a falling ember burns out. Self-extinguishing means that the firebrand will not burn through to the roof deck and flames will not spread to other parts of the roof. Without a fire-resistant roof, other approaches toward mitigation will fall short of protecting the home.

### Overhanging Structures

Eaves, alcoves, entry ways, patio covers, decks, porches, and exterior stairways all have the potential to "trap" heat under them or create areas where burning embers can accumulate.

### Structural Openings

Areas where there are direct pathways to the attic, house or crawl space provide an easy entry point for embers and flames. This can include vents, soffits or windows prone to breaking when exposed to wildfire conditions (usually unprotected, single-pane windows). Window fans, pet doors, fireplaces, and chimneys can allow firebrands to enter if left open or unscreened.





## Fuel Hazards

Any fuel sources that will bring flames close to the structure can be a hazard. Examples of fuel hazards include flammable plants close to a wall, dead foliage that builds up underneath succulents or other normally fire-resistant plants, certain types of mulch or a combustible fence located close enough to allow flames to contact the overhanging roof above.

Fuel sources within the "defensible space" area that support a high intensity spot fire are especially problematic. These include any trees that can quickly become a fire torch, such as an untrimmed palm tree, a wooden trellis made of common lumber sizes, playground equipment made with

wooden pieces or a pile or rack of firewood on the ground or in a wheelbarrow.

## Access to the property

If firefighters and their equipment cannot gain access to the property and a water source, there is little chance they can protect the home. Access also affects the ability of the homeowner to evacuate the site should the need arise.

## 4.2 Improving the Survivability of Structures within the WUI

Protecting structures exposed to wildfires is not a simple matter. Structures can ignite due to direct exposure to flames, from radiated heat, or from firebrands. All three sources must be addressed in order to improve the survivability of structures within the WUI. It is recommended that the following measures be taken:

1. Reduce the amount of heat the structure will be exposed to through managing vegetation, creating defensible space, and construction design.
2. Limit the time the structure is exposed to heat through vegetation management and construction design.
3. Use fire resistant building materials and construction methods.
4. Remove combustible materials stored near structures.

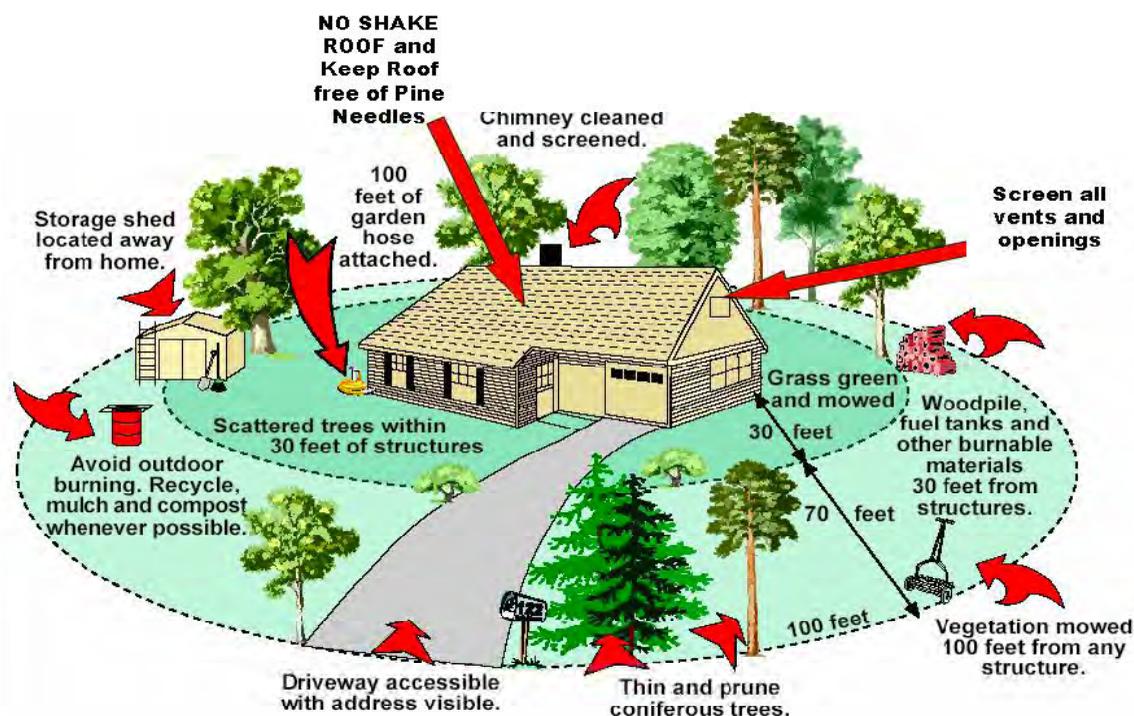
Creating an effective defensible space around the structure and maintaining a fire safe landscape are critical to minimizing the threat of ignition. Most county areas are subject to fire safety regulations that require compliance with defensible space and weed abatement standards.

Information about defensible space is included in appendix D.

The selection of a building's site and materials has a direct relationship to its survivability. Structures need to be sited to reduce their exposure to the most intense part of a wildfire that might sweep across the location. There are many noncombustible and fire resistive materials and treatments available to better protect structures and inhibit fire spread.

Adoption and enforcement of fire and building codes is an essential part of managing the risk within the WUI. The California Building Code (CBC) requires clearance around structures as well as adherence to construction methods and ignition standards designed to help structures survive wildfire events. The standards also provide working space and safer conditions for firefighters to defend structures from wildfire. It is also important to incorporate fire safety in the general plan and safety elements in each jurisdiction.

No fire department can be expected to prevent all home losses in a WUI setting. The potential for a wildfire to outpace suppression efforts means that all homeowners in WUI areas accept a high degree of risk as well as responsibility.



Creating Defensible Space

# Signature Page

## Contra Costa County Community Wildfire Protection Plan Mutual Agreement

This Community Wildfire Protection Plan developed for Contra Costa County:

- Was collaboratively developed. Interested parties and agencies managing land in Contra Costa County have been consulted.
- This plan identifies and prioritizes areas for hazardous fuels reduction treatments and recommends types and methods of treatments that will protect community members and values at risk.
- This plan recommends measures to reduce ignitability of structures throughout the area addressed by the plan.

The following entities mutually agree with the contents of this Community Wildfire Protection Plan:

**California Department of Forestry  
& Fire Protection, Santa Clara Unit**

Signature: \_\_\_\_\_

**Contra Costa County Board  
of Supervisors**

Signature: \_\_\_\_\_

**Contra Costa County Fire Chiefs  
Association**

Signature: \_\_\_\_\_

**Contra Costa Resource Conservation  
District**

Signature: \_\_\_\_\_

**Diablo Fire Safe Council**

Signature: \_\_\_\_\_

**East Bay Municipal Utility District**

Signature: \_\_\_\_\_

**East Bay Regional Park District  
Fire Department**

Signature: \_\_\_\_\_

**National Park Service**

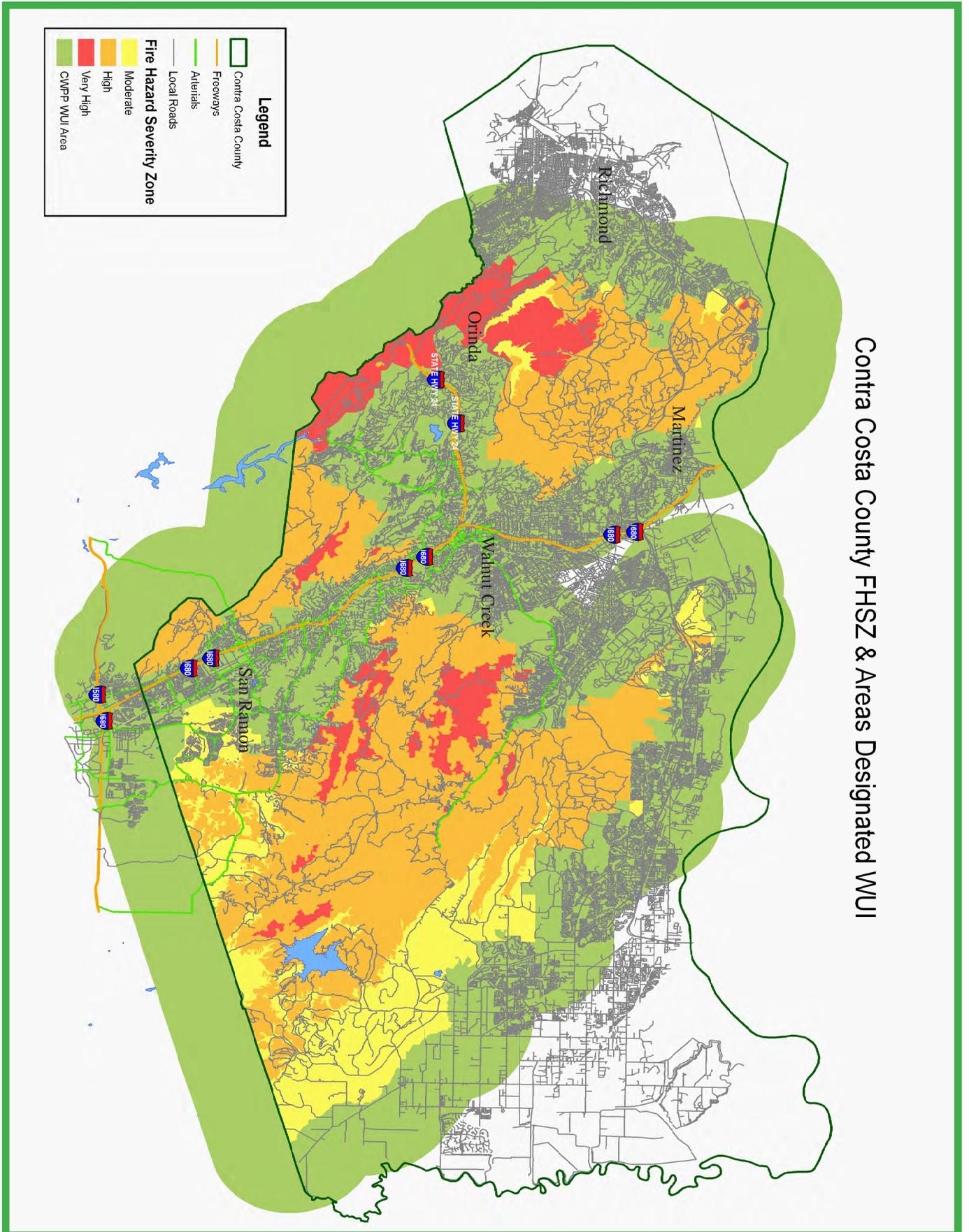
Signature: \_\_\_\_\_

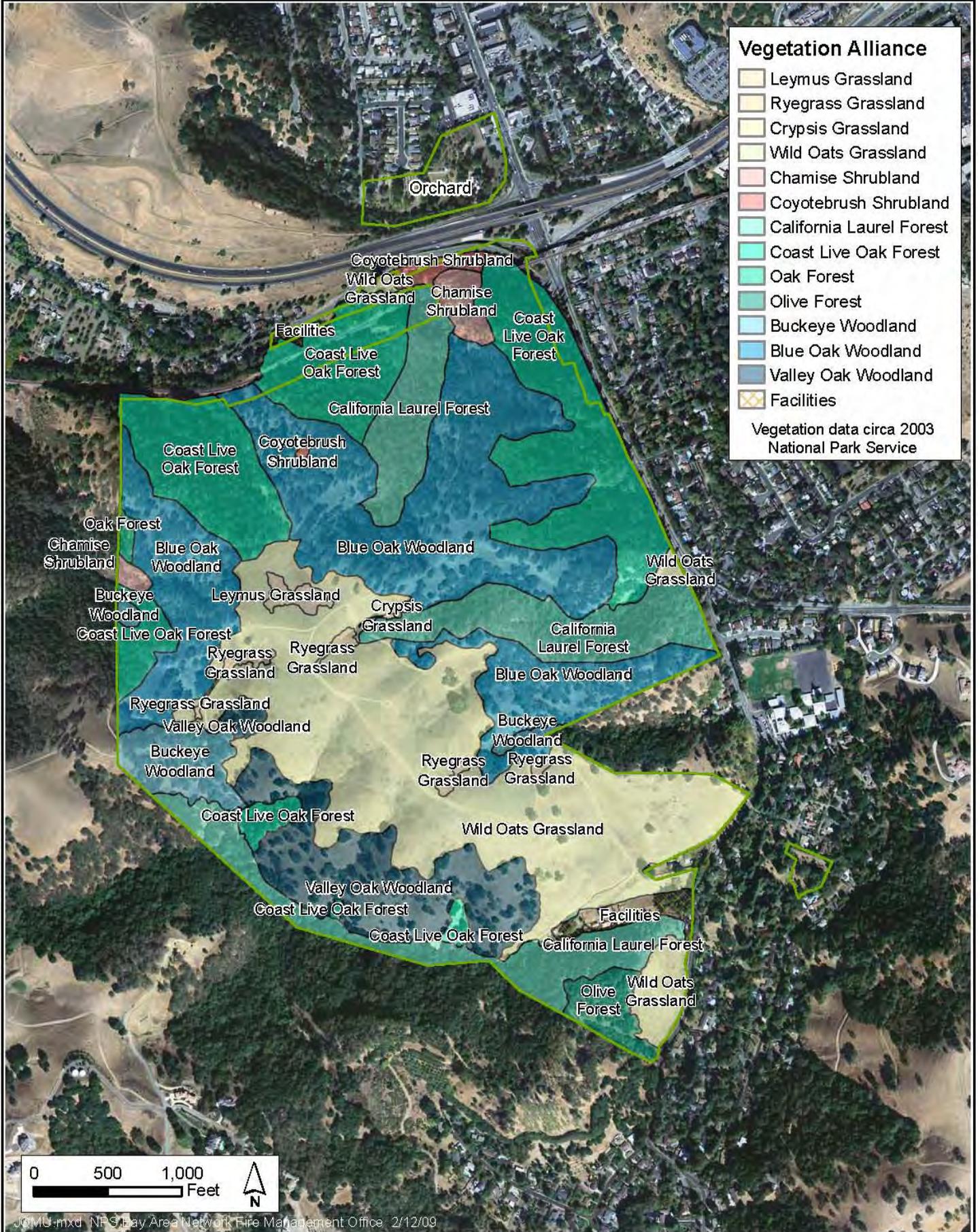
**US Fish and Wildlife Service**

Signature: \_\_\_\_\_

# Appendix A

## Fire Hazard Severity and WUI Area Map





# Appendix B

## Homeowners Survey Results

1. How great a risk do you think wildfire poses to your community?			
		Response Percent	Response Count
No Risk			
Low Risk		2.1%	2
Moderate Risk		29.2%	28
Extreme Risk		68.8%	66
		Answered question	96
		Skipped question	0

2. Do you think your neighborhood is currently prepared to deal with wildfire?			
		Response Percent	Response Count
Yes		21.1%	20
No		78.9%	75
		Answered question	96
		Skipped question	0

3. Please select the Contra Costa County Supervisorial District in which you reside.			
		Response Percent	Response Count
District 1 Supervisor Gioia		31.6%	30
District 2 Supervisor Uilkema		42.1%	40
District 3 Supervisor Piepho		6.3%	6
District 4 Supervisor Bonilla		3.2%	3
District 5 Supervisor Glover		0%	0
Do not Know		16.8%	16
		Answered question	95
		Skipped question	1

4. Please select the Fire District or Fire Department that provides service to your home.

		Response Percent	Response Count
CAL FIRE		0%	0
Contra Costa County Fire Protection District		36.7%	33
East Contra Costa County Fire Protection District		1.1%	1
Federal Fire Department		0%	0
Kensington Fire Protection District		24.4%	22
Moraga-Orinda Fire District		7.8%	7
Richmond Fire Department		0	0
San Ramon Valley Fire Protection District		6.7%	6
Crockett-Carquinez Fire Department		0%	0
El Cerrito Fire Department		7.8%	7
		Answered question	95
		Skipped question	1

# Appendix C

## Current Priority Fuels Reduction Projects and Prevention Strategies

Agency or Group	Project	Treatment Method
CalFire	Continue to provide technical support and personnel to our allied agencies who are conducting projects in the SRA and LRA of Contra Costa County as well as the coordination of Fire Crews for project work.	Hand labor, prescribed fire and mechanical treatments.
East Bay Regional Park District (EBRPD)	<ol style="list-style-type: none"> <li>1. Pt. Pinole Prescribed Burn (100 ac)</li> <li>2. Martinez Hazard Reduction Brush Removal (3 ac)</li> <li>3. Continue goat grazing along WUI (75 ac)</li> <li>4. Pt. Pinole Hazard Reduction</li> <li>5. Eucalyptus Thinning (100 ac)</li> </ol>	Pt. Pinole prescribed burn, hand labor, mechanical treatment, grazing
East Bay Municipal Utility District (EBMUD)	Maintenance of existing grasslands in strategic interface locations to reduce fuel loading and improve public safety.	Hand labor, mechanical treatment, grazing

Agency or Group	Project	Treatment Method
<p>Contra Costa County Fire Protection District (CCCYPD)</p>	<p>Annual code enforcement of Exterior Hazard Control Ordinance and standards; development and implementation of Defensible Space requirement in Priority areas.</p> <p>Special assessment of hazardous areas and conditions, with collaborative project planning, such as the senior residential community of Rossmoor.</p>	<p>Interpretive, educational, and outreach efforts; code enforcement of ordinance; prescriptions for mechanical treatment in Rossmoor, dead tree removal, biomass volume reduction, disruption of fuel continuity; chipping.</p>
<p>Diablo Fire Safe Council</p>	<p>Chipping and Defensible Space Program.</p> <p>Kensington neighborhood vegetation management.</p> <p>Canyon Chipping Project.</p> <p>Defensible Space Workshops</p>	<p>Hand labor, mechanical treatments.</p>
<p>East Contra Costa Fire Protection District</p>	<p>Maintenance of existing grasslands alongside Vasco Road.</p> <p>Reduce fuel loading and improve public safety through out Marsh Creek Road and Morgan Territory.</p>	<p>Land owners alongside Vasco Road will mitigate hazards with assistance from ECCYPD.</p> <p>There are no current treatment methods for Marsh Creek Road and Morgan territory.</p>
<p>Federal Fire</p>	<p>Port Chicago Highway (PCH) vegetation management. Reduce ladder fuels and heavy fuels along PCH.</p> <p>Treatment zone 1: PCH to Canal Rd.; PCH to R-Line 3 road; PCH to rail road maintenance yard at Waterfront Rd..</p>	<p>Hand labor, mechanical treatment. Prescribed burning in limited areas.</p>

Agency or Group	Project	Treatment Method
<p>El Cerrito Fire Department/ Kensington Fire Protection District</p>	<p>Continue to implement vegetation management programs. Visually inspect every property (public and private) within El Cerrito and Kensington. Notify property owners when vegetation management standards are not being met, and achieve compliance, with 100% voluntary compliance as a goal. Hire private contractors and CDC crews to maintain and enhance defensible space areas on public land and between natural areas and neighborhoods as funding allows.</p> <p>Continue to dialog and collaborate with East Bay Regional Parks to enhance area fire safety.</p>	<p>Education and outreach efforts are prioritized. Contractors and CDC Crews utilize mowing and mechanical treatments as appropriate.</p>
<p>San Ramon Valley Fire Protection District (SRVFPD)</p>	<p>Continue to coordinate the Exterior Hazard Abatement Program throughout the District with a special emphasis on the west side.</p> <p>Fuel reduction and tree maintenance projects in the Las Trampas neighborhood.</p> <p>Expand the educational outreach to those property owners that are included in the Exterior Hazard Abatement Program.</p> <p>Evacuation and Wildfire Disaster Planning efforts.</p>	<p>Hand labor, mechanical treatments.</p> <p>Education and outreach project are top priority.</p>

Agency or Group	Project	Treatment Method
<p>Moraga-Orinda Fire Protection District (MOFPD)</p>	<p>Continue conducting exterior hazard control program in the District on an annual basis. Property owners living in the wildland urban interface area are mailed notices and District staff inspects approximately 2800 properties to assure compliance.</p> <p>Maintain and update interface risk assessment map developed in 2007 and enhance outreach to public to lower risk in neighborhoods through voluntary efforts by property owners to provide ignition resistant construction and improve defensible space.</p> <p>Expand education outreach to property owners in the interface areas.</p> <p>Collaborate with East Bay Regional Parks and East Bay Municipal Utilities District to maintain fuels treatment in open space areas adjacent to District boundaries.</p>	<p>Hand labor and mechanical treatments as appropriate.</p>
<p>National Park Service</p>	<p>Continue hazardous fuel reduction activities on Park property adjacent to John Muir National Historic Site, along Alhambra Avenue and Alhambra Valley Road. Prioritize hazardous fuel reduction in the Strain Ranch area, which is heavily invaded by non-native tree species.</p> <p>Maintain areas along the fire roads within John Muir National Historic Site areas.</p>	<p>Mowing and mechanical treatment. Cutting trees down for pile burning and chipping may be considered</p>

### Section 1

- Defensible Space: Will your house survive?
- Homeowners Checklist - How to make your home fire safe.

### Section 2

- Red Flag Days: Fire Weather

### Section 3

- Contact Information: Where to get assistance
- Contact Information: Area Fire Agencies



# Section 1 Resources for the Homeowner Defensible Space - Will your Home Survive?

## DEFENSIBLE SPACE

Zoned fire-resistant landscaping helps protect your home from wildfire.

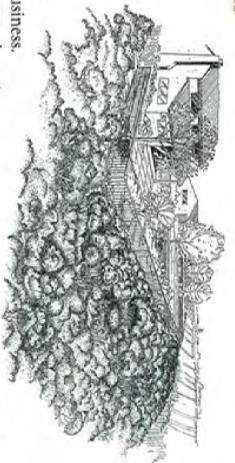
### ZONE 1 - DEFENSIBLE SPACE

From the structure out a minimum of 30 feet is your defensible space zone

This area is the level area (no steeper than 1 foot of elevation change for each 4 feet of horizontal distance) around your home or business.

Plants in this zone should be irrigated, ornamental species.

This vegetation should be well-watered and cleared of dead material. In this zone, no more than 10 percent of the native non-irrigated vegetation should be retained. Trees should be pruned away from structures and chimneys in this zone. Wood decks, fences, and other flammable structures and materials should be removed. No irrigation from this area should flow into Zone 2 to avoid encouraging plant growth in Zone 2. Year-round maintenance should be done in this area.

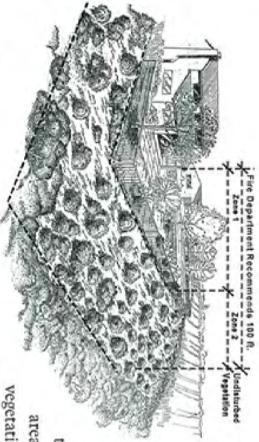


Before Brush Management

### ZONE 2 - REDUCED FUEL ZONE

A minimum of 30-100 feet from structures is your reduced fire zone.

This area is the first defense for fire safety.



After Pruning and Thinning

In this zone, you should selectively thin and prune native or naturalized vegetation to preserve the natural appearance of the area while reducing the amount of burnable

vegetation. In this zone, 50 percent of the native, non-irrigated vegetation should be cut to a height of 3 inches (thinned) following a mosaic pattern as shown here. No evacuation, removal, or disturbance of existing plant root system should occur to prevent future erosion. The remaining plant material should be pruned as described and shown below. To remove 50 percent of the flammable fuel. All debris and trimmings should be removed from the site or converted to mulch by a chipping machine and evenly spread out to a maximum 6-inch depth. No irrigation should be placed or used in this area to reduce plant growth, and thus the amount of burnable vegetation. Regular inspection and periodic maintenance should be done in this zone.

### BRUSH PRUNING (ZONE 2)

When doing thinning and pruning use the following guidelines:

1. Remove dead or dying material, trim back lower large branches, and thin crowded plants so that 50 percent of material in the retained plants is removed.
2. Plants which are not to be saved, should be cut off at six inches above the ground.
3. The lowest branches of trees and large shrubs should be three times higher than the height of the vegetation below the plant, or six feet, whichever is higher.
4. Minimize walking and maintenance activities on steep slopes since this promotes erosion and causes soil to become compacted and increases the amount of runoff.



Before



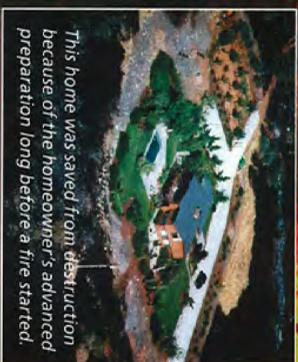
After

### FIRE-RESISTIVE PLANTS

For a list of approved fire-smart plants & trees for your area, call the Contra Costa County Fire Protection District for landscape standards (925) 9413300, visit [www.cccfpd.org](http://www.cccfpd.org) or contact your local nursery.

## DEFENSIBLE SPACE

Will  
your  
house  
survive?



This home was saved from destruction because of the homeowner's advanced preparation long before a fire started.

Contra Costa County Fire Protection District

The most important person in protecting a house from wildfire is not a firefighter, but the property owner. It is the action taken by the owner before the wildfire occurs (such as proper landscaping) that is most critical.



## REDUCING THE "FUEL"

The first goal in creating a defensible space is to selectively thin plants, then prune to reduce fuel volume of the plants that remain.

Sometimes wildland plants and even landscaping can occur as an uninterrupted layer of vegetation instead of patchy or widely spaced individual plants. The more continuous and dense the vegetation, the greater the wildfire threat.

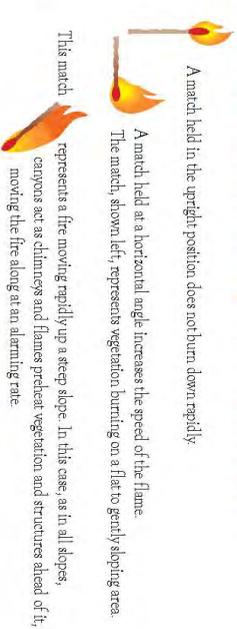
If this situation is present within your recommended defensible space area, you should "break up" by providing for separation between plants or small groups of plants. Do this work in cooler, earlier hours, not in the heat of the day to prevent accidental ignitions. Remember, if it's too hot outside for you to be working, it's too hot to be using equipment for thinning brush.

## LADDER FUERS

Vegetation is often present at varying heights, similar to rungs on a ladder. Under these conditions, flames from fires burning at ground level can be carried to shrubs which can ignite still higher fuels like tree branches. The ladder fuel problem can be corrected by providing a separation between the vegetation layers. Within the defensible space area, a vertical separation of three times the height of the lower fuel layer is recommended.

## HOW SLOPES AFFECT FIRES

The diagram below provides an idea of how fire behaves on sloping ground.



Firefighters can control about 97% of all wildfires that start. 3% overwhelm even the best-equipped, well-staffed agencies. That's when your advanced preparation REALLY counts.



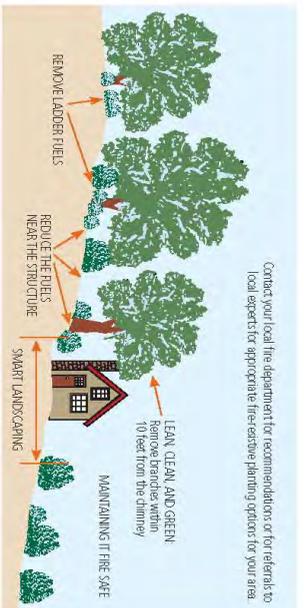
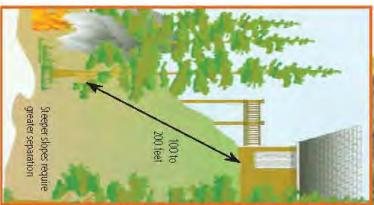
## SMART LANDSCAPING

Landscaping with wildfire in mind - "fireproofing" - involves plant selection based primarily on the plant's ability to reduce the wildfire threat. Minimize the use of evergreen shrubs and trees within 30 feet of a structure, because junipers, other conifers and broadleaf evergreens, such as eucalyptus, contain oils, resins and waxes that make these plants burn with great intensity. Use ornamental grasses and berries sparingly because they also can be highly flammable. Choose "fire smart" plants. These are plants with high moisture content. They are low growing. Their stems and leaves are not resinous, oily or waxy. Deciduous trees are generally more fire resistant than evergreens because they have a higher moisture content when in leaf, but a lower fuel volume when dormant. Contact COCCFRD for recommendations or for referrals to local experts for appropriate fire-resistant planting options for your particular area.

## MAINTAINING FIRE-SAFE LANDSCAPING

A fire-resistant plant can lose this quality altogether if not properly maintained and irrigated. Lack of long-term attention can result in fire-resistant plants loading up with dead twigs, leaves and branches, to grow into moistrooms, yet sometimes unused or concealed fuel volumes. Drip irrigation, plus periodic pruning and cleaning can maintain the fire-resistance as well as the appearance of landscaping.

- On steep slopes, thin flammable vegetation a safe distance (at least 100 feet) from structures.
- Canopies of large trees should not form a continuous planting mass.
- Within 30 feet, choose ornamental landscaping plants that are fire smart and non-toxic.
- Maintain all plants by removing dead branches, leaves and needles.



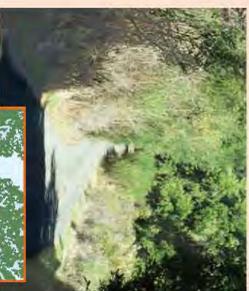
Contact your local fire department for recommendations or for referrals to local experts for appropriate fire-resistant planting options for your area.

## THINGS YOU CAN DO TO BETTER PROTECT YOUR FAMILY AND HOME FROM WILDFIRE

In a wildfire, firefighting forces are stretched to the limit. You can design or modify your home to resist wildfire—or it can be totally unprepared and indefensible. A defensible home has a far better chance of survival—whether or not firefighters can get to it in time! The manner in which a house is designed, location where it is built, materials used in its construction, and fire department access, all influence survivability during a wildfire. When coupled with an effective Defensible Space, these recommendations will make your home much easier for firefighters to defend and improve its chances of survival in a wildfire.

## ACCESS

- Identify at least two roads out from your neighborhood.
- Maintain driveways to allow large emergency equipment to reach your home by clearing combustible vegetation at least 10 feet from roads and driveways.
- Cut back overhanging tree branches above roads. Fire Engines need a minimum 13' 6" vertical clearance.



## MISSION STATEMENT

The Contra Costa County Fire Protection District exists to provide you, your family and our communities with professional services dedicated to the preservation of life, property and the environment.



www.cccfrpd.org



Maintaining clear roadways ensures emergency equipment access, as well as, evacuation routes.

# Homeowner's Checklist

## How to make your home fire safe



## OUTSIDE

### Design/Construction

- Build your home away from ridge tops, canyons and areas between high points on a ridge
- Use fire resistant materials.
- Enclose the underside of eaves, balconies and above ground decks with fire resistant materials.
- Try to limit the size and number of windows in your home that face large areas of vegetation.
- Install only dual-paned or triple-paned windows.
- Make sure that electric service lines, fuse boxes and circuit breaker panels are installed and maintained as prescribed by code.
- Contact qualified individuals to perform electrical maintenance and repairs.

### Access

- Identify at least two exit routes from your neighborhood
- Construct roads that allow two-way traffic
- Design road width, grade and curves to allow access for large emergency vehicles
- Construct driveways to allow large emergency equipment to reach your house
- Design bridges to carry heavy emergency vehicles, including bulldozers carried on large trucks
- Make sure dead-end roads, and long driveways have turn-around areas wide enough for emergency vehicles.

## Access Cont.

- Construct turnouts along one-way roads.
- Clear flammable vegetation at least 10 feet from roads and five feet from driveways.
- Cut back overhanging tree branches above roads.
- Make sure that your street is named or numbered, and a sign is visibly posted at each street intersection.
- Make sure that your street name and house number are not duplicated elsewhere in the county.
- Post your house address at the beginning of your driveway, or on your house if it is easily visible from the road.

## Roof

- Remove branches within 10 feet of your chimney and dead branches overhanging your roof.
- Remove dead leaves and needles from your roof and gutters.
- Install a fire resistant roof. Contact your local fire department for current roofing requirements.
- Cover your chimney outlet and stovepipe with a nonflammable screen of 1/2 inch or smaller mesh.

## Landscape

- Create a "defensible space" by removing all flammable vegetation at least 30 feet from all structures.
- Never prune near power lines. Call your local utility company first.
- Landscape with fire resistant plants.
- On slopes or in high fire hazard areas remove flammable vegetation out to 100 feet or more.
- Space native trees and shrubs at least 10 feet apart.
- For trees taller than 18 feet, remove lower branches within six feet of the ground.
- Maintain all plants by regularly watering, and by removing dead branches, leaves and needles.
- Before planting trees close to any power line contact your local utility company to confirm the maximum tree height allowable for that location.

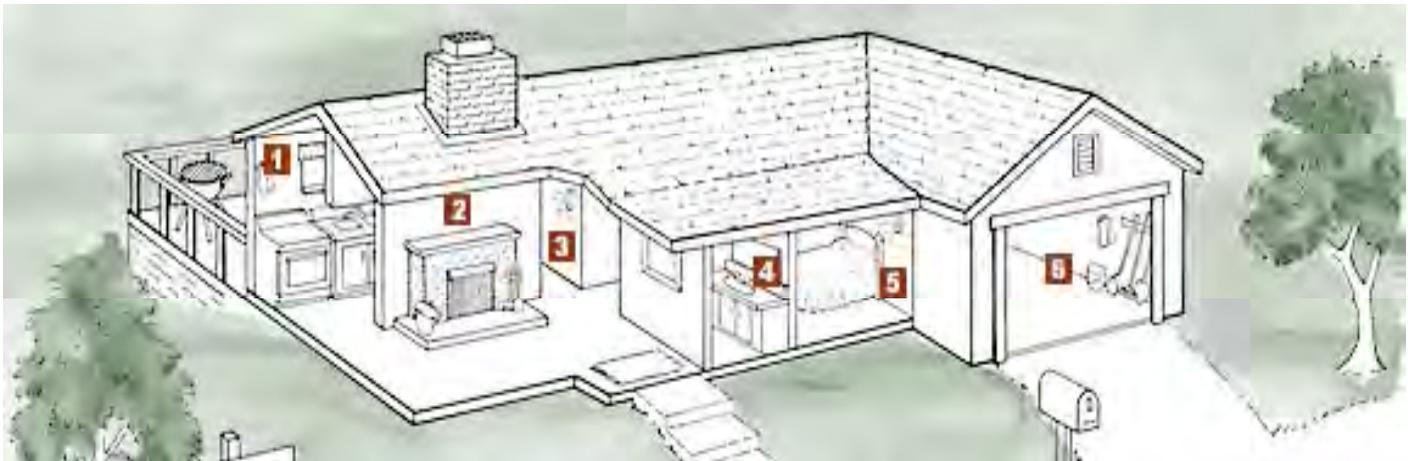
## Yard

- Stack woodpiles at least 30 feet from all structures and remove vegetation within 10 feet of woodpiles.
- Locate LPG tanks (butane and propane) at least 30 feet from any structure and maintain 10 feet of clearance.
- Remove all stacks of construction materials, pine needles, leaves and other debris from your yard.
- Contact your local fire department to see if open burning is allowed in your area; if so, obtain a burning permit.
- Where burn barrels are allowed, clear flammable materials at least 10 feet around the barrel; cover the open top with a non-flammable screen with mesh no larger than 1/4 inch.

## Emergency Water Supply

Maintain an emergency water supply that meets fire department standards through one of the following:

- A community water/hydrant system.
- A cooperative emergency storage tank with neighbors.
- A minimum storage supply of 2,500 gallons on your property.
- Clearly mark all emergency water sources.
- Create easy firefighter access to your closest emergency water source.
- If your water comes from a well, consider an emergency generator to operate the pump during a power failure.



## INSIDE

### Kitchen

- Keep a working fire extinguisher in the kitchen.
- Maintain electric and gas stoves in good operating condition.
- Keep baking soda on hand to extinguish stove-top grease fires.
- Turn the handles of pots and pans containing hot liquids away from the front of the stove.
- Install curtains and towel holders away from burners on the stove.
- Store matches and lighters out of the reach of children.
- Make sure that electrical outlets are designed to handle appliance loads.

### Living Room

- Install a screen in front of fireplace or wood stove.
- Store the ashes from your fireplace (and barbecue) in a metal container and dispose of only when cold.
- Clean fireplace chimneys and flues at least once a year.

### Hallway

- Install smoke detectors between living and sleeping areas.
- Test smoke detectors monthly and replace batteries twice a year, when clocks are changed in the spring and fall.
- Install child safety plugs (caps) on all electrical outlets.
- Replace electrical cords that do not work properly, have loose connections, or are frayed.

## Bedroom

- If you sleep with the door closed, install a smoke detector in the bedroom
- Turn off electric blankets and other electrical appliances when not in use
- Do not smoke in bed
- If you have security bars on your windows or doors, be sure they have an approved quick-release mechanism so you and your family can get out in the event of a fire

## Bathroom

- Disconnect appliances such as curling irons and hair dryers when done; store in a safe location until cool
- Keep items such as towels away from wall and floor heaters

## Garage

- Mount a working fire extinguisher in the garage
- Have tools such as a shovel, hoe, rake and bucket available for use in a wildfire emergency
- Install a solid door with self-closing hinges between living areas and the garage
- Dispose of oily rags in approved metal containers
- Store all combustibles away from ignition sources such as water heaters
- Disconnect electrical tools and appliances when not in use
- Allow hot tools such as glue guns and soldering irons to cool before storing
- Properly store flammable liquids in approved containers and away from ignition sources such as pilot lights

## Disaster Preparedness

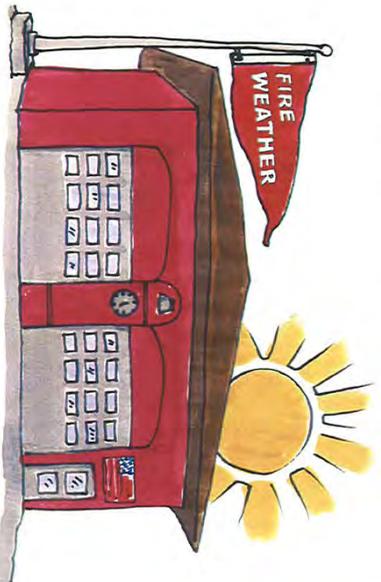
- Maintain at least a three-day supply of drinking water, and food that does not require refrigeration and generally does not need cooking
- Maintain a portable radio, flashlight, emergency cooking equipment, portable lanterns and batteries
- Maintain first aid supplies to treat the injured until help arrives
- Keep a list of valuables to take with you in an emergency; if possible, store these valuables together
- For safety, securely attach all water heaters and furniture such as cabinets and bookshelves to walls
- Have a contingency plan to enable family members to contact each other. Establish a family/friend phone tree
- Designate an emergency meeting place outside your home
- Practice emergency exit drills in the house (EDITH)
- Outdoor cooking appliances such as barbecues should never be taken indoors for use as heaters



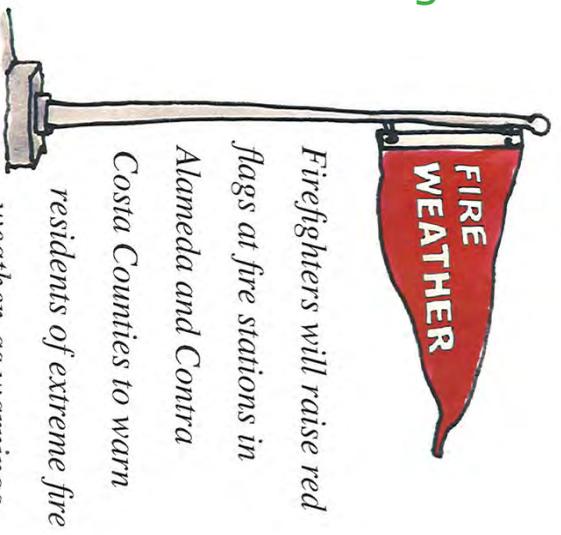
# Section 2

## Resources for the Homeowner

### Red Flag Weather



*Firefighters will raise red flags at fire stations in Alameda and Contra Costa Counties to warn residents of extreme fire weather, as warnings are issued by the National Weather Service. These Red Flags, created by the Diablo FireSafe Council, are part of the effort to make homes and communities safer from wildland fire.*

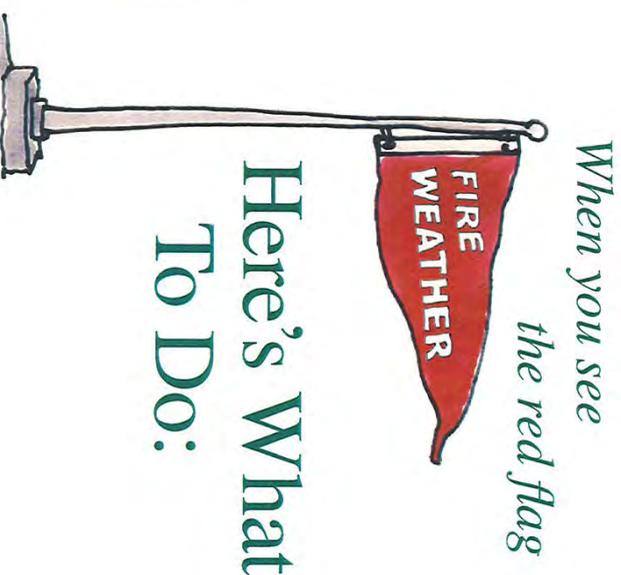


*Firefighters will raise red flags at fire stations in Alameda and Contra Costa Counties to warn residents of extreme fire weather, as warnings are issued by the National Weather Service. These Red Flags, created by the Diablo FireSafe Council, are part of the effort to make homes and communities safer from wildland fire.*

## Fire Safety Don'ts:

- **DO NOT:** discard cigarettes or other smoking materials on roadsides or dry grass. Dispose of them properly in a non-combustible container.
- **DO NOT:** Shoot off fireworks. All fireworks are a potential hazard, including the "safe and sane" types, such as Sparklers. (In some communities, ALL fireworks are illegal).
- **DO NOT:** Park cars on weeds or dry grass. Weeds and grass are highly combustible, so use caution where you park.
- **DO NOT:** Use lawnmowers on dry weeds. Lawnmowers are for lawns.

For more info, check out  
[www.diablofiresafe.org](http://www.diablofiresafe.org)  
1-877-725-6803



*When you see the red flag*

## Here's What To Do:

# When you see the red flag

## Here's What To Do:



*Lack of rain, dry vegetation, low humidity and strong winds make fire seasons especially severe. Several days a year, typically during the Fall, these factors combine, making it easier for fires to start and more difficult to put them out. When these weather conditions reach critical levels we all need to take extra care. On these Red Flag Days local Fire Chiefs urge you to follow these important guidelines:*

- DO: Be alert and report any small fires immediately by calling 9-1-1. Be prepared to provide information on the fire's exact location.

- DO: Have a plan for gathering family members, pets and valuables in case an approaching wildfire requires evacuation.

- DO: Always mow before 10 am when grass has the most moisture.

- DO: After use, place tools and vehicles with hot catalytic converters (mowers, weed eaters, chain saws, motorcycles) only on paved or dirt areas (not grass).

- DO: Use extra caution with charcoal and gas barbecues. Be sure to use your barbecue in a clear area, away from dry grass or brush. Make sure coals are cold before disposing of them.

- DO: Obey park or trail closure signs and any other restrictions (such as no campfires, barbecues, or smoking).

- DO: Contact your local fire agency for specific concerns and requirements.

### *Here are some tips on what to do BEFORE fire season arrives:*

- Remove tree limbs within 10 feet of any chimneys or stovepipes;
- Remove pine needles and leaves from roofs, eaves, and rain gutters;
- Clear flammable vegetation to a minimum of 100 feet or to the property line;
- Clear pathways to allow firefighters easy access to your house;
- And always be alert!



FOR MORE INFO CHECK OUT [WWW.DIABLOFIRESAFE.ORG](http://WWW.DIABLOFIRESAFE.ORG) OR CALL 1-877-725-6803

# Section 3

## Resources for the Homeowner

### Contact information

---

#### General Information

##### Diablo Fire Safe Council

877-725-6803

<http://www.diablofiresafe.org/>

##### The Fire Safe Council (California)

<http://www.firesafecouncil.org/>

##### Firewise

[www.firewise.org](http://www.firewise.org)

##### CALFIRE California Department of Forestry and Fire Protection

<http://www.fire.ca.gov>

##### Center for Fire Research and Outreach

<http://firecenter.berkeley.edu/>

##### Contra Costa County Website

<http://www.co.contra-costa.ca.us/>

#### Fire Safe Plants and Landscaping Choices

##### Contra Costa County Master Gardeners

<http://ccmg.ucdavis.edu/>

##### Firewise Landscape plants for the Lafayette area of Contra Costa County

[http://www.cccfpd.org/FPB/files/0566823D  
EDC446AA9D11FFE324889E40.pdf](http://www.cccfpd.org/FPB/files/0566823D<br/>EDC446AA9D11FFE324889E40.pdf)

##### Firewise Landscape plants for the Richmond area of Contra Costa County

[http://www.cccfpd.org/exhazard/docu-  
ments/Fire.plants--Richmond07-eh.pdf](http://www.cccfpd.org/exhazard/docu-<br/>ments/Fire.plants--Richmond07-eh.pdf)

##### California Native Plants Society

<http://www.cnps.org/>

#### Fire Weather (Red Flag Days)

##### The National Weather Service

<http://www.wrh.noaa.gov/mtr/>

# Resources for the Homeowner

## Fire Agency Contact information

Chevron Fire Department  
841 Chevron Way  
Richmond, CA 94802-0272

C & H Sugar Co. Fire Department  
830 Loring Ave  
Crockett, CA 94525

Contra Costa County Fire Protection District  
(925) 941 3300  
2010 Geary Rd  
Pleasant Hill, CA 94523

Crockett - Carquinez Fire Department  
(510) 787- 2717  
746 Loring Avenue  
Crockett, CA 94525

East Contra Costa Fire Protection District  
(925) 634 3400  
134 Oak St  
Brentwood, CA 94513

El Cerrito Fire Department  
(510) 215 - 4450  
10900 San Pablo Ave  
El Cerrito, CA 94530-2323

Federal Fire Department  
(925) 246 4070  
10 Delta St  
Concord, CA 94520

East Bay Regional Parks Fire Services  
(510) 690 6601  
2950 Peralta Oaks Ct  
Oakland, CA 94605

Kensington Fire Protection District  
(510) 527 - 8395  
217 Arlington Ave  
Kensington, CA 94707

Martinez Refining Company Fire Brigade  
3485 Pacheco Blvd  
Martinez, CA 94553

Moraga - Orinda Fire District  
(925) 258 - 4599  
33 Orinda Way  
Orinda, CA 94549

Pinole Fire Department  
(510) 724 8970  
880 Tennent Ave  
Pinole, CA 94564-1724

Richmond Fire Department  
(510) 307 - 8031  
330 25th St  
Richmond, CA 94804-1727

Rodeo Hercules Fire District  
(510) 799 4485  
1680 Refugio Valley Rd  
Hercules, CA 94547

San Ramon Valley Fire Protection District  
(925) 838 6626  
1500 Bollinger Canyon Rd  
San Ramon, CA 94583

Ultramar Fire Department  
Golden Eagle Refinery  
Martinez, CA 94553

# Appendix E

## Cultural Resources and Fuel Load Management

William Roop, M.A., RPA

Cultural resource is the general term used in California to classify archaeological sites, historic structures, buildings and objects, and other physical markers of the past. In federal terminology these same features are referred to as historic properties. All manner of cultural resources have the potential to be damaged or destroyed by wild fires and uncontrolled burning. Thus, the control of potentially hazardous fuel loads can be interpreted as a measure that is protective of these resources. Unfortunately, improper removal of fuel loads may damage the resources as much as burning them.

Most prehistoric sites have probably already been subject to wildfires in the past. Sites that are hundreds or thousands of years old may have burned over many times. In these cases, any damage from fire has probably already occurred. If fuel loads are removed properly, no damage to the archaeological site will occur. If fuel is removed improperly, significant damage to important resources can easily occur.

Historic period resources, buildings, structures, and objects, can be entirely destroyed by unchecked fires. Historic era archaeological sites can also be severely damaged by these events. Many historic era sites have not been burned since they developed, and may contain flammable artifacts made of wood, cloth, or other perishable materials. Obviously, the proper removal of excess fuel loads is a protective measure that will insure against the loss of important resources from this cause. Improper removal of fuel loads can be as damaging to cultural resources as the fire itself.

In general, fuel loads on prehistoric sites should not be removed mechanically. Hand removal and collection of the plant material is necessary to prevent damaging the archaeological site. The significance of archaeological sites lies largely in the relationship between the artifacts, features, and deposits within the site. Some of the important "artifacts" within an archaeological site could be chemical or otherwise invisible to observation. Disruption of the soil damages or destroys the subtle relationships between the attributes of the site. If any artifacts or features of an archaeological site are recognized during a fuel reduction operation, all work in the archaeological site area should be halted until an archaeologist can inspect the location and make recommendations on appropriate measures to employ.

Historic era cultural resources may actually be the fuel load. That abandoned building with all of the brush and wood debris around it may be a significant historic structure. Historically important rural structures often are associated with outbuildings, barns, sheds, pump houses, corrals, and other "buildings, structures or objects" that meet the criteria for classification on the local, state, or federal level. No building over 45 years of age should be damaged or removed unless it can be certified that the object of removal is not an historic building, structure, or object

meeting the standards for the National Register of Historic Places or the California Register of Historic Resources.

If any question exists over the presence or absence of previously known cultural resources in a planned fuel management area, the California Historical Resources Information System should be contacted to determine the presence or absence of recorded cultural resources. All historic and prehistoric sites known to the State of California are recorded with the CHRIS. There are, however, many important cultural resources that have not yet been recognized and recorded.

# Appendix F

## Canyon Fire Council Wildfire Preparedness

### Description of the Community

Canyon is an unincorporated community in western Contra Costa County located west of Moraga and adjacent to the Oakland hills (about 2 miles from the edge of the 1991 Oakland Firestorm). Population is approximately 240 persons living in 90 residences with about 50 outbuildings. The only public utilities are electricity and telephone. Residents have wells or springs for water and use septic systems to treat sewage. The population is spread out along one mile of the one County road which serves the area (Pinehurst Road) and homes are largely surround by watershed property owned by the East Bay Municipal Utilities District (EBMUD). The area is served by the Canyon School (K-8) and the Canyon post office.

Physically, the terrain is very steep. It is heavily wooded along the bottom of the canyon (redwood, oak, bay, madrone), but vegetation becomes hard chaparral and pasture on the ridge top. Sudden Oak Death is a prevalent and a serious problem.

Besides endangering local residents, a large-scale fire in the area would cause significant erosion which would lessen the water quality and carrying capacity of the Upper San Leandro Reservoir (EBMUD). Also, the Farsite computer model shows that a major fire in Canyon could ignite the Oakland hills, an area where firefighting is extraordinarily difficult in windy conditions.

- The risk of catastrophic wildland fire is extremely high in Canyon owing to a combination of the following factors:
- Very dense fuel
- Steep slope, mainly with a western aspect
- Narrow roads
- Many homes are located up long, steep foot paths and are enveloped in the native arboreal canopy.
- Most homes were build long before modern building standards were adopted.
- Very limited water supply
- Long fire fighting response time
- Periodic occurrences of Diablo wind conditions

### Community Fire History (Summary)

16 serious fires over 45 years (one per 2.8 years), all caused by human activity (some passive, i.e., electrical). These include seven homes and one outbuilding completely destroyed as well as several acres burned.

## Community Response to the Threat

The Canyon community has been actively addressing its risk of catastrophic wildland fire. Actions taken over the past eight years include the following:

- Held more than two dozen private and community meetings with representatives of our local fire agency, the Moraga-Orinda Fire District (MOFD), California Division of Forestry & Fire Protection (CDF), EBMUD and the East Bay Regional Park District.
- Been active with the Diablo Fire Safe Council (DFSC) since 2002.
- Developed our own Community Household Risk Assessment (2004) and disseminated it in the community.
- Held numerous community meetings and work days to clear hazardous vegetation.
- Is developing an emergency communication network with 10 amateur radio operators and FRS nets being set up in community sectors.
- In 2007 MOFD installed a 25,000 gallon water tank specifically for firefighting purposes which effectively doubled the community's available water storage.
- Two events merit special note:
- In 2004 Canyon held the only community wildland fire evacuation drill ever conducted in the County. Residents were instructed by means of the County Telephone Emergency Notification System to evacuate to Moraga. MOFD sent a fire engine in while residents cleared out.
- In 2007 we hosted a Canyon CWPP Table Top and Discussion event which drew 12 fire and police chiefs, several other police and fire officers, reps. from three OES's, reps. from US Fish and Wildlife and the Bureau of Land Management (BLM) as well as many citizens from various parts of Contra Costa and Alameda counties. The event had two main results. First, it opened many people's eyes to the regional consequences of a major fire in Canyon. Second, it caused the community to broaden its emphasis from primarily hazardous fuel reduction to also developing more emergency communication systems in order to facilitate evacuation.
- Grants Received by the Community
- 2006: In collaboration with EBMUD, CDF and DFSC we received a \$31,000 grant from BLM for hazardous fuel reduction. Much of the work was done along evacuation routes.
- 2007: We received a \$2500 from Contra Costa Community Awareness Emergency Response to purchase amateur radio equipment.
- 2003-Present: Have received several grants for chipping through the DFSC.

## Recognition

- 2008: Congresswoman Ellen Tauscher wrote a letter "...to commend the Canyon Fire Council for its ongoing efforts to prevent or mitigate the effects of natural disasters in the Canyon community."
- 2008: The New York Times and National Public Radio (Weekend Edition program) ran stories about the community's effort to save its public payphone for reasons of public safety.

## Vegetation Treatment and Other Actions Planned

The following priorities for vegetation treatment in the Canyon community were agreed upon during several private meetings with EBMUD Ranger Supervisor Scott Hill, CDF Battalion Chief Rob Van Wormer, MOFD Fire Marshal Tonya Hoover and a Canyon Community meeting held April 30th, 2008:

- Thin vegetation around homes and other structures and along roads and foot paths
- Thin vegetation on public lands which falls between homes or roads and homes
- Create and implement a strategic re-planting plan
- Increase water storage dedicated to firefighting
- Increase coverage and participation in ham and FRS radio usage

## Moving Forward

At this time (February 2009) the Canyon Fire Council is leading the planning of a Lamorinda neighborhood wildfire preparedness event in collaboration with the Orinda Public Safety Advisory Commission and the Lafayette Emergency Preparedness Commission. The event will feature the California Assistant State Fire Marshal along with the CDF Battalion Chief for this area, as well as local fire officials, and will focus on encouraging neighborhoods in Orinda, Moraga & Lafayette to take action.